SAR TEST REPORT

The following samples were submitted and identified on behalf of the client as:

Equipment Under Test	Smart Phone
Marketing Name	RAZER PHONE
Brand Name	RAZER
Model No.	RZ35-0215
Company Name	Razer Inc.
Company Address	201 3rd Street, Suite 900, San Francisco, CA 94103, USA
Standards	IEEE/ANSI C95.1-1992, IEEE 1528-2013, KDB248227D01v02r02, KDB865664D01v01r04, KDB865664D02v01r02, KDB941225D01v03r01, KDB941225D05v02r05, KDB941225D06v02r01, KDB447498D01v06,KDB648474D04v01r03, KDB941225D05Av01r02
FCC ID	RWO-RZ350215
Date of Receipt	Aug. 28, 2017
Date of Test(s)	Sep. 18, 2017 ~ Sep. 27, 2017
Date of Issue	Nov. 02, 2017

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronic & Communication Laboratory or testing done by SGS Taiwan Electronic & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronic & Communication Laboratory in writing.

Signed on behalf of SGS

Sr. Engineer	**Supervisor**
Matt Kuo	John Yeh
Matt Kuo	**John Yeh**
Date: Nov. 02, 2017	**Date: Nov. 02, 2017**

Revision History

Report Number	Revision	Description	Issue Date
E5/2017/80023	Rev.00	Initial creation of document	Oct. 05, 2017
E5/2017/80023	Rev.01	1^{st} modification	Nov. 02, 2017

Contents

1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. Electronics & Communication Laboratory	
No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan	
Tel	+886-2-2299-3279
Fax	+886-2-2298-0488
Internet	http://www.tw.sgs.com/

1.2 Details of Applicant

Company Name	Razer Inc.
Company Address	201 3rd Street, Suite 900, San Francisco, CA 94103, USA

1.3 Description of EUT

EUT Name	Smart Phone	
Marketing Name	RAZER PHONE	
Brand Name	RAZER	
Model No.	RZ35-0215	
Antenna peak gain	BT:-3.9 dBi	
FCC ID	RWO-RZ350215	
Mode of Operation	☒GSM ☒GPRS ☒EDGE ☒WCDMA ☒HSDPA ☒HSUPA ☒LTE FDD ☒LTE TDD ☒Bluetooth ☒ WLAN802.11a/b/g/n(20M/40M)/ac(20M/40M/80M)	
Duty Cycle	GSM (DTM multi class B)	1/8.3
	GPRS (support multi class 12 max)	1/2 (1Dn4UP) 1/2.76 (1Dn3UP) 1/4.1 (1Dn2UP) 1/8.3 (1Dn1UP)
	EDGE (support multi class 12 max)	1/2 (1Dn4UP) 1/2.76 (1Dn3UP) 1/4.1 (1Dn2UP) 1/8.3 (1Dn1UP)
	LTE FDD	1
	LTE TDD	0.633
	WCDMA	1
	WLAN802.11a/b/g/n(20M/40M)/ ac(20M/40M/80M)	1
	Bluetooth	1
TX Frequency Range (MHz)	GSM850	824 – 849
	GSM1900	1850 – 1910
	WCDMA Band II	1850 – 1910
	WCDMA Band IV	1710 – 1755

TX Frequency Range (MHz)	WCDMA Band V	824	–	849
	LTE FDD Band 2	1850	–	1910
	LTE FDD Band 4	1710	–	1755
	LTE FDD Band 5	824	–	849
	LTE FDD Band 7	2500	–	2570
	LTE FDD Band 12	699	–	716
	LTE FDD Band 17	704	–	716
	LTE FDD Band 25	1850	–	1915
	LTE FDD Band 26	814	–	849
	LTE FDD Band 30	2305	–	2315
	LTE TDD Band 38	2570		2620
	LTE TDD Band 41	2496	–	2690
	LTE FDD Band 66	1710	–	1780
	WLAN802.11 b/g/n(20M)	2412	–	2462
	WLAN802.11 n(40M)	2422	–	2462
	WLAN802.11 a/n(20M)/ac(20M) 5.2G	5180	–	5240
	WLAN802.11 n(40M)/ac(40M) 5.2G	5190	–	5230
	WLAN802.11 ac(80M) 5.2G	5210		
	WLAN802.11 a/n(20M)/ac(20M) 5.3G	5260	–	5320
	WLAN802.11 n(40M)/ac(40M) 5.3G	5270	–	5310
	WLAN802.11 ac(80M) 5.3G	5290		
	WLAN802.11 a/n/ac(20M) 5.6G	5500	–	5720
	WLAN802.11 n/ac(40M) 5.6G	5510	–	5710
	WLAN802.11 ac(80M) 5.6G	5530	–	5690
	WLAN802.11 a/n(20M)/ac(20M) 5.8G	5745	–	5825

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

TX Frequency Range (MHz)	WLAN802.11 n(40M)/ac(40M) 5.8G	5710	–	5795
	WLAN802.11 ac(80M) 5.8G	5775		
	Bluetooth	2402	–	2480
Channel Number (ARFCN)	GSM850	128	–	251
	GSM1900	512	–	810
	WCDMA Band II	9262	–	9538
	WCDMA Band IV	1312	–	1513
	WCDMA Band V	4132	–	4233
	LTE FDD Band 2	18607	–	19193
	LTE FDD Band 4	19957	–	20393
	LTE FDD Band 5	20407	–	20643
	LTE FDD Band 7	20775	–	21425
	LTE FDD Band 12	23017	–	23173
	LTE FDD Band 17	23755	–	23825
	LTE FDD Band 25	26047	–	26683
	LTE FDD Band 26	26697	–	27033
	LTE FDD Band 30	27685	–	27735
	LTE TDD Band 38	37775	–	38225
	LTE TDD Band 41	39675	–	41565
	LTE FDD Band 66	131979	–	132665
	WLAN802.11 b/g/n(20M)	1	–	13
	WLAN802.11 n(40M)	3	–	11
	WLAN802.11 a/n(20M)/ac(20M) 5.2G	36	–	48
	WLAN802.11 n(40M)/ac(40M) 5.2G	38	–	46
	WLAN802.11 ac(80M) 5.2G	42		
	WLAN802.11 a/n(20M)/ac(20M) 5.3G	52	–	64

Channel Number (ARFCN)	WLAN802.11 n(40M)/ac(40M) 5.3G	54	–	62
	WLAN802.11 ac(80M) 5.3G	58		
	WLAN802.11 a/n/ac(20M) 5.6G	100	–	144
	WLAN802.11 n/ac(40M) 5.6G	102	–	142
	WLAN802.11 ac(80M) 5.6G	106	–	138
	WLAN802.11 a/n(20M)/ac(20M) 5.8G	149	–	165
	WLAN802.11 n(40M)/ac(40M) 5.8G	142	–	159
	WLAN802.11 ac(80M) 5.8G	155		
	Bluetooth	0	–	78

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WWAN

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Head	GSM 850	0.30	0.35	☐Left ☒Right ☒Cheek ☐Tilt 251 Channel
	GSM 1900	0.10	0.12	☒Left ☐Right ☒Cheek ☐Tilt 661 Channel
	WCDMA Band II	0.16	0.16	☒Left ☐Right ☒Cheek ☐Tilt 9400 Channel
	WCDMA Band IV	0.17	0.18	☒Left ☐Right ☒Cheek ☐Tilt 1513 Channel
	WCDMA Band V	0.27	0.27	☐Left ☒Right ☒Cheek ☐Tilt 4233 Channel
	LTE FDD Band 2	0.12	0.12	☒Left ☐Right ☒Cheek ☐Tilt 18700 Channel
	LTE FDD Band 4	0.21	0.23	☒Left ☐Right ☒Cheek ☐Tilt 20300 Channel
	LTE FDD Band 5	0.21	0.22	☐Left ☒Right ☒Cheek ☐Tilt 20525 Channel
	LTE FDD Band 7	0.24	0.28	☒Left ☐Right ☒Cheek ☐Tilt 21100 Channel
	LTE FDD Band 12	0.19	0.19	☐Left ☒Right ☒Cheek ☐Tilt 23130 Channel
	LTE FDD Band 17	0.17	0.17	☐Left ☒Right ☒Cheek ☐Tilt 23790 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Head	LTE FDD Band 25	0.13	0.13	☒Left ☐Right ☒Cheek ☐Tilt 26140 Channel
	LTE FDD Band 26	0.21	0.23	☐Left ☒Right ☒Cheek ☐Tilt 26865 Channel
	LTE FDD Band 30	0.23	0.24	☒Left ☐Right ☒Cheek ☐Tilt 27710 Channel
	LTE TDD Band 38	0.09	0.11	☒Left ☐Right ☒Cheek ☐Tilt 37850 Channel
	LTE TDD Band 41	0.12	0.12	☒Left ☐Right ☒Cheek ☐Tilt 40185 Channel
	LTE FDD Band 66	0.23	0.26	☒Left ☐Right ☒Cheek ☐Tilt 132322 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Body-worn (10mm)	GSM 850	0.58	0.68	☒Front ☐Back 251 Channel
	GSM 1900	0.18	0.20	☒Front ☐Back 512 Channel

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Hotspot Mode (10mm)	GPRS 850 (1Dn3UP)	0.55	0.75	☒Front ☐Back ☐Bottom ☐Right ☐Left 251 Channel
	GPRS 1900 (1Dn3UP)	0.81	0.82	☐Front ☐Back ☒Bottom ☐Right ☐Left 512 Channel
	WCDMA Band II	1.16	1.17	☐Front ☐Back ☒Bottom ☐Right ☐Left 9538 Channel
	WCDMA Band IV	0.75	0.79	☐Front ☐Back ☒Bottom ☐Right ☐Left 1513 Channel
	WCDMA Band V	0.58	0.59	☒Front ☐Back ☐Bottom ☐Right ☐Left 4233 Channel
	LTE FDD Band 2	0.98	0.98	☐Front ☐Back ☒Bottom ☐Right ☐Left 19100 Channel
	LTE FDD Band 4	0.57	0.66	☐Front ☐Back ☒Bottom ☐Right ☐Left 20050 Channel
	LTE FDD Band 5	0.39	0.42	☒Front ☐Back ☐Bottom ☐Right ☐Left 20525 Channel
	LTE FDD Band 7	0.65	0.82	☐Front ☐Back ☒Bottom ☐Right ☐Left 21100 Channel

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Hotspot Mode (10mm)	LTE FDD Band 12	0.33	0.34	☒Front ☐Back ☐Bottom ☐Right ☐Left 23095 Channel
	LTE FDD Band 17	0.37	0.38	☒Front ☐Back ☐Bottom ☐Right ☐Left 23790 Channel
	LTE FDD Band 25	0.99	1.04	☐Front ☐Back ☒Bottom ☐Right ☐Left 26140 Channel
	LTE FDD Band 26	0.39	0.41	☒Front ☐Back ☐Bottom ☐Right ☐Left 26865 Channel
	LTE FDD Band 30	0.70	0.73	☐Front ☐Back ☒Bottom ☐Right ☐Left 27710 Channel
	LTE TDD Band 38	0.32	0.40	☐Front ☐Back ☒Bottom ☐Right ☐Left 37850 Channel
	LTE TDD Band 41	0.39	0.41	☐Front ☐Back ☒Bottom ☐Right ☐Left 40620 Channel
	LTE FDD Band 66	0.80	0.87	☐Front ☐Back ☒Bottom ☐Right ☐Left 132572 Channel

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WLAN Main Antenna

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Head	WLAN802.11 b	0.40	0.42	☐Left ☒Right ☒Cheek ☐Tilt 6 Channel
	WLAN802.11 a 5.2G	0.72	0.76	☐Left ☒Right ☒Cheek ☐Tilt 36 Channel
	WLAN802.11 a 5.3G	1.20	1.26	☐Left ☒Right ☒Cheek ☐Tilt 52 Channel
	WLAN802.11 a 5.6G	1.06	1.09	☐Left ☒Right ☒Cheek ☐Tilt 100 Channel
	WLAN802.11 a 5.8G	0.58	0.60	☐Left ☒Right ☒Cheek ☐Tilt 149 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Hotspot Mode (10mm)	WLAN802.11 b	0.07	0.07	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 6 Channel
	WLAN802.11 a 5.2G	0.05	0.06	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 36 Channel
	WLAN802.11 a 5.8G	0.09	0.09	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 157 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Body-worn (10mm)	WLAN802.11 a 5.3G	0.07	0.07	☒Front ☐Back 52 Channel
	WLAN802.11 a 5.6G	0.13	0.13	☒Front ☐Back 100 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
product specific 10g-SAR)	WLAN802.11 a 5.3G	0.32	0.33	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 52 Channel
	WLAN802.11 a 5.6G	0.94	0.97	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 100 Channel

WLAN Aux Antenna

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Head	WLAN802.11 b	0.004	0.004	☒Left ☐Right ☒Cheek ☐Tilt 6 Channel
	WLAN802.11 a 5.2G	0.004	0.004	☒Left ☐Right ☒Cheek ☐Tilt 40 Channel
	WLAN802.11 a 5.3G	0.01	0.01	☒Left ☐Right ☒Cheek ☐Tilt 60 Channel
	WLAN802.11 a 5.6G	0.01	0.01	☒Left ☐Right ☒Cheek ☐Tilt 100 Channel
	WLAN802.11 a 5.8G	0.01	0.01	☒Left ☐Right ☒Cheek ☐Tilt 157 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Hotspot Mode (10mm)	WLAN802.11 b	0.06	0.06	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 6 Channel
	WLAN802.11 a 5.2G	0.02	0.02	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 40 Channel
	WLAN802.11 a 5.8G	0.01	0.02	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 149 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
Body-worn (10mm)	WLAN802.11 a 5.3G	0.01	0.01	☒Front ☐Back 60 Channel
	WLAN802.11 a 5.6G	0.03	0.03	☒Front ☐Back 100 Channel

Max. SAR (1 g) (Unit: W/Kg)				
Mode	Band	Measured	Reported	Position / Channel
product specific 10g-SAR)	WLAN802.11 a 5.3G	0.16	0.16	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 60 Channel
	WLAN802.11 a 5.6G	0.15	0.15	☒Front ☐Back ☐Bottom ☐Top ☐Left ☐Right 100 Channel

GSM 850 - conducted power table:

EUT mode	Frequency (MHz)	CH	Max. Rated Avg. Power + Max. Tolerance (dBm)	Burst average power	Source -based time average power
				Avg. (dBm)	Avg. (dBm)
GSM850 (GMSK)	824.2	128	33.5	32.75	23.72
	836.6	190	33.5	32.67	23.64
	848.8	251	33.5	32.78	23.75
The division factor compared to the number of TX time slot					
Division factor				1 TX time slot	
				-9.03	

GPRS 850 - conducted power table:

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			33.5	30.5	30	28
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 850	824.2	128	32.72	30.25	28.93	27.48
	836.6	190	32.67	30.23	28.85	27.51
	848.8	251	32.50	29.99	28.63	27.33
Source-based time average power						
GPRS 850	824.2	128	23.69	24.23	24.67	24.47
	836.6	190	23.64	24.21	24.59	24.50
	848.8	251	23.47	23.97	24.37	24.32
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

EDGE 850 - conducted power table:

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			26.5	24.5	23	22
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850	824.2	128	25.96	23.78	22.60	21.48
	836.6	190	25.95	23.80	22.59	21.47
	848.8	251	25.67	23.57	22.33	21.24
Source-based time average power						
EDGE 850	824.2	128	16.93	17.76	18.34	18.47
	836.6	190	16.92	17.78	18.33	18.46
	848.8	251	16.64	17.55	18.07	18.23
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

GSM 1900 - conducted power table:

EUT mode	Frequency (MHz)	CH	Max. Rated Avg. Power + Max. Tolerance (dBm)	Burst average power	Source-based time average power
				Avg. (dBm)	Avg. (dBm)
GSM1900 (GMSK)	1850.2	512	30.5	30.07	21.04
	1800	661	30.5	30.04	21.01
	1909.8	810	30.5	29.98	20.95
The division factor compared to the number of TX time slot					
Division factor				1 TX time slot	
				-9.03	

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

GPRS 1900 - conducted power table:

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			30.5	27	25.5	24.5
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 1900	1850.2	512	30.06	26.69	25.42	24.05
	1880	661	30.05	26.67	25.35	24.01
	1909.8	810	30.00	26.59	25.28	23.86
Source-based time average power						
GPRS 1900	1850.2	512	21.03	20.67	21.16	21.04
	1880	661	21.02	20.65	21.09	21.00
	1909.8	810	20.97	20.57	21.02	20.85
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

EDGE 1900 - conducted power table:

Burst average power						
Max. Rated Avg. Power + Max. Tolerance (dBm)			26	23	21.5	21
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900	1850.2	512	25.88	22.71	21.41	20.18
	1880	661	25.83	22.61	21.39	20.17
	1909.8	810	25.81	22.49	21.33	20.15
Source-based time average power						
EDGE 1900	1850.2	512	16.85	16.69	17.15	17.17
	1880	661	16.80	16.59	17.13	17.16
	1909.8	810	16.78	16.47	17.07	17.14
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WCDMA Band II - HSDPA / HSUPA
Conducted power table (Unit: dBm):

Band		WCDMA II		
TX Channel		9262	9400	9538
Frequency (MHz)		1852.4	1880	1907.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		**24.50**		
3GPP Rel 99	RMC 12.2Kbps	24.45	24.43	24.45
3GPP Rel 5	HSDPA Subtest-1	24.42	24.44	24.41
	HSDPA Subtest-2	24.45	24.47	24.41
	HSDPA Subtest-3	24.42	24.45	24.41
	HSDPA Subtest-4	24.44	24.46	24.42
3GPP Rel 6	HSUPA Subtest-1	23.49	23.50	23.42
	HSUPA Subtest-2	22.82	23.04	22.77
	HSUPA Subtest-3	23.31	23.43	23.37
	HSUPA Subtest-4	23.25	23.44	23.33
	HSUPA Subtest-5	23.30	23.40	23.38

WCDMA Band IV – HSDPA / HSUPA
Conducted power table (Unit: dBm):

Band		WCDMA IV		
TX Channel		1312	1412	1513
Frequency (MHz)		1712.4	1732.4	1752.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		**24.50**		
3GPP Rel 99	RMC 12.2Kbps	24.10	24.28	24.29
3GPP Rel 5	HSDPA Subtest-1	24.11	24.29	24.26
	HSDPA Subtest-2	24.10	24.29	24.28
	HSDPA Subtest-3	24.06	24.27	24.25
	HSDPA Subtest-4	24.08	24.32	24.17
3GPP Rel 6	HSUPA Subtest-1	23.22	23.17	23.11
	HSUPA Subtest-2	22.58	22.72	22.71
	HSUPA Subtest-3	23.08	23.22	23.12
	HSUPA Subtest-4	23.05	23.18	23.19
	HSUPA Subtest-5	23.14	23.31	23.18

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WCDMA Band V - HSDPA / HSUPA
Conducted power table (Unit: dBm):

Band		WCDMA V		
TX Channel		4132	4183	4233
Frequency (MHz)		826.4	836.6	846.6
Max. Rated Avg. Power+Max. Tolerance (dBm)		**24.00**		
3GPP Rel 99	RMC 12.2Kbps	23.81	23.82	23.93
3GPP Rel 5	HSDPA Subtest-1	23.71	23.71	23.84
	HSDPA Subtest-2	23.66	23.72	23.88
	HSDPA Subtest-3	23.72	23.74	23.80
	HSDPA Subtest-4	23.66	23.74	23.86
3GPP Rel 6	HSUPA Subtest-1	22.57	22.81	22.78
	HSUPA Subtest-2	22.04	22.17	22.36
	HSUPA Subtest-3	22.52	22.73	22.73
	HSUPA Subtest-4	22.53	22.70	22.81
	HSUPA Subtest-5	22.58	22.64	22.82

Subtests for WCDMA Release 5 HSDPA

SUB-TEST	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, Note 2)*	CM (dB) *(Note 3)*	MPR (dB) *(Note 3)*
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Subtests for WCDMA Release 6 HSUPA

SUB-TEST	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1)*	β_{ec}	β_{ed} *(Note 5) (Note 6)*	β_{ed} *(SF)*	β_{ed} *(Codes)*	CM *(dB) (Note 2)*	MPR *(dB) (Note 2)*	*AG Index (Note 6)*	*E-TFCI*
1	11/15	15/15	64	11/15	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	15/15	64	15/15	30/15	24/15	134/15	4	1	1.0	0.0	21	81

LTE FDD Band 2 - conducted power table:

FDD Band 2								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1860	18700	22.96	23	0
				1880	18900	22.89	23	0
				1900	19100	22.99	23	0
			50	1860	18700	22.74	23	0
				1880	18900	22.82	23	0
				1900	19100	22.86	23	0
			99	1860	18700	22.94	23	0
				1880	18900	22.88	23	0
				1900	19100	22.91	23	0
		50 RB	0	1860	18700	21.80	22	0-1
				1880	18900	21.87	22	0-1
				1900	19100	21.98	22	0-1
			25	1860	18700	21.89	22	0-1
				1880	18900	21.83	22	0-1
				1900	19100	21.99	22	0-1
			50	1860	18700	21.88	22	0-1
				1880	18900	21.76	22	0-1
				1900	19100	21.96	22	0-1
		100RB		1860	18700	21.84	22	0-1
				1880	18900	21.85	22	0-1
				1900	19100	21.92	22	0-1
	16-QAM	1 RB	0	1860	18700	21.98	22	0-1
				1880	18900	21.90	22	0-1
				1900	19100	21.93	22	0-1
			50	1860	18700	21.86	22	0-1
				1880	18900	21.92	22	0-1
				1900	19100	21.93	22	0-1
			99	1860	18700	21.92	22	0-1
				1880	18900	21.93	22	0-1
				1900	19100	21.97	22	0-1
		50 RB	0	1860	18700	20.79	21	0-2
				1880	18900	20.86	21	0-2
				1900	19100	20.92	21	0-2
			25	1860	18700	20.86	21	0-2
				1880	18900	20.90	21	0-2
				1900	19100	20.97	21	0-2
			50	1860	18700	20.83	21	0-2
				1880	18900	20.74	21	0-2
				1900	19100	20.99	21	0-2
		100RB		1860	18700	20.78	21	0-2
				1880	18900	20.90	21	0-2
				1900	19100	20.94	21	0-2
	64-QAM	1 RB	0	1860	18700	21.93	22	0-1
				1880	18900	21.98	22	0-1
				1900	19100	21.90	22	0-1
			50	1860	18700	21.84	22	0-1
				1880	18900	21.82	22	0-1
				1900	19100	21.91	22	0-1
			99	1860	18700	21.97	22	0-1
				1880	18900	21.92	22	0-1
				1900	19100	21.93	22	0-1
		50 RB	0	1860	18700	20.92	21	0-2
				1880	18900	20.79	21	0-2
				1900	19100	20.86	21	0-2
			25	1860	18700	20.97	21	0-2
				1880	18900	20.86	21	0-2
				1900	19100	20.90	21	0-2
			50	1860	18700	20.99	21	0-2
				1880	18900	20.83	21	0-2
				1900	19100	20.74	21	0-2
		100RB		1860	18700	20.94	21	0-2
				1880	18900	20.78	21	0-2
				1900	19100	20.90	21	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1857.5	18675	22.71	23	0
				1880	18900	22.92	23	0
				1902.5	19125	22.79	23	0
			36	1857.5	18675	22.53	23	0
				1880	18900	22.75	23	0
				1902.5	19125	22.88	23	0
			74	1857.5	18675	22.66	23	0
				1880	18900	22.79	23	0
				1902.5	19125	22.97	23	0
		36 RB	0	1857.5	18675	21.73	22	0-1
				1880	18900	21.92	22	0-1
				1902.5	19125	21.94	22	0-1
			18	1857.5	18675	21.69	22	0-1
				1880	18900	21.87	22	0-1
				1902.5	19125	22.00	22	0-1
			37	1857.5	18675	21.73	22	0-1
				1880	18900	21.78	22	0-1
				1902.5	19125	21.95	22	0-1
		75RB		1857.5	18675	21.66	22	0-1
				1880	18900	21.88	22	0-1
				1902.5	19125	21.91	22	0-1
	16-QAM	1 RB	0	1857.5	18675	21.91	22	0-1
				1880	18900	21.94	22	0-1
				1902.5	19125	21.98	22	0-1
			36	1857.5	18675	21.97	22	0-1
				1880	18900	21.95	22	0-1
				1902.5	19125	21.83	22	0-1
			74	1857.5	18675	21.91	22	0-1
				1880	18900	21.92	22	0-1
				1902.5	19125	22.00	22	0-1
		36 RB	0	1857.5	18675	20.69	21	0-2
				1880	18900	20.86	21	0-2
				1902.5	19125	20.99	21	0-2
			18	1857.5	18675	20.79	21	0-2
				1880	18900	20.78	21	0-2
				1902.5	19125	21.00	21	0-2
			37	1857.5	18675	20.66	21	0-2
				1880	18900	20.83	21	0-2
				1902.5	19125	20.90	21	0-2
		75RB		1857.5	18675	20.60	21	0-2
				1880	18900	20.84	21	0-2
				1902.5	19125	20.69	21	0-2
	64-QAM	1 RB	0	1857.5	18675	21.98	22	0-1
				1880	18900	21.91	22	0-1
				1902.5	19125	21.94	22	0-1
			36	1857.5	18675	21.83	22	0-1
				1880	18900	21.97	22	0-1
				1902.5	19125	21.95	22	0-1
			74	1857.5	18675	21.94	22	0-1
				1880	18900	21.90	22	0-1
				1902.5	19125	21.92	22	0-1
		36 RB	0	1857.5	18675	20.99	21	0-2
				1880	18900	20.69	21	0-2
				1902.5	19125	20.86	21	0-2
			18	1857.5	18675	20.74	21	0-2
				1880	18900	20.78	21	0-2
				1902.5	19125	20.82	21	0-2
			37	1857.5	18675	20.90	21	0-2
				1880	18900	20.83	21	0-2
				1902.5	19125	20.66	21	0-2
		75RB		1857.5	18675	20.69	21	0-2
				1880	18900	20.60	21	0-2
				1902.5	19125	20.84	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1855	18650	22.69	23	0
				1880	18900	22.92	23	0
				1905	19150	22.89	23	0
			25	1855	18650	22.62	23	0
				1880	18900	22.74	23	0
				1905	19150	22.81	23	0
			49	1855	18650	22.92	23	0
				1880	18900	22.92	23	0
				1905	19150	22.84	23	0
		25 RB	0	1855	18650	21.63	22	0-1
				1880	18900	21.79	22	0-1
				1905	19150	21.92	22	0-1
			12	1855	18650	21.61	22	0-1
				1880	18900	21.77	22	0-1
				1905	19150	21.90	22	0-1
			25	1855	18650	21.58	22	0-1
				1880	18900	21.74	22	0-1
				1905	19150	21.84	22	0-1
		50RB		1855	18650	21.59	22	0-1
				1880	18900	21.79	22	0-1
				1905	19150	21.88	22	0-1
	16-QAM	1 RB	0	1855	18650	21.98	22	0-1
				1880	18900	21.98	22	0-1
				1905	19150	21.94	22	0-1
			25	1855	18650	21.61	22	0-1
				1880	18900	21.84	22	0-1
				1905	19150	21.91	22	0-1
			49	1855	18650	21.79	22	0-1
				1880	18900	21.80	22	0-1
				1905	19150	21.97	22	0-1
		25 RB	0	1855	18650	20.65	21	0-2
				1880	18900	20.96	21	0-2
				1905	19150	20.92	21	0-2
			12	1855	18650	20.67	21	0-2
				1880	18900	20.82	21	0-2
				1905	19150	20.98	21	0-2
			25	1855	18650	20.58	21	0-2
				1880	18900	20.69	21	0-2
				1905	19150	20.82	21	0-2
		50RB		1855	18650	20.56	21	0-2
				1880	18900	20.71	21	0-2
				1905	19150	20.92	21	0-2
	64-QAM	1 RB	0	1855	18650	21.91	22	0-1
				1880	18900	21.88	22	0-1
				1905	19150	21.91	22	0-1
			25	1855	18650	21.60	22	0-1
				1880	18900	21.82	22	0-1
				1905	19150	21.88	22	0-1
			49	1855	18650	21.77	22	0-1
				1880	18900	21.77	22	0-1
				1905	19150	21.96	22	0-1
		25 RB	0	1855	18650	20.63	21	0-2
				1880	18900	20.93	21	0-2
				1905	19150	20.90	21	0-2
			12	1855	18650	20.64	21	0-2
				1880	18900	20.81	21	0-2
				1905	19150	20.96	21	0-2
			25	1855	18650	20.55	21	0-2
				1880	18900	20.67	21	0-2
				1905	19150	20.79	21	0-2
		50RB		1855	18650	20.55	21	0-2
				1880	18900	20.69	21	0-2
				1905	19150	20.89	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1852.5	18625	22.59	23	0
				1880	18900	22.73	23	0
				1907.5	19175	22.83	23	0
			12	1852.5	18625	22.58	23	0
				1880	18900	22.61	23	0
				1907.5	19175	22.89	23	0
			24	1852.5	18625	22.61	23	0
				1880	18900	22.72	23	0
				1907.5	19175	22.86	23	0
		12 RB	0	1852.5	18625	21.61	22	0-1
				1880	18900	21.82	22	0-1
				1907.5	19175	21.87	22	0-1
			6	1852.5	18625	21.59	22	0-1
				1880	18900	21.78	22	0-1
				1907.5	19175	21.87	22	0-1
			13	1852.5	18625	21.62	22	0-1
				1880	18900	21.73	22	0-1
				1907.5	19175	21.86	22	0-1
		25RB		1852.5	18625	21.67	22	0-1
				1880	18900	21.74	22	0-1
				1907.5	19175	21.82	22	0-1
	16-QAM	1 RB	0	1852.5	18625	21.97	22	0-1
				1880	18900	21.89	22	0-1
				1907.5	19175	21.93	22	0-1
			12	1852.5	18625	21.61	22	0-1
				1880	18900	21.90	22	0-1
				1907.5	19175	21.97	22	0-1
			24	1852.5	18625	21.92	22	0-1
				1880	18900	21.95	22	0-1
				1907.5	19175	21.91	22	0-1
		12 RB	0	1852.5	18625	20.69	21	0-2
				1880	18900	20.80	21	0-2
				1907.5	19175	20.89	21	0-2
			6	1852.5	18625	20.74	21	0-2
				1880	18900	20.80	21	0-2
				1907.5	19175	20.99	21	0-2
			13	1852.5	18625	20.54	21	0-2
				1880	18900	20.77	21	0-2
				1907.5	19175	20.95	21	0-2
		25RB		1852.5	18625	20.61	21	0-2
				1880	18900	20.76	21	0-2
				1907.5	19175	20.95	21	0-2
	64-QAM	1 RB	0	1852.5	18625	21.94	22	0-1
				1880	18900	21.87	22	0-1
				1907.5	19175	21.90	22	0-1
			12	1852.5	18625	21.60	22	0-1
				1880	18900	21.88	22	0-1
				1907.5	19175	21.94	22	0-1
			24	1852.5	18625	21.90	22	0-1
				1880	18900	21.92	22	0-1
				1907.5	19175	21.90	22	0-1
		12 RB	0	1852.5	18625	20.67	21	0-2
				1880	18900	20.77	21	0-2
				1907.5	19175	20.87	21	0-2
			6	1852.5	18625	20.71	21	0-2
				1880	18900	20.79	21	0-2
				1907.5	19175	20.97	21	0-2
			13	1852.5	18625	20.51	21	0-2
				1880	18900	20.75	21	0-2
				1907.5	19175	20.92	21	0-2
		25RB		1852.5	18625	20.60	21	0-2
				1880	18900	20.74	21	0-2
				1907.5	19175	20.92	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1851.5	18615	22.54	23	0
				1880	18900	22.69	23	0
				1908.5	19185	22.75	23	0
			7	1851.5	18615	22.65	23	0
				1880	18900	22.79	23	0
				1908.5	19185	22.79	23	0
			14	1851.5	18615	22.55	23	0
				1880	18900	22.65	23	0
				1908.5	19185	22.76	23	0
		8 RB	0	1851.5	18615	21.57	22	0-1
				1880	18900	21.68	22	0-1
				1908.5	19185	21.83	22	0-1
			4	1851.5	18615	21.53	22	0-1
				1880	18900	21.67	22	0-1
				1908.5	19185	21.82	22	0-1
			7	1851.5	18615	21.46	22	0-1
				1880	18900	21.73	22	0-1
				1908.5	19185	21.79	22	0-1
		15RB		1851.5	18615	21.50	22	0-1
				1880	18900	21.76	22	0-1
				1908.5	19185	21.69	22	0-1
	16-QAM	1 RB	0	1851.5	18615	21.70	22	0-1
				1880	18900	21.82	22	0-1
				1908.5	19185	21.96	22	0-1
			7	1851.5	18615	21.46	22	0-1
				1880	18900	21.97	22	0-1
				1908.5	19185	21.95	22	0-1
			14	1851.5	18615	21.98	22	0-1
				1880	18900	21.99	22	0-1
				1908.5	19185	21.97	22	0-1
		8 RB	0	1851.5	18615	20.57	21	0-2
				1880	18900	20.66	21	0-2
				1908.5	19185	20.96	21	0-2
			4	1851.5	18615	20.67	21	0-2
				1880	18900	20.81	21	0-2
				1908.5	19185	20.84	21	0-2
			7	1851.5	18615	20.55	21	0-2
				1880	18900	20.78	21	0-2
				1908.5	19185	20.77	21	0-2
		15RB		1851.5	18615	20.62	21	0-2
				1880	18900	20.62	21	0-2
				1908.5	19185	20.84	21	0-2
	64-QAM	1 RB	0	1851.5	18615	21.67	22	0-1
				1880	18900	21.80	22	0-1
				1908.5	19185	21.93	22	0-1
			7	1851.5	18615	21.45	22	0-1
				1880	18900	21.95	22	0-1
				1908.5	19185	21.92	22	0-1
			14	1851.5	18615	21.96	22	0-1
				1880	18900	21.96	22	0-1
				1908.5	19185	21.96	22	0-1
		8 RB	0	1851.5	18615	20.55	21	0-2
				1880	18900	20.63	21	0-2
				1908.5	19185	20.94	21	0-2
			4	1851.5	18615	20.64	21	0-2
				1880	18900	20.80	21	0-2
				1908.5	19185	20.82	21	0-2
			7	1851.5	18615	20.52	21	0-2
				1880	18900	20.76	21	0-2
				1908.5	19185	20.74	21	0-2
		15RB		1851.5	18615	20.61	21	0-2
				1880	18900	20.60	21	0-2
				1908.5	19185	20.81	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1850.7	18607	22.70	23	0
				1880	18900	22.76	23	0
				1909.3	19193	22.93	23	0
			2	1850.7	18607	22.78	23	0
				1880	18900	22.87	23	0
				1909.3	19193	22.88	23	0
			5	1850.7	18607	22.77	23	0
				1880	18900	22.76	23	0
				1909.3	19193	22.82	23	0
		3 RB	0	1850.7	18607	22.80	23	0
				1880	18900	22.90	23	0
				1909.3	19193	22.94	23	0
			2	1850.7	18607	22.86	23	0
				1880	18900	22.84	23	0
				1909.3	19193	22.95	23	0
			3	1850.7	18607	22.73	23	0
				1880	18900	22.76	23	0
				1909.3	19193	22.91	23	0
		6RB		1850.7	18607	21.78	22	0-1
				1880	18900	21.77	22	0-1
				1909.3	19193	21.88	22	0-1
	16-QAM	1 RB	0	1850.7	18607	21.93	22	0-1
				1880	18900	21.91	22	0-1
				1909.3	19193	21.98	22	0-1
			2	1850.7	18607	21.99	22	0-1
				1880	18900	21.90	22	0-1
				1909.3	19193	21.95	22	0-1
			5	1850.7	18607	21.85	22	0-1
				1880	18900	21.75	22	0-1
				1909.3	19193	21.94	22	0-1
		3 RB	0	1850.7	18607	21.82	22	0-1
				1880	18900	21.76	22	0-1
				1909.3	19193	21.94	22	0-1
			2	1850.7	18607	21.83	22	0-1
				1880	18900	21.76	22	0-1
				1909.3	19193	21.97	22	0-1
			3	1850.7	18607	21.83	22	0-1
				1880	18900	21.92	22	0-1
				1909.3	19193	21.79	22	0-1
		6RB		1850.7	18607	20.70	21	0-2
				1880	18900	20.73	21	0-2
				1909.3	19193	20.87	21	0-2
	64-QAM	1 RB	0	1850.7	18607	21.90	22	0-1
				1880	18900	21.89	22	0-1
				1909.3	19193	21.95	22	0-1
			2	1850.7	18607	21.98	22	0-1
				1880	18900	21.88	22	0-1
				1909.3	19193	21.92	22	0-1
			5	1850.7	18607	21.83	22	0-1
				1880	18900	21.72	22	0-1
				1909.3	19193	21.93	22	0-1
		3 RB	0	1850.7	18607	21.80	22	0-1
				1880	18900	21.73	22	0-1
				1909.3	19193	21.92	22	0-1
			2	1850.7	18607	21.80	22	0-1
				1880	18900	21.75	22	0-1
				1909.3	19193	21.95	22	0-1
			3	1850.7	18607	21.80	22	0-1
				1880	18900	21.90	22	0-1
				1909.3	19193	21.76	22	0-1
		6RB		1850.7	18607	20.69	21	0-2
				1880	18900	20.71	21	0-2
				1909.3	19193	20.84	21	0-2

LTE FDD Band 4 - conducted power table:

FDD Band 4								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1720	20050	23.35	24	0
				1732.5	20175	23.53	24	0
				1745	20300	23.55	24	0
			50	1720	20050	23.02	24	0
				1732.5	20175	23.35	24	0
				1745	20300	23.37	24	0
			99	1720	20050	23.21	24	0
				1732.5	20175	23.29	24	0
				1745	20300	23.44	24	0
		50 RB	0	1720	20050	22.34	23	0-1
				1732.5	20175	22.49	23	0-1
				1745	20300	22.59	23	0-1
			25	1720	20050	22.23	23	0-1
				1732.5	20175	22.38	23	0-1
				1745	20300	22.52	23	0-1
			50	1720	20050	22.27	23	0-1
				1732.5	20175	22.39	23	0-1
				1745	20300	22.49	23	0-1
		100RB		1720	20050	22.23	23	0-1
				1732.5	20175	22.34	23	0-1
				1745	20300	22.49	23	0-1
	16-QAM	1 RB	0	1720	20050	22.59	23	0-1
				1732.5	20175	22.52	23	0-1
				1745	20300	22.58	23	0-1
			50	1720	20050	22.35	23	0-1
				1732.5	20175	22.43	23	0-1
				1745	20300	22.49	23	0-1
			99	1720	20050	22.75	23	0-1
				1732.5	20175	22.70	23	0-1
				1745	20300	22.81	23	0-1
		50 RB	0	1720	20050	21.39	22	0-2
				1732.5	20175	21.50	22	0-2
				1745	20300	21.64	22	0-2
			25	1720	20050	21.25	22	0-2
				1732.5	20175	21.42	22	0-2
				1745	20300	21.59	22	0-2
			50	1720	20050	21.21	22	0-2
				1732.5	20175	21.42	22	0-2
				1745	20300	21.48	22	0-2
		100RB		1720	20050	21.17	22	0-2
				1732.5	20175	21.35	22	0-2
				1745	20300	21.48	22	0-2
	64-QAM	1 RB	0	1720	20050	22.56	23	0-1
				1732.5	20175	22.50	23	0-1
				1745	20300	22.55	23	0-1
			50	1720	20050	22.34	23	0-1
				1732.5	20175	22.41	23	0-1
				1745	20300	22.46	23	0-1
			99	1720	20050	22.73	23	0-1
				1732.5	20175	22.67	23	0-1
				1745	20300	22.80	23	0-1
		50 RB	0	1720	20050	21.37	22	0-2
				1732.5	20175	21.47	22	0-2
				1745	20300	21.62	22	0-2
			25	1720	20050	21.22	22	0-2
				1732.5	20175	21.41	22	0-2
				1745	20300	21.57	22	0-2
			50	1720	20050	21.18	22	0-2
				1732.5	20175	21.40	22	0-2
				1745	20300	21.45	22	0-2
		100RB		1720	20050	21.16	22	0-2
				1732.5	20175	21.33	22	0-2
				1745	20300	21.45	22	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1717.5	20025	23.30	24	0
				1732.5	20175	23.47	24	0
				1747.5	20325	23.50	24	0
			36	1717.5	20025	23.17	24	0
				1732.5	20175	23.21	24	0
				1747.5	20325	23.37	24	0
			74	1717.5	20025	23.18	24	0
				1732.5	20175	23.34	24	0
				1747.5	20325	23.38	24	0
		36 RB	0	1717.5	20025	22.26	23	0-1
				1732.5	20175	22.40	23	0-1
				1747.5	20325	22.55	23	0-1
			18	1717.5	20025	22.26	23	0-1
				1732.5	20175	22.30	23	0-1
				1747.5	20325	22.43	23	0-1
			37	1717.5	20025	22.28	23	0-1
				1732.5	20175	22.31	23	0-1
				1747.5	20325	22.54	23	0-1
		75RB		1717.5	20025	22.20	23	0-1
				1732.5	20175	22.37	23	0-1
				1747.5	20325	22.45	23	0-1
	16-QAM	1 RB	0	1717.5	20025	22.54	23	0-1
				1732.5	20175	22.60	23	0-1
				1747.5	20325	22.80	23	0-1
			36	1717.5	20025	22.13	23	0-1
				1732.5	20175	22.72	23	0-1
				1747.5	20325	22.47	23	0-1
			74	1717.5	20025	22.44	23	0-1
				1732.5	20175	22.73	23	0-1
				1747.5	20325	22.74	23	0-1
		36 RB	0	1717.5	20025	21.24	22	0-2
				1732.5	20175	21.41	22	0-2
				1747.5	20325	21.54	22	0-2
			18	1717.5	20025	21.27	22	0-2
				1732.5	20175	21.35	22	0-2
				1747.5	20325	21.43	22	0-2
			37	1717.5	20025	21.28	22	0-2
				1732.5	20175	21.31	22	0-2
				1747.5	20325	21.49	22	0-2
		75RB		1717.5	20025	21.23	22	0-2
				1732.5	20175	21.37	22	0-2
				1747.5	20325	21.46	22	0-2
	64-QAM	1 RB	0	1717.5	22.51	22.54	23	0-1
				1732.5	22.58	22.60	23	0-1
				1747.5	22.77	22.80	23	0-1
			36	1717.5	22.12	22.13	23	0-1
				1732.5	22.7	22.72	23	0-1
				1747.5	22.44	22.47	23	0-1
			74	1717.5	22.42	22.44	23	0-1
				1732.5	22.7	22.73	23	0-1
				1747.5	22.73	22.74	23	0-1
		36 RB	0	1717.5	21.22	21.24	22	0-2
				1732.5	21.38	21.41	22	0-2
				1747.5	21.52	21.54	22	0-2
			18	1717.5	21.24	21.27	22	0-2
				1732.5	21.34	21.35	22	0-2
				1747.5	21.41	21.43	22	0-2
			37	1717.5	21.25	21.28	22	0-2
				1732.5	21.29	21.31	22	0-2
				1747.5	21.46	21.49	22	0-2
		75RB		1717.5	21.22	21.23	22	0-2
				1732.5	21.35	21.37	22	0-2
				1747.5	21.43	21.46	22	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1715	20000	23.30	24	0
				1732.5	20175	23.34	24	0
				1750	20350	23.44	24	0
			25	1715	20000	23.29	24	0
				1732.5	20175	23.30	24	0
				1750	20350	23.41	24	0
			49	1715	20000	23.20	24	0
				1732.5	20175	23.22	24	0
				1750	20350	23.49	24	0
		25 RB	0	1715	20000	22.18	23	0-1
				1732.5	20175	22.33	23	0-1
				1750	20350	22.50	23	0-1
			12	1715	20000	22.24	23	0-1
				1732.5	20175	22.29	23	0-1
				1750	20350	22.53	23	0-1
			25	1715	20000	22.22	23	0-1
				1732.5	20175	22.27	23	0-1
				1750	20350	22.53	23	0-1
		50RB		1715	20000	22.20	23	0-1
				1732.5	20175	22.34	23	0-1
				1750	20350	22.50	23	0-1
	16-QAM	1 RB	0	1715	20000	22.60	23	0-1
				1732.5	20175	22.37	23	0-1
				1750	20350	22.96	23	0-1
			25	1715	20000	22.19	23	0-1
				1732.5	20175	22.47	23	0-1
				1750	20350	22.79	23	0-1
			49	1715	20000	22.22	23	0-1
				1732.5	20175	22.37	23	0-1
				1750	20350	22.61	23	0-1
		25 RB	0	1715	20000	21.27	22	0-2
				1732.5	20175	21.25	22	0-2
				1750	20350	21.42	22	0-2
			12	1715	20000	21.25	22	0-2
				1732.5	20175	21.35	22	0-2
				1750	20350	21.57	22	0-2
			25	1715	20000	21.13	22	0-2
				1732.5	20175	21.29	22	0-2
				1750	20350	21.52	22	0-2
		50RB		1715	20000	21.24	22	0-2
				1732.5	20175	21.32	22	0-2
				1750	20350	21.52	22	0-2
	64-QAM	1 RB	0	1715	20000	22.57	23	0-1
				1732.5	20175	22.35	23	0-1
				1750	20350	22.93	23	0-1
			25	1715	20000	22.18	23	0-1
				1732.5	20175	22.45	23	0-1
				1750	20350	22.76	23	0-1
			49	1715	20000	22.20	23	0-1
				1732.5	20175	22.34	23	0-1
				1750	20350	22.60	23	0-1
		25 RB	0	1715	20000	21.25	22	0-2
				1732.5	20175	21.22	22	0-2
				1750	20350	21.40	22	0-2
			12	1715	20000	21.22	22	0-2
				1732.5	20175	21.34	22	0-2
				1750	20350	21.55	22	0-2
			25	1715	20000	21.10	22	0-2
				1732.5	20175	21.27	22	0-2
				1750	20350	21.49	22	0-2
		50RB		1715	20000	21.23	22	0-2
				1732.5	20175	21.30	22	0-2
				1750	20350	21.49	22	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1712.5	19975	23.18	24	0
				1732.5	20175	23.29	24	0
				1752.5	20375	23.43	24	0
			12	1712.5	19975	23.17	24	0
				1732.5	20175	23.34	24	0
				1752.5	20375	23.31	24	0
			24	1712.5	19975	23.13	24	0
				1732.5	20175	23.21	24	0
				1752.5	20375	23.54	24	0
		12 RB	0	1712.5	19975	22.11	23	0-1
				1732.5	20175	22.31	23	0-1
				1752.5	20375	22.44	23	0-1
			6	1712.5	19975	22.21	23	0-1
				1732.5	20175	22.34	23	0-1
				1752.5	20375	22.53	23	0-1
			13	1712.5	19975	22.14	23	0-1
				1732.5	20175	22.27	23	0-1
				1752.5	20375	22.47	23	0-1
		25RB		1712.5	19975	22.17	23	0-1
				1732.5	20175	22.23	23	0-1
				1752.5	20375	22.51	23	0-1
	16-QAM	1 RB	0	1712.5	19975	22.32	23	0-1
				1732.5	20175	22.90	23	0-1
				1752.5	20375	22.55	23	0-1
			12	1712.5	19975	22.30	23	0-1
				1732.5	20175	22.75	23	0-1
				1752.5	20375	22.88	23	0-1
			24	1712.5	19975	22.10	23	0-1
				1732.5	20175	22.50	23	0-1
				1752.5	20375	22.64	23	0-1
		12 RB	0	1712.5	19975	21.26	22	0-2
				1732.5	20175	21.43	22	0-2
				1752.5	20375	21.43	22	0-2
			6	1712.5	19975	21.27	22	0-2
				1732.5	20175	21.32	22	0-2
				1752.5	20375	21.53	22	0-2
			13	1712.5	19975	21.22	22	0-2
				1732.5	20175	21.16	22	0-2
				1752.5	20375	21.40	22	0-2
		25RB		1712.5	19975	21.18	22	0-2
				1732.5	20175	21.34	22	0-2
				1752.5	20375	21.50	22	0-2
	64-QAM	1 RB	0	1712.5	19975	22.29	23	0-1
				1732.5	20175	22.88	23	0-1
				1752.5	20375	22.52	23	0-1
			12	1712.5	19975	22.29	23	0-1
				1732.5	20175	22.73	23	0-1
				1752.5	20375	22.85	23	0-1
			24	1712.5	19975	22.08	23	0-1
				1732.5	20175	22.47	23	0-1
				1752.5	20375	22.63	23	0-1
		12 RB	0	1712.5	19975	21.24	22	0-2
				1732.5	20175	21.40	22	0-2
				1752.5	20375	21.41	22	0-2
			6	1712.5	19975	21.24	22	0-2
				1732.5	20175	21.31	22	0-2
				1752.5	20375	21.51	22	0-2
			13	1712.5	19975	21.19	22	0-2
				1732.5	20175	21.14	22	0-2
				1752.5	20375	21.37	22	0-2
		25RB		1712.5	19975	21.17	22	0-2
				1732.5	20175	21.32	22	0-2
				1752.5	20375	21.47	22	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1711.5	19965	23.16	24	0
				1732.5	20175	23.26	24	0
				1753.5	20385	23.32	24	0
			7	1711.5	19965	23.26	24	0
				1732.5	20175	23.34	24	0
				1753.5	20385	23.41	24	0
			14	1711.5	19965	23.19	24	0
				1732.5	20175	23.19	24	0
				1753.5	20385	23.29	24	0
		8 RB	0	1711.5	19965	22.19	23	0-1
				1732.5	20175	22.33	23	0-1
				1753.5	20385	22.44	23	0-1
			4	1711.5	19965	22.20	23	0-1
				1732.5	20175	22.25	23	0-1
				1753.5	20385	22.45	23	0-1
			7	1711.5	19965	22.15	23	0-1
				1732.5	20175	22.25	23	0-1
				1753.5	20385	22.42	23	0-1
		15RB		1711.5	19965	22.16	23	0-1
				1732.5	20175	22.26	23	0-1
				1753.5	20385	22.42	23	0-1
	16-QAM	1 RB	0	1711.5	19965	22.65	23	0-1
				1732.5	20175	22.42	23	0-1
				1753.5	20385	22.44	23	0-1
			7	1711.5	19965	22.52	23	0-1
				1732.5	20175	22.58	23	0-1
				1753.5	20385	22.99	23	0-1
			14	1711.5	19965	22.58	23	0-1
				1732.5	20175	22.66	23	0-1
				1753.5	20385	22.66	23	0-1
		8 RB	0	1711.5	19965	21.31	22	0-2
				1732.5	20175	21.39	22	0-2
				1753.5	20385	21.51	22	0-2
			4	1711.5	19965	21.21	22	0-2
				1732.5	20175	21.35	22	0-2
				1753.5	20385	21.46	22	0-2
			7	1711.5	19965	21.15	22	0-2
				1732.5	20175	21.15	22	0-2
				1753.5	20385	21.52	22	0-2
		15RB		1711.5	19965	21.19	22	0-2
				1732.5	20175	21.45	22	0-2
				1753.5	20385	21.38	22	0-2
	16-QAM	1 RB	0	1711.5	19965	22.62	23	0-1
				1732.5	20175	22.40	23	0-1
				1753.5	20385	22.41	23	0-1
			7	1711.5	19965	22.51	23	0-1
				1732.5	20175	22.56	23	0-1
				1753.5	20385	22.96	23	0-1
			14	1711.5	19965	22.56	23	0-1
				1732.5	20175	22.63	23	0-1
				1753.5	20385	22.65	23	0-1
		8 RB	0	1711.5	19965	21.29	22	0-2
				1732.5	20175	21.36	22	0-2
				1753.5	20385	21.49	22	0-2
			4	1711.5	19965	21.18	22	0-2
				1732.5	20175	21.34	22	0-2
				1753.5	20385	21.44	22	0-2
			7	1711.5	19965	21.12	22	0-2
				1732.5	20175	21.13	22	0-2
				1753.5	20385	21.49	22	0-2
		15RB		1711.5	19965	21.18	22	0-2
				1732.5	20175	21.43	22	0-2
				1753.5	20385	21.35	22	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1710.7	19957	23.11	24	0
				1732.5	20175	23.22	24	0
				1754.3	20393	23.33	24	0
			2	1710.7	19957	23.10	24	0
				1732.5	20175	23.28	24	0
				1754.3	20393	23.35	24	0
			5	1710.7	19957	23.07	24	0
				1732.5	20175	23.22	24	0
				1754.3	20393	23.29	24	0
		3 RB	0	1710.7	19957	23.15	24	0
				1732.5	20175	23.20	24	0
				1754.3	20393	23.34	24	0
			2	1710.7	19957	23.12	24	0
				1732.5	20175	23.22	24	0
				1754.3	20393	23.41	24	0
			3	1710.7	19957	23.13	24	0
				1732.5	20175	23.18	24	0
				1754.3	20393	23.38	24	0
		6RB		1710.7	19957	22.06	23	0-1
				1732.5	20175	22.24	23	0-1
				1754.3	20393	22.38	23	0-1
	16-QAM	1 RB	0	1710.7	19957	21.97	23	0-1
				1732.5	20175	22.64	23	0-1
				1754.3	20393	22.59	23	0-1
			2	1710.7	19957	22.63	23	0-1
				1732.5	20175	22.48	23	0-1
				1754.3	20393	22.88	23	0-1
			5	1710.7	19957	22.31	23	0-1
				1732.5	20175	22.34	23	0-1
				1754.3	20393	22.31	23	0-1
		3 RB	0	1710.7	19957	22.17	23	0-1
				1732.5	20175	22.19	23	0-1
				1754.3	20393	22.46	23	0-1
			2	1710.7	19957	22.24	23	0-1
				1732.5	20175	22.28	23	0-1
				1754.3	20393	22.37	23	0-1
			3	1710.7	19957	22.06	23	0-1
				1732.5	20175	22.27	23	0-1
				1754.3	20393	22.51	23	0-1
		6RB		1710.7	19957	21.15	22	0-2
				1732.5	20175	21.23	22	0-2
				1754.3	20393	21.61	22	0-2
	64-QAM	1 RB	0	1710.7	19957	21.94	23	0-1
				1732.5	20175	22.62	23	0-1
				1754.3	20393	22.56	23	0-1
			2	1710.7	19957	22.62	23	0-1
				1732.5	20175	22.46	23	0-1
				1754.3	20393	22.85	23	0-1
			5	1710.7	19957	22.29	23	0-1
				1732.5	20175	22.31	23	0-1
				1754.3	20393	22.30	23	0-1
		3 RB	0	1710.7	19957	22.15	23	0-1
				1732.5	20175	22.16	23	0-1
				1754.3	20393	22.44	23	0-1
			2	1710.7	19957	22.21	23	0-1
				1732.5	20175	22.27	23	0-1
				1754.3	20393	22.35	23	0-1
			3	1710.7	19957	22.03	23	0-1
				1732.5	20175	22.25	23	0-1
				1754.3	20393	22.48	23	0-1
		6RB		1710.7	19957	21.14	22	0-2
				1732.5	20175	21.21	22	0-2
				1754.3	20393	21.58	22	0-2

LTE FDD Band 5 - conducted power table:

FDD Band 5								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	829	20450	22.48	23	0
				836.5	20525	22.58	23	0
				844	20600	22.99	23	0
			25	829	20450	22.59	23	0
				836.5	20525	22.65	23	0
				844	20600	22.96	23	0
			49	829	20450	22.76	23	0
				836.5	20525	22.69	23	0
				844	20600	22.86	23	0
		25 RB	0	829	20450	21.65	22	0-1
				836.5	20525	21.74	22	0-1
				844	20600	21.86	22	0-1
			12	829	20450	21.67	22	0-1
				836.5	20525	21.75	22	0-1
				844	20600	21.93	22	0-1
			25	829	20450	21.69	22	0-1
				836.5	20525	21.72	22	0-1
				844	20600	21.77	22	0-1
		50RB		829	20450	21.59	22	0-1
				836.5	20525	21.68	22	0-1
				844	20600	21.87	22	0-1
	16-QAM	1 RB	0	829	20450	21.80	22	0-1
				836.5	20525	21.85	22	0-1
				844	20600	21.92	22	0-1
			25	829	20450	21.53	22	0-1
				836.5	20525	21.92	22	0-1
				844	20600	21.91	22	0-1
			49	829	20450	21.58	22	0-1
				836.5	20525	21.98	22	0-1
				844	20600	21.96	22	0-1
		25 RB	0	829	20450	20.67	21	0-2
				836.5	20525	20.72	21	0-2
				844	20600	20.83	21	0-2
			12	829	20450	20.65	21	0-2
				836.5	20525	20.65	21	0-2
				844	20600	20.94	21	0-2
			25	829	20450	20.65	21	0-2
				836.5	20525	20.73	21	0-2
				844	20600	20.91	21	0-2
		500RB		829	20450	20.63	21	0-2
				836.5	20525	20.75	21	0-2
				844	20600	20.99	21	0-2
	64-QAM	1 RB	0	829	20450	21.76	22	0-1
				836.5	20525	21.84	22	0-1
				844	20600	21.90	22	0-1
			25	829	20450	21.49	22	0-1
				836.5	20525	21.88	22	0-1
				844	20600	21.87	22	0-1
			49	829	20450	21.57	22	0-1
				836.5	20525	21.96	22	0-1
				844	20600	21.92	22	0-1
		25 RB	0	829	20450	20.63	21	0-2
				836.5	20525	20.68	21	0-2
				844	20600	20.82	21	0-2
			12	829	20450	20.63	21	0-2
				836.5	20525	20.61	21	0-2
				844	20600	20.90	21	0-2
			25	829	20450	20.61	21	0-2
				836.5	20525	20.72	21	0-2
				844	20600	20.89	21	0-2
		500RB		829	20450	20.59	21	0-2
				836.5	20525	20.71	21	0-2
				844	20600	20.95	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	826.5	20425	22.54	23	0
				836.5	20525	22.73	23	0
				846.5	20625	22.78	23	0
			12	826.5	20425	22.58	23	0
				836.5	20525	22.62	23	0
				846.5	20625	22.90	23	0
			24	826.5	20425	22.60	23	0
				836.5	20525	22.88	23	0
				846.5	20625	22.73	23	0
		12 RB	0	826.5	20425	21.51	22	0-1
				836.5	20525	21.71	22	0-1
				846.5	20625	21.91	22	0-1
			6	826.5	20425	21.70	22	0-1
				836.5	20525	21.65	22	0-1
				846.5	20625	21.90	22	0-1
			13	826.5	20425	21.63	22	0-1
				836.5	20525	21.75	22	0-1
				846.5	20625	21.90	22	0-1
		25RB		826.5	20425	21.66	22	0-1
				836.5	20525	21.70	22	0-1
				846.5	20625	21.91	22	0-1
	16-QAM	1 RB	0	826.5	20425	21.49	22	0-1
				836.5	20525	21.91	22	0-1
				846.5	20625	21.94	22	0-1
			12	826.5	20425	21.97	22	0-1
				836.5	20525	21.93	22	0-1
				846.5	20625	21.99	22	0-1
			24	826.5	20425	21.52	22	0-1
				836.5	20525	21.93	22	0-1
				846.5	20625	21.73	22	0-1
		12 RB	0	826.5	20425	20.59	21	0-2
				836.5	20525	20.75	21	0-2
				846.5	20625	20.98	21	0-2
			6	826.5	20425	20.65	21	0-2
				836.5	20525	20.72	21	0-2
				846.5	20625	20.93	21	0-2
			13	826.5	20425	20.67	21	0-2
				836.5	20525	20.87	21	0-2
				846.5	20625	20.89	21	0-2
		25RB		826.5	20425	20.75	21	0-2
				836.5	20525	20.65	21	0-2
				846.5	20625	20.95	21	0-2
	64-QAM	1 RB	0	826.5	20425	21.45	22	0-1
				836.5	20525	21.90	22	0-1
				846.5	20625	21.92	22	0-1
			12	826.5	20425	21.93	22	0-1
				836.5	20525	21.89	22	0-1
				846.5	20625	21.95	22	0-1
			24	826.5	20425	21.51	22	0-1
				836.5	20525	21.91	22	0-1
				846.5	20625	21.69	22	0-1
		12 RB	0	826.5	20425	20.55	21	0-2
				836.5	20525	20.71	21	0-2
				846.5	20625	20.97	21	0-2
			6	826.5	20425	20.63	21	0-2
				836.5	20525	20.68	21	0-2
				846.5	20625	20.89	21	0-2
			13	826.5	20425	20.63	21	0-2
				836.5	20525	20.86	21	0-2
				846.5	20625	20.87	21	0-2
		25RB		826.5	20425	20.71	21	0-2
				836.5	20525	20.61	21	0-2
				846.5	20625	20.91	21	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	825.5	20415	22.51	23	0
3	QPSK	1 RB	0	836.5	20525	22.59	23	0
3	QPSK	1 RB	0	847.5	20635	22.86	23	0
3	QPSK	1 RB	7	825.5	20415	22.62	23	0
3	QPSK	1 RB	7	836.5	20525	22.72	23	0
3	QPSK	1 RB	7	847.5	20635	22.94	23	0
3	QPSK	1 RB	14	825.5	20415	22.63	23	0
3	QPSK	1 RB	14	836.5	20525	22.83	23	0
3	QPSK	1 RB	14	847.5	20635	22.72	23	0
3	QPSK	8 RB	0	825.5	20415	21.53	22	0-1
3	QPSK	8 RB	0	836.5	20525	21.74	22	0-1
3	QPSK	8 RB	0	847.5	20635	21.95	22	0-1
3	QPSK	8 RB	4	825.5	20415	21.60	22	0-1
3	QPSK	8 RB	4	836.5	20525	21.65	22	0-1
3	QPSK	8 RB	4	847.5	20635	21.91	22	0-1
3	QPSK	8 RB	7	825.5	20415	21.61	22	0-1
3	QPSK	8 RB	7	836.5	20525	21.84	22	0-1
3	QPSK	8 RB	7	847.5	20635	21.92	22	0-1
3	QPSK	15RB		825.5	20415	21.57	22	0-1
3	QPSK	15RB		836.5	20525	21.71	22	0-1
3	QPSK	15RB		847.5	20635	21.84	22	0-1
3	16-QAM	1 RB	0	825.5	20415	21.69	22	0-1
3	16-QAM	1 RB	0	836.5	20525	21.97	22	0-1
3	16-QAM	1 RB	0	847.5	20635	21.96	22	0-1
3	16-QAM	1 RB	7	825.5	20415	21.73	22	0-1
3	16-QAM	1 RB	7	836.5	20525	21.96	22	0-1
3	16-QAM	1 RB	7	847.5	20635	21.95	22	0-1
3	16-QAM	1 RB	14	825.5	20415	21.90	22	0-1
3	16-QAM	1 RB	14	836.5	20525	21.96	22	0-1
3	16-QAM	1 RB	14	847.5	20635	21.98	22	0-1
3	16-QAM	8 RB	0	825.5	20415	20.66	21	0-2
3	16-QAM	8 RB	0	836.5	20525	20.83	21	0-2
3	16-QAM	8 RB	0	847.5	20635	20.91	21	0-2
3	16-QAM	8 RB	4	825.5	20415	20.57	21	0-2
3	16-QAM	8 RB	4	836.5	20525	20.71	21	0-2
3	16-QAM	8 RB	4	847.5	20635	20.91	21	0-2
3	16-QAM	8 RB	7	825.5	20415	20.69	21	0-2
3	16-QAM	8 RB	7	836.5	20525	20.78	21	0-2
3	16-QAM	8 RB	7	847.5	20635	20.98	21	0-2
3	16-QAM	15RB		825.5	20415	20.64	21	0-2
3	16-QAM	15RB		836.5	20525	20.77	21	0-2
3	16-QAM	15RB		847.5	20635	20.87	21	0-2
3	64-QAM	1 RB	0	825.5	20415	21.65	22	0-1
3	64-QAM	1 RB	0	836.5	20525	21.96	22	0-1
3	64-QAM	1 RB	0	847.5	20635	21.94	22	0-1
3	64-QAM	1 RB	7	825.5	20415	21.69	22	0-1
3	64-QAM	1 RB	7	836.5	20525	21.92	22	0-1
3	64-QAM	1 RB	7	847.5	20635	21.91	22	0-1
3	64-QAM	1 RB	14	825.5	20415	21.89	22	0-1
3	64-QAM	1 RB	14	836.5	20525	21.94	22	0-1
3	64-QAM	1 RB	14	847.5	20635	21.94	22	0-1
3	64-QAM	8 RB	0	825.5	20415	20.62	21	0-2
3	64-QAM	8 RB	0	836.5	20525	20.79	21	0-2
3	64-QAM	8 RB	0	847.5	20635	20.90	21	0-2
3	64-QAM	8 RB	4	825.5	20415	20.55	21	0-2
3	64-QAM	8 RB	4	836.5	20525	20.67	21	0-2
3	64-QAM	8 RB	4	847.5	20635	20.87	21	0-2
3	64-QAM	8 RB	7	825.5	20415	20.65	21	0-2
3	64-QAM	8 RB	7	836.5	20525	20.77	21	0-2
3	64-QAM	8 RB	7	847.5	20635	20.96	21	0-2
3	64-QAM	15RB		825.5	20415	20.60	21	0-2
3	64-QAM	15RB		836.5	20525	20.73	21	0-2
3	64-QAM	15RB		847.5	20635	20.83	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	824.7	20407	22.42	23	0
				836.5	20525	22.61	23	0
				848.3	20643	22.80	23	0
			2	824.7	20407	22.49	23	0
				836.5	20525	22.63	23	0
				848.3	20643	22.80	23	0
			5	824.7	20407	22.49	23	0
				836.5	20525	22.68	23	0
				848.3	20643	22.70	23	0
		3 RB	0	824.7	20407	22.51	23	0
				836.5	20525	22.63	23	0
				848.3	20643	22.75	23	0
			2	824.7	20407	22.52	23	0
				836.5	20525	22.65	23	0
				848.3	20643	22.87	23	0
			3	824.7	20407	22.51	23	0
				836.5	20525	22.64	23	0
				848.3	20643	22.80	23	0
		6RB		824.7	20407	21.41	22	0-1
				836.5	20525	21.65	22	0-1
				848.3	20643	21.77	22	0-1
	16-QAM	1 RB	0	824.7	20407	21.51	22	0-1
				836.5	20525	21.54	22	0-1
				848.3	20643	21.96	22	0-1
			2	824.7	20407	21.45	22	0-1
				836.5	20525	21.94	22	0-1
				848.3	20643	21.96	22	0-1
			5	824.7	20407	21.45	22	0-1
				836.5	20525	21.84	22	0-1
				848.3	20643	21.97	22	0-1
		3 RB	0	824.7	20407	21.50	22	0-1
				836.5	20525	21.71	22	0-1
				848.3	20643	21.82	22	0-1
			2	824.7	20407	21.62	22	0-1
				836.5	20525	21.64	22	0-1
				848.3	20643	21.91	22	0-1
			3	824.7	20407	21.53	22	0-1
				836.5	20525	21.69	22	0-1
				848.3	20643	21.81	22	0-1
		6RB		824.7	20407	20.51	21	0-2
				836.5	20525	20.64	21	0-2
				848.3	20643	20.91	21	0-2
	64-QAM	1 RB	0	824.7	20407	21.47	22	0-1
				836.5	20525	21.53	22	0-1
				848.3	20643	21.94	22	0-1
			2	824.7	20407	21.41	22	0-1
				836.5	20525	21.90	22	0-1
				848.3	20643	21.92	22	0-1
			5	824.7	20407	21.44	22	0-1
				836.5	20525	21.82	22	0-1
				848.3	20643	21.93	22	0-1
		3 RB	0	824.7	20407	21.46	22	0-1
				836.5	20525	21.67	22	0-1
				848.3	20643	21.81	22	0-1
			2	824.7	20407	21.60	22	0-1
				836.5	20525	21.60	22	0-1
				848.3	20643	21.87	22	0-1
			3	824.7	20407	21.49	22	0-1
				836.5	20525	21.68	22	0-1
				848.3	20643	21.79	22	0-1
		6RB		824.7	20407	20.47	21	0-2
				836.5	20525	20.60	21	0-2
				848.3	20643	20.87	21	0-2

