SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

FCC SAR TEST REPORT

Application No.:	ZEWM2310001500RG
Applicant:	vivo Mobile Communication Co., Ltd.
Manufacturer:	vivo Mobile Communication Co., Ltd.
Product Name:	Mobile Phone
Model No.(EUT):	V2322
Trade Mark:	vivo
FCC ID:	2AUCY-V2322
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2023/04/21(for report ZEWM2303000343RG01) 2023/10/13(for report ZEWM2310001500RG01)
Date of Test:	2023/04/22 to 2023/05/12(for report ZEWM2303000343RG01) 2023/10/17 to 2023/10/19(for report ZEWM2310001500RG01)
Date of Issue:	2023/10/22
Test conclusion:	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Ervin Li

Regulatory Manager

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REVISION HISTORY

Report Number	Revision	Description	Issue Date
ZEWM2310001500RG01	01	Original	2023/10/22

Prepared By	Vito Wang **Vito Wang**
Checked By	Roman Pan **Roman Pan**

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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.66	0.25	0.42	/
GSM1900	<0.10	0.59	0.76	1.33
WCDMA Band II	<0.10	0.67	0.52	1.32
WCDMA Band IV	<0.10	0.32	0.40	/
WCDMA Band V	0.64	0.23	0.42	/
LTE Band 2	0.12	**0.74**	0.60	1.33
LTE Band 4	0.11	0.33	0.51	/
LTE Band 5	0.80	0.20	0.40	/
LTE Band 7	0.38	0.51	0.56	1.00
LTE Band 12/17	**0.82**	0.20	0.25	/
LTE Band 13	0.80	0.23	0.29	/
LTE Band 26/18/19	0.79	0.21	0.42	/
LTE Band 38	0.26	0.46	0.61	/
LTE Band 41	0.25	0.59	0.67	/
LTE Band 66	<0.10	0.50	0.62	**2.34**
WI-FI (2.4GHz)	0.36	0.12	0.31	/
WI-FI (5GHz)	0.49	0.54	**0.98**	1.20
BT	0.29	<0.10	<0.10	/
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	0.99	1.27	1.27	3.53
SPLSR	/	/	/	/
SPLSR Limited	0.04			0.10

Note:
1) The Simultaneous transmission SAR is the same test position of the WWAN antenna + WiFi/BT antenna.
2) According to TCB workshop (Overlapping LTE Bands): SAR for LTE Band 17 (Frequency range:704-716 MHz) is covered by LTE Band 12 (Frequency range:699-716 MHz), LTE Band 18 (Frequency range:815-830 MHz) and LTE Band 19 (Frequency range:830-845 MHz) are covered by LTE Band 26 (Frequency range:814-849 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth.

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1 General Information

1.1 Details of Client

Applicant:	vivo Mobile Communication Co., Ltd.
Address:	No.1, vivo Road, Chang'an, Dongguan,Guangdong,China
Manufacturer:	vivo Mobile Communication Co., Ltd.
Address:	No.1, vivo Road, Chang'an, Dongguan,Guangdong,China

1.2 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China
Post code:	518057
Test engineer:	Lyons Liang, Charley Yi, Mike Li, Durant Lin, Bernie Zhuang, Messi Chen, James Zheng

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1.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

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1.4 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Mobile Phone		
Model No.(EUT):	V2322		
FCC ID:	2AUCY-V2322		
Trade Mark:	vivo		
Product Phase:	Identical Prototype		
IMEI:	860849079999198; 860849079999917		
Hardware Version:	MP_0.1		
Software Version:	PD2280UF_EX_A_13.0.9.3.W30		
Antenna Type:	PIFA Antenna		
Device Operating Configurations :			
Modulation Mode:	**GSM:** GMSK, 8PSK; **WCDMA:** QPSK, 16QAM(HSPA+); **LTE:** QPSK,16QAM,64QAM; **WIFI:** DSSS, OFDM; **BT:** GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	33	EGPRS Multi-slots Class:	33
HSDPA UE Category:	24	HSUPA UE Category	6
DC-HSDPA UE Category:	24		
Power Class:	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(WCDMA Band)		
	3, tested with power control Max Power(LTE Band)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band II	1850~1910	1930~1990
	WCDMA Band IV	1710~1755	2110~2155
	WCDMA Band V	824~849	869~894
	LTE Band 2	1850 ~1910	1930 ~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869-894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 12	699~716	729~746
	LTE Band 13	777~787	746~756
	LTE Band 17	704-716	734-746
	LTE Band 18	815~830	860~875
	LTE Band 19	830~845	875~890
	LTE Band 26	814~849	859~894
	LTE Band 38	2570~2620	2570~2620
	LTE Band 41	2496~2690	2496~2690
	LTE Band 66	1710~1780	2110~2180
	Bluetooth	2400~2483.5	2400~2483.5
	Wi-Fi 2.4G	2412~2462	2412~2462
	Wi-Fi 5G	5150~5250	5150~5250

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		5250~5350	5250~5350
		5470~5725	5470~5725
		5725~5850	5725~5850
RF Cable:	☒ Provided by the applicant ☐ Provided by the laboratory		
Battery Information:	Model:	B-Z5	
	Normal Voltage:	+3.89V	
	Rated capacity:	4900mAh	
	Manufacturer:	Dongguan NVT Technology Co.,Ltd	
Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion. Remark: As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.			

Remark:

This test report (Ref. No.: ZEWM2310001500RG01) is based on the original test report (Ref. No.: ZEWM2303000343RG01) which dated on 2023-05-16.

According to the declaration from the applicant, the models in this report and models in original report were identical, only difference as below:

1. Remove NFC by hardware and software.
2. Remove macro camera.
3. Back cover change from glass to plastic.
4. Add a new charger.
5. Software version change to PD2280UF_EX_A_13.0.9.3.W30.

Considering to the difference, pre-scan was performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore, in this report each band spot check test base on the original report, other test data were copied from to original report ZEWM2303000343RG01.

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Summary of the Spot check:

Field Strength of Spurious Radiation test against the variant model based on the worst-case condition from the original model was performed in this filing and the verification test results similar to the original FCC ID. All tests meet FCC technical limits. Detail sport check test result can be found in the variant model report.

Test Item		Original FCC ID: 2AUCY-V2247(W/kg)	Variant FCC ID: 2AUCY-V2322 (W/kg)	Difference (%)
Head	GSM850	0.658	0.504	0.23
	GSM1900	0.065	0.07	0.08
	WCDMA Band II	0.088	0.084	0.05
	WCDMA Band IV	0.079	0.062	0.22
	WCDMA Band V	0.642	0.54	0.16
	LTE Band 2	0.115	0.112	0.03
	LTE Band 4	0.106	0.081	0.24
	LTE Band 5	0.796	0.6	0.25
	LTE Band 7	0.376	0.322	0.14
	LTE Band 12/17	**0.823**	0.636	0.23
	LTE Band 13	0.798	0.609	0.24
	LTE Band 26/18/19	0.787	0.614	0.22
	LTE Band 38	0.259	0.208	0.20
	LTE Band 41	0.25	0.189	0.24
	LTE Band 66	0.095	0.081	0.15
	WI-FI (2.4GHz)	0.355	0.278	0.22
	WI-FI (5GHz)	0.423	0.485	0.15
	BT	0.253	0.288	0.14

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Test Item		Original FCC ID: 2AUCY-V2247(W/kg)	Variant FCC ID: 2AUCY-V2322 (W/kg)	Difference (%)
Body-worn	GSM850	0.248	0.187	0.25
	GSM1900	0.587	0.489	0.17
	WCDMA Band II	0.671	0.588	0.12
	WCDMA Band IV	0.324	0.314	0.03
	WCDMA Band V	0.227	0.201	0.11
	LTE Band 2	**0.737**	0.573	0.22
	LTE Band 4	0.333	0.35	0.05
	LTE Band 5	0.204	0.159	0.22
	LTE Band 7	0.513	0.483	0.06
	LTE Band 12/17	0.195	0.189	0.03
	LTE Band 13	0.196	0.231	0.18
	LTE Band 26/18/19	0.21	0.185	0.12
	LTE Band 38	0.375	0.46	0.23
	LTE Band 41	0.493	0.587	0.19
	LTE Band 66	0.503	0.421	0.16
	WI-FI (2.4GHz)	0.109	0.124	0.14
	WI-FI (5GHz)	0.536	0.403	0.25
	BT	0.026	0.032	0.23

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Test Item		Original FCC ID: 2AUCY-V2247(W/kg)	Variant FCC ID: 2AUCY-V2322 (W/kg)	Difference (%)
Hotspot	GSM850	0.423	0.363	0.14
	GSM1900	0.763	0.628	0.18
	WCDMA Band II	0.518	0.472	0.09
	WCDMA Band IV	0.403	0.356	0.12
	WCDMA Band V	0.416	0.347	0.17
	LTE Band 2	0.601	0.554	0.08
	LTE Band 4	0.505	0.409	0.19
	LTE Band 5	0.395	0.338	0.14
	LTE Band 7	0.557	0.527	0.05
	LTE Band 12/17	0.254	0.204	0.20
	LTE Band 13	0.285	0.252	0.12
	LTE Band 26/18/19	0.419	0.32	0.24
	LTE Band 38	0.499	0.608	0.22
	LTE Band 41	0.579	0.672	0.16
	LTE Band 66	0.618	0.613	0.01
	WI-FI (2.4GHz)	0.293	0.312	0.06
	WI-FI (5GHz)	**0.979**	0.894	0.09
	BT	0.068	0.073	0.07

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Test Item		Original FCC ID: 2AUCY-V2247(W/kg)	Variant FCC ID: 2AUCY-V2322 (W/kg)	Difference (%)
Product specific 10g SAR	GSM1900	1.327	1.193	0.10
	WCDMA Band II	1.18	1.317	0.12
	LTE Band 2	1.33	1.02	0.23
	LTE Band 7	0.999	0.89	0.11
	LTE Band 66	**2.335**	2.116	0.09
	WI-FI (5GHz)	1.026	1.197	0.17

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1.4.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations can be referred to Appendix F

Note:
1) The test device is a smart phone. The overall diagonal dimension of this device is 175.1 mm. Per KDB 648474 D04, because the diagonal distance of this device is ≥160mm, so it is a phablet.

According to the distance between LTE/WCDMA/GSM&WIFI&BT antennas and the sides of the EUT we can draw the conclusion that:

Distance of the Antenna to the EUT surface/edge						
Mode	Front	Back	Left	Right	Top	Bottom
Ant13	≤25mm	≤25mm	≤25mm	>25mm	≤25mm	>25mm
Ant31	≤25mm	≤25mm	≤25mm	≤25mm	>25mm	≤25mm
Ant22(WIFI &BT)	≤25mm	≤25mm	>25mm	≤25mm	≤25mm	>25mm

Table 1： Distance of the Antenna to the EUT surface/edge

Note:
1) When the antenna-to-edge distance is greater than 25mm, such position does not need to be tested.

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1.4.2 LTE CA additional specification

The device supports downlink and intra-band contiguous uplink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.

a) Intra-band carrier aggregation requirements for uplink.

b) Intra-band and inter-band carrier aggregation requirements for downlink.

The possible downlink and uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The conducted power measurement results of downlink and uplink LTE CA are provided in Appendix E (Conducted RF Output Power). The downlink LTE CA SAR test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

DL LTE CA
CA_2A-5A
CA_4A-4A
CA_4A-5A
CA_4A-7A
CA_5A-7A
CA_5A-38A
CA_5A-41A
CA_5A-66A
CA_7C
CA_7A-7A
CA_7A-26A
CA_26A-41A
CA_38C
CA_41C
CA_41A-41A
CA_66C
CA_66A-66A

UL LTE CA
CA_7C
CA_41C

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SAR test procedure for intra-band contiguous UL LTE CA is as below:

1)Maximum output power is measured for each UL CA configuration for the required test channels described in KDB 941225 D05

– UL PCC configuration is determined by the required test channel

– SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band.

2)SAR for UL CA is required in each exposure condition and frequency band combination

3)For this device , as the maximum output for Intra-band uplink LTE CA is ≤ standalone LTE mode (without CA),

- PCC is configured according to the highest standalone SAR configuration tested.

- SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC

4)When the reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based)

5)UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level.

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1.4.3 Power reduction specification

This device uses a single fixed level of power reduction through static table look-up for SAR compliance and it is triggered by a single event or operation

1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.

2) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions.

3) This device uses the receiver to indicate whether the user is making a voice call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. A fixed level power reduction is applied for some frequency bands when the audio receiver is on.

4) The proximity sensor is used to indicate when the device is held close to a user's body exposure condition. It utilizes the proximity sensor to reduce the output power in specific wireless and operating modes of main antenna to ensure SAR compliance(Refer to section 5.4 for detailed proximity Sensor information and validation data per KDB 616217).

   The detailed power reduction information can be referred to Appendix E (Conducted RF Output Power).

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1.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
KDB 447498 D01	General RF Exposure Guidance v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03
KDB 616217 D04	SAR for laptop and tablets v01r02

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1.6 RF exposure limits

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

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation.)

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2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

Table 2： The Ambient Conditions

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3 SAR Measurements System Configuration

3.1 The SAR Measurement System

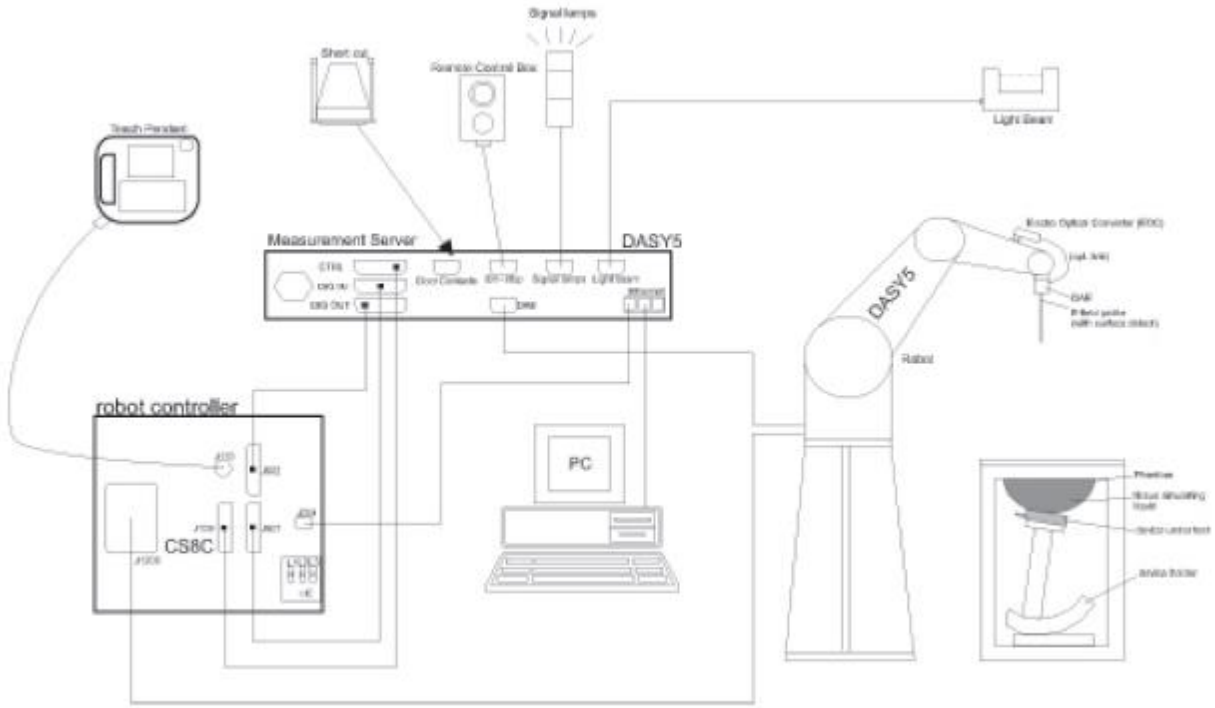
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

The DASY5 system for performing compliance tests consists of the following items:
A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

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.

A 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.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR Measurement System Configuration

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- 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.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

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3.3 Data Acquisition Electronics (DAE)

Model	DAE
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 f A
Dimensions	60 x 60 x 68 mm

3.4 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters
Wooden Support	SPEAG standard phantom table

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. 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 teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

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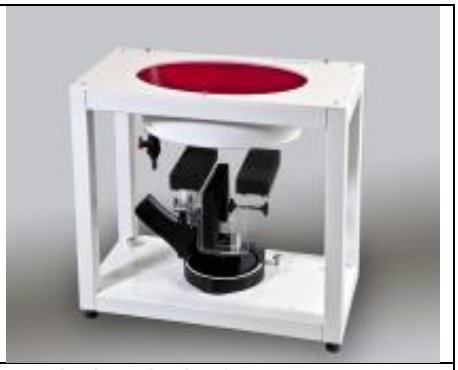
3.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2.0 ± 0.2 mm (bottom plate)
Dimensions	Major axis: 600 mm Minor axis: 400 mm
Filling Volume	approx. 30 liters
Wooden Support	SPEAG standard phantom table



Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

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3.6 Device Holder for Transmitters

F-2. **Device Holder for Transmitters**

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

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3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 32mm*32mm*30mm (f≤2GHz), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points (f≤2GHz), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification).The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.

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			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %

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3.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	ε
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

With Vi = compensated signal of channel i (i = x, y, z)
Ui = input signal of channel i (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

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H-field probes:

$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$$

With Vi = compensated signal of channel i (i = x, y, z)
Normi = sensor sensitivity of channel I (i = x, y, z)
[mV/(V/m)2] for E-field Probes
ConvF = sensitivity enhancement in solution
aij = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
Ei = electric field strength of channel i in V/m
Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (Etot^2 \cdot \sigma) / (\varepsilon \cdot 1000)$$

with SAR = local specific absorption rate in mW/g
Etot = total field strength in V/m
σ= conductivity in [mho/m] or [Siemens/m]
ε= equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}{}^2{}_2 / 3770 \text{ or } \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with Ppwe = equivalent power density of a plane wave in mW/cm2
Etot = total electric field strength in V/m
Htot = total magnetic field strength in A/m

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4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ⩾ 0.80 W/kg, repeat that measurement once.

3) 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).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ⩾1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

4.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

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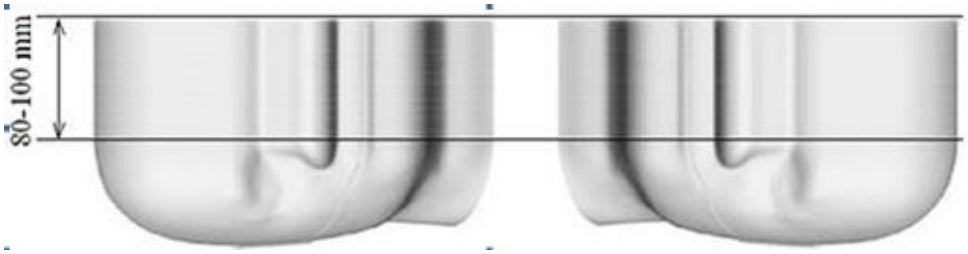
5 Description of Test Position

5.1 Head Exposure Condition

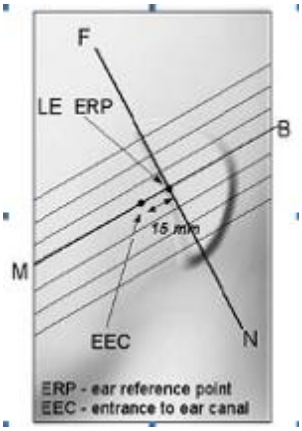
5.1.1 SAM Phantom Shape

F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

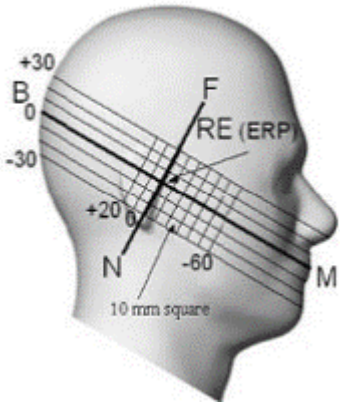
Note: The centre strip including the nose region has a different thickness tolerance.



F-4. Sagittally bisected phantom with extended perimeter (shown placed on its side as used for SAR measurements)



F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations



F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

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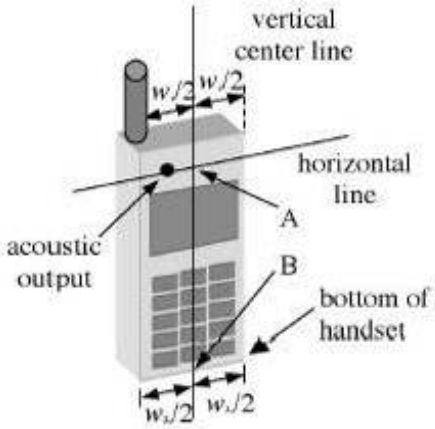
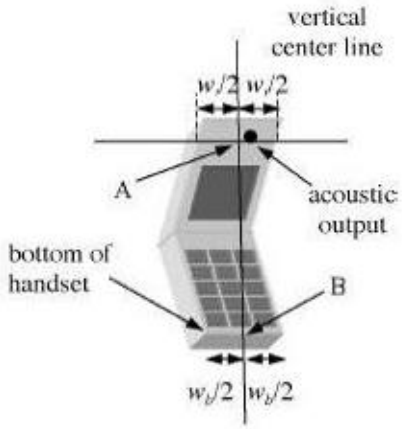
5.1.2 EUT constructions



F-7. Handset vertical and horizontal reference lines-“fixed case”



F-8. Handset vertical and horizontal reference lines-“clam-shell case”

5.1.3 Definition of the “cheek” position

a) Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom ("initial position"). While maintaining the device in this plane, align the vertical centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the centre of the ear piece with the line RE-LE.
b) Translate the mobile phone box towards the phantom with the ear piece aligned with the line LE-RE until telephone touches the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

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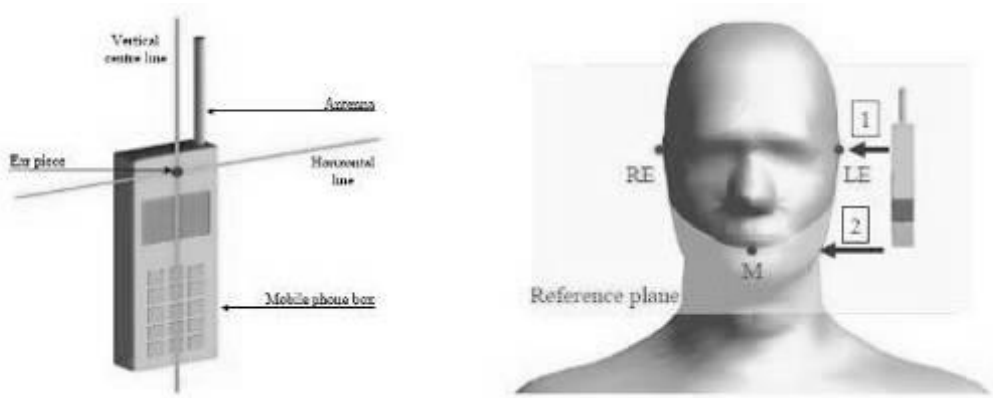
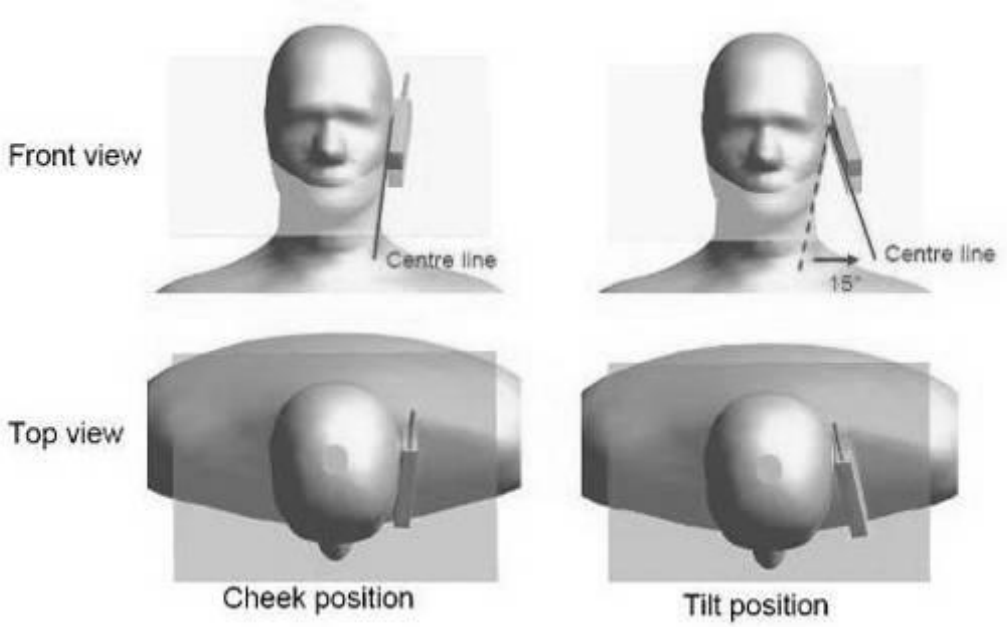
5.1.4 Definition of the “tilted” position

a) Position the device in the “cheek” position described above;
b) While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.