LTE FDD Band 7 - conducted power table:

FDD Band 7								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	2510	20850	22.87	23.5	0
				2535	21100	22.96	23.5	0
				2560	21350	22.88	23.5	0
			50	2510	20850	22.69	23.5	0
				2535	21100	22.76	23.5	0
				2560	21350	22.61	23.5	0
			99	2510	20850	22.95	23.5	0
				2535	21100	22.89	23.5	0
				2560	21350	22.54	23.5	0
		50 RB	0	2510	20850	21.25	22.5	0-1
				2535	21100	21.46	22.5	0-1
				2560	21350	21.23	22.5	0-1
			25	2510	20850	21.42	22.5	0-1
				2535	21100	21.47	22.5	0-1
				2560	21350	21.20	22.5	0-1
			50	2510	20850	21.43	22.5	0-1
				2535	21100	21.44	22.5	0-1
				2560	21350	21.05	22.5	0-1
		100RB		2510	20850	21.40	22.5	0-1
				2535	21100	21.41	22.5	0-1
				2560	21350	21.14	22.5	0-1
	16-QAM	1 RB	0	2510	20850	21.59	22.5	0-1
				2535	21100	21.75	22.5	0-1
				2560	21350	21.51	22.5	0-1
			50	2510	20850	21.56	22.5	0-1
				2535	21100	21.28	22.5	0-1
				2560	21350	21.08	22.5	0-1
			99	2510	20850	21.98	22.5	0-1
				2535	21100	21.35	22.5	0-1
				2560	21350	21.57	22.5	0-1
		50 RB	0	2510	20850	20.83	21.5	0-2
				2535	21100	20.99	21.5	0-2
				2560	21350	20.77	21.5	0-2
			25	2510	20850	20.96	21.5	0-2
				2535	21100	20.91	21.5	0-2
				2560	21350	20.75	21.5	0-2
			50	2510	20850	20.90	21.5	0-2
				2535	21100	20.98	21.5	0-2
				2560	21350	20.72	21.5	0-2
		100RB		2510	20850	20.96	21.5	0-2
				2535	21100	20.94	21.5	0-2
				2560	21350	20.73	21.5	0-2
	16-QAM	1 RB	0	2510	20850	21.55	22.5	0-1
				2535	21100	21.74	22.5	0-1
				2560	21350	21.49	22.5	0-1
			50	2510	20850	21.52	22.5	0-1
				2535	21100	21.24	22.5	0-1
				2560	21350	21.04	22.5	0-1
			99	2510	20850	21.97	22.5	0-1
				2535	21100	21.33	22.5	0-1
				2560	21350	21.52	22.5	0-1
		50 RB	0	2510	20850	20.77	21.5	0-2
				2535	21100	20.97	21.5	0-2
				2560	21350	20.75	21.5	0-2
			25	2510	20850	20.94	21.5	0-2
				2535	21100	20.87	21.5	0-2
				2560	21350	20.71	21.5	0-2
			50	2510	20850	20.86	21.5	0-2
				2535	21100	20.97	21.5	0-2
				2560	21350	20.70	21.5	0-2
		100RB		2510	20850	20.92	21.5	0-2
				2535	21100	20.90	21.5	0-2
				2560	21350	20.69	21.5	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	2507.5	20825	22.82	23.5	0
				2535	21100	22.83	23.5	0
				2562.5	21375	22.73	23.5	0
			36	2507.5	20825	22.85	23.5	0
				2535	21100	22.80	23.5	0
				2562.5	21375	22.61	23.5	0
			74	2507.5	20825	22.91	23.5	0
				2535	21100	22.86	23.5	0
				2562.5	21375	22.57	23.5	0
		36 RB	0	2507.5	20825	21.85	22.5	0-1
				2535	21100	21.97	22.5	0-1
				2562.5	21375	21.73	22.5	0-1
			18	2507.5	20825	21.99	22.5	0-1
				2535	21100	21.94	22.5	0-1
				2562.5	21375	21.70	22.5	0-1
			37	2507.5	20825	21.94	22.5	0-1
				2535	21100	21.95	22.5	0-1
				2562.5	21375	21.62	22.5	0-1
		75RB		2507.5	20825	21.88	22.5	0-1
				2535	21100	21.95	22.5	0-1
				2562.5	21375	21.69	22.5	0-1
	16-QAM	1 RB	0	2507.5	20825	21.63	22.5	0-1
				2535	21100	21.92	22.5	0-1
				2562.5	21375	21.53	22.5	0-1
			36	2507.5	20825	21.49	22.5	0-1
				2535	21100	21.62	22.5	0-1
				2562.5	21375	21.40	22.5	0-1
			74	2507.5	20825	21.68	22.5	0-1
				2535	21100	21.44	22.5	0-1
				2562.5	21375	21.46	22.5	0-1
		36 RB	0	2507.5	20825	20.87	21.5	0-2
				2535	21100	20.99	21.5	0-2
				2562.5	21375	20.79	21.5	0-2
			18	2507.5	20825	20.95	21.5	0-2
				2535	21100	20.92	21.5	0-2
				2562.5	21375	20.67	21.5	0-2
			37	2507.5	20825	20.95	21.5	0-2
				2535	21100	20.94	21.5	0-2
				2562.5	21375	20.71	21.5	0-2
		75RB		2507.5	20825	20.97	21.5	0-2
				2535	21100	21.00	21.5	0-2
				2562.5	21375	20.75	21.5	0-2
	64-QAM	1 RB	0	2507.5	20825	21.59	22.5	0-1
				2535	21100	21.91	22.5	0-1
				2562.5	21375	21.51	22.5	0-1
			36	2507.5	20825	21.45	22.5	0-1
				2535	21100	21.58	22.5	0-1
				2562.5	21375	21.36	22.5	0-1
			74	2507.5	20825	21.67	22.5	0-1
				2535	21100	21.42	22.5	0-1
				2562.5	21375	21.41	22.5	0-1
		36 RB	0	2507.5	20825	20.81	21.5	0-2
				2535	21100	20.97	21.5	0-2
				2562.5	21375	20.77	21.5	0-2
			18	2507.5	20825	20.93	21.5	0-2
				2535	21100	20.88	21.5	0-2
				2562.5	21375	20.63	21.5	0-2
			37	2507.5	20825	20.91	21.5	0-2
				2535	21100	20.93	21.5	0-2
				2562.5	21375	20.69	21.5	0-2
		75RB		2507.5	20825	20.93	21.5	0-2
				2535	21100	20.96	21.5	0-2
				2562.5	21375	20.71	21.5	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	2505	20800	22.57	23.5	0
				2535	21100	22.60	23.5	0
				2565	21400	22.49	23.5	0
			25	2505	20800	22.54	23.5	0
				2535	21100	22.86	23.5	0
				2565	21400	22.36	23.5	0
			49	2505	20800	22.65	23.5	0
				2535	21100	22.57	23.5	0
				2565	21400	22.37	23.5	0
		25 RB	0	2505	20800	21.56	22.5	0-1
				2535	21100	21.64	22.5	0-1
				2565	21400	21.37	22.5	0-1
			12	2505	20800	21.62	22.5	0-1
				2535	21100	21.72	22.5	0-1
				2565	21400	21.37	22.5	0-1
			25	2505	20800	21.61	22.5	0-1
				2535	21100	21.66	22.5	0-1
				2565	21400	21.41	22.5	0-1
		50RB		2505	20800	21.59	22.5	0-1
				2535	21100	21.67	22.5	0-1
				2565	21400	21.38	22.5	0-1
	16-QAM	1 RB	0	2505	20800	21.91	22.5	0-1
				2535	21100	21.96	22.5	0-1
				2565	21400	21.60	22.5	0-1
			25	2505	20800	21.43	22.5	0-1
				2535	21100	21.83	22.5	0-1
				2565	21400	21.53	22.5	0-1
			49	2505	20800	21.65	22.5	0-1
				2535	21100	21.50	22.5	0-1
				2565	21400	21.23	22.5	0-1
		25 RB	0	2505	20800	20.57	21.5	0-2
				2535	21100	20.64	21.5	0-2
				2565	21400	20.38	21.5	0-2
			12	2505	20800	20.70	21.5	0-2
				2535	21100	20.66	21.5	0-2
				2565	21400	20.38	21.5	0-2
			25	2505	20800	20.65	21.5	0-2
				2535	21100	20.59	21.5	0-2
				2565	21400	20.42	21.5	0-2
		50RB		2505	20800	20.63	21.5	0-2
				2535	21100	20.58	21.5	0-2
				2565	21400	20.40	21.5	0-2
	64-QAM	1 RB	0	2505	20800	21.87	22.5	0-1
				2535	21100	21.95	22.5	0-1
				2565	21400	21.58	22.5	0-1
			25	2505	20800	21.39	22.5	0-1
				2535	21100	21.79	22.5	0-1
				2565	21400	21.49	22.5	0-1
			49	2505	20800	21.64	22.5	0-1
				2535	21100	21.48	22.5	0-1
				2565	21400	21.18	22.5	0-1
		25 RB	0	2505	20800	20.51	21.5	0-2
				2535	21100	20.62	21.5	0-2
				2565	21400	20.36	21.5	0-2
			12	2505	20800	20.68	21.5	0-2
				2535	21100	20.62	21.5	0-2
				2565	21400	20.34	21.5	0-2
			25	2505	20800	20.61	21.5	0-2
				2535	21100	20.58	21.5	0-2
				2565	21400	20.40	21.5	0-2
		50RB		2505	20800	20.59	21.5	0-2
				2535	21100	20.54	21.5	0-2
				2565	21400	20.36	21.5	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	2502.5	20775	22.71	23.5	0
				2535	21100	22.68	23.5	0
				2567.5	21425	22.60	23.5	0
			12	2502.5	20775	22.79	23.5	0
				2535	21100	22.80	23.5	0
				2567.5	21425	22.38	23.5	0
			24	2502.5	20775	22.75	23.5	0
				2535	21100	22.82	23.5	0
				2567.5	21425	22.53	23.5	0
		12 RB	0	2502.5	20775	21.73	22.5	0-1
				2535	21100	21.93	22.5	0-1
				2567.5	21425	21.63	22.5	0-1
			6	2502.5	20775	21.78	22.5	0-1
				2535	21100	21.94	22.5	0-1
				2567.5	21425	21.57	22.5	0-1
			13	2502.5	20775	21.74	22.5	0-1
				2535	21100	21.85	22.5	0-1
				2567.5	21425	21.56	22.5	0-1
		25RB		2502.5	20775	21.78	22.5	0-1
				2535	21100	21.82	22.5	0-1
				2567.5	21425	21.57	22.5	0-1
	16-QAM	1 RB	0	2502.5	20775	21.87	22.5	0-1
				2535	21100	21.63	22.5	0-1
				2567.5	21425	21.35	22.5	0-1
			12	2502.5	20775	21.84	22.5	0-1
				2535	21100	21.92	22.5	0-1
				2567.5	21425	21.35	22.5	0-1
			24	2502.5	20775	21.57	22.5	0-1
				2535	21100	21.60	22.5	0-1
				2567.5	21425	21.37	22.5	0-1
		12 RB	0	2502.5	20775	20.86	21.5	0-2
				2535	21100	20.91	21.5	0-2
				2567.5	21425	20.53	21.5	0-2
			6	2502.5	20775	20.75	21.5	0-2
				2535	21100	20.84	21.5	0-2
				2567.5	21425	20.60	21.5	0-2
			13	2502.5	20775	20.79	21.5	0-2
				2535	21100	20.91	21.5	0-2
				2567.5	21425	20.53	21.5	0-2
		25RB		2502.5	20775	20.76	21.5	0-2
				2535	21100	20.91	21.5	0-2
				2567.5	21425	20.60	21.5	0-2
	64-QAM	1 RB	0	2502.5	20775	21.83	22.5	0-1
				2535	21100	21.62	22.5	0-1
				2567.5	21425	21.33	22.5	0-1
			12	2502.5	20775	21.80	22.5	0-1
				2535	21100	21.88	22.5	0-1
				2567.5	21425	21.31	22.5	0-1
			24	2502.5	20775	21.56	22.5	0-1
				2535	21100	21.58	22.5	0-1
				2567.5	21425	21.32	22.5	0-1
		12 RB	0	2502.5	20775	20.80	21.5	0-2
				2535	21100	20.89	21.5	0-2
				2567.5	21425	20.51	21.5	0-2
			6	2502.5	20775	20.73	21.5	0-2
				2535	21100	20.80	21.5	0-2
				2567.5	21425	20.56	21.5	0-2
			13	2502.5	20775	20.75	21.5	0-2
				2535	21100	20.90	21.5	0-2
				2567.5	21425	20.51	21.5	0-2
		25RB		2502.5	20775	20.72	21.5	0-2
				2535	21100	20.87	21.5	0-2
				2567.5	21425	20.56	21.5	0-2

LTE FDD Band 12 - conducted power table:

FDD Band 12								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	704	23060	22.55	23	0
				707.5	23095	22.65	23	0
				711	23130	22.98	23	0
			25	704	23060	22.91	23	0
				707.5	23095	22.85	23	0
				711	23130	22.76	23	0
			49	704	23060	22.93	23	0
				707.5	23095	22.84	23	0
				711	23130	22.95	23	0
		25 RB	0	704	23060	21.83	22	0-1
				707.5	23095	21.74	22	0-1
				711	23130	21.79	22	0-1
			12	704	23060	21.88	22	0-1
				707.5	23095	21.92	22	0-1
				711	23130	21.87	22	0-1
			25	704	23060	21.82	22	0-1
				707.5	23095	21.85	22	0-1
				711	23130	21.86	22	0-1
		50RB		704	23060	21.84	22	0-1
				707.5	23095	21.81	22	0-1
				711	23130	21.77	22	0-1
	16-QAM	1 RB	0	704	23060	21.99	22	0-1
				707.5	23095	21.83	22	0-1
				711	23130	21.93	22	0-1
			25	704	23060	21.99	22	0-1
				707.5	23095	21.98	22	0-1
				711	23130	21.70	22	0-1
			49	704	23060	21.90	22	0-1
				707.5	23095	21.87	22	0-1
				711	23130	21.91	22	0-1
		25 RB	0	704	23060	20.71	21	0-2
				707.5	23095	20.75	21	0-2
				711	23130	20.84	21	0-2
			12	704	23060	20.78	21	0-2
				707.5	23095	20.90	21	0-2
				711	23130	20.87	21	0-2
			25	704	23060	20.82	21	0-2
				707.5	23095	20.90	21	0-2
				711	23130	20.89	21	0-2
		50RB		704	23060	20.80	21	0-2
				707.5	23095	20.97	21	0-2
				711	23130	20.78	21	0-2
	64-QAM	1 RB	0	704	23060	21.95	22	0-1
				707.5	23095	21.81	22	0-1
				711	23130	21.89	22	0-1
			25	704	23060	21.95	22	0-1
				707.5	23095	21.94	22	0-1
				711	23130	21.66	22	0-1
			49	704	23060	21.87	22	0-1
				707.5	23095	21.83	22	0-1
				711	23130	21.86	22	0-1
		25 RB	0	704	23060	20.65	21	0-2
				707.5	23095	20.73	21	0-2
				711	23130	20.82	21	0-2
			12	704	23060	20.76	21	0-2
				707.5	23095	20.86	21	0-2
				711	23130	20.83	21	0-2
			25	704	23060	20.78	21	0-2
				707.5	23095	20.89	21	0-2
				711	23130	20.87	21	0-2
		50RB		704	23060	20.76	21	0-2
				707.5	23095	20.93	21	0-2
				711	23130	20.74	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	701.5	23035	22.69	23	0
				707.5	23095	22.74	23	0
				713.5	23155	22.69	23	0
			12	701.5	23035	22.69	23	0
				707.5	23095	22.84	23	0
				713.5	23155	22.76	23	0
			24	701.5	23035	22.71	23	0
				707.5	23095	22.79	23	0
				713.5	23155	22.88	23	0
		12 RB	0	701.5	23035	21.64	22	0-1
				707.5	23095	21.72	22	0-1
				713.5	23155	21.85	22	0-1
			6	701.5	23035	21.76	22	0-1
				707.5	23095	21.86	22	0-1
				713.5	23155	21.87	22	0-1
			13	701.5	23035	21.80	22	0-1
				707.5	23095	21.77	22	0-1
				713.5	23155	21.84	22	0-1
		25RB		701.5	23035	21.74	22	0-1
				707.5	23095	21.83	22	0-1
				713.5	23155	21.87	22	0-1
	16-QAM	1 RB	0	701.5	23035	21.78	22	0-1
				707.5	23095	21.87	22	0-1
				713.5	23155	21.75	22	0-1
			12	701.5	23035	21.85	22	0-1
				707.5	23095	21.93	22	0-1
				713.5	23155	21.95	22	0-1
			24	701.5	23035	21.98	22	0-1
				707.5	23095	21.93	22	0-1
				713.5	23155	22.00	22	0-1
		12 RB	0	701.5	23035	20.70	21	0-2
				707.5	23095	20.77	21	0-2
				713.5	23155	20.94	21	0-2
			6	701.5	23035	20.84	21	0-2
				707.5	23095	20.90	21	0-2
				713.5	23155	20.86	21	0-2
			13	701.5	23035	20.77	21	0-2
				707.5	23095	20.84	21	0-2
				713.5	23155	20.87	21	0-2
		25RB		701.5	23035	20.73	21	0-2
				707.5	23095	20.91	21	0-2
				713.5	23155	20.88	21	0-2
	64-QAM	1 RB	0	701.5	23035	21.74	22	0-1
				707.5	23095	21.85	22	0-1
				713.5	23155	21.71	22	0-1
			12	701.5	23035	21.81	22	0-1
				707.5	23095	21.89	22	0-1
				713.5	23155	21.91	22	0-1
			24	701.5	23035	21.95	22	0-1
				707.5	23095	21.89	22	0-1
				713.5	23155	21.95	22	0-1
		12 RB	0	701.5	23035	20.64	21	0-2
				707.5	23095	20.75	21	0-2
				713.5	23155	20.92	21	0-2
			6	701.5	23035	20.82	21	0-2
				707.5	23095	20.86	21	0-2
				713.5	23155	20.82	21	0-2
			13	701.5	23035	20.73	21	0-2
				707.5	23095	20.83	21	0-2
				713.5	23155	20.85	21	0-2
		25RB		701.5	23035	20.69	21	0-2
				707.5	23095	20.87	21	0-2
				713.5	23155	20.84	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	700.5	23025	22.49	23	0
				707.5	23095	22.68	23	0
				714.5	23165	22.77	23	0
			7	700.5	23025	22.66	23	0
				707.5	23095	22.72	23	0
				714.5	23165	22.89	23	0
			14	700.5	23025	22.61	23	0
				707.5	23095	22.68	23	0
				714.5	23165	22.70	23	0
		8 RB	0	700.5	23025	21.55	22	0-1
				707.5	23095	21.77	22	0-1
				714.5	23165	21.72	22	0-1
			4	700.5	23025	21.70	22	0-1
				707.5	23095	21.81	22	0-1
				714.5	23165	21.77	22	0-1
			7	700.5	23025	21.71	22	0-1
				707.5	23095	21.69	22	0-1
				714.5	23165	21.74	22	0-1
		15RB		700.5	23025	21.65	22	0-1
				707.5	23095	21.70	22	0-1
				714.5	23165	21.68	22	0-1
	16-QAM	1 RB	0	700.5	23025	21.59	22	0-1
				707.5	23095	21.98	22	0-1
				714.5	23165	21.62	22	0-1
			7	700.5	23025	21.91	22	0-1
				707.5	23095	21.82	22	0-1
				714.5	23165	21.92	22	0-1
			14	700.5	23025	21.83	22	0-1
				707.5	23095	21.98	22	0-1
				714.5	23165	21.90	22	0-1
		8 RB	0	700.5	23025	20.62	21	0-2
				707.5	23095	20.85	21	0-2
				714.5	23165	20.78	21	0-2
			4	700.5	23025	20.67	21	0-2
				707.5	23095	20.86	21	0-2
				714.5	23165	20.85	21	0-2
			7	700.5	23025	20.81	21	0-2
				707.5	23095	20.70	21	0-2
				714.5	23165	20.85	21	0-2
		15RB		700.5	23025	20.61	21	0-2
				707.5	23095	20.82	21	0-2
				714.5	23165	20.75	21	0-2
	64-QAM	1 RB	0	700.5	23025	21.55	22	0-1
				707.5	23095	21.96	22	0-1
				714.5	23165	21.58	22	0-1
			7	700.5	23025	21.87	22	0-1
				707.5	23095	21.78	22	0-1
				714.5	23165	21.88	22	0-1
			14	700.5	23025	21.80	22	0-1
				707.5	23095	21.94	22	0-1
				714.5	23165	21.85	22	0-1
		8 RB	0	700.5	23025	20.56	21	0-2
				707.5	23095	20.83	21	0-2
				714.5	23165	20.76	21	0-2
			4	700.5	23025	20.65	21	0-2
				707.5	23095	20.82	21	0-2
				714.5	23165	20.81	21	0-2
			7	700.5	23025	20.77	21	0-2
				707.5	23095	20.69	21	0-2
				714.5	23165	20.83	21	0-2
		15RB		700.5	23025	20.57	21	0-2
				707.5	23095	20.78	21	0-2
				714.5	23165	20.71	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	699.7	23017	22.60	23	0
				707.5	23095	22.68	23	0
				715.3	23173	22.66	23	0
			2	699.7	23017	22.66	23	0
				707.5	23095	22.82	23	0
				715.3	23173	22.82	23	0
			5	699.7	23017	22.57	23	0
				707.5	23095	22.77	23	0
				715.3	23173	22.67	23	0
		3 RB	0	699.7	23017	22.65	23	0
				707.5	23095	22.81	23	0
				715.3	23173	22.74	23	0
			2	699.7	23017	22.66	23	0
				707.5	23095	22.82	23	0
				715.3	23173	22.84	23	0
			3	699.7	23017	22.64	23	0
				707.5	23095	22.78	23	0
				715.3	23173	22.82	23	0
		6RB		699.7	23017	21.68	22	0-1
				707.5	23095	21.78	22	0-1
				715.3	23173	21.76	22	0-1
	16-QAM	1 RB	0	699.7	23017	21.94	22	0-1
				707.5	23095	21.87	22	0-1
				715.3	23173	21.63	22	0-1
			2	699.7	23017	21.87	22	0-1
				707.5	23095	21.98	22	0-1
				715.3	23173	21.93	22	0-1
			5	699.7	23017	21.96	22	0-1
				707.5	23095	21.92	22	0-1
				715.3	23173	21.95	22	0-1
		3 RB	0	699.7	23017	21.64	22	0-1
				707.5	23095	21.84	22	0-1
				715.3	23173	21.79	22	0-1
			2	699.7	23017	21.66	22	0-1
				707.5	23095	21.87	22	0-1
				715.3	23173	21.87	22	0-1
			3	699.7	23017	21.52	22	0-1
				707.5	23095	21.81	22	0-1
				715.3	23173	21.59	22	0-1
		6RB		699.7	23017	20.66	21	0-2
				707.5	23095	20.84	21	0-2
				715.3	23173	20.76	21	0-2
	64-QAM	1 RB	0	699.7	23017	21.90	22	0-1
				707.5	23095	21.85	22	0-1
				715.3	23173	21.59	22	0-1
			2	699.7	23017	21.83	22	0-1
				707.5	23095	21.94	22	0-1
				715.3	23173	21.89	22	0-1
			5	699.7	23017	21.93	22	0-1
				707.5	23095	21.88	22	0-1
				715.3	23173	21.90	22	0-1
		3 RB	0	699.7	23017	21.58	22	0-1
				707.5	23095	21.82	22	0-1
				715.3	23173	21.77	22	0-1
			2	699.7	23017	21.64	22	0-1
				707.5	23095	21.83	22	0-1
				715.3	23173	21.83	22	0-1
			3	699.7	23017	21.48	22	0-1
				707.5	23095	21.80	22	0-1
				715.3	23173	21.57	22	0-1
		6RB		699.7	23017	20.62	21	0-2
				707.5	23095	20.80	21	0-2
				715.3	23173	20.72	21	0-2

LTE FDD Band 17 - conducted power table:

FDD Band 17								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	709	23780	22.74	23	0
				710	23790	22.89	23	0
				711	23800	22.98	23	0
			25	709	23780	22.80	23	0
				710	23790	22.65	23	0
				711	23800	22.91	23	0
			49	709	23780	22.97	23	0
				710	23790	22.90	23	0
				711	23800	22.78	23	0
		25 RB	0	709	23780	21.85	22	0-1
				710	23790	21.77	22	0-1
				711	23800	21.81	22	0-1
			12	709	23780	21.82	22	0-1
				710	23790	21.93	22	0-1
				711	23800	21.78	22	0-1
			25	709	23780	21.88	22	0-1
				710	23790	21.92	22	0-1
				711	23800	21.96	22	0-1
		50RB		709	23780	21.86	22	0-1
				710	23790	21.80	22	0-1
				711	23800	21.75	22	0-1
	16-QAM	1 RB	0	709	23780	21.76	22	0-1
				710	23790	21.89	22	0-1
				711	23800	21.76	22	0-1
			25	709	23780	21.75	22	0-1
				710	23790	21.94	22	0-1
				711	23800	21.78	22	0-1
			49	709	23780	21.95	22	0-1
				710	23790	21.92	22	0-1
				711	23800	21.93	22	0-1
		25 RB	0	709	23780	20.77	21	0-2
				710	23790	20.85	21	0-2
				711	23800	20.81	21	0-2
			12	709	23780	20.83	21	0-2
				710	23790	20.91	21	0-2
				711	23800	20.86	21	0-2
			25	709	23780	20.86	21	0-2
				710	23790	20.99	21	0-2
				711	23800	20.76	21	0-2
		50RB		709	23780	20.83	21	0-2
				710	23790	20.99	21	0-2
				711	23800	20.84	21	0-2
	64-QAM	1 RB	0	709	23780	21.72	22	0-1
				710	23790	21.87	22	0-1
				711	23800	21.72	22	0-1
			25	709	23780	21.71	22	0-1
				710	23790	21.90	22	0-1
				711	23800	21.74	22	0-1
			49	709	23780	21.92	22	0-1
				710	23790	21.88	22	0-1
				711	23800	21.88	22	0-1
		25 RB	0	709	23780	20.71	21	0-2
				710	23790	20.83	21	0-2
				711	23800	20.79	21	0-2
			12	709	23780	20.81	21	0-2
				710	23790	20.87	21	0-2
				711	23800	20.82	21	0-2
			25	709	23780	20.82	21	0-2
				710	23790	20.98	21	0-2
				711	23800	20.74	21	0-2
		50RB		709	23780	20.79	21	0-2
				710	23790	20.95	21	0-2
				711	23800	20.80	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	706.5	23755	22.50	23	0
				710	23790	22.63	23	0
				713.5	23825	22.52	23	0
			12	706.5	23755	22.64	23	0
				710	23790	22.72	23	0
				713.5	23825	22.40	23	0
			24	706.5	23755	22.43	23	0
				710	23790	22.64	23	0
				713.5	23825	22.93	23	0
		12 RB	0	706.5	23755	21.66	22	0-1
				710	23790	21.67	22	0-1
				713.5	23825	21.72	22	0-1
			6	706.5	23755	21.66	22	0-1
				710	23790	21.64	22	0-1
				713.5	23825	21.77	22	0-1
			13	706.5	23755	21.70	22	0-1
				710	23790	21.67	22	0-1
				713.5	23825	21.78	22	0-1
		25RB		706.5	23755	21.66	22	0-1
				710	23790	21.62	22	0-1
				713.5	23825	21.76	22	0-1
	16-QAM	1 RB	0	706.5	23755	21.92	22	0-1
				710	23790	21.76	22	0-1
				713.5	23825	21.63	22	0-1
			12	706.5	23755	21.74	22	0-1
				710	23790	21.95	22	0-1
				713.5	23825	21.98	22	0-1
			24	706.5	23755	21.91	22	0-1
				710	23790	21.95	22	0-1
				713.5	23825	21.77	22	0-1
		12 RB	0	706.5	23755	20.71	21	0-2
				710	23790	20.75	21	0-2
				713.5	23825	20.78	21	0-2
			6	706.5	23755	20.60	21	0-2
				710	23790	20.69	21	0-2
				713.5	23825	20.75	21	0-2
			13	706.5	23755	20.57	21	0-2
				710	23790	20.64	21	0-2
				713.5	23825	20.76	21	0-2
		25RB		706.5	23755	20.62	21	0-2
				710	23790	20.68	21	0-2
				713.5	23825	20.75	21	0-2
	64-QAM	1 RB	0	706.5	23755	21.88	22	0-1
				710	23790	21.74	22	0-1
				713.5	23825	21.59	22	0-1
			12	706.5	23755	21.70	22	0-1
				710	23790	21.91	22	0-1
				713.5	23825	21.94	22	0-1
			24	706.5	23755	21.88	22	0-1
				710	23790	21.91	22	0-1
				713.5	23825	21.72	22	0-1
		12 RB	0	706.5	23755	20.65	21	0-2
				710	23790	20.73	21	0-2
				713.5	23825	20.76	21	0-2
			6	706.5	23755	20.58	21	0-2
				710	23790	20.65	21	0-2
				713.5	23825	20.71	21	0-2
			13	706.5	23755	20.53	21	0-2
				710	23790	20.63	21	0-2
				713.5	23825	20.74	21	0-2
		25RB		706.5	23755	20.58	21	0-2
				710	23790	20.64	21	0-2
				713.5	23825	20.71	21	0-2

LTE FDD Band 25 - conducted power table:

FDD Band 25								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1860	26140	22.78	23	0
				1882.5	26365	22.64	23	0
				1905	26590	22.99	23	0
			50	1860	26140	22.37	23	0
				1882.5	26365	22.35	23	0
				1905	26590	22.55	23	0
			99	1860	26140	22.52	23	0
				1882.5	26365	22.51	23	0
				1905	26590	22.75	23	0
		50 RB	0	1860	26140	21.46	22	0-1
				1882.5	26365	21.56	22	0-1
				1905	26590	21.85	22	0-1
			25	1860	26140	21.48	22	0-1
				1882.5	26365	21.47	22	0-1
				1905	26590	21.83	22	0-1
			50	1860	26140	21.51	22	0-1
				1882.5	26365	21.38	22	0-1
				1905	26590	21.75	22	0-1
		100RB		1860	26140	21.53	22	0-1
				1882.5	26365	21.49	22	0-1
				1905	26590	21.90	22	0-1
	16-QAM	1 RB	0	1860	26140	21.92	22	0-1
				1882.5	26365	21.62	22	0-1
				1905	26590	21.92	22	0-1
			50	1860	26140	21.89	22	0-1
				1882.5	26365	21.45	22	0-1
				1905	26590	21.90	22	0-1
			99	1860	26140	21.79	22	0-1
				1882.5	26365	22.00	22	0-1
				1905	26590	21.98	22	0-1
		50 RB	0	1860	26140	20.41	21	0-2
				1882.5	26365	20.48	21	0-2
				1905	26590	20.88	21	0-2
			25	1860	26140	20.55	21	0-2
				1882.5	26365	20.47	21	0-2
				1905	26590	20.79	21	0-2
			50	1860	26140	20.44	21	0-2
				1882.5	26365	20.45	21	0-2
				1905	26590	20.88	21	0-2
		100RB		1860	26140	20.56	21	0-2
				1882.5	26365	20.50	21	0-2
				1905	26590	20.92	21	0-2
	64-QAM	1 RB	0	1860	26140	21.88	22	0-1
				1882.5	26365	21.60	22	0-1
				1905	26590	21.89	22	0-1
			50	1860	26140	21.85	22	0-1
				1882.5	26365	21.41	22	0-1
				1905	26590	21.86	22	0-1
			99	1860	26140	21.78	22	0-1
				1882.5	26365	21.99	22	0-1
				1905	26590	21.93	22	0-1
		50 RB	0	1860	26140	20.35	21	0-2
				1882.5	26365	20.46	21	0-2
				1905	26590	20.84	21	0-2
			25	1860	26140	20.52	21	0-2
				1882.5	26365	20.46	21	0-2
				1905	26590	20.75	21	0-2
			50	1860	26140	20.40	21	0-2
				1882.5	26365	20.44	21	0-2
				1905	26590	20.86	21	0-2
		100RB		1860	26140	20.52	21	0-2
				1882.5	26365	20.46	21	0-2
				1905	26590	20.88	21	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1857.5	26115	22.58	23	0
				1882.5	26365	22.50	23	0
				1907.5	26615	22.86	23	0
			36	1857.5	26115	22.51	23	0
				1882.5	26365	22.44	23	0
				1907.5	26615	22.66	23	0
			74	1857.5	26115	22.47	23	0
				1882.5	26365	22.43	23	0
				1907.5	26615	22.71	23	0
		36 RB	0	1857.5	26115	21.55	22	0-1
				1882.5	26365	21.52	22	0-1
				1907.5	26615	21.81	22	0-1
			18	1857.5	26115	21.56	22	0-1
				1882.5	26365	21.46	22	0-1
				1907.5	26615	21.76	22	0-1
			37	1857.5	26115	21.49	22	0-1
				1882.5	26365	21.39	22	0-1
				1907.5	26615	21.78	22	0-1
		75RB		1857.5	26115	21.52	22	0-1
				1882.5	26365	21.44	22	0-1
				1907.5	26615	21.86	22	0-1
	16-QAM	1 RB	0	1857.5	26115	21.93	22	0-1
				1882.5	26365	21.74	22	0-1
				1907.5	26615	21.91	22	0-1
			36	1857.5	26115	21.97	22	0-1
				1882.5	26365	21.78	22	0-1
				1907.5	26615	21.88	22	0-1
			74	1857.5	26115	21.67	22	0-1
				1882.5	26365	21.94	22	0-1
				1907.5	26615	21.87	22	0-1
		36 RB	0	1857.5	26115	20.51	21	0-2
				1882.5	26365	20.56	21	0-2
				1907.5	26615	20.91	21	0-2
			18	1857.5	26115	20.60	21	0-2
				1882.5	26365	20.54	21	0-2
				1907.5	26615	20.85	21	0-2
			37	1857.5	26115	20.57	21	0-2
				1882.5	26365	20.42	21	0-2
				1907.5	26615	20.83	21	0-2
		75RB		1857.5	26115	20.68	21	0-2
				1882.5	26365	20.49	21	0-2
				1907.5	26615	20.80	21	0-2
	64-QAM	1 RB	0	1857.5	26115	21.89	22	0-1
				1882.5	26365	21.72	22	0-1
				1907.5	26615	21.88	22	0-1
			36	1857.5	26115	21.93	22	0-1
				1882.5	26365	21.74	22	0-1
				1907.5	26615	21.84	22	0-1
			74	1857.5	26115	21.66	22	0-1
				1882.5	26365	21.93	22	0-1
				1907.5	26615	21.82	22	0-1
		36 RB	0	1857.5	26115	20.45	21	0-2
				1882.5	26365	20.54	21	0-2
				1907.5	26615	20.87	21	0-2
			18	1857.5	26115	20.57	21	0-2
				1882.5	26365	20.53	21	0-2
				1907.5	26615	20.81	21	0-2
			37	1857.5	26115	20.53	21	0-2
				1882.5	26365	20.41	21	0-2
				1907.5	26615	20.81	21	0-2
		75RB		1857.5	26115	20.64	21	0-2
				1882.5	26365	20.45	21	0-2
				1907.5	26615	20.76	21	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1855	26090	22.78	23	0
				1882.5	26365	22.69	23	0
				1910	26640	22.79	23	0
			25	1855	26090	22.36	23	0
				1882.5	26365	22.31	23	0
				1910	26640	22.59	23	0
			49	1855	26090	22.62	23	0
				1882.5	26365	22.59	23	0
				1910	26640	22.72	23	0
		25 RB	0	1855	26090	21.43	22	0-1
				1882.5	26365	21.45	22	0-1
				1910	26640	21.77	22	0-1
			12	1855	26090	21.44	22	0-1
				1882.5	26365	21.46	22	0-1
				1910	26640	21.73	22	0-1
			25	1855	26090	21.50	22	0-1
				1882.5	26365	21.39	22	0-1
				1910	26640	21.79	22	0-1
		50RB		1855	26090	21.46	22	0-1
				1882.5	26365	21.47	22	0-1
				1910	26640	21.85	22	0-1
	16-QAM	1 RB	0	1855	26090	21.84	22	0-1
				1882.5	26365	21.89	22	0-1
				1910	26640	21.94	22	0-1
			25	1855	26090	21.55	22	0-1
				1882.5	26365	21.54	22	0-1
				1910	26640	21.99	22	0-1
			49	1855	26090	21.97	22	0-1
				1882.5	26365	21.76	22	0-1
				1910	26640	21.97	22	0-1
		25 RB	0	1855	26090	20.53	21	0-2
				1882.5	26365	20.49	21	0-2
				1910	26640	20.82	21	0-2
			12	1855	26090	20.54	21	0-2
				1882.5	26365	20.53	21	0-2
				1910	26640	20.87	21	0-2
			25	1855	26090	20.46	21	0-2
				1882.5	26365	20.36	21	0-2
				1910	26640	20.81	21	0-2
		50RB		1855	26090	20.47	21	0-2
				1882.5	26365	20.47	21	0-2
				1910	26640	20.85	21	0-2
	64-QAM	1 RB	0	1855	26090	21.80	22	0-1
				1882.5	26365	21.87	22	0-1
				1910	26640	21.91	22	0-1
			25	1855	26090	21.51	22	0-1
				1882.5	26365	21.50	22	0-1
				1910	26640	21.95	22	0-1
			49	1855	26090	21.96	22	0-1
				1882.5	26365	21.75	22	0-1
				1910	26640	21.92	22	0-1
		25 RB	0	1855	26090	20.47	21	0-2
				1882.5	26365	20.47	21	0-2
				1910	26640	20.78	21	0-2
			12	1855	26090	20.51	21	0-2
				1882.5	26365	20.52	21	0-2
				1910	26640	20.83	21	0-2
			25	1855	26090	20.42	21	0-2
				1882.5	26365	20.35	21	0-2
				1910	26640	20.79	21	0-2
		50RB		1855	26090	20.43	21	0-2
				1882.5	26365	20.43	21	0-2
				1910	26640	20.81	21	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1852.5	26065	22.47	23	0
				1882.5	26365	22.29	23	0
				1912.5	26665	22.71	23	0
			12	1852.5	26065	22.37	23	0
				1882.5	26365	22.38	23	0
				1912.5	26665	22.65	23	0
			24	1852.5	26065	22.45	23	0
				1882.5	26365	22.35	23	0
				1912.5	26665	22.60	23	0
		12 RB	0	1852.5	26065	21.50	22	0-1
				1882.5	26365	21.42	22	0-1
				1912.5	26665	21.80	22	0-1
			6	1852.5	26065	21.44	22	0-1
				1882.5	26365	21.41	22	0-1
				1912.5	26665	21.76	22	0-1
			13	1852.5	26065	21.46	22	0-1
				1882.5	26365	21.38	22	0-1
				1912.5	26665	21.70	22	0-1
		25RB		1852.5	26065	21.51	22	0-1
				1882.5	26365	21.35	22	0-1
				1912.5	26665	21.78	22	0-1
	16-QAM	1 RB	0	1852.5	26065	21.69	22	0-1
				1882.5	26365	21.86	22	0-1
				1912.5	26665	21.63	22	0-1
			12	1852.5	26065	21.31	22	0-1
				1882.5	26365	21.69	22	0-1
				1912.5	26665	21.92	22	0-1
			24	1852.5	26065	21.50	22	0-1
				1882.5	26365	21.25	22	0-1
				1912.5	26665	21.94	22	0-1
		12 RB	0	1852.5	26065	20.55	21	0-2
				1882.5	26365	20.49	21	0-2
				1912.5	26665	20.71	21	0-2
			6	1852.5	26065	20.46	21	0-2
				1882.5	26365	20.46	21	0-2
				1912.5	26665	20.75	21	0-2
			13	1852.5	26065	20.43	21	0-2
				1882.5	26365	20.44	21	0-2
				1912.5	26665	20.74	21	0-2
		25RB		1852.5	26065	20.50	21	0-2
				1882.5	26365	20.38	21	0-2
				1912.5	26665	20.79	21	0-2
	64-QAM	1 RB	0	1852.5	26065	21.65	22	0-1
				1882.5	26365	21.84	22	0-1
				1912.5	26665	21.60	22	0-1
			12	1852.5	26065	21.27	22	0-1
				1882.5	26365	21.65	22	0-1
				1912.5	26665	21.88	22	0-1
			24	1852.5	26065	21.49	22	0-1
				1882.5	26365	21.24	22	0-1
				1912.5	26665	21.89	22	0-1
		12 RB	0	1852.5	26065	20.49	21	0-2
				1882.5	26365	20.47	21	0-2
				1912.5	26665	20.67	21	0-2
			6	1852.5	26065	20.43	21	0-2
				1882.5	26365	20.45	21	0-2
				1912.5	26665	20.71	21	0-2
			13	1852.5	26065	20.39	21	0-2
				1882.5	26365	20.43	21	0-2
				1912.5	26665	20.72	21	0-2
		25RB		1852.5	26065	20.46	21	0-2
				1882.5	26365	20.34	21	0-2
				1912.5	26665	20.75	21	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1851.5	26055	22.47	23	0
				1882.5	26365	22.45	23	0
				1913.5	26675	22.75	23	0
			7	1851.5	26055	22.47	23	0
				1882.5	26365	22.38	23	0
				1913.5	26675	22.63	23	0
			14	1851.5	26055	22.41	23	0
				1882.5	26365	22.32	23	0
				1913.5	26675	22.65	23	0
		8 RB	0	1851.5	26055	21.49	22	0-1
				1882.5	26365	21.32	22	0-1
				1913.5	26675	21.70	22	0-1
			4	1851.5	26055	21.43	22	0-1
				1882.5	26365	21.36	22	0-1
				1913.5	26675	21.75	22	0-1
			7	1851.5	26055	21.38	22	0-1
				1882.5	26365	21.37	22	0-1
				1913.5	26675	21.77	22	0-1
		15RB		1851.5	26055	21.36	22	0-1
				1882.5	26365	21.33	22	0-1
				1913.5	26675	21.68	22	0-1
	16-QAM	1 RB	0	1851.5	26055	21.39	22	0-1
				1882.5	26365	21.46	22	0-1
				1913.5	26675	21.95	22	0-1
			7	1851.5	26055	21.63	22	0-1
				1882.5	26365	21.43	22	0-1
				1913.5	26675	21.95	22	0-1
			14	1851.5	26055	21.85	22	0-1
				1882.5	26365	21.47	22	0-1
				1913.5	26675	21.77	22	0-1
		8 RB	0	1851.5	26055	20.37	21	0-2
				1882.5	26365	20.55	21	0-2
				1913.5	26675	20.82	21	0-2
			4	1851.5	26055	20.58	21	0-2
				1882.5	26365	20.50	21	0-2
				1913.5	26675	20.77	21	0-2
			7	1851.5	26055	20.58	21	0-2
				1882.5	26365	20.42	21	0-2
				1913.5	26675	20.77	21	0-2
		15RB		1851.5	26055	20.46	21	0-2
				1882.5	26365	20.40	21	0-2
				1913.5	26675	20.54	21	0-2
	64-QAM	1 RB	0	1851.5	26055	21.35	22	0-1
				1882.5	26365	21.44	22	0-1
				1913.5	26675	21.92	22	0-1
			7	1851.5	26055	21.59	22	0-1
				1882.5	26365	21.39	22	0-1
				1913.5	26675	21.91	22	0-1
			14	1851.5	26055	21.84	22	0-1
				1882.5	26365	21.46	22	0-1
				1913.5	26675	21.72	22	0-1
		8 RB	0	1851.5	26055	20.31	21	0-2
				1882.5	26365	20.53	21	0-2
				1913.5	26675	20.78	21	0-2
			4	1851.5	26055	20.55	21	0-2
				1882.5	26365	20.49	21	0-2
				1913.5	26675	20.73	21	0-2
			7	1851.5	26055	20.54	21	0-2
				1882.5	26365	20.41	21	0-2
				1913.5	26675	20.75	21	0-2
		15RB		1851.5	26055	20.42	21	0-2
				1882.5	26365	20.36	21	0-2
				1913.5	26675	20.50	21	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1850.7	26047	22.69	23	0
				1882.5	26365	22.80	23	0
				1914.3	26683	22.81	23	0
			2	1850.7	26047	22.69	23	0
				1882.5	26365	22.91	23	0
				1914.3	26683	22.87	23	0
			5	1850.7	26047	22.62	23	0
				1882.5	26365	22.75	23	0
				1914.3	26683	22.76	23	0
		3 RB	0	1850.7	26047	21.70	22	0-1
				1882.5	26365	21.83	22	0-1
				1914.3	26683	21.85	22	0-1
			2	1850.7	26047	21.73	22	0-1
				1882.5	26365	21.86	22	0-1
				1914.3	26683	21.92	22	0-1
			3	1850.7	26047	21.72	22	0-1
				1882.5	26365	21.85	22	0-1
				1914.3	26683	21.84	22	0-1
		6RB		1850.7	26047	20.59	22	0-1
				1882.5	26365	20.82	22	0-1
				1914.3	26683	20.97	22	0-1
	16-QAM	1 RB	0	1850.7	26047	20.91	22	0-1
				1882.5	26365	20.71	22	0-1
				1914.3	26683	21.17	22	0-1
			2	1850.7	26047	20.63	22	0-1
				1882.5	26365	21.01	22	0-1
				1914.3	26683	20.92	22	0-1
			5	1850.7	26047	20.69	22	0-1
				1882.5	26365	20.94	22	0-1
				1914.3	26683	21.30	22	0-1
		3 RB	0	1850.7	26047	20.74	21	0-2
				1882.5	26365	20.93	21	0-2
				1914.3	26683	20.89	21	0-2
			2	1850.7	26047	20.86	21	0-2
				1882.5	26365	20.95	21	0-2
				1914.3	26683	20.91	21	0-2
			3	1850.7	26047	20.68	21	0-2
				1882.5	26365	20.91	21	0-2
				1914.3	26683	20.96	21	0-2
		6RB		1850.7	26047	20.82	21	0-2
				1882.5	26365	20.93	21	0-2
				1914.3	26683	20.94	21	0-2
	64-QAM	1 RB	0	1850.7	26047	20.87	22	0-1
				1882.5	26365	20.69	22	0-1
				1914.3	26683	21.14	22	0-1
			2	1850.7	26047	20.59	22	0-1
				1882.5	26365	20.97	22	0-1
				1914.3	26683	20.88	22	0-1
			5	1850.7	26047	20.68	22	0-1
				1882.5	26365	20.93	22	0-1
				1914.3	26683	21.25	22	0-1
		3 RB	0	1850.7	26047	20.68	21	0-2
				1882.5	26365	20.91	21	0-2
				1914.3	26683	20.85	21	0-2
			2	1850.7	26047	20.83	21	0-2
				1882.5	26365	20.94	21	0-2
				1914.3	26683	20.87	21	0-2
			3	1850.7	26047	20.64	21	0-2
				1882.5	26365	20.90	21	0-2
				1914.3	26683	20.94	21	0-2
		6RB		1850.7	26047	20.78	21	0-2
				1882.5	26365	20.89	21	0-2
				1914.3	26683	20.90	21	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE FDD Band 26 - conducted power table:

FDD Band 26								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	822.5	26825	22.63	23	0
				831.5	26865	22.57	23	0
				841.5	26965	22.98	23	0
			36	822.5	26825	22.80	23	0
				831.5	26865	22.69	23	0
				841.5	26965	22.88	23	0
			74	822.5	26825	22.84	23	0
				831.5	26865	22.73	23	0
				841.5	26965	22.77	23	0
		36 RB	0	822.5	26825	21.70	22	0-1
				831.5	26865	21.69	22	0-1
				841.5	26965	21.80	22	0-1
			18	822.5	26825	21.88	22	0-1
				831.5	26865	21.83	22	0-1
				841.5	26965	21.96	22	0-1
			37	822.5	26825	21.89	22	0-1
				831.5	26865	21.76	22	0-1
				841.5	26965	21.91	22	0-1
		75RB		822.5	26825	21.81	22	0-1
				831.5	26865	21.77	22	0-1
				841.5	26965	21.86	22	0-1
	16-QAM	1 RB	0	822.5	26825	21.99	22	0-1
				831.5	26865	21.78	22	0-1
				841.5	26965	21.92	22	0-1
			36	822.5	26825	21.91	22	0-1
				831.5	26865	21.92	22	0-1
				841.5	26965	21.99	22	0-1
			74	822.5	26825	21.95	22	0-1
				831.5	26865	21.94	22	0-1
				841.5	26965	21.98	22	0-1
		36 RB	0	822.5	26825	20.82	21	0-2
				831.5	26865	20.71	21	0-2
				841.5	26965	20.79	21	0-2
			18	822.5	26825	20.86	21	0-2
				831.5	26865	20.77	21	0-2
				841.5	26965	20.94	21	0-2
			37	822.5	26825	20.86	21	0-2
				831.5	26865	20.77	21	0-2
				841.5	26965	20.98	21	0-2
		75RB		822.5	26825	20.79	21	0-2
				831.5	26865	20.76	21	0-2
				841.5	26965	20.90	21	0-2
	64-QAM	1 RB	0	822.5	26825	21.95	22	0-1
				831.5	26865	21.76	22	0-1
				841.5	26965	21.89	22	0-1
			36	822.5	26825	21.87	22	0-1
				831.5	26865	21.88	22	0-1
				841.5	26965	21.95	22	0-1
			74	822.5	26825	21.94	22	0-1
				831.5	26865	21.93	22	0-1
				841.5	26965	21.93	22	0-1
		36 RB	0	822.5	26825	20.76	21	0-2
				831.5	26865	20.69	21	0-2
				841.5	26965	20.75	21	0-2
			18	822.5	26825	20.83	21	0-2
				831.5	26865	20.76	21	0-2
				841.5	26965	20.90	21	0-2
			37	822.5	26825	20.82	21	0-2
				831.5	26865	20.76	21	0-2
				841.5	26965	20.96	21	0-2
		75RB		822.5	26825	20.75	21	0-2
				831.5	26865	20.72	21	0-2
				841.5	26965	20.86	21	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	820	26750	22.67	23	0
				831.5	26865	22.67	23	0
				844	26990	22.88	23	0
			25	820	26750	22.79	23	0
				831.5	26865	22.63	23	0
				844	26990	22.89	23	0
			49	820	26750	22.75	23	0
				831.5	26865	22.67	23	0
				844	26990	22.82	23	0
		25 RB	0	820	26750	21.78	22	0-1
				831.5	26865	21.62	22	0-1
				844	26990	21.99	22	0-1
			12	820	26750	21.74	22	0-1
				831.5	26865	21.69	22	0-1
				844	26990	21.98	22	0-1
			25	820	26750	21.76	22	0-1
				831.5	26865	21.82	22	0-1
				844	26990	22.00	22	0-1
		50RB		820	26750	21.70	22	0-1
				831.5	26865	21.78	22	0-1
				844	26990	21.41	22	0-1
	16-QAM	1 RB	0	820	26750	21.38	22	0-1
				831.5	26865	21.57	22	0-1
				844	26990	21.67	22	0-1
			25	820	26750	21.47	22	0-1
				831.5	26865	21.18	22	0-1
				844	26990	21.99	22	0-1
			49	820	26750	21.39	22	0-1
				831.5	26865	21.58	22	0-1
				844	26990	21.42	22	0-1
		25 RB	0	820	26750	20.61	21	0-2
				831.5	26865	20.60	21	0-2
				844	26990	20.77	21	0-2
			12	820	26750	20.60	21	0-2
				831.5	26865	20.65	21	0-2
				844	26990	20.93	21	0-2
			25	820	26750	20.67	21	0-2
				831.5	26865	20.72	21	0-2
				844	26990	20.91	21	0-2
		50RB		820	26750	20.67	21	0-2
				831.5	26865	20.67	21	0-2
				844	26990	20.99	21	0-2
	64-QAM	1 RB	0	820	26750	21.34	22	0-1
				831.5	26865	21.55	22	0-1
				844	26990	21.64	22	0-1
			25	820	26750	21.43	22	0-1
				831.5	26865	21.14	22	0-1
				844	26990	21.95	22	0-1
			49	820	26750	21.38	22	0-1
				831.5	26865	21.57	22	0-1
				844	26990	21.37	22	0-1
		25 RB	0	820	26750	20.55	21	0-2
				831.5	26865	20.58	21	0-2
				844	26990	20.73	21	0-2
			12	820	26750	20.57	21	0-2
				831.5	26865	20.64	21	0-2
				844	26990	20.89	21	0-2
			25	820	26750	20.63	21	0-2
				831.5	26865	20.71	21	0-2
				844	26990	20.89	21	0-2
		50RB		820	26750	20.63	21	0-2
				831.5	26865	20.63	21	0-2
				844	26990	20.95	21	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	816.5	26715	22.51	23	0
				831.5	26865	22.57	23	0
				846.5	27015	22.92	23	0
			12	816.5	26715	22.45	23	0
				831.5	26865	22.69	23	0
				846.5	27015	22.71	23	0
			24	816.5	26715	22.52	23	0
				831.5	26865	22.54	23	0
				846.5	27015	22.78	23	0
		12 RB	0	816.5	26715	21.53	22	0-1
				831.5	26865	21.67	22	0-1
				846.5	27015	21.95	22	0-1
			6	816.5	26715	21.49	22	0-1
				831.5	26865	21.81	22	0-1
				846.5	27015	21.85	22	0-1
			13	816.5	26715	21.61	22	0-1
				831.5	26865	21.73	22	0-1
				846.5	27015	21.82	22	0-1
		25RB		816.5	26715	21.59	22	0-1
				831.5	26865	21.66	22	0-1
				846.5	27015	21.88	22	0-1
	16-QAM	1 RB	0	816.5	26715	21.58	22	0-1
				831.5	26865	21.39	22	0-1
				846.5	27015	21.97	22	0-1
			12	816.5	26715	21.37	22	0-1
				831.5	26865	21.82	22	0-1
				846.5	27015	21.77	22	0-1
			24	816.5	26715	21.34	22	0-1
				831.5	26865	21.27	22	0-1
				846.5	27015	21.47	22	0-1
		12 RB	0	816.5	26715	20.66	21	0-2
				831.5	26865	20.69	21	0-2
				846.5	27015	20.99	21	0-2
			6	816.5	26715	20.57	21	0-2
				831.5	26865	20.79	21	0-2
				846.5	27015	20.89	21	0-2
			13	816.5	26715	20.58	21	0-2
				831.5	26865	20.80	21	0-2
				846.5	27015	20.85	21	0-2
		25RB		816.5	26715	20.56	21	0-2
				831.5	26865	20.75	21	0-2
				846.5	27015	20.88	21	0-2
	64-QAM	1 RB	0	816.5	26715	21.54	22	0-1
				831.5	26865	21.37	22	0-1
				846.5	27015	21.94	22	0-1
			12	816.5	26715	21.33	22	0-1
				831.5	26865	21.78	22	0-1
				846.5	27015	21.73	22	0-1
			24	816.5	26715	21.33	22	0-1
				831.5	26865	21.26	22	0-1
				846.5	27015	21.42	22	0-1
		12 RB	0	816.5	26715	20.60	21	0-2
				831.5	26865	20.67	21	0-2
				846.5	27015	20.95	21	0-2
			6	816.5	26715	20.54	21	0-2
				831.5	26865	20.78	21	0-2
				846.5	27015	20.85	21	0-2
			13	816.5	26715	20.54	21	0-2
				831.5	26865	20.79	21	0-2
				846.5	27015	20.83	21	0-2
		25RB		816.5	26715	20.52	21	0-2
				831.5	26865	20.71	21	0-2
				846.5	27015	20.84	21	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	815.5	26705	22.27	23	0
				831.5	26865	22.35	23	0
				847.5	27025	22.93	23	0
			7	815.5	26705	22.41	23	0
				831.5	26865	22.64	23	0
				847.5	27025	22.84	23	0
			14	815.5	26705	22.40	23	0
				831.5	26865	22.41	23	0
				847.5	27025	22.62	23	0
		8 RB	0	815.5	26705	21.33	22	0-1
				831.5	26865	21.55	22	0-1
				847.5	27025	21.73	22	0-1
			4	815.5	26705	21.34	22	0-1
				831.5	26865	21.50	22	0-1
				847.5	27025	21.81	22	0-1
			7	815.5	26705	21.28	22	0-1
				831.5	26865	21.46	22	0-1
				847.5	27025	21.77	22	0-1
		15RB		815.5	26705	21.29	22	0-1
				831.5	26865	21.55	22	0-1
				847.5	27025	21.71	22	0-1
	16-QAM	1 RB	0	815.5	26705	21.75	22	0-1
				831.5	26865	21.88	22	0-1
				847.5	27025	21.92	22	0-1
			7	815.5	26705	21.48	22	0-1
				831.5	26865	21.88	22	0-1
				847.5	27025	21.86	22	0-1
			14	815.5	26705	21.82	22	0-1
				831.5	26865	21.67	22	0-1
				847.5	27025	21.87	22	0-1
		8 RB	0	815.5	26705	20.40	21	0-2
				831.5	26865	20.56	21	0-2
				847.5	27025	20.91	21	0-2
			4	815.5	26705	20.38	21	0-2
				831.5	26865	20.57	21	0-2
				847.5	27025	20.87	21	0-2
			7	815.5	26705	20.19	21	0-2
				831.5	26865	20.48	21	0-2
				847.5	27025	20.84	21	0-2
		15RB		815.5	26705	20.33	21	0-2
				831.5	26865	20.60	21	0-2
				847.5	27025	20.65	21	0-2
	64-QAM	1 RB	0	815.5	26705	21.71	22	0-1
				831.5	26865	21.86	22	0-1
				847.5	27025	21.89	22	0-1
			7	815.5	26705	21.44	22	0-1
				831.5	26865	21.84	22	0-1
				847.5	27025	21.82	22	0-1
			14	815.5	26705	21.81	22	0-1
				831.5	26865	21.66	22	0-1
				847.5	27025	21.82	22	0-1
		8 RB	0	815.5	26705	20.34	21	0-2
				831.5	26865	20.54	21	0-2
				847.5	27025	20.87	21	0-2
			4	815.5	26705	20.35	21	0-2
				831.5	26865	20.56	21	0-2
				847.5	27025	20.83	21	0-2
			7	815.5	26705	20.15	21	0-2
				831.5	26865	20.47	21	0-2
				847.5	27025	20.82	21	0-2
		15RB		815.5	26705	20.29	21	0-2
				831.5	26865	20.56	21	0-2
				847.5	27025	20.61	21	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	814.7	26697	22.41	23	0
				831.5	26865	22.60	23	0
				848.3	27033	22.77	23	0
			2	814.7	26697	22.47	23	0
				831.5	26865	22.64	23	0
				848.3	27033	22.92	23	0
			5	814.7	26697	22.44	23	0
				831.5	26865	22.56	23	0
				848.3	27033	22.81	23	0
		3 RB	0	814.7	26697	21.50	22	0-1
				831.5	26865	21.64	22	0-1
				848.3	27033	21.90	22	0-1
			2	814.7	26697	21.52	22	0-1
				831.5	26865	21.61	22	0-1
				848.3	27033	21.84	22	0-1
			3	814.7	26697	21.53	22	0-1
				831.5	26865	21.72	22	0-1
				848.3	27033	21.84	22	0-1
		6RB		814.7	26697	20.41	22	0-1
				831.5	26865	20.62	22	0-1
				848.3	27033	20.85	22	0-1
	16-QAM	1 RB	0	814.7	26697	20.75	22	0-1
				831.5	26865	21.18	22	0-1
				848.3	27033	21.31	22	0-1
			2	814.7	26697	20.44	22	0-1
				831.5	26865	21.04	22	0-1
				848.3	27033	21.02	22	0-1
			5	814.7	26697	20.83	22	0-1
				831.5	26865	20.54	22	0-1
				848.3	27033	21.37	22	0-1
		3 RB	0	814.7	26697	20.54	21	0-2
				831.5	26865	20.70	21	0-2
				848.3	27033	20.73	21	0-2
			2	814.7	26697	20.52	21	0-2
				831.5	26865	20.75	21	0-2
				848.3	27033	20.96	21	0-2
			3	814.7	26697	20.37	21	0-2
				831.5	26865	20.66	21	0-2
				848.3	27033	20.99	21	0-2
		6RB		814.7	26697	19.52	21	0-2
				831.5	26865	19.69	21	0-2
				848.3	27033	19.84	21	0-2
	64-QAM	1 RB	0	814.7	26697	20.71	22	0-1
				831.5	26865	21.16	22	0-1
				848.3	27033	21.28	22	0-1
			2	814.7	26697	20.40	22	0-1
				831.5	26865	21.00	22	0-1
				848.3	27033	20.98	22	0-1
			5	814.7	26697	20.82	22	0-1
				831.5	26865	20.53	22	0-1
				848.3	27033	21.32	22	0-1
		3 RB	0	814.7	26697	20.48	21	0-2
				831.5	26865	20.68	21	0-2
				848.3	27033	20.69	21	0-2
			2	814.7	26697	20.49	21	0-2
				831.5	26865	20.74	21	0-2
				848.3	27033	20.92	21	0-2
			3	814.7	26697	20.33	21	0-2
				831.5	26865	20.65	21	0-2
				848.3	27033	20.97	21	0-2
		6RB		814.7	26697	19.48	21	0-2
				831.5	26865	19.65	21	0-2
				848.3	27033	19.80	21	0-2

LTE FDD Band 30 - conducted power table:

FDD Band 30								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	2310	27710	22.80	23	0
			25	2310	27710	22.71	23	0
			49	2310	27710	22.98	23	0
		25 RB	0	2310	27710	21.75	22	0-1
			12	2310	27710	21.88	22	0-1
			25	2310	27710	21.84	22	0-1
		50RB		2310	27710	21.80	22	0-1
	16-QAM	1 RB	0	2310	27710	21.56	22	0-1
			25	2310	27710	21.89	22	0-1
			49	2310	27710	21.98	22	0-1
		25 RB	0	2310	27710	20.68	21	0-2
			12	2310	27710	20.86	21	0-2
			25	2310	27710	20.79	21	0-2
		50RB		2310	27710	20.78	21	0-2
	64-QAM	1 RB	0	2310	27710	21.50	22	0-1
			25	2310	27710	21.87	22	0-1
			49	2310	27710	21.95	22	0-1
		25 RB	0	2310	27710	20.64	21	0-2
			12	2310	27710	20.82	21	0-2
			25	2310	27710	20.75	21	0-2
		50RB		2310	27710	20.77	21	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	2307.5	27685	22.88	23	0
				2310	27710	22.72	23	0
				2312.5	27735	22.75	23	0
			12	2307.5	27685	22.68	23	0
				2310	27710	22.81	23	0
				2312.5	27735	22.91	23	0
			24	2307.5	27685	22.89	23	0
				2310	27710	22.92	23	0
				2312.5	27735	22.88	23	0
		12 RB	0	2307.5	27685	21.87	22	0-1
				2310	27710	21.92	22	0-1
				2312.5	27735	21.80	22	0-1
			6	2307.5	27685	21.89	22	0-1
				2310	27710	21.98	22	0-1
				2312.5	27735	21.93	22	0-1
			13	2307.5	27685	21.81	22	0-1
				2310	27710	21.94	22	0-1
				2312.5	27735	21.92	22	0-1
		25RB		2307.5	27685	21.80	22	0-1
				2310	27710	21.92	22	0-1
				2312.5	27735	21.86	22	0-1
	16-QAM	1 RB	0	2307.5	27685	21.79	22	0-1
				2310	27710	21.80	22	0-1
				2312.5	27735	21.81	22	0-1
			12	2307.5	27685	21.56	22	0-1
				2310	27710	21.78	22	0-1
				2312.5	27735	21.77	22	0-1
			24	2307.5	27685	21.77	22	0-1
				2310	27710	21.99	22	0-1
				2312.5	27735	21.52	22	0-1
		12 RB	0	2307.5	27685	20.88	21	0-2
				2310	27710	20.90	21	0-2
				2312.5	27735	20.76	21	0-2
			6	2307.5	27685	20.92	21	0-2
				2310	27710	20.92	21	0-2
				2312.5	27735	20.89	21	0-2
			13	2307.5	27685	20.80	21	0-2
				2310	27710	20.96	21	0-2
				2312.5	27735	20.89	21	0-2
		25RB		2307.5	27685	20.83	21	0-2
				2310	27710	20.87	21	0-2
				2312.5	27735	20.96	21	0-2
	64-QAM	1 RB	0	2307.5	27685	21.73	22	0-1
				2310	27710	21.78	22	0-1
				2312.5	27735	21.78	22	0-1
			12	2307.5	27685	21.52	22	0-1
				2310	27710	21.74	22	0-1
				2312.5	27735	21.73	22	0-1
			24	2307.5	27685	21.76	22	0-1
				2310	27710	21.98	22	0-1
				2312.5	27735	21.47	22	0-1
		12 RB	0	2307.5	27685	20.83	21	0-2
				2310	27710	20.87	21	0-2
				2312.5	27735	20.72	21	0-2
			6	2307.5	27685	20.91	21	0-2
				2310	27710	20.91	21	0-2
				2312.5	27735	20.85	21	0-2
			13	2307.5	27685	20.76	21	0-2
				2310	27710	20.95	21	0-2
				2312.5	27735	20.87	21	0-2
		25RB		2307.5	27685	20.81	21	0-2
				2310	27710	20.83	21	0-2
				2312.5	27735	20.92	21	0-2

LTE TDD Band 38 - conducted power table:

TDD Band 38								
BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	2580	37850	23.00	24	0
				2595	38000	23.13	24	0
				2610	38150	23.55	24	0
			50	2580	37850	22.90	24	0
				2595	38000	23.00	24	0
				2610	38150	23.11	24	0
			99	2580	37850	22.90	24	0
				2595	38000	23.34	24	0
				2610	38150	23.25	24	0
		50 RB	0	2580	37850	22.01	23	0-1
				2595	38000	22.26	23	0-1
				2610	38150	22.34	23	0-1
			25	2580	37850	22.02	23	0-1
				2595	38000	22.09	23	0-1
				2610	38150	22.36	23	0-1
			50	2580	37850	22.07	23	0-1
				2595	38000	22.13	23	0-1
				2610	38150	22.24	23	0-1
		100RB		2580	37850	22.06	23	0-1
				2595	38000	22.17	23	0-1
				2610	38150	22.36	23	0-1
	16-QAM	1 RB	0	2580	37850	22.31	23	0-1
				2595	38000	22.48	23	0-1
				2610	38150	22.55	23	0-1
			50	2580	37850	22.12	23	0-1
				2595	38000	22.31	23	0-1
				2610	38150	22.33	23	0-1
			99	2580	37850	22.12	23	0-1
				2595	38000	22.41	23	0-1
				2610	38150	22.33	23	0-1
		50 RB	0	2580	37850	21.14	22	0-2
				2595	38000	21.28	22	0-2
				2610	38150	21.37	22	0-2
			25	2580	37850	21.05	22	0-2
				2595	38000	21.23	22	0-2
				2610	38150	21.38	22	0-2
			50	2580	37850	21.09	22	0-2
				2595	38000	21.16	22	0-2
				2610	38150	21.27	22	0-2
		100RB		2580	37850	21.14	22	0-2
				2595	38000	21.16	22	0-2
				2610	38150	21.33	22	0-2
	64-QAM	1 RB	0	2580	37850	22.25	23	0-1
				2595	38000	22.46	23	0-1
				2610	38150	22.52	23	0-1
			50	2580	37850	22.08	23	0-1
				2595	38000	22.27	23	0-1
				2610	38150	22.29	23	0-1
			99	2580	37850	22.11	23	0-1
				2595	38000	22.40	23	0-1
				2610	38150	22.28	23	0-1
		50 RB	0	2580	37850	21.09	22	0-2
				2595	38000	21.25	22	0-2
				2610	38150	21.33	22	0-2
			25	2580	37850	21.04	22	0-2
				2595	38000	21.22	22	0-2
				2610	38150	21.34	22	0-2
			50	2580	37850	21.05	22	0-2
				2595	38000	21.15	22	0-2
				2610	38150	21.25	22	0-2
		100RB		2580	37850	21.12	22	0-2
				2595	38000	21.12	22	0-2
				2610	38150	21.29	22	0-2

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	2577.5	37825	23.03	24	0
				2595	38000	23.19	24	0
				2612.5	38175	23.22	24	0
			36	2577.5	37825	23.02	24	0
				2595	38000	23.10	24	0
				2612.5	38175	23.27	24	0
			74	2577.5	37825	22.99	24	0
				2595	38000	23.15	24	0
				2612.5	38175	23.16	24	0
		36 RB	0	2577.5	37825	21.97	23	0-1
				2595	38000	22.24	23	0-1
				2612.5	38175	22.26	23	0-1
			18	2577.5	37825	22.09	23	0-1
				2595	38000	22.18	23	0-1
				2612.5	38175	22.31	23	0-1
			37	2577.5	37825	22.02	23	0-1
				2595	38000	22.22	23	0-1
				2612.5	38175	22.29	23	0-1
		75RB		2577.5	37825	22.05	23	0-1
				2595	38000	22.07	23	0-1
				2612.5	38175	22.30	23	0-1
	16-QAM	1 RB	0	2577.5	37825	22.28	23	0-1
				2595	38000	22.43	23	0-1
				2612.5	38175	22.56	23	0-1
			36	2577.5	37825	22.11	23	0-1
				2595	38000	22.19	23	0-1
				2612.5	38175	22.41	23	0-1
			74	2577.5	37825	22.24	23	0-1
				2595	38000	22.29	23	0-1
				2612.5	38175	22.39	23	0-1
		36 RB	0	2577.5	37825	21.00	22	0-2
				2595	38000	21.22	22	0-2
				2612.5	38175	21.22	22	0-2
			18	2577.5	37825	21.11	22	0-2
				2595	38000	21.20	22	0-2
				2612.5	38175	21.33	22	0-2
			37	2577.5	37825	20.93	22	0-2
				2595	38000	21.19	22	0-2
				2612.5	38175	21.26	22	0-2
		75RB		2577.5	37825	21.07	22	0-2
				2595	38000	21.19	22	0-2
				2612.5	38175	21.31	22	0-2
	64-QAM	1 RB	0	2577.5	37825	22.22	23	0-1
				2595	38000	22.41	23	0-1
				2612.5	38175	22.53	23	0-1
			36	2577.5	37825	22.07	23	0-1
				2595	38000	22.15	23	0-1
				2612.5	38175	22.37	23	0-1
			74	2577.5	37825	22.23	23	0-1
				2595	38000	22.28	23	0-1
				2612.5	38175	22.34	23	0-1
		36 RB	0	2577.5	37825	20.95	22	0-2
				2595	38000	21.19	22	0-2
				2612.5	38175	21.18	22	0-2
			18	2577.5	37825	21.10	22	0-2
				2595	38000	21.19	22	0-2
				2612.5	38175	21.29	22	0-2
			37	2577.5	37825	20.89	22	0-2
				2595	38000	21.18	22	0-2
				2612.5	38175	21.24	22	0-2
		75RB		2577.5	37825	21.05	22	0-2
				2595	38000	21.15	22	0-2
				2612.5	38175	21.27	22	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	2575	37800	22.93	24	0
				2595	38000	23.11	24	0
				2615	38200	23.17	24	0
			25	2575	37800	22.92	24	0
				2595	38000	23.00	24	0
				2615	38200	23.13	24	0
			49	2575	37800	22.90	24	0
				2595	38000	23.15	24	0
				2615	38200	23.29	24	0
		25 RB	0	2575	37800	21.97	23	0-1
				2595	38000	22.12	23	0-1
				2615	38200	22.36	23	0-1
			12	2575	37800	22.02	23	0-1
				2595	38000	22.16	23	0-1
				2615	38200	22.29	23	0-1
			25	2575	37800	21.94	23	0-1
				2595	38000	22.18	23	0-1
				2615	38200	22.36	23	0-1
		50RB		2575	37800	22.03	23	0-1
				2595	38000	22.09	23	0-1
				2615	38200	22.30	23	0-1
	16-QAM	1 RB	0	2575	37800	22.16	23	0-1
				2595	38000	22.43	23	0-1
				2615	38200	22.58	23	0-1
			25	2575	37800	22.25	23	0-1
				2595	38000	22.26	23	0-1
				2615	38200	22.51	23	0-1
			49	2575	37800	22.16	23	0-1
				2595	38000	22.26	23	0-1
				2615	38200	22.50	23	0-1
		25 RB	0	2575	37800	21.06	22	0-2
				2595	38000	21.21	22	0-2
				2615	38200	21.40	22	0-2
			12	2575	37800	21.06	22	0-2
				2595	38000	21.19	22	0-2
				2615	38200	21.34	22	0-2
			25	2575	37800	20.98	22	0-2
				2595	38000	21.26	22	0-2
				2615	38200	21.39	22	0-2
		50RB		2575	37800	21.05	22	0-2
				2595	38000	21.10	22	0-2
				2615	38200	21.29	22	0-2
	64-QAM	1 RB	0	2575	37800	22.10	23	0-1
				2595	38000	22.41	23	0-1
				2615	38200	22.55	23	0-1
			25	2575	37800	22.21	23	0-1
				2595	38000	22.22	23	0-1
				2615	38200	22.47	23	0-1
			49	2575	37800	22.15	23	0-1
				2595	38000	22.25	23	0-1
				2615	38200	22.45	23	0-1
		25 RB	0	2575	37800	21.01	22	0-2
				2595	38000	21.18	22	0-2
				2615	38200	21.36	22	0-2
			12	2575	37800	21.05	22	0-2
				2595	38000	21.18	22	0-2
				2615	38200	21.30	22	0-2
			25	2575	37800	20.94	22	0-2
				2595	38000	21.25	22	0-2
				2615	38200	21.37	22	0-2
		50RB		2575	37800	21.03	22	0-2
				2595	38000	21.06	22	0-2
				2615	38200	21.25	22	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(Mhz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	2572.5	37775	22.88	24	0
				2595	38000	23.09	24	0
				2617.5	38225	23.19	24	0
			12	2572.5	37775	22.81	24	0
				2595	38000	22.98	24	0
				2617.5	38225	23.25	24	0
			24	2572.5	37775	22.89	24	0
				2595	38000	23.09	24	0
				2617.5	38225	23.09	24	0
		12 RB	0	2572.5	37775	21.89	23	0-1
				2595	38000	22.13	23	0-1
				2617.5	38225	22.32	23	0-1
			6	2572.5	37775	21.92	23	0-1
				2595	38000	22.15	23	0-1
				2617.5	38225	22.40	23	0-1
			13	2572.5	37775	21.88	23	0-1
				2595	38000	22.09	23	0-1
				2617.5	38225	22.36	23	0-1
		25RB		2572.5	37775	21.95	23	0-1
				2595	38000	22.09	23	0-1
				2617.5	38225	22.33	23	0-1
	16-QAM	1 RB	0	2572.5	37775	22.12	23	0-1
				2595	38000	22.27	23	0-1
				2617.5	38225	22.43	23	0-1
			12	2572.5	37775	22.08	23	0-1
				2595	38000	22.24	23	0-1
				2617.5	38225	22.51	23	0-1
			24	2572.5	37775	22.11	23	0-1
				2595	38000	22.32	23	0-1
				2617.5	38225	22.53	23	0-1
		12 RB	0	2572.5	37775	20.96	22	0-2
				2595	38000	21.10	22	0-2
				2617.5	38225	21.30	22	0-2
			6	2572.5	37775	21.06	22	0-2
				2595	38000	21.22	22	0-2
				2617.5	38225	21.42	22	0-2
			13	2572.5	37775	20.95	22	0-2
				2595	38000	21.11	22	0-2
				2617.5	38225	21.31	22	0-2
		25RB		2572.5	37775	21.00	22	0-2
				2595	38000	21.13	22	0-2
				2617.5	38225	21.44	22	0-2
	64-QAM	1 RB	0	2572.5	37775	22.06	23	0-1
				2595	38000	22.25	23	0-1
				2617.5	38225	22.40	23	0-1
			12	2572.5	37775	22.04	23	0-1
				2595	38000	22.20	23	0-1
				2617.5	38225	22.47	23	0-1
			24	2572.5	37775	22.10	23	0-1
				2595	38000	22.31	23	0-1
				2617.5	38225	22.48	23	0-1
		12 RB	0	2572.5	37775	20.91	22	0-2
				2595	38000	21.07	22	0-2
				2617.5	38225	21.26	22	0-2
			6	2572.5	37775	21.05	22	0-2
				2595	38000	21.21	22	0-2
				2617.5	38225	21.38	22	0-2
			13	2572.5	37775	20.91	22	0-2
				2595	38000	21.10	22	0-2
				2617.5	38225	21.29	22	0-2
		25RB		2572.5	37775	20.98	22	0-2
				2595	38000	21.09	22	0-2
				2617.5	38225	21.40	22	0-2

LTE TDD Band 41 - conducted power table:

TDD Band 41								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	2506	39750	23.97	24	0
				2549.5	40185	23.99	24	0
				2593	40620	23.85	24	0
				2636.5	41055	23.86	24	0
				2680	41490	23.28	24	0
			50	2506	39750	23.78	24	0
				2549.5	40185	23.62	24	0
				2593	40620	23.61	24	0
				2636.5	41055	23.57	24	0
				2680	41490	23.38	24	0
			99	2506	39750	23.67	24	0
				2549.5	40185	23.49	24	0
				2593	40620	23.60	24	0
				2636.5	41055	23.58	24	0
				2680	41490	22.39	24	0
		50 RB	0	2506	39750	22.92	23	0-1
				2549.5	40185	22.88	23	0-1
				2593	40620	22.68	23	0-1
				2636.5	41055	22.74	23	0-1
				2680	41490	22.45	23	0-1
			25	2506	39750	22.90	23	0-1
				2549.5	40185	22.74	23	0-1
				2593	40620	22.74	23	0-1
				2636.5	41055	22.76	23	0-1
				2680	41490	22.58	23	0-1
			50	2506	39750	22.73	23	0-1
				2549.5	40185	22.64	23	0-1
				2593	40620	22.58	23	0-1
				2636.5	41055	22.63	23	0-1
				2680	41490	22.60	23	0-1
		100RB		2506	39750	22.88	23	0-1
				2549.5	40185	22.74	23	0-1
				2593	40620	22.68	23	0-1
				2636.5	41055	22.75	23	0-1
				2680	41490	22.68	23	0-1
	16-QAM	1 RB	0	2506	39750	22.97	23	0-1
				2549.5	40185	22.99	23	0-1
				2593	40620	22.85	23	0-1
				2636.5	41055	22.85	23	0-1
				2680	41490	22.28	23	0-1
			50	2506	39750	22.78	23	0-1
				2549.5	40185	22.62	23	0-1
				2593	40620	22.61	23	0-1
				2636.5	41055	22.57	23	0-1
				2680	41490	22.38	23	0-1
			99	2506	39750	22.67	23	0-1
				2549.5	40185	22.49	23	0-1
				2593	40620	22.60	23	0-1
				2636.5	41055	22.58	23	0-1
				2680	41490	21.39	23	0-1
		50 RB	0	2506	39750	21.92	22	0-2
				2549.5	40185	21.88	22	0-2
				2593	40620	21.68	22	0-2
				2636.5	41055	21.74	22	0-2
				2680	41490	21.45	22	0-2
			25	2506	39750	21.90	22	0-2
				2549.5	40185	21.74	22	0-2
				2593	40620	21.74	22	0-2
				2636.5	41055	21.76	22	0-2
				2680	41490	21.58	22	0-2
			50	2506	39750	21.73	22	0-2
				2549.5	40185	21.64	22	0-2
				2593	40620	21.58	22	0-2
				2636.5	41055	21.63	22	0-2
				2680	41490	21.60	22	0-2
		100RB		2506	39750	21.88	22	0-2
				2549.5	40185	21.74	22	0-2
				2593	40620	21.68	22	0-2
				2636.5	41055	21.75	22	0-2
				2680	41490	21.68	22	0-2
	64-QAM	1 RB	0	2506	39750	22.91	23	0-1
				2549.5	40185	22.97	23	0-1
				2593	40620	22.82	23	0-1
				2636.5	41055	22.81	23	0-1
				2680	41490	22.24	23	0-1
			50	2506	39750	22.74	23	0-1
				2549.5	40185	22.61	23	0-1
				2593	40620	22.60	23	0-1
				2636.5	41055	22.52	23	0-1
				2680	41490	22.33	23	0-1
			99	2506	39750	22.64	23	0-1
				2549.5	40185	22.45	23	0-1
				2593	40620	22.59	23	0-1
				2636.5	41055	22.57	23	0-1
				2680	41490	21.35	23	0-1
		50 RB	0	2506	39750	21.88	22	0-2
				2549.5	40185	21.87	22	0-2
				2593	40620	21.66	22	0-2
				2636.5	41055	21.72	22	0-2
				2680	41490	21.41	22	0-2
			25	2506	39750	21.86	22	0-2
				2549.5	40185	21.70	22	0-2
				2593	40620	21.70	22	0-2
				2636.5	41055	21.75	22	0-2
				2680	41490	21.56	22	0-2
			50	2506	39750	21.71	22	0-2
				2549.5	40185	21.60	22	0-2
				2593	40620	21.54	22	0-2
				2636.5	41055	21.59	22	0-2
				2680	41490	21.56	22	0-2
		100RB		2506	39750	21.87	22	0-2
				2549.5	40185	21.72	22	0-2
				2593	40620	21.66	22	0-2
				2636.5	41055	21.71	22	0-2
				2680	41490	21.64	22	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	2503.5	39725	23.83	24	0
				2548.3	40173	23.71	24	0
				2593	40620	23.56	24	0
				2637.8	41068	23.52	24	0
				2682.5	41515	23.53	24	0
			36	2503.5	39725	23.61	24	0
				2548.3	40173	23.44	24	0
				2593	40620	23.41	24	0
				2637.8	41068	23.41	24	0
				2682.5	41515	23.32	24	0
			74	2503.5	39725	23.54	24	0
				2548.3	40173	23.41	24	0
				2593	40620	23.38	24	0
				2637.8	41068	23.41	24	0
				2682.5	41515	23.19	24	0
		36 RB	0	2503.5	39725	22.69	23	0-1
				2548.3	40173	22.61	23	0-1
				2593	40620	22.47	23	0-1
				2637.8	41068	22.58	23	0-1
				2682.5	41515	22.51	23	0-1
			18	2503.5	39725	22.63	23	0-1
				2548.3	40173	22.54	23	0-1
				2593	40620	22.45	23	0-1
				2637.8	41068	22.47	23	0-1
				2682.5	41515	22.41	23	0-1
			37	2503.5	39725	22.61	23	0-1
				2548.3	40173	22.42	23	0-1
				2593	40620	22.44	23	0-1
				2637.8	41068	22.43	23	0-1
				2682.5	41515	22.27	23	0-1
		75RB		2503.5	39725	22.70	23	0-1
				2548.3	40173	22.52	23	0-1
				2593	40620	22.42	23	0-1
				2637.8	41068	22.44	23	0-1
				2682.5	41515	22.45	23	0-1
	16-QAM	1 RB	0	2503.5	39725	22.60	23	0-1
				2548.3	40173	22.35	23	0-1
				2593	40620	22.99	23	0-1
				2637.8	41068	22.64	23	0-1
				2682.5	41515	22.36	23	0-1
			36	2503.5	39725	22.36	23	0-1
				2548.3	40173	22.14	23	0-1
				2593	40620	22.13	23	0-1
				2637.8	41068	22.12	23	0-1
				2682.5	41515	22.06	23	0-1
			74	2503.5	39725	22.33	23	0-1
				2548.3	40173	22.10	23	0-1
				2593	40620	22.10	23	0-1
				2637.8	41068	22.01	23	0-1
				2682.5	41515	21.89	23	0-1
		36 RB	0	2503.5	39725	21.69	22	0-2
				2548.3	40173	21.54	22	0-2
				2593	40620	21.52	22	0-2
				2637.8	41068	21.56	22	0-2
				2682.5	41515	21.45	22	0-2
			18	2503.5	39725	21.62	22	0-2
				2548.3	40173	21.59	22	0-2
				2593	40620	21.51	22	0-2
				2637.8	41068	21.50	22	0-2
				2682.5	41515	21.34	22	0-2
			37	2503.5	39725	21.55	22	0-2
				2548.3	40173	21.50	22	0-2
				2593	40620	21.36	22	0-2
				2637.8	41068	21.37	22	0-2
				2682.5	41515	21.31	22	0-2
		75RB		2503.5	39725	21.68	22	0-2
				2548.3	40173	21.61	22	0-2
				2593	40620	21.52	22	0-2
				2637.8	41068	21.52	22	0-2
				2682.5	41515	21.47	22	0-2
	64-QAM	1 RB	0	2503.5	39725	22.54	23	0-1
				2548.3	40173	22.33	23	0-1
				2593	40620	22.96	23	0-1
				2637.8	41068	22.60	23	0-1
				2682.5	41515	22.32	23	0-1
			36	2503.5	39725	22.32	23	0-1
				2548.3	40173	22.13	23	0-1
				2593	40620	22.12	23	0-1
				2637.8	41068	22.07	23	0-1
				2682.5	41515	22.01	23	0-1
			74	2503.5	39725	22.30	23	0-1
				2548.3	40173	22.06	23	0-1
				2593	40620	22.09	23	0-1
				2637.8	41068	22.00	23	0-1
				2682.5	41515	21.85	23	0-1
		36 RB	0	2503.5	39725	21.65	22	0-2
				2548.3	40173	21.53	22	0-2
				2593	40620	21.50	22	0-2
				2637.8	41068	21.54	22	0-2
				2682.5	41515	21.41	22	0-2
			18	2503.5	39725	21.58	22	0-2
				2548.3	40173	21.55	22	0-2
				2593	40620	21.47	22	0-2
				2637.8	41068	21.49	22	0-2
				2682.5	41515	21.32	22	0-2
			37	2503.5	39725	21.53	22	0-2
				2548.3	40173	21.46	22	0-2
				2593	40620	21.32	22	0-2
				2637.8	41068	21.33	22	0-2
				2682.5	41515	21.27	22	0-2
		75RB		2503.5	39725	21.67	22	0-2
				2548.3	40173	21.59	22	0-2
				2593	40620	21.50	22	0-2
				2637.8	41068	21.48	22	0-2
				2682.5	41515	21.43	22	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	2501	39700	23.63	24	0
				2547	40160	23.84	24	0
				2593	40620	23.71	24	0
				2639	41080	23.66	24	0
				2685	41540	23.82	24	0
			25	2501	39700	23.47	24	0
				2547	40160	23.33	24	0
				2593	40620	23.28	24	0
				2639	41080	23.54	24	0
				2685	41540	23.15	24	0
			49	2501	39700	23.40	24	0
				2547	40160	23.31	24	0
				2593	40620	23.19	24	0
				2639	41080	23.47	24	0
				2685	41540	23.54	24	0
		25 RB	0	2501	39700	22.67	23	0-1
				2547	40160	22.42	23	0-1
				2593	40620	22.39	23	0-1
				2639	41080	22.42	23	0-1
				2685	41540	22.50	23	0-1
			12	2501	39700	22.57	23	0-1
				2547	40160	22.43	23	0-1
				2593	40620	22.42	23	0-1
				2639	41080	22.40	23	0-1
				2685	41540	22.28	23	0-1
			25	2501	39700	22.46	23	0-1
				2547	40160	22.38	23	0-1
				2593	40620	22.27	23	0-1
				2639	41080	22.31	23	0-1
				2685	41540	22.41	23	0-1
		50RB		2501	39700	22.62	23	0-1
				2547	40160	22.47	23	0-1
				2593	40620	22.36	23	0-1
				2639	41080	22.40	23	0-1
				2685	41540	22.39	23	0-1
	16-QAM	1 RB	0	2501	39700	22.87	23	0-1
				2547	40160	22.71	23	0-1
				2593	40620	22.72	23	0-1
				2639	41080	22.70	23	0-1
				2685	41540	22.98	23	0-1
			25	2501	39700	22.79	23	0-1
				2547	40160	22.67	23	0-1
				2593	40620	22.57	23	0-1
				2639	41080	22.53	23	0-1
				2685	41540	22.42	23	0-1
			49	2501	39700	22.65	23	0-1
				2547	40160	22.99	23	0-1
				2593	40620	22.54	23	0-1
				2639	41080	22.51	23	0-1
				2685	41540	22.79	23	0-1
		25 RB	0	2501	39700	21.61	22	0-2
				2547	40160	21.49	22	0-2
				2593	40620	21.45	22	0-2
				2639	41080	21.41	22	0-2
				2685	41540	21.54	22	0-2
			12	2501	39700	21.68	22	0-2
				2547	40160	21.42	22	0-2
				2593	40620	21.38	22	0-2
				2639	41080	21.46	22	0-2
				2685	41540	21.33	22	0-2
			25	2501	39700	21.61	22	0-2
				2547	40160	21.37	22	0-2
				2593	40620	21.28	22	0-2
				2639	41080	21.31	22	0-2
				2685	41540	21.36	22	0-2
		50RB		2501	39700	21.54	22	0-2
				2547	40160	21.42	22	0-2
				2593	40620	21.36	22	0-2
				2639	41080	21.48	22	0-2
				2685	41540	21.43	22	0-2
	64-QAM	1 RB	0	2501	39700	22.81	23	0-1
				2547	40160	22.69	23	0-1
				2593	40620	22.69	23	0-1
				2639	41080	22.66	23	0-1
				2685	41540	22.94	23	0-1
			25	2501	39700	22.75	23	0-1
				2547	40160	22.66	23	0-1
				2593	40620	22.56	23	0-1
				2639	41080	22.48	23	0-1
				2685	41540	22.37	23	0-1
			49	2501	39700	22.62	23	0-1
				2547	40160	22.95	23	0-1
				2593	40620	22.53	23	0-1
				2639	41080	22.50	23	0-1
				2685	41540	22.75	23	0-1
		25 RB	0	2501	39700	21.57	22	0-2
				2547	40160	21.48	22	0-2
				2593	40620	21.43	22	0-2
				2639	41080	21.39	22	0-2
				2685	41540	21.50	22	0-2
			12	2501	39700	21.64	22	0-2
				2547	40160	21.38	22	0-2
				2593	40620	21.34	22	0-2
				2639	41080	21.45	22	0-2
				2685	41540	21.31	22	0-2
			25	2501	39700	21.59	22	0-2
				2547	40160	21.33	22	0-2
				2593	40620	21.24	22	0-2
				2639	41080	21.27	22	0-2
				2685	41540	21.32	22	0-2
		50RB		2501	39700	21.53	22	0-2
				2547	40160	21.40	22	0-2
				2593	40620	21.34	22	0-2
				2639	41080	21.44	22	0-2
				2685	41540	21.39	22	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	2498.5	39675	23.84	24	0
				2547.8	40148	23.66	24	0
				2593	40620	23.61	24	0
				2640.3	41093	23.58	24	0
				2687.5	41565	23.72	24	0
			12	2498.5	39675	23.80	24	0
				2547.8	40148	23.60	24	0
				2593	40620	23.58	24	0
				2640.3	41093	23.63	24	0
				2687.5	41565	23.42	24	0
			24	2498.5	39675	23.76	24	0
				2547.8	40148	23.62	24	0
				2593	40620	23.48	24	0
				2640.3	41093	23.45	24	0
				2687.5	41565	23.48	24	0
		12 RB	0	2498.5	39675	22.89	23	0-1
				2547.8	40148	22.71	23	0-1
				2593	40620	22.70	23	0-1
				2640.3	41093	22.69	23	0-1
				2687.5	41565	22.62	23	0-1
			6	2498.5	39675	22.82	23	0-1
				2547.8	40148	22.70	23	0-1
				2593	40620	22.62	23	0-1
				2640.3	41093	22.58	23	0-1
				2687.5	41565	22.43	23	0-1
			13	2498.5	39675	22.92	23	0-1
				2547.8	40148	22.67	23	0-1
				2593	40620	22.72	23	0-1
				2640.3	41093	22.69	23	0-1
				2687.5	41565	22.62	23	0-1
		25RB		2498.5	39675	22.82	23	0-1
				2547.8	40148	22.72	23	0-1
				2593	40620	22.67	23	0-1
				2640.3	41093	22.64	23	0-1
				2687.5	41565	22.46	23	0-1
	16-QAM	1 RB	0	2498.5	39675	22.91	23	0-1
				2547.8	40148	22.90	23	0-1
				2593	40620	22.95	23	0-1
				2640.3	41093	22.78	23	0-1
				2687.5	41565	22.74	23	0-1
			12	2498.5	39675	22.91	23	0-1
				2547.8	40148	22.94	23	0-1
				2593	40620	22.82	23	0-1
				2640.3	41093	22.82	23	0-1
				2687.5	41565	22.98	23	0-1
			24	2498.5	39675	22.93	23	0-1
				2547.8	40148	22.88	23	0-1
				2593	40620	22.73	23	0-1
				2640.3	41093	22.79	23	0-1
				2687.5	41565	22.65	23	0-1
		12 RB	0	2498.5	39675	21.97	22	0-2
				2547.8	40148	21.78	22	0-2
				2593	40620	21.70	22	0-2
				2640.3	41093	21.69	22	0-2
				2687.5	41565	21.52	22	0-2
			6	2498.5	39675	21.94	22	0-2
				2547.8	40148	21.77	22	0-2
				2593	40620	21.69	22	0-2
				2640.3	41093	21.68	22	0-2
				2687.5	41565	21.62	22	0-2
			13	2498.5	39675	21.84	22	0-2
				2547.8	40148	21.72	22	0-2
				2593	40620	21.73	22	0-2
				2640.3	41093	21.67	22	0-2
				2687.5	41565	21.53	22	0-2
		25RB		2498.5	39675	21.86	22	0-2
				2547.8	40148	21.78	22	0-2
				2593	40620	21.75	22	0-2
				2640.3	41093	21.76	22	0-2
				2687.5	41565	21.58	22	0-2
	64-QAM	1 RB	0	2498.5	39675	22.85	23	0-1
				2547.8	40148	22.88	23	0-1
				2593	40620	22.92	23	0-1
				2640.3	41093	22.74	23	0-1
				2687.5	41565	22.70	23	0-1
			12	2498.5	39675	22.87	23	0-1
				2547.8	40148	22.93	23	0-1
				2593	40620	22.81	23	0-1
				2640.3	41093	22.77	23	0-1
				2687.5	41565	22.93	23	0-1
			24	2498.5	39675	22.90	23	0-1
				2547.8	40148	22.84	23	0-1
				2593	40620	22.72	23	0-1
				2640.3	41093	22.78	23	0-1
				2687.5	41565	22.61	23	0-1
		12 RB	0	2498.5	39675	21.93	22	0-2
				2547.8	40148	21.77	22	0-2
				2593	40620	21.68	22	0-2
				2640.3	41093	21.67	22	0-2
				2687.5	41565	21.48	22	0-2
			6	2498.5	39675	21.90	22	0-2
				2547.8	40148	21.73	22	0-2
				2593	40620	21.65	22	0-2
				2640.3	41093	21.67	22	0-2
				2687.5	41565	21.60	22	0-2
			13	2498.5	39675	21.82	22	0-2
				2547.8	40148	21.68	22	0-2
				2593	40620	21.69	22	0-2
				2640.3	41093	21.63	22	0-2
				2687.5	41565	21.49	22	0-2
		25RB		2498.5	39675	21.85	22	0-2
				2547.8	40148	21.76	22	0-2
				2593	40620	21.73	22	0-2
				2640.3	41093	21.72	22	0-2
				2687.5	41565	21.54	22	0-2

LTE FDD Band 66 - conducted power table:

FDD Band 66								
BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
20	QPSK	1 RB	0	1720	132072	24.13	24.5	0
				1745	132322	24.06	24.5	0
				1770	132572	24.14	24.5	0
			50	1720	132072	23.85	24.5	0
				1745	132322	23.80	24.5	0
				1770	132572	23.90	24.5	0
			99	1720	132072	23.77	24.5	0
				1745	132322	23.84	24.5	0
				1770	132572	23.79	24.5	0
		50 RB	0	1720	132072	22.96	23.5	0-1
				1745	132322	22.99	23.5	0-1
				1770	132572	22.97	23.5	0-1
			25	1720	132072	22.97	23.5	0-1
				1745	132322	22.93	23.5	0-1
				1770	132572	22.87	23.5	0-1
			50	1720	132072	22.92	23.5	0-1
				1745	132322	22.85	23.5	0-1
				1770	132572	22.82	23.5	0-1
		100RB		1720	132072	23.01	23.5	0-1
				1745	132322	22.97	23.5	0-1
				1770	132572	22.87	23.5	0-1
	16-QAM	1 RB	0	1720	132072	23.13	23.5	0-1
				1745	132322	23.19	23.5	0-1
				1770	132572	23.22	23.5	0-1
			50	1720	132072	22.73	23.5	0-1
				1745	132322	23.34	23.5	0-1
				1770	132572	22.81	23.5	0-1
			99	1720	132072	23.14	23.5	0-1
				1745	132322	23.26	23.5	0-1
				1770	132572	23.20	23.5	0-1
		50 RB	0	1720	132072	21.95	22.5	0-2
				1745	132322	22.11	22.5	0-2
				1770	132572	22.05	22.5	0-2
			25	1720	132072	21.92	22.5	0-2
				1745	132322	21.92	22.5	0-2
				1770	132572	21.85	22.5	0-2
			50	1720	132072	21.95	22.5	0-2
				1745	132322	21.89	22.5	0-2
				1770	132572	21.88	22.5	0-2
		100RB		1720	132072	21.90	22.5	0-2
				1745	132322	21.93	22.5	0-2
				1770	132572	21.96	22.5	0-2
	64-QAM	1 RB	0	1720	132072	23.07	23.5	0-1
				1745	132322	23.17	23.5	0-1
				1770	132572	23.19	23.5	0-1
			50	1720	132072	22.69	23.5	0-1
				1745	132322	23.30	23.5	0-1
				1770	132572	22.77	23.5	0-1
			99	1720	132072	23.13	23.5	0-1
				1745	132322	23.25	23.5	0-1
				1770	132572	23.15	23.5	0-1
		50 RB	0	1720	132072	21.90	22.5	0-2
				1745	132322	22.08	22.5	0-2
				1770	132572	22.01	22.5	0-2
			25	1720	132072	21.91	22.5	0-2
				1745	132322	21.91	22.5	0-2
				1770	132572	21.81	22.5	0-2
			50	1720	132072	21.91	22.5	0-2
				1745	132322	21.88	22.5	0-2
				1770	132572	21.86	22.5	0-2
		100RB		1720	132072	21.88	22.5	0-2
				1745	132322	21.89	22.5	0-2
				1770	132572	21.92	22.5	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
15	QPSK	1 RB	0	1717.5	132047	23.96	24.5	0
				1745	132322	24.06	24.5	0
				1772.5	132597	24.13	24.5	0
			36	1717.5	132047	23.77	24.5	0
				1745	132322	23.89	24.5	0
				1772.5	132597	23.82	24.5	0
			74	1717.5	132047	23.83	24.5	0
				1745	132322	23.89	24.5	0
				1772.5	132597	23.79	24.5	0
		36 RB	0	1717.5	132047	22.88	23.5	0-1
				1745	132322	23.00	23.5	0-1
				1772.5	132597	22.90	23.5	0-1
			18	1717.5	132047	22.81	23.5	0-1
				1745	132322	22.89	23.5	0-1
				1772.5	132597	22.85	23.5	0-1
			37	1717.5	132047	22.86	23.5	0-1
				1745	132322	22.84	23.5	0-1
				1772.5	132597	22.79	23.5	0-1
		75RB		1717.5	132047	22.79	23.5	0-1
				1745	132322	22.88	23.5	0-1
				1772.5	132597	22.87	23.5	0-1
	16-QAM	1 RB	0	1717.5	132047	23.45	23.5	0-1
				1745	132322	23.49	23.5	0-1
				1772.5	132597	23.42	23.5	0-1
			36	1717.5	132047	23.27	23.5	0-1
				1745	132322	23.05	23.5	0-1
				1772.5	132597	23.27	23.5	0-1
			74	1717.5	132047	23.40	23.5	0-1
				1745	132322	23.14	23.5	0-1
				1772.5	132597	23.26	23.5	0-1
		36 RB	0	1717.5	132047	21.87	22.5	0-2
				1745	132322	21.96	22.5	0-2
				1772.5	132597	21.96	22.5	0-2
			18	1717.5	132047	21.97	22.5	0-2
				1745	132322	21.90	22.5	0-2
				1772.5	132597	21.86	22.5	0-2
			37	1717.5	132047	21.88	22.5	0-2
				1745	132322	21.85	22.5	0-2
				1772.5	132597	21.76	22.5	0-2
		75RB		1717.5	132047	21.78	22.5	0-2
				1745	132322	21.99	22.5	0-2
				1772.5	132597	21.85	22.5	0-2
	64-QAM	1 RB	0	1717.5	132047	23.45	23.5	0-1
				1745	132322	23.49	23.5	0-1
				1772.5	132597	23.42	23.5	0-1
			36	1717.5	132047	23.27	23.5	0-1
				1745	132322	23.05	23.5	0-1
				1772.5	132597	23.27	23.5	0-1
			74	1717.5	132047	23.40	23.5	0-1
				1745	132322	23.14	23.5	0-1
				1772.5	132597	23.26	23.5	0-1
		36 RB	0	1717.5	132047	21.87	22.5	0-2
				1745	132322	21.96	22.5	0-2
				1772.5	132597	21.96	22.5	0-2
			18	1717.5	132047	21.97	22.5	0-2
				1745	132322	21.90	22.5	0-2
				1772.5	132597	21.86	22.5	0-2
			37	1717.5	132047	21.88	22.5	0-2
				1745	132322	21.85	22.5	0-2
				1772.5	132597	21.76	22.5	0-2
		75RB		1717.5	132047	21.78	22.5	0-2
				1745	132322	21.99	22.5	0-2
				1772.5	132597	21.85	22.5	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
10	QPSK	1 RB	0	1715	132022	23.86	24.5	0
				1745	132322	23.99	24.5	0
				1775	132622	23.83	24.5	0
			25	1715	132022	23.76	24.5	0
				1745	132322	23.89	24.5	0
				1775	132622	23.75	24.5	0
			49	1715	132022	23.86	24.5	0
				1745	132322	23.71	24.5	0
				1775	132622	23.74	24.5	0
		25 RB	0	1715	132022	22.89	23.5	0-1
				1745	132322	22.97	23.5	0-1
				1775	132622	22.87	23.5	0-1
			12	1715	132022	22.84	23.5	0-1
				1745	132322	22.94	23.5	0-1
				1775	132622	22.82	23.5	0-1
			25	1715	132022	22.85	23.5	0-1
				1745	132322	22.82	23.5	0-1
				1775	132622	22.79	23.5	0-1
		50RB		1715	132022	22.84	23.5	0-1
				1745	132322	22.89	23.5	0-1
				1775	132622	22.82	23.5	0-1
	16-QAM	1 RB	0	1715	132022	23.15	23.5	0-1
				1745	132322	23.41	23.5	0-1
				1775	132622	23.44	23.5	0-1
			25	1715	132022	23.29	23.5	0-1
				1745	132322	23.16	23.5	0-1
				1775	132622	23.10	23.5	0-1
			49	1715	132022	23.02	23.5	0-1
				1745	132322	22.82	23.5	0-1
				1775	132622	22.99	23.5	0-1
		25 RB	0	1715	132022	21.86	22.5	0-2
				1745	132322	21.98	22.5	0-2
				1775	132622	21.95	22.5	0-2
			12	1715	132022	21.83	22.5	0-2
				1745	132322	21.98	22.5	0-2
				1775	132622	21.85	22.5	0-2
			25	1715	132022	21.77	22.5	0-2
				1745	132322	21.81	22.5	0-2
				1775	132622	21.88	22.5	0-2
		50RB		1715	132022	21.87	22.5	0-2
				1745	132322	21.90	22.5	0-2
				1775	132622	21.85	22.5	0-2
	64-QAM	1 RB	0	1715	132022	23.39	23.5	0-1
				1745	132322	23.47	23.5	0-1
				1775	132622	23.39	23.5	0-1
			25	1715	132022	23.23	23.5	0-1
				1745	132322	23.01	23.5	0-1
				1775	132622	23.23	23.5	0-1
			49	1715	132022	23.39	23.5	0-1
				1745	132322	23.13	23.5	0-1
				1775	132622	23.21	23.5	0-1
		25 RB	0	1715	132022	21.82	22.5	0-2
				1745	132322	21.93	22.5	0-2
				1775	132622	21.92	22.5	0-2
			12	1715	132022	21.96	22.5	0-2
				1745	132322	21.89	22.5	0-2
				1775	132622	21.82	22.5	0-2
			25	1715	132022	21.84	22.5	0-2
				1745	132322	21.84	22.5	0-2
				1775	132622	21.74	22.5	0-2
		50RB		1715	132022	21.76	22.5	0-2
				1745	132322	21.95	22.5	0-2
				1775	132622	21.81	22.5	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
5	QPSK	1 RB	0	1712.5	131997	23.83	24.5	0
				1745	132322	23.88	24.5	0
				1777.5	132647	23.80	24.5	0
			12	1712.5	131997	23.91	24.5	0
				1745	132322	23.80	24.5	0
				1777.5	132647	23.57	24.5	0
			24	1712.5	131997	23.81	24.5	0
				1745	132322	23.83	24.5	0
				1777.5	132647	23.58	24.5	0
		12 RB	0	1712.5	131997	22.80	23.5	0-1
				1745	132322	22.87	23.5	0-1
				1777.5	132647	22.75	23.5	0-1
			6	1712.5	131997	22.83	23.5	0-1
				1745	132322	22.92	23.5	0-1
				1777.5	132647	22.83	23.5	0-1
			13	1712.5	131997	22.75	23.5	0-1
				1745	132322	22.83	23.5	0-1
				1777.5	132647	22.79	23.5	0-1
		25RB		1712.5	131997	22.78	23.5	0-1
				1745	132322	22.86	23.5	0-1
				1777.5	132647	22.74	23.5	0-1
	16-QAM	1 RB	0	1712.5	131997	23.03	23.5	0-1
				1745	132322	23.42	23.5	0-1
				1777.5	132647	23.32	23.5	0-1
			12	1712.5	131997	23.14	23.5	0-1
				1745	132322	23.08	23.5	0-1
				1777.5	132647	22.66	23.5	0-1
			24	1712.5	131997	22.98	23.5	0-1
				1745	132322	22.98	23.5	0-1
				1777.5	132647	22.89	23.5	0-1
		12 RB	0	1712.5	131997	21.87	22.5	0-2
				1745	132322	21.85	22.5	0-2
				1777.5	132647	21.74	22.5	0-2
			6	1712.5	131997	21.82	22.5	0-2
				1745	132322	21.91	22.5	0-2
				1777.5	132647	21.80	22.5	0-2
			13	1712.5	131997	21.77	22.5	0-2
				1745	132322	21.89	22.5	0-2
				1777.5	132647	21.85	22.5	0-2
		25RB		1712.5	131997	21.86	22.5	0-2
				1745	132322	21.88	22.5	0-2
				1777.5	132647	21.78	22.5	0-2
	16-QAM	1 RB	0	1712.5	131997	22.97	23.5	0-1
				1745	132322	23.40	23.5	0-1
				1777.5	132647	23.29	23.5	0-1
			12	1712.5	131997	23.10	23.5	0-1
				1745	132322	23.04	23.5	0-1
				1777.5	132647	22.62	23.5	0-1
			24	1712.5	131997	22.97	23.5	0-1
				1745	132322	22.97	23.5	0-1
				1777.5	132647	22.84	23.5	0-1
		12 RB	0	1712.5	131997	21.82	22.5	0-2
				1745	132322	21.82	22.5	0-2
				1777.5	132647	21.70	22.5	0-2
			6	1712.5	131997	21.81	22.5	0-2
				1745	132322	21.90	22.5	0-2
				1777.5	132647	21.76	22.5	0-2
			13	1712.5	131997	21.73	22.5	0-2
				1745	132322	21.88	22.5	0-2
				1777.5	132647	21.83	22.5	0-2
		25RB		1712.5	131997	21.84	22.5	0-2
				1745	132322	21.84	22.5	0-2
				1777.5	132647	21.74	22.5	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
3	QPSK	1 RB	0	1711.5	131987	23.90	24.5	0
				1745	132322	23.87	24.5	0
				1778.5	132657	24.03	24.5	0
			7	1711.5	131987	23.97	24.5	0
				1745	132322	23.86	24.5	0
				1778.5	132657	23.75	24.5	0
			14	1711.5	131987	23.85	24.5	0
				1745	132322	23.76	24.5	0
				1778.5	132657	23.74	24.5	0
		8 RB	0	1711.5	131987	22.85	23.5	0-1
				1745	132322	22.80	23.5	0-1
				1778.5	132657	22.78	23.5	0-1
			4	1711.5	131987	22.86	23.5	0-1
				1745	132322	22.82	23.5	0-1
				1778.5	132657	22.72	23.5	0-1
			7	1711.5	131987	22.81	23.5	0-1
				1745	132322	22.80	23.5	0-1
				1778.5	132657	22.74	23.5	0-1
		15RB		1711.5	131987	22.81	23.5	0-1
				1745	132322	22.79	23.5	0-1
				1778.5	132657	22.79	23.5	0-1
	16-QAM	1 RB	0	1711.5	131987	23.04	23.5	0-1
				1745	132322	23.04	23.5	0-1
				1778.5	132657	22.87	23.5	0-1
			7	1711.5	131987	23.02	23.5	0-1
				1745	132322	23.33	23.5	0-1
				1778.5	132657	22.99	23.5	0-1
			14	1711.5	131987	23.01	23.5	0-1
				1745	132322	22.86	23.5	0-1
				1778.5	132657	23.02	23.5	0-1
		8 RB	0	1711.5	131987	21.87	22.5	0-2
				1745	132322	21.95	22.5	0-2
				1778.5	132657	21.84	22.5	0-2
			4	1711.5	131987	21.93	22.5	0-2
				1745	132322	22.07	22.5	0-2
				1778.5	132657	21.67	22.5	0-2
			7	1711.5	131987	21.82	22.5	0-2
				1745	132322	21.96	22.5	0-2
				1778.5	132657	21.90	22.5	0-2
		15RB		1711.5	131987	21.88	22.5	0-2
				1745	132322	21.93	22.5	0-2
				1778.5	132657	21.66	22.5	0-2
	64-QAM	1 RB	0	1711.5	131987	22.98	23.5	0-1
				1745	132322	23.02	23.5	0-1
				1778.5	132657	22.84	23.5	0-1
			7	1711.5	131987	22.98	23.5	0-1
				1745	132322	23.29	23.5	0-1
				1778.5	132657	22.95	23.5	0-1
			14	1711.5	131987	23.00	23.5	0-1
				1745	132322	22.85	23.5	0-1
				1778.5	132657	22.97	23.5	0-1
		8 RB	0	1711.5	131987	21.82	22.5	0-2
				1745	132322	21.92	22.5	0-2
				1778.5	132657	21.80	22.5	0-2
			4	1711.5	131987	21.92	22.5	0-2
				1745	132322	22.06	22.5	0-2
				1778.5	132657	21.63	22.5	0-2
			7	1711.5	131987	21.78	22.5	0-2
				1745	132322	21.95	22.5	0-2
				1778.5	132657	21.88	22.5	0-2
		15RB		1711.5	131987	21.86	22.5	0-2
				1745	132322	21.89	22.5	0-2
				1778.5	132657	21.62	22.5	0-2

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	Target Power + Max. Tolerance (dBm)	MPR Allowed per 3GPP(dB)
1.4	QPSK	1 RB	0	1710.7	131979	23.65	24.5	0
				1745	132322	23.75	24.5	0
				1779.3	132665	23.60	24.5	0
			2	1710.7	131979	23.81	24.5	0
				1745	132322	23.83	24.5	0
				1779.3	132665	23.68	24.5	0
			5	1710.7	131979	23.66	24.5	0
				1745	132322	23.67	24.5	0
				1779.3	132665	23.65	24.5	0
		3 RB	0	1710.7	131979	23.80	24.5	0
				1745	132322	23.75	24.5	0
				1779.3	132665	23.71	24.5	0
			2	1710.7	131979	23.81	24.5	0
				1745	132322	23.91	24.5	0
				1779.3	132665	23.84	24.5	0
			3	1710.7	131979	23.70	24.5	0
				1745	132322	23.79	24.5	0
				1779.3	132665	23.70	24.5	0
		6RB		1710.7	131979	22.79	23.5	0-1
				1745	132322	22.74	23.5	0-1
				1779.3	132665	22.67	23.5	0-1
	16-QAM	1 RB	0	1710.7	131979	22.80	23.5	0-1
				1745	132322	22.66	23.5	0-1
				1779.3	132665	22.61	23.5	0-1
			2	1710.7	131979	23.15	23.5	0-1
				1745	132322	23.21	23.5	0-1
				1779.3	132665	22.93	23.5	0-1
			5	1710.7	131979	22.71	23.5	0-1
				1745	132322	22.91	23.5	0-1
				1779.3	132665	22.78	23.5	0-1
		3 RB	0	1710.7	131979	22.83	23.5	0-1
				1745	132322	22.85	23.5	0-1
				1779.3	132665	22.77	23.5	0-1
			2	1710.7	131979	22.91	23.5	0-1
				1745	132322	22.84	23.5	0-1
				1779.3	132665	22.73	23.5	0-1
			3	1710.7	131979	22.66	23.5	0-1
				1745	132322	22.80	23.5	0-1
				1779.3	132665	22.77	23.5	0-1
		6RB		1710.7	131979	21.73	22.5	0-2
				1745	132322	21.90	22.5	0-2
				1779.3	132665	21.84	22.5	0-2
	64-QAM	1 RB	0	1710.7	131979	22.74	23.5	0-1
				1745	132322	22.64	23.5	0-1
				1779.3	132665	22.58	23.5	0-1
			2	1710.7	131979	23.11	23.5	0-1
				1745	132322	23.17	23.5	0-1
				1779.3	132665	22.89	23.5	0-1
			5	1710.7	131979	22.70	23.5	0-1
				1745	132322	22.90	23.5	0-1
				1779.3	132665	22.73	23.5	0-1
		3 RB	0	1710.7	131979	22.78	23.5	0-1
				1745	132322	22.82	23.5	0-1
				1779.3	132665	22.73	23.5	0-1
			2	1710.7	131979	22.90	23.5	0-1
				1745	132322	22.83	23.5	0-1
				1779.3	132665	22.69	23.5	0-1
			3	1710.7	131979	22.62	23.5	0-1
				1745	132322	22.79	23.5	0-1
				1779.3	132665	22.75	23.5	0-1
		6RB		1710.7	131979	21.71	22.5	0-2
				1745	132322	21.86	22.5	0-2
				1779.3	132665	21.80	22.5	0-2

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WLAN802.11 a/b/g/n/ac(20M/40M/80M) conducted power table:

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	17.00	16.67
		6	2437		17.00	16.72
		11	2462		17.00	16.70
	802.11g	1	2412	6Mbps	16.00	15.91
		6	2437		16.00	15.91
		11	2462		16.00	15.87
	802.11n-HT20	1	2412	MCS0	14.50	14.38
		6	2437		14.50	14.47
		11	2462		14.50	14.43

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	16.50	16.23
		40	5200		16.50	16.22
		44	5220		16.50	16.16
		48	5240		16.50	16.10
	802.11n-HT20	36	5180	MCS0	15.50	15.27
		40	5200		15.50	15.32
		44	5220		15.50	15.21
		48	5240		15.50	15.18
	802.11n-VHT20	36	5180	MCS0	14.50	14.29
		40	5200		14.50	14.14
		44	5220		14.50	14.17
		48	5240		14.50	14.19
	802.11n-HT40	38	5190	MCS0	16.00	15.89
		46	5230		16.00	15.88
	802.11n-VHT40	38	5190	MCS0	14.00	13.83
		46	5230		14.00	13.89
	802.11n-VHT80	42	5210	MCS0	13.50	13.17

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	16.50	16.28
		56	5280		16.50	16.17
		60	5300		16.50	16.13
		64	5320		16.50	16.20
	802.11n-HT20	52	5260	MCS0	15.50	15.19
		56	5280		15.50	15.25
		60	5300		15.50	15.21
		64	5320		15.50	15.23
	802.11n-VHT20	52	5260	MCS0	14.50	14.28
		56	5280		14.50	14.14
		60	5300		14.50	14.33
		64	5320		14.50	14.22
	802.11n-HT40	54	5270	MCS0	16.00	16.00
		62	5310		16.00	15.93
	802.11n-VHT40	54	5270	MCS0	14.00	13.90
		62	5310		14.00	13.90
	802.11n-VHT80	58	5290	MCS0	13.50	13.18

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Main Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	16.50	16.40
		120	5600		16.50	16.29
		124	5620		16.50	16.21
		128	5640		16.50	16.31
		140	5700		16.50	16.33
	802.11n-HT20	100	5500	MCS0	15.50	15.24
		120	5600		15.50	15.35
		124	5620		15.50	15.40
		128	5640		15.50	15.37
		140	5700		15.50	15.32
	802.11n-VHT20	100	5500	MCS0	14.50	14.44
		120	5600		14.50	14.35
		124	5620		14.50	14.40
		128	5640		14.50	14.28
		140	5700		14.50	14.41
		144	5720		14.50	14.36
	802.11n-HT40	102	5510	MCS0	16.00	15.99
		110	5550		16.00	15.92
		118	5590		16.00	15.83
		126	5630		16.00	15.95
		134	5670		16.00	15.90
	802.11n-VHT40	102	5510	MCS0	14.00	13.89
		118	5590		14.00	13.96
		126	5630		14.00	13.82
		134	5670		14.00	13.85
		142	5710		14.00	13.80
	802.11n-VHT80	106	5530	MCS0	14.00	13.89
		122	5610		14.00	13.91
		138	5690		13.50	13.27

Main Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	16.50	16.35
		157	5785		16.50	16.38
		165	5825		16.50	16.32
	802.11n-HT20	149	5745	MCS0	15.50	15.39
		157	5785		15.50	15.33
		165	5825		15.50	15.40
	802.11n-VHT20	149	5745	MCS0	14.50	14.35
		157	5785		14.50	14.32
		165	5825		14.50	14.38
	802.11n-HT40	151	5755	MCS0	16.00	15.99
		159	5795		16.00	15.93
	802.11n-VHT40	151	5755	MCS0	14.00	13.85
		159	5795		14.00	13.89
	802.11n-VHT80	155	5775	MCS0	13.50	13.41

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
2450 MHz	802.11b	1	2412	1Mbps	17.00	16.83
		6	2437		17.00	16.98
		11	2462		17.00	16.79
	802.11g	1	2412	6Mbps	16.00	15.91
		6	2437		16.00	15.82
		11	2462		16.00	15.96
	802.11n-HT20	1	2412	MCS0	14.50	14.47
		6	2437		14.50	14.42
		11	2462		14.50	14.48

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.15-5.25 GHz	802.11a	36	5180	6Mbps	16.50	16.41
		40	5200		16.50	16.43
		44	5220		16.50	16.38
		48	5240		16.50	16.39
	802.11n-HT20	36	5180	MCS0	15.50	15.44
		40	5200		15.50	15.41
		44	5220		15.50	15.45
		48	5240		15.50	15.37
	802.11n-VHT20	36	5180	MCS0	14.50	14.38
		40	5200		14.50	14.40
		44	5220		14.50	14.35
		48	5240		14.50	14.42
	802.11n-HT40	38	5190	MCS0	16.00	16.00
		46	5230		16.00	15.80
	802.11n-VHT40	38	5190	MCS0	14.00	13.87
		46	5230		14.00	13.76
	802.11n-VHT80	42	5210	MCS0	13.50	13.38

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5.25-5.35 GHz	802.11a	52	5260	6Mbps	16.50	16.42
		56	5280		16.50	16.31
		60	5300		16.50	16.44
		64	5320		16.50	16.41
	802.11n-HT20	52	5260	MCS0	15.50	15.40
		56	5280		15.50	15.36
		60	5300		15.50	15.44
		64	5320		15.50	15.41
	802.11n-VHT20	52	5260	MCS0	14.50	14.37
		56	5280		14.50	14.43
		60	5300		14.50	14.38
		64	5320		14.50	14.33
	802.11n-HT40	54	5270	MCS0	16.00	15.97
		62	5310		16.00	15.86
	802.11n-VHT40	54	5270	MCS0	14.00	13.90
		62	5310		14.00	13.96
	802.11n-VHT80	58	5290	MCS0	13.50	13.44

Aux Antenna						
Band	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5600 MHz	802.11a	100	5500	6Mbps	16.50	16.44
		120	5600		16.50	16.22
		124	5620		16.50	16.39
		128	5640		16.50	16.31
		140	5700		16.50	16.42
	802.11n-HT20	100	5500	MCS0	15.50	15.44
		120	5600		15.50	15.36
		124	5620		15.50	15.40
		128	5640		15.50	15.29
		140	5700		15.50	15.39
	802.11n-VHT20	100	5500	MCS0	14.50	14.46
		120	5600		14.50	14.30
		124	5620		14.50	14.41
		128	5640		14.50	14.38
		140	5700		14.50	14.43
		144	5720		14.50	14.34
	802.11n-HT40	102	5510	MCS0	16.00	15.98
		110	5550		16.00	15.97
		118	5590		16.00	15.81
		126	5630		16.00	15.93
		134	5670		16.00	15.80
	802.11n-VHT40	102	5510	MCS0	14.00	13.97
		118	5590		14.00	13.80
		126	5630		14.00	13.84
		134	5670		14.00	13.84
		142	5710		14.00	13.98
	802.11n-VHT80	106	5530	MCS0	14.00	13.80
		122	5610		14.00	13.81
		138	5690		13.50	13.34

Aux Antenna						
Mode	Mode	Channel	Frequency (MHz)	Data Rate	Max. Rated Avg. Power + Max. Tolerance (dBm)	Average power (dBm)
5800 MHz	802.11a	149	5745	6Mbps	16.50	16.33
		157	5785		16.50	16.29
		165	5825		16.50	16.31
	802.11n-HT20	149	5745	MCS0	15.50	15.29
		157	5785		15.50	15.31
		165	5825		15.50	15.22
	802.11n-VHT20	149	5745	MCS0	14.50	14.42
		157	5785		14.50	14.33
		165	5825		14.50	14.24
	802.11n-HT40	151	5755	MCS0	16.00	15.97
		159	5795		16.00	15.95
	802.11n-VHT40	151	5755	MCS0	14.00	13.95
		159	5795		14.00	13.83
	802.11n-VHT80	155	5775	MCS0	13.50	13.28

Bluetooth maximum specified power table:

Mode	Channel	Frequency (MHz)	Maximum specified power (dBm)		
			1Mbps	2Mbps	3Mbps
BR/EDR	CH 00	2402	8.00	3.00	3.00
	CH 39	2441			
	CH 78	2480			

Mode	Channel	Frequency (MHz)	Maximum specified power (dBm)
			GFSK
LE	CH 00	2402	3.00
	CH 19	2440	
	CH 39	2480	

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.3.1 LTE Downlink CA specification

LTE Downlink 2CA conducted power table

Two Component Carrier Maximum Conducted Power															
PCC									SCC				Power		
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	Configurations
LTE B2	5	19175	1907.5	QPSK	25	0	1175	1987.5	LTE B2	5	625	1932.5	21.16	21.82	CA_2A-2A
LTE B2	20	19100	1900	QPSK	100	0	1100	1980	LTE B2	5	983	1968.3	21.23	21.92	CA_2C
LTE B4	5	20375	1752.5	QPSK	25	0	2375	2152.5	LTE B4	5	1975	2112.5	22.11	22.51	CA_4A-4A
LTE B7	15	20825	2507.5	QPSK	75	0	2825	2627.5	LTE B7	10	2945	2639.5	21.12	21.88	CA_7C
LTE B7	15	20825	2507.5	QPSK	75	0	2825	2627.5	LTE B7	5	2918	2636.8	21.42	21.88	CA_7B
LTE B7	5	20775	2502.5	QPSK	25	0	2775	2622.5	LTE B7	5	3425	2687.5	21.05	21.78	CA_7A-7A
LTE B12	5	23155	713.5	QPSK	25	0	5155	743.5	LTE B12	5	5107	738.7	20.86	21.87	CA_12B
LTE B38	20	38150	2610	QPSK	100	0	38150	2610	LTE B38	20	37952	2590.2	21.47	22.36	CA_38C
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B4	20	2175	2132.5	20.60	22.99	CA_2A-4A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B2	20	900	1960	22.23	23.55	CA_2A-4A
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B5	10	2525	881.5	21.04	22.99	CA_2A-5A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B2	20	900	1960	21.11	22.99	CA_2A-5A
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B7	20	3100	2655	21.70	22.99	CA_2A-7A
LTE B7	20	21100	2535	QPSK	1	0	3100	2655	LTE B2	20	900	1960	20.94	22.96	CA_2A-7A
LTE B2	10	18900	1880	QPSK	1	0	900	1960	LTE B17	10	5790	740	21.06	22.92	CA_2A-17A
LTE B17	10	23800	711	QPSK	1	0	5800	711	LTE B2	10	900	1960	21.20	22.98	CA_2A-17A
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B30	10	9820	2355	21.05	22.99	CA_2A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B2	20	900	1960	21.33	22.98	CA_2A-30A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B5	10	2525	881.5	22.13	23.55	CA_4A-5A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B4	20	2175	2132.5	22.05	22.99	CA_4A-5A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B7	20	3100	2655	22.24	23.55	CA_4A-7A
LTE B7	20	21100	2535	QPSK	1	0	3100	2655	LTE B4	20	2175	2132.5	21.36	22.96	CA_4A-7A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B12	10	5095	737.5	21.23	23.55	CA_4A-12A
LTE B12	10	23130	711	QPSK	1	0	5130	741	LTE B4	20	2175	2132.5	21.26	22.98	CA_4A-12A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B30	10	9820	2355	22.10	23.55	CA_4A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B4	20	2175	2132.5	21.70	22.98	CA_4A-30A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B7	20	3100	2655	21.89	22.99	CA_5A-7A
LTE B7	20	21100	2535	QPSK	1	0	3100	2655	LTE B5	10	2525	881.5	21.05	22.96	CA_5A-7A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B30	10	9820	2355	21.02	22.99	CA_5A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B5	10	2525	881.5	21.30	22.98	CA_5A-30A
LTE B12	10	23130	711	QPSK	1	0	5130	741	LTE B30	10	9820	2355	21.32	22.98	CA_12A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B12	10	5095	737.5	20.87	22.98	CA_12A-30A

LTE Downlink 3CA conducted power table

Three Component Carrier Maximum Conducted Power																			
PCC									SCC 1				SCC 2				Power		
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC (UL) RB	PCC (UL) RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA active (dBm)	LTE Tx.Power with DL CA inactive (dBm)	Configurations
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B4	5	2375	2152.5	LTE B4	5	1975	2112.5	21.38	22.99	CA_2A-4A-4A
LTE B4	5	20375	1752.5	QPSK	25	0	2375	2152.5	LTE B4	5	1975	2112.5	LTE B2	20	900	1960	21.39	22.51	CA_2A-4A-4A
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B12	5	5155	743.5	LTE B12	5	5107	738.7	21.47	22.99	CA_2A-12B
LTE B12	5	23155	713.5	QPSK	25	0	5155	743.5	LTE B12	5	5107	738.7	LTE B2	20	900	1960	21.36	21.87	CA_2A-12B
LTE B4	5	20375	1752.5	QPSK	25	0	2375	2152.5	LTE B4	5	1975	2112.5	LTE B12	10	5095	737.5	21.08	22.51	CA_4A-4A-12A
LTE B12	10	23130	711	QPSK	1	0	5130	741	LTE B4	5	2375	2152.5	LTE B4	5	1975	2112.5	21.05	22.98	CA_4A-4A-12A
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	22.41	22.99	CA_2A-4A-12A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B2	20	900	1960	LTE B12	10	5095	737.5	22.58	23.55	CA_2A-4A-12A
LTE B12	10	23130	711	QPSK	1	0	5130	741	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	21.63	22.98	CA_2A-4A-12A
LTE B2	20	19100	1900	QPSK	1	0	1100	1980	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	21.70	22.99	CA_2A-12A-30A
LTE B12	10	23130	711	QPSK	1	0	5130	741	LTE B2	20	900	1960	LTE B30	10	9820	2355	21.82	22.98	CA_2A-12A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B2	20	900	1960	LTE B12	10	5095	737.5	22.07	22.98	CA_2A-12A-30A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	21.43	23.55	CA_4A-5A-30A
LTE B5	10	20600	844	QPSK	1	0	2600	889	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	21.07	22.99	CA_4A-5A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	22.48	22.98	CA_4A-5A-30A
LTE B4	20	20300	1745	QPSK	1	0	2300	2145	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	22.36	23.55	CA_4A-12A-30A
LTE B12	10	23130	711	QPSK	1	0	5130	741	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	22.51	22.98	CA_4A-12A-30A
LTE B30	10	27710	2310	QPSK	1	49	9820	2355	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	22.13	22.98	CA_4A-12A-30A

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE CA information

A) The device supports downlink LTE Carrier Aggregation (CA) only. It supports a maximum of 3 carriers in the downlink. Other Release 10 features or higher features are not supported, including Uplink Carrier Aggregation, Enhanced SC-FDMA and Uplink MIMO or other antenna diversity configurations etc. All uplink communications are identical to the Release 8 Specifications.