F-9. **Definition of the reference lines and points, on the phone and on the phantom and initial position**



F-10. **“Cheek” and “tilt” positions of the mobile phone on the left side**

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5.2 Body Exposure Condition

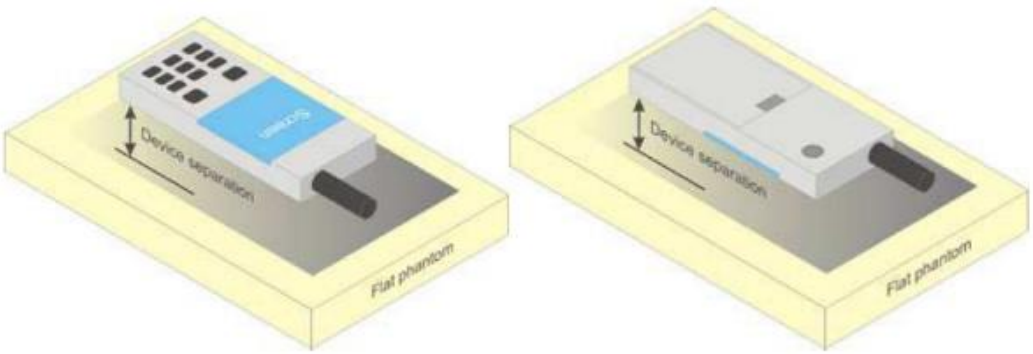
5.2.1 Body-worn accessory exposure conditions

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, 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 FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. 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 that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



F-11. **Test positions for body-worn devices**

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5.2.2 Wireless Router exposure conditions

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. For devices with form factors smaller than 9 cm x 5 cm, a test separation distance of 5 mm is required.

5.3 Extremity exposure conditions

Per FCC KDB 648474D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as “Phablet”.
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 according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. 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; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, only the following frequency bands need to test with 0mm for the Product Specific 10-g SAR, the others are not required.

GSM 1900(Ant13):

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	661/1880	1:4.15	0.261	0.01	23.33	29.00	3.690	0.963	Yes
Back side	GPRS 2TS	661/1880	1:4.15	0.397	0.02	23.33	29.00	3.690	1.465	No
Left side	GPRS 2TS	661/1880	1:4.15	0.046	-0.05	23.33	29.00	3.690	0.169	Yes
Right side	GPRS 2TS	661/1880	1:4.15	0.035	0.10	23.33	29.00	3.690	0.130	Yes
Top side	GPRS 2TS	661/1880	1:4.15	0.583	0.16	23.33	29.00	3.690	2.151	No

WCDMA Band II(Ant13):

Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.194	-0.04	16.18	22.50	4.285	0.831	Yes
Back side	RMC	9400/1880	1:1	0.279	0.04	16.18	22.50	4.285	1.196	Yes
Left side	RMC	9400/1880	1:1	0.040	-0.06	16.18	22.50	4.285	0.173	Yes
Right side	RMC	9400/1880	1:1	0.028	0.01	16.18	22.50	4.285	0.121	Yes
Top side	RMC	9400/1880	1:1	0.429	-0.02	16.18	22.50	4.285	1.838	No

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LTE Band 2(Ant13):

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.242	0.01	16.80	22.50	3.715	0.899	Yes
Back side	20	QPSK 1_0	18900/1880	1:1	0.331	-0.02	16.80	22.50	3.715	1.230	No
Left side	20	QPSK 1_0	18900/1880	1:1	0.041	0.04	16.80	22.50	3.715	0.150	Yes
Right side	20	QPSK 1_0	18900/1880	1:1	0.033	0.07	16.80	22.50	3.715	0.121	Yes
Top side	20	QPSK 1_0	18900/1880	1:1	0.456	0.13	16.80	22.50	3.715	1.694	No
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	18900/1880	1:1	0.251	0.10	16.91	22.50	3.622	0.909	Yes
Back side	20	QPSK 50_25	18900/1880	1:1	0.344	0.05	16.91	22.50	3.622	1.246	No
Left side	20	QPSK 50_25	18900/1880	1:1	0.039	-0.14	16.91	22.50	3.622	0.141	Yes
Right side	20	QPSK 50_25	18900/1880	1:1	0.032	-0.06	16.91	22.50	3.622	0.115	Yes
Top side	20	QPSK 50_25	18900/1880	1:1	0.444	0.07	16.91	22.50	3.622	1.608	No

LTE Band 7(Ant13):

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	20850/2510	1:1	0.113	0.02	18.23	22.80	2.864	0.324	Yes
Back side	20	QPSK 1_50	20850/2510	1:1	0.393	0.06	18.23	22.80	2.864	1.126	Yes
Left side	20	QPSK 1_50	20850/2510	1:1	0.120	0.18	18.23	22.80	2.864	0.344	Yes
Right side	20	QPSK 1_50	20850/2510	1:1	0.005	-0.07	18.23	22.80	2.864	0.013	Yes
Top side	20	QPSK 1_50	20850/2510	1:1	0.435	0.04	18.23	22.80	2.864	1.246	No
Top side	20	QPSK 1_99	20850/2510	1:1	0.424	0.04	17.86	22.50	2.911	1.234	No
		QPSK 1_0	21048/2529.8								
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	20850/2510	1:1	0.105	0.06	18.20	22.80	2.884	0.303	Yes
Back side	20	QPSK 50_25	20850/2510	1:1	0.389	0.07	18.20	22.80	2.884	1.122	Yes
Left side	20	QPSK 50_25	20850/2510	1:1	0.122	0.06	18.20	22.80	2.884	0.352	Yes
Right side	20	QPSK 50_25	20850/2510	1:1	0.005	0.00	18.20	22.80	2.884	0.015	Yes
Top side	20	QPSK 50_25	20850/2510	1:1	0.426	0.01	18.20	22.80	2.884	1.229	No

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LTE Band 66(Ant13):

Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_99	132572/1770	1:1	0.315	0.01	19.66	23.50	2.421	0.763	Yes
Back side	20	QPSK 1_99	132572/1770	1:1	0.373	0.15	19.66	23.50	2.421	0.903	Yes
Left side	20	QPSK 1_99	132572/1770	1:1	0.048	-0.03	19.66	23.50	2.421	0.116	Yes
Right side	20	QPSK 1_99	132572/1770	1:1	0.056	-0.07	19.66	23.50	2.421	0.135	Yes
Top side	20	QPSK 1_99	132572/1770	1:1	0.509	0.02	19.66	23.50	2.421	1.232	No
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_50	132072/1720	1:1	0.252	-0.06	19.46	23.50	2.535	0.639	Yes
Back side	20	QPSK 50_50	132072/1720	1:1	0.267	0.07	19.46	23.50	2.535	0.677	Yes
Left side	20	QPSK 50_50	132072/1720	1:1	0.038	-0.16	19.46	23.50	2.535	0.096	Yes
Right side	20	QPSK 50_50	132072/1720	1:1	0.041	0.16	19.46	23.50	2.535	0.104	Yes
Top side	20	QPSK 50_50	132072/1720	1:1	0.474	0.06	19.46	23.50	2.535	1.202	No

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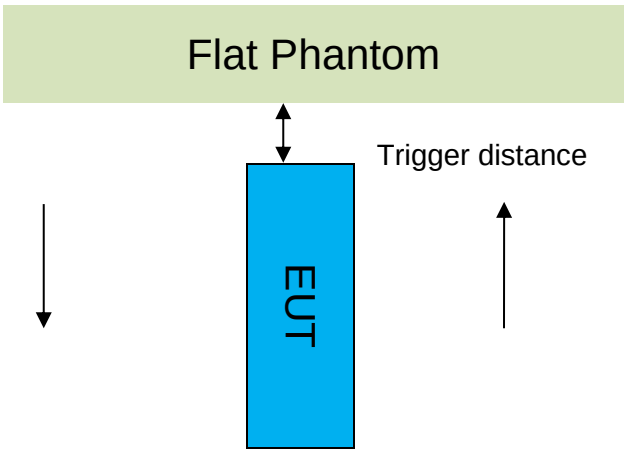
5.4 Proximity Sensor Triggering Test

Proximity sensor triggering distances：

The Proximity sensor triggering was applied to GSM1900(Ant 13), WCDMA Band II/IV(Ant13) and LTE Band 2/4/7/38/41/66(Ant13). Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.



Proximity Sensor Triggering Distance(mm)			
Position	Front side	Back side	Top side
Minimum	8	10	15
Required SAR Test	7	9	14

Note:

SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the maximum power level with sensor off.

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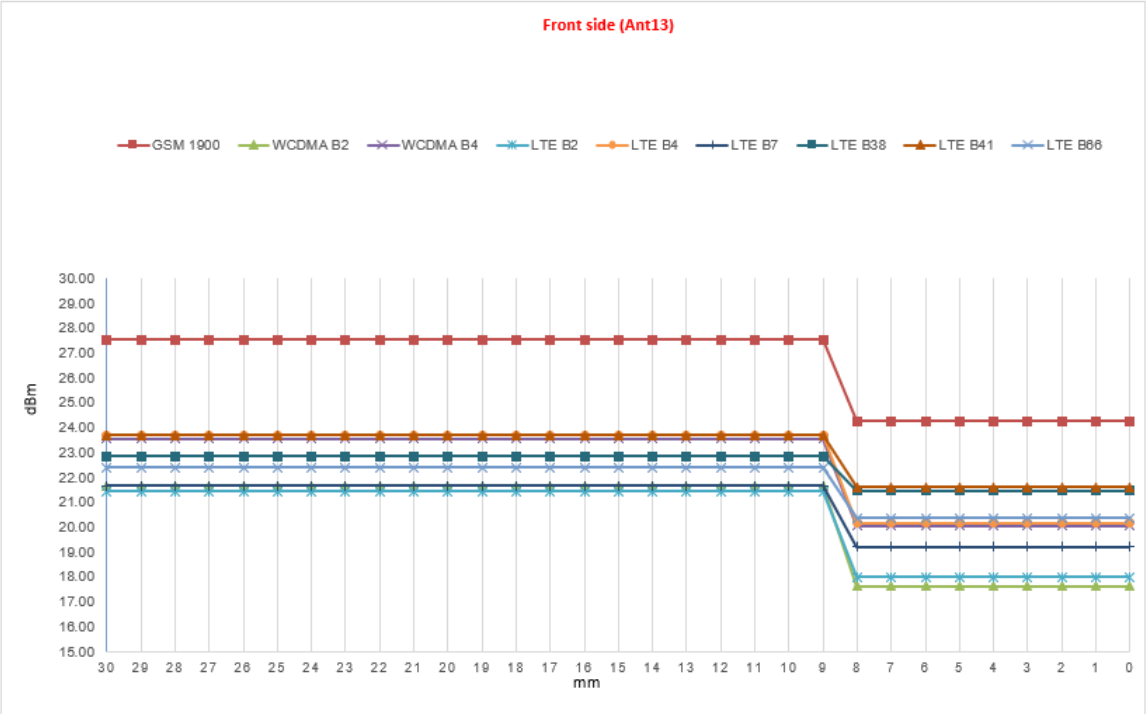
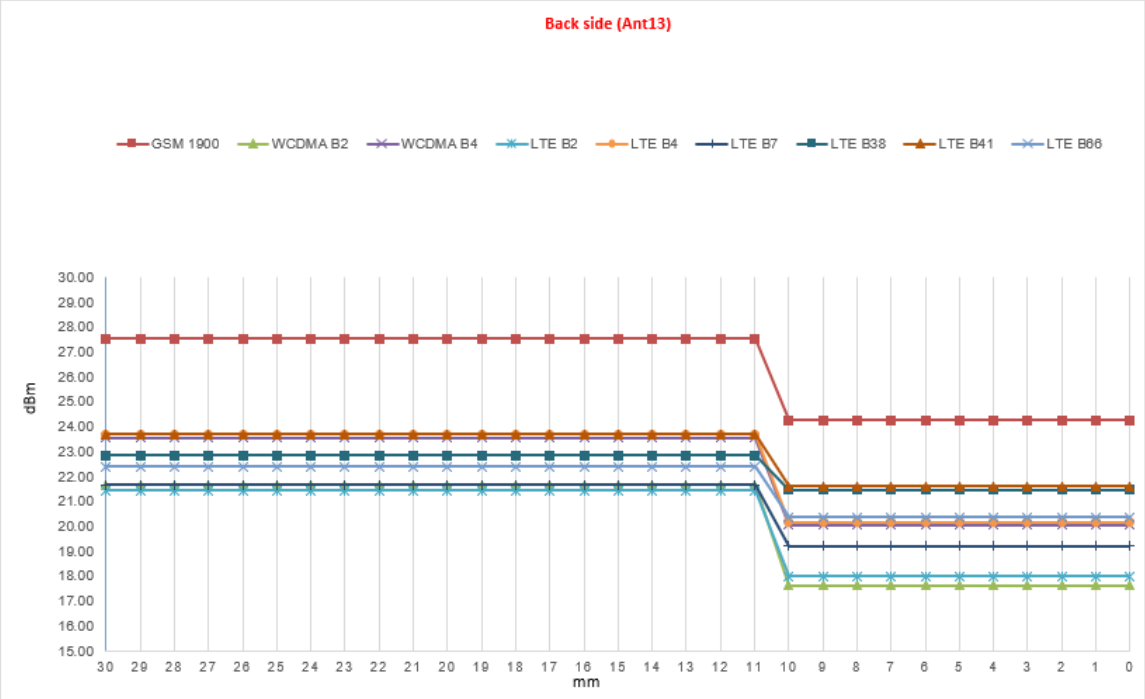
- DUT Moving Toward(Trigger)the Phantom





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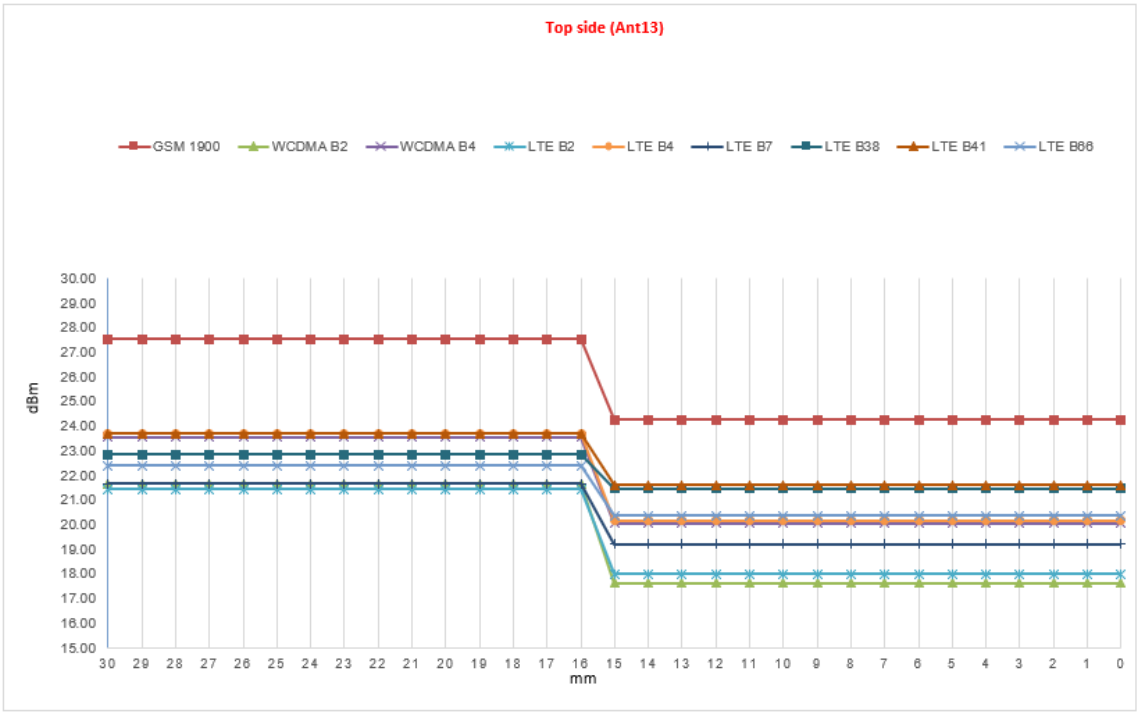
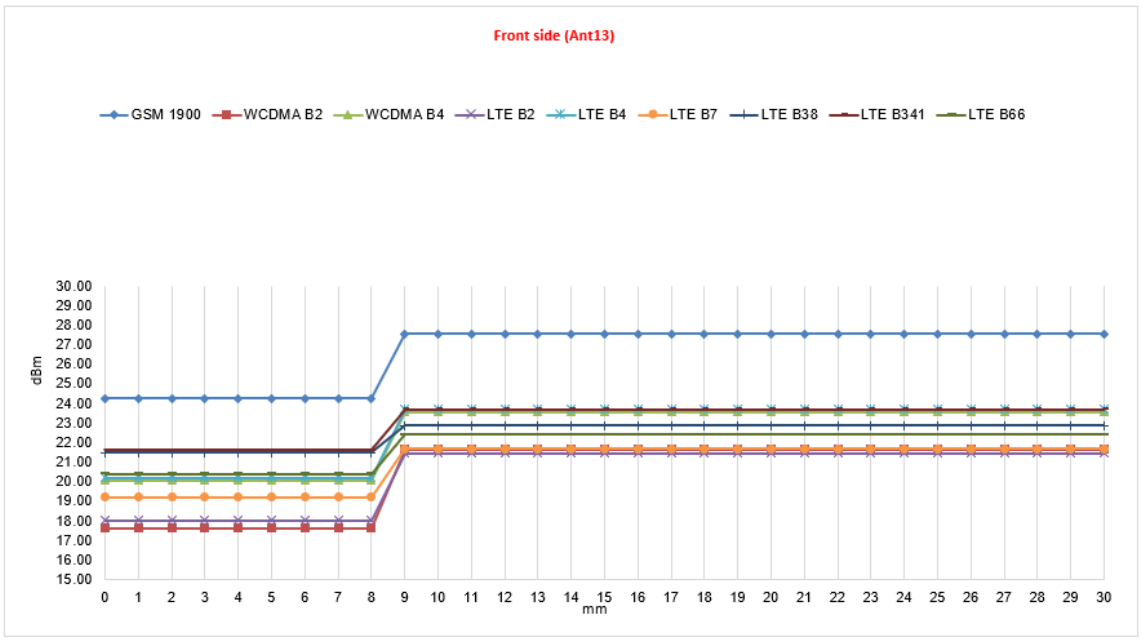


- DUT Moving Away(Release) from the Phantom



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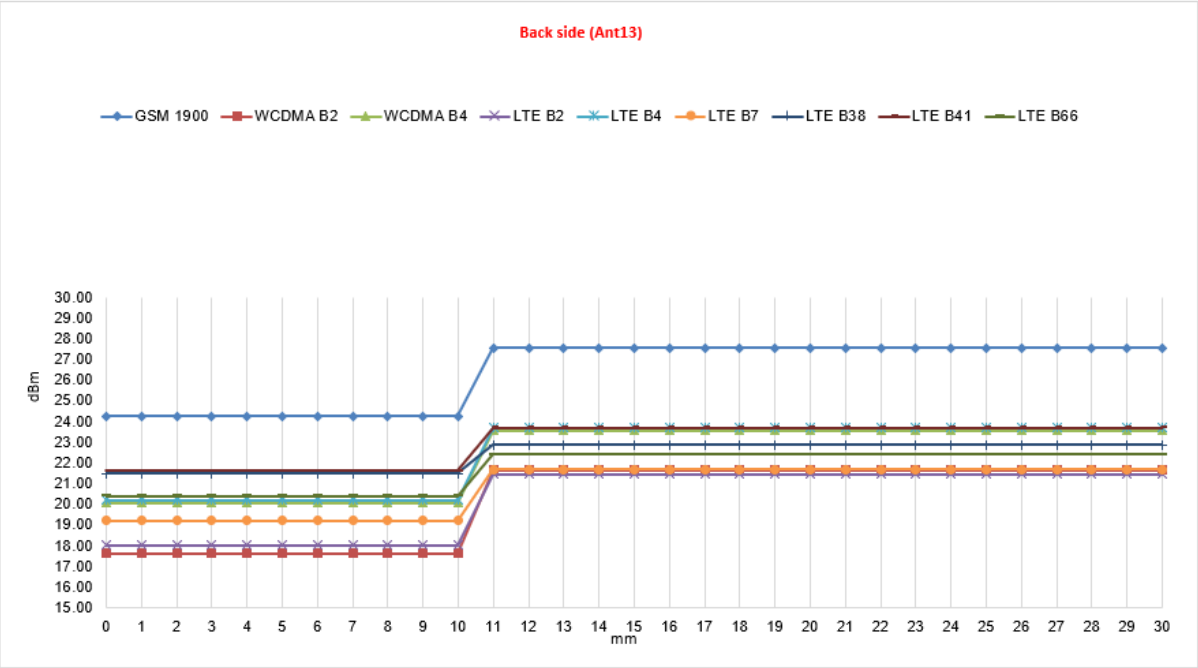

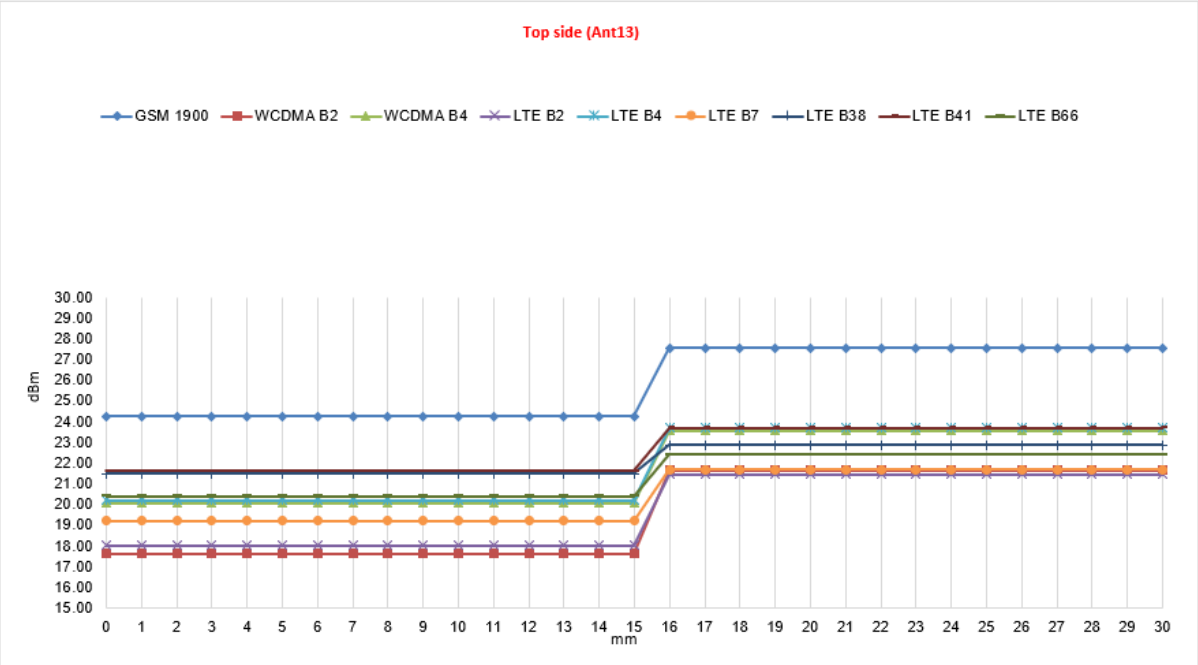

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Proximity sensor coverage

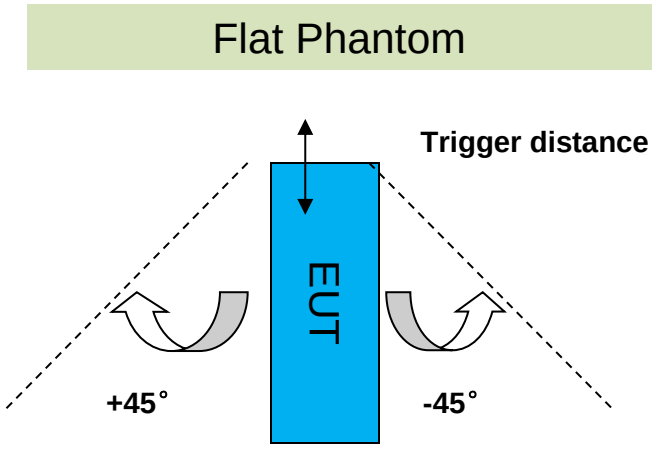
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.