The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.521-1 V14.3.0. The conducted power measurement results of downlink LTE CA are provided as above per 3GPP TS 36.521-1 V14.3.0. According to KDB 941225 D05A, the downlink LTE CA SAR test is not required.

B)

i) Combinations supported for intra-band carrier aggregation.

Table 1: intra-band contiguous CA

E-UTRA CA configuration	Component carriers in order of increasing carrier frequency			Maximum aggregated bandwidth [MHz]	Bandwidth combination set
	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_2C	5	20		40	0
	10	15,20			
	15	10,15,20			
	20	5,10,15,20			
CA_7B	15	5		20	0
CA_7C	15	15		40	0
	20	20			
	10	20		40	1
	15	15,20			
	20	10,15,20			
	15	10,15		40	2
	20	15,20			
CA_12B	5	5,10		15	0
CA_38C	15	15		40	0
	20	20			

Table 2: intra-band non-contiguous CA (with two sub-blocks)

-UTRACA configuration	Component carriers in order of increasing carrier frequency			Maximum aggregated bandwidth [MHz]	Bandwidth combination set
	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]	Channel bandwidths for carrier [MHz]		
CA_2A-2A	5,10,15,20	5,10,15,20		40	0
CA_4A-4A	5,10,15,20	5,10,15,20		40	0
	5,10	5,10		20	1
CA_7A-7A	5	15		40	0
	10	10,15			
	15	15,20			
	20	20			
	5,10,15,20	5,10,15,20		40	1
	5,10,15,20	5,10		30	2
	10,15,20	10,15,20		40	3

ii) The frequency band combinations supported for inter-band carrier aggregation.

Table 3: inter-band CA (two bands)

E-UTRA CA Configuration	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz		20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-4A	2	Yes	Yes	Yes	Yes	Yes		Yes	40	0
	4			Yes	Yes	Yes		Yes		
	2			Yes	Yes				20	1
	4			Yes	Yes					
	2			Yes	Yes	Yes		Yes	40	2
	4			Yes	Yes	Yes		Yes		
CA_2A-5A	2			Yes	Yes	Yes		Yes	30	0
	5			Yes	Yes					
	2			Yes	Yes				20	1
	5			Yes	Yes					
CA_2A-7A	2			Yes	Yes	Yes		Yes	40	0
	7			Yes	Yes	Yes		Yes		
CA_2A-17A	2			Yes	Yes				20	0
	17			Yes	Yes					
CA_2A-30A	2			Yes	Yes	Yes		Yes	30	0
	30			Yes	Yes					
CA_4A-5A	4			Yes	Yes				20	0
	5			Yes	Yes					
	4			Yes	Yes	Yes		Yes	30	1
	5			Yes	Yes					
CA_4A-7A	4			Yes	Yes				30	0
	7			Yes	Yes	Yes		Yes		
	4			Yes	Yes	Yes		Yes	40	1
	7			Yes	Yes	Yes		Yes		
CA_4A-12A	4	Yes	Yes	Yes	Yes				20	0
	12			Yes	Yes					
	4	Yes	Yes	Yes	Yes	Yes		Yes	30	1
	12			Yes	Yes					
	4			Yes	Yes	Yes		Yes	30	2
	12		Yes	Yes	Yes					
	4			Yes	Yes				20	3
	12			Yes	Yes					
	4			Yes	Yes	Yes		Yes	30	4
	12			Yes	Yes					
	4			Yes	Yes	Yes			20	5
	12			Yes						
CA_4A-30A	4			Yes	Yes	Yes		Yes	30	0
	30			Yes	Yes					
CA_5A-7A	5	Yes	Yes	Yes	Yes				30	0
	7				Yes	Yes		Yes		
	5			Yes	Yes				30	1
	7				Yes	Yes		Yes		
CA_5A-30A	5			Yes	Yes				20	0
	30			Yes	Yes					
CA_12A-30A	12			Yes	Yes				20	0
	30			Yes	Yes					
CA_2A-4A-4A	2			Yes	Yes	Yes		Yes	60	0

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

	4		See CA_4A-4A bandwidth combination set 0 in table 2						
CA_2A-12B	2			Yes	Yes	Yes		Yes	35	0
	12		See CA_12B bandwidth combination set 0 in table 2							
CA_4A-4A-12A	4		See CA_4A-4A Bandwidth Combination Set 0 in table 2						50	0
	12			Yes	Yes					

Table 4: inter-band CA (three bands)

E-UTRA CA Configuration	E-UTRA Bands	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	Maximum aggregated bandwidth [MHz]	Bandwidth combination set
CA_2A-4A-12A	2			Yes	Yes	Yes	Yes	50	0
	4			Yes	Yes	Yes	Yes		
	12			Yes	Yes				
CA_2A-12A-30A	2			Yes	Yes	Yes	Yes	40	0
	12			Yes	Yes				
	30			Yes	Yes				
CA_4A-5A-30A	4			Yes	Yes	Yes	Yes	40	0
	5			Yes	Yes				
	30			Yes	Yes				
CA_4A-12A-30A	4			Yes	Yes	Yes	Yes	40	0
	12			Yes	Yes				
	30			Yes	Yes				

Note:

1）For the inter-band CA combinations, all the listed bands above can be used as PCC or SCC.

2) The channel spacing and aggregated channel bandwidth for CA are identical to the associated specification in 3GPP TS 36.521-1 V14.3.0.

3) The reference test frequencies for CA refers to 3GPP TS 36.508 V14.2.0

4) Testing is not required in bands or modes not intended/allowed for US operation

1.4 Test Environment

Ambient Temperature: 22±2° C
Tissue Simulating Liquid: 22±2° C

1.5 Operation Description

1. The EUT is controlled by using a Radio Communication Tester (Anritsu MT8820C), and the communication between the EUT and the tester is established by air link.

2. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

3. During the SAR testing, the DASY 5 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.

4. SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power. The data mode with highest specified time-averaged output power should be tested for SAR compliance. The GMSK EDGE configurations are grouped with GPRS and considered with respect to time-averaged maximum output power to determine compliance. The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode. Since the maximum output power in a secondary mode (8-PSK EDGE) is ≤ ¼ dB higher than the primary mode (GMSK GPRS/EDGE), SAR measurement is not required for the secondary mode (8-PSK EDGE).

5. The 3G SAR test reduction procedure is applied to HSDPA with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSDPA) is ≤ ¼ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSDPA).

6. The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) with 12.2 kbps RMC as the primary mode. Since the maximum output power in a secondary mode (HSPA) is ≤ ¼ dB higher than the primary mode (WCDMA), SAR measurement is not required for the secondary mode (HSPA).

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

7. LTE modes test according to **KDB 941225D05v02r05.**

a. Per Section 5.2.1, the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation.

- Using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel.
- When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

b. Per Section 5.2.2, the largest channel bandwidth and measure SAR for QPSK with 50% RB allocation

- The procedures required for 1 RB allocation in 5.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.

c. Per Section 5.2.3, the largest channel bandwidth and measure SAR for QPSK with 100% RB allocation

- For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 5.2.1 and 5.2.2 are ≤ 0.8 W/kg.
- Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

d. Per Section 5.2.4, Higher order modulations

- For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 5.2.1, 5.2.2 and 5.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

e. Per Section 5.3, other channel bandwidth standalone SAR test requirements

- For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 5.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg. The equivalent channel configuration for the RB allocation, RB offset and modulation etc. is determined for the smaller channel bandwidth according to the same number of RB allocated in the largest channel bandwidth.

- TDD LTE was tested at highest duty factor using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.

LTE downlink CA (KDB942225 D05A)

8. The device supports a maximum of 3 carriers in the downlink. All uplink communications are identical to the Release 8 specifications. Uplink maximum output power is measured with downlink carrier aggregation active, only for the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

9. The downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements. The nominal channel spacing is determined by [BW1 + BW2 – 0.1*|BW1 – BW2|]/2 MHz, where BW1 and BW2 are the channel bandwidths of the CC in a 2-CC aggregation configuration.

10. The downlink PCC channel should be paired with the uplink channel according to normal configurations, as if there is no carrier aggregation. The downlink SCC should be adjacent to the PCC and remain within the downlink transmission band for contiguous intra-band CA. For non-contiguous intra-band CA, the SCC should be selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band. For inter-band CA, the SCC should be near the middle of its transmission

band.

11. When downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive, so SAR evaluation is not required for downlink carrier aggregation.

WLAN802.11b DSSS SAR Test Requirements

12. SAR is measured for 2.4 GHz 802.11b DSSS mode using the highest measured maximum output power channel, when the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

13. When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

802.11g/n OFDM SAR Test Exclusion Requirements:

14. SAR is not required for 802.11g/n since the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Initial Test Configuration:

15. An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band.

16. SAR is measured using the highest measured maximum output power channel. When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

17. For WLAN Main/Aux, 5.2a / 5.3a / 5.6a / 5.8a is chosen to be the initial test

configuration.

18. Since the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for subsequent test configuration.

Other

19. BT and WLAN Main use the same antenna path and Bluetooth may transmit with WLAN Aux simultaneously.

20. According to **KDB447498D01v06**, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.8 W/kg, when the transmission band is ≤ 100MHz.

21. According to **KDB865664D01v01r04**, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 0.8 W/kg, repeated that measurement once. Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit)

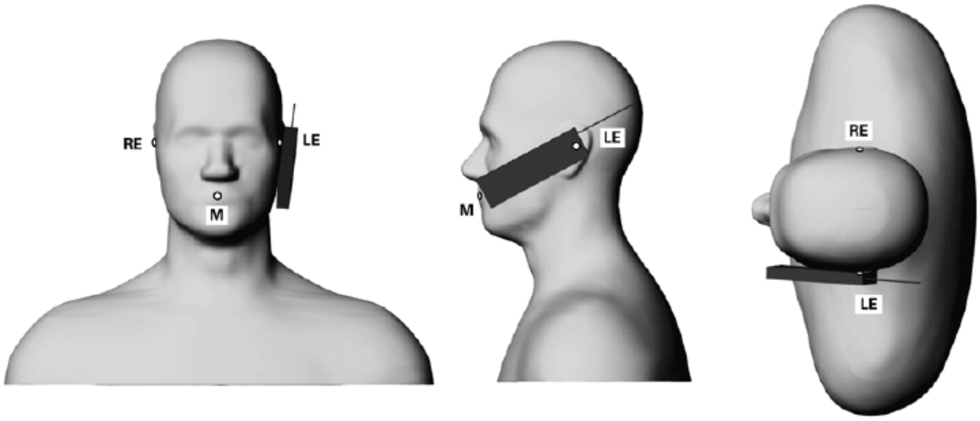
22. According to **KDB447498D01v06** – The 1-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances≤ 50 mm are determined by: [(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, SAR evaluation is not required.

Mode	Maximum power (dBm)	Maximum power(mW)	**Body-worn**		
			test separation distance (mm)	Exclusion threshold	Require SAR testing?
BT	8	6.31	10	0.994	NO
Mode	Maximum power (dBm)	Maximum power(mW)	**Product specific 10g-SAR**		
			test separation distance (mm)	Exclusion threshold	Require SAR testing?
BT	8	6.31	5	1.987	NO

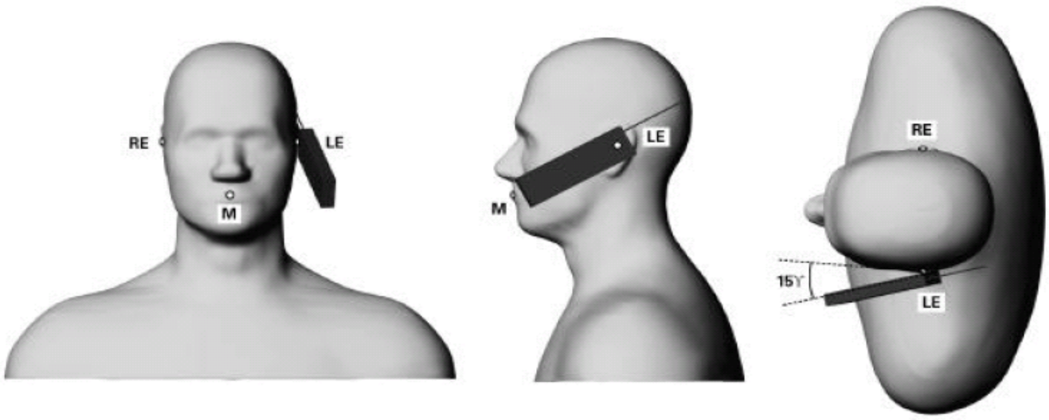
SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.6 Positioning Procedure

Head SAR measurement statement



Phone position 1, “cheek” or “touch” position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning.



"
one position 2, “tilted position.” The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning.

Cheek/Touch Position:
The handset was brought toward the mouth of the head phantom by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.
Ear/Tilt Position:
With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Body SAR measurement statement

1. Body-worn exposure: 10mm
   Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. When the same wireless transmission configuration is used for testing body-worn accessory and hotspot mode SAR, respectively, in voice and data mode, SAR results for the most conservative test separation distance configuration may be used to support both SAR conditions. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for the body-worn accessory with a headset attached to the handset.

2. Hotspot exposure: 10mm
   A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge when the form factor of a handset is larger than 9 cm × 5 cm,

3. Phablet SAR test consideration
   Since the device is a phablet (overall diagonal dimension > 16.0 cm), the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for product specific 10-g SAR. When hotspot mode applies, product specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg. Since the highest reported hotspot SAR for WWAN/WLAN 2.4/5.2/5.8GHz is less than 1.2, 10-g extremity SAR is not required for them. For WLAN 5.3/5.6G, product specific 10g-SAR is required since hotspot function is not supported in them.

4. Based on KDB941225D06v02r01, the hotspot mode and body-worn accessory SAR test configurations may overlap for handsets. When the same wireless mode transmission configurations for voice and data are required for SAR measurements, the more conservative configuration with a smaller separation distance should be tested for the overlapping SAR configurations. For WCDMA/LTE/WLAN2.4/5.2/5.8G, since the maximum power is the same between body-worn and hotspot mode, and the test distance of hotspot mode is the same with that of body-worn mode, hotspot mode SAR is used to support body-worn SAR. For GSM850/1900, since the wireless mode transmission configurations is different between body-worn and hotspot mode, body-worn SAR is performed. For WLAN 5.3/5.6G, since the hotspot mode is not supported in them, body-worn SAR is performed.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.7 Evaluation Procedures

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters).
3. The generation of a high-resolution mesh within the measured volume.
4. The interpolation of all measured values from the measurement grid to the high-resolution grid.
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface.
6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within –2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans.

The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) to get the

points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found.
If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.8 Probe Calibration Procedures

For the calibration of E-field probes in lossy liquids, an electric field with an accurately known field strength must be produced within the measured liquid. For standardization purposes it would be desirable if all measurements which are necessary to assess the correct field strength would be traceable to standardized measurement procedures. In the following two different calibration techniques are summarized:

1.8.1 Transfer Calibration with Temperature Probes

In lossy liquids the specific absorption rate (SAR) is related both to the electric field (E) and the temperature gradient ($\delta T / \delta t$) in the liquid.

$$SAR = C\frac{\delta T}{\delta t},$$

Whereby σ is the conductivity, ρ the density and c the heat capacity of the liquid.

Hence, the electric field in lossy liquid can be measured indirectly by measuring the temperature gradient in the liquid. Non-disturbing temperature probes (optical probes or thermistor probes with resistive lines) with high spatial resolution (<1-2 mm) and fast reaction time (<1 s) are available and can be easily calibrated with high precision [1]. The setup and the exciting source have no influence on the calibration; only the relative positioning uncertainties of the standard temperature probe and the E-field probe to be calibrated must be considered. However, several problems limit the available accuracy of probe calibrations with temperature probes:

1. The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.
2. The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
3. The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

heat capacity can be measured accurately with standardized procedures (~ 2% for c; much better for ρ), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed ±5%.

4. Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

Considering these problems, the possible accuracy of the calibration of E-field probes with temperature gradient measurements in a carefully designed setup is about ±10% (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is ±5% (RSS) when the same liquid is used for the calibration and for actual measurements and ±7-9% (RSS) when not, which is in good agreement with the estimates given in [2].

1.8.2 Calibration with Analytical Fields

In this method a technical setup is used in which the field can be calculated analytically from measurements of other physical magnitudes (e.g., input power). This corresponds to the standard field method for probe calibration in air; however, there is no standard defined for fields in lossy liquids.

When using calculated fields in lossy liquids for probe calibration, several points must be considered in the assessment of the uncertainty:

1. The setup must enable accurate determination of the incident power.
2. The accuracy of the calculated field strength will depend on the assessment of the dielectric parameters of the liquid.
3. Due to the small wavelength in liquids with high permittivity, even small setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

References

(1) N. Kuster, Q. Balzano, and J.C. Lin, Eds., *Mobile Communications Safety*, Chapman & Hall, London, 1997.

(2) K. Meier, M. Burkhardt, T. Schmid, and N. Kuster, \Broadband calibration of E-field probes in lossy media", *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 10, pp. 1954{1962, Oct. 1996.

(3) K. Jokela, P. Hyysalo, and L. Puranen, \Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", *IEEE Transactions on Instrumentation and Measurements*, vol. 47, no. 2, pp. 432{438, Apr. 1998.

1.9 The SAR Measurement System

A block diagram of the SAR measurement system is given in Fig. a. This SAR measurement system uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). Model EX3DV4 field probes are used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

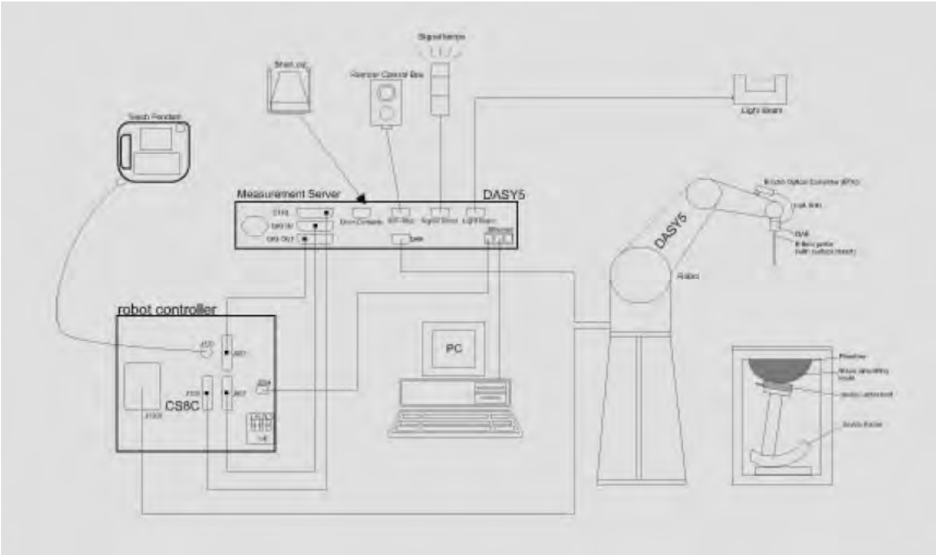


Fig. a A block diagram of the SAR measurement system

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

The DASY 5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. Data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
5. The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
6. A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
7. A computer operating Windows7
8. DASY 5 software.
9. Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
10. The SAM twin phantom enabling testing left-hand and right-hand usage.
11. The device holder for handheld mobile phones.
12. Tissue simulating liquid mixed according to the given recipes.
13. Validation dipole kits allowing to validate the proper functioning of the system.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.10 System Components

EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 750/835/1750/1900/2300/2450/2600/ 5200/5300/5600/5800 MHz Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 6 GHz, Linearity: ± 0.6 dB	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Tip diameter: 2.5 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

Phantom

Model	Twin SAM	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.	
Shell Thickness	2 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Height: 850 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	In combination with the Twin SAM Phantom V4.0/V4.0C or Twin SAM, the Mounting Device (made from POM) enables the rotation of the mounted transmitter in spherical coordinates, whereby the rotation point is the ear opening. The devices can be easily and accurately positioned according to IEC, IEEE, CENELEC, FCC or other specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).	 Device Holder

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.11 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% (according to KDB865664D01v01r04) from the target SAR values. These tests were done at 750/835/1750/1900/2300/2450/2600/5200/5300/5600/5800 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the liquid depth above the ear reference points was above 15 cm (≤3G) or 10 cm (>3G) in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

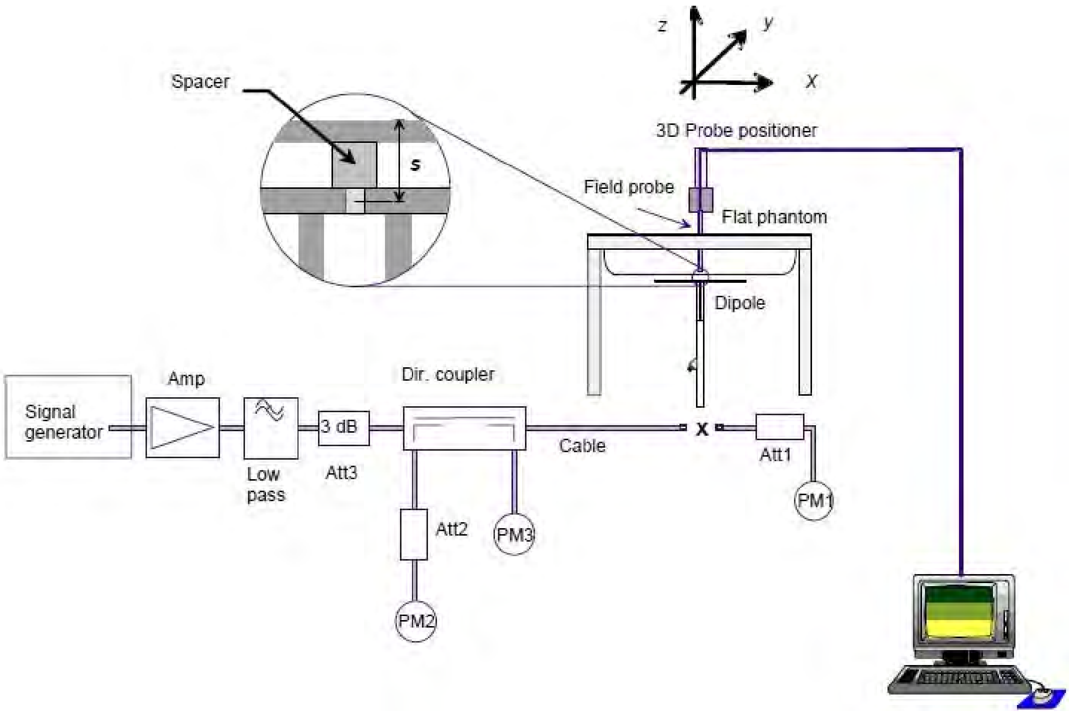


Fig. b The block diagram of system verification

Validation Kit	S/N	Frequency (MHz)		1W Target SAR-1g (mW/g)	Measured SAR-1g (mW/g)	Measured SAR-1g normalized to 1W (mW/g)	Deviation (%)	Measured Date
D750V3	1015	750	Head	8.25	2.12	8.48	2.79%	Sep. 18, 2017
			Body	8.76	2.26	9.04	3.20%	Sep. 19, 2017
D835V2	4d063	835	Head	9.34	2.41	9.64	3.21%	Sep. 18, 2017
			Body	9.57	2.45	9.80	2.40%	Sep. 19, 2017
D1750V2	1008	1750	Head	36	9.23	36.92	2.56%	Sep. 20, 2017
			Body	36.7	9.36	37.44	2.02%	Sep. 21, 2017
D1900V2	5d173	1900	Head	40.7	10.20	40.80	0.25%	Sep. 20, 2017
			Body	40.2	9.94	39.76	-1.09%	Sep. 21, 2017
D2300V2	1023	2300	Head	47.2	12.20	48.80	3.39%	Sep. 22, 2017
			Body	46.4	11.80	47.20	1.72%	Sep. 23, 2017
D2450V2	727	2450	Head	52.2	13.50	54.00	3.45%	Sep. 22, 2017
			Body	50.6	12.80	51.20	1.19%	Sep. 23, 2017
D2600V2	1005	2600	Head	55.5	14.50	58.00	4.50%	Sep. 22, 2017
			Body	55.1	14.10	56.40	2.36%	Sep. 23, 2017
D5GHzV2	1023	5200	Head	75.2	7.52	75.20	0.00%	Sep. 24, 2017
			Body	72.8	7.43	74.30	2.06%	Sep. 25, 2017
		5300	Head	81.8	8.28	82.80	1.22%	Sep. 24, 2017
			Body	76.1	7.68	76.80	0.92%	Sep. 25, 2017
		5600	Head	81.7	8.23	82.30	0.73%	Sep. 26, 2017
			Body	79.6	8.08	80.80	1.51%	Sep. 27, 2017
		5800	Head	77.6	7.79	77.90	0.39%	Sep. 26, 2017
			Body	75.9	7.64	76.40	0.66%	Sep. 27, 2017

Table 1. Results of system validation

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

1.12 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this Head-simulant fluid were measured by using the Agilent Model 85070E Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Network Analyzer.

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the flat section of the phantom was at least 15 cm (≤3G) or 10 cm (>3G) during all tests. (Appendix Fig. 2)

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Head	Sep, 18. 2017	704	42.181	0.890	41.350	0.909	1.97%	-2.16%
		707.5	42.162	0.890	41.323	0.911	1.99%	-2.35%
		709	42.155	0.890	41.299	0.912	2.03%	-2.45%
		710	42.149	0.890	41.285	0.913	2.05%	-2.55%
		711	42.144	0.890	41.284	0.914	2.04%	-2.66%
		750	41.942	0.893	41.124	0.917	1.95%	-2.64%
		822.5	41.565	0.899	40.734	0.922	2.00%	-2.56%
		824.2	41.556	0.899	40.725	0.923	2.00%	-2.65%
		826.4	41.545	0.899	40.714	0.924	2.00%	-2.74%
		829	41.531	0.900	40.705	0.925	1.99%	-2.83%
		831.5	41.518	0.900	40.696	0.926	1.98%	-2.92%
		835	41.500	0.900	40.691	0.928	1.95%	-3.11%
		836.5	41.500	0.902	40.682	0.929	1.97%	-3.04%
		836.6	41.500	0.902	40.678	0.930	1.98%	-3.14%
		841.5	41.500	0.907	40.674	0.931	1.99%	-2.65%
		844	41.500	0.910	40.672	0.935	2.00%	-2.78%
		846.6	41.500	0.912	40.668	0.937	2.00%	-2.69%
		848.8	41.500	0.915	40.662	0.939	2.02%	-2.64%
	Sep, 20. 2017	1712.4	40.138	1.349	39.745	1.372	0.98%	-1.68%
		1720	40.126	1.354	39.741	1.376	0.96%	-1.65%
		1732.4	40.107	1.361	39.714	1.384	0.98%	-1.70%
		1732.5	40.107	1.361	39.702	1.385	1.01%	-1.77%
		1745	40.087	1.368	39.685	1.392	1.00%	-1.74%
		1750	40.079	1.371	39.668	1.395	1.03%	-1.75%
		1752.6	40.075	1.373	39.662	1.397	1.03%	-1.78%
		1770	40.048	1.382	39.658	1.405	0.97%	-1.66%
		1850.2	40.000	1.400	39.616	1.411	0.96%	-0.79%
		1852.4	40.000	1.400	39.616	1.415	0.96%	-1.07%
		1860	40.000	1.400	39.608	1.418	0.98%	-1.29%
		1880	40.000	1.400	39.604	1.422	0.99%	-1.57%
		1882.5	40.000	1.400	39.602	1.423	1.00%	-1.64%
		1900	40.000	1.400	39.596	1.424	1.01%	-1.71%
		1905	40.000	1.400	39.588	1.425	1.03%	-1.79%
		1907.6	40.000	1.400	39.584	1.427	1.04%	-1.93%
		1909.8	40.000	1.400	39.581	1.428	1.05%	-2.00%
		2000	40.000	1.400	39.580	1.431	1.05%	-2.21%

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Head	Sep, 22. 2017	2300	39.467	1.667	38.275	1.717	3.02%	-3.02%
		2310	39.449	1.676	38.261	1.726	3.01%	-3.01%
		2437	39.223	1.788	38.058	1.842	2.97%	-2.99%
		2450	39.200	1.800	38.036	1.853	2.97%	-2.94%
		2506	39.129	1.861	37.958	1.916	2.99%	-2.95%
		2510	39.124	1.865	37.943	1.922	3.02%	-3.03%
		2535	39.092	1.893	37.913	1.949	3.02%	-2.97%
		2549.5	39.073	1.909	37.910	1.966	2.98%	-3.01%
		2560	39.060	1.920	37.884	1.977	3.01%	-2.97%
		2580	39.035	1.942	37.856	1.999	3.02%	-2.94%
		2593	39.018	1.956	37.828	2.015	3.05%	-3.02%
		2595	39.015	1.958	37.825	2.018	3.05%	-3.05%
		2600	39.009	1.964	37.823	2.023	3.04%	-3.02%
		2610	38.996	1.975	37.807	2.033	3.05%	-2.96%
	Sep, 24. 2017	5180	36.009	4.635	36.725	4.682	-1.99%	-1.02%
		5200	35.986	4.655	36.720	4.703	-2.04%	-1.03%
		5260	35.917	4.717	36.639	4.766	-2.01%	-1.05%
		5300	35.871	4.758	36.585	4.805	-1.99%	-1.00%
		5320	35.849	4.778	36.551	4.824	-1.96%	-0.96%
	Sep, 26. 2017	5500	35.643	4.963	36.609	5.033	-2.71%	-1.42%
		5600	35.529	5.065	36.602	5.040	-3.02%	0.49%
		5620	35.506	5.086	36.560	5.061	-2.97%	0.48%
		5640	35.483	5.106	36.533	5.080	-2.96%	0.51%
		5700	35.414	5.168	36.487	5.131	-3.03%	0.71%
		5745	35.363	5.214	36.427	5.190	-3.01%	0.45%
		5785	35.317	5.255	36.380	5.230	-3.01%	0.47%
		5800	35.300	5.270	36.348	5.242	-2.97%	0.53%
Body	Sep, 19. 2017	704	55.710	0.960	56.387	0.982	-1.21%	-2.31%
		707.5	55.697	0.960	56.384	0.983	-1.23%	-2.39%
		709	55.691	0.960	56.383	0.984	-1.24%	-2.48%
		710	55.687	0.960	56.351	0.985	-1.19%	-2.58%
		711	55.683	0.960	56.348	0.986	-1.19%	-2.67%
		750	55.531	0.963	56.198	0.987	-1.20%	-2.45%
		822.5	55.249	0.969	55.906	0.990	-1.19%	-2.16%
		824.2	55.242	0.969	55.905	0.991	-1.20%	-2.25%
		826.4	55.234	0.969	55.881	0.992	-1.17%	-2.34%
		829	55.223	0.970	55.880	0.993	-1.19%	-2.42%
		831.5	55.214	0.970	55.865	0.994	-1.18%	-2.50%
		835	55.200	0.970	55.863	0.996	-1.20%	-2.68%
		836.5	55.195	0.972	55.862	0.998	-1.21%	-2.69%
		836.6	55.195	0.972	55.858	0.999	-1.20%	-2.78%
		841.5	55.180	0.978	55.857	1.001	-1.23%	-2.35%
		844	55.172	0.981	55.842	1.005	-1.21%	-2.44%
		846.6	55.164	0.984	55.814	1.008	-1.18%	-2.41%
		848.8	55.158	0.987	55.804	1.010	-1.17%	-2.33%

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Tissue Type	Measurement Date	Measured Frequency (MHz)	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	% dev εr	% dev σ
Body	Sep, 21. 2017	1712.4	53.531	1.465	55.106	1.511	-2.94%	-3.16%
		1720	53.511	1.469	55.081	1.515	-2.93%	-3.10%
		1732.4	53.478	1.477	54.971	1.523	-2.79%	-3.09%
		1732.5	53.478	1.477	54.937	1.524	-2.73%	-3.16%
		1745	53.445	1.485	54.929	1.532	-2.78%	-3.15%
		1750	53.432	1.488	54.892	1.535	-2.73%	-3.13%
		1752.6	53.425	1.490	54.829	1.537	-2.63%	-3.15%
		1770	53.381	1.501	54.823	1.548	-2.70%	-3.13%
		1850.2	53.300	1.520	54.816	1.565	-2.84%	-2.96%
		1852.4	53.300	1.520	54.797	1.566	-2.81%	-3.03%
		1860	53.300	1.520	54.794	1.567	-2.80%	-3.09%
		1880	53.300	1.520	54.757	1.568	-2.73%	-3.16%
		1882.5	53.300	1.520	54.745	1.569	-2.71%	-3.22%
		1900	53.300	1.520	54.727	1.570	-2.68%	-3.29%
		1905	53.300	1.520	54.726	1.571	-2.68%	-3.36%
		1907.6	53.300	1.520	54.719	1.572	-2.66%	-3.42%
		1909.8	53.300	1.520	54.714	1.574	-2.65%	-3.55%
	Sep, 23. 2017	2300	52.900	1.807	54.665	1.774	-3.34%	1.81%
		2310	52.887	1.816	54.660	1.783	-3.35%	1.83%
		2437	52.717	1.938	54.618	1.903	-3.61%	1.78%
		2450	52.700	1.950	54.616	1.914	-3.64%	1.85%
		2506	52.629	2.029	54.499	1.993	-3.55%	1.79%
		2510	52.624	2.035	54.497	1.999	-3.56%	1.77%
		2535	52.592	2.071	54.478	2.034	-3.59%	1.77%
		2549.5	52.573	2.091	54.467	2.054	-3.60%	1.77%
		2560	52.560	2.106	54.466	2.069	-3.63%	1.76%
		2580	52.535	2.134	54.461	2.096	-3.67%	1.80%
		2593	52.518	2.153	54.460	2.115	-3.70%	1.76%
		2595	52.515	2.156	54.457	2.116	-3.70%	1.84%
		2600	52.509	2.163	54.456	2.123	-3.71%	1.84%
		2610	52.496	2.177	54.446	2.138	-3.71%	1.79%
	Sep, 25. 2017	5180	49.041	5.276	48.394	5.152	1.32%	2.35%
		5200	49.014	5.299	48.372	5.180	1.31%	2.25%
		5260	48.933	5.369	48.282	5.247	1.33%	2.28%
		5300	48.879	5.416	48.263	5.291	1.26%	2.31%
	Sep, 27. 2017	5500	48.607	5.650	47.426	5.433	2.43%	3.83%
		5600	48.471	5.766	47.306	5.548	2.40%	3.79%
		5745	48.275	5.936	47.111	5.713	2.41%	3.75%
		5785	48.220	5.982	47.078	5.758	2.37%	3.75%
		5800	48.200	6.000	47.034	5.770	2.42%	3.83%

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
750	Head	—	532.98 g	18.3 g	2.4 g	3.2 g	766 g	1.3L(Kg)
	Body	—	631.68 g	11.72 g	1.2 g	—	600 g	1.0L(Kg)
850	Head	—	532.98 g	18.3 g	2.4 g	3.2 g	766 g	1.3L(Kg)
	Body	—	631.68 g	11.72 g	1.2 g	—	600 g	1.0L(Kg)
1750	Head	444.52 g	552.42 g	3.06 g	—	—	—	1.0L(Kg)
	Body	300.67 g	716.56 g	4.0 g	—	—	—	1.0L(Kg)
1900	Head	444.52 g	552.42 g	3.06 g	—	—	—	1.0L(Kg)
	Body	300.67 g	716.56 g	4.0 g	—	—	—	1.0L(Kg)
2300	Head	550ml	450ml	—	—	—	—	1.0L(Kg)
	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)
2450	Head	550ml	450ml	—	—	—	—	1.0L(Kg)
	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)
2600	Head	550ml	450ml	—	—	—	—	1.0L(Kg)
	Body	301.7ml	698.3ml	—	—	—	—	1.0L(Kg)

Simulating Liquids for 5 GHz, Manufactured by SPEAG:

Ingredients	Water	Esters, Emulsifiers, Inhibitors	Sodium and Salt
(% by weight)	60-80	20-40	0-1.5

Table 3. Recipes for tissue simulating liquid

1.13 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (“SAR’’) in Section 4.2 of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,’’ ANSI/IEEE C95.1, By the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.
These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in “Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields,’’ NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter.
Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

1. Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over a 10 grams of tissue (defined as a tissue volume in the shape of a cube).

Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

2. Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube).

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube).
General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure.
Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .6)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 W/kg	8.00 W/kg
Spatial Average SAR (Whole Body)	0.08 W/kg	0.40 W/kg
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 W/kg	20.00 W/kg

Table 4. RF exposure limits

Notes:
1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

2. Summary of Results

GSM 850

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head (GSM)	Re Cheek	-	128	824.2	33.50	32.75	18.85%	0.219	0.260	-
	Re Cheek	-	190	836.6	33.50	32.67	21.06%	0.252	0.305	-
	Re Cheek	-	251	848.8	33.50	32.78	18.03%	0.297	0.351	155
	Re Tilt	-	251	848.8	33.50	32.78	18.03%	0.130	0.153	-
	Le Cheek	-	251	848.8	33.50	32.78	18.03%	0.203	0.240	-
	Le Tilt	-	251	848.8	33.50	32.78	18.03%	0.120	0.142	-
Body-worn (GSM)	Front side	10	190	836.6	33.50	32.75	18.85%	0.392	0.466	-
	Front side	10	128	824.2	33.50	32.67	21.06%	0.465	0.563	-
	Front side	10	251	848.8	33.50	32.78	18.03%	0.578	0.682	156
	Back side	10	251	848.8	33.50	32.78	18.03%	0.440	0.519	-
Hotspot (GPRS) <1Dn3Up>	Front side	10	128	824.2	30.00	28.93	27.94%	0.442	0.565	-
	Front side	10	190	836.6	30.00	28.85	30.32%	0.484	0.631	-
	Front side	10	251	848.8	30.00	28.63	37.09%	0.545	0.747	-
	Back side	10	128	824.2	30.00	28.93	27.94%	0.335	0.429	-
	Bottom side	10	128	824.2	30.00	28.93	27.94%	0.406	0.519	-
	Right side	10	128	824.2	30.00	28.93	27.94%	0.401	0.513	-
	Left side	10	128	824.2	30.00	28.93	27.94%	0.154	0.197	-

GSM 1900

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head (GSM)	Re Cheek	-	512	1850.2	30.50	30.07	10.41%	0.098	0.108	-
	Re Tilt	-	512	1850.2	30.50	30.07	10.41%	0.055	0.060	-
	Le Cheek	-	512	1850.2	30.50	30.07	10.41%	0.102	0.113	-
	Le Cheek	-	661	1880	30.50	30.04	11.17%	0.103	0.115	157
	Le Cheek	-	810	1909.8	30.50	29.98	12.72%	0.070	0.079	-
	Le Tilt	-	512	1850.2	30.50	30.07	10.41%	0.049	0.054	-
Body-worn (GSM)	Front side	15	512	1850.2	30.50	30.07	10.41%	0.183	0.202	-
	Front side	15	661	1880	30.50	30.04	11.17%	0.166	0.185	-
	Front side	15	810	1909.8	30.50	29.98	12.72%	0.169	0.190	-
	Back side	15	512	1850.2	30.50	30.07	10.41%	0.151	0.167	-
Hotspot (GPRS) <1Dn3Up>	Front side	10	512	1850.2	25.50	25.42	1.86%	0.180	0.183	-
	Back side	10	512	1850.2	25.50	25.42	1.86%	0.154	0.157	-
	Bottom side	10	512	1850.2	25.50	25.42	1.86%	0.806	0.821	158
	Bottom side*	10	512	1850.2	25.50	25.42	1.86%	0.792	0.807	-
	Bottom side	10	661	1880	25.50	25.35	3.51%	0.769	0.796	-
	Bottom side	10	810	1909.8	25.50	25.28	5.20%	0.709	0.746	-
	Right side	10	512	1850.2	25.50	25.42	1.86%	0.054	0.055	-
	Left side	10	512	1850.2	25.50	25.42	1.86%	0.125	0.127	-

* - repeated at the highest SAR measurement according to the KDB 865664 D01

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WCDMA Band II – RMC 12.2Kbps

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	9262	1852.4	24.50	24.45	1.16%	0.144	0.146	-
	RE Tilt	-	9400	1880	24.50	24.45	1.16%	0.088	0.089	-
	LE Cheek	-	9262	1852.4	24.50	24.45	1.16%	0.148	0.150	-
	LE Cheek	-	9400	1880	24.50	24.43	1.62%	0.158	0.161	159
	LE Cheek	-	9538	1907.6	24.50	24.45	1.16%	0.124	0.125	-
	LE Tilt	-	9262	1852.4	24.50	24.45	1.16%	0.075	0.076	-
Hotspot	Front side	10	9262	1852.4	24.50	24.45	1.16%	0.502	0.508	-
	Back side	10	9262	1852.4	24.50	24.45	1.16%	0.514	0.520	-
	Bottom side	10	9262	1852.4	24.50	24.45	1.16%	1.140	1.153	-
	Bottom side	10	9400	1880	24.50	24.43	1.62%	1.150	1.169	-
	Bottom side	10	9538	1907.6	24.50	24.45	1.16%	1.160	1.173	160
	Bottom side*	10	9538	1907.6	24.50	24.45	1.16%	1.120	1.133	-
	Right side	10	9262	1852.4	24.50	24.45	1.16%	0.101	0.102	-
	Left side	10	9262	1852.4	24.50	24.45	1.16%	0.272	0.275	-

* - repeated at the highest SAR measurement according to the KDB 865664 D01

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WCDMA Band IV – RMC 12.2Kbps

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	1513	1752.6	24.50	24.29	4.95%	0.156	0.164	-
	RE Tilt	-	1513	1752.6	24.50	24.29	4.95%	0.099	0.104	-
	LE Cheek	-	1312	1712.4	24.50	24.10	9.65%	0.138	0.151	-
	LE Cheek	-	1412	1732.4	24.50	24.28	5.20%	0.169	0.178	-
	LE Cheek	-	1513	1752.6	24.50	24.29	4.95%	0.171	0.179	161
	LE Tilt	-	1513	1752.6	24.50	24.29	4.95%	0.109	0.114	-
Hotspot	Front side	10	1513	1752.6	24.50	24.29	4.95%	0.424	0.445	-
	Back side	10	1513	1752.6	24.50	24.29	4.95%	0.308	0.323	-
	Bottom side	10	1312	1712.4	24.50	24.10	9.65%	0.692	0.759	-
	Bottom side	10	1412	1732.4	24.50	24.28	5.20%	0.643	0.676	-
	Bottom side	10	1513	1752.6	24.50	24.29	4.95%	0.750	0.787	162
	Right side	10	1513	1752.6	24.50	24.29	4.95%	0.145	0.152	-
	Left side	10	1513	1752.6	24.50	24.29	4.95%	0.397	0.417	-

WCDMA Band V – RMC 12.2Kbps

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	4132	826.4	24.00	23.81	4.47%	0.238	0.249	-
	RE Cheek	-	4183	836.6	24.00	23.82	4.23%	0.254	0.265	-
	RE Cheek	-	4233	846.6	24.00	23.93	1.62%	0.266	0.270	163
	RE Tilt	-	4233	846.6	24.00	23.93	1.62%	0.112	0.114	-
	LE Cheek	-	4233	846.6	24.00	23.93	1.62%	0.199	0.202	-
	LE Tilt	-	4233	846.6	24.00	23.93	1.62%	0.109	0.111	-
Hotspot	Front side	10	4132	826.4	24.00	23.81	4.47%	0.472	0.493	-
	Front side	10	4183	836.6	24.00	23.82	4.23%	0.524	0.546	-
	Front side	10	4233	846.6	24.00	23.93	1.62%	0.578	0.587	164
	Back side	10	4233	846.6	24.00	23.93	1.62%	0.397	0.403	-
	Bottom side	10	4233	846.6	24.00	23.93	1.62%	0.428	0.435	-
	Right side	10	4233	846.6	24.00	23.93	1.62%	0.426	0.433	-
	Left side	10	4233	846.6	24.00	23.93	1.62%	0.152	0.154	-

LTE FDD Band 2

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	19100	1900	23	22.99	0.23%	0.092	0.092	-
					RE Tilt	-	19100	1900	23	22.99	0.23%	0.079	0.079	-
					LE Cheek	-	18700	1860	23	22.96	0.93%	0.123	0.124	165
					LE Cheek	-	18900	1880	23	22.89	2.57%	0.103	0.106	-
					LE Cheek	-	19100	1900	23	22.99	0.23%	0.113	0.113	-
					LE Tilt	-	19100	1900	23	22.99	0.23%	0.051	0.051	-
			50 RB	25	RE Cheek	-	19100	1900	22	21.99	0.23%	0.072	0.072	-
					RE Tilt	-	19100	1900	22	21.99	0.23%	0.063	0.063	-
					LE Cheek	-	19100	1900	22	21.99	0.23%	0.123	0.123	-
					LE Tilt	-	19100	1900	22	21.99	0.23%	0.041	0.041	-
			100 RB		RE Cheek	-	19100	1900	22	21.92	1.86%	0.069	0.070	-
					RE Tilt	-	19100	1900	22	21.92	1.86%	0.061	0.062	-
					LE Cheek	-	19100	1900	22	21.92	1.86%	0.112	0.114	-
					LE Tilt	-	19100	1900	22	21.92	1.86%	0.038	0.039	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	19100	1900	23	22.99	0.23%	0.228	0.229	-
					Back side	10	19100	1900	23	22.99	0.23%	0.178	0.178	-
					Bottom side	10	18700	1860	23	22.96	0.93%	0.970	0.979	-
					Bottom side	10	18900	1880	23	22.89	2.57%	0.826	0.847	-
					Bottom side	10	19100	1900	23	22.99	0.23%	0.981	0.983	166
					Bottom side*	10	19100	1900	23	22.99	0.23%	0.972	0.974	-
					Right side	10	19100	1900	23	22.99	0.23%	0.088	0.088	-
					Left side	10	19100	1900	23	22.99	0.23%	0.233	0.234	-
			50 RB	25	Front side	10	19100	1900	22	21.99	0.23%	0.182	0.182	-
					Back side	10	19100	1900	22	21.99	0.23%	0.142	0.142	-
					Bottom side	10	19100	1900	22	21.99	0.23%	0.781	0.783	-
					Right side	10	19100	1900	22	21.99	0.23%	0.070	0.070	-
					Left side	10	19100	1900	22	21.99	0.23%	0.186	0.186	-
			100 RB		Front side	10	19100	1900	22	21.92	1.86%	0.146	0.149	-
					Back side	10	19100	1900	22	21.92	1.86%	0.114	0.116	-
					Bottom side	10	19100	1900	22	21.92	1.86%	0.625	0.637	-
					Right side	10	19100	1900	22	21.92	1.86%	0.056	0.057	-
					Left side	10	19100	1900	22	21.92	1.86%	0.148	0.151	-

* - repeated at the highest SAR measurement according to the KDB 865664 D01

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE FDD Band 4

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	20300	1745	24	23.55	10.92%	0.122	0.135	-
					RE Tilt	-	20300	1745	24	23.55	10.92%	0.088	0.098	-
					LE Cheek	-	20050	1720	24	23.35	16.14%	0.186	0.216	-
					LE Cheek	-	20175	1732.5	24	23.53	11.43%	0.196	0.218	-
					LE Cheek	-	20300	1745	24	23.55	10.92%	0.211	0.234	167
					LE Tilt	-	20300	1745	24	23.55	10.92%	0.090	0.100	-
			50 RB	0	RE Cheek	-	20300	1745	23	22.59	9.90%	0.106	0.116	-
					RE Tilt	-	20300	1745	23	22.59	9.90%	0.077	0.085	-
					LE Cheek	-	20300	1745	23	22.59	9.90%	0.189	0.208	-
					LE Tilt	-	20300	1745	23	22.59	9.90%	0.081	0.089	-
			100 RB		RE Cheek	-	20300	1745	23	22.49	12.46%	0.098	0.110	-
					RE Tilt	-	20300	1745	23	22.49	12.46%	0.062	0.070	-
					LE Cheek	-	20300	1745	23	22.49	12.46%	0.171	0.192	-
					LE Tilt	-	20300	1745	23	22.49	12.46%	0.073	0.082	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	20300	1745	24	23.55	10.92%	0.201	0.223	-
					Back side	10	20300	1745	24	23.55	10.92%	0.177	0.196	-
					Bottom side	10	20050	1720	24	23.35	16.14%	0.565	0.656	168
					Bottom side	10	20175	1732.5	24	23.53	11.43%	0.479	0.534	-
					Bottom side	10	20300	1745	24	23.55	10.92%	0.496	0.550	-
					Right side	10	20300	1745	24	23.55	10.92%	0.134	0.149	-
					Left side	10	20300	1745	24	23.55	10.92%	0.318	0.353	-
			50 RB	0	Front side	10	20300	1745	23	22.59	9.90%	0.177	0.195	-
					Back side	10	20300	1745	23	22.59	9.90%	0.156	0.171	-
					Bottom side	10	20300	1745	23	22.59	9.90%	0.437	0.480	-
					Right side	10	20300	1745	23	22.59	9.90%	0.118	0.130	-
					Left side	10	20300	1745	23	22.59	9.90%	0.280	0.308	-
			100 RB		Front side	10	20300	1745	23	22.49	12.46%	0.142	0.160	-
					Back side	10	20300	1745	23	22.49	12.46%	0.125	0.141	-
					Bottom side	10	20300	1745	23	22.49	12.46%	0.350	0.394	-
					Right side	10	20300	1745	23	22.49	12.46%	0.094	0.106	-
					Left side	10	20300	1745	23	22.49	12.46%	0.224	0.252	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE FDD Band 5

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	10MHz	QPSK	1 RB	0	RE Cheek	-	20600	844	23	22.99	0.23%	0.208	0.208	-
					RE Tilt	-	20600	844	23	22.99	0.23%	0.101	0.101	-
					LE Cheek	-	20600	844	23	22.99	0.23%	0.157	0.157	-
					LE Tilt	-	20600	844	23	22.99	0.23%	0.040	0.040	-
				49	RE Cheek	-	20450	829	23	22.76	5.68%	0.197	0.208	-
					RE Cheek	-	20525	836.5	23	22.69	7.40%	0.209	0.224	169
			25 RB	12	RE Cheek	-	20600	844	22	21.93	1.62%	0.153	0.155	-
					RE Tilt	-	20600	844	22	21.93	1.62%	0.072	0.073	-
					LE Cheek	-	20600	844	22	21.93	1.62%	0.123	0.125	-
					LE Tilt	-	20600	844	22	21.93	1.62%	0.031	0.032	-
			50 RB		RE Cheek	-	20600	844	22	21.87	3.04%	0.151	0.156	-
					RE Tilt	-	20600	844	22	21.87	3.04%	0.069	0.071	-
					LE Cheek	-	20600	844	22	21.87	3.04%	0.119	0.123	-
					LE Tilt	-	20600	844	22	21.87	3.04%	0.029	0.030	-
Hotspot	10MHz	QPSK	1 RB	0	Front side	10	20600	844	23	22.99	0.23%	0.389	0.390	-
					Back side	10	20600	844	23	22.99	0.23%	0.382	0.383	-
					Bottom side	10	20600	844	23	22.99	0.23%	0.386	0.387	-
					Right side	10	20600	844	23	22.99	0.23%	0.340	0.341	-
					Left side	10	20600	844	23	22.99	0.23%	0.125	0.125	-
				49	Front side	10	20450	829	23	22.76	5.68%	0.368	0.389	-
					Front side	10	20525	836.5	23	22.69	7.40%	0.392	0.421	170
			25 RB	12	Front side	10	20600	844	22	21.93	1.62%	0.310	0.315	-
					Back side	10	20600	844	22	21.93	1.62%	0.304	0.309	-
					Bottom side	10	20600	844	22	21.93	1.62%	0.310	0.315	-
					Right side	10	20600	844	22	21.93	1.62%	0.271	0.275	-
					Left side	10	20600	844	22	21.93	1.62%	0.100	0.101	-
			50 RB		Front side	10	20600	844	22	21.87	3.04%	0.248	0.256	-
					Back side	10	20600	844	22	21.87	3.04%	0.243	0.250	-
					Bottom side	10	20600	844	22	21.87	3.04%	0.245	0.252	-
					Right side	10	20600	844	22	21.87	3.04%	0.217	0.224	-
					Left side	10	20600	844	22	21.87	3.04%	0.080	0.082	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE FDD Band 7

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	21100	2535	23.5	22.96	13.24%	0.097	0.110	-
					RE Tilt	-	21100	2535	23.5	22.96	13.24%	0.086	0.097	-
					LE Cheek	-	21100	2535	23.5	22.96	13.24%	0.243	0.275	171
					LE Cheek	-	21350	2560	23.5	22.88	15.35%	0.229	0.264	-
					LE Tilt	-	21100	2535	23.5	22.96	13.24%	0.052	0.059	-
				99	LE Cheek	-	20850	2510	23.5	22.95	13.50%	0.223	0.253	-
			50 RB	25	RE Cheek	-	21100	2535	22.5	21.47	26.77%	0.082	0.104	-
					RE Tilt	-	21100	2535	22.5	21.47	26.77%	0.071	0.090	-
					LE Cheek	-	21100	2535	22.5	21.47	26.77%	0.209	0.265	-
					LE Tilt	-	21100	2535	22.5	21.47	26.77%	0.041	0.052	-
			100 RB		RE Cheek	-	21100	2535	22.5	21.41	28.53%	0.079	0.102	-
					RE Tilt	-	21100	2535	22.5	21.41	28.53%	0.068	0.087	-
					LE Cheek	-	21100	2535	22.5	21.41	28.53%	0.198	0.254	-
					LE Tilt	-	21100	2535	22.5	21.41	28.53%	0.036	0.046	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	21100	2535	23.5	22.96	13.24%	0.692	0.784	-
					Back side	10	21100	2535	23.5	22.96	13.24%	0.681	0.771	-
					Bottom side	10	21100	2535	23.5	22.96	13.24%	0.717	0.812	172
					Bottom side	10	21350	2560	23.5	22.88	15.35%	0.708	0.817	-
					Right side	10	21100	2535	23.5	22.96	13.24%	0.116	0.131	-
					Left side	10	21100	2535	23.5	22.96	13.24%	0.475	0.538	-
				99	Bottom side	10	20850	2510	23.5	22.95	13.50%	0.661	0.750	-
			50 RB	25	Front side	10	21100	2535	22.5	21.47	26.77%	0.622	0.789	-
					Back side	10	21100	2535	22.5	21.47	26.77%	0.613	0.777	-
					Bottom side	10	21100	2535	22.5	21.47	26.77%	0.645	0.818	-
					Right side	10	21100	2535	22.5	21.47	26.77%	0.104	0.132	-
					Left side	10	21100	2535	22.5	21.47	26.77%	0.427	0.542	-
			100 RB		Front side	10	21100	2535	22.5	21.41	28.53%	0.498	0.640	-
					Back side	10	21100	2535	22.5	21.41	28.53%	0.490	0.630	-
					Bottom side	10	21100	2535	22.5	21.41	28.53%	0.516	0.663	-
					Right side	10	21100	2535	22.5	21.41	28.53%	0.083	0.107	-
					Left side	10	21100	2535	22.5	21.41	28.53%	0.342	0.440	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE FDD Band 12

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	10MHz	QPSK	1 RB	0	RE Cheek	-	23130	711	23	22.98	0.46%	0.191	0.192	173
					RE Tilt	-	23130	711	23	22.98	0.46%	0.086	0.086	-
					LE Cheek	-	23130	711	23	22.98	0.46%	0.110	0.111	-
					LE Tilt	-	23130	711	23	22.98	0.46%	0.053	0.053	-
				25	RE Cheek	-	23095	707.5	23	22.85	3.51%	0.162	0.168	-
				49	RE Cheek	-	23060	704	23	22.93	1.62%	0.159	0.162	-
			25 RB	12	RE Cheek	-	23095	707.5	22	21.92	1.86%	0.142	0.145	-
					RE Tilt	-	23095	707.5	22	21.92	1.86%	0.059	0.060	-
					LE Cheek	-	23095	707.5	22	21.92	1.86%	0.078	0.079	-
					LE Tilt	-	23095	707.5	22	21.92	1.86%	0.033	0.034	-
			50 RB		RE Cheek	-	23060	704	22	21.84	3.75%	0.136	0.141	-
					RE Tilt	-	23060	704	22	21.84	3.75%	0.051	0.053	-
					LE Cheek	-	23060	704	22	21.84	3.75%	0.074	0.077	-
					LE Tilt	-	23060	704	22	21.84	3.75%	0.031	0.032	-
Hotspot	10MHz	QPSK	1 RB	0	Front side	10	23130	711	23	22.98	0.46%	0.325	0.327	-
					Back side	10	23130	711	23	22.98	0.46%	0.260	0.261	-
					Bottom side	10	23130	711	23	22.98	0.46%	0.128	0.129	-
					Right side	10	23130	711	23	22.98	0.46%	0.290	0.291	-
					Left side	10	23130	711	23	22.98	0.46%	0.151	0.152	-
				25	Front side	10	23095	707.5	23	22.85	3.51%	0.325	0.336	-
				49	Front side	10	23060	704	23	22.93	1.62%	0.326	0.331	174
			25 RB	12	Front side	10	23095	707.5	22	21.92	1.86%	0.259	0.264	-
					Back side	10	23095	707.5	22	21.92	1.86%	0.207	0.211	-
					Bottom side	10	23095	707.5	22	21.92	1.86%	0.102	0.104	-
					Right side	10	23095	707.5	22	21.92	1.86%	0.231	0.236	-
					Left side	10	23095	707.5	22	21.92	1.86%	0.120	0.123	-
			50 RB		Front side	10	23060	704	22	21.84	3.75%	0.207	0.215	-
					Back side	10	23060	704	22	21.84	3.75%	0.166	0.172	-
					Bottom side	10	23060	704	22	21.84	3.75%	0.082	0.085	-
					Right side	10	23060	704	22	21.84	3.75%	0.185	0.192	-
					Left side	10	23060	704	22	21.84	3.75%	0.096	0.100	-

LTE FDD Band 17

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	10MHz	QPSK	1 RB	0	RE Cheek	-	23800	711	23	22.98	0.46%	0.155	0.156	-
					RE Tilt	-	23800	711	23	22.98	0.46%	0.082	0.082	-
					LE Cheek	-	23800	711	23	22.98	0.46%	0.106	0.106	-
					LE Tilt	-	23800	711	23	22.98	0.46%	0.060	0.061	-
				49	RE Cheek	-	23780	709	23	22.97	0.69%	0.164	0.165	-
					RE Cheek	-	23790	710	23	22.90	2.33%	0.165	0.169	175
			25 RB	25	RE Cheek	-	23800	711	22	21.96	0.93%	0.114	0.115	-
					RE Tilt	-	23800	711	22	21.96	0.93%	0.055	0.056	-
					LE Cheek	-	23800	711	22	21.96	0.93%	0.075	0.076	-
					LE Tilt	-	23800	711	22	21.96	0.93%	0.050	0.050	-
			50 RB		RE Cheek	-	23780	709	22	21.86	3.28%	0.109	0.113	-
					RE Tilt	-	23780	709	22	21.86	3.28%	0.051	0.053	-
					LE Cheek	-	23780	709	22	21.86	3.28%	0.071	0.073	-
					LE Tilt	-	23780	709	22	21.86	3.28%	0.046	0.048	-
Hotspot	10MHz	QPSK	1 RB	0	Front side	10	23800	711	23	22.98	0.46%	0.333	0.335	-
					Back side	10	23800	711	23	22.98	0.46%	0.260	0.261	-
					Bottom side	10	23800	711	23	22.98	0.46%	0.124	0.125	-
					Right side	10	23800	711	23	22.98	0.46%	0.289	0.290	-
					Left side	10	23800	711	23	22.98	0.46%	0.148	0.149	-
				49	Front side	10	23780	709	23	22.97	0.69%	0.352	0.354	-
					Front side	10	23790	710	23	22.90	2.33%	0.373	0.382	176
			25 RB	12	Front side	10	23800	711	22	21.96	0.93%	0.266	0.268	-
					Back side	10	23800	711	22	21.96	0.93%	0.207	0.209	-
					Bottom side	10	23800	711	22	21.96	0.93%	0.099	0.100	-
					Right side	10	23800	711	22	21.96	0.93%	0.231	0.233	-
					Left side	10	23800	711	22	21.96	0.93%	0.118	0.119	-
			50 RB		Front side	10	23780	709	22	21.86	3.28%	0.213	0.220	-
					Back side	10	23780	709	22	21.86	3.28%	0.166	0.171	-
					Bottom side	10	23780	709	22	21.86	3.28%	0.079	0.082	-
					Right side	10	23780	709	22	21.86	3.28%	0.184	0.190	-
					Left side	10	23780	709	22	21.86	3.28%	0.094	0.097	-

LTE FDD Band 25

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	26590	1905	23	22.99	0.23%	0.082	0.082	-
					RE Tilt	-	26590	1905	23	22.99	0.23%	0.067	0.067	-
					LE Cheek	-	26140	1860	23	22.78	5.20%	0.126	0.133	177
					LE Cheek	-	26360	1882.5	23	22.64	8.64%	0.117	0.127	-
					LE Cheek	-	26590	1905	23	22.99	0.23%	0.097	0.097	-
					LE Tilt	-	26590	1905	23	22.99	0.23%	0.046	0.046	-
			50 RB	0	RE Cheek	-	26590	1905	22	21.85	3.51%	0.055	0.057	-
					RE Tilt	-	26590	1905	22	21.85	3.51%	0.053	0.055	-
					LE Cheek	-	26590	1905	22	21.85	3.51%	0.077	0.080	-
					LE Tilt	-	26590	1905	22	21.85	3.51%	0.037	0.038	-
			100 RB		RE Cheek	-	26590	1905	22	21.90	2.33%	0.046	0.047	-
					RE Tilt	-	26590	1905	22	21.90	2.33%	0.042	0.043	-
					LE Cheek	-	26590	1905	22	21.90	2.33%	0.066	0.068	-
					LE Tilt	-	26590	1905	22	21.90	2.33%	0.031	0.032	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	26590	1905	23	22.99	0.23%	0.202	0.202	-
					Back side	10	26590	1905	23	22.99	0.23%	0.159	0.159	-
					Bottom side	10	26140	1860	23	22.78	5.20%	0.989	1.040	178
					Bottom side*	10	26140	1860	23	22.78	5.20%	0.974	1.025	-
					Bottom side	10	26360	1882.5	23	22.64	8.64%	0.937	1.018	-
					Bottom side	10	26590	1905	23	22.99	0.23%	0.882	0.884	-
					Right side	10	26590	1905	23	22.99	0.23%	0.078	0.078	-
					Left side	10	26590	1905	23	22.99	0.23%	0.203	0.203	-
			50 RB	0	Front side	10	26590	1905	22	21.85	3.51%	0.161	0.166	-
					Back side	10	26590	1905	22	21.85	3.51%	0.127	0.131	-
					Bottom side	10	26590	1905	22	21.85	3.51%	0.702	0.727	-
					Right side	10	26590	1905	22	21.85	3.51%	0.062	0.064	-
					Left side	10	26590	1905	22	21.85	3.51%	0.162	0.167	-
			100 RB		Front side	10	26590	1905	22	21.90	2.33%	0.129	0.132	-
					Back side	10	26590	1905	22	21.90	2.33%	0.101	0.103	-
					Bottom side	10	26590	1905	22	21.90	2.33%	0.562	0.575	-
					Right side	10	26590	1905	22	21.90	2.33%	0.050	0.051	-
					Left side	10	26590	1905	22	21.90	2.33%	0.129	0.132	-

* - repeated at the highest SAR measurement according to the KDB 865664 D01

LTE FDD Band 26

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	15MHz	QPSK	1 RB	0	RE Cheek	-	26965	841.5	23	22.98	0.46%	0.176	0.177	-
					RE Tilt	-	26965	841.5	23	22.98	0.46%	0.084	0.084	-
					LE Cheek	-	26965	841.5	23	22.98	0.46%	0.151	0.152	-
					LE Tilt	-	26965	841.5	23	22.98	0.46%	0.082	0.082	-
				74	RE Cheek	-	26825	822.5	23	22.84	3.75%	0.202	0.210	-
					RE Cheek	-	26865	831.5	23	22.73	6.41%	0.211	0.225	179
			36 RB	18	RE Cheek	-	26965	841.5	22	21.96	0.93%	0.130	0.131	-
					RE Tilt	-	26965	841.5	22	21.96	0.93%	0.057	0.058	-
					LE Cheek	-	26965	841.5	22	21.96	0.93%	0.111	0.112	-
					LE Tilt	-	26965	841.5	22	21.96	0.93%	0.054	0.054	-
			75 RB		RE Cheek	-	26965	841.5	22	21.86	3.28%	0.124	0.128	-
					RE Tilt	-	26965	841.5	22	21.86	3.28%	0.046	0.048	-
					LE Cheek	-	26965	841.5	22	21.86	3.28%	0.102	0.105	-
					LE Tilt	-	26965	841.5	22	21.86	3.28%	0.045	0.046	-
Hotspot	15MHz	QPSK	1 RB	0	Front side	10	26965	841.5	23	22.98	0.46%	0.384	0.386	-
					Back side	10	26965	841.5	23	22.98	0.46%	0.304	0.305	-
					Bottom side	10	26965	841.5	23	22.98	0.46%	0.287	0.288	-
					Right side	10	26965	841.5	23	22.98	0.46%	0.326	0.328	-
					Left side	10	26965	841.5	23	22.98	0.46%	0.121	0.122	-
				74	Front side	10	26825	822.5	23	22.84	3.75%	0.363	0.377	-
					Front side	10	26865	831.5	23	22.73	6.41%	0.387	0.412	180
			36 RB	18	Front side	10	26965	841.5	22	21.96	0.93%	0.306	0.309	-
					Back side	10	26965	841.5	22	21.96	0.93%	0.243	0.245	-
					Bottom side	10	26965	841.5	22	21.96	0.93%	0.229	0.231	-
					Right side	10	26965	841.5	22	21.96	0.93%	0.260	0.263	-
					Left side	10	26965	841.5	22	21.96	0.93%	0.097	0.097	-
			75 RB		Front side	10	26965	841.5	22	21.86	3.28%	0.245	0.253	-
					Back side	10	26965	841.5	22	21.86	3.28%	0.194	0.200	-
					Bottom side	10	26965	841.5	22	21.86	3.28%	0.183	0.189	-
					Right side	10	26965	841.5	22	21.86	3.28%	0.208	0.215	-
					Left side	10	26965	841.5	22	21.86	3.28%	0.077	0.080	-

LTE FDD Band 30

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	10MHz	QPSK	1 RB	0	LE Cheek	-	27710	2310	23	22.80	4.71%	0.215	0.225	-
				25	LE Cheek	-	27710	2310	23	22.71	6.91%	0.227	0.243	181
				49	RE Cheek	-	27710	2310	23	22.98	0.46%	0.071	0.071	-
					RE Tilt	-	27710	2310	23	22.98	0.46%	0.037	0.037	-
					LE Cheek	-	27710	2310	23	22.98	0.46%	0.204	0.205	-
					LE Tilt	-	27710	2310	23	22.98	0.46%	0.085	0.085	-
			25 RB	12	RE Cheek	-	27710	2310	22	21.88	2.80%	0.057	0.059	-
					RE Tilt	-	27710	2310	22	21.88	2.80%	0.030	0.031	-
					LE Cheek	-	27710	2310	22	21.88	2.80%	0.163	0.168	-
					LE Tilt	-	27710	2310	22	21.88	2.80%	0.068	0.070	-
			50 RB		RE Cheek	-	27710	2310	22	21.80	4.71%	0.048	0.050	-
					RE Tilt	-	27710	2310	22	21.80	4.71%	0.029	0.030	-
					LE Cheek	-	27710	2310	22	21.80	4.71%	0.155	0.162	-
					LE Tilt	-	27710	2310	22	21.80	4.71%	0.061	0.064	-
Hotspot	10MHz	QPSK	1 RB	0	Bottom side	10	27710	2310	23	22.80	4.71%	0.698	0.731	182
				25	Bottom side	10	27710	2310	23	22.71	6.91%	0.685	0.732	-
				49	Front side	10	27710	2310	23	22.98	0.46%	0.555	0.558	-
					Back side	10	27710	2310	23	22.98	0.46%	0.532	0.534	-
					Bottom side	10	27710	2310	23	22.98	0.46%	0.676	0.679	-
					Right side	10	27710	2310	23	22.98	0.46%	0.129	0.130	-
					Left side	10	27710	2310	23	22.98	0.46%	0.221	0.222	-
			25 RB	12	Front side	10	27710	2310	22	21.88	2.80%	0.443	0.455	-
					Back side	10	27710	2310	22	21.88	2.80%	0.425	0.436	-
					Bottom side	10	27710	2310	22	21.88	2.80%	0.539	0.555	-
					Right side	10	27710	2310	22	21.88	2.80%	0.103	0.106	-
					Left side	10	27710	2310	22	21.88	2.80%	0.176	0.181	-
			50 RB		Front side	10	27710	2310	22	21.80	4.71%	0.354	0.371	-
					Back side	10	27710	2310	22	21.80	4.71%	0.340	0.356	-
					Bottom side	10	27710	2310	22	21.80	4.71%	0.432	0.452	-
					Right side	10	27710	2310	22	21.80	4.71%	0.082	0.086	-
					Left side	10	27710	2310	22	21.80	4.71%	0.141	0.148	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE TDD Band 38

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	38150	2610	24	23.55	10.92%	0.026	0.029	-
					RE Tilt	-	38150	2610	24	23.55	10.92%	0.027	0.030	-
					LE Cheek	-	37850	2580	24	23.00	25.89%	0.090	0.113	183
					LE Cheek	-	38150	2610	24	23.55	10.92%	0.075	0.083	-
					LE Tilt	-	38150	2610	24	23.55	10.92%	0.018	0.020	-
				99	LE Cheek	-	38000	2595	24	23.34	16.41%	0.068	0.079	-
			50 RB	25	RE Cheek	-	38150	2610	23	22.36	15.88%	0.023	0.027	-
					RE Tilt	-	38150	2610	23	22.36	15.88%	0.024	0.028	-
					LE Cheek	-	38150	2610	23	22.36	15.88%	0.066	0.076	-
					LE Tilt	-	38150	2610	23	22.36	15.88%	0.015	0.017	-
			100 RB		RE Cheek	-	38150	2610	23	22.36	15.88%	0.019	0.022	-
					RE Tilt	-	38150	2610	23	22.36	15.88%	0.018	0.021	-
					LE Cheek	-	38150	2610	23	22.36	15.88%	0.051	0.059	-
					LE Tilt	-	38150	2610	23	22.36	15.88%	0.009	0.010	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	38150	2610	24	23.55	10.92%	0.269	0.298	-
					Back side	10	38150	2610	24	23.55	10.92%	0.244	0.271	-
					Bottom side	10	37850	2580	24	23.00	25.89%	0.315	0.397	184
					Bottom side	10	38150	2610	24	23.55	10.92%	0.291	0.323	-
					Right side	10	38150	2610	24	23.55	10.92%	0.063	0.070	-
					Left side	10	38150	2610	24	23.55	10.92%	0.188	0.209	-
				99	Bottom side	10	38000	2595	24	23.34	16.41%	0.313	0.364	-
			50 RB	25	Front side	10	38150	2610	23	22.36	15.88%	0.237	0.275	-
					Back side	10	38150	2610	23	22.36	15.88%	0.215	0.249	-
					Bottom side	10	38150	2610	23	22.36	15.88%	0.256	0.297	-
					Right side	10	38150	2610	23	22.36	15.88%	0.056	0.065	-
					Left side	10	38150	2610	23	22.36	15.88%	0.166	0.192	-
			100 RB		Front side	10	38150	2610	23	22.36	15.88%	0.190	0.220	-
					Back side	10	38150	2610	23	22.36	15.88%	0.172	0.199	-
					Bottom side	10	38150	2610	23	22.36	15.88%	0.205	0.238	-
					Right side	10	38150	2610	23	22.36	15.88%	0.045	0.052	-
					Left side	10	38150	2610	23	22.36	15.88%	0.133	0.154	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE TDD Band 41

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	40185	2549.5	24	23.99	0.23%	0.054	0.054	-
					RE Tilt	-	40185	2549.5	24	23.99	0.23%	0.042	0.042	-
					LE Cheek	-	39750	2506	24	23.97	0.69%	0.107	0.108	-
					LE Cheek	-	40185	2549.5	24	23.99	0.23%	0.115	0.115	185
					LE Cheek	-	40620	2593	24	23.85	3.51%	0.108	0.112	-
					LE Cheek	-	41055	2636.5	24	23.86	3.28%	0.099	0.102	-
					LE Tilt	-	40185	2549.5	24	23.99	0.23%	0.032	0.032	-
				50	LE Cheek	-	41490	2680	24	23.38	15.35%	0.082	0.095	-
			50 RB	0	RE Cheek	-	39750	2506	23	22.92	1.86%	0.043	0.044	-
					RE Tilt	-	39750	2506	23	22.92	1.86%	0.033	0.034	-
					LE Cheek	-	39750	2506	23	22.92	1.86%	0.092	0.094	-
					LE Tilt	-	39750	2506	23	22.92	1.86%	0.025	0.025	-
			100 RB		RE Cheek	-	39750	2506	23	22.88	2.80%	0.033	0.034	-
					RE Tilt	-	39750	2506	23	22.88	2.80%	0.028	0.029	-
					LE Cheek	-	39750	2506	23	22.88	2.80%	0.081	0.083	-
					LE Tilt	-	39750	2506	23	22.88	2.80%	0.019	0.020	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	40185	2549.5	24	23.99	0.23%	0.350	0.351	-
					Back side	10	40185	2549.5	24	23.99	0.23%	0.355	0.356	-
					Bottom side	10	39750	2506	24	23.97	0.69%	0.331	0.333	-
					Bottom side	10	40185	2549.5	24	23.99	0.23%	0.357	0.358	-
					Bottom side	10	40620	2593	24	23.85	3.51%	0.392	0.406	186
					Bottom side	10	41055	2636.5	24	23.86	3.28%	0.339	0.350	-
					Right side	10	40185	2549.5	24	23.99	0.23%	0.086	0.086	-
					Left side	10	40185	2549.5	24	23.99	0.23%	0.264	0.265	-
			50 RB	0	Front side	10	39750	2506	23	22.92	1.86%	0.279	0.284	-
					Back side	10	39750	2506	23	22.92	1.86%	0.283	0.288	-
					Bottom side	10	39750	2506	23	22.92	1.86%	0.285	0.290	-
					Right side	10	39750	2506	23	22.92	1.86%	0.068	0.069	-
					Left side	10	39750	2506	23	22.92	1.86%	0.210	0.214	-
			100 RB		Front side	10	39750	2506	23	22.88	2.80%	0.223	0.229	-
					Back side	10	39750	2506	23	22.88	2.80%	0.226	0.232	-
					Bottom side	10	39750	2506	23	22.88	2.80%	0.227	0.233	-
					Right side	10	39750	2506	23	22.88	2.80%	0.054	0.056	-
					Left side	10	39750	2506	23	22.88	2.80%	0.168	0.173	-

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

LTE FDD Band 66

Mode	Bandwidth (MHz)	Modulation	RB Size	RB start	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
												Measured	Reported	
Head	20MHz	QPSK	1 RB	0	RE Cheek	-	132572	1770	24.5	24.14	8.64%	0.154	0.167	-
					RE Tilt	-	132572	1770	24.5	24.14	8.64%	0.110	0.120	-
					LE Cheek	-	132072	1720	24.5	24.13	8.89%	0.207	0.225	-
					LE Cheek	-	132322	1745	24.5	24.06	10.66%	0.233	0.258	187
					LE Cheek	-	132572	1770	24.5	24.14	8.64%	0.180	0.196	-
					LE Tilt	-	132572	1770	24.5	24.14	8.64%	0.112	0.122	-
			50 RB	0	RE Cheek	-	132322	1745	23.5	22.99	12.46%	0.133	0.150	-
					RE Tilt	-	132322	1745	23.5	22.99	12.46%	0.095	0.107	-
					LE Cheek	-	132322	1745	23.5	22.99	12.46%	0.155	0.174	-
					LE Tilt	-	132322	1745	23.5	22.99	12.46%	0.097	0.109	-
			100 RB		RE Cheek	-	132572	1770	23.5	23.01	11.94%	0.122	0.137	-
					RE Tilt	-	132572	1770	23.5	23.01	11.94%	0.087	0.097	-
					LE Cheek	-	132572	1770	23.5	23.01	11.94%	0.141	0.158	-
					LE Tilt	-	132572	1770	23.5	23.01	11.94%	0.088	0.099	-
Hotspot	20MHz	QPSK	1 RB	0	Front side	10	132572	1770	24.5	24.14	8.64%	0.275	0.299	-
					Back side	10	132572	1770	24.5	24.14	8.64%	0.216	0.235	-
					Bottom side	10	132072	1720	24.5	24.13	8.89%	0.633	0.689	-
					Bottom side	10	132322	1745	24.5	24.06	10.66%	0.559	0.619	-
					Bottom side	10	132572	1770	24.5	24.14	8.64%	0.796	0.865	188
					Right side	10	132572	1770	24.5	24.14	8.64%	0.163	0.177	-
					Left side	10	132572	1770	24.5	24.14	8.64%	0.408	0.443	-
			50 RB	0	Front side	10	132322	1745	23.5	22.99	12.46%	0.237	0.267	-
					Back side	10	132322	1745	23.5	22.99	12.46%	0.186	0.210	-
					Bottom side	10	132322	1745	23.5	22.99	12.46%	0.687	0.773	-
					Right side	10	132322	1745	23.5	22.99	12.46%	0.141	0.158	-
					Left side	10	132322	1745	23.5	22.99	12.46%	0.352	0.396	-
			100 RB		Front side	10	132322	1745	23.5	22.97	12.98%	0.190	0.215	-
					Back side	10	132322	1745	23.5	22.97	12.98%	0.149	0.168	-
					Bottom side	10	132322	1745	23.5	22.97	12.98%	0.550	0.621	-
					Right side	10	132322	1745	23.5	22.97	12.98%	0.113	0.128	-
					Left side	10	132322	1745	23.5	22.97	12.98%	0.282	0.319	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Main Antenna

WiFi 2.4GHz – WLAN802.11b

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	6	2437	17	16.72	6.66%	0.395	0.421	189
	RE Tilt	-	6	2437	17	16.72	6.66%	0.370	0.395	-
	LE Cheek	-	6	2437	17	16.72	6.66%	0.129	0.138	-
	LE Tilt	-	6	2437	17	16.72	6.66%	0.140	0.149	-
Hotspot	Front side	10	6	2437	17	16.72	6.66%	0.065	0.069	190
	Back side	10	6	2437	17	16.72	6.66%	0.046	0.049	-
	Top side	10	6	2437	17	16.72	6.66%	0.043	0.046	-
	Left side	10	6	2437	17	16.72	6.66%	0.039	0.042	-

WiFi 5GHz – WLAN802.11a 5.2G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	36	5180	16.5	16.23	6.41%	0.715	0.761	191
	RE Tilt	-	36	5180	16.5	16.23	6.41%	0.493	0.525	-
	LE Cheek	-	36	5180	16.5	16.23	6.41%	0.358	0.381	-
	LE Tilt	-	36	5180	16.5	16.23	6.41%	0.306	0.326	-
Hotspot	Front side	10	36	5180	16.5	16.23	6.41%	0.052	0.055	192
	Back side	10	36	5180	16.5	16.23	6.41%	0.009	0.010	-
	Top side	10	36	5180	16.5	16.23	6.41%	0.011	0.011	-
	Left side	10	36	5180	16.5	16.23	6.41%	0.008	0.008	-

WiFi 5GHz – WLAN802.11a 5.3G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	52	5260	16.50	16.28	5.20%	1.200	1.262	193
	RE Cheek*	-	52	5260	16.50	16.28	5.20%	1.120	1.178	-
	RE Cheek	-	64	5320	16.50	16.20	7.15%	1.000	1.072	-
	RE Tilt	-	52	5260	16.50	16.28	5.20%	0.871	0.916	-
	LE Cheek	-	52	5260	16.50	16.28	5.20%	0.422	0.444	-
	LE Tilt	-	52	5260	16.50	16.28	5.20%	0.315	0.331	-
Body-Worn	Front side	10	52	5260	16.50	16.28	5.20%	0.067	0.070	194
	Back side	10	52	5260	16.50	16.28	5.20%	0.022	0.023	-

* - repeated at the highest SAR measurement according to the KDB 865664 D01

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
product specific 10g-SAR	Front side	0	52	5260	16.50	16.28	5.20%	0.316	0.332	195
	Back side	0	52	5260	16.50	16.28	5.20%	0.191	0.201	-
	Top side	0	52	5260	16.50	16.28	5.20%	0.277	0.291	-
	Left side	0	52	5260	16.50	16.28	5.20%	0.101	0.106	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WiFi 5GHz – WLAN802.11a 5.6G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	100	5500	16.50	16.40	2.33%	1.060	1.085	196
	RE Cheek*	-	100	5500	16.50	16.40	2.33%	1.010	1.034	-
	RE Cheek	-	140	5700	16.50	16.33	3.99%	1.030	1.071	-
	RE Tilt	-	140	5700	16.50	16.33	3.99%	0.885	0.920	-
	LE Cheek	-	140	5700	16.50	16.33	3.99%	0.468	0.487	-
	LE Tilt	-	140	5700	16.50	16.33	3.99%	0.451	0.469	-
Body-Worn	Front side	10	100	5500	16.50	16.40	2.33%	0.126	0.129	197
	Back side	10	100	5500	16.50	16.40	2.33%	0.046	0.047	-

* - repeated at the highest SAR measurement according to the KDB 865664 D01

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
product specific 10g-SAR	Front side	0	100	5500	16.50	16.40	2.33%	0.943	0.965	198
	Back side	0	100	5500	16.50	16.40	2.33%	0.645	0.660	-
	Top side	0	100	5500	16.50	16.40	2.33%	0.784	0.802	-
	Left side	0	100	5500	16.50	16.40	2.33%	0.312	0.319	-

WiFi 5GHz – WLAN802.11a 5.8G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	149	5745	16.5	16.35	3.51%	0.577	0.597	199
	RE Tilt	-	149	5745	16.5	16.35	3.51%	0.345	0.357	-
	LE Cheek	-	149	5745	16.5	16.35	3.51%	0.472	0.489	-
	LE Tilt	-	149	5745	16.5	16.35	3.51%	0.431	0.446	-
Hotspot	Front side	10	157	5785	16.5	16.38	2.80%	0.086	0.088	200
	Back side	10	157	5785	16.5	16.38	2.80%	0.015	0.015	-
	Top side	10	157	5785	16.5	16.38	2.80%	0.018	0.019	-
	Left side	10	157	5785	16.5	16.38	2.80%	0.014	0.014	-

Aux Antenna

WiFi 2.4GHz – WLAN802.11b

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	6	2437	17	16.98	0.46%	0.003	0.003	-
	RE Tilt	-	6	2437	17	16.98	0.46%	0.002	0.002	-
	LE Cheek	-	6	2437	17	16.98	0.46%	0.004	0.004	201
	LE Tilt	-	6	2437	17	16.98	0.46%	0.003	0.003	-
Hotspot	Front side	10	6	2437	17	16.98	0.46%	0.059	0.060	202
	Back side	10	6	2437	17	16.98	0.46%	0.012	0.012	-
	Bottom side	10	6	2437	17	16.98	0.46%	0.054	0.054	-
	Right side	10	6	2437	17	16.98	0.46%	0.018	0.018	-

WiFi 5GHz – WLAN802.11a 5.2G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	40	5200	16.5	16.43	1.62%	0.003	0.003	-
	RE Tilt	-	40	5200	16.5	16.43	1.62%	0.002	0.002	-
	LE Cheek	-	40	5200	16.5	16.43	1.62%	0.004	0.004	203
	LE Tilt	-	40	5200	16.5	16.43	1.62%	0.001	0.001	-
Hotspot	Front side	10	40	5200	16.5	16.43	1.62%	0.018	0.018	204
	Back side	10	40	5200	16.5	16.43	1.62%	0.006	0.006	-
	Bottom side	10	40	5200	16.5	16.43	1.62%	0.016	0.016	-
	Right side	10	40	5200	16.5	16.43	1.62%	0.011	0.011	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

WiFi 5GHz – WLAN802.11a 5.3G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	60	5300	16.5	16.44	1.39%	0.006	0.006	-
	RE Tilt	-	60	5300	16.5	16.44	1.39%	0.005	0.005	-
	LE Cheek	-	60	5300	16.5	16.44	1.39%	0.009	0.010	205
	LE Tilt	-	60	5300	16.5	16.44	1.39%	0.002	0.002	-
Body-Worn	Front side	10	60	5300	16.5	16.44	1.39%	0.014	0.014	206
	Back side	10	60	5300	16.5	16.44	1.39%	0.009	0.009	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
product specific 10g-SAR	Front side	0	60	5300	16.50	16.44	1.39%	0.162	0.164	207
	Back side	0	60	5300	16.50	16.44	1.39%	0.145	0.147	-
	Bottom side	0	60	5300	16.50	16.44	1.39%	0.109	0.111	-
	Right side	0	60	5300	16.50	16.44	1.39%	0.089	0.090	-

WiFi 5GHz – WLAN802.11a 5.6G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	100	5500	16.5	16.44	1.39%	0.005	0.005	-
	RE Tilt	-	100	5500	16.5	16.44	1.39%	0.004	0.004	-
	LE Cheek	-	100	5500	16.5	16.44	1.39%	0.011	0.011	208
	LE Tilt	-	100	5500	16.5	16.44	1.39%	0.002	0.002	-
Body-Worn	Front side	10	100	5500	16.5	16.44	1.39%	0.028	0.028	209
	Back side	10	100	5500	16.5	16.44	1.39%	0.019	0.019	-

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 10g (W/kg)		Plot page
								Measured	Reported	
product specific 10g-SAR	Front side	0	100	5500	16.5	16.44	1.39%	0.152	0.154	210
	Back side	0	100	5500	16.5	16.44	1.39%	0.133	0.135	-
	Bottom side	0	100	5500	16.5	16.44	1.39%	0.092	0.093	-
	Right side	0	100	5500	16.5	16.44	1.39%	0.088	0.089	-

WiFi 5GHz – WLAN802.11a 5.8G

Mode	Position	Distance (mm)	CH	Freq. (MHz)	Max. Rated Avg. Power + Max. Tolerance (dBm)	Measured Avg. Power (dBm)	Scaling	Averaged SAR over 1g (W/kg)		Plot page
								Measured	Reported	
Head	RE Cheek	-	157	5785	16.5	16.29	4.95%	0.005	0.005	-
	RE Tilt	-	157	5785	16.5	16.29	4.95%	0.004	0.004	-
	LE Cheek	-	157	5785	16.5	16.29	4.95%	0.011	0.012	211
	LE Tilt	-	157	5785	16.5	16.29	4.95%	0.003	0.004	-
Hotspot	Front side	10	149	5745	16.5	16.33	3.99%	0.014	0.015	212
	Back side	10	149	5745	16.5	16.33	3.99%	0.004	0.005	-
	Bottom side	10	149	5745	16.5	16.33	3.99%	0.011	0.011	-
	Right side	10	149	5745	16.5	16.33	3.99%	0.009	0.009	-

3. Simultaneous Transmission Analysis

Simultaneous Transmission Scenarios:

Simultaneous Transmit Configurations	Head	Body-Worn	Hotspot	Product specific 10g-SAR
GSM + 2.4 / 5.2 / 5.8GHz WLAN Main/Aux/MIMO	Yes	Yes	No	Yes
GPRS + 2.4 / 5.2 / 5.8GHz WLAN Main/Aux/MIMO	No	No	Yes	Yes
WCDMA + 2.4 / 5.2 / 5.8GHz Wi-Fi	Yes	Yes	Yes	Yes
LTE + 2.4 / 5.2 / 5.8GHz WLAN Main/Aux/MIMO	Yes	Yes	Yes	Yes
GSM + 5.3 / 5.6GHz WLAN Main/Aux/MIMO	Yes	Yes	No	Yes
GPRS + 5.3 / 5.6GHz WLAN Main/Aux/MIMO	No	No	No	Yes
WCDMA + 5.3 / 5.6GHz WLAN Main/Aux/MIMO	Yes	Yes	No	Yes
LTE + 5.3 / 5.6GHz WLAN Main/Aux/MIMO	Yes	Yes	No	Yes
GSM + BT + 2.4 / 5GHz WLAN Aux	No	Yes	No	Yes
GPRS + BT + 2.4 / 5GHz WLAN Aux	No	No	No	Yes
WCDMA + BT + 2.4 / 5GHz WLAN Aux	No	Yes	No	Yes
LTE + BT + 2.4 / 5GHz WLAN Aux	No	Yes	No	Yes

1. The device support VoLTE.
2. The device does not support DTM function. Body-worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
3. Based on KDB447498D01 note 36, when SAR test exclusion is allowed by other published RF exposure KDB procedures, such as the 2.5 cm hotspot mode SAR test exclusion for an edge or surface, then estimated SAR is not required to determine simultaneous SAR test exclusion.
4. Also, based on KDB648474D04 note 6, simultaneous transmission SAR for 10-g extremity SAR requires consideration only when standalone 10-g SAR is required. The simultaneous transmission SAR evaluation is not required for product specific 10g-SAR since product specific 10g-SAR is only required in WLAN 5.3/5.6G.
5. Held to ear configurations are not applicable to Bluetooth and therefore were not considered for simultaneous transmission.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

3.1 Estimated SAR calculation

According to KDB447498 D01v06 – When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

$$\text{Estimated SAR} = \frac{\text{Max.tune up power(mW)}}{\text{Min. test separation distance(mm)}} \times \frac{\sqrt{f(GHz)}}{7.5}$$

If the minimum test separation distance is < 5mm, a distance of 5mm is used for estimated SAR calculation. When the test separation distance is >50mm, the 0.4W/kg is used for SAR-1g.

mode	position	max. power (dB)	max. power (mW)	f(GHz)	distance (mm)	x	Estimated SAR
BT	body-worn	8	6.31	2.48	10	7.5	0.132 (1g)

3.2 SPLSR evaluation and analysis

Per KDB447498D01, when the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR sum to peak location separation ratio(SPLSR).

The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion.

The ratio is determined by **(SAR1 + SAR2)^1.5/Ri**, rounded to two decimal digits, and must be **≤ 0.04** for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

SAR1 and SAR2 are the highest reported or estimated SAR for each antenna in the pair, and Ri is the separation distance between the peak SAR locations for the antenna pair in mm.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Simultaneous Transmission Combination

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
GSM 850	Head	Right cheek	0.351	0.421	0.003	0.78
		Right tilt	0.153	0.395	0.002	0.55
		Left cheek	0.240	0.138	0.004	0.38
		Left tilt	0.142	0.149	0.003	0.29
GPRS 850 (1Dn3UP)	Hotspot	Front	0.747	0.069	0.060	0.88
		Back	0.429	0.049	0.012	0.49
		Top	-	0.046	-	-
		Bottom	0.519	-	0.054	-
		Right	0.513	-	0.018	-
		Left	0.197	0.042	-	-
GSM 1900	Head	Right cheek	0.108	0.421	0.003	0.53
		Right tilt	0.060	0.395	0.002	0.46
		Left cheek	0.115	0.138	0.004	0.26
		Left tilt	0.054	0.149	0.003	0.21
GPRS 1900 (1Dn3UP)	Hotspot	Front side	0.183	0.069	0.060	0.31
		Back side	0.157	0.049	0.012	0.22
		Top side	-	0.046	-	-
		Bottom side	0.821	-	0.054	-
		Right side	0.055	-	0.018	-
		Left side	0.127	0.042	-	-
WCDMA Band II	Head	Right cheek	0.146	0.421	0.003	0.57
		Right tilt	0.089	0.395	0.002	0.49
		Left cheek	0.161	0.138	0.004	0.30
		Left tilt	0.076	0.149	0.003	0.23
	Hotspot	Front side	0.508	0.069	0.060	0.64
		Back side	0.520	0.049	0.012	0.58
		Top side	-	0.046	-	-
		Bottom side	1.173	-	0.054	-
		Right side	0.102	-	0.018	-
		Left side	0.275	0.042	-	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
WCDMA Band IV	Head	Right cheek	0.164	0.421	0.003	0.59
		Right tilt	0.104	0.395	0.002	0.50
		Left cheek	0.179	0.138	0.004	0.32
		Left tilt	0.114	0.149	0.003	0.27
	Hotspot	Front	0.445	0.069	0.060	0.57
		Back	0.323	0.049	0.012	0.38
		Top	-	0.046	-	-
		Bottom	0.787	-	0.054	-
		Right	0.152	-	0.018	-
		Left	0.417	0.042	-	-
WCDMA Band V	Head	Right cheek	0.270	0.421	0.003	0.69
		Right tilt	0.114	0.395	0.002	0.51
		Left cheek	0.220	0.138	0.004	0.36
		Left tilt	0.111	0.149	0.003	0.26
	Hotspot	Front side	0.587	0.069	0.060	0.72
		Back side	0.403	0.049	0.012	0.46
		Top side	-	0.046	-	-
		Bottom side	0.435	-	0.054	-
		Right side	0.433	-	0.018	-
		Left side	0.154	0.042	-	-
LTE FDD Band 2	Head	Right cheek	0.092	0.421	0.003	0.52
		Right tilt	0.079	0.395	0.002	0.48
		Left cheek	0.124	0.138	0.004	0.27
		Left tilt	0.051	0.149	0.003	0.20
	Hotspot	Front side	0.229	0.069	0.060	0.36
		Back side	0.178	0.049	0.012	0.24
		Top side	-	0.046	-	-
		Bottom side	0.983	-	0.054	-
		Right side	0.088	-	0.018	-
		Left side	0.234	0.042	-	-

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE FDD Band 4	Head	Right cheek	0.135	0.421	0.003	0.56
		Right tilt	0.098	0.395	0.002	0.50
		Left cheek	0.234	0.138	0.004	0.38
		Left tilt	0.100	0.149	0.003	0.25
	Hotspot	Front	0.230	0.069	0.060	0.36
		Back	0.196	0.049	0.012	0.26
		Top	-	0.046	-	-
		Bottom	0.550	-	0.054	-
		Right	0.149	-	0.018	-
		Left	0.353	0.042	-	-
LTE FDD Band 5	Head	Right cheek	0.224	0.421	0.003	0.65
		Right tilt	0.101	0.395	0.002	0.50
		Left cheek	0.157	0.138	0.004	0.30
		Left tilt	0.040	0.149	0.003	0.19
	Hotspot	Front side	0.421	0.069	0.060	0.55
		Back side	0.383	0.049	0.012	0.44
		Top side	-	0.046	-	-
		Bottom side	0.387	-	0.054	-
		Right side	0.341	-	0.018	-
		Left side	0.125	0.042	-	-
LTE FDD Band 7	Head	Right cheek	0.110	0.421	0.003	0.53
		Right tilt	0.097	0.395	0.002	0.49
		Left cheek	0.275	0.138	0.004	0.42
		Left tilt	0.059	0.149	0.003	0.21
	Hotspot	Front side	0.789	0.069	0.060	0.92
		Back side	0.777	0.049	0.012	0.84
		Top side	-	0.046	-	-
		Bottom side	0.818	-	0.054	-
		Right side	0.132	-	0.018	-
		Left side	0.542	0.042	-	-

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE FDD Band 12	Head	Right cheek	0.192	0.421	0.003	0.62
		Right tilt	0.086	0.395	0.002	0.48
		Left cheek	0.111	0.138	0.004	0.25
		Left tilt	0.053	0.149	0.003	0.21
	Hotspot	Front	0.336	0.069	0.060	0.47
		Back	0.261	0.049	0.012	0.32
		Top	-	0.046	-	-
		Bottom	0.129	-	0.054	-
		Right	0.291	-	0.018	-
		Left	0.152	0.042	-	-
LTE FDD Band 17	Head	Right cheek	0.169	0.421	0.003	0.59
		Right tilt	0.082	0.395	0.002	0.48
		Left cheek	0.106	0.138	0.004	0.25
		Left tilt	0.061	0.149	0.003	0.21
	Hotspot	Front side	0.382	0.069	0.060	0.51
		Back side	0.261	0.049	0.012	0.32
		Top side	-	0.046	-	-
		Bottom side	0.125	-	0.054	-
		Right side	0.290	-	0.018	-
		Left side	0.149	0.042	-	-
LTE FDD Band 25	Head	Right cheek	0.082	0.421	0.003	0.51
		Right tilt	0.067	0.395	0.002	0.46
		Left cheek	0.133	0.138	0.004	0.28
		Left tilt	0.046	0.149	0.003	0.20
	Hotspot	Front side	0.202	0.069	0.060	0.33
		Back side	0.159	0.049	0.012	0.22
		Top side	-	0.046	-	-
		Bottom side	1.040	-	0.054	-
		Right side	0.078	-	0.018	-
		Left side	0.203	0.042	-	-

reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE FDD Band 26	Head	Right cheek	0.225	0.421	0.003	0.65
		Right tilt	0.084	0.395	0.002	0.48
		Left cheek	0.152	0.138	0.004	0.29
		Left tilt	0.082	0.149	0.003	0.23
	Hotspot	Front	0.412	0.069	0.060	0.54
		Back	0.305	0.049	0.012	0.37
		Top	-	0.046	-	-
		Bottom	0.288	-	0.054	-
		Right	0.328	-	0.018	-
		Left	0.122	0.042	-	-
LTE FDD Band 30	Head	Right cheek	0.071	0.421	0.003	0.50
		Right tilt	0.037	0.395	0.002	0.43
		Left cheek	0.243	0.138	0.004	0.39
		Left tilt	0.085	0.149	0.003	0.24
	Hotspot	Front side	0.558	0.069	0.060	0.69
		Back side	0.534	0.049	0.012	0.60
		Top side	-	0.046	-	-
		Bottom side	0.732	-	0.054	-
		Right side	0.130	-	0.018	-
		Left side	0.222	0.042	-	-
LTE TDD Band 38	Head	Right cheek	0.029	0.421	0.003	0.45
		Right tilt	0.030	0.395	0.002	0.43
		Left cheek	0.113	0.138	0.004	0.26
		Left tilt	0.020	0.149	0.003	0.17
	Hotspot	Front side	0.298	0.069	0.060	0.43
		Back side	0.271	0.049	0.012	0.33
		Top side	-	0.046	-	-
		Bottom side	0.397	-	0.054	-
		Right side	0.070	-	0.018	-
		Left side	0.209	0.042	-	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

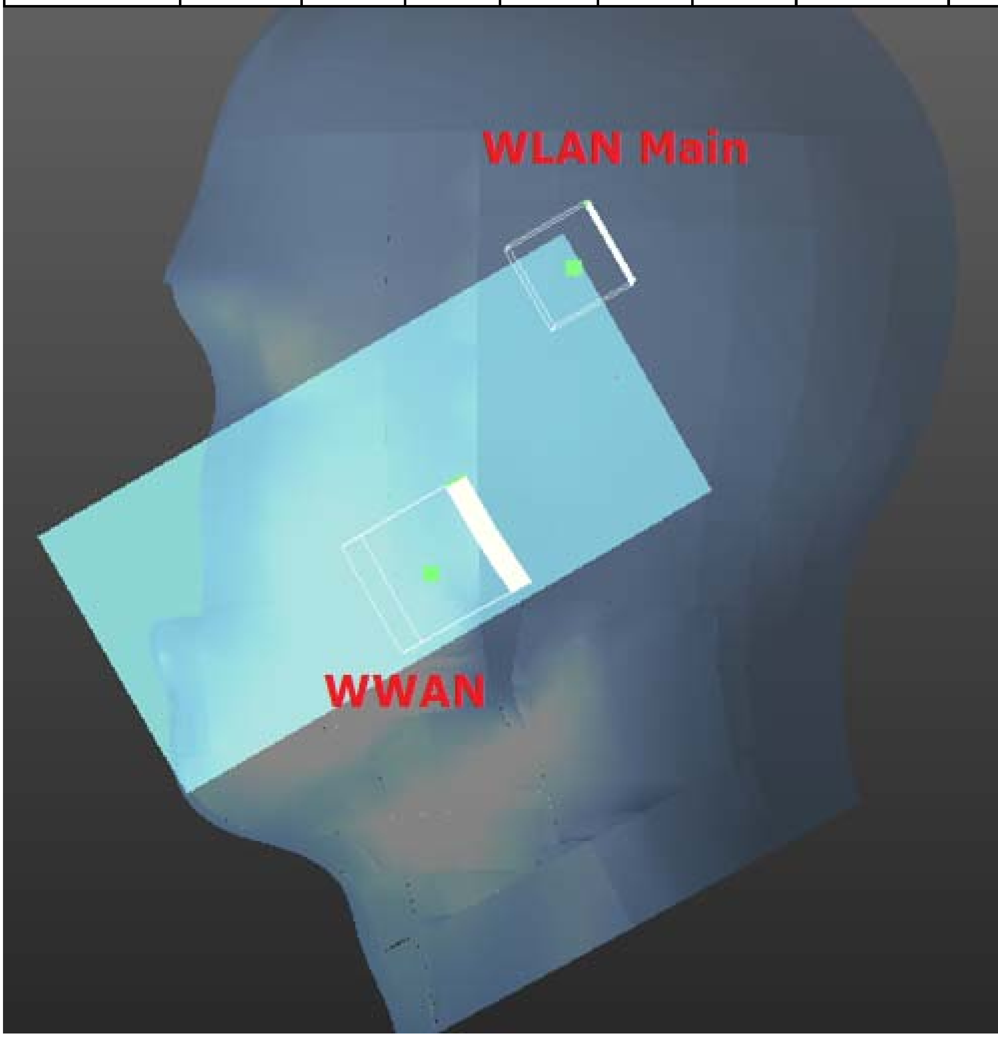
reported SAR WWAN and WLAN 2.4GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE TDD Band 41	Head	Right cheek	0.054	0.421	0.003	0.48
		Right tilt	0.042	0.395	0.002	0.44
		Left cheek	0.115	0.138	0.004	0.26
		Left tilt	0.032	0.149	0.003	0.18
	Hotspot	Front	0.351	0.069	0.060	0.48
		Back	0.356	0.049	0.012	0.42
		Top	-	0.046	-	-
		Bottom	0.406	-	0.054	-
		Right	0.086	-	0.018	-
		Left	0.265	0.042	-	-
LTE FDD Band 66	Head	Right cheek	0.167	0.421	0.003	0.59
		Right tilt	0.120	0.395	0.002	0.52
		Left cheek	0.258	0.138	0.004	0.40
		Left tilt	0.122	0.149	0.003	0.27
	Hotspot	Front side	0.299	0.069	0.060	0.43
		Back side	0.235	0.049	0.012	0.30
		Top side	-	0.046	-	-
		Bottom side	0.865	-	0.054	-
		Right side	0.177	-	0.018	-
		Left side	0.443	0.042	-	-

reported SAR WWAN and WLAN 5GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
GSM 850	Head	Right cheek	0.351	1.262	0.006	**1.62**
		Right tilt	0.153	0.920	0.005	1.08
		Left cheek	0.240	0.489	0.012	0.74
		Left tilt	0.142	0.469	0.004	0.62
GPRS 850 (1Dn3UP)	Hotspot	Front	0.747	0.088	0.018	0.85
		Back	0.429	0.015	0.006	0.45
		Top	-	0.019	-	-
		Bottom	0.519	-	0.016	-
		Right	0.513	-	0.011	-
		Left	0.197	0.014	-	-
GSM 1900	Head	Right cheek	0.108	1.262	0.006	1.38
		Right tilt	0.060	0.920	0.005	0.99
		Left cheek	0.115	0.489	0.012	0.62
		Left tilt	0.054	0.469	0.004	0.53
GPRS 1900 (1Dn3UP)	Hotspot	Front side	0.183	0.088	0.018	0.29
		Back side	0.157	0.015	0.006	0.18
		Top side	-	0.019	-	-
		Bottom side	0.821	-	0.016	-
		Right side	0.055	-	0.011	-
		Left side	0.127	0.014	-	-
WCDMA Band II	Head	Right cheek	0.146	1.262	0.006	1.41
		Right tilt	0.089	0.920	0.005	1.01
		Left cheek	0.161	0.489	0.012	0.66
		Left tilt	0.076	0.469	0.004	0.55
	Hotspot	Front side	0.508	0.088	0.018	0.61
		Back side	0.520	0.015	0.006	0.54
		Top side	-	0.019	-	-
		Bottom side	1.173	-	0.016	-
		Right side	0.102	-	0.011	-
		Left side	0.275	0.014	-	-

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

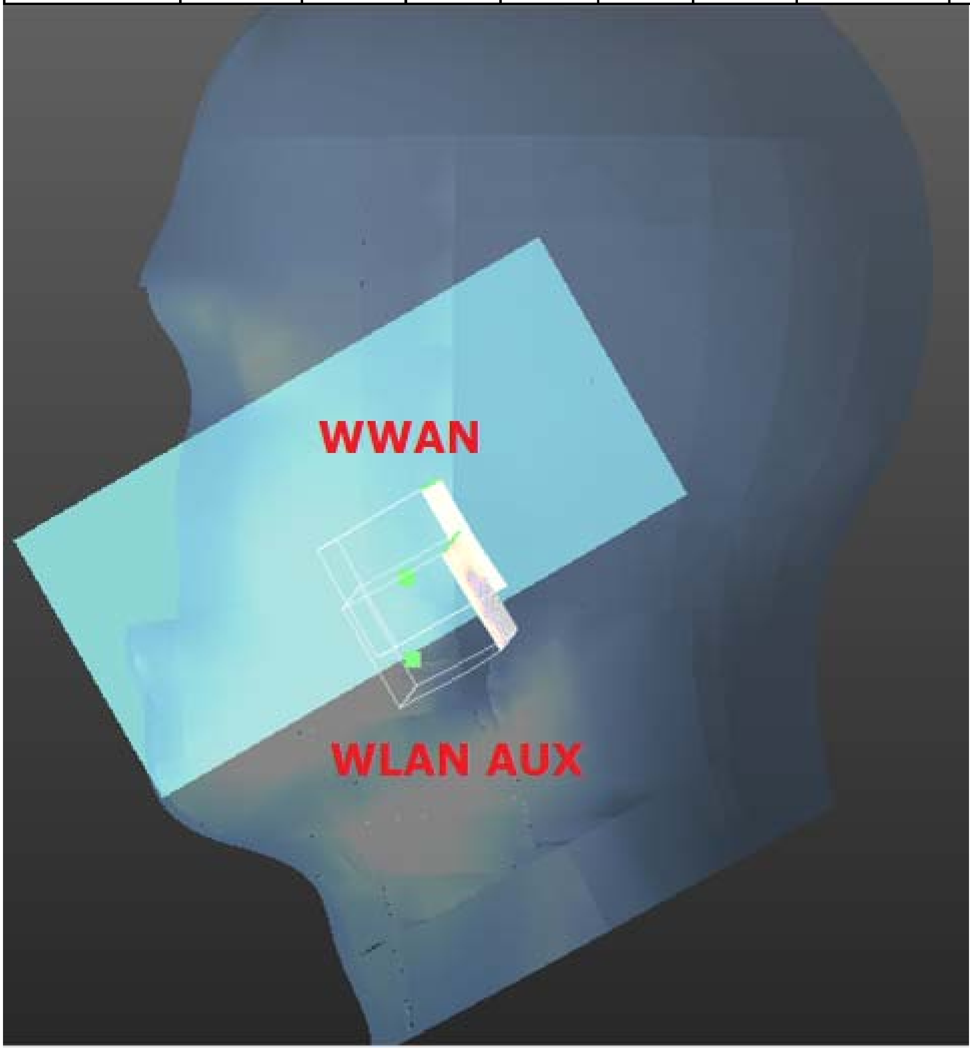
WWAN + WLAN Main

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GSM 850	Right cheek	0.351	4.72	5.11	-0.19	1.613	87.6	0.023	SPLSR<0.04, Not required
WLAN Main		1.262	1.03	-2.80	-0.12				



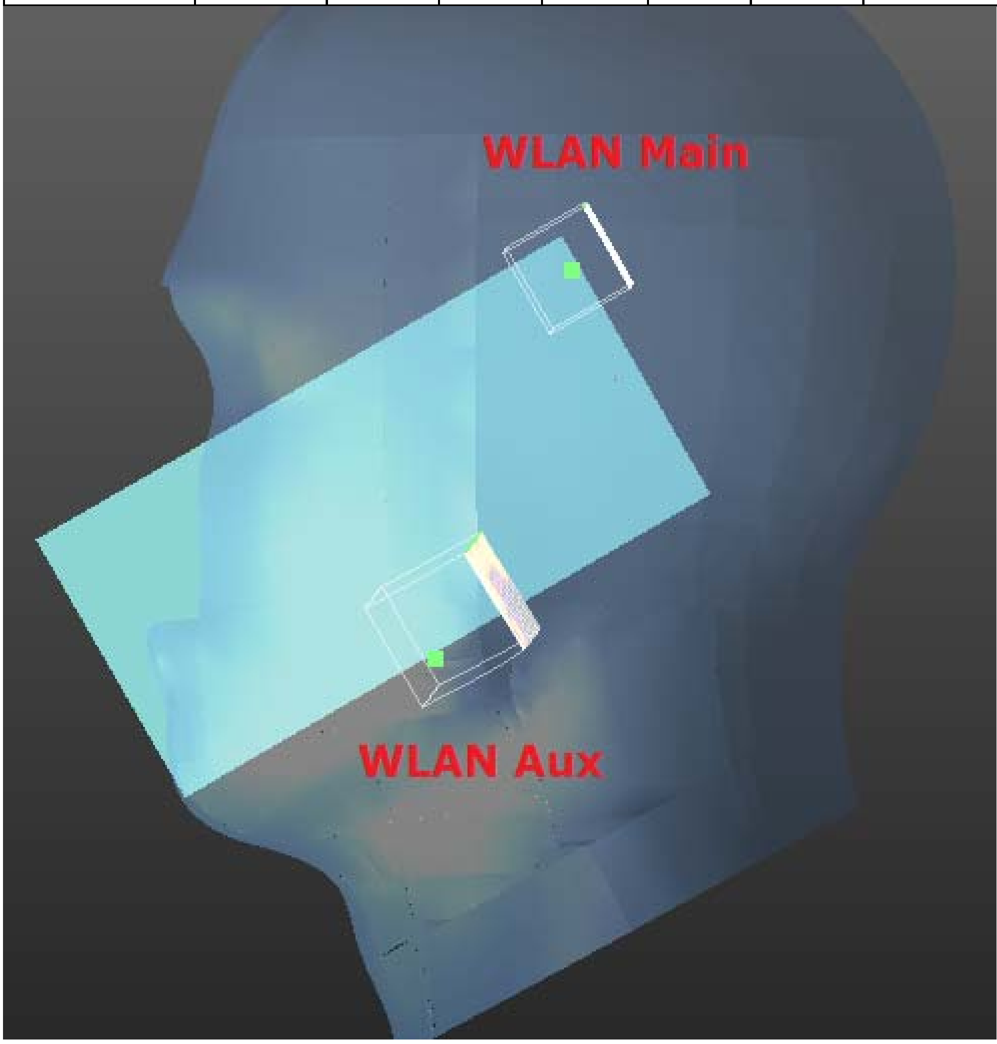
WWAN + WLAN Aux

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
GSM 850	Right cheek	0.351	4.72	5.11	-0.19	0.357	21.46	0.010	SPLSR<0.04, Not required
WLAn Aux		0.006	4.52	7.23	0.09				



WLAN MIMO

Conditions	Position	SAR Value (W/kg)	Coordinates (cm)			ΣSAR (W/kg)	Peak Location Separation Distance (mm)	SPLSR	Simultaneous Transmission SAR Test
			x	y	z				
WLAn Main	Right cheek	1.262	1.03	-2.80	-0.12	1.268	106.18	0.013	SPLSR<0.04, Not required
WLAn Aux		0.006	4.52	7.23	0.09				



reported SAR WWAN and WLAN 5GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
WCDMA Band IV	Head	Right cheek	0.164	1.262	0.006	1.43
		Right tilt	0.104	0.920	0.005	1.03
		Left cheek	0.179	0.489	0.012	0.68
		Left tilt	0.114	0.469	0.004	0.59
	Hotspot	Front	0.445	0.088	0.018	0.55
		Back	0.323	0.015	0.006	0.34
		Top	-	0.019	-	-
		Bottom	0.787	-	0.016	-
		Right	0.152	-	0.011	-
		Left	0.417	0.014	-	-
WCDMA Band V	Head	Right cheek	0.270	1.262	0.006	1.54
		Right tilt	0.114	0.920	0.005	1.04
		Left cheek	0.220	0.489	0.012	0.72
		Left tilt	0.111	0.469	0.004	0.58
	Hotspot	Front side	0.587	0.088	0.018	0.69
		Back side	0.403	0.015	0.006	0.42
		Top side	-	0.019	-	-
		Bottom side	0.435	-	0.016	-
		Right side	0.433	-	0.011	-
		Left side	0.154	0.014	-	-
LTE FDD Band 2	Head	Right cheek	0.092	1.262	0.006	1.36
		Right tilt	0.079	0.920	0.005	1.00
		Left cheek	0.124	0.489	0.012	0.63
		Left tilt	0.051	0.469	0.004	0.52
	Hotspot	Front side	0.229	0.088	0.018	0.34
		Back side	0.178	0.015	0.006	0.20
		Top side	-	0.019	-	-
		Bottom side	0.983	-	0.016	-
		Right side	0.088	-	0.011	-
		Left side	0.234	0.014	-	-

reported SAR WWAN and WLAN 5GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE FDD Band 4	Head	Right cheek	0.135	1.262	0.006	1.40
		Right tilt	0.098	0.920	0.005	1.02
		Left cheek	0.234	0.489	0.012	0.74
		Left tilt	0.100	0.469	0.004	0.57
	Hotspot	Front	0.230	0.088	0.018	0.34
		Back	0.196	0.015	0.006	0.22
		Top	-	0.019	-	-
		Bottom	0.550	-	0.016	-
		Right	0.149	-	0.011	-
		Left	0.353	0.014	-	-
LTE FDD Band 5	Head	Right cheek	0.224	1.262	0.006	1.49
		Right tilt	0.101	0.920	0.005	1.03
		Left cheek	0.157	0.489	0.012	0.66
		Left tilt	0.040	0.469	0.004	0.51
	Hotspot	Front side	0.421	0.088	0.018	0.53
		Back side	0.383	0.015	0.006	0.40
		Top side	-	0.019	-	-
		Bottom side	0.387	-	0.016	-
		Right side	0.341	-	0.011	-
		Left side	0.125	0.014	-	-
LTE FDD Band 7	Head	Right cheek	0.110	1.262	0.006	1.38
		Right tilt	0.097	0.920	0.005	1.02
		Left cheek	0.275	0.489	0.012	0.78
		Left tilt	0.059	0.469	0.004	0.53
	Hotspot	Front side	0.789	0.088	0.018	0.90
		Back side	0.777	0.015	0.006	0.80
		Top side	-	0.019	-	-
		Bottom side	0.818	-	0.016	-
		Right side	0.132	-	0.011	-
		Left side	0.542	0.014	-	-

reported SAR WWAN and WLAN 5GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE FDD Band 12	Head	Right cheek	0.192	1.262	0.006	1.46
		Right tilt	0.086	0.920	0.005	1.01
		Left cheek	0.111	0.489	0.012	0.61
		Left tilt	0.053	0.469	0.004	0.53
	Hotspot	Front	0.336	0.088	0.018	0.44
		Back	0.261	0.015	0.006	0.28
		Top	-	0.019	-	-
		Bottom	0.129	-	0.016	-
		Right	0.291	-	0.011	-
		Left	0.152	0.014	-	-
LTE FDD Band 17	Head	Right cheek	0.169	1.262	0.006	1.44
		Right tilt	0.082	0.920	0.005	1.01
		Left cheek	0.106	0.489	0.012	0.61
		Left tilt	0.061	0.469	0.004	0.53
	Hotspot	Front side	0.382	0.088	0.018	0.49
		Back side	0.261	0.015	0.006	0.28
		Top side	-	0.019	-	-
		Bottom side	0.125	-	0.016	-
		Right side	0.290	-	0.011	-
		Left side	0.149	0.014	-	-
LTE FDD Band 25	Head	Right cheek	0.082	1.262	0.006	1.35
		Right tilt	0.067	0.920	0.005	0.99
		Left cheek	0.133	0.489	0.012	0.63
		Left tilt	0.046	0.469	0.004	0.52
	Hotspot	Front side	0.202	0.088	0.018	0.31
		Back side	0.159	0.015	0.006	0.18
		Top side	-	0.019	-	-
		Bottom side	1.040	-	0.016	-
		Right side	0.078	-	0.011	-
		Left side	0.203	0.014	-	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

reported SAR WWAN and WLAN 5GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE FDD Band 26	Head	Right cheek	0.225	1.262	0.006	1.49
		Right tilt	0.084	0.920	0.005	1.01
		Left cheek	0.152	0.489	0.012	0.65
		Left tilt	0.082	0.469	0.004	0.56
	Hotspot	Front	0.412	0.088	0.018	0.52
		Back	0.305	0.015	0.006	0.33
		Top	-	0.019	-	-
		Bottom	0.288	-	0.016	-
		Right	0.328	-	0.011	-
		Left	0.122	0.014	-	-
LTE FDD Band 30	Head	Right cheek	0.071	1.262	0.006	1.34
		Right tilt	0.037	0.920	0.005	0.96
		Left cheek	0.243	0.489	0.012	0.74
		Left tilt	0.085	0.469	0.004	0.56
	Hotspot	Front side	0.558	0.088	0.018	0.66
		Back side	0.534	0.015	0.006	0.56
		Top side	-	0.019	-	-
		Bottom side	0.732	-	0.016	-
		Right side	0.130	-	0.011	-
		Left side	0.222	0.014	-	-
LTE TDD Band 38	Head	Right cheek	0.029	1.262	0.006	1.30
		Right tilt	0.030	0.920	0.005	0.96
		Left cheek	0.113	0.489	0.012	0.61
		Left tilt	0.020	0.469	0.004	0.49
	Hotspot	Front side	0.298	0.088	0.018	0.40
		Back side	0.271	0.015	0.006	0.29
		Top side	-	0.019	-	-
		Bottom side	0.397	-	0.016	-
		Right side	0.070	-	0.011	-
		Left side	0.209	0.014	-	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

reported SAR WWAN and WLAN 5GHz, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	WLAN Main	WLAN Aux	<1.6W/kg
LTE TDD Band 41	Head	Right cheek	0.054	1.262	0.006	1.32
		Right tilt	0.042	0.920	0.005	0.97
		Left cheek	0.115	0.489	0.012	0.62
		Left tilt	0.032	0.469	0.004	0.51
	Hotspot	Front	0.351	0.088	0.018	0.46
		Back	0.356	0.015	0.006	0.38
		Top	-	0.019	-	-
		Bottom	0.406	-	0.016	-
		Right	0.086	-	0.011	-
		Left	0.265	0.014	-	-
LTE FDD Band 66	Head	Right cheek	0.167	1.262	0.006	1.44
		Right tilt	0.120	0.920	0.005	1.05
		Left cheek	0.258	0.489	0.012	0.76
		Left tilt	0.122	0.469	0.004	0.60
	Hotspot	Front side	0.299	0.088	0.018	0.41
		Back side	0.235	0.015	0.006	0.26
		Top side	-	0.019	-	-
		Bottom side	0.865	-	0.016	-
		Right side	0.177	-	0.011	-
		Left side	0.443	0.014	-	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

reported SAR WWAN and Bluetooth and 2.4G WLAN, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	Bluetooth	WLAN Aux	<1.6W/kg
GSM 850	Body-worn	Front	0.315	0.132	0.060	0.51
		Back	0.314	0.132	0.012	0.46
GSM 1900	Body-worn	Front	0.244	0.132	0.060	0.44
		Back	0.168	0.132	0.012	0.31
WCDMA Band II	Body-worn	Front	0.654	0.132	0.060	0.85
		Back	0.457	0.132	0.012	0.60
WCDMA Band IV	Body-worn	Front	0.490	0.132	0.060	0.68
		Back	0.341	0.132	0.012	0.49
WCDMA Band V	Body-worn	Front	0.578	0.132	0.060	0.77
		Back	0.454	0.132	0.012	0.60
LTE FDD Band 2	Body-worn	Front	0.622	0.132	0.060	0.81
		Back	0.435	0.132	0.012	0.58
LTE FDD Band 4	Body-worn	Front	0.455	0.132	0.060	0.65
		Back	0.323	0.132	0.012	0.47
LTE FDD Band 5	Body-worn	Front	0.357	0.132	0.060	0.55
		Back	0.361	0.132	0.012	0.51
LTE FDD Band 7	Body-worn	Front	0.366	0.132	0.060	0.56
		Back	0.257	0.132	0.012	0.40
LTE FDD Band 12	Body-worn	Front	0.444	0.132	0.060	0.64
		Back	0.434	0.132	0.012	0.58
LTE FDD Band 17	Body-worn	Front	0.446	0.132	0.060	0.64
		Back	0.421	0.132	0.012	0.57
LTE FDD Band 25	Body-worn	Front	0.446	0.132	0.060	0.64
		Back	0.421	0.132	0.012	0.57
LTE FDD Band 26	Body-worn	Front	0.446	0.132	0.060	0.64
		Back	0.421	0.132	0.012	0.57
LTE FDD Band 30	Body-worn	Front	0.446	0.132	0.060	0.64
		Back	0.421	0.132	0.012	0.57
LTE TDD Band 38	Body-worn	Front	0.387	0.132	0.060	0.58
		Back	0.256	0.132	0.012	0.40
LTE TDD Band 41	Body-worn	Front	0.387	0.132	0.060	0.58
		Back	0.256	0.132	0.012	0.40
LTE FDD Band 66	Body-worn	Front	0.446	0.132	0.060	0.64
		Back	0.421	0.132	0.012	0.57

reported SAR WWAN and Bluetooth and 5G WLAN, ΣSAR evaluation						
Frequency band	Position		reported SAR / W/kg			ΣSAR
			WWAN	Bluetooth	WLAN Aux	<1.6W/kg
GSM 850	Body-worn	Front	0.315	0.132	0.028	0.48
		Back	0.314	0.132	0.019	0.47
GSM 1900	Body-worn	Front	0.244	0.132	0.028	0.40
		Back	0.168	0.132	0.019	0.32
WCDMA Band II	Body-worn	Front	0.654	0.132	0.028	0.81
		Back	0.457	0.132	0.019	0.61
WCDMA Band IV	Body-worn	Front	0.490	0.132	0.028	0.65
		Back	0.341	0.132	0.019	0.49
WCDMA Band V	Body-worn	Front	0.578	0.132	0.028	0.74
		Back	0.454	0.132	0.019	0.61
LTE FDD Band 2	Body-worn	Front	0.622	0.132	0.028	0.78
		Back	0.435	0.132	0.019	0.59
LTE FDD Band 4	Body-worn	Front	0.455	0.132	0.028	0.62
		Back	0.323	0.132	0.019	0.47
LTE FDD Band 5	Body-worn	Front	0.357	0.132	0.028	0.52
		Back	0.361	0.132	0.019	0.51
LTE FDD Band 7	Body-worn	Front	0.366	0.132	0.028	0.53
		Back	0.257	0.132	0.019	0.41
LTE FDD Band 12	Body-worn	Front	0.444	0.132	0.028	0.60
		Back	0.434	0.132	0.019	0.59
LTE FDD Band 17	Body-worn	Front	0.446	0.132	0.028	0.61
		Back	0.421	0.132	0.019	0.57
LTE FDD Band 25	Body-worn	Front	0.446	0.132	0.028	0.61
		Back	0.421	0.132	0.019	0.57
LTE FDD Band 26	Body-worn	Front	0.446	0.132	0.028	0.61
		Back	0.421	0.132	0.019	0.57
LTE FDD Band 30	Body-worn	Front	0.446	0.132	0.028	0.61
		Back	0.421	0.132	0.019	0.57
LTE TDD Band 38	Body-worn	Front	0.387	0.132	0.028	0.55
		Back	0.256	0.132	0.019	0.41
LTE TDD Band 41	Body-worn	Front	0.387	0.132	0.028	0.55
		Back	0.256	0.132	0.019	0.41
LTE FDD Band 66	Body-worn	Front	0.446	0.132	0.028	0.61
		Back	0.421	0.132	0.019	0.57

4. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
SPEAG	Dosimetric E-Field Probe	EX3DV4	3831	Jan.23,2017	Jan.22,2018
			7466	Jul.04,2017	Jul.03,2018
SPEAG	System Validation Dipole	D750V3	1015	Aug.21,2017	Aug.20,2018
		D835V2	4d063	Aug.21,2017	Aug.20,2018
		D1750V2	1008	Aug.21,2017	Aug.20,2018
		D1900V2	5d173	May.31,2017	May.30,2018
		D2300V2	1023	Aug.17,2017	Aug.16,2018
		D2450V2	727	Apr.21,2017	Apr.20,2018
		D2600V2	1005	Jan.25,2017	Jan.24,2018
		D5GHzV2	1023	Jan.20,2017	Jan.19,2018
SPEAG	Data acquisition Electronics	DAE4	547	Mar.22,2017	Mar.21,2018
SPEAG	Software	DASY 52 V52.8.8	N/A	Calibration not required	Calibration not required
SPEAG	Phantom	SAM	N/A	Calibration not required	Calibration not required
Agilent	Network Analyzer	E5071C	MY46107530	Jan.20,2017	Jan.19,2018
Agilent	Dielectric Probe Kit	85070E	MY44300677	Calibration not required	Calibration not required
Agilent	Dual-directional coupler	772D	MY52180142	Apr.13,2017	Apr.12,2018
		778D	MY52180302	Apr.13,2017	Apr.12,2018
Agilent	RF Signal Generator	N5181A	MY50144143	Mar.01,2017	Feb.28,2018
Agilent	Power Meter	E4417A	MY52240003	Oct.17,2016	Oct.16,2017
Agilent	Power Sensor	E9301H	MY52200003	Oct.17,2016	Oct.16,2017
			MY52200004	Oct.17,2016	Oct.16,2017