The proximity sensor and main antenna use same metallic electrode, so there is no spatial offset.

Device tilt angle influences to proximity sensor triggering

The influence of device tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom.

Rotating the tablet around the edge next to the phantom in ≤ 10° increments until the tablet is ± 45° from the vertical position at 0°, and the maximum output power remains in the reduced mode.



Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering for Top Side												
Band (MHz)	Minimum trigger distance Per KDB616217§6.2	Minimum trigger distance at which power reduction was maintained over ±45°	Power Reduction Status									
			-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°
Ant 13: GSM1900 WCDMA Band II/IV LTE Band 2/4/7/38/41/66	Top side:15mm	Top side:15mm	on	on	on	on	on	on	on	on	on	on	on

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6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands：

Ingredients (% by weight)	Frequency (MHz)				
	450	700-900	1750-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate			Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose		
HSL5GHz is composed of the following ingredients：(Manufactured by SPEAG) Water：50-65% Mineral oil：10-30% Emulsifiers：8-25% Sodium salt：0-1.5%					

Table 3： Recipe of Tissue Simulate Liquid

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6.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ε_r) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency (MHz)	Target Tissue (±5%)		Measured Tissue		Deviation (Within ±5%)		Liquid Temp. (℃)	Test Date
		ε_r	σ(S/m)	ε_r	σ(S/m)	ε_r	σ(S/m)		
750 Head	750	41.90	0.89	42.621	0.902	1.72%	1.35%	21.2	2023/10/19
835 Head	835	42.28	0.90	42.267	0.902	-0.03%	0.22%	21.5	2023/10/18
835 Head	835	42.28	0.90	42.287	0.942	0.02%	4.70%	21.2	2023/10/19
1750 Head	1750	40.10	1.37	40.320	1.323	0.55%	-3.43%	21.6	2023/10/19
1900 Head	1900	40.00	1.40	40.018	1.362	0.05%	-2.71%	21.6	2023/10/19
2450 Head	2450	39.20	1.80	38.951	1.794	-0.64%	-0.33%	21.8	2023/10/17
2600 Head	2600	39.00	1.96	38.476	1.965	-1.34%	0.26%	21.7	2023/10/17
5250 Head	5250	35.90	4.66	36.309	4.720	1.14%	1.29%	21.8	2023/10/18
5600 Head	5600	35.50	5.07	35.357	5.106	-0.40%	0.71%	21.8	2023/10/18
5750 Head	5750	35.40	5.22	34.993	5.277	-1.15%	1.09%	21.8	2023/10/18

Table 4： Measurement result of Tissue electric parameters

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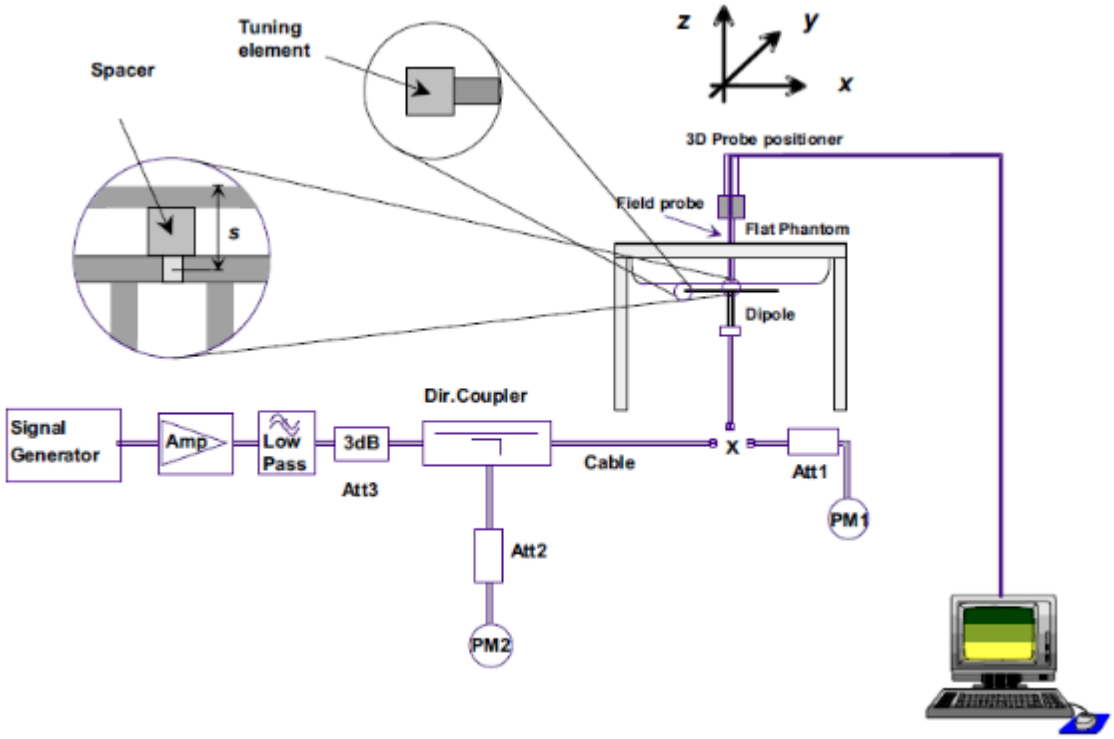
6.2 SAR System Check

The microwave circuit arrangement for system Check is sketched in F-12. 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% from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range 22±2°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15±0.5 cm 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.



F-12. the microwave circuit arrangement used for SAR system check

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6.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.
a) There is no physical damage on the dipole.
b) System check with specific dipole is within 10% of calibrated value.
c) Return-loss is within 10% of calibrated measurement.
d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

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6.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (℃)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3	Head	1.98	1.33	7.92	5.32	8.37	5.53	-5.38%	-3.80%	21.2	2023/10/19
D835V2	Head	2.58	1.70	10.32	6.80	9.53	6.29	8.29%	8.11%	21.5	2023/10/18
D835V2	Head	2.47	1.62	9.88	6.48	9.53	6.29	3.67%	3.02%	21.2	2023/10/19
D1750V2	Head	8.66	4.62	34.64	18.48	36.60	19.30	-5.36%	-4.25%	21.6	2023/10/19
D1900V2	Head	9.63	5.02	38.52	20.08	39.50	20.60	-2.48%	-2.52%	21.6	2023/10/19
D2450V2	Head	13.60	6.30	54.40	25.20	52.20	24.30	4.21%	3.70%	21.7	2023/10/17
D2600V2	Head	14.50	6.50	58.00	26.00	57.70	25.80	0.52%	0.78%	21.8	2023/10/17
Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (℃)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D5GHzV2	Head(5.25GHz)	7.96	2.27	79.60	22.70	77.30	22.10	2.98%	2.71%	21.8	2023/10/18
	Head(5.6GHz)	8.13	2.30	81.30	23.00	81.30	23.10	0.00%	-0.43%	21.8	2023/10/18
	Head(5.75GHz)	7.73	2.20	77.30	22.00	77.10	21.30	0.26%	3.29%	21.8	2023/10/18

Table 5： SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A

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SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Wireless Laboratory

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7 Test Configuration

7.1 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

7.2 Operation Configurations

7.2.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using Radio Communication Analyzer, the power lever is set to “5”and “0” in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 33 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 33 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode

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7.2.2 WCDMA Test Configuration

1）. Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

2）. Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure

3）. Body SAR

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreaing code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4）. HSDPA / HSUPA / DC-HSDPA

According to KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA

a) HSDPA

HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) are set according to values indicated in the following table The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

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Sub-test	βc	Bd	βd(SF)	βc/βd	βhs	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	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

Note1: △ACK, △NACK and △CQI= 8 Ahs = βhs/βc=30/15 βhs=30/15*βc
Note2: For the HS-DPCCH power mask requirement test in clause 5.2C,5.7A,and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1.A,and HSDPA EVM with phase discontinuity in clause 5.13.1AA, △ACK and △NACK= 8 (Ahs=30/15) with βhs=30/15*βc,and △CQI=
7 (Ahs=24/15) with βhs=24/15*βc.
Note3: CM=1 forβc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 6： settings of required H-Set 1 QPSK acc. to 3GPP 34.121

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HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	MaximumH S-DSCH Transport BlockBits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 7： HSDPA UE category

b) HSUPA

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the WCDMA Handset and Release 5 HSUPA Data Device sections of 3G device.

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Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	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_{ed1}:47/15 β_{ed2}:47/15	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(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference

Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$

Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$

Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g

Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Table 8： Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).

Table 9： HSUPA UE category

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c) DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a Second serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.
The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0.
A summary of these settings are illustrated below:
Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH _Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13.
The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.
The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK.

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 10：settings of required H-Set 12 QPSK acc. to 3GPP 34.121

Note:
1. The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2. Maximum number of transmission is limited to 1,i.e.,retransmission is not allowed. The redundancy and constellation version 0 shall be used.

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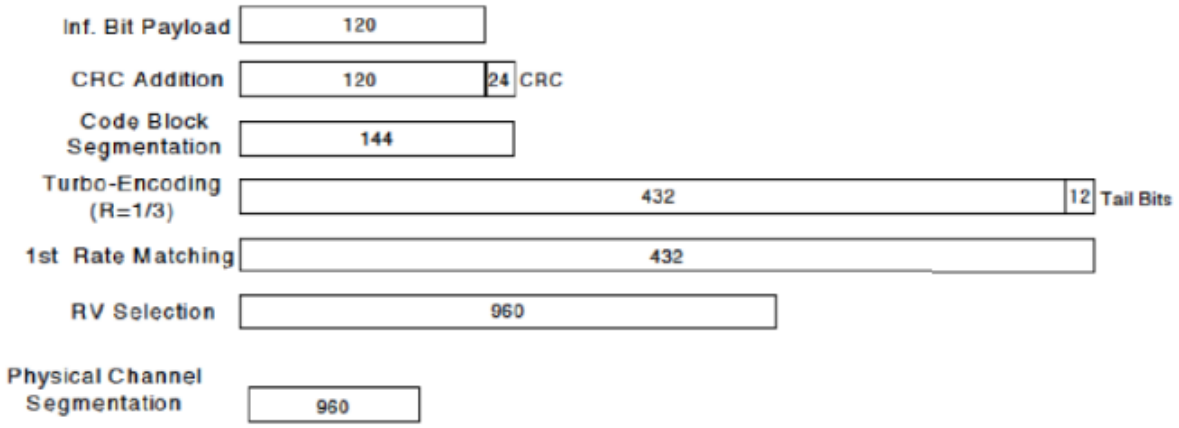

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM(dB)(2)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	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

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note 2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve UEs configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn't support carrier aggregation for it just can operate in Release 8.

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d) HSPA+

Per KDB941225D01, SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode. Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note3)	β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed}1: 30/15 β_{ed}2: 30/15	β_{ed}3: 24/15 β_{ed}4: 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and β_d = 0 by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

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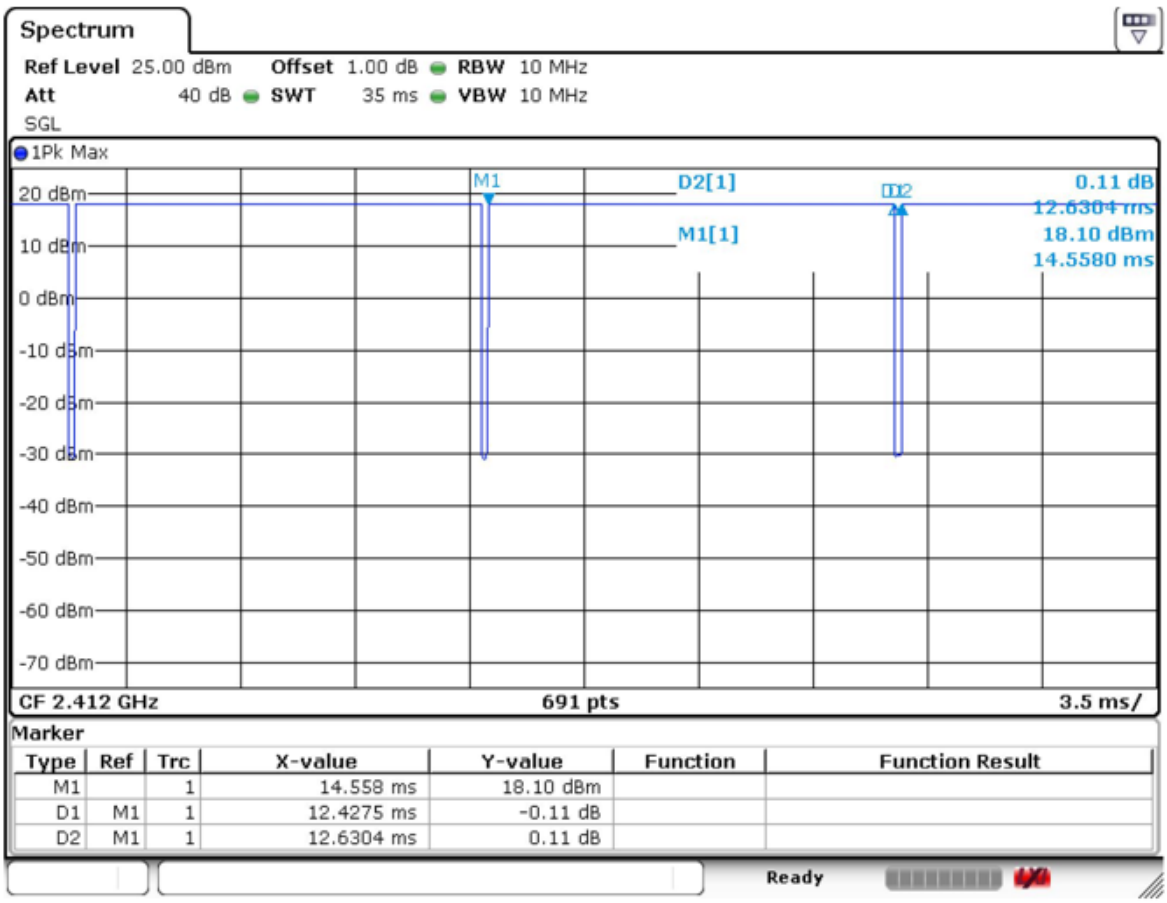
7.2.3 WiFi Test Configuration

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

7.2.3.1 Duty cycle

1) Wi-Fi 2.4GHz 802.11b:
Duty cycle=12.4275/12.6304=98.39%



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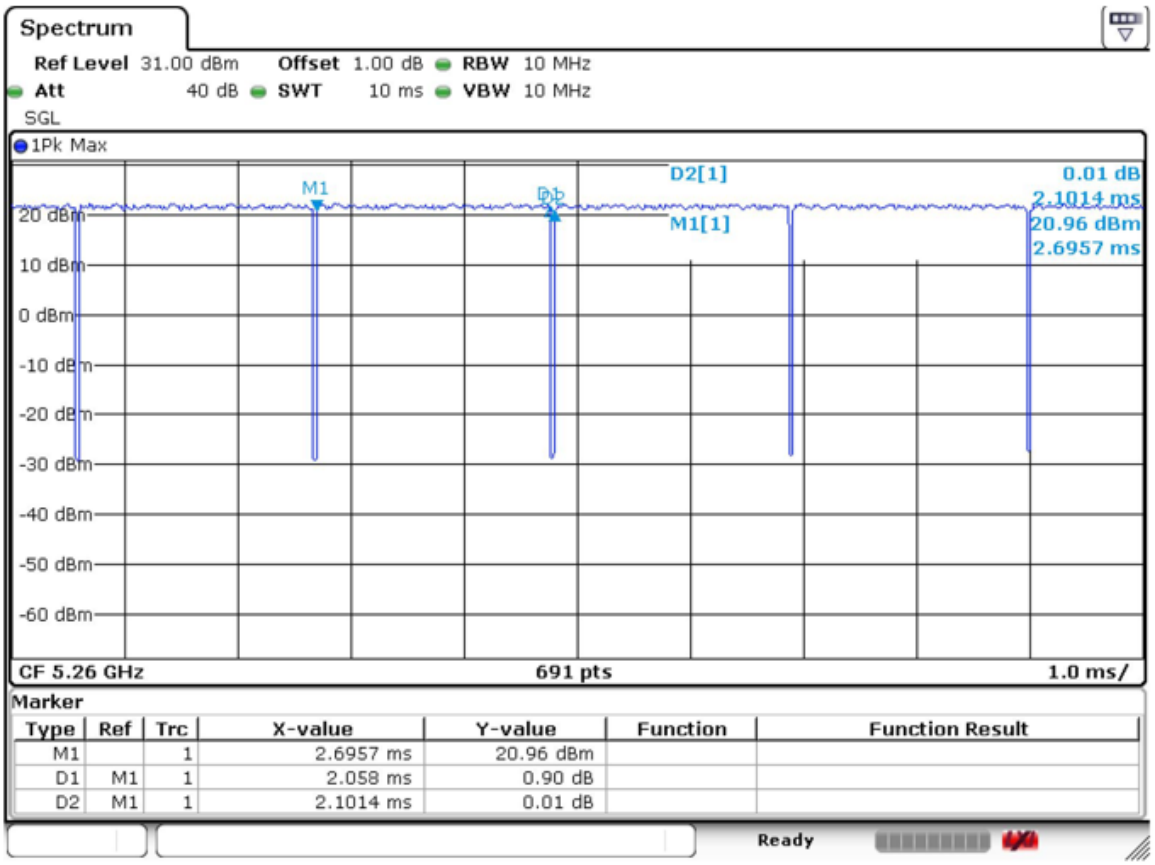
2) Wi-Fi 5GHz 802.11a:
Duty cycle=2.058/2.1014=97.93%



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7.2.3.2 Initial Test Position SAR Test Reduction Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1）. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
2）. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
3）. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

7.2.3.3 Initial Test Configuration Procedures

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. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration.
For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.
When the *reported* SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until *reported* SAR is ≤ 1.2 W/kg or all required channels are tested.

7.2.3.4 Subsequent Test Configuration Procedures

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

1）. When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
2）. When the highest *reported* SAR for the initial test configuration (when applicable, include subsequent

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highest output channels), according to the initial test position or fixed exposure position requirements, 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 that subsequent test configuration.

3）. The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.

a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.

b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.

4）. SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:

a) replace “subsequent test configuration” with “next subsequent test configuration” (i.e., subsequent next highest specified maximum output power configuration)

b) replace “initial test configuration” with “all tested higher output power configurations”

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7.2.3.5 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1）. 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.

2）. 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.

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3, including sub-sections). SAR is not required for the following 2.4 GHz OFDM conditions.

1）. When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.

2）. When 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.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

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7.2.3.6 5 GHz WiFi SAR Procedures

- **U-NII-1 and U-NII-2A Bands**
  For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following：

1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

- **U-NII-2C and U-NII-3 Bands**
  The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

  When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

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- **OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**
  The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.
  1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
  2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
  3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
  4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
     a) The channel closest to mid-band frequency is selected for SAR measurement.
     b) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

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7.2.4 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Radio Communication Analyzer was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

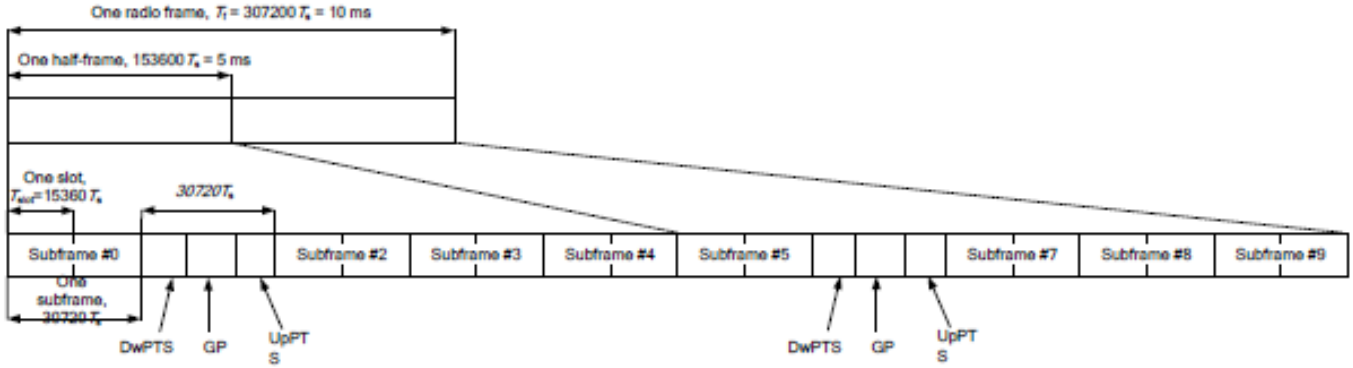
TDD LTE test consideration

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:



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Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.Ts	2192.Ts	2560.Ts	7680.Ts	2192.Ts	2560.Ts
1	19760.Ts			20480.Ts		
2	21952.Ts			23040.Ts		
3	24144.Ts			25600.Ts		
4	26336.Ts			7680.Ts	4384.Ts	5120.Ts
5	6592.Ts	4384.Ts	5120.Ts	20480.Ts		
6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

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A) Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

Modulation	Channel bandwidth/Transmission bandwidth						MPR (dB)
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	0
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2
64QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3
256QAM	≥1						5

C) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

Start with 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.

2) QPSK with 50% RB allocation

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

3) 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 1) and 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.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections 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) 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 A) 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 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.

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8 Test Result

8.1 Measurement of RF conducted Power

The detailed conducted power can refer to Appendix E.

Note:

1）. For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

2）. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8

3）. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used

4）. According to FCC guidance, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.

5）. In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs.

6）. Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05.

7）. Conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion per KDB 941225 D05A.Uplink maximum output power is measured with downlink carrier aggregation active, using 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, therefore SAR evaluation with downlink carrier aggregation can be excluded.
The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The detailed conducted power measurement results of downlink LTE CA are provided in the SAR report per 3GPP TS 36.521-1 V14.4.0. According to KDB 941225 D05A, the downlink only carrier aggregation conditions for this device can be excluded from SAR testing.
The conducted power measurement results of downlink LTE CA Conducted Power are as Appendix E conducted RF output power, so the downlink only carrier aggregation conditions for this device can be excluded from SAR testing

8）. For conducted power of WIFI must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band. For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured. Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.