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Manufacturer	Device	Type	Serial number	Date of last calibration	Date of next calibration
Anritsu	Radio Communication Test	MT8820C	6201061049	Apr.08,2017	Apr.07,2018
TECPEL	Digital thermometer	DTM-303A	TP130077	Mar.17,2017	Mar.16,2018
R&S	Radio Communication Test	CMW 500	125470	Aug.22,2017	Aug.21,2018

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

5. Measurements

Date: 2017/9/18

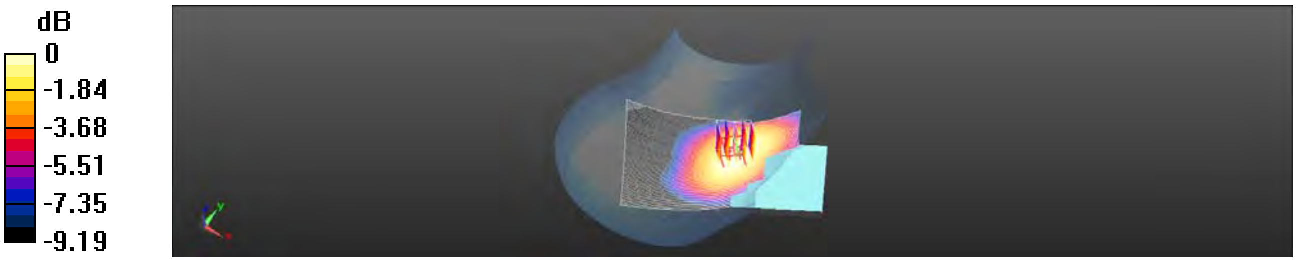
GSM 850_Head_Re Cheek_CH 251
Communication System: GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.939 S/m; ε_r = 40.662; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.2, 10.2, 10.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.341 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.999 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.365 W/kg
SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.231 W/kg
Maximum value of SAR (measured) = 0.337 W/kg



0 dB = 0.337 W/kg = -4.72 dBW/kg

Date:2017/9/19

GSM 850_Body-worn_Front side_CH 251_10mm

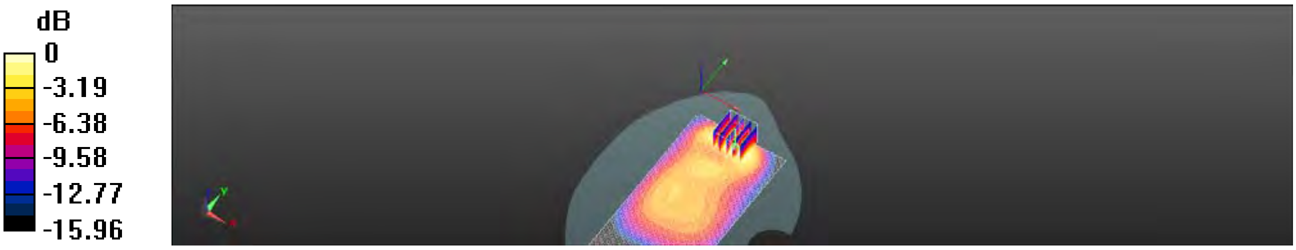
Communication System: GSM; Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: f = 848.8 MHz; σ = 1.01 S/m; ε_r = 55.804; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.24, 10.24, 10.24); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (41x81x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.585 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.92 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.758 W/kg
SAR(1 g) = 0.578 W/kg; SAR(10 g) = 0.241 W/kg
Maximum value of SAR (measured) = 0.587 W/kg



0 dB = 0.587 W/kg = -2.31 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/20

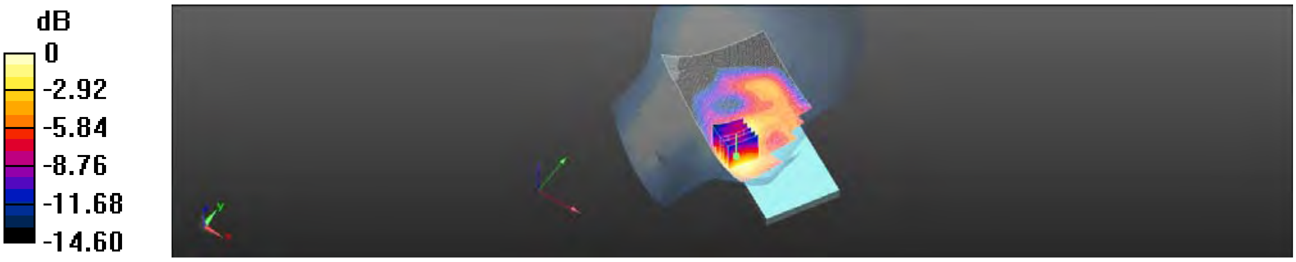
GSM 1900_Head_Le Cheek_CH 661
Communication System: GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.422 S/m; ε_r = 39.604; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.134 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.443 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.132 W/kg



0 dB = 0.132 W/kg = -8.80 dBW/kg

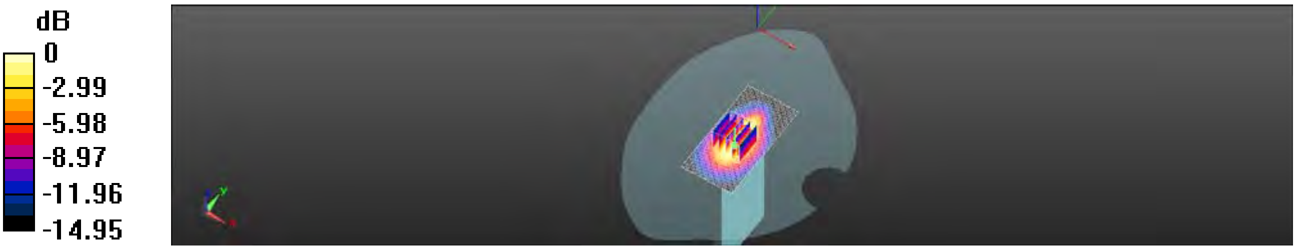
Date: 2017/9/21

GPRS 1900_Hotspot_Bottom side_CH 512_10mm
Communication System: GPRS (1Dn3Up); Frequency: 1850.2 MHz; Duty Cycle: 1:2.77
Medium parameters used: f = 1850.2 MHz; σ = 1.565 S/m; ε_r = 54.816; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(8.14, 8.14, 8.14); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (41x81x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.09 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.51 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.806 W/kg; SAR(10 g) = 0.471 W/kg
Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 1.07 W/kg = 0.29 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/20

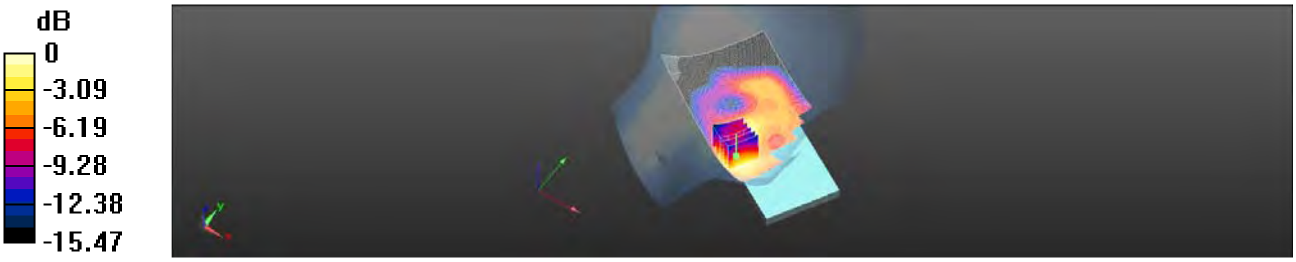
WCDMA Band II_Head_Le Cheek_CH 9400
Communication System: WCDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.422 S/m; ε_r = 39.604; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.208 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.640 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.239 W/kg
SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.101 W/kg
Maximum value of SAR (measured) = 0.202 W/kg



0 dB = 0.202 W/kg = -6.95 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/21

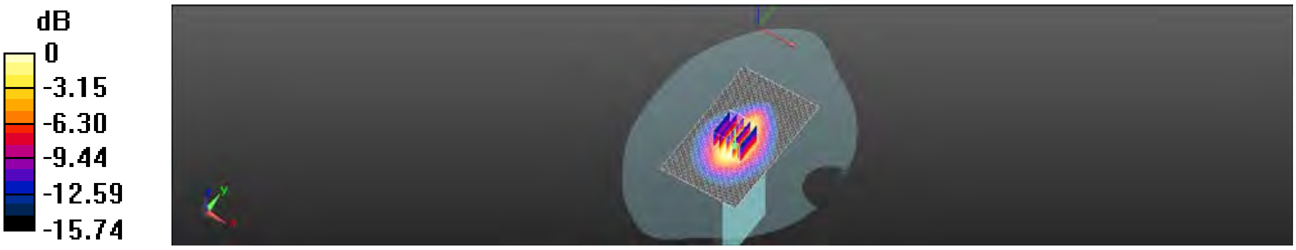
WCDMA Band II_Hotspot_Bottom side_CH 9538_10mm
Communication System: WCDMA; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1907.6 MHz; σ = 1.572 S/m; ε_r = 54.719; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.14, 8.14, 8.14); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.61 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.15 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.658 W/kg
Maximum value of SAR (measured) = 1.57 W/kg



0 dB = 1.57 W/kg = 1.97 dBW/kg

Date: 2017/9/20

WCDMA Band IV_Head_Le Cheek_CH 1513

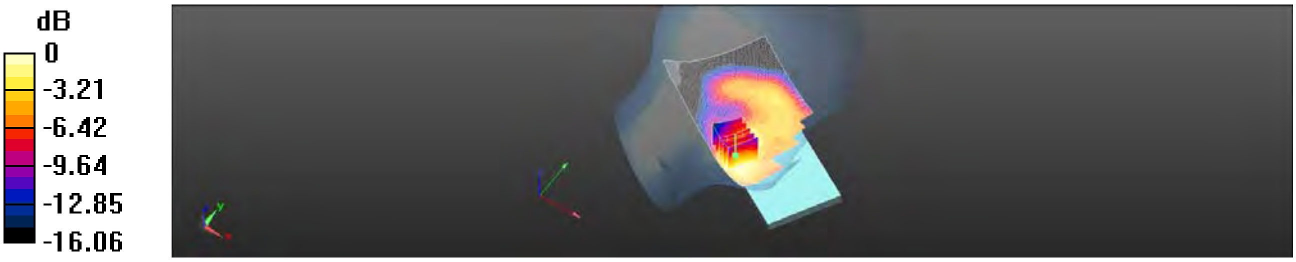
Communication System: WCDMA; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1753 MHz; σ = 1.397 S/m; ε_r = 39.662; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.84, 8.84, 8.84); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.224 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.162 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.171 W/kg; SAR(10 g) = 0.114 W/kg
Maximum value of SAR (measured) = 0.211 W/kg



0 dB = 0.211 W/kg = -6.75 dBW/kg

Date: 2017/9/21

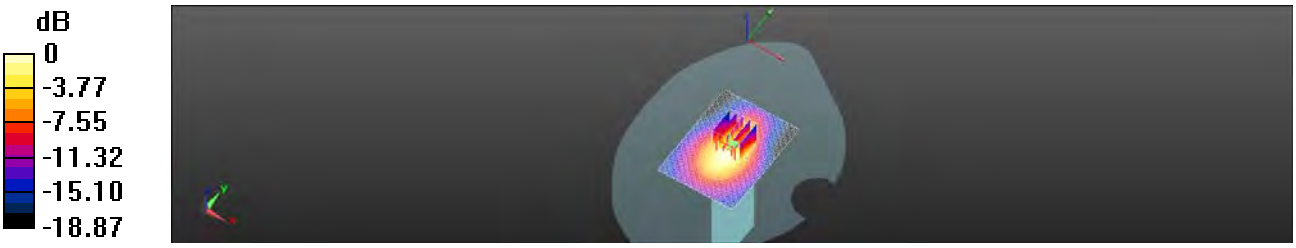
WCDMA Band IV_Hotspot_Bottom side_CH 1513_10mm
Communication System: WCDMA; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1752.6 MHz; σ = 1.537 S/m; ε_r = 54.829; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x81x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.00 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.65 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.449 W/kg
Maximum value of SAR (measured) = 0.987 W/kg



0 dB = 0.987 W/kg = -0.06 dBW/kg

Date: 2017/9/18

WCDMA Band V_Head_Re Cheek_CH 4233

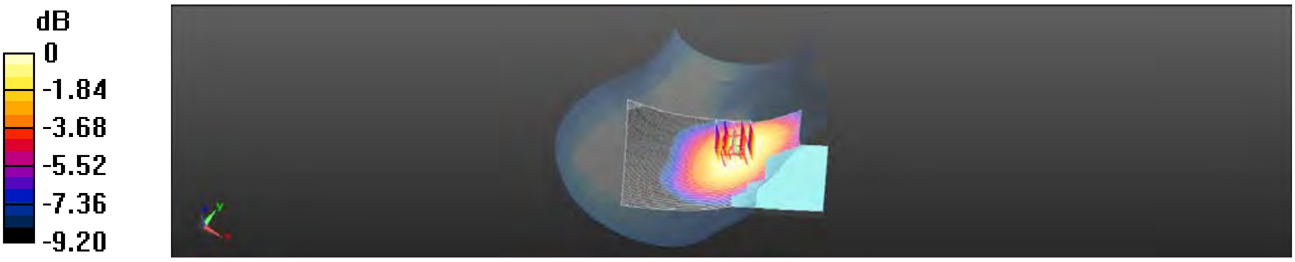
Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 0.937 S/m; ε_r = 40.668; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.2, 10.2, 10.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.301 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.111 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.207 W/kg
Maximum value of SAR (measured) = 0.300 W/kg



0 dB = 0.300 W/kg = -5.22 dBW/kg

Date: 2017/9/19

WCDMA Band V_Hotspot_Front side_CH 4233_10mm

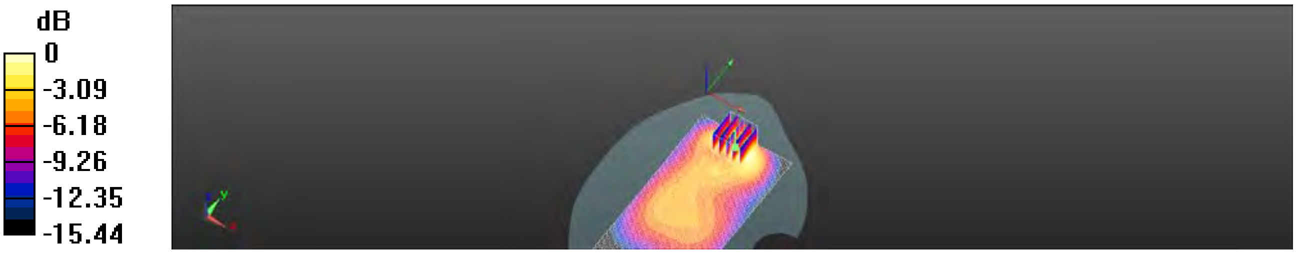
Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 1.008 S/m; ε_r = 55.814; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.24, 10.24, 10.24); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.739 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.54 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.999 W/kg
SAR(1 g) = 0.578 W/kg; SAR(10 g) = 0.328 W/kg
Maximum value of SAR (measured) = 0.739 W/kg



0 dB = 0.739 W/kg = -1.31 dBW/kg

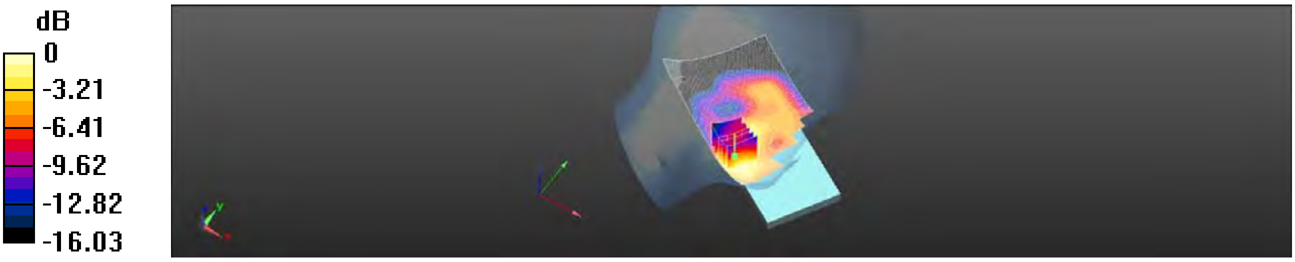
Date: 2017/9/20

LTE Band 2 (20MHz)_Head_Le Cheek_CH 18700_QPSK_1-0
Communication System: LTE; Frequency: 1860 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.418 S/m; ε_r = 39.608; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.145 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.128 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.176 W/kg
SAR(1 g) = 0.123 W/kg; SAR(10 g) = 0.077 W/kg
Maximum value of SAR (measured) = 0.143 W/kg



0 dB = 0.143 W/kg = -8.44 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/21

LTE Band 2 (20MHz)_Hotspot_Bottom side_CH 19100_QPSK_1-0_10mm

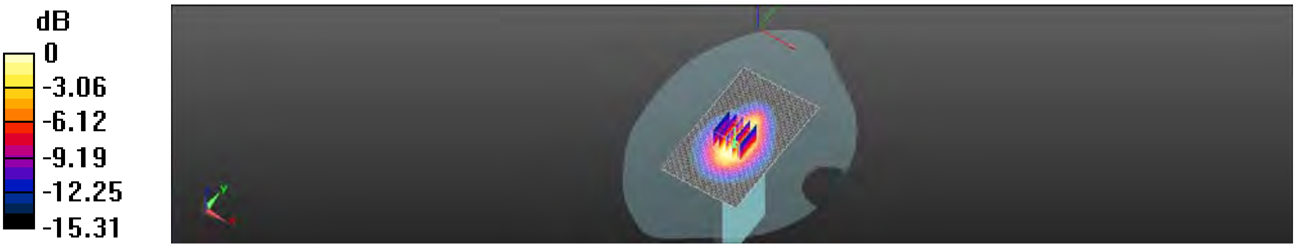
Communication System: LTE; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.57 S/m; ε_r = 54.727; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.14, 8.14, 8.14); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.35 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.54 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.981 W/kg; SAR(10 g) = 0.565 W/kg
Maximum value of SAR (measured) = 1.29 W/kg



0 dB = 1.29 W/kg = 1.12 dBW/kg

Date: 2017/9/20

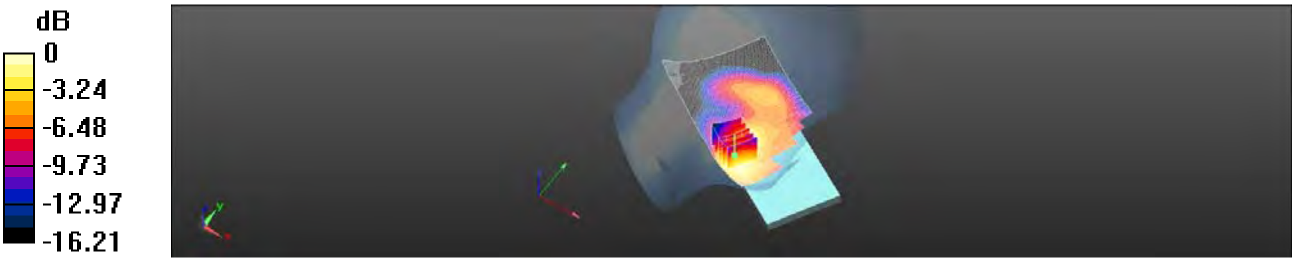
LTE Band 4 (20MHz)_Head_Le Cheek_CH 20300_QPSK_1-0
Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; σ = 1.392 S/m; ε_r = 39.685; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.84, 8.84, 8.84); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.286 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.511 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.211 W/kg; SAR(10 g) = 0.142 W/kg
Maximum value of SAR (measured) = 0.261 W/kg



0 dB = 0.261 W/kg = -5.83 dBW/kg

Date: 2017/9/21

LTE Band 4 (20MHz)_Hotspot_Bottom side_CH 20050_QPSK_1-0_10mm

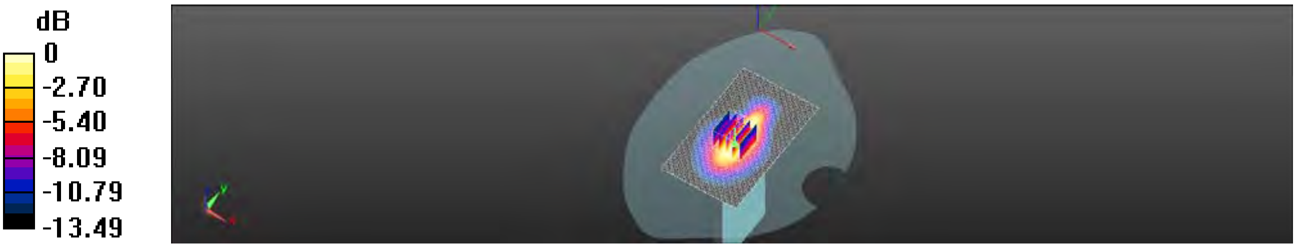
Communication System: LTE; Frequency: 1720 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1720.05 MHz; σ = 1.515 S/m; ε_r = 55.081; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.754 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.46 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.565 W/kg; SAR(10 g) = 0.344 W/kg
Maximum value of SAR (measured) = 0.728 W/kg



0 dB = 0.728 W/kg = -1.38 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/18

LTE Band 5 (10MHz)_Head_Re Cheek_CH 20525_QPSK_1-49

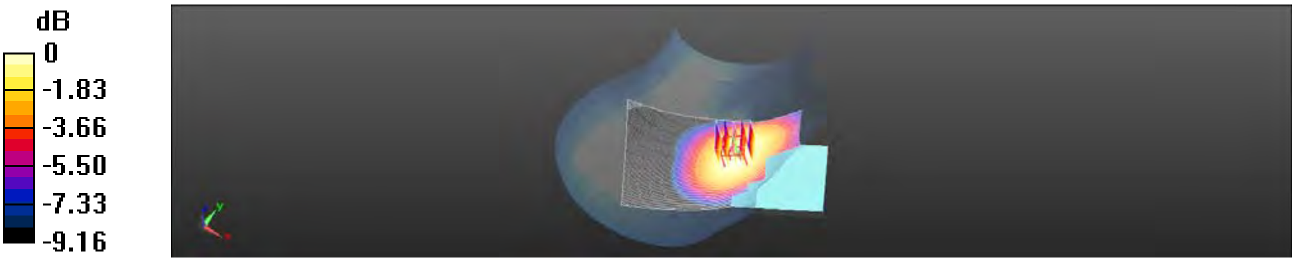
Communication System: LTE; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.929 S/m; ε_r = 40.682; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.2, 10.2, 10.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.235 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.406 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.252 W/kg
SAR(1 g) = 0.209 W/kg; SAR(10 g) = 0.164 W/kg
Maximum value of SAR (measured) = 0.235 W/kg



0 dB = 0.235 W/kg = -6.29 dBW/kg

Date: 2017/9/19

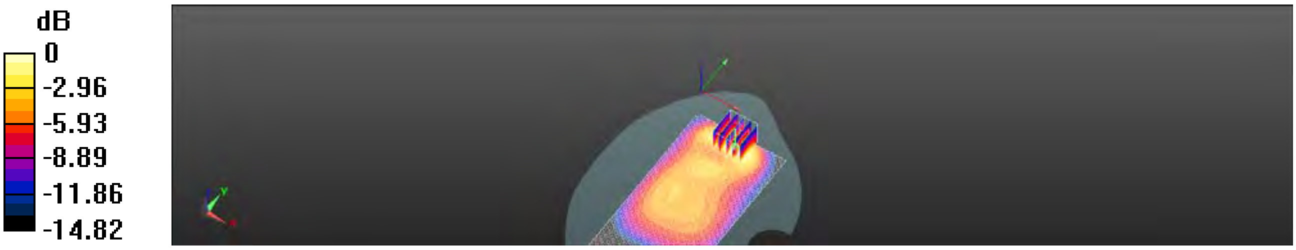
LTE Band 5 (10MHz)_Hotspot_Front side_CH 20525_QPSK_1-49_10mm
Communication System: LTE; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 836.5 MHz; σ = 0.998 S/m; ε_r = 55.862; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.24, 10.24, 10.24); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.531 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.32 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.662 W/kg
SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.226 W/kg
Maximum value of SAR (measured) = 0.536 W/kg



0 dB = 0.536 W/kg = -2.71 dBW/kg

Date: 2017/9/22

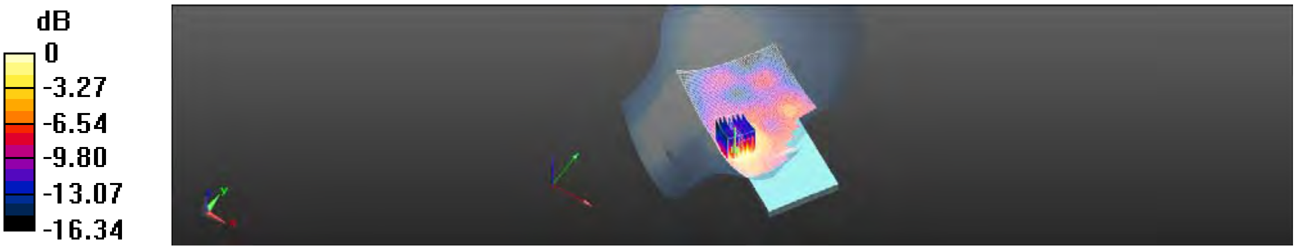
LTE Band 7 (20MHz)_Head_Le Cheek_CH 21100_QPSK_1-0
Communication System: LTE; Frequency: 2535 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 1.949 S/m; ε_r = 37.913; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.58, 7.58, 7.58); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x161x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.329 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.627 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.431 W/kg
SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.124 W/kg
Maximum value of SAR (measured) = 0.320 W/kg



0 dB = 0.320 W/kg = -4.94 dBW/kg

Date: 2017/9/23

LTE Band 7 (20MHz)_Hotspot_Bottom side_CH 21100_QPSK_1-0_10mm

Communication System: LTE; Frequency: 2535 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2535 MHz; σ = 2.034 S/m; ε_r = 54.478; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

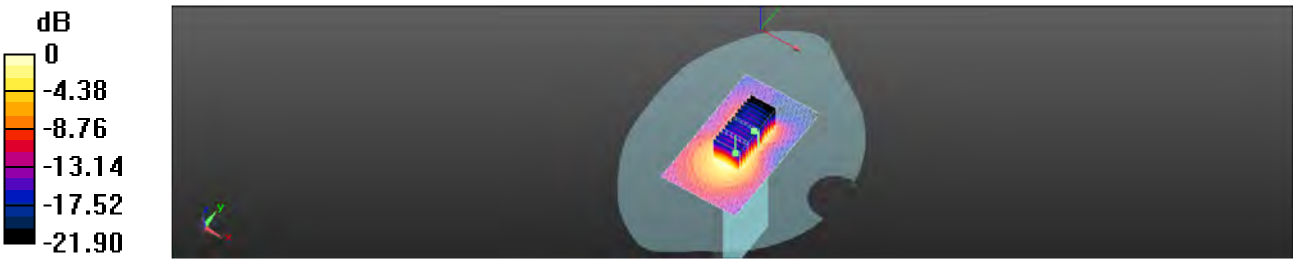
DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.66, 7.66, 7.66); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x121x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 1.15 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.35 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.717 W/kg; SAR(10 g) = 0.333 W/kg
Maximum value of SAR (measured) = 1.06 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.35 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.690 W/kg; SAR(10 g) = 0.351 W/kg
Maximum value of SAR (measured) = 0.965 W/kg



0 dB = 0.965 W/kg = -0.15 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/18

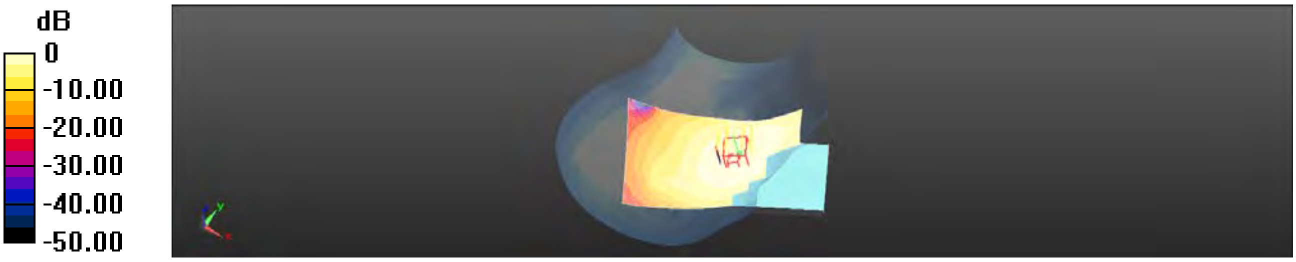
LTE Band 12 (10MHz)_Head_Re Cheek_CH 23130_QPSK_1-0
Communication System: LTE; Frequency: 711 MHz; Duty Cycle: 1:1
Medium parameters used: f = 711 MHz; σ = 0.914 S/m; ε_r = 41.284; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.63, 9.63, 9.63); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.179 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.980 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.318 W/kg
SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.137 W/kg
Maximum value of SAR (measured) = 0.181 W/kg



0 dB = 0.181 W/kg = -7.42 dBW/kg

Date: 2017/9/19

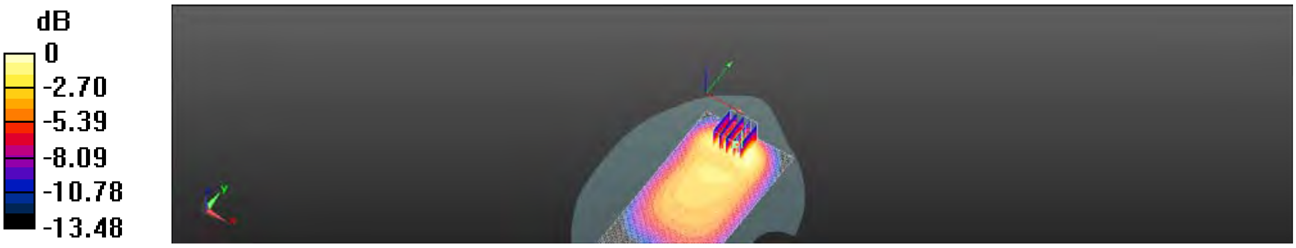
LTE Band 12 (10MHz)_Hotspot_Front side_CH 23060_QPSK_1-49_10mm
Communication System: LTE; Frequency: 704 MHz; Duty Cycle: 1:1
Medium parameters used: f = 704 MHz; σ = 0.982 S/m; ε_r = 56.387; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(9.59, 9.59, 9.59); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.405 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.07 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.545 W/kg
SAR(1 g) = 0.326 W/kg; SAR(10 g) = 0.193 W/kg
Maximum value of SAR (measured) = 0.429 W/kg



0 dB = 0.429 W/kg = -3.68 dBW/kg

Date: 2017/9/18

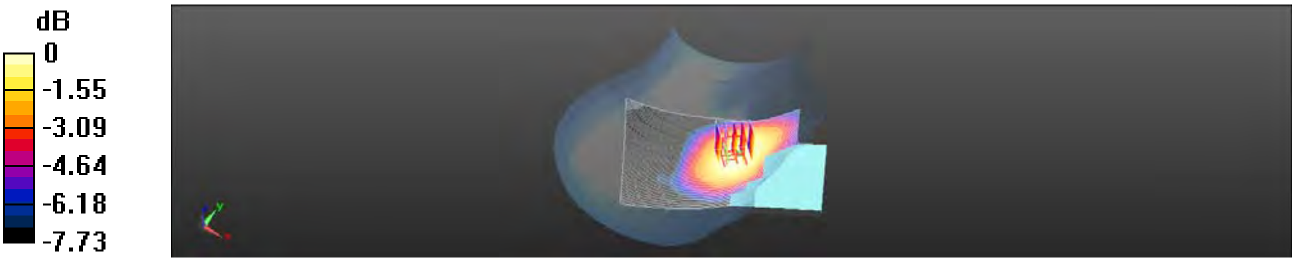
LTE Band 17 (10MHz)_Head_Re Cheek_CH 23790_QPSK_1-49
Communication System: LTE; Frequency: 710 MHz; Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.913 S/m; ε_r = 41.285; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(9.63, 9.63, 9.63); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.189 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.734 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.134 W/kg
Maximum value of SAR (measured) = 0.183 W/kg



0 dB = 0.183 W/kg = -7.38 dBW/kg

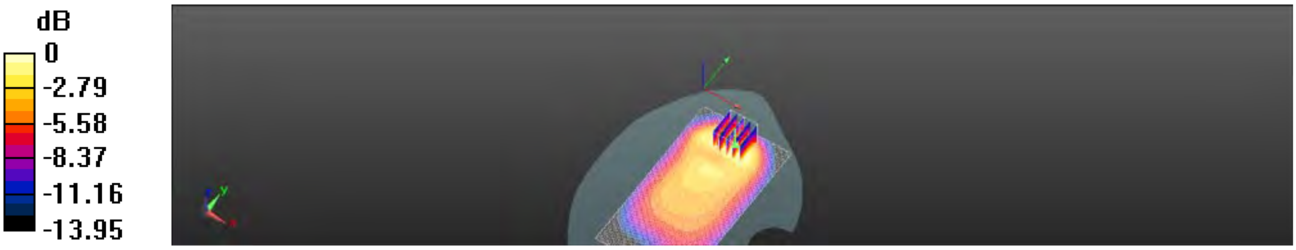
Date: 2017/9/19

LTE Band 17 (10MHz)_Hotspot_Front side_CH 23790_QPSK_1-49_10mm
Communication System: LTE; Frequency: 710 MHz; Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.985 S/m; ε_r = 56.351; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(9.59, 9.59, 9.59); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.456 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.36 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.628 W/kg
SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.219 W/kg
Maximum value of SAR (measured) = 0.504 W/kg



0 dB = 0.504 W/kg = -2.98 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/20

LTE Band 25 (20MHz)_Head_Le Cheek_CH 26140_QPSK_1-0

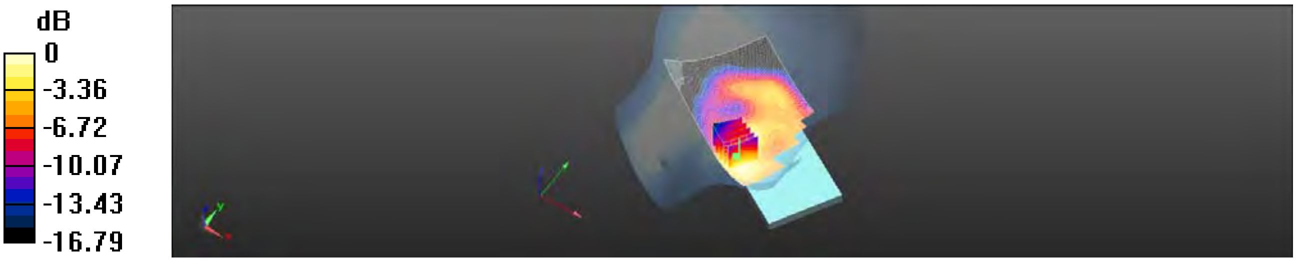
Communication System: LTE; Frequency: 1860 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.418 S/m; ε_r = 39.608; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.165 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.599 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.192 W/kg
SAR(1 g) = 0.126 W/kg; SAR(10 g) = 0.081 W/kg
Maximum value of SAR (measured) = 0.157 W/kg



0 dB = 0.157 W/kg = -8.05 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/21

LTE Band 25 (20MHz)_Hotspot_Bottom side_CH 26140_QPSK_1-0_10mm

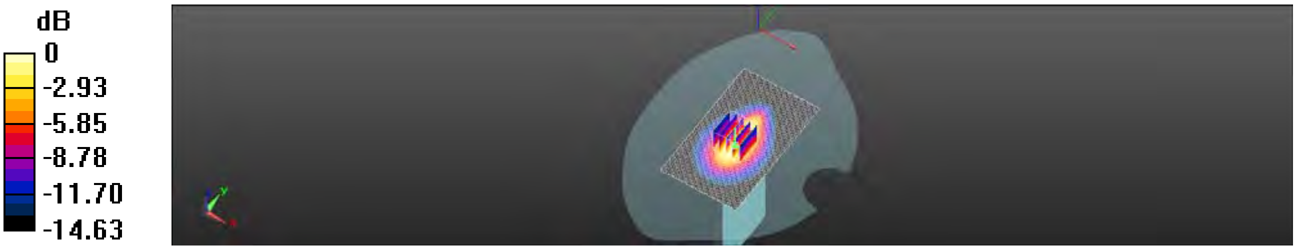
Communication System: LTE; Frequency: 1860 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.567 S/m; ε_r = 54.794; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.14, 8.14, 8.14); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.37 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.30 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.989 W/kg; SAR(10 g) = 0.584 W/kg
Maximum value of SAR (measured) = 1.31 W/kg



0 dB = 1.31 W/kg = 1.17 dBW/kg

Date: 2017/9/18

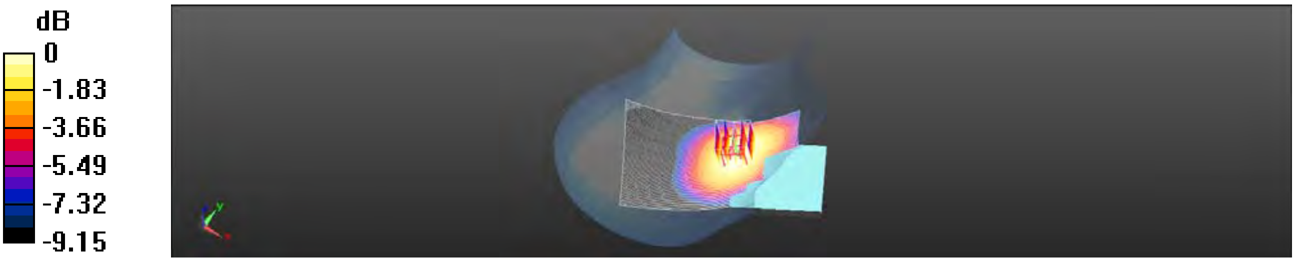
LTE Band 26 (15MHz)_Head_Re Cheek_CH 26865_QPSK_1-74
Communication System: LTE; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 831.5 MHz; σ = 0.926 S/m; ε_r = 40.696; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.2, 10.2, 10.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.239 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.708 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.211 W/kg; SAR(10 g) = 0.164 W/kg
Maximum value of SAR (measured) = 0.238 W/kg



0 dB = 0.238 W/kg = -6.23 dBW/kg

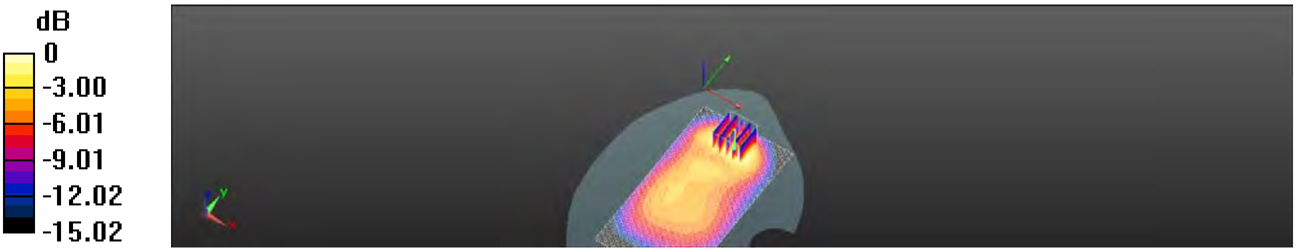
Date: 2017/9/19

LTE Band 26 (15MHz)_Hotspot_Front side_CH 26865_QPSK_1-74_10mm
Communication System: LTE; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 831.5 MHz; σ = 0.994 S/m; ε_r = 55.865; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(10.24, 10.24, 10.24); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.486 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.33 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.662 W/kg
SAR(1 g) = 0.387 W/kg; SAR(10 g) = 0.222 W/kg
Maximum value of SAR (measured) = 0.535 W/kg



0 dB = 0.535 W/kg = -2.72 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/22

LTE Band 30 (10MHz)_Head_Le Cheek_CH 27710_QPSK_1-25

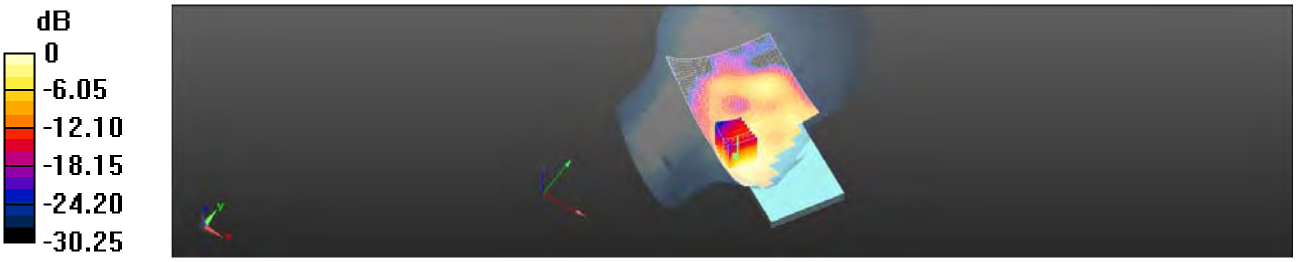
Communication System: LTE; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.726 S/m; ε_r = 38.216; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.17, 8.17, 8.17); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.303 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.925 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.424 W/kg
SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.123 W/kg
Maximum value of SAR (measured) = 0.323 W/kg



0 dB = 0.323 W/kg = -4.91 dBW/kg

Date: 2017/9/23

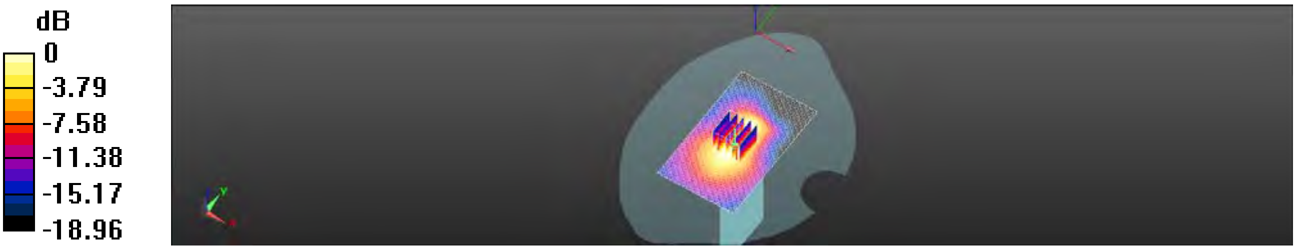
LTE Band 30 (10MHz)_Hotspot_Bottom side_CH 27710_QPSK_1-0_10mm
Communication System: LTE; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2310 MHz; σ = 1.783 S/m; ε_r = 54.66; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.78, 7.78, 7.78); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.999 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.56 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.698 W/kg; SAR(10 g) = 0.375 W/kg
Maximum value of SAR (measured) = 0.998 W/kg



0 dB = 0.998 W/kg = -0.01 dBW/kg

Date: 2017/9/22

LTE Band 38 (20MHz)_Head_Le Cheek_CH 37850_QPSK_1-0

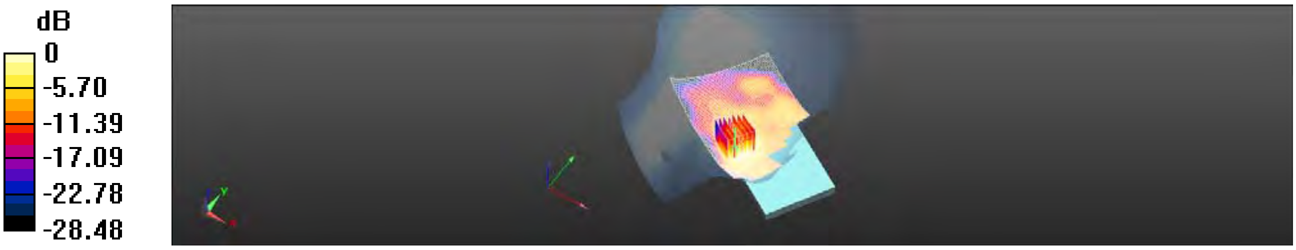
Communication System: LTE; Frequency: 2580 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2580 MHz; σ = 1.999 S/m; ε_r = 37.856; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.58, 7.58, 7.58); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x151x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.140 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.371 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.159 W/kg
SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.050 W/kg
Maximum value of SAR (measured) = 0.123 W/kg



0 dB = 0.123 W/kg = -9.10 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/23

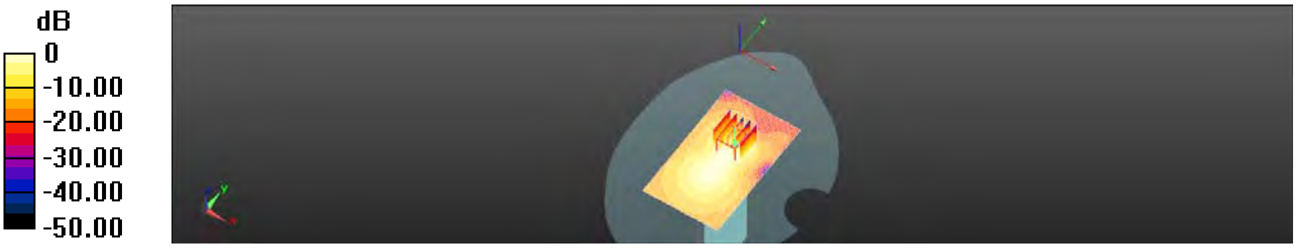
LTE Band 38 (20MHz)_Hotspot_Bottom side_CH 37850_QPSK_1-0_10mm
Communication System: LTE; Frequency: 2580 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2580 MHz; σ = 2.096 S/m; ε_r = 54.461; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.66, 7.66, 7.66); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.516 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.21 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.705 W/kg
SAR(1 g) = 0.315 W/kg; SAR(10 g) = 0.144 W/kg
Maximum value of SAR (measured) = 0.488 W/kg



0 dB = 0.488 W/kg = -3.11 dBW/kg

Date: 2017/9/22

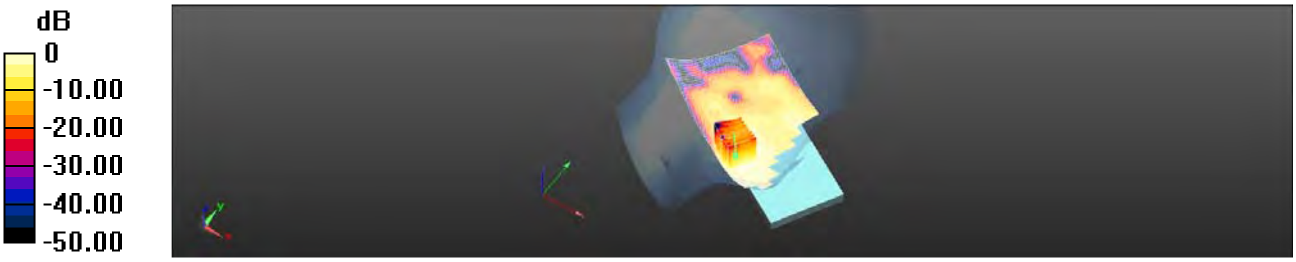
LTE Band 41 (20MHz)_Head_Le Cheek_CH 40185_QPSK_1-0
Communication System: LTE; Frequency: 2549.5 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2549.5 MHz; σ = 1.966 S/m; ε_r = 37.91; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.58, 7.58, 7.58); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.159 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.825 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.060 W/kg
Maximum value of SAR (measured) = 0.164 W/kg



0 dB = 0.164 W/kg = -7.85 dBW/kg

Date: 2017/9/23

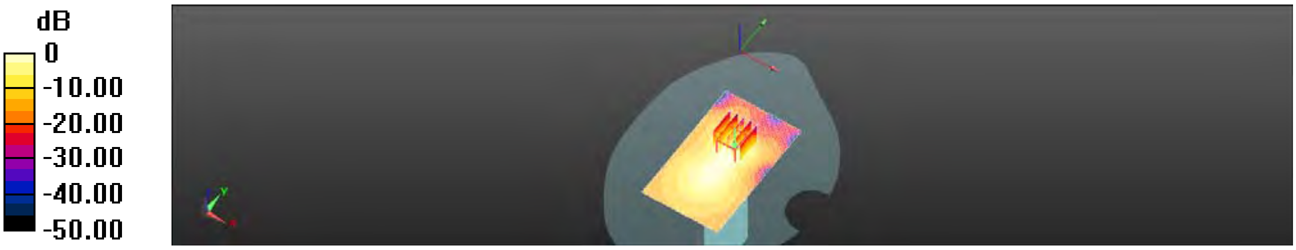
LTE Band 41 (20MHz)_Hotspot_Bottom side_CH 40620_QPSK_1-0_10mm
Communication System: LTE; Frequency: 2593 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2593 MHz; σ = 2.115 S/m; ε_r = 54.46; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.66, 7.66, 7.66); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.638 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.40 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.881 W/kg
SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.179 W/kg
Maximum value of SAR (measured) = 0.602 W/kg



0 dB = 0.602 W/kg = -2.20 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/20

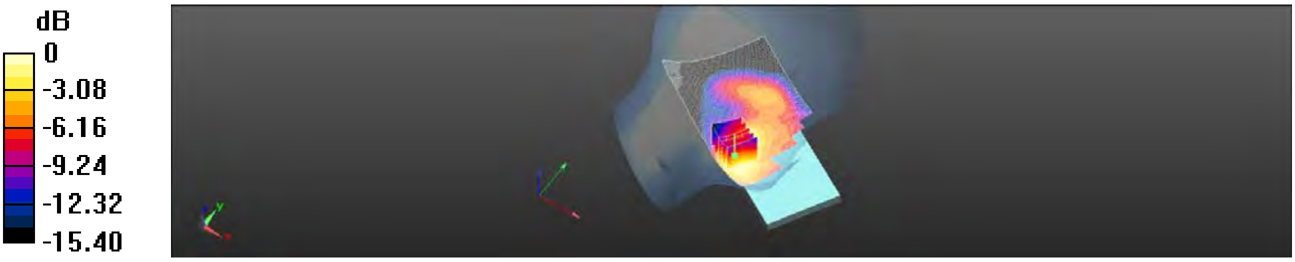
LTE Band 66 (20MHz)_Head_Le Cheek_CH 132322_QPSK_1-0
Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; σ = 1.392 S/m; ε_r = 39.685; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.84, 8.84, 8.84); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (71x131x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 0.305 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.754 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.333 W/kg
SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.156 W/kg
Maximum value of SAR (measured) = 0.287 W/kg



0 dB = 0.287 W/kg = -5.42 dBW/kg

Date: 2017/9/21

LTE Band 66 (20MHz)_Hotspot_Bottom side_CH 132572_QPSK_1-0_10mm

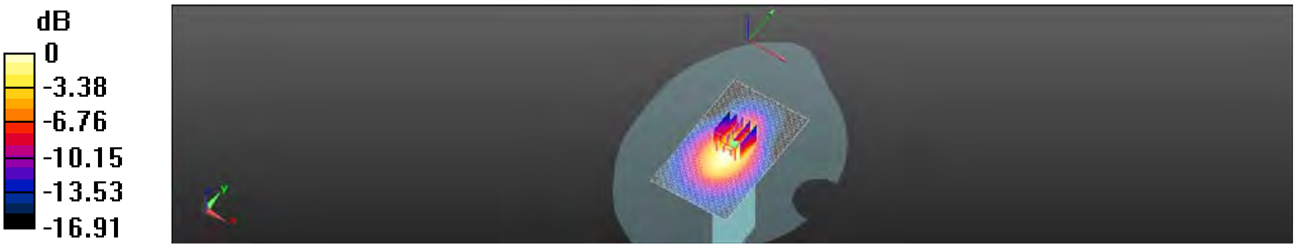
Communication System: LTE; Frequency: 1770 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1770.3 MHz; σ = 1.548 S/m; ε_r = 54.823; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (61x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 1.06 W/kg

Configuration/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.70 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.796 W/kg; SAR(10 g) = 0.483 W/kg
Maximum value of SAR (measured) = 1.03 W/kg



0 dB = 1.03 W/kg = 0.13 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

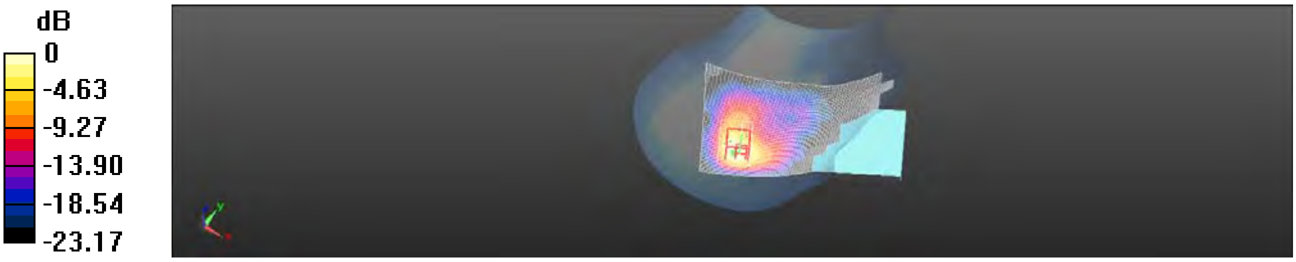
Date: 2017/9/22

WLAN 802.11b_Head_Re Cheek_CH 6_Main
Communication System: WLAN 2.45G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.842 S/m; ε_r = 38.058; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(7.81, 7.81, 7.81); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x161x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.795 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.854 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.395 W/kg; SAR(10 g) = 0.184 W/kg
Maximum value of SAR (measured) = 0.684 W/kg



0 dB = 0.684 W/kg = -1.65 dBW/kg

Date: 2017/9/23

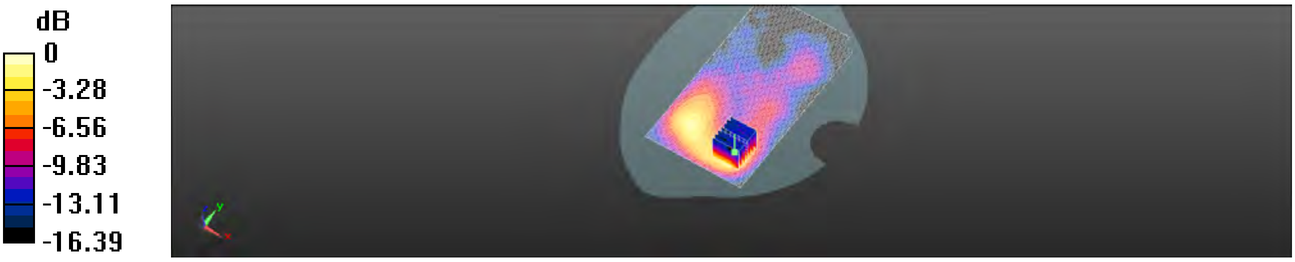
WLAN 802.11b_Hotspot_Front side_CH 6_10mm_Main
Communication System: WLAN 2.45G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.903 S/m; ε_r = 54.618; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.94, 7.94, 7.94); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0942 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.085 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.135 W/kg
SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.032 W/kg
Maximum value of SAR (measured) = 0.0991 W/kg



0 dB = 0.0991 W/kg = -10.04 dBW/kg

Date: 2017/9/24

WLAN 802.11a 5.2G_Head_Re Cheek_CH 36_Main

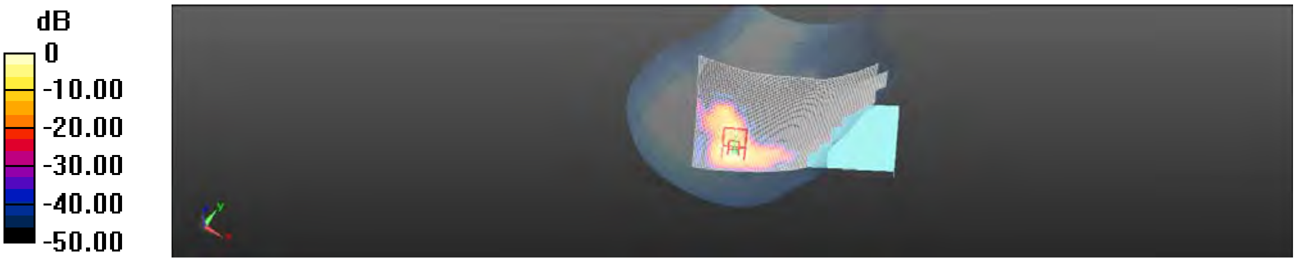
Communication System: WLAN 5G; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 4.682 S/m; ε_r = 36.725; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.2°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.81, 5.81, 5.81); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.31 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 4.612 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 4.74 W/kg
SAR(1 g) = 0.715 W/kg; SAR(10 g) = 0.151 W/kg
Maximum value of SAR (measured) = 1.80 W/kg



0 dB = 1.80 W/kg = 2.55 dBW/kg

Date: 2017/9/25

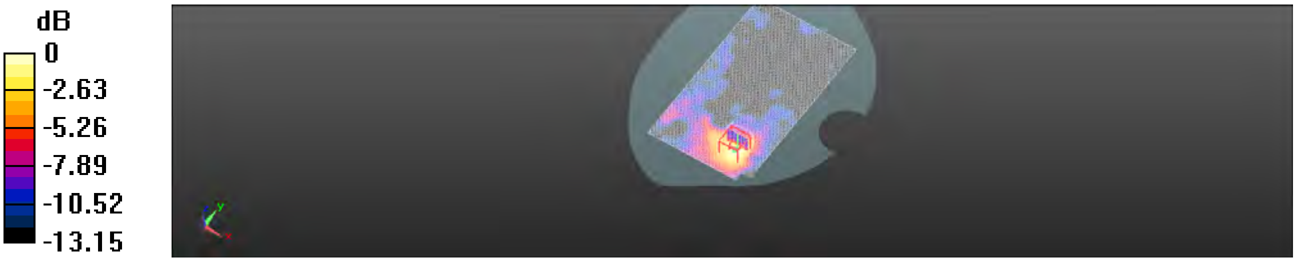
WLAN 802.11a 5.2G_Hotspot_Front side_CH 36_10mm_Main
Communication System: WLAN 5G; Frequency: 5180 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5180 MHz; σ = 5.152 S/m; ε_r = 48.394; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.2, 5.2, 5.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0829 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.049 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.185 W/kg
SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.025 W/kg
Maximum value of SAR (measured) = 0.0891 W/kg



0 dB = 0.0891 W/kg = -10.50 dBW/kg

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/24

WLAN 802.11a 5.3G_Head_Re Cheek_CH 52_Main

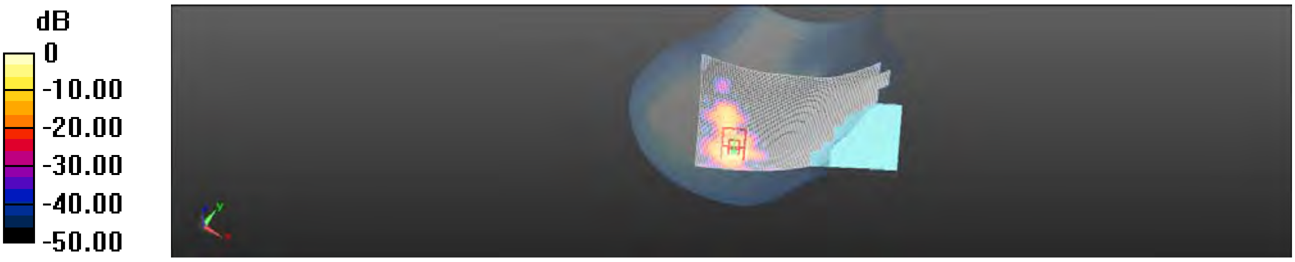
Communication System: WLAN 5G; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 4.766 S/m; ε_r = 36.639; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.2°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.56, 5.56, 5.56); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.81 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.399 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 8.62 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.229 W/kg
Maximum value of SAR (measured) = 3.52 W/kg



0 dB = 3.52 W/kg = 5.46 dBW/kg

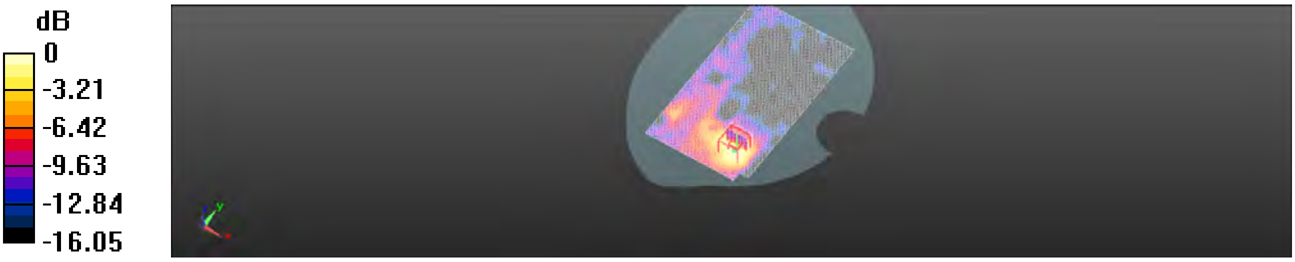
Date: 2017/9/25

WLAN 802.11a 5.3G_Body-worn_Front side_CH 52_10mm_Main
Communication System: WLAN 5G; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 5.247 S/m; ε_r = 48.282; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(5.1, 5.1, 5.1); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.104 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.7740 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.235 W/kg
SAR(1 g) = 0.067 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.116 W/kg



0 dB = 0.116 W/kg = -9.37 dBW/kg

Date: 2017/9/25

WLAN 802.11a 5.3G_product specific 10g-SAR_Front side_CH 52_0mm_Main

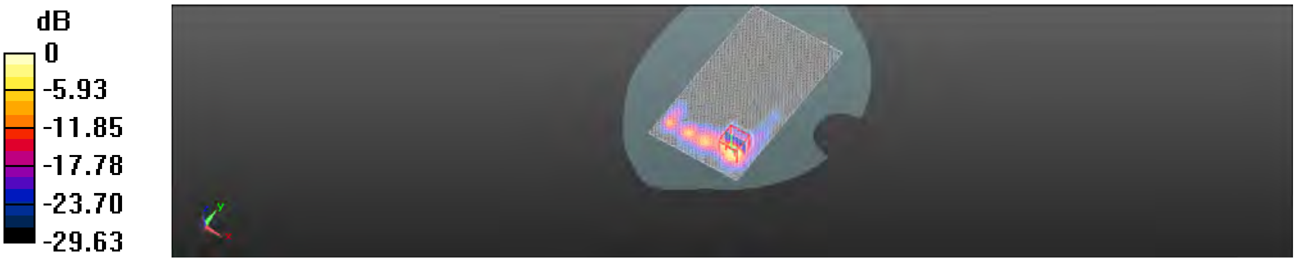
Communication System: WLAN 5G; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 5.247 S/m; ε_r = 48.282; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.1, 5.1, 5.1); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (101x181x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 3.86 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.5990 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 14.3 W/kg
SAR(1 g) = 1.67 W/kg; SAR(10 g) = 0.316 W/kg
Maximum value of SAR (measured) = 4.71 W/kg



0 dB = 4.71 W/kg = 6.73 dBW/kg

Date: 2017/9/26

WLAN 802.11a 5.6G_Head_Re Cheek_CH 100_Main

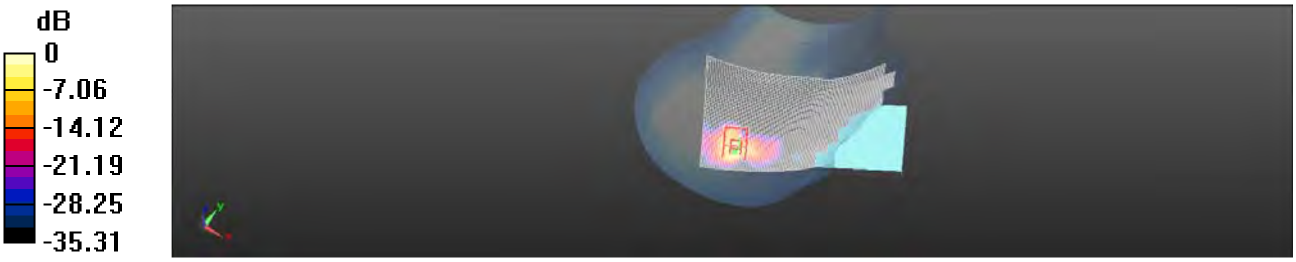
Communication System: WLAN 5G; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.033 S/m; ε_r = 36.609; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.3°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.98, 4.98, 4.98); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.89 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.799 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 7.29 W/kg
SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.225 W/kg
Maximum value of SAR (measured) = 2.40 W/kg