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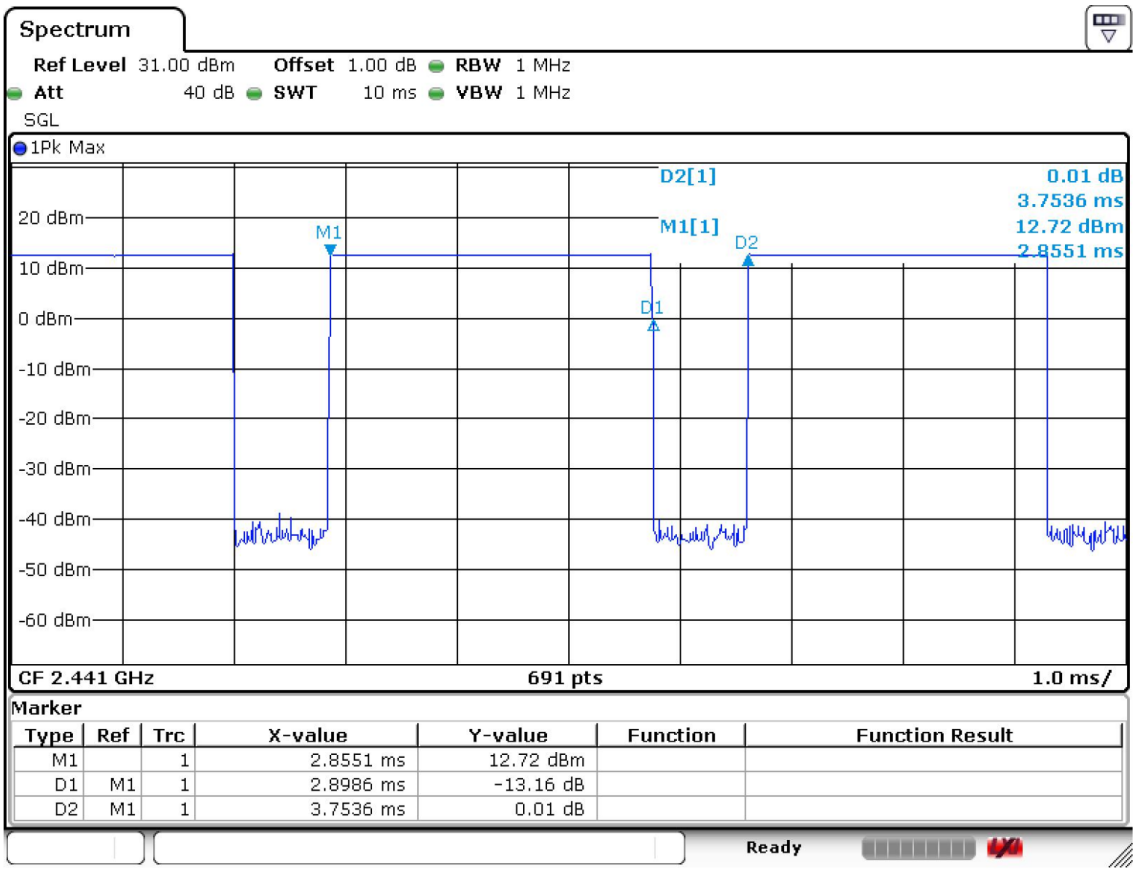
2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.

9）. The conducted power of BT is measured with RMS detector. BT DH5 Duty Cycle=2.8986/3.7536=77.22%



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8.2 Measurement of SAR Data

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

- ≤ 0.8W/kg for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is ≤ 100MHz.
- ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
- ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

WiFi 2.4G:

1) When 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 test for the other 802.11 modes are not required.

WiFi 5G:

1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. As the highest reported SAR for a test configuration is ⩽ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration.
2) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.

When 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 test for the other 802.11 modes are not required.

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8.2.1 SAR Result of GSM850

Ant 13 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	GPRS 2TS	190/836.6	1:4.15	0.325	-0.02	26.95	27.90	1.245	0.404	22.6
Left tilted	GPRS 2TS	190/836.6	1:4.15	0.287	-0.08	26.95	27.90	1.245	0.357	22.6
Right cheek	GPRS 2TS	190/836.6	1:4.15	0.529	-0.17	26.95	27.90	1.245	**0.658**	22.6
Right tilted	GPRS 2TS	190/836.6	1:4.15	0.469	0.01	26.95	27.90	1.245	0.584	22.6
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.156	-0.03	33.27	34.50	1.327	0.207	22.6
Back side	GSM	190/836.6	1:8.3	0.187	0.12	33.27	34.50	1.327	**0.248**	22.6
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	190/836.6	1:4.15	0.219	-0.03	31.03	31.90	1.222	0.268	22.6
Back side	GPRS 2TS	190/836.6	1:4.15	0.346	0.01	31.03	31.90	1.222	**0.423**	22.6
Left side	GPRS 2TS	190/836.6	1:4.15	0.132	0.05	31.03	31.90	1.222	0.161	22.6
Right side	GPRS 2TS	190/836.6	1:4.15	0.142	0.08	31.03	31.90	1.222	0.173	22.6
Top side	GPRS 2TS	190/836.6	1:4.15	0.273	0.08	31.03	31.90	1.222	0.334	22.6
Ant 31 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	GPRS 2TS	190/836.6	1:4.15	0.076	0.05	30.15	31.00	1.216	0.092	22.6
Left tilted	GPRS 2TS	190/836.6	1:4.15	0.042	0.08	30.15	31.00	1.216	0.051	22.6
Right cheek	GPRS 2TS	190/836.6	1:4.15	0.077	0.03	30.15	31.00	1.216	0.093	22.6
Right tilted	GPRS 2TS	190/836.6	1:4.15	0.038	0.09	30.15	31.00	1.216	0.046	22.6
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.064	0.04	32.58	33.40	1.208	0.077	22.6
Back side	GSM	190/836.6	1:8.3	0.059	0.05	32.58	33.40	1.208	0.071	22.6
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	190/836.6	1:4.15	0.083	-0.01	30.15	31.00	1.216	0.101	22.6
Back side	GPRS 2TS	190/836.6	1:4.15	0.132	-0.01	30.15	31.00	1.216	0.161	22.6
Left side	GPRS 2TS	190/836.6	1:4.15	0.086	0.02	30.15	31.00	1.216	0.105	22.6
Right side	GPRS 2TS	190/836.6	1:4.15	0.061	-0.02	30.15	31.00	1.216	0.074	22.6
Bottom side	GPRS 2TS	190/836.6	1:4.15	0.065	-0.08	30.15	31.00	1.216	0.079	22.6

Table 11： SAR of GSM850 for Head and Body. (Original report No.: ZEWM2303000343RG01)

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GSM850 SAR Test Record										
Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Right cheek	GPRS 2TS	190/836.6	1:4.15	0.405	-0.08	26.95	27.90	1.245	**0.504**	21.5
Body worn Test data(Separate 15mm)										
Back side	GSM	190/836.6	1:8.3	0.141	0.18	33.27	34.50	1.327	**0.187**	21.5
Hotspot Test data(Separate 10mm)										
Back side	GPRS 2TS	190/836.6	1:4.15	0.297	0.08	31.03	31.90	1.222	**0.363**	21.5
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Right cheek	GPRS 2TS	190/836.6	1:4.15	0.077	-0.07	30.15	31.00	1.216	0.094	21.5
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.062	0.10	32.58	33.40	1.208	0.074	21.5
Hotspot Test data(Separate 10mm)										
Back side	GPRS 2TS	190/836.6	1:4.15	0.119	-0.06	30.15	31.00	1.216	0.145	21.5

Table 12：SAR of GSM850 for Head and Body. (Variant)

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8.2.2 SAR Result of GSM1900

Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm)										
Front side	GSM	661/1880	1:8.3	0.312	-0.04	29.61	30.90	1.346	0.420	22.3
Back side	GSM	661/1880	1:8.3	0.436	0.03	29.61	30.90	1.346	**0.587**	22.3
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	661/1880	1:4.15	0.261	0.01	23.33	24.50	1.309	0.342	22.3
Back side	GPRS 2TS	661/1880	1:4.15	0.397	0.02	23.33	24.50	1.309	0.520	22.3
Left side	GPRS 2TS	661/1880	1:4.15	0.046	-0.05	23.33	24.50	1.309	0.060	22.3
Right side	GPRS 2TS	661/1880	1:4.15	0.035	0.10	23.33	24.50	1.309	0.046	22.3
Top side	GPRS 2TS	661/1880	1:4.15	0.583	0.16	23.33	24.50	1.309	**0.763**	22.3
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10g SAR Test data(Separate 0mm) Sensor on										
Back side	GPRS 2TS	661/1880	1:1	1.000	-0.05	24.27	25.50	1.327	**1.327**	22.3
Top side	GPRS 2TS	661/1880	1:1	0.716	-0.05	24.27	25.50	1.327	0.950	22.3
Product specific 10g SAR Test data Sensor off										
Back side 9mm	GPRS 2TS	661/1880	1:1	0.603	0.00	27.55	29.00	1.396	0.842	22.3
Top side 14mm	GPRS 2TS	661/1880	1:1	0.454	0.11	27.55	29.00	1.396	0.634	22.3
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	GPRS 2TS	661/1880	1:4.15	0.053	0.07	27.98	28.90	1.236	**0.065**	22.3
Left tilted	GPRS 2TS	661/1880	1:4.15	0.040	0.04	27.98	28.90	1.236	0.050	22.3
Right cheek	GPRS 2TS	661/1880	1:4.15	0.041	-0.15	27.98	28.90	1.236	0.050	22.3
Right tilted	GPRS 2TS	661/1880	1:4.15	0.040	-0.04	27.98	28.90	1.236	0.049	22.3
Body worn Test data(Separate 15mm)										
Front side	GSM	661/1880	1:8.3	0.071	16.00	28.05	28.90	1.216	0.086	22.3
Back side	GSM	661/1880	1:8.3	0.136	-0.03	28.05	28.90	1.216	0.165	22.3
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	661/1880	1:4.15	0.085	0.11	24.03	24.90	1.222	0.103	22.3
Back side	GPRS 2TS	661/1880	1:4.15	0.192	-0.15	24.03	24.90	1.222	0.235	22.3
Left side	GPRS 2TS	661/1880	1:4.15	0.028	-0.18	24.03	24.90	1.222	0.034	22.3
Right side	GPRS 2TS	661/1880	1:4.15	0.039	-0.06	24.03	24.90	1.222	0.048	22.3
Bottom side	GPRS 2TS	661/1880	1:4.15	0.232	-0.04	24.03	24.90	1.222	0.283	22.3

Table 13： SAR of GSM1900 for Head and Body and Product specific 10g SAR. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm)										
Back side	GSM	661/1880	1:8.3	0.363	0.13	29.61	30.90	1.346	**0.489**	21.6
Hotspot Test data(Separate 10mm)										
Top side	GPRS 2TS	661/1880	1:4.15	0.480	0.17	23.33	24.50	1.309	**0.628**	21.6
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10g SAR Test data(Separate 0mm) Sensor on										
Back side	GPRS 2TS	661/1880	1:4.15	0.899	0.07	24.27	25.50	1.327	**1.193**	21.6
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Left cheek	GPRS 2TS	661/1880	1:4.15	0.057	0.04	27.98	28.90	1.236	**0.070**	21.6
Body worn Test data(Separate 15mm)										
Back side	GSM	661/1880	1:8.3	0.133	0.04	28.05	28.90	1.216	0.162	21.6
Hotspot Test data(Separate 10mm)										
Bottom side	GPRS 2TS	661/1880	1:4.15	0.241	0.02	24.03	24.90	1.222	0.294	21.6

Table 14：SAR of GSM1900 for Head and Body and Product specific 10g SAR. (Variant)

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8.2.3 SAR Result of WCDMA Band II

Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.380	-0.18	21.67	22.50	1.211	0.460	22.1
Back side	RMC	9400/1880	1:1	0.554	-0.19	21.67	22.50	1.211	**0.671**	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.194	-0.04	16.18	17.00	1.208	0.234	22.1
Back side	RMC	9400/1880	1:1	0.279	0.04	16.18	17.00	1.208	0.337	22.1
Left side	RMC	9400/1880	1:1	0.040	-0.06	16.18	17.00	1.208	0.049	22.1
Right side	RMC	9400/1880	1:1	0.028	0.01	16.18	17.00	1.208	0.034	22.1
Top side	RMC	9400/1880	1:1	0.429	-0.02	16.18	17.00	1.208	**0.518**	22.1
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10g SAR Test data(Separate 0mm) Sensor on										
Top side	RMC	9400/1880	1:1	0.968	-0.01	17.64	18.50	1.219	**1.180**	22.1
Product specific 10g SAR Test data Sensor off										
Top side 14mm	RMC	9400/1880	1:1	0.540	-0.02	21.67	22.50	1.211	0.654	22.1
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	RMC	9400/1880	1:1	0.069	0.02	23.04	23.90	1.219	0.084	22.1
Left tilted	RMC	9400/1880	1:1	0.050	0.03	23.04	23.90	1.219	0.061	22.1
Right cheek	RMC	9400/1880	1:1	0.072	0.04	23.04	23.90	1.219	**0.088**	22.1
Right tilted	RMC	9400/1880	1:1	0.069	0.08	23.04	23.90	1.219	0.084	22.1
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.092	-0.01	20.03	20.90	1.222	0.112	22.1
Back side	RMC	9400/1880	1:1	0.187	-0.11	20.03	20.90	1.222	0.228	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.127	-0.09	19.00	19.90	1.230	0.156	22.1
Back side	RMC	9400/1880	1:1	0.282	-0.08	19.00	19.90	1.230	0.347	22.1
Left side	RMC	9400/1880	1:1	0.045	-0.07	19.00	19.90	1.230	0.055	22.1
Right side	RMC	9400/1880	1:1	0.065	0.11	19.00	19.90	1.230	0.080	22.1
Bottom side	RMC	9400/1880	1:1	0.352	-0.07	19.00	19.90	1.230	0.433	22.1

Table 15： SAR of WCDMA Band II for Head and Body and Product specific 10g SAR. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm)										
Back side	RMC	9400/1880	1:1	0.486	-0.03	21.67	22.50	1.211	**0.588**	21.6
Hotspot Test data(Separate 10mm)										
Top side	RMC	9400/1880	1:1	0.391	0.07	16.18	17.00	1.208	**0.472**	21.6
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10g SAR Test data(Separate 0mm) Sensor on										
Top side	RMC	9400/1880	1:1	1.080	0.09	17.64	18.50	1.219	**1.317**	21.6
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Right cheek	RMC	9400/1880	1:1	0.069	0.07	23.04	23.90	1.219	**0.084**	21.6
Body worn Test data(Separate 15mm)										
Back side	RMC	9400/1880	1:1	0.189	-0.04	20.03	20.90	1.222	0.231	21.6
Hotspot Test data(Separate 10mm)										
Bottom side	RMC	9400/1880	1:1	0.370	0.02	19.00	19.90	1.230	0.455	21.6

Table 16： SAR of WCDMA Band II for Head and Body and Product specific 10g SAR. (Variant)

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8.2.4 SAR Result of WCDMA Band IV

Ant 13 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.243	-0.04	23.56	24.50	1.242	0.302	22.0
Back side	RMC	1412/1732.4	1:1	0.261	-0.01	23.56	24.50	1.242	**0.324**	22.0
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.160	0.06	19.05	20.00	1.245	0.199	22.0
Back side	RMC	1412/1732.4	1:1	0.171	0.06	19.05	20.00	1.245	0.213	22.0
Left side	RMC	1412/1732.4	1:1	0.030	0.02	19.05	20.00	1.245	0.037	22.0
Right side	RMC	1412/1732.4	1:1	0.030	0.01	19.05	20.00	1.245	0.037	22.0
Top side	RMC	1412/1732.4	1:1	0.324	-0.19	19.05	20.00	1.245	**0.403**	22.0
Ant 31 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.061	0.04	23.35	24.10	1.189	0.072	22.0
Left tilted	RMC	1412/1732.4	1:1	0.056	0.02	23.35	24.10	1.189	0.066	22.0
Right cheek	RMC	1412/1732.4	1:1	0.066	-0.15	23.35	24.10	1.189	**0.079**	22.0
Right tilted	RMC	1412/1732.4	1:1	0.055	0.18	23.35	24.10	1.189	0.066	22.0
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.081	0.02	19.70	20.60	1.230	0.099	22.0
Back side	RMC	1412/1732.4	1:1	0.137	-0.17	19.70	20.60	1.230	0.169	22.0
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.121	0.03	18.77	19.60	1.211	0.146	22.0
Back side	RMC	1412/1732.4	1:1	0.207	-0.19	18.77	19.60	1.211	0.251	22.0
Left side	RMC	1412/1732.4	1:1	0.028	-0.07	18.77	19.60	1.211	0.033	22.0
Right side	RMC	1412/1732.4	1:1	0.060	-0.09	18.77	19.60	1.211	0.073	22.0
Bottom side	RMC	1412/1732.4	1:1	0.310	-0.09	18.77	19.60	1.211	0.375	22.0

Table 17： SAR of WCDMA Band IV for Head and Body. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm)										
Back side	RMC	1412/1732.4	1:1	0.253	-0.05	23.56	24.50	1.242	**0.314**	21.6
Hotspot Test data(Separate 10mm)										
Top side	RMC	1412/1732.4	1:1	0.286	0.07	19.05	20.00	1.245	**0.356**	21.6
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Right cheek	RMC	1412/1732.4	1:1	0.052	0.08	23.35	24.10	1.189	**0.062**	21.6
Body worn Test data(Separate 15mm)										
Back side	RMC	1412/1732.4	1:1	0.128	-0.03	19.70	20.60	1.230	0.157	21.6
Hotspot Test data(Separate 10mm)										
Bottom side	RMC	1412/1732.4	1:1	0.287	0.04	18.77	19.60	1.211	0.347	21.6

Table 18： SAR of WCDMA Band IV for Head and Body. (Variant)

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8.2.5 SAR Result of WCDMA Band V

Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.389	-0.03	20.25	21.00	1.189	0.462	22.6
Left tilted	RMC	4182/836.4	1:1	0.308	-0.03	20.25	21.00	1.189	0.366	22.6
Right cheek	RMC	4182/836.4	1:1	0.540	-0.07	20.25	21.00	1.189	**0.642**	22.6
Right tilted	RMC	4182/836.4	1:1	0.419	0.05	20.25	21.00	1.189	0.498	22.6
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.156	0.00	23.69	24.50	1.205	0.188	22.6
Back side	RMC	4182/836.4	1:1	0.188	0.05	23.69	24.50	1.205	**0.227**	22.6
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.158	-0.02	23.69	24.50	1.205	0.190	22.6
Back side	RMC	4182/836.4	1:1	0.345	-0.06	23.69	24.50	1.205	**0.416**	22.6
Left side	RMC	4182/836.4	1:1	0.128	0.00	23.69	24.50	1.205	0.154	22.6
Right side	RMC	4182/836.4	1:1	0.149	0.09	23.69	24.50	1.205	0.180	22.6
Top side	RMC	4182/836.4	1:1	0.213	-0.02	23.69	24.50	1.205	0.257	22.6
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.091	0.09	23.33	24.20	1.222	0.112	22.6
Left tilted	RMC	4182/836.4	1:1	0.046	0.12	23.33	24.20	1.222	0.056	22.6
Right cheek	RMC	4182/836.4	1:1	0.097	0.01	23.33	24.20	1.222	0.118	22.6
Right tilted	RMC	4182/836.4	1:1	0.044	0.02	23.33	24.20	1.222	0.054	22.6
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.086	0.00	23.33	24.20	1.222	0.104	22.6
Back side	RMC	4182/836.4	1:1	0.072	-0.15	23.33	24.20	1.222	0.088	22.6
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.102	0.08	23.33	24.20	1.222	0.125	22.6
Back side	RMC	4182/836.4	1:1	0.158	0.02	23.33	24.20	1.222	0.193	22.6
Left side	RMC	4182/836.4	1:1	0.090	-0.03	23.33	24.20	1.222	0.110	22.6
Right side	RMC	4182/836.4	1:1	0.066	-0.02	23.33	24.20	1.222	0.081	22.6
Bottom side	RMC	4182/836.4	1:1	0.084	-0.01	23.33	24.20	1.222	0.103	22.6

Table 19： SAR of WCDMA Band V for Head and Body. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Right cheek	RMC	4182/836.4	1:1	0.454	0.16	20.25	21.00	1.189	**0.540**	21.5
Body worn Test data(Separate 15mm)										
Back side	RMC	4182/836.4	1:1	0.167	0.06	23.69	24.50	1.205	**0.201**	21.5
Hotspot Test data(Separate 10mm)										
Back side	RMC	4182/836.4	1:1	0.288	0.08	23.69	24.50	1.205	**0.347**	21.5
Ant 31 Test Record										
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data										
Right cheek	RMC	4182/836.4	1:1	0.088	0.09	23.33	24.20	1.222	0.108	21.5
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.078	0.02	23.33	24.20	1.222	0.095	21.5
Hotspot Test data(Separate 10mm)										
Back side	RMC	4182/836.4	1:1	0.147	0.02	23.33	24.20	1.222	0.180	21.5

Table 20： SAR of WCDMA Band V for Head and Body. (Variant)

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8.2.6 SAR Result of LTE Band 2

Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_50	19100/1900	1:1	0.435	-0.01	21.34	22.50	1.306	0.568	22.1
Back side	20	QPSK 1_50	19100/1900	1:1	0.564	0.05	21.34	22.50	1.306	**0.737**	22.1
Back side with Sample2	20	QPSK 1_50	19100/1900	1:1	0.548	0.07	21.34	22.50	1.306	0.716	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	19100/1900	1:1	0.432	-0.01	21.46	22.50	1.271	0.549	22.1
Back side	20	QPSK 50_25	19100/1900	1:1	0.576	0.01	21.46	22.50	1.271	0.732	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.242	0.01	16.80	18.00	1.318	0.319	22.1
Back side	20	QPSK 1_0	18900/1880	1:1	0.331	-0.02	16.80	18.00	1.318	0.436	22.1
Left side	20	QPSK 1_0	18900/1880	1:1	0.041	0.04	16.80	18.00	1.318	0.053	22.1
Right side	20	QPSK 1_0	18900/1880	1:1	0.033	0.07	16.80	18.00	1.318	0.043	22.1
Top side	20	QPSK 1_0	18900/1880	1:1	0.456	0.13	16.80	18.00	1.318	**0.601**	22.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	18900/1880	1:1	0.251	0.10	16.91	18.00	1.285	0.323	22.1
Back side	20	QPSK 50_25	18900/1880	1:1	0.344	0.05	16.91	18.00	1.285	0.442	22.1
Left side	20	QPSK 50_25	18900/1880	1:1	0.039	-0.14	16.91	18.00	1.285	0.050	22.1
Right side	20	QPSK 50_25	18900/1880	1:1	0.032	-0.06	16.91	18.00	1.285	0.041	22.1
Top side	20	QPSK 50_25	18900/1880	1:1	0.444	0.07	16.91	18.00	1.285	0.571	22.1
Test position	**BW.**	**Test mode**	**Test Ch./Freq.**	**Duty Cycle**	**SAR (W/kg)10-g**	**Power Drift(dB)**	**Conducted power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled 10-g SAR(W/kg)**	**Liquid Temp.**
Product specific 10g SAR Test data(Separate 0mm 1RB) Sensor on											
Back side	20	QPSK 1_50	19100/1900	1:1	1.030	-0.02	17.89	19.00	1.291	**1.330**	22.1
Top side	20	QPSK 1_50	19100/1900	1:1	1.010	0.03	17.89	19.00	1.291	1.304	22.1
Product specific 10g SAR Test data (Separate 0mm 50%RB) Sensor on											
Back side	20	QPSK 50_25	19100/1900	1:1	1.050	-0.10	18.02	19.00	1.253	1.316	22.1
Top side	20	QPSK 50_25	19100/1900	1:1	1.030	-0.07	18.02	19.00	1.253	1.291	22.1
Product specific 10g SAR Test data(Separate 1RB) Sensor off											
Back side 9mm	20	QPSK 1_50	19100/1900	1:1	0.671	0.00	21.34	22.50	1.306	0.876	22.1
Top side 14mm	20	QPSK 1_50	19100/1900	1:1	0.463	0.07	21.34	22.50	1.306	0.605	22.1
Product specific 10g SAR Test data (Separate 50%RB) Sensor off											
Back side 9mm	20	QPSK 50_25	19100/1900	1:1	0.696	0.06	21.46	22.50	1.271	0.884	22.1
Top side 14mm	20	QPSK 50_25	19100/1900	1:1	0.480	0.00	21.46	22.50	1.271	0.610	22.1
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.088	-0.01	22.71	23.90	1.315	**0.115**	22.1
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.055	0.02	22.71	23.90	1.315	0.072	22.1

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Right cheek	20	QPSK 1_0	18900/1880	1:1	0.057	-0.07	22.71	23.90	1.315	0.074	22.1
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.055	0.03	22.71	23.90	1.315	0.072	22.1
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.057	0.03	21.84	22.90	1.276	0.073	22.1
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.044	0.01	21.84	22.90	1.276	0.057	22.1
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.043	0.08	21.84	22.90	1.276	0.055	22.1
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.045	0.15	21.84	22.90	1.276	0.057	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.102	0.04	20.19	21.40	1.321	0.135	22.1
Back side	20	QPSK 1_0	18900/1880	1:1	0.192	0.05	20.19	21.40	1.321	0.254	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.101	0.07	20.33	21.40	1.279	0.129	22.1
Back side	20	QPSK 50_0	18900/1880	1:1	0.192	0.04	20.33	21.40	1.279	0.246	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.148	-0.12	19.13	20.40	1.340	0.198	22.1
Back side	20	QPSK 1_0	18900/1880	1:1	0.272	-0.11	19.13	20.40	1.340	0.364	22.1
Left side	20	QPSK 1_0	18900/1880	1:1	0.049	-0.08	19.13	20.40	1.340	0.065	22.1
Right side	20	QPSK 1_0	18900/1880	1:1	0.080	0.01	19.13	20.40	1.340	0.107	22.1
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.370	0.01	19.13	20.40	1.340	0.496	22.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.147	0.02	19.26	20.40	1.300	0.191	22.1
Back side	20	QPSK 50_0	18900/1880	1:1	0.264	0.01	19.26	20.40	1.300	0.343	22.1
Left side	20	QPSK 50_0	18900/1880	1:1	0.049	0.07	19.26	20.40	1.300	0.064	22.1
Right side	20	QPSK 50_0	18900/1880	1:1	0.068	0.13	19.26	20.40	1.300	0.089	22.1
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.369	0.02	19.26	20.40	1.300	0.480	22.1

Table 21：SAR of LTE Band 2 for Head and Body and Product specific 10g SAR. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_50	19100/1900	1:1	0.439	0.08	21.34	22.50	1.306	**0.573**	21.6
Hotspot Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_0	18900/1880	1:1	0.420	0.18	16.80	18.00	1.318	**0.554**	21.6
Test position	**BW.**	**Test mode**	**Test Ch./Freq.**	**Duty Cycle**	**SAR (W/kg)10-g**	**Power Drift(dB)**	**Conducted power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled 10-g SAR(W/kg)**	**Liquid Temp.**
Product specific 10g SAR Test data(Separate 0mm 1RB) Sensor on											
Back side	20	QPSK 1_50	19100/1900	1:1	0.790	0.14	17.89	19.00	1.291	**1.020**	21.6
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.085	0.05	22.71	23.90	1.315	**0.112**	21.6
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_0	18900/1880	1:1	0.177	0.01	20.19	21.40	1.321	0.234	21.6
Hotspot Test data(Separate 10mm 1RB)											
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.409	0.02	19.13	20.40	1.340	0.548	21.6

Table 22： SAR of LTE Band 2 for Head and Body and Product specific 10g SAR. (Variant)

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8.2.7 SAR Result of LTE Band 4

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_50	20175/1732.5	1:1	0.245	-0.03	23.70	24.80	1.288	0.316	22.0
Back side	20	QPSK 1_50	20175/1732.5	1:1	0.258	0.04	23.70	24.80	1.288	**0.332**	22.0
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_50	20050/1720	1:1	0.187	-0.03	22.74	23.80	1.276	0.239	22.0
Back side	20	QPSK 50_50	20050/1720	1:1	0.200	0.11	22.74	23.80	1.276	0.255	22.0
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_99	20050/1720	1:1	0.177	0.14	19.13	20.30	1.309	0.232	22.0
Back side	20	QPSK 1_99	20050/1720	1:1	0.175	0.10	19.13	20.30	1.309	0.229	22.0
Left side	20	QPSK 1_99	20050/1720	1:1	0.025	0.18	19.13	20.30	1.309	0.032	22.0
Right side	20	QPSK 1_99	20050/1720	1:1	0.029	0.05	19.13	20.30	1.309	0.038	22.0
Top side	20	QPSK 1_99	20050/1720	1:1	0.254	0.11	19.13	20.30	1.309	0.333	22.0
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	20175/1732.5	1:1	0.165	0.02	19.25	20.30	1.274	0.210	22.0
Back side	20	QPSK 50_25	20175/1732.5	1:1	0.181	0.19	19.25	20.30	1.274	0.231	22.0
Left side	20	QPSK 50_25	20175/1732.5	1:1	0.026	0.17	19.25	20.30	1.274	0.033	22.0
Right side	20	QPSK 50_25	20175/1732.5	1:1	0.031	-0.04	19.25	20.30	1.274	0.039	22.0
Top side	20	QPSK 50_25	20175/1732.5	1:1	0.234	0.18	19.25	20.30	1.274	0.298	22.0
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_50	20300/1745	1:1	0.082	0.11	23.50	24.60	1.288	**0.106**	22.0
Left tilted	20	QPSK 1_50	20300/1745	1:1	0.072	0.02	23.50	24.60	1.288	0.092	22.0
Right cheek	20	QPSK 1_50	20300/1745	1:1	0.070	0.08	23.50	24.60	1.288	0.091	22.0
Right tilted	20	QPSK 1_50	20300/1745	1:1	0.069	0.05	23.50	24.60	1.288	0.089	22.0
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	20300/1745	1:1	0.063	0.02	22.53	23.60	1.279	0.081	22.0
Left tilted	20	QPSK 50_0	20300/1745	1:1	0.049	0.01	22.53	23.60	1.279	0.063	22.0
Right cheek	20	QPSK 50_0	20300/1745	1:1	0.051	0.07	22.53	23.60	1.279	0.065	22.0
Right tilted	20	QPSK 50_0	20300/1745	1:1	0.051	0.06	22.53	23.60	1.279	0.066	22.0
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	20300/1745	1:1	0.109	0.07	20.46	21.60	1.300	0.142	22.0
Back side	20	QPSK 1_0	20300/1745	1:1	0.180	0.04	20.46	21.60	1.300	0.234	22.0
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	20300/1745	1:1	0.098	0.05	20.56	21.60	1.271	0.125	22.0
Back side	20	QPSK 50_0	20300/1745	1:1	0.163	-0.08	20.56	21.60	1.271	0.207	22.0
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	20300/1745	1:1	0.163	0.02	19.52	20.60	1.282	0.209	22.0
Back side	20	QPSK 1_0	20300/1745	1:1	0.269	0.00	19.52	20.60	1.282	0.345	22.0
Left side	20	QPSK 1_0	20300/1745	1:1	0.043	0.01	19.52	20.60	1.282	0.056	22.0
Right side	20	QPSK 1_0	20300/1745	1:1	0.083	-0.18	19.52	20.60	1.282	0.107	22.0
Bottom side	20	QPSK 1_0	20300/1745	1:1	0.394	0.01	19.52	20.60	1.282	**0.505**	22.0
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	20300/1745	1:1	0.151	-0.05	19.59	20.60	1.262	0.191	22.0
Back side	20	QPSK 50_0	20300/1745	1:1	0.239	0.02	19.59	20.60	1.262	0.302	22.0
Left side	20	QPSK 50_0	20300/1745	1:1	0.039	-0.07	19.59	20.60	1.262	0.049	22.0
Right side	20	QPSK 50_0	20300/1745	1:1	0.074	0.03	19.59	20.60	1.262	0.093	22.0
Bottom side	20	QPSK 50_0	20300/1745	1:1	0.372	-0.02	19.59	20.60	1.262	0.469	22.0

Table 23： SAR of LTE Band 4 for Head and Body. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_50	20175/1732.5	1:1	0.222	-0.07	23.70	24.80	1.288	**0.286**	21.6
Hotspot Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_99	20050/1720	1:1	0.267	0.02	19.13	20.30	1.309	0.350	21.6
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_50	20300/1745	1:1	0.063	-0.09	23.50	24.60	1.288	**0.081**	21.6
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_0	20300/1745	1:1	0.117	-0.03	20.46	21.60	1.300	0.152	21.6
Hotspot Test data(Separate 10mm 1RB)											
Bottom side	20	QPSK 1_0	20300/1745	1:1	0.319	0.02	19.52	20.60	1.282	**0.409**	21.6

Table 24： SAR of LTE Band 4 for Head and Body. (Variant)

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8.2.8 SAR Result of LTE Band 5

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_49	20450/829	1:1	0.396	-0.18	20.20	21.40	1.318	0.522	22.2
Left tilted	10	QPSK 1_49	20450/829	1:1	0.346	0.03	20.20	21.40	1.318	0.456	22.2
Right cheek	10	QPSK 1_49	20450/829	1:1	0.604	0.02	20.20	21.40	1.318	**0.796**	22.2
Right tilted	10	QPSK 1_49	20450/829	1:1	0.420	-0.04	20.20	21.40	1.318	0.554	22.2
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_25	20450/829	1:1	0.370	-0.09	20.05	21.40	1.365	0.505	22.2
Left tilted	10	QPSK 25_25	20450/829	1:1	0.332	0.01	20.05	21.40	1.365	0.453	22.2
Right cheek	10	QPSK 25_25	20450/829	1:1	0.578	-0.02	20.05	21.40	1.365	0.789	22.2
Right tilted	10	QPSK 25_25	20450/829	1:1	0.405	-0.07	20.05	21.40	1.365	0.553	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20450/829	1:1	0.173	-0.06	24.18	24.90	1.180	**0.204**	22.2
Back side	10	QPSK 1_0	20450/829	1:1	0.153	-0.01	24.18	24.90	1.180	0.181	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	20450/829	1:1	0.127	-0.08	22.84	23.90	1.276	0.162	22.2
Back side	10	QPSK 25_0	20450/829	1:1	0.123	-0.04	22.84	23.90	1.276	0.157	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20450/829	1:1	0.215	-0.04	24.18	24.90	1.180	0.254	22.2
Back side	10	QPSK 1_0	20450/829	1:1	0.335	0.01	24.18	24.90	1.180	**0.395**	22.2
Left side	10	QPSK 1_0	20450/829	1:1	0.138	-0.03	24.18	24.90	1.180	0.163	22.2
Right side	10	QPSK 1_0	20450/829	1:1	0.134	0.04	24.18	24.90	1.180	0.158	22.2
Top side	10	QPSK 1_0	20450/829	1:1	0.218	-0.01	24.18	24.90	1.180	0.257	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20450/829	1:1	0.172	-0.08	22.84	23.90	1.276	0.220	22.2
Back side	10	QPSK 25_0	20450/829	1:1	0.268	0.06	22.84	23.90	1.276	0.342	22.2
Left side	10	QPSK 25_0	20450/829	1:1	0.109	-0.02	22.84	23.90	1.276	0.139	22.2
Right side	10	QPSK 25_0	20450/829	1:1	0.108	-0.04	22.84	23.90	1.276	0.138	22.2
Top side	10	QPSK 25_0	20450/829	1:1	0.176	-0.07	22.84	23.90	1.276	0.225	22.2
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	20450/829	1:1	0.080	0.12	24.06	24.90	1.213	0.097	22.2
Left tilted	10	QPSK 1_0	20450/829	1:1	0.041	0.02	24.06	24.90	1.213	0.050	22.2
Right cheek	10	QPSK 1_0	20450/829	1:1	0.084	0.13	24.06	24.90	1.213	0.102	22.2
Right tilted	10	QPSK 1_0	20450/829	1:1	0.037	0.03	24.06	24.90	1.213	0.045	22.2
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	20450/829	1:1	0.061	0.01	22.71	23.90	1.315	0.081	22.2
Left tilted	10	QPSK 25_0	20450/829	1:1	0.032	0.04	22.71	23.90	1.315	0.042	22.2
Right cheek	10	QPSK 25_0	20450/829	1:1	0.064	0.03	22.71	23.90	1.315	0.084	22.2

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Right tilted	10	QPSK 25_0	20450/829	1:1	0.027	0.05	22.71	23.90	1.315	0.036	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20450/829	1:1	0.080	-0.07	24.06	24.90	1.213	0.097	22.2
Back side	10	QPSK 1_0	20450/829	1:1	0.074	0.04	24.06	24.90	1.213	0.090	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	20450/829	1:1	0.060	-0.01	22.71	23.90	1.315	0.079	22.2
Back side	10	QPSK 25_0	20450/829	1:1	0.056	-0.05	22.71	23.90	1.315	0.074	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20450/829	1:1	0.098	0.00	24.06	24.90	1.213	0.119	22.2
Back side	10	QPSK 1_0	20450/829	1:1	0.156	-0.06	24.06	24.90	1.213	0.189	22.2
Left side	10	QPSK 1_0	20450/829	1:1	0.074	-0.01	24.06	24.90	1.213	0.090	22.2
Right side	10	QPSK 1_0	20450/829	1:1	0.060	-0.02	24.06	24.90	1.213	0.072	22.2
Bottom side	10	QPSK 1_0	20450/829	1:1	0.070	-0.05	24.06	24.90	1.213	0.085	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20450/829	1:1	0.076	0.03	22.71	23.90	1.315	0.100	22.2
Back side	10	QPSK 25_0	20450/829	1:1	0.124	-0.07	22.71	23.90	1.315	0.163	22.2
Left side	10	QPSK 25_0	20450/829	1:1	0.058	0.02	22.71	23.90	1.315	0.076	22.2
Right side	10	QPSK 25_0	20450/829	1:1	0.046	-0.09	22.71	23.90	1.315	0.061	22.2
Bottom side	10	QPSK 25_0	20450/829	1:1	0.056	0.03	22.71	23.90	1.315	0.074	22.2

Table 25：SAR of LTE Band 5 for Head and Body. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	10	QPSK 1_49	20450/829	1:1	0.455	-0.02	20.20	21.40	1.318	**0.600**	21.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20450/829	1:1	0.135	0.09	24.18	24.90	1.180	**0.159**	21.2
Hotspot Test data(Separate 10mm 1RB)											
Back side	10	QPSK 1_0	20450/829	1:1	0.286	0.08	24.18	24.90	1.180	**0.338**	21.2
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	10	QPSK 1_0	20450/829	1:1	0.080	0.03	24.06	24.90	1.213	0.097	21.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20450/829	1:1	0.077	-0.01	24.06	24.90	1.213	0.093	21.2
Hotspot Test data(Separate 10mm 1RB)											
Back side	10	QPSK 1_0	20450/829	1:1	0.124	0.03	24.06	24.90	1.213	0.150	21.2

Table 26： SAR of LTE Band 5 for Head and Body. (Variant)

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8.2.9 SAR Result of LTE Band 7

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	20850/2510	1:1	0.146	0.06	21.58	22.80	1.324	0.193	22.2
Back side	20	QPSK 1_0	20850/2510	1:1	0.387	-0.05	21.58	22.80	1.324	**0.513**	22.2
Back side	20	QPSK 1_99	20850/2510	1:1	0.343	-0.08	21.32	22.50	1.312	0.450	22.1
		QPSK 1_0	21048/2529.8								
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	21350/2560	1:1	0.125	0.02	21.69	22.80	1.291	0.161	22.2
Back side	20	QPSK 50_25	21350/2560	1:1	0.369	-0.02	21.69	22.80	1.291	0.476	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	20850/2510	1:1	0.113	0.02	18.23	19.30	1.279	0.145	22.2
Back side	20	QPSK 1_50	20850/2510	1:1	0.393	0.06	18.23	19.30	1.279	0.503	22.2
Left side	20	QPSK 1_50	20850/2510	1:1	0.120	0.18	18.23	19.30	1.279	0.154	22.2
Right side	20	QPSK 1_50	20850/2510	1:1	0.005	-0.07	18.23	19.30	1.279	0.006	22.2
Top side	20	QPSK 1_50	20850/2510	1:1	0.435	0.04	18.23	19.30	1.279	**0.557**	22.2
Top side	20	QPSK 1_99	20850/2510	1:1	0.424	0.04	17.86	19.00	1.300	0.551	22.1
		QPSK 1_0	21048/2529.8								
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	20850/2510	1:1	0.105	0.06	18.20	19.30	1.288	0.135	22.2
Back side	20	QPSK 50_25	20850/2510	1:1	0.389	0.07	18.20	19.30	1.288	0.501	22.2
Left side	20	QPSK 50_25	20850/2510	1:1	0.122	0.06	18.20	19.30	1.288	0.157	22.2
Right side	20	QPSK 50_25	20850/2510	1:1	0.005	0.00	18.20	19.30	1.288	0.007	22.2
Top side	20	QPSK 50_25	20850/2510	1:1	0.426	0.01	18.20	19.30	1.288	0.549	22.2
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)10-g	Power Drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled 10-g SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data(Separate 0mm 1RB) Sensor on											
Top side	20	QPSK 1_0	20850/2510	1:1	0.754	-0.04	19.08	20.30	1.324	**0.999**	22.2
Top side	20	QPSK 1_99	20850/2510	1:1	0.645	0.10	18.54	20.00	1.400	0.903	22.1
		QPSK 1_0	21048/2529.8								
Product specific 10g SAR Test data (Separate 0mm 50%RB) Sensor on											
Top side	20	QPSK 50_25	21350/2560	1:1	0.676	0.01	19.21	20.30	1.285	0.869	22.2
Product specific 10g SAR Test data(Separate 1RB) Sensor off											
Top side 14mm	20	QPSK 1_0	20850/2510	1:1	0.228	-0.11	21.58	22.80	1.324	0.302	22.2
Product specific 10g SAR Test data (Separate 50%RB) Sensor off											
Top side 14mm	20	QPSK 50_25	21350/2560	1:1	0.229	-0.13	21.69	22.80	1.291	0.296	22.2
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											

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Left cheek	20	QPSK 1_50	21350/2560	1:1	0.163	0.05	23.72	24.50	1.197	0.195	22.2
Left tilted	20	QPSK 1_50	21350/2560	1:1	0.142	0.02	23.72	24.50	1.197	0.170	22.2
Right cheek	20	QPSK 1_50	21350/2560	1:1	0.314	-0.04	23.72	24.50	1.197	**0.376**	22.2
Right tilted	20	QPSK 1_50	21350/2560	1:1	0.113	0.14	23.72	24.50	1.197	0.135	22.2
Right cheek	20	QPSK 1_0	21350/2560	1:1	0.245	0.11	22.67	24.50	1.524	0.373	22.1
		QPSK 1_99	21152/2540.2								
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_25	21350/2560	1:1	0.141	0.07	22.65	23.50	1.216	0.171	22.2
Left tilted	20	QPSK 50_25	21350/2560	1:1	0.116	0.19	22.65	23.50	1.216	0.141	22.2
Right cheek	20	QPSK 50_25	21350/2560	1:1	0.286	-0.07	22.65	23.50	1.216	0.348	22.2
Right tilted	20	QPSK 50_25	21350/2560	1:1	0.099	0.04	22.65	23.50	1.216	0.120	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_50	21350/2560	1:1	0.138	-0.04	20.39	21.50	1.291	0.178	22.2
Back side	20	QPSK 1_50	21350/2560	1:1	0.220	-0.05	20.39	21.50	1.291	0.284	22.2
Back side	20	QPSK 1_0	21350/2560	1:1	0.198	0.04	20.17	21.50	1.358	0.269	22.1
		QPSK 1_99	21152/2540.2								
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	20850/2510	1:1	0.136	0.00	20.45	21.50	1.274	0.173	22.2
Back side	20	QPSK 50_25	20850/2510	1:1	0.216	-0.02	20.45	21.50	1.274	0.275	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	20850/2510	1:1	0.194	-0.01	19.44	20.50	1.276	0.248	22.2
Back side	20	QPSK 1_50	20850/2510	1:1	0.353	-0.02	19.44	20.50	1.276	0.451	22.2
Left side	20	QPSK 1_50	20850/2510	1:1	0.048	0.07	19.44	20.50	1.276	0.061	22.2
Right side	20	QPSK 1_50	20850/2510	1:1	0.156	0.02	19.44	20.50	1.276	0.199	22.2
Bottom side	20	QPSK 1_50	20850/2510	1:1	0.184	0.03	19.44	20.50	1.276	0.235	22.2
Back side	20	QPSK 1_99	20850/2510	1:1	0.287	0.09	19.25	20.50	1.334	0.383	22.1
		QPSK 1_0	21048/2529.8								
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	21350/2560	1:1	0.191	-0.02	19.53	20.50	1.250	0.239	22.2
Back side	20	QPSK 50_25	21350/2560	1:1	0.340	0.06	19.53	20.50	1.250	0.425	22.2
Left side	20	QPSK 50_25	21350/2560	1:1	0.040	0.05	19.53	20.50	1.250	0.050	22.2
Right side	20	QPSK 50_25	21350/2560	1:1	0.145	0.06	19.53	20.50	1.250	0.181	22.2
Bottom side	20	QPSK 50_25	21350/2560	1:1	0.181	0.04	19.53	20.50	1.250	0.226	22.2

Table 27：SAR of LTE Band 7 for Head and Body and Product specific 10g SAR. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_0	20850/2510	1:1	0.365	0.07	21.58	22.80	1.324	**0.483**	21.7
Hotspot Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_50	20850/2510	1:1	0.412	0.09	18.23	19.30	1.279	**0.527**	21.7
Test position	**BW.**	**Test mode**	**Test Ch./Freq.**	**Duty Cycle**	**SAR (W/kg)10-g**	**Power Drift(dB)**	**Conducted power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled 10-g SAR(W/kg)**	**Liquid Temp.**
Product specific 10g SAR Test data(Separate 0mm 1RB) Sensor on											
Top side	20	QPSK 1_0	20850/2510	1:1	0.672	-0.02	19.08	20.30	1.324	**0.890**	21.7
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	20	QPSK 1_50	21350/2560	1:1	0.269	0.06	23.72	24.50	1.197	**0.322**	21.7
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_50	21350/2560	1:1	0.241	0.04	20.39	21.50	1.291	0.311	21.7
Hotspot Test data(Separate 10mm 1RB)											
Back side	20	QPSK 1_50	20850/2510	1:1	0.358	0.02	19.44	20.50	1.276	0.457	21.7

Table 28： SAR of LTE Band 7 for Head and Body and Product specific 10g SAR. (Variant)

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8.2.10 SAR Result of LTE Band 12