0 dB = 2.40 W/kg = 3.80 dBW/kg

Date: 2017/9/27

WLAN 802.11a 5.6G_Body-worn_Front side_CH 100_10mm_Main

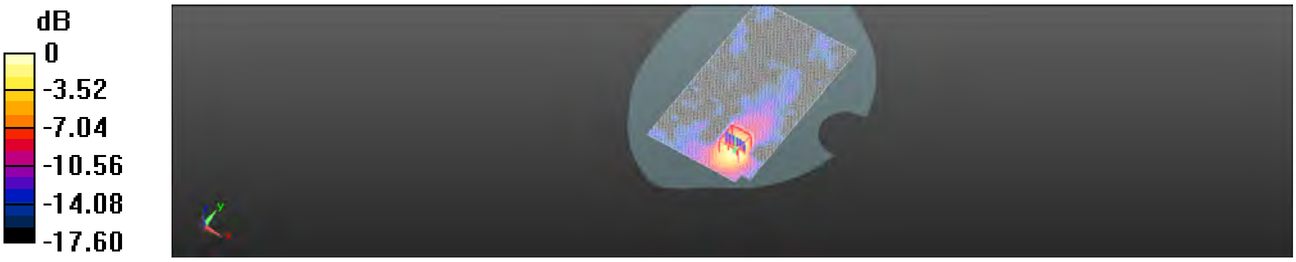
Communication System: WLAN 5G; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.433 S/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.27, 4.27, 4.27); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.229 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.275 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.510 W/kg
SAR(1 g) = 0.126 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.246 W/kg



0 dB = 0.246 W/kg = -6.09 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/27

WLAN 802.11a 5.6G_product specific 10g-SAR_Front side_CH 100_0mm_Main

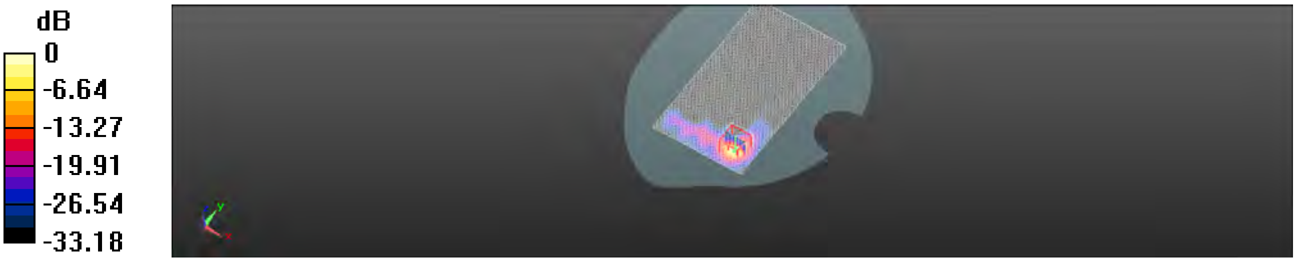
Communication System: WLAN 5G; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.433 S/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.27, 4.27, 4.27); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (101x181x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 13.9 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.4950 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 39.3 W/kg
SAR(1 g) = 5.44 W/kg; SAR(10 g) = 0.943 W/kg
Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.7 W/kg = 11.67 dBW/kg

Date: 2017/9/26

WLAN 802.11a 5.8G_Head_Re Cheek_CH 149_Main

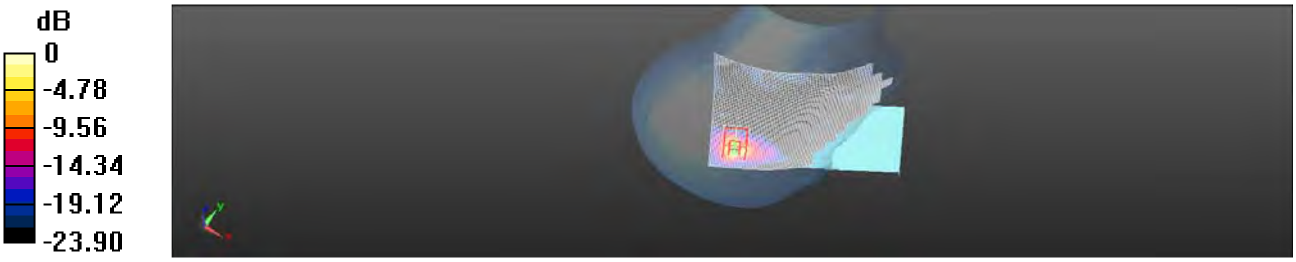
Communication System: WLAN 5G; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5745 MHz; σ = 5.19 S/m; ε_r = 36.427; ρ = 1000 kg/m^3
Phantom section: Right Section
Ambient temperature: 22.3°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.17, 5.17, 5.17); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.16 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.636 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 3.68 W/kg
SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 1.45 W/kg



0 dB = 1.45 W/kg = 1.61 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/27

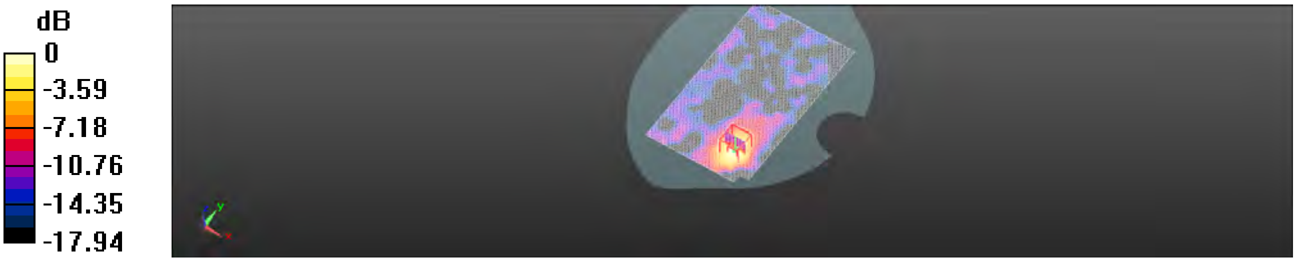
WLAN 802.11a 5.8G_Hotspot_Front side_CH 157_10mm_Main
Communication System: WLAN 5G; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.758 S/m; ε_r = 47.078; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.48, 4.48, 4.48); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.154 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.007 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.331 W/kg
SAR(1 g) = 0.086 W/kg; SAR(10 g) = 0.034 W/kg
Maximum value of SAR (measured) = 0.162 W/kg



0 dB = 0.162 W/kg = -7.92 dBW/kg

Date: 2017/9/22

WLAN 802.11b_Head_Le Cheek_CH 6_Aux

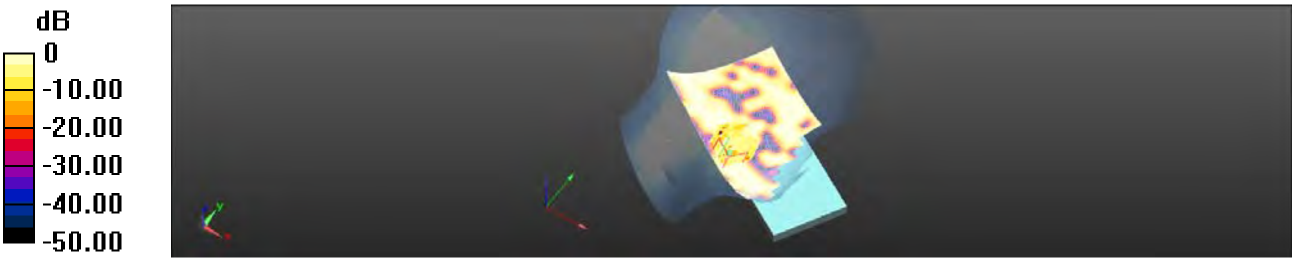
Communication System: WLAN 2.45G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.842 S/m; ε_r = 38.058; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.81, 7.81, 7.81); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x161x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.00875 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.2870 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.00680 W/kg
SAR(1 g) = 0.00356 W/kg; SAR(10 g) = 0.00195 W/kg
Maximum value of SAR (measured) = 0.00621 W/kg



0 dB = 0.00621 W/kg = -22.07 dBW/kg

Date: 2017/9/23

WLAN 802.11b_Hotspot_Front side_CH 6_10mm_Aux

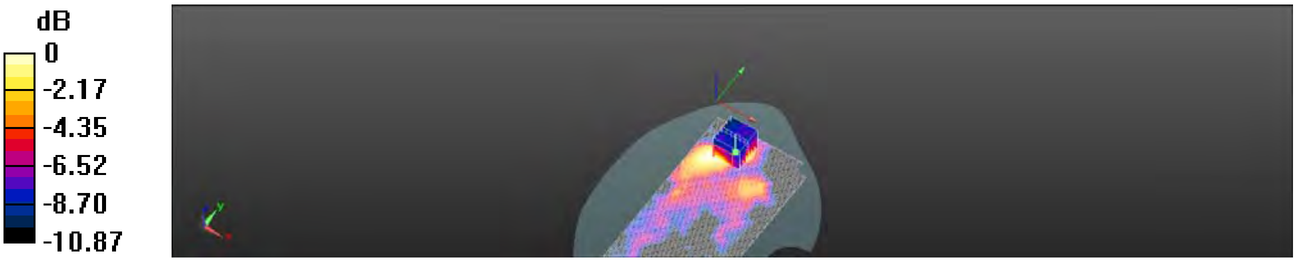
Communication System: WLAN 2.45G; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.903 S/m; ε_r = 54.618; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.94, 7.94, 7.94); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (91x171x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 0.0251 W/kg

Configuration/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.386 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.0350 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.0747 W/kg



0 dB = 0.0747 W/kg = -16.07 dBW/kg

Date: 2017/9/24

WLAN 802.11a 5.2G_Head_Le Cheek_CH 40_Aux

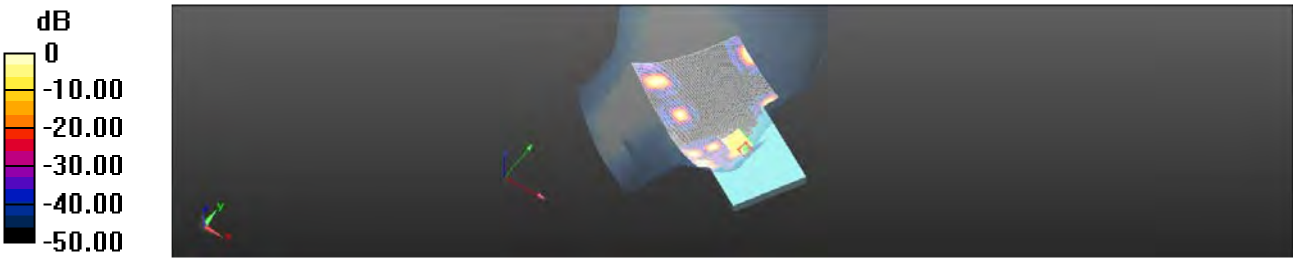
Communication System: WLAN 5G; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.703 S/m; ε_r = 36.72; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.81, 5.81, 5.81); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0284 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.7170 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0740 W/kg
SAR(1 g) = 0.00359 W/kg; SAR(10 g) = 0.00188 W/kg
Maximum value of SAR (measured) = 0.0081 W/kg



0 dB = 0.081 W/kg = -16.06 dBW/kg

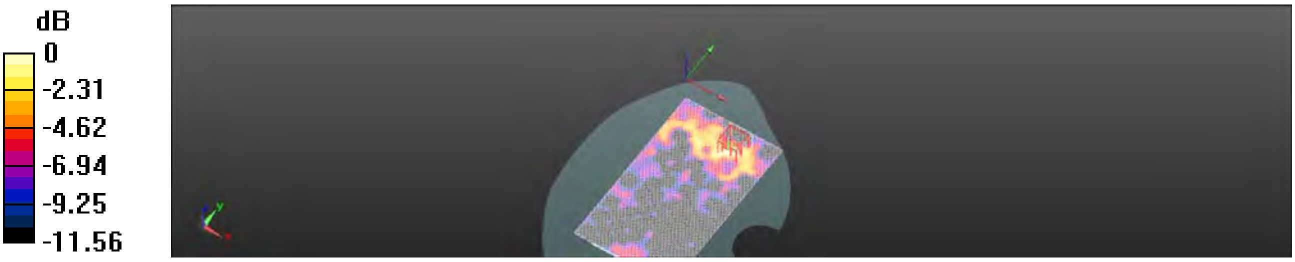
Date: 2017/9/25

WLAN 802.11a 5.2G_Hotspot_Front side_CH 40_10mm_Aux
Communication System: WLAN 5G; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.18 S/m; ε_r = 48.372; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(5.2, 5.2, 5.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0337 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.8540 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.0690 W/kg
SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.0297 W/kg



0 dB = 0.0297 W/kg = -15.27 dBW/kg

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/24

WLAN 802.11a 5.3G_Head_Le Cheek_CH 60_Aux

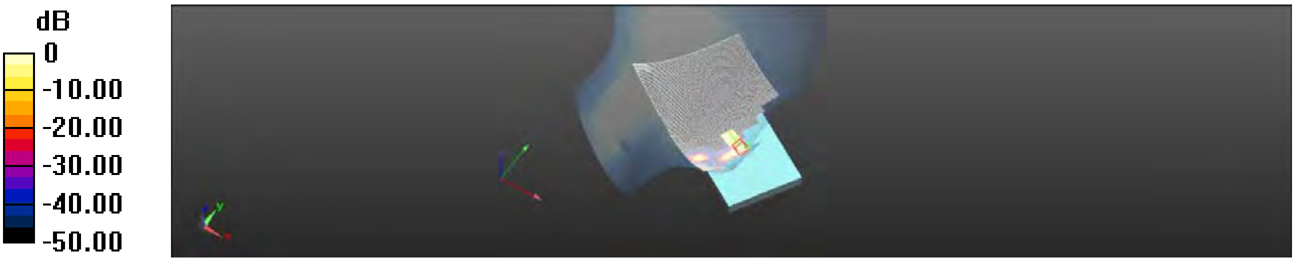
Communication System: WLAN 5G; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 4.805 S/m; ε_r = 36.585; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.2°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.56, 5.56, 5.56); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0208 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.5378 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0520 W/kg
SAR(1 g) = 0.00939 W/kg; SAR(10 g) = 0.00469 W/kg
Maximum value of SAR (measured) = 0.0166 W/kg



0 dB = 0.0166 W/kg = -17.80 dBW/kg

Date: 2017/9/25

WLAN 802.11a 5.3G_Body-worn_Front side_CH 60_10mm_Aux

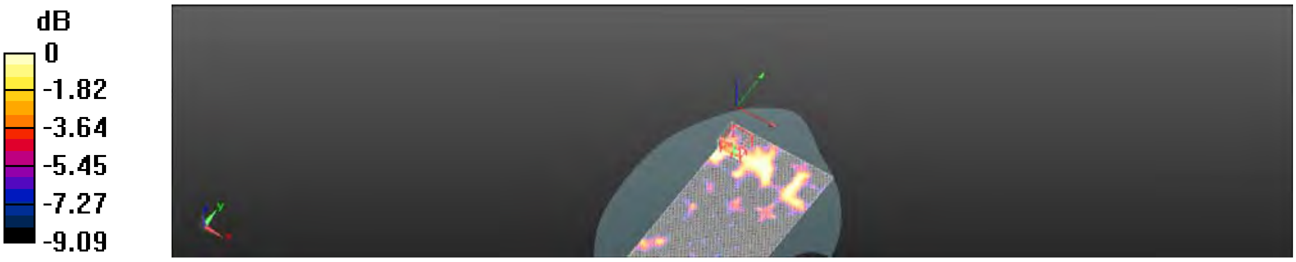
Communication System: WLAN 5G; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.291 S/m; ε_r = 48.263; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.1, 5.1, 5.1); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0264 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.5110 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.0270 W/kg
SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.00874 W/kg
Maximum value of SAR (measured) = 0.0218 W/kg



0 dB = 0.0218 W/kg = -16.62 dBW/kg

Date: 2017/9/25

WLAN 802.11a 5.3G_product specific 10g-SAR_Front side_CH 60_0mm_Aux

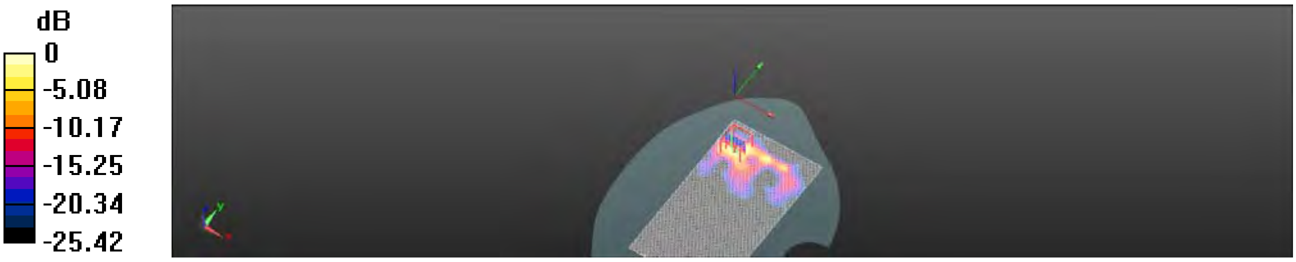
Communication System: WLAN 5G; Frequency: 5260 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 5.247 S/m; ε_r = 48.282; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.1, 5.1, 5.1); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (101x181x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.1930 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.01 W/kg
SAR(1 g) = 0.590 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 1.57 W/kg



0 dB = 1.57 W/kg = 1.96 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

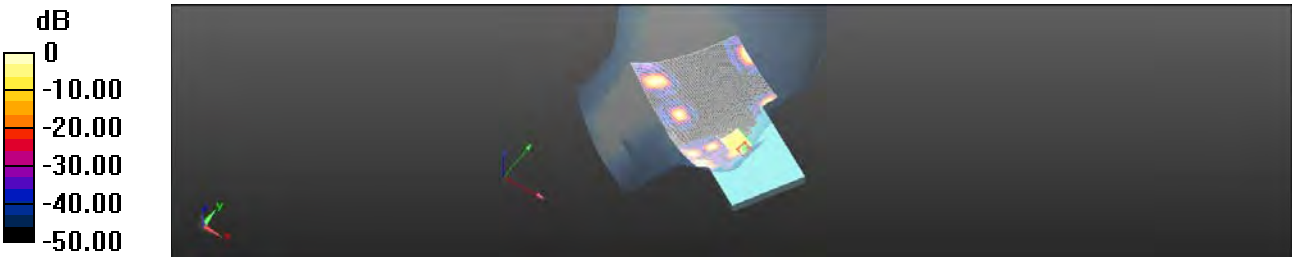
Date: 2017/9/26

WLAN 802.11a 5.6G_Head_Le Cheek_CH 100_Aux
Communication System: WLAN 5G; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.033 S/m; ε_r = 36.609; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.3°C; Liquid temperature: 21.5°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(4.98, 4.98, 4.98); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0329 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.7620 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0860 W/kg
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.051 W/kg
Maximum value of SAR (measured) = 0.0244 W/kg



0 dB = 0.0244 W/kg = -16.13 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/27

WLAN 802.11a 5.6G_Body-worn_Front side_CH 100_10mm_Aux

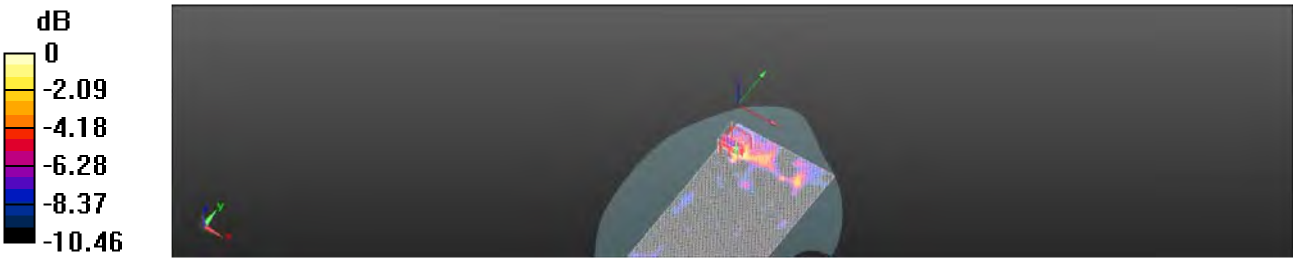
Communication System: WLAN 5G; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.433 S/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.27, 4.27, 4.27); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0534 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.6190 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.0730 W/kg
SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.014 W/kg
Maximum value of SAR (measured) = 0.0494 W/kg



0 dB = 0.0494 W/kg = -13.06 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/27

WLAN 802.11a 5.6G_product specific 10g-SAR_Front side_CH 100_0mm_Aux

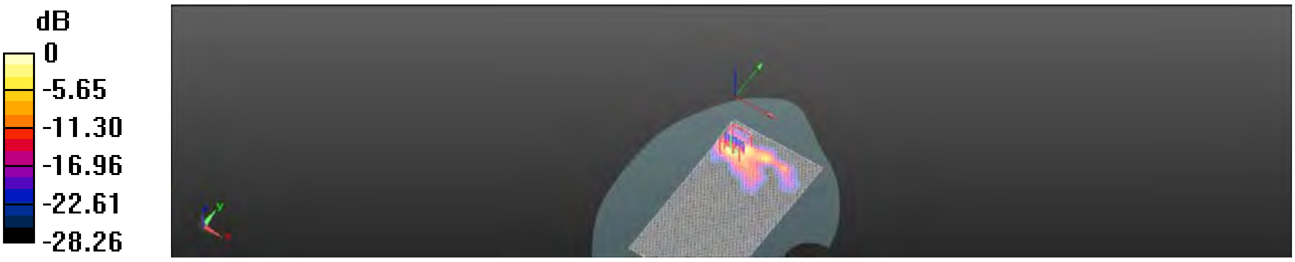
Communication System: WLAN 5G; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.433 S/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.27, 4.27, 4.27); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (101x181x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 1.20 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.6961 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 5.12 W/kg
SAR(1 g) = 0.670 W/kg; SAR(10 g) = 0.152 W/kg
Maximum value of SAR (measured) = 1.97 W/kg



0 dB = 1.97 W/kg = 2.95 dBW/kg

Date: 2017/9/26

WLAN 802.11a 5.8G_Head_Le Cheek_CH 157_Aux

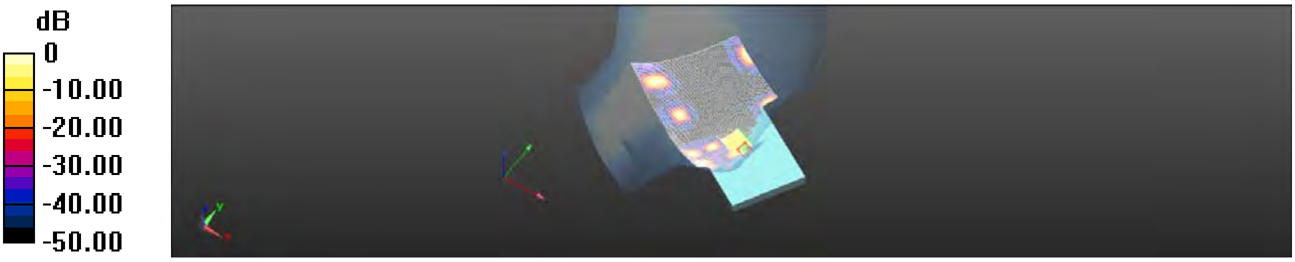
Communication System: WLAN 5G; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5785 MHz; σ = 5.23 S/m; ε_r = 36.38; ρ = 1000 kg/m^3
Phantom section: Left Section
Ambient temperature: 22.3°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.17, 5.17, 5.17); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0329 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.7410 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.0860 W/kg
SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.0245 W/kg



0 dB = 0.0245 W/kg = -16.11 dBW/kg

Date: 2017/9/27

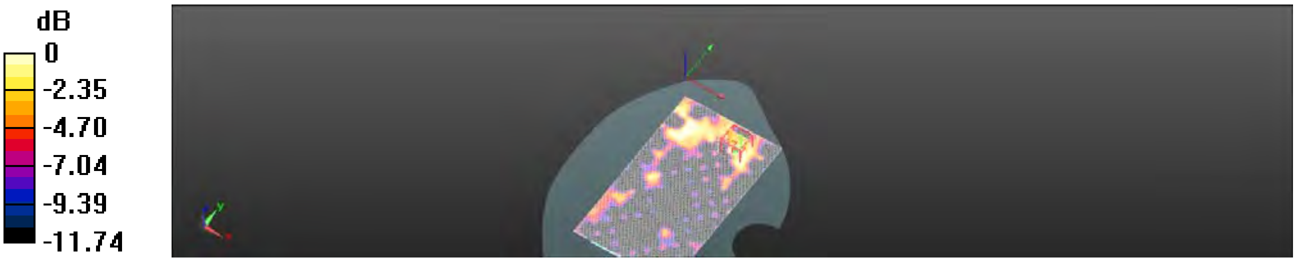
WLAN 802.11a 5.8G_Hotspot_Front side_CH 149_10mm_Aux
Communication System: WLAN 5G; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5745 MHz; σ = 5.713 S/m; ε_r = 47.111; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.48, 4.48, 4.48); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Area Scan (111x191x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 0.0303 W/kg

Configuration/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.9090 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0530 W/kg
SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.0235 W/kg



0 dB = 0.0235 W/kg = -16.29 dBW/kg

6. SAR System Performance Verification

Date: 2017/9/18

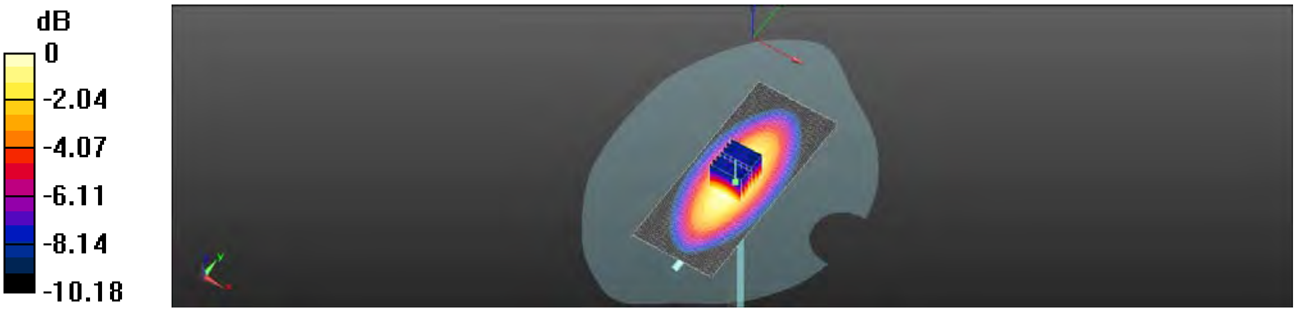
Dipole 750 MHz_SN:1015_Head
Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.917 S/m; ε_r = 41.124; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(9.63, 9.63, 9.63); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x121x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 2.66 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.82 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.18 W/kg
SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.39 W/kg
Maximum value of SAR (measured) = 2.73 W/kg



0 dB = 2.73 W/kg = 4.35 dBW/kg

Date: 2017/9/19

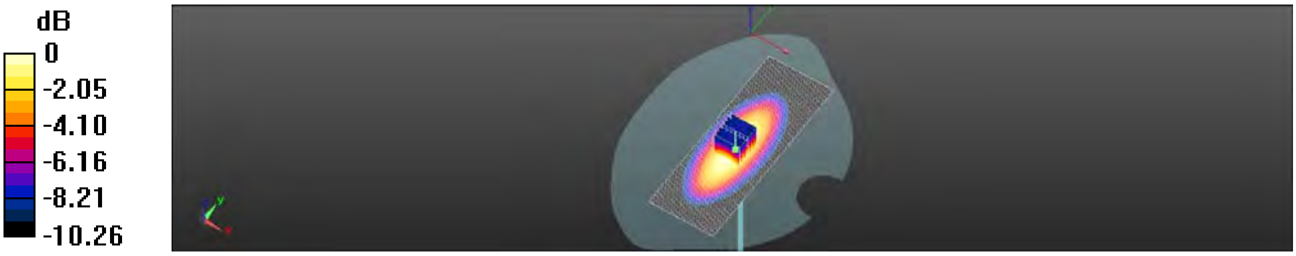
Dipole 750 MHz_SN:1015_Body
Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.987 S/m; ε_r = 56.198; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(9.59, 9.59, 9.59); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x141x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 2.72 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.68 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.25 W/kg
SAR(1 g) = 2.26 W/kg; SAR(10 g) = 1.48 W/kg
Maximum value of SAR (measured) = 2.77 W/kg



0 dB = 2.77 W/kg = 4.43 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/18

Dipole 835 MHz_SN:4d063_Head

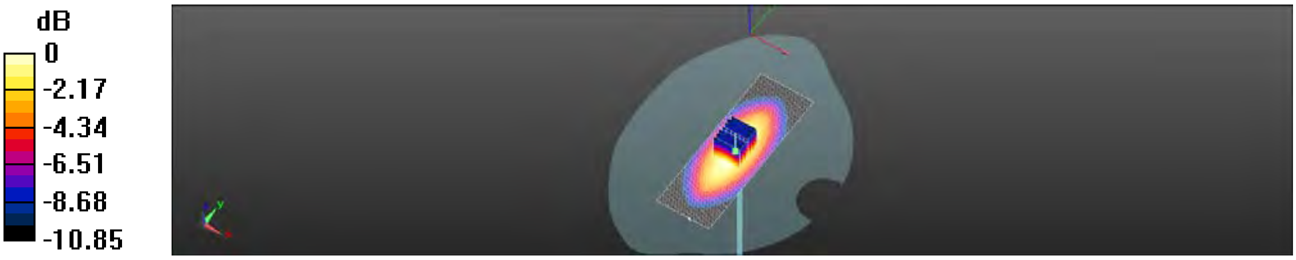
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.928 S/m; ε_r = 40.691; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.2, 10.2, 10.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (41x121x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 3.12 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.75 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 3.68 W/kg
SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 3.14 W/kg



0 dB = 3.14 W/kg = 4.96 dBW/kg

Date: 2017/9/19

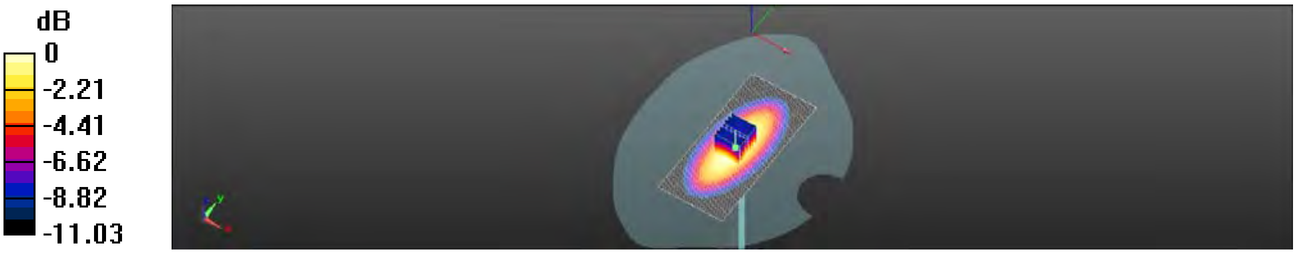
Dipole 835 MHz_SN:4d063_Body
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.996 S/m; ε_r = 55.863; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.5°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(10.24, 10.24, 10.24); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x111x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 3.20 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.19 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.82 W/kg
SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.61 W/kg
Maximum value of SAR (measured) = 3.24 W/kg



0 dB = 3.24 W/kg = 5.10 dBW/kg

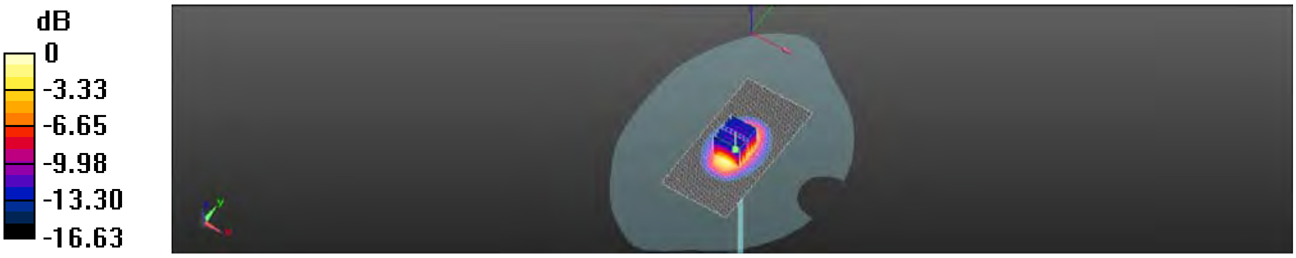
Date: 2017/9/20

Dipole 1750 MHz_SN:1008_Head
Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.395 S/m; ε_r = 39.668; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:
- Probe: EX3DV4 - SN7466; ConvF(8.84, 8.84, 8.84); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 13.1 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.56 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 9.23 W/kg; SAR(10 g) = 4.88 W/kg
Maximum value of SAR (measured) = 13.0 W/kg



0 dB = 13.0 W/kg = 11.12 dBW/kg

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/21

Dipole 1750 MHz_SN:1008_Body

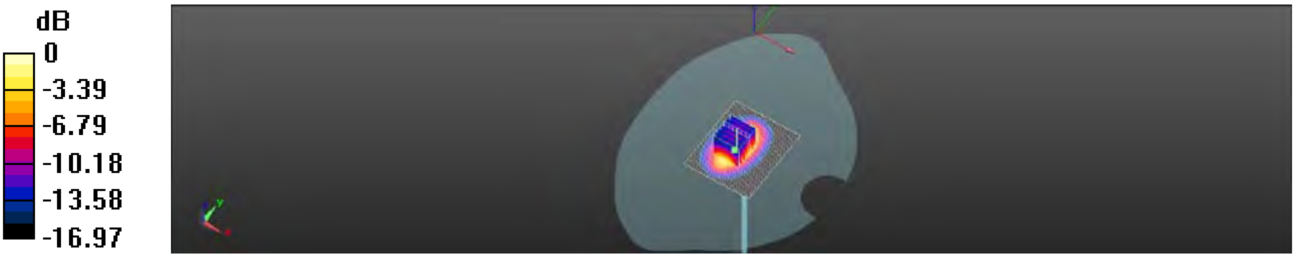
Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1750 MHz; σ = 1.535 S/m; ε_r = 54.892; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x61x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 13.5 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.20 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 16.8 W/kg
SAR(1 g) = 9.36 W/kg; SAR(10 g) = 5.01 W/kg
Maximum value of SAR (measured) = 13.4 W/kg



0 dB = 13.4 W/kg = 11.27 dBW/kg

Date: 2017/9/20

Dipole 1900 MHz_SN:5d173_Head

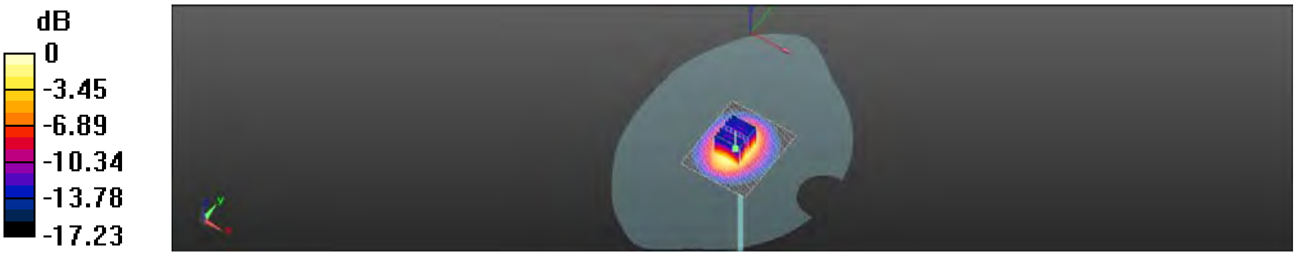
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.424 S/m; ε_r = 39.596; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.52, 8.52, 8.52); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x61x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 13.5 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.2 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 16.7 W/kg
SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.29 W/kg
Maximum value of SAR (measured) = 13.2 W/kg



0 dB = 13.2 W/kg = 11.22 dBW/kg

Date: 2017/9/21

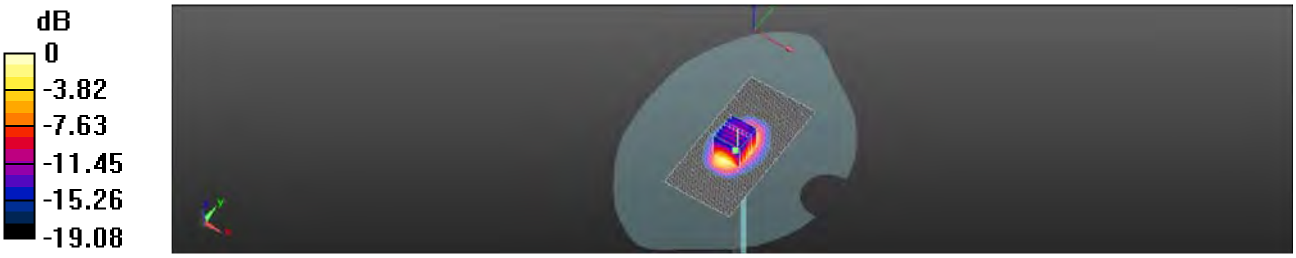
Dipole 1900 MHz_SN:5d173_Body
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.57 S/m; ε_r = 54.727; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(8.14, 8.14, 8.14); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x101x1): Interpolated grid: dx=15 mm, dy=15 mm
Maximum value of SAR (interpolated) = 15.8 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.10 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 9.94 W/kg; SAR(10 g) = 5.29 W/kg
Maximum value of SAR (measured) = 14.0 W/kg



0 dB = 14.0 W/kg = 11.47 dBW/kg

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/22

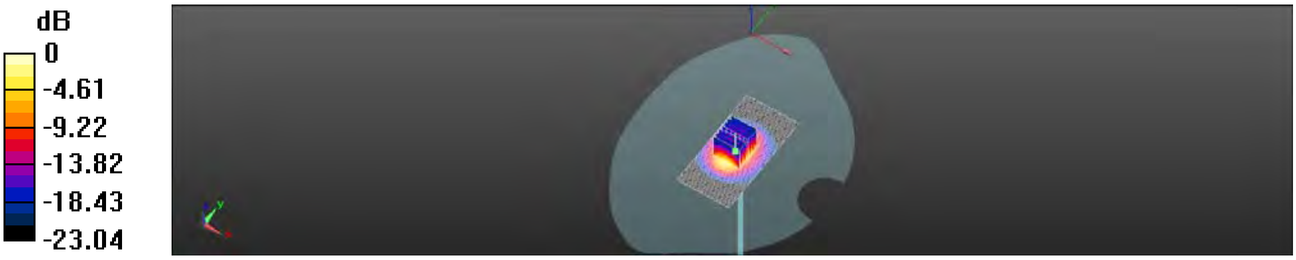
Dipole 2300 MHz_SN:1023_Head
Communication System: CW; Frequency: 2300 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.717 S/m; ε_r = 38.275; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(8.17, 8.17, 8.17); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x101x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 20.7 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 112.2 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 28.2 W/kg
SAR(1 g) = 12.2 W/kg; SAR(10 g) = 5.96 W/kg
Maximum value of SAR (measured) = 20.5 W/kg



0 dB = 20.5 W/kg = 13.11 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/23

Dipole 2300 MHz_SN:1023_Body

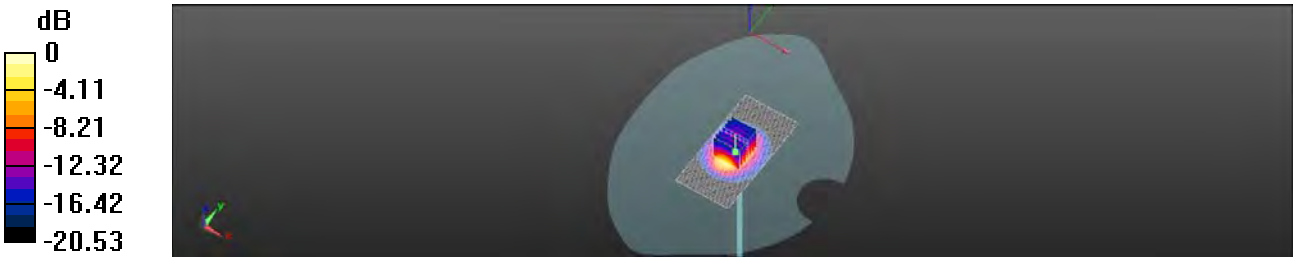
Communication System: CW; Frequency: 2300 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2300 MHz; σ = 1.774 S/m; ε_r = 54.665; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN3831; ConvF(7.78, 7.78, 7.78); Calibrated: 2017/1/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x101x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 17.9 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.63 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 23.4 W/kg
SAR(1 g) = 11.8 W/kg; SAR(10 g) = 5.84 W/kg
Maximum value of SAR (measured) = 17.7 W/kg



0 dB = 17.7 W/kg = 12.47 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/22

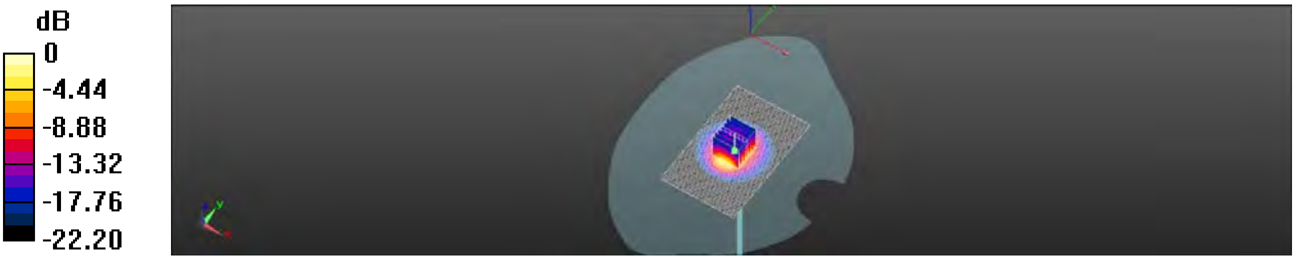
Dipole 2450 MHz_SN:727_Head
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.853 S/m; ε_r = 38.036; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.81, 7.81, 7.81); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (71x111x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 21.6 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.6 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.21 W/kg
Maximum value of SAR (measured) = 20.6 W/kg



0 dB = 20.6 W/kg = 13.14 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/23

Dipole 2450 MHz_SN:727_Body

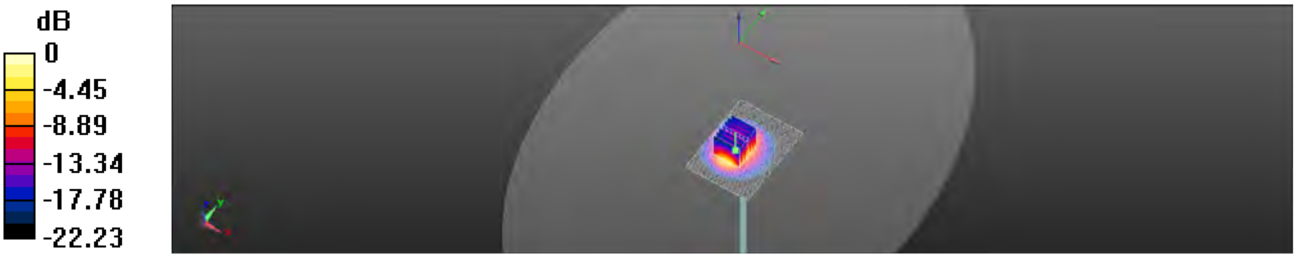
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.914 S/m; ε_r = 54.616; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.94, 7.94, 7.94); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 22.1 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.7 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 28.7 W/kg
SAR(1 g) = 12.8 W/kg; SAR(10 g) = 6.09 W/kg
Maximum value of SAR (measured) = 21.0 W/kg



0 dB = 21.0 W/kg = 13.22 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/22

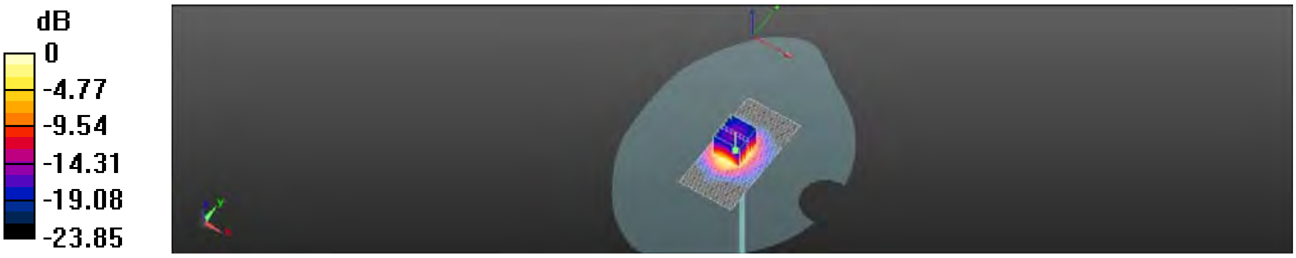
Dipole 2600 MHz_SN:1005_Head
Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.023 S/m; ε_r = 37.823; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.58, 7.58, 7.58); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x101x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 22.8 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.8 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 32.8 W/kg
SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.35 W/kg
Maximum value of SAR (measured) = 23.3 W/kg



0 dB = 23.3 W/kg = 13.67 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/23

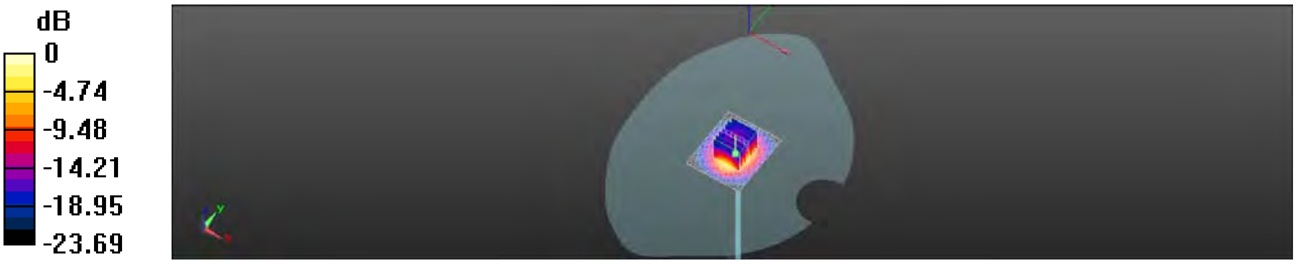
Dipole 2600 MHz_SN:1005_Body
Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.123 S/m; ε_r = 54.456; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.4°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(7.66, 7.66, 7.66); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=250mW/Area Scan (51x61x1): Interpolated grid: dx=12 mm, dy=12 mm
Maximum value of SAR (interpolated) = 22.8 W/kg

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.72 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 30.5 W/kg
SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.24 W/kg
Maximum value of SAR (measured) = 22.0 W/kg



0 dB = 22.0 W/kg = 13.43 dBW/kg

Date: 2017/9/24

Dipole 5200 MHz_SN:1023_Head

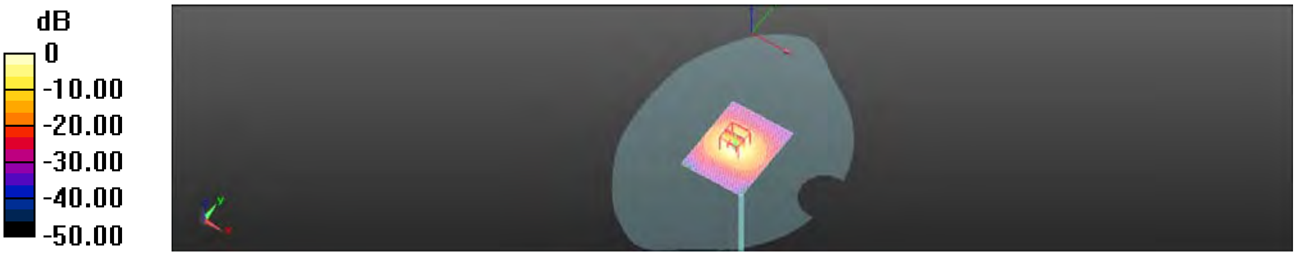
Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.703 S/m; ε_r = 36.72; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.81, 5.81, 5.81); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 16.6 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 58.83 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 28.0 W/kg
SAR(1 g) = 7.52 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 16.0 W/kg



0 dB = 16.0 W/kg = 12.03 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/25

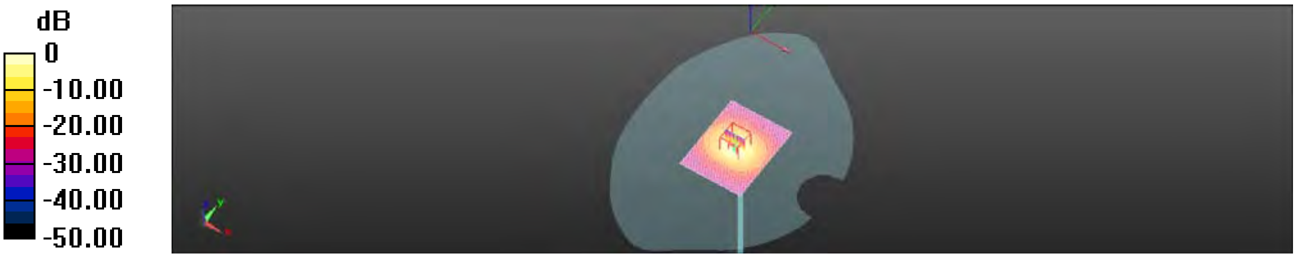
Dipole 5200 MHz_SN:1023_Body
Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.18 S/m; ε_r = 48.372; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.2, 5.2, 5.2); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.5 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x7) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 60.40 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 34.9 W/kg
SAR(1 g) = 7.43 W/kg; SAR(10 g) = 2.01 W/kg
Maximum value of SAR (measured) = 16.7 W/kg



0 dB = 16.7 W/kg = 12.23 dBW/kg

Date: 2017/9/24

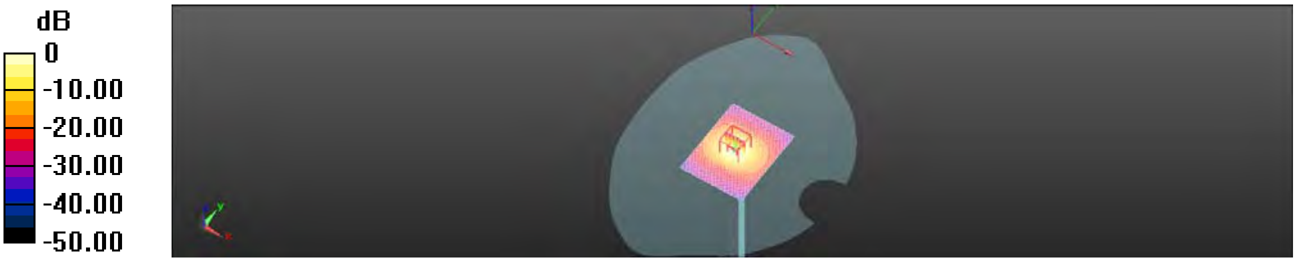
Dipole 5300 MHz_SN:1023_Head
Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 4.805 S/m; ε_r = 36.585; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.2°C; Liquid temperature: 21.3°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.56, 5.56, 5.56); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.9 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 59.55 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 29.7 W/kg
SAR(1 g) = 8.28 W/kg; SAR(10 g) = 2.36 W/kg
Maximum value of SAR (measured) = 16.8 W/kg



0 dB = 16.8 W/kg = 12.24 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/25

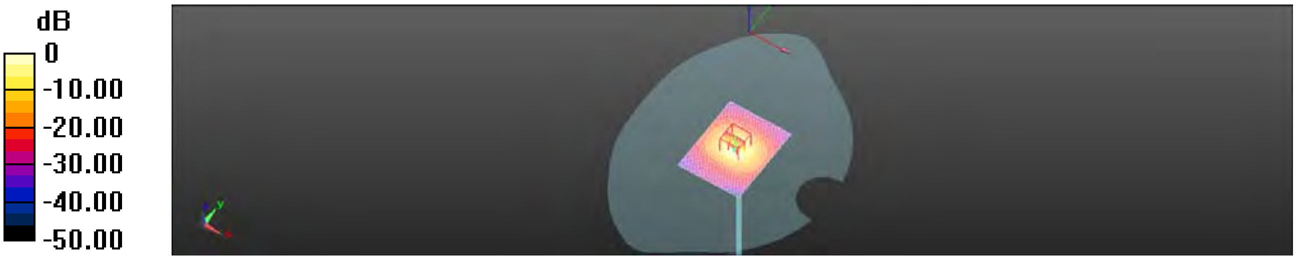
Dipole 5300 MHz_SN:1023_Body
Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.291 S/m; ε_r = 48.263; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.4°C; Liquid temperature: 21.6°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.1, 5.1, 5.1); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 15.7 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 56.45 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 27.8 W/kg
SAR(1 g) = 7.68 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 15.3 W/kg



0 dB = 15.3 W/kg = 11.86 dBW/kg

Date: 2017/9/26

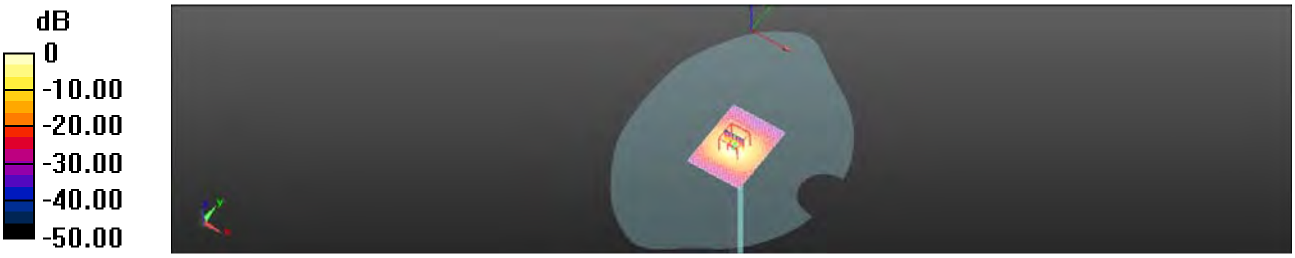
Dipole 5600 MHz_SN:1023_Head
Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.04 S/m; ε_r = 36.602; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.3°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.98, 4.98, 4.98); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (61x81x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 28.5 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 77.74 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 58.6 W/kg
SAR(1 g) = 8.23 W/kg; SAR(10 g) = 2.38 W/kg
Maximum value of SAR (measured) = 28.2 W/kg



0 dB = 28.2 W/kg = 14.51 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Date: 2017/9/27

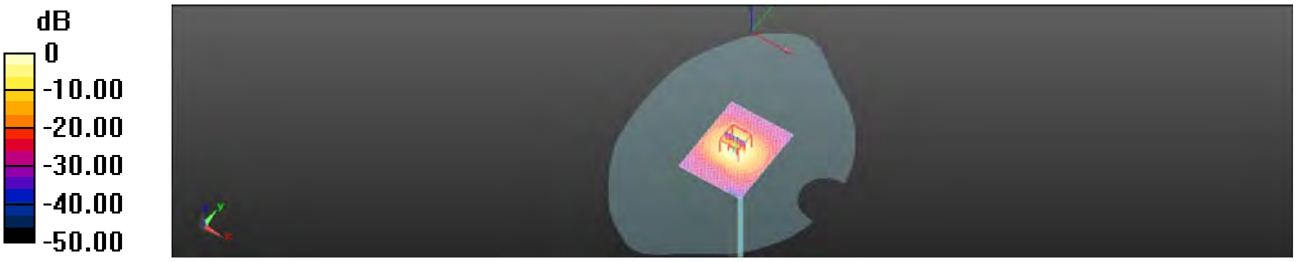
Dipole 5600 MHz_SN:1023_Body
Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.548 S/m; ε_r = 47.306; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.27, 4.27, 4.27); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 18.6 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x7) (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 57.64 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 43.0 W/kg
SAR(1 g) = 8.08 W/kg; SAR(10 g) = 2.31 W/kg
Maximum value of SAR (measured) = 17.9 W/kg



0 dB = 17.9 W/kg = 12.53 dBW/kg

Date: 2017/9/26

Dipole 5800 MHz_SN:1023_Head

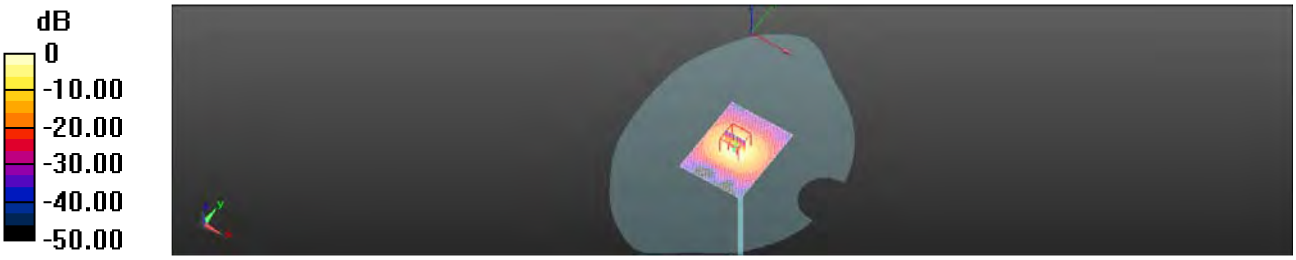
Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.242 S/m; ε_r = 36.348; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.3°C; Liquid temperature: 21.5°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(5.17, 5.17, 5.17); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (71x91x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.9 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 59.48 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 37.2 W/kg
SAR(1 g) = 7.79 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 17.3 W/kg



0 dB = 17.3 W/kg = 12.38 dBW/kg

Date: 2017/9/27

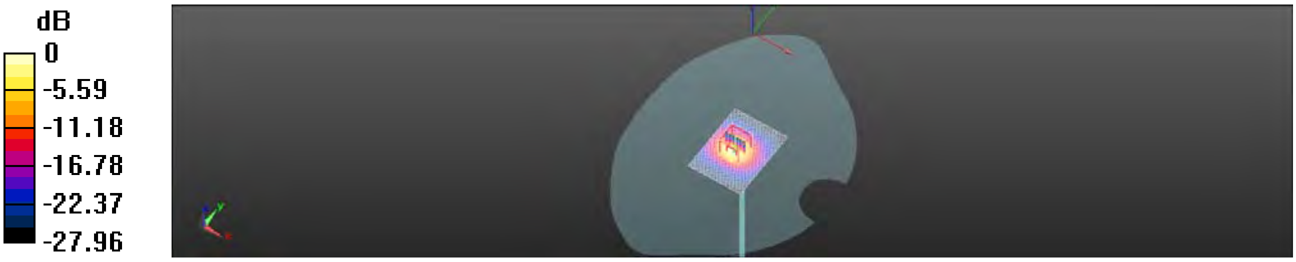
Dipole 5800 MHz_SN:1023_Body
Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.77 S/m; ε_r = 47.034; ρ = 1000 kg/m^3
Phantom section: Flat Section
Ambient temperature: 22.1°C; Liquid temperature: 21.8°C

DASY5 Configuration:

- Probe: EX3DV4 - SN7466; ConvF(4.48, 4.48, 4.48); Calibrated: 2017/7/5;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2017/3/22
- Phantom: Head
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Configuration/Pin=100mW/Area Scan (61x81x1): Interpolated grid: dx=10 mm, dy=10 mm
Maximum value of SAR (interpolated) = 17.3 W/kg

Configuration/Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 57.08 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 33.6 W/kg
SAR(1 g) = 7.64 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 18.1 W/kg



0 dB = 18.1 W/kg = 12.58 dBW/kg

7. DAE & Probe Calibration Certificate

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS - TW (Auden)**

Certificate No: **DAE4-547_Mar17**

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BM - SN: 547

Calibration procedure(s): QA CAL-06.v29
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: March 22, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	09-Sep-16 (No:19065)	Sep-17
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Auto DAE Calibration Unit	SE UWS 053 AA 1001	05-Jan-17 (in house check)	In house check: Jan-18
Calibrator Box V2.1	SE UMS 006 AA 1002	05-Jan-17 (in house check)	In house check: Jan-18

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Technician	
Approved by:	Fin Bomholt	Deputy Technical Manager	

Issued: March 22, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: DAE4-547_Mar17 Page 1 of 5

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1μV , full range = -100...+300 mV

Low Range: 1LSB = 61nV , full range = -1.......+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	403.189 ± 0.02% (k=2)	403.093 ± 0.02% (k=2)	402.739 ± 0.02% (k=2)
Low Range	3.95348 ± 1.50% (k=2)	3.90456 ± 1.50% (k=2)	3.96243 ± 1.50% (k=2)

Connector Angle

Connector Angle to be used in DASY system	91.0 ° ± 1 °

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS0108)

1. DC Voltage Linearity

High Range		Reading (µV)	Difference (µV)	Error (%)
Channel X	+ Input	200031.23	0.59	0.00
Channel X	+ Input	20005.44	2.04	0.01
Channel X	- Input	-20000.97	4.91	-0.02
Channel Y	+ Input	200029.80	-1.03	-0.00
Channel Y	+ Input	20000.30	-3.03	-0.02
Channel Y	- Input	-20007.73	-1.72	0.01
Channel Z	+ Input	200030.21	-0.96	-0.00
Channel Z	+ Input	20003.13	-0.21	-0.00
Channel Z	- Input	-20005.14	0.81	-0.00

Low Range		Reading (µV)	Difference (µV)	Error (%)
Channel X	+ Input	2000.02	-0.08	-0.00
Channel X	+ Input	200.18	0.36	0.18
Channel X	- Input	-200.16	0.00	-0.00
Channel Y	+ Input	2000.10	0.06	0.00
Channel Y	+ Input	199.43	-0.40	-0.20
Channel Y	- Input	-200.77	-0.70	0.35
Channel Z	+ Input	2000.19	0.28	0.01
Channel Z	+ Input	198.82	-1.00	-0.50
Channel Z	- Input	-201.46	-1.37	0.68

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X	200	-2.09	-5.00
	- 200	6.80	4.50
Channel Y	200	-0.67	-1.21
	- 200	0.37	-0.41
Channel Z	200	5.07	4.93
	- 200	-7.67	-8.12

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200	-	2.65	-2.08
Channel Y	200	10.56	-	3.60
Channel Z	200	4.55	7.85	-

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16364	15364
Channel Y	16476	16801
Channel Z	16077	16468

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.53	-1.14	0.26	0.31
Channel Y	-1.03	-2.43	-0.21	0.32
Channel Z	-1.56	-2.31	-0.62	0.35

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **SGS-TW (Auden)**

Certificate No: **EX3-3831_Jan17**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3831
Calibration procedure(s)	QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date	January 23, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: S5277 (20x)	05-Apr-16 (No. 217-02293)	Apr-17
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 24, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS) Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010

d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z:* A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Certificate No: EX3-3831_Jan11 Page 3 of 11

Probe EX3DV4

SN:3831

Manufactured: September 6, 2011
Calibrated: January 23, 2017

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

EX3DV4– SN:3831 January 25, 2017

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.43	0.41	0.42	± 10.1 %
DCP (mV)[B]	101.7	102.0	100.6	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	149.3	±2.2 %
		Y	0.0	0.0	1.0		138.4	
		Z	0.0	0.0	1.0		142.6	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	9.63	9.63	9.63	0.57	0.80	± 12.0 %
835	41.5	0.90	9.15	9.15	9.15	0.53	0.81	± 12.0 %
900	41.5	0.97	9.08	9.08	9.08	0.42	0.86	± 12.0 %
1450	40.5	1.20	8.41	8.41	8.41	0.35	0.80	± 12.0 %
1750	40.1	1.37	8.17	8.17	8.17	0.32	0.80	± 12.0 %
1900	40.0	1.40	7.86	7.86	7.86	0.39	0.80	± 12.0 %
2000	40.0	1.40	7.80	7.80	7.80	0.35	0.80	± 12.0 %
2300	39.5	1.67	7.59	7.59	7.59	0.26	1.02	± 12.0 %
2450	39.2	1.80	7.21	7.21	7.21	0.40	0.80	± 12.0 %
2600	39.0	1.96	6.99	6.99	6.99	0.38	0.80	± 12.0 %
3500	37.9	2.91	6.55	6.55	6.55	0.30	1.20	± 13.1 %
5200	36.0	4.66	5.02	5.02	5.02	0.30	1.80	± 13.1 %
5300	35.9	4.76	4.70	4.70	4.70	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.51	4.51	4.51	0.40	1.80	± 13.1 %
5900	35.3	5.27	4.46	4.46	4.46	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.59	9.59	9.59	0.46	0.80	± 12.0 %
835	55.2	0.97	9.25	9.25	9.25	0.48	0.80	± 12.0 %
900	55.0	1.05	9.15	9.15	9.15	0.35	0.80	± 12.0 %
1750	53.4	1.49	7.78	7.78	7.78	0.36	0.80	± 12.0 %
1900	53.3	1.52	7.53	7.53	7.53	0.38	0.80	± 12.0 %
2000	53.3	1.52	7.66	7.66	7.66	0.32	0.80	± 12.0 %
2300	52.9	1.81	7.32	7.32	7.32	0.29	1.00	± 12.0 %
2450	52.7	1.95	7.30	7.30	7.30	0.33	0.80	± 12.0 %
2600	52.5	2.16	7.05	7.05	7.05	0.30	0.80	± 12.0 %
5200	49.0	5.30	4.47	4.47	4.47	0.40	1.90	± 13.1 %
5300	48.9	5.42	4.21	4.21	4.21	0.45	1.90	± 13.1 %
5600	48.5	5.77	3.67	3.67	3.67	0.50	1.90	± 13.1 %
5800	48.2	6.00	3.87	3.87	3.87	0.50	1.90	± 13.1 %