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	23095/707.5	1:1	0.328	-0.01	22.22	23.30	1.282	0.421	22.3
Left tilted	10	QPSK 1_0	23095/707.5	1:1	0.299	-0.02	22.22	23.30	1.282	0.383	22.3
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.642	-0.04	22.22	23.30	1.282	**0.823**	22.3
Right tilted	10	QPSK 1_0	23095/707.5	1:1	0.414	-0.03	22.22	23.30	1.282	0.531	22.3
Right cheek	10	QPSK 1_0	23060/704	1:1	0.519	-0.08	22.09	23.30	1.321	0.686	22.3
Right cheek	10	QPSK 1_0	23130/711	1:1	0.572	-0.06	22.22	23.30	1.282	0.733	22.3
Right cheek with Sample2	10	QPSK 1_0	23095/707.5	1:1	0.579	-0.11	22.22	23.30	1.282	0.742	22.3
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23095/707.5	1:1	0.312	-0.07	22.23	23.30	1.279	0.399	22.3
Left tilted	10	QPSK 25_0	23095/707.5	1:1	0.293	0.03	22.23	23.30	1.279	0.375	22.3
Right cheek	10	QPSK 25_0	23095/707.5	1:1	0.618	-0.02	22.23	23.30	1.279	0.791	22.3
Right tilted	10	QPSK 25_0	23095/707.5	1:1	0.401	0.00	22.23	23.30	1.279	0.513	22.3
Head Test Data(100%RB)											
Right cheek	10	QPSK 50_0	23060/704	1:1	0.536	-0.03	22.14	23.30	1.306	0.700	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23130/711	1:1	0.145	0.10	24.08	24.80	1.180	0.171	22.3
Back side	10	QPSK 1_0	23130/711	1:1	0.165	-0.15	24.08	24.80	1.180	**0.195**	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23130/711	1:1	0.111	0.04	22.70	23.80	1.288	0.143	22.3
Back side	10	QPSK 25_0	23130/711	1:1	0.130	0.01	22.70	23.80	1.288	0.167	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23130/711	1:1	0.127	-0.06	24.08	24.80	1.180	0.150	22.3
Back side	10	QPSK 1_0	23130/711	1:1	0.174	0.06	24.08	24.80	1.180	0.205	22.3
Left side	10	QPSK 1_0	23130/711	1:1	0.215	0.00	24.08	24.80	1.180	**0.254**	22.3
Right side	10	QPSK 1_0	23130/711	1:1	0.151	0.05	24.08	24.80	1.180	0.178	22.3
Top side	10	QPSK 1_0	23130/711	1:1	0.098	-0.07	24.08	24.80	1.180	0.115	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23130/711	1:1	0.101	-0.06	22.70	23.80	1.288	0.130	22.3
Back side	10	QPSK 25_0	23130/711	1:1	0.138	0.00	22.70	23.80	1.288	0.178	22.3
Left side	10	QPSK 25_0	23130/711	1:1	0.166	0.03	22.70	23.80	1.288	0.214	22.3
Right side	10	QPSK 25_0	23130/711	1:1	0.115	-0.04	22.70	23.80	1.288	0.148	22.3
Top side	10	QPSK 25_0	23130/711	1:1	0.078	0.06	22.70	23.80	1.288	0.100	22.3
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	23130/711	1:1	0.012	0.02	23.91	24.80	1.227	0.014	22.3
Left tilted	10	QPSK 1_0	23130/711	1:1	0.006	0.09	23.91	24.80	1.227	0.008	22.3

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Right cheek	10	QPSK 1_0	23130/711	1:1	0.013	0.07	23.91	24.80	1.227	0.015	22.3
Right tilted	10	QPSK 1_0	23130/711	1:1	0.006	0.04	23.91	24.80	1.227	0.007	22.3
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23130/711	1:1	0.009	0.09	22.70	23.80	1.288	0.011	22.3
Left tilted	10	QPSK 25_0	23130/711	1:1	0.005	0.02	22.70	23.80	1.288	0.006	22.3
Right cheek	10	QPSK 25_0	23130/711	1:1	0.010	0.03	22.70	23.80	1.288	0.012	22.3
Right tilted	10	QPSK 25_0	23130/711	1:1	0.004	0.07	22.70	23.80	1.288	0.006	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23130/711	1:1	0.016	0.00	23.91	24.80	1.227	0.020	22.3
Back side	10	QPSK 1_0	23130/711	1:1	0.019	-0.09	23.91	24.80	1.227	0.024	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23130/711	1:1	0.013	-0.04	22.70	23.80	1.288	0.017	22.3
Back side	10	QPSK 25_0	23130/711	1:1	0.015	-0.09	22.70	23.80	1.288	0.020	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23130/711	1:1	0.018	-0.06	23.91	24.80	1.227	0.022	22.3
Back side	10	QPSK 1_0	23130/711	1:1	0.020	0.05	23.91	24.80	1.227	0.025	22.3
Left side	10	QPSK 1_0	23130/711	1:1	0.021	0.08	23.91	24.80	1.227	0.026	22.3
Right side	10	QPSK 1_0	23130/711	1:1	0.022	-0.03	23.91	24.80	1.227	0.027	22.3
Bottom side	10	QPSK 1_0	23130/711	1:1	0.010	-0.08	23.91	24.80	1.227	0.012	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23130/711	1:1	0.015	-0.05	22.70	23.80	1.288	0.019	22.3
Back side	10	QPSK 25_0	23130/711	1:1	0.017	0.03	22.70	23.80	1.288	0.022	22.3
Left side	10	QPSK 25_0	23130/711	1:1	0.016	0.06	22.70	23.80	1.288	0.021	22.3
Right side	10	QPSK 25_0	23130/711	1:1	0.018	-0.08	22.70	23.80	1.288	0.023	22.3
Bottom side	10	QPSK 25_0	23130/711	1:1	0.008	-0.08	22.70	23.80	1.288	0.010	22.3

Table 29：SAR of LTE Band 12 for Head and Body. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.496	-0.05	22.22	23.30	1.282	**0.636**	21.2
Body worn Test data(Separate 15mm 1RB)											
Back side	10	QPSK 1_0	23130/711	1:1	0.160	0.03	24.08	24.80	1.180	**0.189**	21.2
Hotspot Test data(Separate 10mm 1RB)											
Left side	10	QPSK 1_0	23130/711	1:1	0.173	0.04	24.08	24.80	1.180	**0.204**	21.2
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Right cheek	10	QPSK 1_0	23130/711	1:1	0.010	0.02	23.91	24.80	1.227	0.012	21.2
Body worn Test data(Separate 15mm 1RB)											
Back side	10	QPSK 1_0	23130/711	1:1	0.016	0.10	23.91	24.80	1.227	0.019	21.2
Hotspot Test data(Separate 10mm 1RB)											
Right side	10	QPSK 1_0	23130/711	1:1	0.011	0.13	23.91	24.80	1.227	0.014	21.2

Table 30： SAR of LTE Band 12 for Head and Body. (Variant)

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8.2.11 SAR Result of LTE Band 13

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	23230/782	1:1	0.362	0.00	22.68	23.30	1.153	0.418	22.3
Left tilted	10	QPSK 1_0	23230/782	1:1	0.327	0.01	22.68	23.30	1.153	0.377	22.3
Right cheek	10	QPSK 1_0	23230/782	1:1	0.623	0.01	22.68	23.30	1.153	0.719	22.3
Right tilted	10	QPSK 1_0	23230/782	1:1	0.423	-0.01	22.68	23.30	1.153	0.488	22.3
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23230/782	1:1	0.352	-0.03	22.10	23.30	1.318	0.464	22.3
Left tilted	10	QPSK 25_0	23230/782	1:1	0.319	0.05	22.10	23.30	1.318	0.421	22.3
Right cheek	10	QPSK 25_0	23230/782	1:1	0.605	-0.03	22.10	23.30	1.318	**0.798**	22.3
Right tilted	10	QPSK 25_0	23230/782	1:1	0.411	-0.02	22.10	23.30	1.318	0.542	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.145	-0.08	23.66	24.80	1.300	0.189	22.3
Back side	10	QPSK 1_0	23230/782	1:1	0.151	0.01	23.66	24.80	1.300	**0.196**	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.106	0.03	22.61	23.80	1.315	0.139	22.3
Back side	10	QPSK 25_0	23230/782	1:1	0.109	0.04	22.61	23.80	1.315	0.143	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.155	-0.08	23.66	24.80	1.300	0.202	22.3
Back side	10	QPSK 1_0	23230/782	1:1	0.219	0.04	23.66	24.80	1.300	**0.285**	22.3
Left side	10	QPSK 1_0	23230/782	1:1	0.134	-0.02	23.66	24.80	1.300	0.174	22.3
Right side	10	QPSK 1_0	23230/782	1:1	0.108	-0.07	23.66	24.80	1.300	0.140	22.3
Top side	10	QPSK 1_0	23230/782	1:1	0.129	0.00	23.66	24.80	1.300	0.168	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.120	-0.04	22.61	23.80	1.315	0.158	22.3
Back side	10	QPSK 25_0	23230/782	1:1	0.178	0.06	22.61	23.80	1.315	0.234	22.3
Left side	10	QPSK 25_0	23230/782	1:1	0.101	-0.06	22.61	23.80	1.315	0.133	22.3
Right side	10	QPSK 25_0	23230/782	1:1	0.082	-0.07	22.61	23.80	1.315	0.107	22.3
Top side	10	QPSK 25_0	23230/782	1:1	0.103	0.04	22.61	23.80	1.315	0.135	22.3
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	23230/782	1:1	0.054	0.04	24.02	24.80	1.197	0.064	22.3
Left tilted	10	QPSK 1_0	23230/782	1:1	0.029	0.05	24.02	24.80	1.197	0.034	22.3
Right cheek	10	QPSK 1_0	23230/782	1:1	0.056	0.06	24.02	24.80	1.197	0.067	22.3
Right tilted	10	QPSK 1_0	23230/782	1:1	0.025	0.08	24.02	24.80	1.197	0.030	22.3
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23230/782	1:1	0.042	0.04	22.45	23.80	1.365	0.057	22.3
Left tilted	10	QPSK 25_0	23230/782	1:1	0.024	0.09	22.45	23.80	1.365	0.033	22.3
Right cheek	10	QPSK 25_0	23230/782	1:1	0.045	0.07	22.45	23.80	1.365	0.061	22.3
Right tilted	10	QPSK 25_0	23230/782	1:1	0.020	0.03	22.45	23.80	1.365	0.028	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.062	-0.14	24.02	24.80	1.197	0.074	22.3
Back side	10	QPSK 1_0	23230/782	1:1	0.072	0.06	24.02	24.80	1.197	0.086	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.050	-0.15	22.45	23.80	1.365	0.069	22.3
Back side	10	QPSK 25_0	23230/782	1:1	0.058	0.00	22.45	23.80	1.365	0.080	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.067	-0.10	24.02	24.80	1.197	0.080	22.3
Back side	10	QPSK 1_0	23230/782	1:1	0.082	0.14	24.02	24.80	1.197	0.098	22.3
Left side	10	QPSK 1_0	23230/782	1:1	0.054	0.03	24.02	24.80	1.197	0.064	22.3
Right side	10	QPSK 1_0	23230/782	1:1	0.056	-0.03	24.02	24.80	1.197	0.067	22.3
Bottom side	10	QPSK 1_0	23230/782	1:1	0.035	0.04	24.02	24.80	1.197	0.042	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.055	-0.04	22.45	23.80	1.365	0.075	22.3
Back side	10	QPSK 25_0	23230/782	1:1	0.069	-0.09	22.45	23.80	1.365	0.093	22.3

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Left side	10	QPSK 25_0	23230/782	1:1	0.042	-0.03	22.45	23.80	1.365	0.057	22.3
Right side	10	QPSK 25_0	23230/782	1:1	0.045	-0.15	22.45	23.80	1.365	0.061	22.3
Bottom side	10	QPSK 25_0	23230/782	1:1	0.027	-0.08	22.45	23.80	1.365	0.037	22.3

Table 31：SAR of LTE Band 13 for Head and Body. (Original report No.: ZEWM2303000343RG01)

Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(50%RB)											
Right cheek	10	QPSK 25_0	23230/782	1:1	0.462	-0.05	22.10	23.30	1.318	**0.609**	21.2
Body worn Test data(Separate 15mm 1RB)											
Back side	10	QPSK 1_0	23230/782	1:1	0.178	0.06	23.66	24.80	1.300	**0.231**	21.2
Hotspot Test data(Separate 10mm 1RB)											
Back side	10	QPSK 1_0	23230/782	1:1	0.194	0.05	23.66	24.80	1.300	**0.252**	21.2
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	10	QPSK 1_0	23230/782	1:1	0.044	0.01	24.02	24.80	1.197	0.053	21.2
Body worn Test data(Separate 15mm 1RB)											
Back side	10	QPSK 1_0	23230/782	1:1	0.052	0.07	24.02	24.80	1.197	0.063	21.2
Hotspot Test data(Separate 10mm 1RB)											
Back side	10	QPSK 1_0	23230/782	1:1	0.065	0.10	24.02	24.80	1.197	0.078	21.2

Table 32：SAR of LTE Band 13 for Head and Body. (Variant)

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8.2.12 SAR Result of LTE Band 26

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	15	QPSK 1_74	26765/821.5	1:1	0.393	-0.07	20.50	21.50	1.259	0.495	22.2
Left tilted	15	QPSK 1_74	26765/821.5	1:1	0.353	-0.02	20.50	21.50	1.259	0.444	22.2
Right cheek	15	QPSK 1_74	26765/821.5	1:1	0.625	-0.14	20.50	21.50	1.259	**0.787**	22.2
Right tilted	15	QPSK 1_74	26765/821.5	1:1	0.427	-0.06	20.50	21.50	1.259	0.538	22.2
Head Test Data(50%RB)											
Left cheek	15	QPSK 36_0	26765/821.5	1:1	0.357	-0.04	20.18	21.50	1.355	0.484	22.2
Left tilted	15	QPSK 36_0	26765/821.5	1:1	0.329	-0.02	20.18	21.50	1.355	0.446	22.2
Right cheek	15	QPSK 36_0	26765/821.5	1:1	0.537	-0.16	20.18	21.50	1.355	0.728	22.2
Right tilted	15	QPSK 36_0	26765/821.5	1:1	0.465	-0.09	20.18	21.50	1.355	0.630	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.146	-0.13	23.79	25.00	1.321	0.193	22.2
Back side	15	QPSK 1_0	26865/831.5	1:1	0.159	0.09	23.79	25.00	1.321	**0.210**	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.124	-0.01	22.73	24.00	1.340	0.166	22.2
Back side	15	QPSK 36_0	26865/831.5	1:1	0.125	0.07	22.73	24.00	1.340	0.167	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.204	-0.06	23.79	25.00	1.321	0.270	22.2
Back side	15	QPSK 1_0	26865/831.5	1:1	0.317	0.04	23.79	25.00	1.321	**0.419**	22.2
Left side	15	QPSK 1_0	26865/831.5	1:1	0.118	-0.06	23.79	25.00	1.321	0.156	22.2
Right side	15	QPSK 1_0	26865/831.5	1:1	0.126	-0.14	23.79	25.00	1.321	0.166	22.2
Top side	15	QPSK 1_0	26865/831.5	1:1	0.200	-0.03	23.79	25.00	1.321	0.264	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.174	-0.03	22.73	24.00	1.340	0.233	22.2
Back side	15	QPSK 36_0	26865/831.5	1:1	0.268	0.16	22.73	24.00	1.340	0.359	22.2
Left side	15	QPSK 36_0	26865/831.5	1:1	0.099	-0.04	22.73	24.00	1.340	0.132	22.2
Right side	15	QPSK 36_0	26865/831.5	1:1	0.106	-0.02	22.73	24.00	1.340	0.142	22.2
Top side	15	QPSK 36_0	26865/831.5	1:1	0.168	0.03	22.73	24.00	1.340	0.225	22.2
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	15	QPSK 1_0	26865/831.5	1:1	0.075	0.02	23.59	24.40	1.205	0.090	22.2
Left tilted	15	QPSK 1_0	26865/831.5	1:1	0.041	0.12	23.59	24.40	1.205	0.049	22.2
Right cheek	15	QPSK 1_0	26865/831.5	1:1	0.081	0.05	23.59	24.40	1.205	0.097	22.2
Right tilted	15	QPSK 1_0	26865/831.5	1:1	0.031	0.09	23.59	24.40	1.205	0.037	22.2
Head Test Data(50%RB)											
Left cheek	15	QPSK 36_0	26865/831.5	1:1	0.061	0.07	22.54	23.40	1.219	0.074	22.2
Left tilted	15	QPSK 36_0	26865/831.5	1:1	0.033	0.03	22.54	23.40	1.219	0.040	22.2
Right cheek	15	QPSK 36_0	26865/831.5	1:1	0.065	0.06	22.54	23.40	1.219	0.079	22.2
Right tilted	15	QPSK 36_0	26865/831.5	1:1	0.029	-0.19	22.54	23.40	1.219	0.035	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.074	-0.15	23.59	24.40	1.205	0.089	22.2
Back side	15	QPSK 1_0	26865/831.5	1:1	0.072	0.14	23.59	24.40	1.205	0.086	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.059	0.02	22.54	23.40	1.219	0.072	22.2
Back side	15	QPSK 36_0	26865/831.5	1:1	0.060	0.00	22.54	23.40	1.219	0.073	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.093	-0.02	23.59	24.40	1.205	0.112	22.2
Back side	15	QPSK 1_0	26865/831.5	1:1	0.147	-0.09	23.59	24.40	1.205	0.177	22.2
Left side	15	QPSK 1_0	26865/831.5	1:1	0.071	0.00	23.59	24.40	1.205	0.085	22.2
Right side	15	QPSK 1_0	26865/831.5	1:1	0.058	-0.07	23.59	24.40	1.205	0.070	22.2
Bottom side	15	QPSK 1_0	26865/831.5	1:1	0.067	-0.05	23.59	24.40	1.205	0.080	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.076	-0.07	22.54	23.40	1.219	0.092	22.2
Back side	15	QPSK 36_0	26865/831.5	1:1	0.121	-0.06	22.54	23.40	1.219	0.147	22.2

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Left side	15	QPSK 36_0	26865/831.5	1:1	0.057	0.04	22.54	23.40	1.219	0.070	22.2
Right side	15	QPSK 36_0	26865/831.5	1:1	0.047	-0.05	22.54	23.40	1.219	0.057	22.2
Bottom side	15	QPSK 36_0	26865/831.5	1:1	0.056	0.04	22.54	23.40	1.219	0.069	22.2

Table 33： SAR of LTE Band 26 for Head and Body. (Original report No.: ZEWM2303000343RG01)

Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	15	QPSK 1_74	26765/821.5	1:1	0.488	0.01	20.50	21.50	1.259	**0.614**	21.2
Body worn Test data(Separate 15mm 1RB)											
Back side	15	QPSK 1_0	26865/831.5	1:1	0.140	0.08	23.79	25.00	1.321	**0.185**	21.2
Hotspot Test data(Separate 10mm 1RB)											
Back side	15	QPSK 1_0	26865/831.5	1:1	0.242	0.14	23.79	25.00	1.321	**0.320**	21.2
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	15	QPSK 1_0	26865/831.5	1:1	0.080	0.03	23.59	24.40	1.205	0.096	21.2
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.071	0.01	23.59	24.40	1.205	0.086	21.2
Hotspot Test data(Separate 10mm 1RB)											
Back side	15	QPSK 1_0	26865/831.5	1:1	0.116	0.01	23.59	24.40	1.205	0.140	21.2

Table 34： SAR of LTE Band 26 for Head and Body. (Variant)

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8.2.13 SAR Result of LTE Band 38

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_99	37850/2580	1:1.58	0.144	0.04	22.87	23.70	1.211	0.174	22.0
Back side	20	QPSK 1_99	37850/2580	1:1.58	0.295	-0.05	22.87	23.70	1.211	0.357	22.0
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	37850/2580	1:1.58	0.136	0.02	22.73	23.70	1.250	0.170	22.0
Back side	20	QPSK 50_25	37850/2580	1:1.58	0.300	-0.05	22.73	23.70	1.250	**0.375**	22.0
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_99	37850/2580	1:1.58	0.122	0.03	20.46	21.20	1.186	0.145	22.0
Back side	20	QPSK 1_99	37850/2580	1:1.58	0.405	0.02	20.46	21.20	1.186	0.480	22.0
Left side	20	QPSK 1_99	37850/2580	1:1.58	0.173	0.05	20.46	21.20	1.186	0.205	22.0
Right side	20	QPSK 1_99	37850/2580	1:1.58	0.010	-0.02	20.46	21.20	1.186	0.012	22.0
Top side	20	QPSK 1_99	37850/2580	1:1.58	0.408	0.08	20.46	21.20	1.186	0.484	22.0
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_50	37850/2580	1:1.58	0.115	0.02	20.37	21.20	1.211	0.139	22.0
Back side	20	QPSK 50_50	37850/2580	1:1.58	0.402	-0.01	20.37	21.20	1.211	0.487	22.0
Left side	20	QPSK 50_50	37850/2580	1:1.58	0.171	-0.06	20.37	21.20	1.211	0.207	22.0
Right side	20	QPSK 50_50	37850/2580	1:1.58	0.010	-0.08	20.37	21.20	1.211	0.012	22.0
Top side	20	QPSK 50_50	37850/2580	1:1.58	0.412	0.08	20.37	21.20	1.211	**0.499**	22.0
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_99	38000/2595	1:1.58	0.109	0.03	23.60	24.60	1.259	0.137	22.0
Left tilted	20	QPSK 1_99	38000/2595	1:1.58	0.083	0.05	23.60	24.60	1.259	0.104	22.0
Right cheek	20	QPSK 1_99	38000/2595	1:1.58	0.206	0.07	23.60	24.60	1.259	**0.259**	22.0
Right tilted	20	QPSK 1_99	38000/2595	1:1.58	0.076	0.02	23.60	24.60	1.259	0.095	22.0
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	38000/2595	1:1.58	0.087	0.09	22.80	23.60	1.202	0.104	22.0
Left tilted	20	QPSK 50_0	38000/2595	1:1.58	0.100	0.01	22.80	23.60	1.202	0.120	22.0
Right cheek	20	QPSK 50_0	38000/2595	1:1.58	0.183	0.07	22.80	23.60	1.202	0.220	22.0
Right tilted	20	QPSK 50_0	38000/2595	1:1.58	0.066	0.01	22.80	23.60	1.202	0.079	22.0
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_99	38000/2595	1:1.58	0.131	-0.06	22.82	23.60	1.197	0.157	22.0
Back side	20	QPSK 1_99	38000/2595	1:1.58	0.212	-0.03	22.82	23.60	1.197	0.254	22.0
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	37850/2580	1:1.58	0.132	-0.04	22.64	23.60	1.247	0.165	22.0
Back side	20	QPSK 50_25	37850/2580	1:1.58	0.213	-0.02	22.64	23.60	1.247	0.266	22.0
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_99	37850/2580	1:1.58	0.185	-0.07	21.80	22.60	1.202	0.222	22.0
Back side	20	QPSK 1_99	37850/2580	1:1.58	0.325	0.06	21.80	22.60	1.202	0.391	22.0
Left side	20	QPSK 1_99	37850/2580	1:1.58	0.040	0.03	21.80	22.60	1.202	0.047	22.0
Right side	20	QPSK 1_99	37850/2580	1:1.58	0.143	0.09	21.80	22.60	1.202	0.172	22.0
Bottom side	20	QPSK 1_99	37850/2580	1:1.58	0.174	0.09	21.80	22.60	1.202	0.209	22.0
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	37850/2580	1:1.58	0.184	-0.04	21.66	22.60	1.242	0.228	22.0
Back side	20	QPSK 50_25	37850/2580	1:1.58	0.324	0.02	21.66	22.60	1.242	0.402	22.0
Left side	20	QPSK 50_25	37850/2580	1:1.58	0.038	0.02	21.66	22.60	1.242	0.048	22.0
Right side	20	QPSK 50_25	37850/2580	1:1.58	0.144	0.03	21.66	22.60	1.242	0.179	22.0
Bottom side	20	QPSK 50_25	37850/2580	1:1.58	0.172	0.04	21.66	22.60	1.242	0.214	22.0