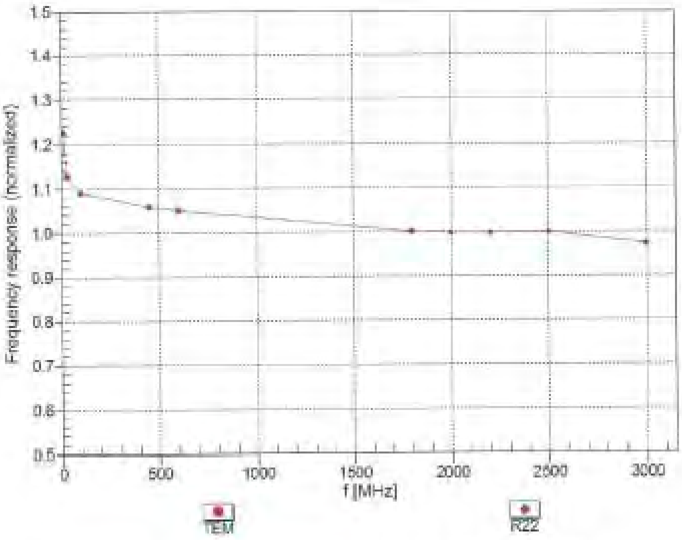
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

EX3DV4– SN:3831 January 23, 2017

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



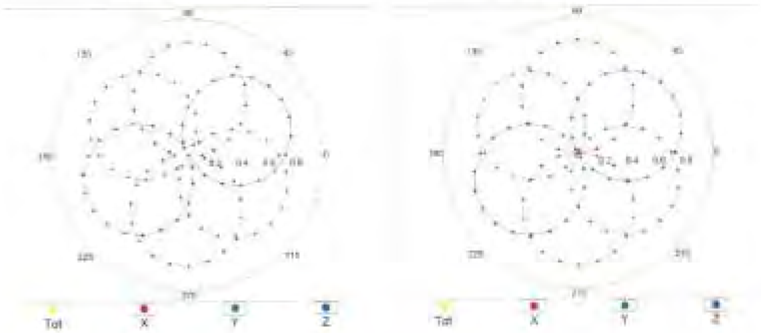
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

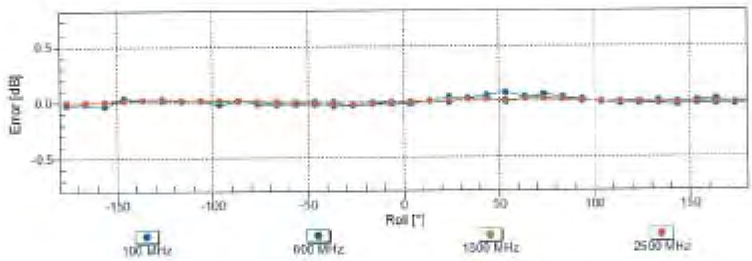
SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

EX3DV4– SN:3831 January 23, 2017

Receiving Pattern (ϕ), $\vartheta = 0°$

f=600 MHz,TEM f=1800 MHz,R22





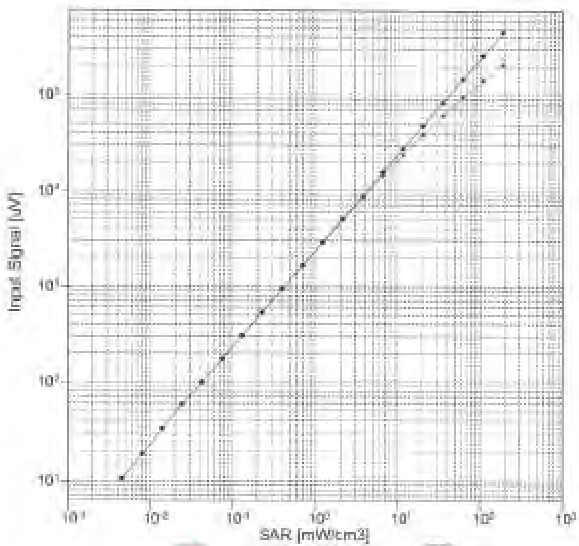
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

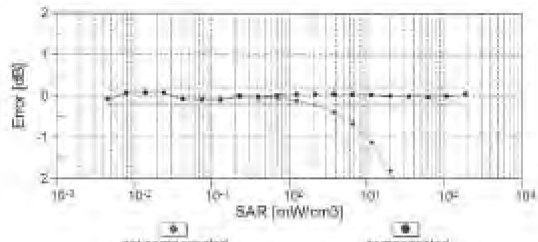
SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

EX3DV4– SN:3831 January 23, 2017

Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)

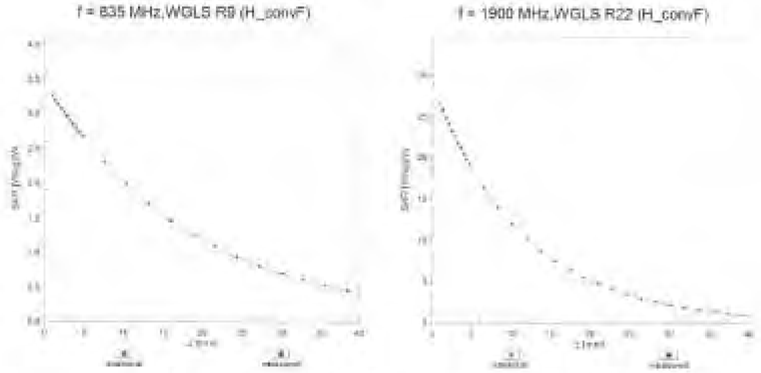




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

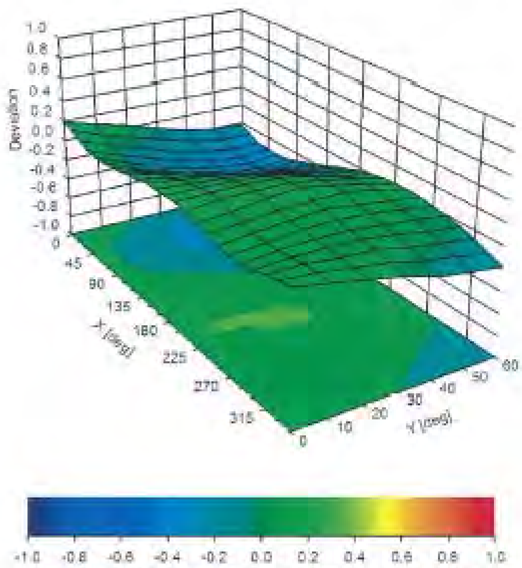
SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3831

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-16.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client: SGS-TW (Auden)

Certificate No: EX3-7466_Jul17

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:7466

Calibration procedure(s): QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: July 4, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	31-Dec-16 (No. ES3-3013_Dec16)	Dec-17
DAE4	SN: 660	7-Dec-16 (No. DAE4-660_Dec16)	Dec-17
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 6, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: EX3-7466_Jul17 Page 1 of 11

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
Accreditation No.: **SCS 0108**
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, " "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of *NORMx,y,z* does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Probe EX3DV4

SN:7466

Manufactured: October 25, 2016
Calibrated: July 4, 2017

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.46	0.40	0.63	± 10.1 %
DCP (mV)[B]	96.7	100.3	93.7	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB$\sqrt{\mu V}$	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	145.9	±3.0 %
		Y	0.0	0.0	1.0		148.6	
		Z	0.0	0.0	1.0		130.0	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
835	41.5	0.90	10.20	10.20	10.20	0.60	0.64	± 12.0 %
900	41.5	0.97	9.95	9.95	9.95	0.42	0.94	± 12.0 %
1750	40.1	1.37	8.84	8.84	8.84	0.34	0.80	± 12.0 %
1900	40.0	1.40	8.52	8.52	8.52	0.35	0.80	± 12.0 %
2000	40.0	1.40	8.47	8.47	8.47	0.35	0.80	± 12.0 %
2450	39.2	1.80	7.81	7.81	7.81	0.35	0.99	± 12.0 %
2600	39.0	1.96	7.58	7.58	7.58	0.37	0.95	± 12.0 %
5200	36.0	4.66	5.81	5.81	5.81	0.35	1.80	± 13.1 %
5300	35.9	4.76	5.56	5.56	5.56	0.35	1.80	± 13.1 %
5600	35.5	5.07	4.98	4.98	4.98	0.40	1.80	± 13.1 %
5800	35.3	5.27	5.17	5.17	5.17	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

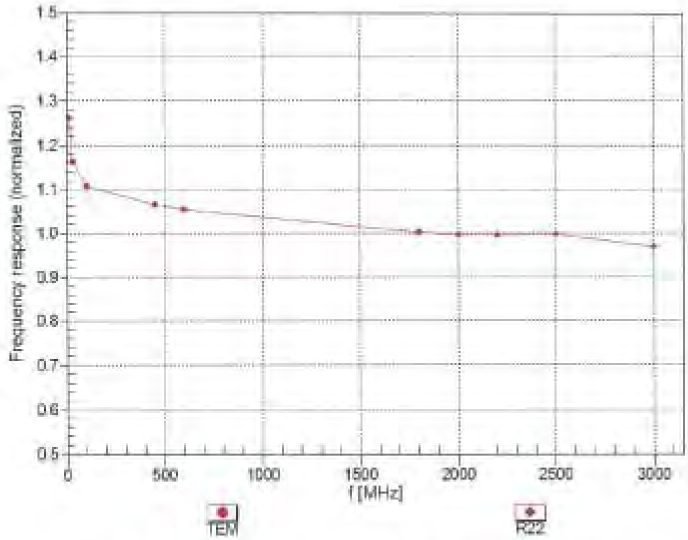
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
835	55.2	0.97	10.24	10.24	10.24	0.39	0.96	± 12.0 %
900	55.0	1.05	10.06	10.06	10.06	0.34	1.01	± 12.0 %
1750	53.4	1.49	8.52	8.52	8.52	0.39	0.87	± 12.0 %
1900	53.3	1.52	8.14	8.14	8.14	0.34	0.91	± 12.0 %
2000	53.3	1.52	8.30	8.30	8.30	0.33	0.94	± 12.0 %
2450	52.7	1.95	7.94	7.94	7.94	0.28	1.10	± 12.0 %
2600	52.5	2.16	7.66	7.66	7.66	0.27	1.15	± 12.0 %
5200	49.0	5.30	5.20	5.20	5.20	0.40	1.90	± 13.1 %
5300	48.9	5.42	5.10	5.10	5.10	0.40	1.90	± 13.1 %
5600	48.5	5.77	4.27	4.27	4.27	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.48	4.48	4.48	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

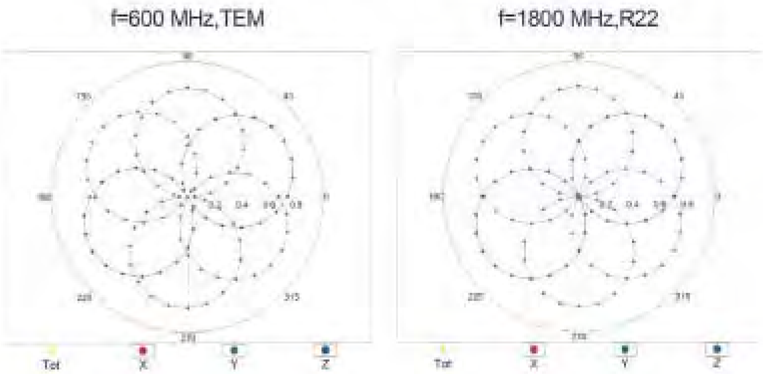
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

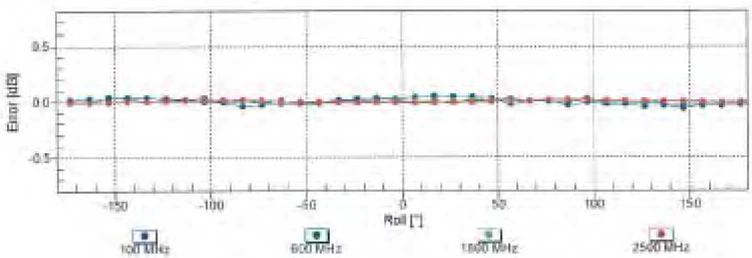


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Receiving Pattern (ϕ), ϑ = 0°



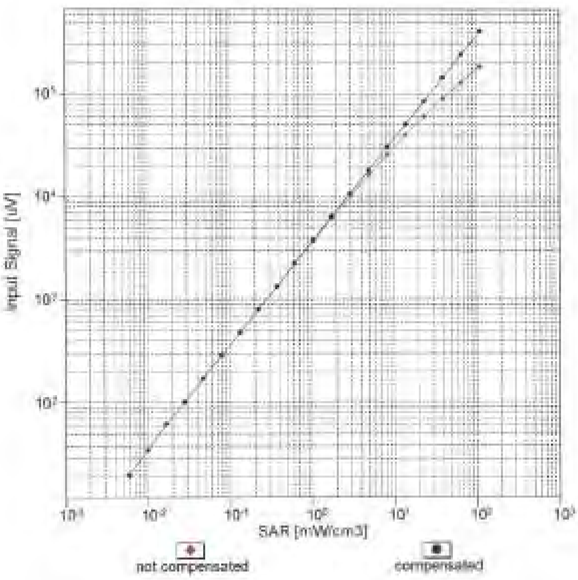


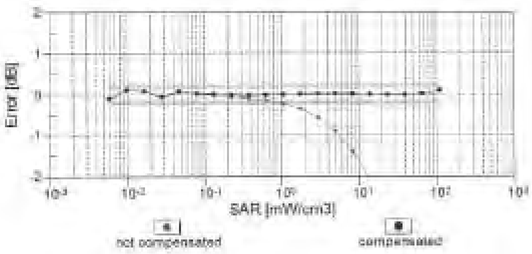
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Dynamic Range f(SAR_{head})

(TEM cell , f_{eval}= 1900 MHz)

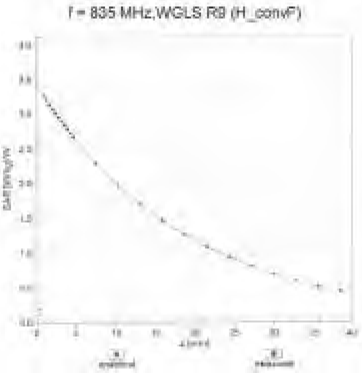


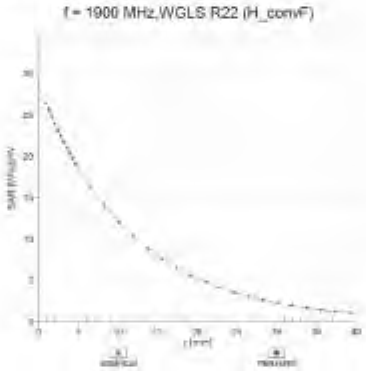


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

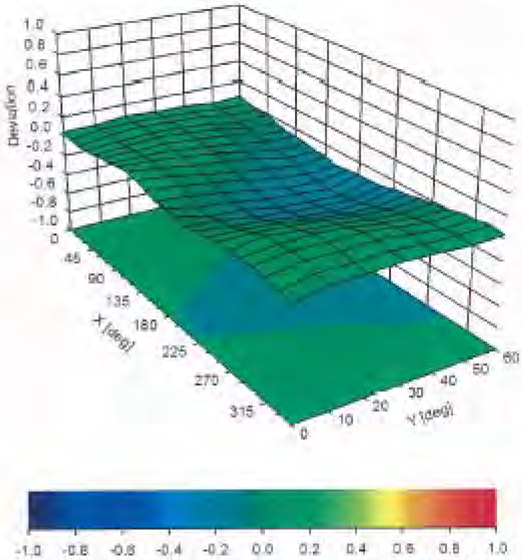
Conversion Factor Assessment





Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7466

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-3.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

8. Uncertainty Budget

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.55%	N	1	1	1	1	6.55%	6.55%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	3.03%	N	1	1	0.64	0.43	1.94%	1.30%	M
Liquid Conductivity (mea.)	3.83%	N	1	1	0.6	0.49	2.30%	1.88%	M
Combined standard uncertainty		RSS					12.10%	11.93%	
Expant uncertainty (95% confidence							24.19%	23.86%	

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司
No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Uncertainty evaluation template for DUT SAR test (0.3-3G)

A	c	D	e		f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty	Probability	Div	Div Value	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system									
Probe calibration	6.00%	N	1	1	1	1	6.00%	6.00%	∞
Isotropy , Axial	3.50%	R	√3	1.732	1	1	2.02%	2.02%	∞
Isotropy, Hemispherical	9.60%	R	√3	1.732	1	1	5.54%	5.54%	∞
Modulation Response	2.40%	R	√3	1.732	1	1	1.40%	1.40%	∞
Boundary Effect	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	√3	1.732	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	√3	1.732	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	√3	1.732	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)	1.75%	R	√3	1.732	1	1	1.01%	1.01%	∞
RF ambient condition - noise	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	√3	1.732	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	√3	1.732	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom	2.90%	R	√3	1.732	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	√3	1.732	1	1	0.58%	0.58%	∞
Test Sample related									
Test sample positioning	2.90%	N	1	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	√3	1.732	1	1	2.89%	2.89%	∞
Phantom and Setup									
Phantom Uncertainty	4.00%	R	√3	1.732	1	1	2.31%	2.31%	∞
Liquid permittivity (mea.)	3.71%	N	1	1	0.64	0.43	2.37%	1.60%	M
Liquid Conductivity (mea.)	3.55%	N	1	1	0.6	0.49	2.13%	1.74%	M
Combined standard uncertainty		RSS					11.85%	11.65%	
Expant uncertainty (95% confidence							23.71%	23.30%	

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

9. Phantom Description

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Certificate of Conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 C
Series No	TP-1150 and higher
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zürich Switzerland

Tests

The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series items (called samples) or are tested at each item.

Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	6mm +/- 0.2mm at ERP	First article, All items
Material parameters	Dielectric parameters for required frequencies	300 MHz – 6 GHz: Relative permittivity < 5, Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility.	DEGMBE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid.	< 1% typical < 0.8% if filled with 155mm of HSL900 and without DUT below	Prototypes, Sample testing

Standards

[1] CENELEC EN 50361
[2] IEEE Std 1528-2003
[3] IEC 62209 Part I
[4] FCC OET Bulletin 65, Supplement C, Edition 01-01
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standards [1] to [4].

Date 07.07.2005

Signature / Stamp

s p e a g
Schmid & Partner Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

Doc No 881 – QD 000 P40 C – F   Page 1 (1)

10. System Validation from Original Equipment Supplier

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D750V3-1015_Aug17**

CALIBRATION CERTIFICATE

Object	D750V3 - SN:1015
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 21, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-May-17 (No. EX3-7349_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 21, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D750V3-1015_Aug17 Page 1 of 8

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.09 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.25 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.35 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.5 ± 6 %	0.98 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.19 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.76 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.44 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.76 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.9 Ω + 0.3 jΩ
Return Loss	- 28.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.6 Ω - 3.4 jΩ
Return Loss	- 28.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.037 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 22, 2010

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 18.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

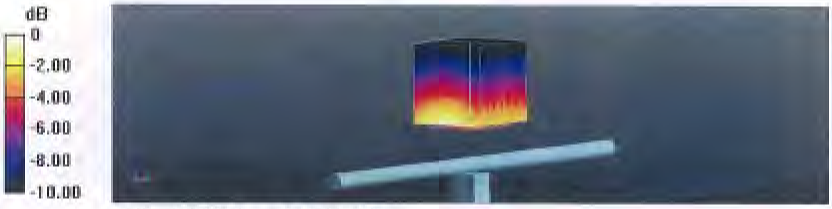
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1015

Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.9 S/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.49, 10.49, 10.49); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

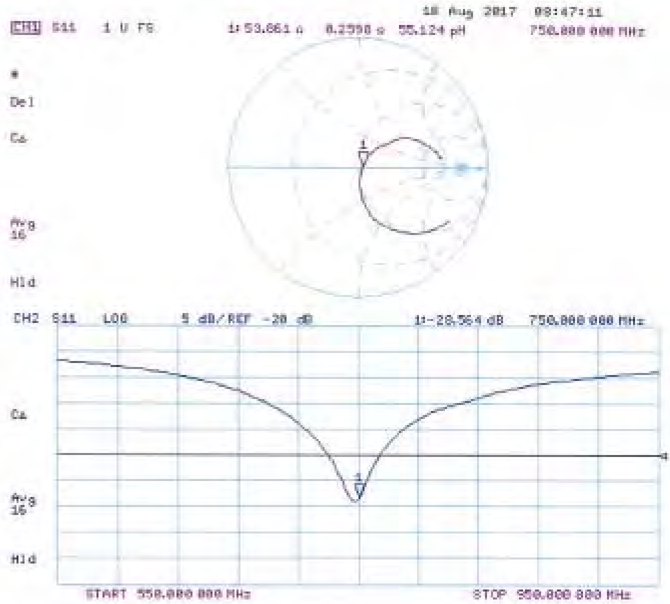
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.52 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.21 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.35 W/kg
Maximum value of SAR (measured) = 2.82 W/kg



0 dB = 2.82 W/kg = 4.50 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



Certificate No: D750V3-1015_Aug17 Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 21.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

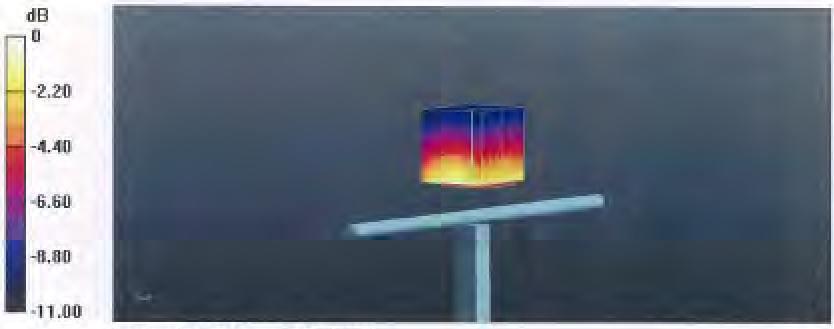
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1015

Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.96 S/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.35, 10.35, 10.35); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

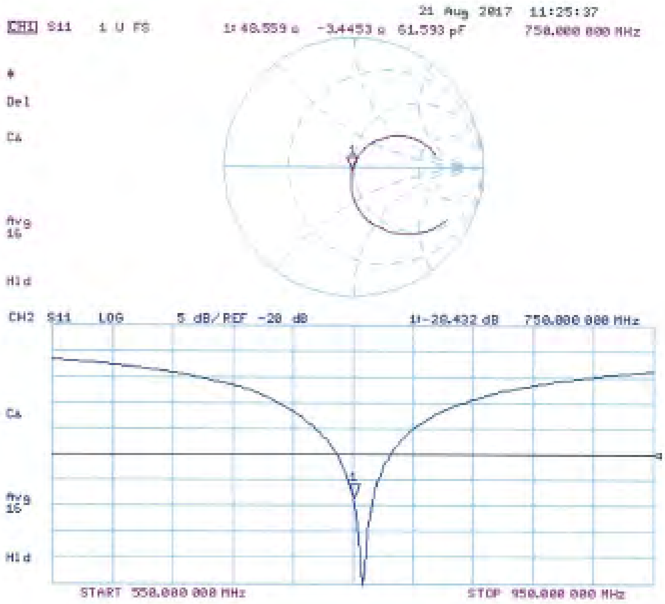
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.77 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 3.27 W/kg
SAR(1 g) = 2.19 W/kg; SAR(10 g) = 1.44 W/kg
Maximum value of SAR (measured) = 2.89 W/kg



0 dB = 2.89 W/kg = 4.61 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D835V2-4d063_Aug17**

CALIBRATION CERTIFICATE

Object	D835V2 - SN:4d063
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 21, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-May-17 (No. EX3-7349_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by	Claudio Leubler	Laboratory Technician	
Approved by	Katja Pokovic	Technical Manager	

Issued: August 21, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D835V2-4d063_Aug17 Page 1 of 8

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.9 ± 6 %	0.93 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.34 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.07 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.3 ± 6 %	0.98 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.41 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**9.57 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.58 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**6.28 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.1 Ω - 2.7 jΩ
Return Loss	- 30.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.2 Ω - 5.2 jΩ
Return Loss	- 24.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.387 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 27, 2006

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 18.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

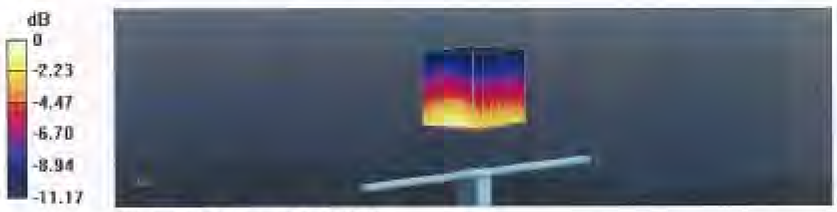
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.93 S/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.07, 10.07, 10.07); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

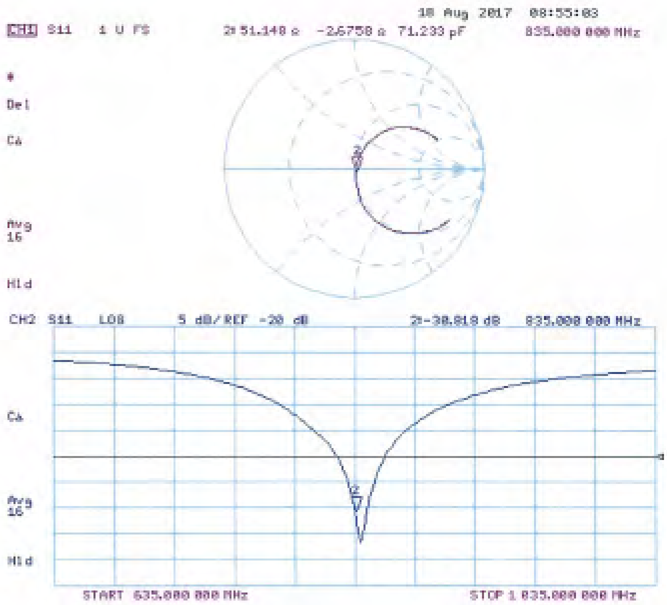
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.74 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 3.26 W/kg



0 dB = 3.26 W/kg = 5.13 dBW/kg

Certificate No: D835V2-4d063_Aug17 Page 5 of 8

Impedance Measurement Plot for Head TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Body TSL

Date: 21.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

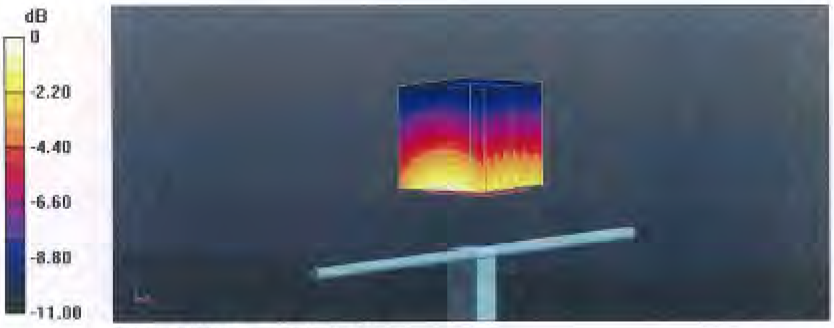
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d063

Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.98 S/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.2, 10.2, 10.2); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 4.9 (Back); Type: QD 00R P49 AA; Serial: 1005
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

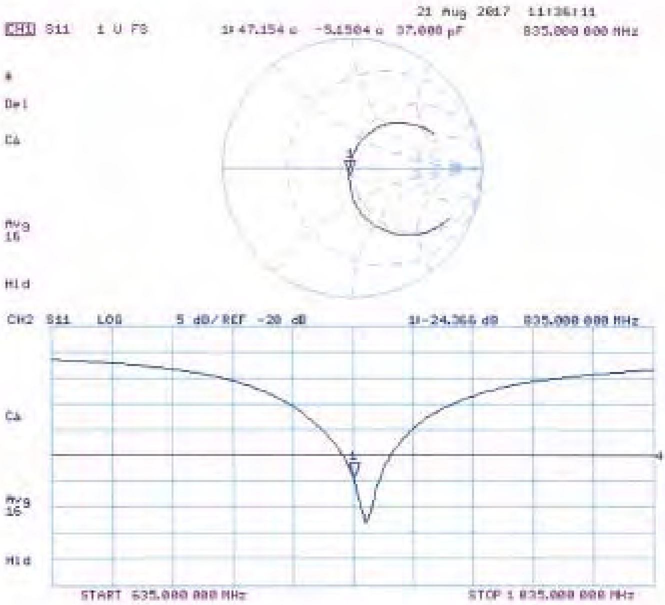
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.86 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.58 W/kg
Maximum value of SAR (measured) = 3.20 W/kg



0 dB = 3.20 W/kg = 5.05 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



Certificate No: D835V2-4d063_Aug17 Page 8 of 8

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D1750V2-1008_Aug17**

CALIBRATION CERTIFICATE

Object	D1750V2 - SN:1008
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 21, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-May-17 (No. EX3-7349_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 21, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D1750V2-1008_Aug17 Page 1 of 8

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.35 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	8.98 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**36.0 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.75 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**19.0 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.09 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**36.7 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.87 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**19.6 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.9 Ω - 0.4 jΩ
Return Loss	- 46.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.3 Ω - 1.4 jΩ
Return Loss	- 27.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.221 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	February 11, 2009

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 21.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

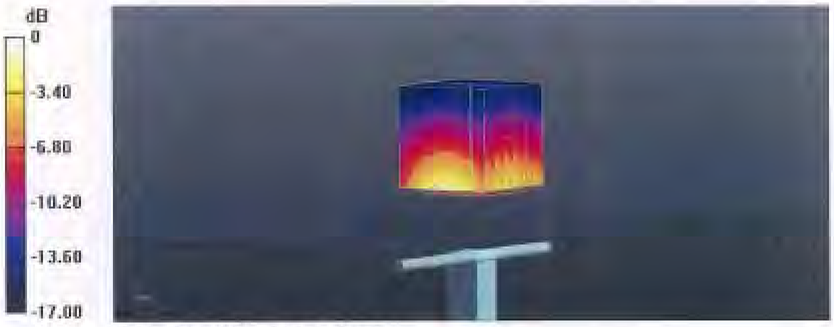
DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1008

Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.35 S/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.73, 8.73, 8.73); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

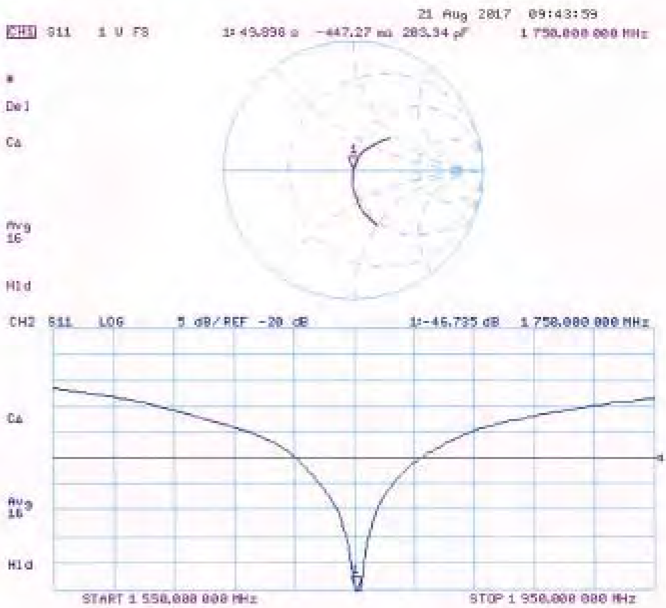
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 104.0 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 16.8 W/kg
SAR(1 g) = 8.98 W/kg; SAR(10 g) = 4.75 W/kg
Maximum value of SAR (measured) = 13.7 W/kg



0 dB = 13.7 W/kg = 11.37 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Body TSL

Date: 18.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

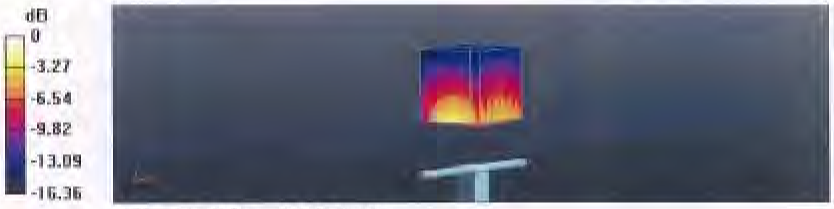
DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN:1008

Communication System: UID 0 - CW; Frequency: 1750 MHz
Medium parameters used: f = 1750 MHz; σ = 1.47 S/m; ϵ_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.46, 8.46, 8.46); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

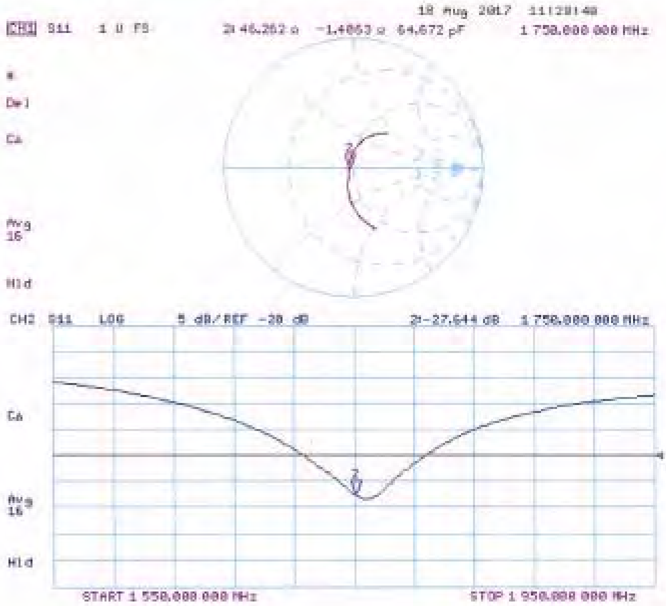
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.85 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 15.8 W/kg
SAR(1 g) = 9.09 W/kg; SAR(10 g) = 4.87 W/kg
Maximum value of SAR (measured) = 13.3 W/kg



0 dB = 13.3 W/kg = 11.24 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client SGS-TW (Auden)

Certificate No: D1900V2-5d173_May17

CALIBRATION CERTIFICATE

Object	D1900V2 - SN:5d173
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	May 31, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7460	19-May-17 (No. EX3-7460_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 31, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions
DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters
The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.3 ± 6 %	1.40 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**40.7 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.26 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**21.1 W/kg ± 16.5 % (k=2)**

Body TSL parameters
The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.2 ± 6 %	1.51 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.98 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**40.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.3 Ω + 4.9 jΩ
Return Loss	- 26.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.5 Ω + 6.0 jΩ
Return Loss	- 23.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	June 08, 2012

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 31.05.2017

Test Laboratory: SPEAG, Zurich, Switzerland

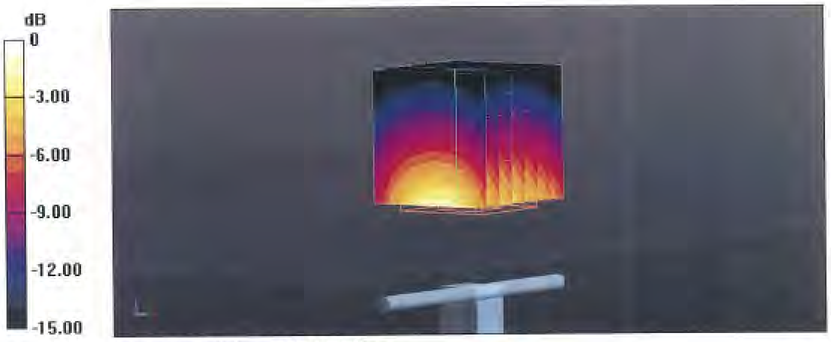
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d173

Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.4 S/m; ε_r = 41.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7460; ConvF(7.98, 7.98, 7.98); Calibrated: 19.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

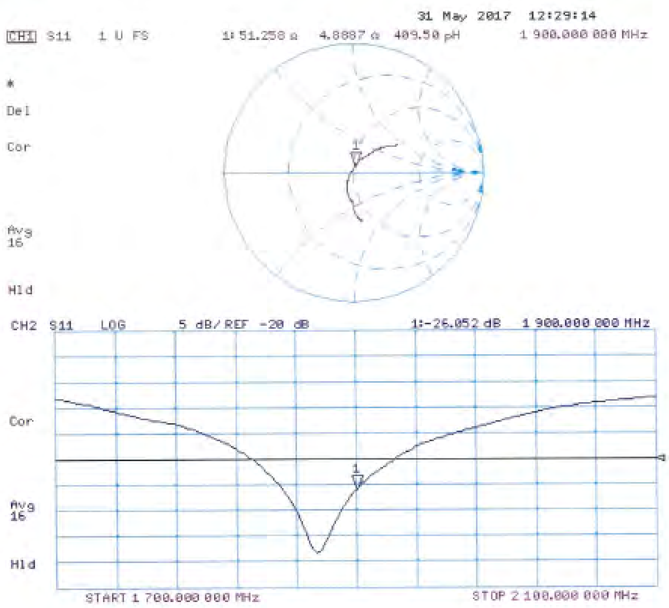
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 107.7 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.26 W/kg
Maximum value of SAR (measured) = 15.3 W/kg



0 dB = 15.3 W/kg = 11.85 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-5d173_May17 Page 6 of 8

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Body TSL

Date: 31.05.2017

Test Laboratory: SPEAG, Zurich, Switzerland

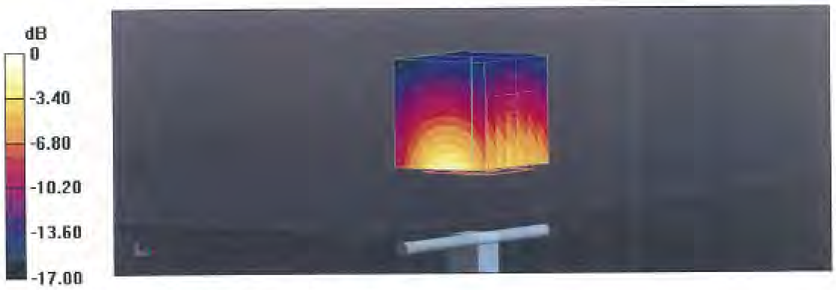
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d173

Communication System: UID 0 - CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 S/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7460; ConvF(7.82, 7.82, 7.82); Calibrated: 19.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

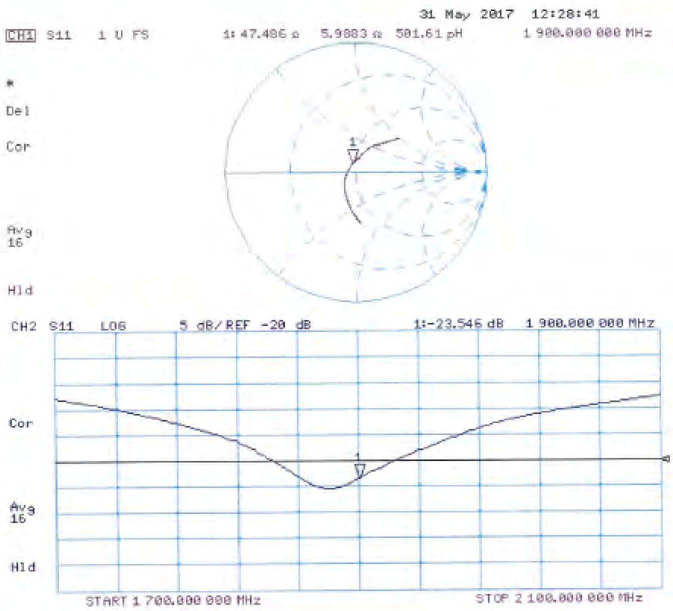
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.9 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 9.98 W/kg; SAR(10 g) = 5.3 W/kg
Maximum value of SAR (measured) = 14.3 W/kg



0 dB = 14.3 W/kg = 11.55 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



Certificate No: D1900V2-5d173_May17 Page 8 of 8

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

ilac-MRA

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D2300V2-1023_Aug17**

CALIBRATION CERTIFICATE

Object	D2300V2 - SN:1023
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 17, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-May-17 (No. EX3-7349_May17)	May-18
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 17, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D2300V2-1023_Aug17 Page 1 of 8

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2300 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.5	1.67 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.3 ± 6 %	1.70 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	12.0 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**47.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.74 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.7 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.9	1.81 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	1.86 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	11.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**46.4 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.68 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.5 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.4 Ω - 3.1 jΩ
Return Loss	- 29.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.9 Ω - 2.2 jΩ
Return Loss	- 24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.171 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 30, 2009

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 17.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

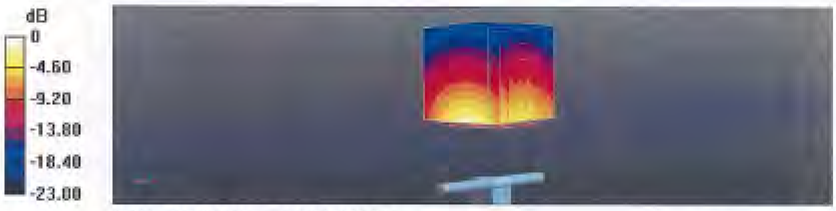
DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN: 1023

Communication System: UID 0 - CW; Frequency: 2300 MHz
Medium parameters used: f = 2300 MHz; σ = 1.7 S/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.31, 8.31, 8.31); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

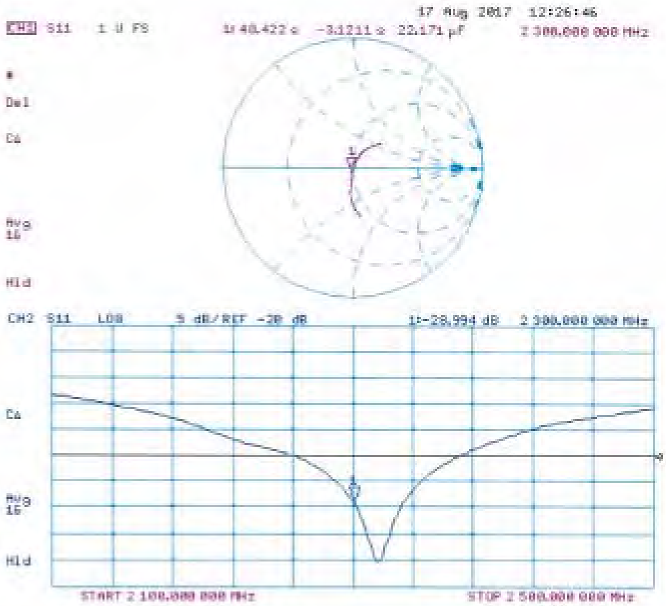
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.5 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 23.6 W/kg
SAR(1 g) = 12 W/kg; SAR(10 g) = 5.74 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg = 12.67 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



Certificate No: D2300V2-1023_Aug17 Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 17.08.2017

Test Laboratory: SPEAG, Zurich, Switzerland

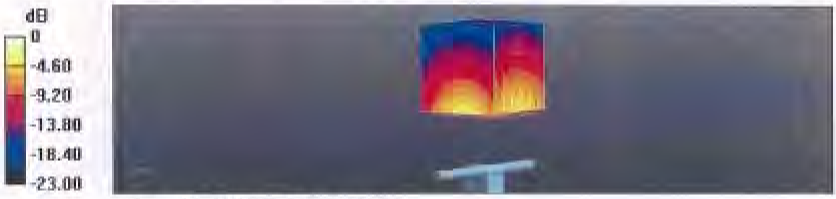
DUT: Dipole 2300 MHz; Type: D2300V2; Serial: D2300V2 - SN: 1023

Communication System: UID 0 - CW; Frequency: 2300 MHz
Medium parameters used: f = 2300 MHz; σ = 1.86 S/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(8.22, 8.22, 8.22); Calibrated: 31.05.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

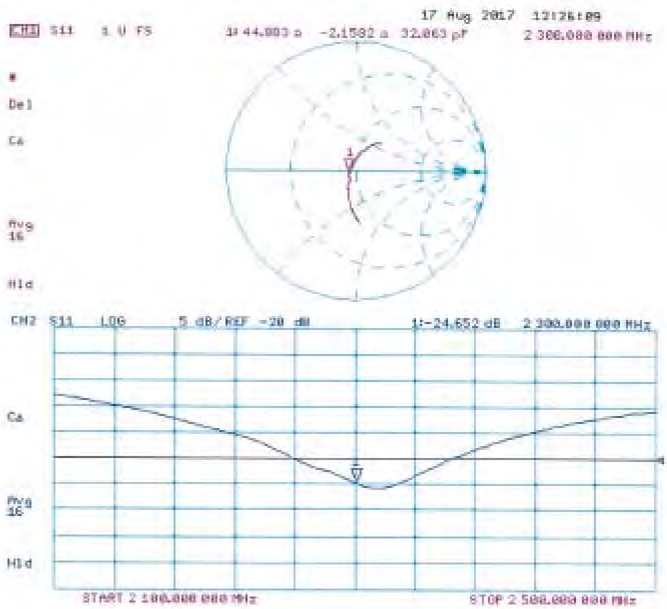
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.2 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 22.3 W/kg
SAR(1 g) = 11.8 W/kg; SAR(10 g) = 5.68 W/kg
Maximum value of SAR (measured) = 17.6 W/kg



0 dB = 17.6 W/kg = 12.46 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS -TW (Auden)**

Certificate No: **D2450V2-727_Apr17**

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 727

Calibration procedure(s): QA CAL-05.v9
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: April 21, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 7349	31-Dec-16 (No. EX3-7349_Dec16)	Dec-17
DAE4	SN: 601	28-Mar-17 (No. DAE4-601_Mar17)	Mar-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	M.Weber
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 21, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D2450V2-727_Apr17 Page 1 of 8

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.7 ± 6 %	1.87 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.2 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.18 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.3 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**50.6 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.01 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.8 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	56.3 Ω + 2.1 jΩ
Return Loss	- 24.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.1 Ω + 4.1 jΩ
Return Loss	- 27.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.148 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 09, 2003

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 21.04.2017

Test Laboratory: SPEAG, Zurich, Switzerland

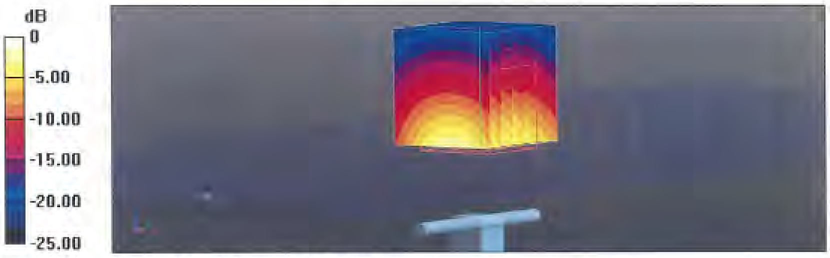
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 727

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 37.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.72, 7.72, 7.72); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1442); SEMCAD X 14.6.10(7413)

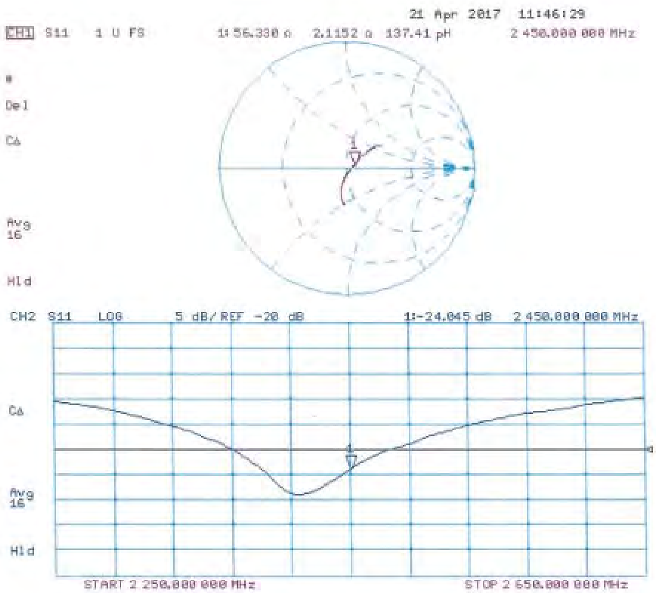
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.8 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.18 W/kg
Maximum value of SAR (measured) = 21.1 W/kg



0 dB = 21.1 W/kg = 13.24 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



SGS Taiwan Ltd. 台灣檢驗科技股份有限公司 | No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Body TSL

Date: 21.04.2017

Test Laboratory: SPEAG, Zurich, Switzerland

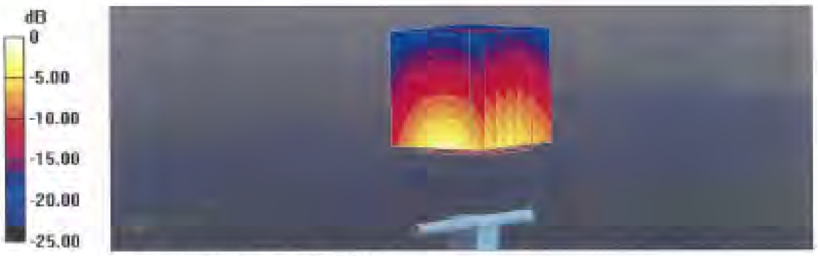
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 727

Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.03 S/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.79, 7.79, 7.79); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.03.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1442); SEMCAD X 14.6.10(7413)

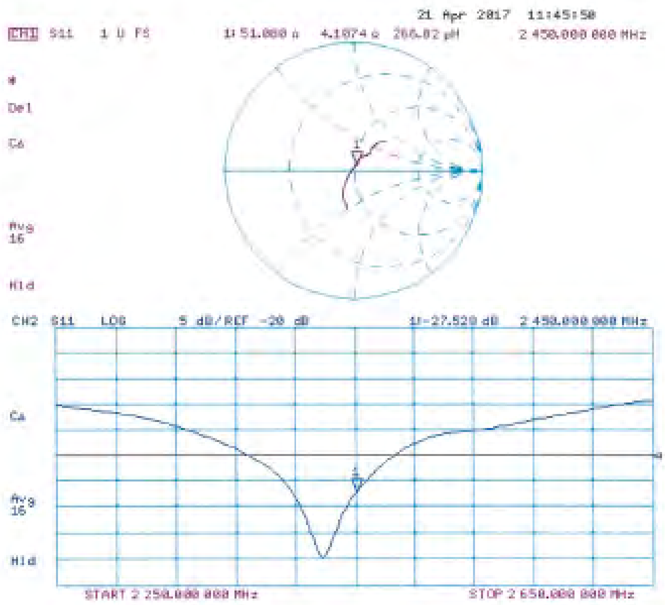
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 105.0 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 25.4 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6.01 W/kg
Maximum value of SAR (measured) = 20.0 W/kg



0 dB = 20.0 W/kg = 13.01 dBW/kg

Certificate No: D2450V2-727_Apr17 Page 7 of 8

Impedance Measurement Plot for Body TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D2600V2-1005_Jan17**

CALIBRATION CERTIFICATE

Object	D2600V2 - SN:1005
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	January 25, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	31-Dec-16 (No. EX3-7349_Dec16)	Dec-17
DAE4	SN: 601	04-Jan-17 (No. DAE4-601_Jan17)	Jan-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Johannes Kurikka	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 25, 2017

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

a) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.4 ± 6 %	2.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	14.3 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**55.5 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.8 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	2.20 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**55.1 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.20 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**24.7 W/kg ± 16.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.3 Ω - 4.7 jΩ
Return Loss	- 26.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.7 Ω - 3.2 jΩ
Return Loss	- 23.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 23, 2006

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 25.01.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1005

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.05 S/m; ε_r = 37.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

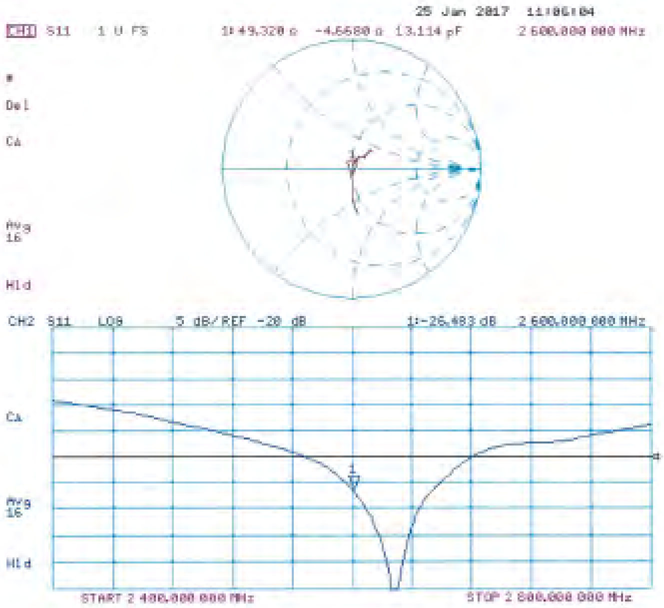
- Probe: EX3DV4 - SN7349; ConvF(7.56, 7.56, 7.56); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.2 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 30.5 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.32 W/kg
Maximum value of SAR (measured) = 24.2 W/kg

0 dB = 25.2 W/kg = 13.84 dBW/kg

SGS Taiwan Ltd. 台灣檢驗科技股份有限公司 No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Body TSL

Date: 18.01.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1005

Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.2 S/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

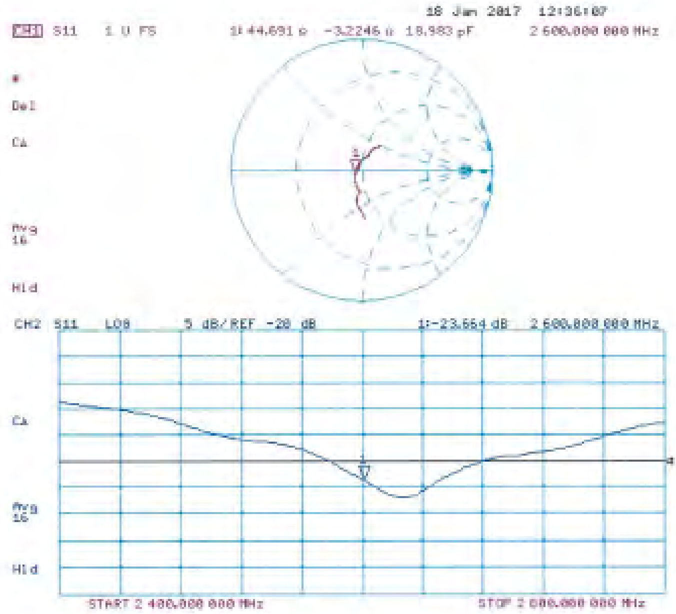
- Probe: EX3DV4 - SN7349; ConvF(7.48, 7.48, 7.48); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.8 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 13.9 W/kg; SAR(10 g) = 6.2 W/kg
Maximum value of SAR (measured) = 23.3 W/kg

0 dB = 23.3 W/kg = 13.67 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **SGS-TW (Auden)**

Certificate No: **D5GHzV2-1023_Jan17**

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN:1023

Calibration procedure(s): QA CAL-22.v2
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: January 20, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	31-Dec-16 (No. EX3-3503_Dec16)	Dec-17
DAE4	SN: 601	04-Jan-17 (No. DAE4-601_Jan17)	Jan-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 24, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D5GHzV2-1023_Jan17 Page 1 of 15

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5300 MHz ± 1 MHz 5600 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.4 ± 6 %	4.45 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.55 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**75.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**21.5 W/kg ± 19.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Head TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.9	4.76 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.2 ± 6 %	4.55 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5300 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.8 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.3 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.7 ± 6 %	4.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.7 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.1 W/kg ± 19.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	5.05 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.82 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**77.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.22 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.0 W/kg ± 19.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.5 ± 6 %	5.36 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.32 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**72.8 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.05 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.3 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5300 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.42 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3 ± 6 %	5.50 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5300 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.66 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.15 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 W/kg ± 19.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.90 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.02 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**79.6 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.26 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.4 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.3 ± 6 %	6.17 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.64 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.9 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 W/kg ± 19.5 % (k=2)**

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	49.6 Ω - 6.7 jΩ
Return Loss	- 23.4 dB

Antenna Parameters with Head TSL at 5300 MHz

Impedance, transformed to feed point	49.0 Ω - 1.8 jΩ
Return Loss	- 33.5 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.1 Ω - 0.2 jΩ
Return Loss	- 28.2 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	55.4 Ω + 2.8 jΩ
Return Loss	- 24.8 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	48.9 Ω - 7.0 jΩ
Return Loss	- 22.9 dB

Antenna Parameters with Body TSL at 5300 MHz

Impedance, transformed to feed point	51.0 Ω - 1.0 jΩ
Return Loss	- 37.0 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	55.6 Ω + 1.5 jΩ
Return Loss	- 25.2 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	56.6 Ω + 2.7 jΩ
Return Loss	- 23.6 dB

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	February 05, 2004

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Head TSL

Date: 20.01.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW;
Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.45 S/m; ε_r = 35.4; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5300 MHz; σ = 4.55 S/m; ε_r = 35.2; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 4.85 S/m; ε_r = 34.7; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 5.05 S/m; ε_r = 34.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.76, 5.76, 5.76); Calibrated: 31.12.2016, ConvF(5.35, 5.35, 5.35); Calibrated: 31.12.2016, ConvF(5.09, 5.09, 5.09); Calibrated: 31.12.2016, ConvF(5.01, 5.01, 5.01); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

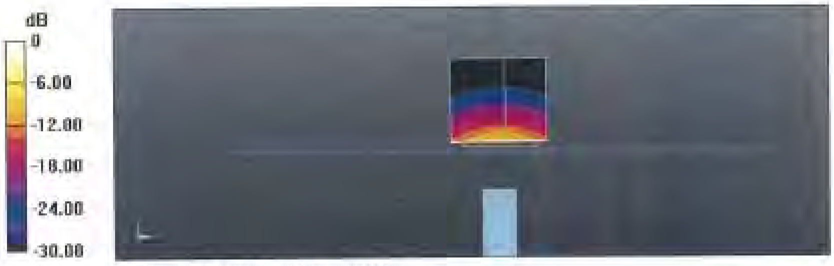
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.58 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 27.6 W/kg
SAR(1 g) = 7.55 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 17.4 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 73.01 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 31.6 W/kg
SAR(1 g) = 8.22 W/kg; SAR(10 g) = 2.35 W/kg
Maximum value of SAR (measured) = 19.3 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 71.94 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 33.2 W/kg
SAR(1 g) = 8.22 W/kg; SAR(10 g) = 2.33 W/kg
Maximum value of SAR (measured) = 19.8 W/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

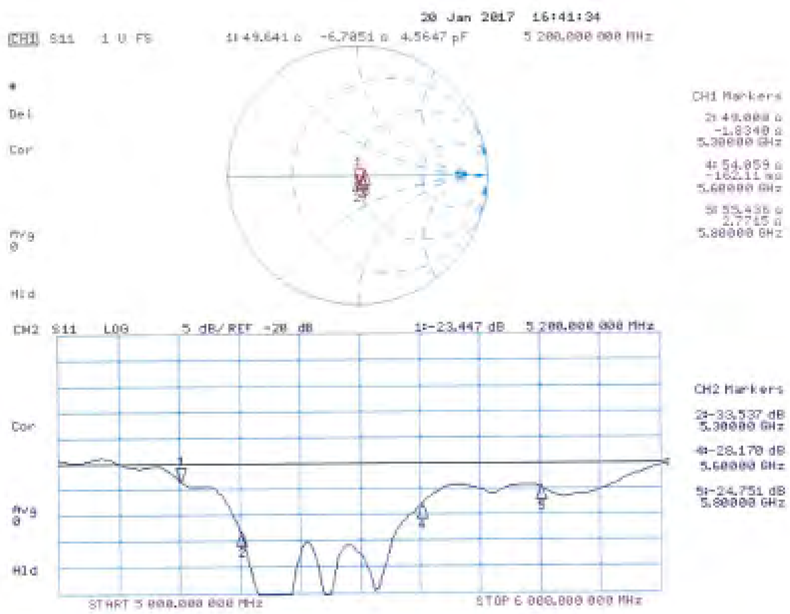
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69.84 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 7.82 W/kg; SAR(10 g) = 2.22 W/kg
Maximum value of SAR (measured) = 19.5 W/kg



0 dB = 17.4 W/kg = 12.41 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Head TSL



SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

DASY5 Validation Report for Body TSL

Date: 19.01.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1023

Communication System: UID 0 - CW;
Frequency: 5200 MHz, Frequency: 5300 MHz, Frequency: 5600 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; $\sigma = 5.36$ S/m; $\varepsilon_r = 47.5$; $\rho = 1000$ kg/m^3 ,
Medium parameters used: f = 5300 MHz; $\sigma = 5.5$ S/m; $\varepsilon_r = 47.3$; $\rho = 1000$ kg/m^3 ,
Medium parameters used: f = 5600 MHz; $\sigma = 5.9$ S/m; $\varepsilon_r = 46.6$; $\rho = 1000$ kg/m^3 ,
Medium parameters used: f = 5800 MHz; $\sigma = 6.17$ S/m; $\varepsilon_r = 46.3$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.29, 5.29, 5.29); Calibrated: 31.12.2016, ConvF(5.04, 5.04, 5.04); Calibrated: 31.12.2016, ConvF(4.57, 4.57, 4.57); Calibrated: 31.12.2016, ConvF(4.48, 4.48, 4.48); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601, Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.54 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 28.1 W/kg
SAR(1 g) = 7.32 W/kg; SAR(10 g) = 2.05 W/kg
Maximum value of SAR (measured) = 16.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5300 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.93 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 30.1 W/kg
SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.15 W/kg
Maximum value of SAR (measured) = 17.6 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.09 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 33.7 W/kg
SAR(1 g) = 8.02 W/kg; SAR(10 g) = 2.26 W/kg
Maximum value of SAR (measured) = 18.9 W/kg

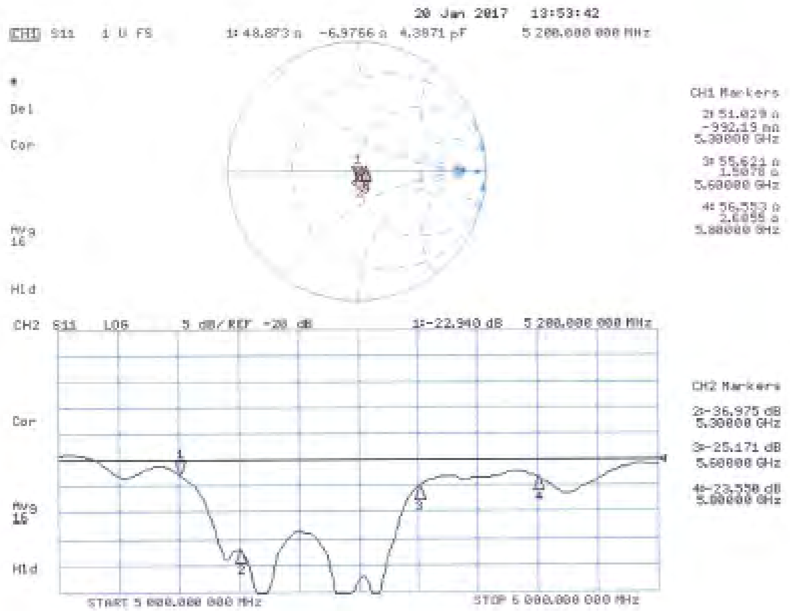
SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.14 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 34.0 W/kg
SAR(1 g) = 7.64 W/kg; SAR(10 g) = 2.13 W/kg
Maximum value of SAR (measured) = 18.3 W/kg

0 dB = 16.6 W/kg = 12.20 dBW/kg

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group

Impedance Measurement Plot for Body TSL



- End of 1st part of report -

SGS Taiwan Ltd. No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803/新北市五股區新北產業園區五工路134號
台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com
Member of SGS Group