Table 35：SAR of LTE Band 38 for Head and Body. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 50%RB)											
Back side	20	QPSK 50_25	37850/2580	1:1.58	0.368	0.07	22.73	23.70	1.250	**0.460**	21.7
Hotspot Test data(Separate 10mm 50%RB)											
Top side	20	QPSK 50_50	37850/2580	1:1.58	0.502	-0.01	20.37	21.20	1.211	**0.608**	21.7
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	20	QPSK 1_99	38000/2595	1:1.58	0.165	0.01	23.60	24.60	1.259	**0.208**	21.7
Body worn Test data(Separate 15mm 50%RB)											
Back side	20	QPSK 50_25	37850/2580	1:1.58	0.234	0.08	22.64	23.60	1.247	0.292	21.7
Hotspot Test data(Separate 10mm 50%RB)											
Back side	20	QPSK 50_25	37850/2580	1:1.58	0.368	0.09	21.66	22.60	1.242	0.457	21.7

Table 36： SAR of LTE Band 38 for Head and Body. (Variant)

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8.2.14 SAR Result of LTE Band 41

Ant 13 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_50	40620/2593	1:1.58	0.197	0.03	23.70	24.70	1.259	0.248	22.3
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.392	-0.04	23.70	24.70	1.259	**0.493**	22.3
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.242	0.03	21.94	23.00	1.276	0.309	22.1
		QPSK 1_99	40422/2573.2								
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.156	0.04	22.81	23.70	1.227	0.191	22.3
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.311	-0.03	22.81	23.70	1.227	0.382	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_50	40620/2593	1:1.58	0.149	0.03	20.65	21.70	1.274	0.190	22.3
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.452	0.02	20.65	21.70	1.274	0.576	22.3
Left side	20	QPSK 1_50	40620/2593	1:1.58	0.201	0.09	20.65	21.70	1.274	0.256	22.3
Right side	20	QPSK 1_50	40620/2593	1:1.58	0.011	-0.02	20.65	21.70	1.274	0.014	22.3
Top side	20	QPSK 1_50	40620/2593	1:1.58	0.455	0.03	20.65	21.70	1.274	**0.579**	22.3
Top side	20	QPSK 1_0	40620/2593	1:1.58	0.311	0.11	18.84	20.00	1.306	0.406	22.1
		QPSK 1_99	40422/2573.2								
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.148	0.03	20.65	21.70	1.274	0.188	22.3
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.438	-0.07	20.65	21.70	1.274	0.558	22.3
Left side	20	QPSK 50_25	40620/2593	1:1.58	0.208	-0.09	20.65	21.70	1.274	0.265	22.3
Right side	20	QPSK 50_25	40620/2593	1:1.58	0.011	-0.07	20.65	21.70	1.274	0.014	22.3
Top side	20	QPSK 50_25	40620/2593	1:1.58	0.454	-0.10	20.65	21.70	1.274	0.578	22.3
Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.106	0.09	23.60	24.30	1.175	0.125	22.3
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.095	0.02	23.60	24.30	1.175	0.111	22.3
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.213	-0.08	23.60	24.30	1.175	**0.250**	22.3
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.079	0.04	23.60	24.30	1.175	0.093	22.3
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.129	-0.11	21.86	23.00	1.300	0.168	22.1
		QPSK 1_99	40422/2573.2								
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_25	40620/2593	1:1.58	0.082	0.01	22.69	23.30	1.151	0.094	22.3
Left tilted	20	QPSK 50_25	40620/2593	1:1.58	0.072	0.06	22.69	23.30	1.151	0.083	22.3
Right cheek	20	QPSK 50_25	40620/2593	1:1.58	0.174	0.01	22.69	23.30	1.151	0.200	22.3
Right tilted	20	QPSK 50_25	40620/2593	1:1.58	0.069	0.19	22.69	23.30	1.151	0.079	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	41490/2680	1:1.58	0.123	-0.05	22.48	23.30	1.208	0.149	22.3

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Back side	20	QPSK 1_0	41490/2680	1:1.58	0.205	-0.06	22.48	23.30	1.208	0.248	22.3
Back side	20	QPSK 1_0	41490/2680	1:1.58	0.103	0.02	20.73	22.00	1.340	0.138	22.1
		QPSK 1_99	41292/2660.2								
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	41055/2636.5	1:1.58	0.097	-0.02	22.56	23.30	1.186	0.115	22.3
Back side	20	QPSK 50_25	41055/2636.5	1:1.58	0.152	-0.06	22.56	23.30	1.186	0.180	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	41490/2680	1:1.58	0.200	0.05	21.56	22.30	1.186	0.237	22.3
Back side	20	QPSK 1_0	41490/2680	1:1.58	0.358	0.05	21.56	22.30	1.186	0.425	22.3
Left side	20	QPSK 1_0	41490/2680	1:1.58	0.042	0.06	21.56	22.30	1.186	0.050	22.3
Right side	20	QPSK 1_0	41490/2680	1:1.58	0.155	0.03	21.56	22.30	1.186	0.184	22.3
Bottom side	20	QPSK 1_0	41490/2680	1:1.58	0.188	0.19	21.56	22.30	1.186	0.223	22.3
Back side	20	QPSK 1_0	41490/2680	1:1.58	0.139	0.05	19.73	21.00	1.340	0.186	22.1
		QPSK 1_99	41292/2660.2								
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.135	0.05	21.59	22.30	1.178	0.159	22.3
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.234	-0.04	21.59	22.30	1.178	0.276	22.3
Left side	20	QPSK 50_25	40620/2593	1:1.58	0.025	0.04	21.59	22.30	1.178	0.029	22.3
Right side	20	QPSK 50_25	40620/2593	1:1.58	0.110	0.02	21.59	22.30	1.178	0.130	22.3
Bottom side	20	QPSK 50_25	40620/2593	1:1.58	0.143	0.03	21.59	22.30	1.178	0.168	22.3

Table 37：SAR of LTE Band 41 for Head and Body. (Original report No.: ZEWM2303000343RG01)

Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.466	0.05	23.70	24.70	1.259	**0.587**	21.7
Hotspot Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_50	40620/2593	1:1.58	0.528	0.02	20.65	21.70	1.274	**0.672**	21.7
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.161	0.06	23.60	24.30	1.175	**0.189**	21.7
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_0	41490/2680	1:1.58	0.195	0.09	22.48	23.30	1.208	0.236	21.7
Hotspot Test data(Separate 10mm 1RB)											
Back side	20	QPSK 1_0	41490/2680	1:1.58	0.292	0.04	21.56	22.30	1.186	0.346	21.7

Table 38： SAR of LTE Band 41 for Head and Body. (Variant)

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8.2.15 SAR Result of LTE Band 66

Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_99	132572/1770	1:1	0.363	0.05	22.70	23.50	1.202	0.436	22.2
Back side	20	QPSK 1_99	132572/1770	1:1	0.418	-0.01	22.70	23.50	1.202	**0.503**	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_50	132072/1720	1:1	0.287	0.06	22.40	23.50	1.288	0.370	22.2
Back side	20	QPSK 50_50	132072/1720	1:1	0.292	-0.02	22.40	23.50	1.288	0.376	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_99	132572/1770	1:1	0.315	0.01	19.66	20.50	1.213	0.382	22.2
Back side	20	QPSK 1_99	132572/1770	1:1	0.373	0.15	19.66	20.50	1.213	0.453	22.2
Left side	20	QPSK 1_99	132572/1770	1:1	0.048	-0.03	19.66	20.50	1.213	0.058	22.2
Right side	20	QPSK 1_99	132572/1770	1:1	0.056	-0.07	19.66	20.50	1.213	0.068	22.2
Top side	20	QPSK 1_99	132572/1770	1:1	0.509	0.02	19.66	20.50	1.213	**0.618**	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_50	132072/1720	1:1	0.252	-0.06	19.46	20.50	1.271	0.320	22.2
Back side	20	QPSK 50_50	132072/1720	1:1	0.267	0.07	19.46	20.50	1.271	0.339	22.2
Left side	20	QPSK 50_50	132072/1720	1:1	0.038	-0.16	19.46	20.50	1.271	0.048	22.2
Right side	20	QPSK 50_50	132072/1720	1:1	0.041	0.16	19.46	20.50	1.271	0.052	22.2
Top side	20	QPSK 50_50	132072/1720	1:1	0.474	0.06	19.46	20.50	1.271	0.602	22.2
Test position	**BW.**	**Test mode**	**Test Ch./Freq.**	**Duty Cycle**	**SAR (W/kg)10-g**	**Power Drift(dB)**	**Conducted power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled 10-g SAR(W/kg)**	**Liquid Temp.**
Product specific 10g SAR Test data(Separate 0mm 1RB) Sensor on											
Top side	20	QPSK 1_99	132572/1770	1:1	1.920	-0.06	20.65	21.50	1.216	**2.335**	22.2
Top side	20	QPSK 1_99	132072/1720	1:1	1.860	-0.01	20.56	21.50	1.242	2.309	22.2
Top side	20	QPSK 1_99	132322/1745	1:1	1.850	-0.19	20.58	21.50	1.236	2.287	22.2
Top side with Sample2	20	QPSK 1_99	132572/1770	1:1	1.880	-0.07	20.65	21.50	1.216	2.286	22.2
Product specific 10g SAR Test data (Separate 0mm 50%RB) Sensor on											
Top side	20	QPSK 50_50	132072/1720	1:1	1.790	-0.16	20.45	21.50	1.274	2.280	22.2
Top side	20	QPSK 50_50	132322/1745	1:1	1.760	-0.13	20.38	21.50	1.294	2.278	22.2
Top side	20	QPSK 50_50	132572/1770	1:1	1.790	-0.08	20.39	21.50	1.291	2.311	22.2
Product specific 10g SAR Test data (Separate 0mm 100%RB) Sensor on											
Top side	20	QPSK 100_0	132072/1720	1:1	1.740	-0.06	20.38	21.50	1.294	2.252	22.2
Product specific 10g SAR Test data(Separate 1RB) Sensor off											
Top side 14mm	20	QPSK 1_99	132572/1770	1:1	0.354	0.07	22.70	23.50	1.202	0.426	22.2
Product specific 10g SAR Test data (Separate 50%RB) Sensor off											
Top side 14mm	20	QPSK 50_50	132072/1720	1:1	0.267	0.08	22.40	23.50	1.288	0.344	22.2

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Ant 31 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_99	132322/1745	1:1	0.073	0.06	22.86	24.00	1.300	**0.095**	22.2
Left tilted	20	QPSK 1_99	132322/1745	1:1	0.046	0.02	22.86	24.00	1.300	0.060	22.2
Right cheek	20	QPSK 1_99	132322/1745	1:1	0.052	0.02	22.86	24.00	1.300	0.067	22.2
Right tilted	20	QPSK 1_99	132322/1745	1:1	0.048	0.04	22.86	24.00	1.300	0.062	22.2
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_25	132322/1745	1:1	0.057	0.05	21.69	23.00	1.352	0.077	22.2
Left tilted	20	QPSK 50_25	132322/1745	1:1	0.043	0.03	21.69	23.00	1.352	0.058	22.2
Right cheek	20	QPSK 50_25	132322/1745	1:1	0.046	0.08	21.69	23.00	1.352	0.062	22.2
Right tilted	20	QPSK 50_25	132322/1745	1:1	0.044	-0.05	21.69	23.00	1.352	0.060	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_99	132322/1745	1:1	0.074	0.01	19.78	20.50	1.180	0.087	22.2
Back side	20	QPSK 1_99	132322/1745	1:1	0.121	0.14	19.78	20.50	1.180	0.143	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_25	132322/1745	1:1	0.079	0.08	19.71	20.50	1.199	0.095	22.2
Back side	20	QPSK 50_25	132322/1745	1:1	0.130	-0.18	19.71	20.50	1.199	0.156	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_99	132322/1745	1:1	0.127	0.02	19.37	20.00	1.156	0.147	22.2
Back side	20	QPSK 1_99	132322/1745	1:1	0.269	-0.18	19.37	20.00	1.156	0.311	22.2
Left side	20	QPSK 1_99	132322/1745	1:1	0.031	-0.12	19.37	20.00	1.156	0.036	22.2
Right side	20	QPSK 1_99	132322/1745	1:1	0.059	0.05	19.37	20.00	1.156	0.068	22.2
Bottom side	20	QPSK 1_99	132322/1745	1:1	0.311	0.02	19.37	20.00	1.156	0.360	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_25	132322/1745	1:1	0.135	0.11	19.32	20.00	1.169	0.158	22.2
Back side	20	QPSK 50_25	132322/1745	1:1	0.223	0.01	19.32	20.00	1.169	0.261	22.2
Left side	20	QPSK 50_25	132322/1745	1:1	0.034	-0.08	19.32	20.00	1.169	0.040	22.2
Right side	20	QPSK 50_25	132322/1745	1:1	0.065	-0.02	19.32	20.00	1.169	0.076	22.2
Bottom side	20	QPSK 50_25	132322/1745	1:1	0.330	0.02	19.32	20.00	1.169	0.386	22.2

Table 39：SAR of LTE Band 66 for Head and Body and Product specific 10g SAR. (Original report No.: ZEWM2303000343RG01)

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Ant 13 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_99	132572/1770	1:1	0.350	0.04	22.70	23.50	1.202	**0.421**	21.6
Hotspot Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_99	132572/1770	1:1	0.505	0.08	19.66	20.50	1.213	**0.613**	21.6
Test position	**BW.**	**Test mode**	**Test Ch./Freq.**	**Duty Cycle**	**SAR (W/kg)10-g**	**Power Drift(dB)**	**Conducted power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled 10-g SAR(W/kg)**	**Liquid Temp.**
Product specific 10g SAR Test data(Separate 0mm 1RB) Sensor on											
Top side	20	QPSK 1_99	132572/1770	1:1	1.740	0.04	20.65	21.50	1.216	**2.116**	21.6
Ant 31 Test Record											
Test position	**BW.**	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data(1RB)											
Left cheek	20	QPSK 1_99	132322/1745	1:1	0.063	-0.09	22.86	24.00	1.300	**0.081**	21.6
Body worn Test data(Separate 15mm 50%RB)											
Back side	20	QPSK 50_25	132322/1745	1:1	0.108	-0.01	19.71	20.50	1.199	0.130	21.6
Hotspot Test data(Separate 10mm 50%RB)											
Bottom side	20	QPSK 50_25	132322/1745	1:1	0.304	0.09	19.32	20.00	1.169	0.356	21.6

Table 40： SAR of LTE Band 66 for Head and Body and Product specific 10g SAR. (Variant)

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8.2.16 SAR Result of WIFI 2.4G

Ant22 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data											
Left cheek	802.11b	6/2437	98.39%	1.016	0.259	0.09	14.20	15.50	1.349	**0.355**	22.3
Left tilted	802.11b	6/2437	98.39%	1.016	0.187	0.06	14.20	15.50	1.349	0.256	22.3
Right cheek	802.11b	6/2437	98.39%	1.016	0.129	-0.08	14.20	15.50	1.349	0.177	22.3
Right tilted	802.11b	6/2437	98.39%	1.016	0.125	-0.02	14.20	15.50	1.349	0.171	22.3
Body worn Test data(Separate 15mm)											
Front side	802.11b	6/2437	98.39%	1.016	0.072	0.05	18.61	20.00	1.377	0.101	22.3
Back side	802.11b	6/2437	98.39%	1.016	0.078	-0.02	18.61	20.00	1.377	**0.109**	22.3
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	98.39%	1.016	0.115	0.06	18.61	20.00	1.377	0.161	22.3
Back side	802.11b	6/2437	98.39%	1.016	0.209	-0.03	18.61	20.00	1.377	**0.293**	22.3
Left side	802.11b	6/2437	98.39%	1.016	0.019	-0.09	18.61	20.00	1.377	0.027	22.3
Right side	802.11b	6/2437	98.39%	1.016	0.123	0.01	18.61	20.00	1.377	0.172	22.3
Top side	802.11b	6/2437	98.39%	1.016	0.156	0.02	18.61	20.00	1.377	0.218	22.3

Table 41： SAR of WIFI 2.4G for Head and Body. (Original report No.: ZEWM2303000343RG01)

Ant22 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data											
Left cheek	802.11b	6/2437	98.39%	1.016	0.203	0.07	14.20	15.50	1.349	**0.278**	21.8
Body worn Test data(Separate 15mm)											
Back side	802.11b	6/2437	98.39%	1.016	0.089	0.09	18.61	20.00	1.377	**0.124**	21.8
Hotspot Test data (Separate 10mm)											
Back side	802.11b	6/2437	98.39%	1.016	0.223	0.06	18.61	20.00	1.377	**0.312**	21.8

Table 42： SAR of WIFI 2.4G for Head and Body. (Variant)

Note:

1) As the 802.11b highest reported SAR is smaller than 1.2 W/kg, and the tune-up of the other 802.11 modes are not higher than 802.11b, therefore the adjusted SAR is ≤ 1.2 W/kg for other 802.11 modes, SAR test for the other 802.11 modes are not required.

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8.2.17 SAR Result of WIFI 5G

Ant22 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data of U-NII-2A											
Left cheek	802.11a	52/5260	97.93%	1.021	0.320	0.02	13.54	14.00	1.112	0.363	22.1
Left tilted	802.11a	52/5260	97.93%	1.021	0.373	-0.04	13.54	14.00	1.112	**0.423**	22.1
Right cheek	802.11a	52/5260	97.93%	1.021	0.154	0.02	13.54	14.00	1.112	0.175	22.1
Right tilted	802.11a	52/5260	97.93%	1.021	0.145	0.05	13.54	14.00	1.112	0.165	22.1
Head Test data of U-NII-2C											
Left cheek	802.11a	112/5560	97.93%	1.021	0.247	0.05	13.85	14.00	1.035	0.261	22.0
Left tilted	802.11a	112/5560	97.93%	1.021	0.203	0.06	13.85	14.00	1.035	0.215	22.0
Right cheek	802.11a	112/5560	97.93%	1.021	0.109	0.08	13.85	14.00	1.035	0.115	22.0
Right tilted	802.11a	112/5560	97.93%	1.021	0.106	0.02	13.85	14.00	1.035	0.112	22.0
Head Test data of U-NII-3											
Left cheek	802.11a	165/5825	97.93%	1.021	0.160	0.02	13.82	14.00	1.042	0.170	21.9
Left tilted	802.11a	165/5825	97.93%	1.021	0.145	0.09	13.82	14.00	1.042	0.154	21.9
Right cheek	802.11a	165/5825	97.93%	1.021	0.065	-0.02	13.82	14.00	1.042	0.069	21.9
Right tilted	802.11a	165/5825	97.93%	1.021	0.064	0.02	13.82	14.00	1.042	0.068	21.9
Body worn Test data of U-NII-2A(Separate 15mm)											
Front side	802.11a	52/5260	97.93%	1.021	0.145	0.04	19.84	20.00	1.038	0.154	22.1
Back side	802.11a	52/5260	97.93%	1.021	0.352	0.13	19.84	20.00	1.038	0.373	22.1
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11a	104/5520	97.93%	1.021	0.117	-0.03	19.23	20.00	1.194	0.143	22.0
Back side	802.11a	104/5520	97.93%	1.021	0.227	0.08	19.23	20.00	1.194	0.277	22.0
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11a	165/5825	97.93%	1.021	0.061	0.06	19.44	20.00	1.138	0.070	21.9
Back side	802.11a	165/5825	97.93%	1.021	0.461	0.19	19.44	20.00	1.138	**0.536**	21.9
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11a	48/5240	97.93%	1.021	0.234	-0.04	19.90	20.00	1.023	0.245	22.1
Back side	802.11a	48/5240	97.93%	1.021	0.624	0.09	19.90	20.00	1.023	0.652	22.1
Left side	802.11a	48/5240	97.93%	1.021	0.074	0.07	19.90	20.00	1.023	0.077	22.1
Right side	802.11a	48/5240	97.93%	1.021	0.333	-0.07	19.90	20.00	1.023	0.348	22.1
Top side	802.11a	48/5240	97.93%	1.021	0.762	0.08	19.90	20.00	1.023	0.796	22.1
Hotspot Test data of U-NII-3(Separate 10mm)											
Front side	802.11a	165/5825	97.93%	1.021	0.112	-0.07	19.44	20.00	1.138	0.130	21.9
Back side	802.11a	165/5825	97.93%	1.021	0.843	0.06	19.44	20.00	1.138	**0.979**	21.9
Left side	802.11a	165/5825	97.93%	1.021	0.039	-0.09	19.44	20.00	1.138	0.045	21.9
Right side	802.11a	165/5825	97.93%	1.021	0.553	-0.01	19.44	20.00	1.138	0.642	21.9
Top side	802.11a	165/5825	97.93%	1.021	0.175	-0.09	19.44	20.00	1.138	0.203	21.9
Back side - Repeat	802.11a	165/5825	97.93%	1.021	0.812	-0.07	19.44	20.00	1.138	0.943	21.9
Back side	802.11a	157/5785	97.93%	1.021	0.817	0.09	19.39	20.00	1.151	0.960	21.9
Back side with Sample2	802.11a	165/5825	97.93%	1.021	0.840	0.09	19.44	20.00	1.138	0.976	21.9
Hotspot Test data of U-NII-1(Separate 10mm) with Simultaneous transmission											
Front side	802.11a	48/5240	97.93%	1.021	0.234	-0.04	19.90	18.00	0.646	0.154	22.1
Back side	802.11a	48/5240	97.93%	1.021	0.624	0.09	19.90	18.00	0.646	0.411	22.1
Left side	802.11a	48/5240	97.93%	1.021	0.074	0.07	19.90	18.00	0.646	0.049	22.1
Right side	802.11a	48/5240	97.93%	1.021	0.333	-0.07	19.90	18.00	0.646	0.220	22.1
Top side	802.11a	48/5240	97.93%	1.021	0.762	0.08	19.90	18.00	0.646	0.502	22.1
Hotspot Test data of U-NII-3(Separate 10mm) with Simultaneous transmission											
Front side	802.11a	165/5825	97.93%	1.021	0.112	-0.07	19.44	18.00	0.718	0.082	21.9
Back side	802.11a	165/5825	97.93%	1.021	0.843	0.06	19.44	18.00	0.718	0.618	21.9
Left side	802.11a	165/5825	97.93%	1.021	0.039	-0.09	19.44	18.00	0.718	0.029	21.9
Right side	802.11a	165/5825	97.93%	1.021	0.553	-0.01	19.44	18.00	0.718	0.405	21.9
Top side	802.11a	165/5825	97.93%	1.021	0.175	-0.09	19.44	18.00	0.718	0.128	21.9
Back side - Repeat	802.11a	165/5825	97.93%	1.021	0.812	-0.07	19.44	18.00	0.718	0.595	21.9
Back side	802.11a	157/5785	97.93%	1.021	0.817	0.09	19.39	18.00	0.726	0.606	21.9

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Back side with Sample2	802.11a	165/5825	97.93%	1.021	0.840	0.09	19.44	18.00	0.718	0.616	21.9
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**Duty Cycle Scaled factor**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10gSAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11a	52/5260	97.93%	1.021	0.492	-0.01	19.84	20.00	1.038	0.521	22.1
Back side	802.11a	52/5260	97.93%	1.021	0.713	0.11	19.84	20.00	1.038	0.755	22.1
Left side	802.11a	52/5260	97.93%	1.021	0.070	0.03	19.84	20.00	1.038	0.074	22.1
Right side	802.11a	52/5260	97.93%	1.021	0.708	0.05	19.84	20.00	1.038	0.750	22.1
Top side	802.11a	52/5260	97.93%	1.021	0.968	-0.04	19.84	20.00	1.038	**1.026**	22.1
Product specific 10gSAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11a	104/5520	97.93%	1.021	0.465	0.00	19.23	20.00	1.194	0.567	22.0
Back side	802.11a	104/5520	97.93%	1.021	0.793	0.07	19.23	20.00	1.194	0.967	22.0
Left side	802.11a	104/5520	97.93%	1.021	0.043	0.03	19.23	20.00	1.194	0.052	22.0
Right side	802.11a	104/5520	97.93%	1.021	0.749	0.13	19.23	20.00	1.194	0.913	22.0
Top side	802.11a	104/5520	97.93%	1.021	0.701	0.03	19.23	20.00	1.194	0.855	22.0

Table 43： SAR of WIFI 5G for Head, Body and Product specific 10g SAR. (Original report No.: ZEWM2303000343RG01)

Ant22 Test Record											
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**Duty Cycle Scaled factor**	**SAR (W/kg) 1-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 1-g (W/kg)**	**Liquid Temp.(℃)**
Head Test data of U-NII-2A											
Left tilted	802.11a	52/5260	97.93%	1.021	0.427	0.02	13.54	14.00	1.112	**0.485**	21.8
Body worn Test data of U-NII-3(Separate 15mm)											
Back side	802.11a	165/5825	97.93%	1.021	0.347	0.02	19.44	20.00	1.138	**0.403**	21.8
Hotspot Test data of U-NII-3(Separate 10mm)											
Back side	802.11a	165/5825	97.93%	1.021	0.770	0.04	19.44	20.00	1.138	**0.894**	21.8
Test position	**Test mode**	**Test ch./Freq.**	**Duty Cycle**	**Duty Cycle Scaled factor**	**SAR (W/kg) 10-g**	**Power drift (dB)**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaled factor**	**Scaled SAR 10-g (W/kg)**	**Liquid Temp.(℃)**
Product specific 10gSAR Test data of U-NII-2A(Separate 0mm)											
Top side	802.11a	52/5260	97.93%	1.021	1.130	0.05	19.84	20.00	1.038	**1.197**	21.8

Table 44： SAR of WIFI 5G for Head, Body and Product specific 10g SAR. (Variant)

Test Position	**Channel/ Frequency**	**Measured SAR (1g)**	**1st Repeated**	**Ratio**	**2nd Repeated**	**3rd Repeated**
	(MHz)		**SAR (1g)**		**SAR (1g)**	**SAR (1g)**
Back side	165/5825	0.843	0.812	1.038	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ⩾ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

Note:
1) As the 802.11a highest reported SAR is smaller than 1.2 W/kg, and the tune-up of the other 802.11 modes are not higher than 802.11a, therefore the adjusted SAR is ≤ 1.2 W/kg for other 802.11 modes, SAR test for the other 802.11 modes are not required. For Product specific 10gSAR the highest reported SAR is smaller than 3.0 W/kg, SAR test for the other 802.11 modes are also not required.

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8.2.18 SAR Result of BT

Ant22 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data											
Left cheek	DH5	39/2441	77.22%	1.295	0.174	0.06	12.69	13.20	1.125	**0.253**	22.3
Left tilted	DH5	39/2441	77.22%	1.295	0.111	0.02	12.69	13.20	1.125	0.162	22.3
Right cheek	DH5	39/2441	77.22%	1.295	0.092	0.06	12.69	13.20	1.125	0.134	22.3
Right tilted	DH5	39/2441	77.22%	1.295	0.084	0.03	12.69	13.20	1.125	0.122	22.3
Body worn Test data(Separate 15mm)											
Front side	DH5	39/2441	77.22%	1.295	0.015	-0.09	12.69	13.20	1.125	0.022	22.3
Back side	DH5	39/2441	77.22%	1.295	0.018	-0.14	12.69	13.20	1.125	**0.026**	22.3
Hotspot Test data (Separate 10mm)											
Front side	DH5	39/2441	77.22%	1.295	0.026	0.04	12.69	13.20	1.125	0.038	22.3
Back side	DH5	39/2441	77.22%	1.295	0.047	-0.09	12.69	13.20	1.125	**0.068**	22.3
Left side	DH5	39/2441	77.22%	1.295	0.005	-0.01	12.69	13.20	1.125	0.008	22.3
Right side	DH5	39/2441	77.22%	1.295	0.027	-0.06	12.69	13.20	1.125	0.039	22.3
Top side	DH5	39/2441	77.22%	1.295	0.043	0.08	12.69	13.20	1.125	0.062	22.3

Table 45： SAR of BT for Head and Body. (Original report No.: ZEWM2303000343RG01)

Ant22 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test data											
Left cheek	DH5	39/2441	77.22%	1.295	0.198	0.06	12.69	13.20	1.125	**0.288**	21.8
Body worn Test data(Separate 15mm)											
Back side	DH5	39/2441	77.22%	1.295	0.022	0.08	12.69	13.20	1.125	**0.032**	21.8
Hotspot Test data (Separate 10mm)											
Back side	DH5	39/2441	77.22%	1.295	0.050	0.08	12.69	13.20	1.125	**0.073**	21.8

Table 46： SAR of BT for Head and Body. ((Variant)

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8.3 Multiple Transmitter Evaluation

8.3.1 Simultaneous SAR SAR test evaluation

- **Simultaneous Transmission Possibilities**

NO	Simultaneous TX Combination	Head	Body-worn	Hotspot	Product Specific 10-g SAR (0mm)
1	WWAN+WIFI 2.4G	Y	Y	Y	Y
2	WWAN+WIFI 5G	Y	Y	Y	Y
3	WWAN+BT	Y	Y	Y	Y

Note:

1) The device does not support DTM function.

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8.3.2 Simultaneous Transmission SAR Summation Scenario

Head:

Test position		SARmax (W/kg)				Summed SAR		
		Main Ant13	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM850	Left cheek	0.404	0.355	0.363	0.288	0.759	0.767	0.692
	Left tilted	0.357	0.256	0.485	0.162	0.613	0.842	0.519
	Right cheek	0.658	0.177	0.175	0.134	0.835	0.833	0.792
	Right tilted	0.584	0.171	0.165	0.122	0.755	0.749	0.706
WCDMA B5	Left cheek	0.462	0.355	0.363	0.288	0.817	0.825	0.750
	Left tilted	0.366	0.256	0.485	0.162	0.622	0.851	0.528
	Right cheek	0.642	0.177	0.175	0.134	0.819	0.817	0.776
	Right tilted	0.498	0.171	0.165	0.122	0.669	0.663	0.620
LTE B5	Left cheek	0.522	0.355	0.363	0.288	0.877	0.885	0.810
	Left tilted	0.456	0.256	0.485	0.162	0.712	0.941	0.618
	Right cheek	0.796	0.177	0.175	0.134	0.973	0.971	0.930
	Right tilted	0.554	0.171	0.165	0.122	0.725	0.719	0.676
LTE B12	Left cheek	0.421	0.355	0.363	0.288	0.776	0.784	0.709
	Left tilted	0.383	0.256	0.485	0.162	0.639	0.868	0.545
	Right cheek	0.823	0.177	0.175	0.134	1.000	0.998	0.957
	Right tilted	0.531	0.171	0.165	0.122	0.702	0.696	0.653
LTE B13	Left cheek	0.464	0.355	0.363	0.288	0.819	0.827	0.752
	Left tilted	0.421	0.256	0.485	0.162	0.677	0.906	0.583
	Right cheek	0.798	0.177	0.175	0.134	0.975	0.973	0.932
	Right tilted	0.542	0.171	0.165	0.122	0.713	0.707	0.664
LTE B26	Left cheek	0.495	0.355	0.363	0.288	0.850	0.858	0.783
	Left tilted	0.446	0.256	0.485	0.162	0.702	0.931	0.608
	Right cheek	0.787	0.177	0.175	0.134	0.964	0.962	0.921
	Right tilted	0.630	0.171	0.165	0.122	0.801	0.795	0.752

Test position		SARmax (W/kg)				Summed SAR		
		Main Ant31	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM850	Left cheek	0.092	0.355	0.363	0.288	0.447	0.455	0.380
	Left tilted	0.051	0.256	0.485	0.162	0.307	0.536	0.213
	Right cheek	0.094	0.177	0.175	0.134	0.271	0.269	0.228
	Right tilted	0.046	0.171	0.165	0.122	0.217	0.211	0.168
GSM1900	Left cheek	0.070	0.355	0.363	0.288	0.425	0.433	0.358
	Left tilted	0.050	0.256	0.485	0.162	0.306	0.535	0.212
	Right cheek	0.050	0.177	0.175	0.134	0.227	0.225	0.184
	Right tilted	0.049	0.171	0.165	0.122	0.220	0.214	0.171
WCDMA B2	Left cheek	0.084	0.355	0.363	0.288	0.439	0.447	0.372
	Left tilted	0.061	0.256	0.485	0.162	0.317	0.546	0.223
	Right cheek	0.088	0.177	0.175	0.134	0.265	0.263	0.222
	Right tilted	0.084	0.171	0.165	0.122	0.255	0.249	0.206
WCDMA B4	Left cheek	0.072	0.355	0.363	0.288	0.427	0.435	0.360
	Left tilted	0.066	0.256	0.485	0.162	0.322	0.551	0.228
	Right cheek	0.079	0.177	0.175	0.134	0.256	0.254	0.213
	Right tilted	0.066	0.171	0.165	0.122	0.237	0.231	0.188
WCDMA B5	Left cheek	0.112	0.355	0.363	0.288	0.467	0.475	0.400
	Left tilted	0.056	0.256	0.485	0.162	0.312	0.541	0.218

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	Right cheek	0.118	0.177	0.175	0.134	0.295	0.293	0.252
	Right tilted	0.054	0.171	0.165	0.122	0.225	0.219	0.176
LTE B2	Left cheek	0.115	0.355	0.363	0.288	0.470	0.478	0.403
	Left tilted	0.072	0.256	0.485	0.162	0.328	0.557	0.234
	Right cheek	0.074	0.177	0.175	0.134	0.251	0.249	0.208
	Right tilted	0.072	0.171	0.165	0.122	0.243	0.237	0.194
LTE B4	Left cheek	0.106	0.355	0.363	0.288	0.461	0.469	0.394
	Left tilted	0.092	0.256	0.485	0.162	0.348	0.577	0.254
	Right cheek	0.091	0.177	0.175	0.134	0.268	0.266	0.225
	Right tilted	0.089	0.171	0.165	0.122	0.260	0.254	0.211
LTE B5	Left cheek	0.097	0.355	0.363	0.288	0.452	0.460	0.385
	Left tilted	0.050	0.256	0.485	0.162	0.306	0.535	0.212
	Right cheek	0.102	0.177	0.175	0.134	0.279	0.277	0.236
	Right tilted	0.045	0.171	0.165	0.122	0.216	0.210	0.167
LTE B7	Left cheek	0.195	0.355	0.363	0.288	0.550	0.558	0.483
	Left tilted	0.170	0.256	0.485	0.162	0.426	0.655	0.332
	Right cheek	0.376	0.177	0.175	0.134	0.553	0.551	0.510
	Right tilted	0.135	0.171	0.165	0.122	0.306	0.300	0.257
LTE B12	Left cheek	0.014	0.355	0.363	0.288	0.369	0.377	0.302
	Left tilted	0.008	0.256	0.485	0.162	0.264	0.493	0.170
	Right cheek	0.015	0.177	0.175	0.134	0.192	0.190	0.149
	Right tilted	0.007	0.171	0.165	0.122	0.178	0.172	0.129
LTE B13	Left cheek	0.064	0.355	0.363	0.288	0.419	0.427	0.352
	Left tilted	0.034	0.256	0.485	0.162	0.290	0.519	0.196
	Right cheek	0.067	0.177	0.175	0.134	0.244	0.242	0.201
	Right tilted	0.030	0.171	0.165	0.122	0.201	0.195	0.152
LTE B26	Left cheek	0.090	0.355	0.363	0.288	0.445	0.453	0.378
	Left tilted	0.049	0.256	0.485	0.162	0.305	0.534	0.211
	Right cheek	0.097	0.177	0.175	0.134	0.274	0.272	0.231
	Right tilted	0.037	0.171	0.165	0.122	0.208	0.202	0.159
LTE B38	Left cheek	0.137	0.355	0.363	0.288	0.492	0.500	0.425
	Left tilted	0.120	0.256	0.485	0.162	0.376	0.605	0.282
	Right cheek	0.259	0.177	0.175	0.134	0.436	0.434	0.393
	Right tilted	0.095	0.171	0.165	0.122	0.266	0.260	0.217
LTE B41	Left cheek	0.125	0.355	0.363	0.288	0.480	0.488	0.413
	Left tilted	0.111	0.256	0.485	0.162	0.367	0.596	0.273
	Right cheek	0.250	0.177	0.175	0.134	0.427	0.425	0.384
	Right tilted	0.093	0.171	0.165	0.122	0.264	0.258	0.215
LTE B66	Left cheek	0.095	0.355	0.363	0.288	0.450	0.458	0.383
	Left tilted	0.060	0.256	0.485	0.162	0.316	0.545	0.222
	Right cheek	0.067	0.177	0.175	0.134	0.244	0.242	0.201
	Right tilted	0.062	0.171	0.165	0.122	0.233	0.227	0.184

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Body-worn:

Test position		SARmax (W/kg)				Summed SAR		
		Main Ant13	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM850	Front side	0.207	0.101	0.154	0.022	0.308	0.361	0.229
	Back side	0.248	0.124	0.536	0.032	0.372	0.784	0.280
GSM1900	Front side	0.420	0.101	0.154	0.022	0.521	0.574	0.442
	Back side	0.587	0.124	0.536	0.032	0.711	1.123	0.619
WCDMA B2	Front side	0.460	0.101	0.154	0.022	0.561	0.614	0.482
	Back side	0.671	0.124	0.536	0.032	0.795	1.207	0.703
WCDMA B4	Front side	0.302	0.101	0.154	0.022	0.403	0.456	0.324
	Back side	0.324	0.124	0.536	0.032	0.448	0.860	0.356
WCDMA B5	Front side	0.188	0.101	0.154	0.022	0.289	0.342	0.210
	Back side	0.227	0.124	0.536	0.032	0.351	0.763	0.259
LTE B2	Front side	0.568	0.101	0.154	0.022	0.669	0.722	0.590
	Back side	0.737	0.124	0.536	0.032	0.861	1.273	0.769
LTE B4	Front side	0.316	0.101	0.154	0.022	0.417	0.470	0.338
	Back side	0.332	0.124	0.536	0.032	0.456	0.868	0.364
LTE B5	Front side	0.204	0.101	0.154	0.022	0.305	0.358	0.226
	Back side	0.181	0.124	0.536	0.032	0.305	0.717	0.213
LTE B7	Front side	0.193	0.101	0.154	0.022	0.294	0.347	0.215
	Back side	0.513	0.124	0.536	0.032	0.637	1.049	0.545
LTE B12	Front side	0.171	0.101	0.154	0.022	0.272	0.325	0.193
	Back side	0.195	0.124	0.536	0.032	0.319	0.731	0.227
LTE B13	Front side	0.189	0.101	0.154	0.022	0.290	0.343	0.211
	Back side	0.231	0.124	0.536	0.032	0.355	0.767	0.263
LTE B26	Front side	0.193	0.101	0.154	0.022	0.294	0.347	0.215
	Back side	0.210	0.124	0.536	0.032	0.334	0.746	0.242
LTE B38	Front side	0.174	0.101	0.154	0.022	0.275	0.328	0.196
	Back side	0.460	0.124	0.536	0.032	0.584	0.996	0.492
LTE B41	Front side	0.248	0.101	0.154	0.022	0.349	0.402	0.270
	Back side	0.587	0.124	0.536	0.032	0.711	1.123	0.619
LTE B66	Front side	0.436	0.101	0.154	0.022	0.537	0.590	0.458
	Back side	0.503	0.124	0.536	0.032	0.627	1.039	0.535

检验检测专用章 Inspection & Testing Services
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch (Wireless Laboratory)

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Test position		SARmax (W/kg)				Summed SAR		
		Main Ant31	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM850	Front side	0.077	0.101	0.154	0.022	0.178	0.231	0.099
	Back side	0.071	0.124	0.536	0.032	0.195	0.607	0.103
GSM1900	Front side	0.086	0.101	0.154	0.022	0.187	0.240	0.108
	Back side	0.165	0.124	0.536	0.032	0.289	0.701	0.197
WCDMA B2	Front side	0.112	0.101	0.154	0.022	0.213	0.266	0.134
	Back side	0.231	0.124	0.536	0.032	0.355	0.767	0.263
WCDMA B4	Front side	0.099	0.101	0.154	0.022	0.200	0.253	0.121
	Back side	0.169	0.124	0.536	0.032	0.293	0.705	0.201
WCDMA B5	Front side	0.104	0.101	0.154	0.022	0.205	0.258	0.126
	Back side	0.088	0.124	0.536	0.032	0.212	0.624	0.120
LTE B2	Front side	0.135	0.101	0.154	0.022	0.236	0.289	0.157
	Back side	0.254	0.124	0.536	0.032	0.378	0.790	0.286
LTE B4	Front side	0.142	0.101	0.154	0.022	0.243	0.296	0.164
	Back side	0.234	0.124	0.536	0.032	0.358	0.770	0.266
LTE B5	Front side	0.097	0.101	0.154	0.022	0.198	0.251	0.119
	Back side	0.090	0.124	0.536	0.032	0.214	0.626	0.122
LTE B7	Front side	0.178	0.101	0.154	0.022	0.279	0.332	0.200
	Back side	0.311	0.124	0.536	0.032	0.435	0.847	0.343
LTE B12	Front side	0.020	0.101	0.154	0.022	0.121	0.174	0.042
	Back side	0.024	0.124	0.536	0.032	0.148	0.560	0.056
LTE B13	Front side	0.074	0.101	0.154	0.022	0.175	0.228	0.096
	Back side	0.086	0.124	0.536	0.032	0.210	0.622	0.118
LTE B26	Front side	0.089	0.101	0.154	0.022	0.190	0.243	0.111
	Back side	0.086	0.124	0.536	0.032	0.210	0.622	0.118
LTE B38	Front side	0.165	0.101	0.154	0.022	0.266	0.319	0.187
	Back side	0.292	0.124	0.536	0.032	0.416	0.828	0.324
LTE B41	Front side	0.149	0.101	0.154	0.022	0.250	0.303	0.171
	Back side	0.248	0.124	0.536	0.032	0.372	0.784	0.280
LTE B66	Front side	0.095	0.101	0.154	0.022	0.196	0.249	0.117
	Back side	0.156	0.124	0.536	0.032	0.280	0.692	0.188

检验检测专用章
Inspection & Testing Services
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Wireless Laboratory

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Hotspot:

Test position		SARmax (W/kg)				Summed SAR		
		Main Ant13	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM850	Front side	0.268	0.161	0.154	0.038	0.429	0.422	0.306
	Back side	0.423	0.312	0.618	0.073	0.735	1.041	0.496
	Left side	0.161	0.027	0.049	0.008	0.188	0.210	0.169
	Right side	0.173	0.172	0.405	0.039	0.345	0.578	0.212
	Top side	0.334	0.218	0.502	0.062	0.552	0.836	0.396
	Bottom side	/	/	/	/	/	/	/
GSM1900	Front side	0.342	0.161	0.154	0.038	0.503	0.496	0.380
	Back side	0.520	0.312	0.618	0.073	0.832	1.138	0.593
	Left side	0.060	0.027	0.049	0.008	0.087	0.109	0.068
	Right side	0.046	0.172	0.405	0.039	0.218	0.451	0.085
	Top side	0.763	0.218	0.502	0.062	0.981	1.265	0.825
	Bottom side	/	/	/	/	/	/	/
WCDMA B2	Front side	0.234	0.161	0.154	0.038	0.395	0.388	0.272
	Back side	0.337	0.312	0.618	0.073	0.649	0.955	0.410
	Left side	0.049	0.027	0.049	0.008	0.076	0.098	0.057
	Right side	0.034	0.172	0.405	0.039	0.206	0.439	0.073
	Top side	0.518	0.218	0.502	0.062	0.736	1.020	0.580
	Bottom side	/	/	/	/	/	/	/
WCDMA B4	Front side	0.199	0.161	0.154	0.038	0.360	0.353	0.237
	Back side	0.213	0.312	0.618	0.073	0.525	0.831	0.286
	Left side	0.037	0.027	0.049	0.008	0.064	0.086	0.045
	Right side	0.037	0.172	0.405	0.039	0.209	0.442	0.076
	Top side	0.403	0.218	0.502	0.062	0.621	0.905	0.465
	Bottom side	/	/	/	/	/	/	/
WCDMA B5	Front side	0.190	0.161	0.154	0.038	0.351	0.344	0.228
	Back side	0.416	0.312	0.618	0.073	0.728	1.034	0.489
	Left side	0.154	0.027	0.049	0.008	0.181	0.203	0.162
	Right side	0.180	0.172	0.405	0.039	0.352	0.585	0.219
	Top side	0.257	0.218	0.502	0.062	0.475	0.759	0.319
	Bottom side	/	/	/	/	/	/	/
LTE B2	Front side	0.323	0.161	0.154	0.038	0.484	0.477	0.361
	Back side	0.442	0.312	0.618	0.073	0.754	1.060	0.515
	Left side	0.053	0.027	0.049	0.008	0.080	0.102	0.061
	Right side	0.043	0.172	0.405	0.039	0.215	0.448	0.082
	Top side	0.601	0.218	0.502	0.062	0.819	1.103	0.663
	Bottom side	/	/	/	/	/	/	/
LTE B4	Front side	0.232	0.161	0.154	0.038	0.393	0.386	0.270
	Back side	0.231	0.312	0.618	0.073	0.543	0.849	0.304
	Left side	0.033	0.027	0.049	0.008	0.060	0.082	0.041
	Right side	0.039	0.172	0.405	0.039	0.211	0.444	0.078
	Top side	0.350	0.218	0.502	0.062	0.568	0.852	0.412
	Bottom side	/	/	/	/	/	/	/

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LTE B5	Front side	0.254	0.161	0.154	0.038	0.415	0.408	0.292
	Back side	0.395	0.312	0.618	0.073	0.707	1.013	0.468
	Left side	0.163	0.027	0.049	0.008	0.190	0.212	0.171
	Right side	0.158	0.172	0.405	0.039	0.330	0.563	0.197
	Top side	0.257	0.218	0.502	0.062	0.475	0.759	0.319
	Bottom side	/	/	/	/	/	/	/
LTE B7	Front side	0.145	0.161	0.154	0.038	0.306	0.299	0.183
	Back side	0.503	0.312	0.618	0.073	0.815	1.121	0.576
	Left side	0.157	0.027	0.049	0.008	0.184	0.206	0.165
	Right side	0.007	0.172	0.405	0.039	0.179	0.412	0.046
	Top side	0.557	0.218	0.502	0.062	0.775	1.059	0.619
	Bottom side	/	/	/	/	/	/	/
LTE B12	Front side	0.150	0.161	0.154	0.038	0.311	0.304	0.188
	Back side	0.205	0.312	0.618	0.073	0.517	0.823	0.278
	Left side	0.254	0.027	0.049	0.008	0.281	0.303	0.262
	Right side	0.178	0.172	0.405	0.039	0.350	0.583	0.217
	Top side	0.115	0.218	0.502	0.062	0.333	0.617	0.177
	Bottom side	/	/	/	/	/	/	/
LTE B13	Front side	0.202	0.161	0.154	0.038	0.363	0.356	0.240
	Back side	0.285	0.312	0.618	0.073	0.597	0.903	0.358
	Left side	0.174	0.027	0.049	0.008	0.201	0.223	0.182
	Right side	0.140	0.172	0.405	0.039	0.312	0.545	0.179
	Top side	0.168	0.218	0.502	0.062	0.386	0.670	0.230
	Bottom side	/	/	/	/	/	/	/
LTE B26	Front side	0.270	0.161	0.154	0.038	0.431	0.424	0.308
	Back side	0.419	0.312	0.618	0.073	0.731	1.037	0.492
	Left side	0.156	0.027	0.049	0.008	0.183	0.205	0.164
	Right side	0.166	0.172	0.405	0.039	0.338	0.571	0.205
	Top side	0.264	0.218	0.502	0.062	0.482	0.766	0.326
	Bottom side	/	/	/	/	/	/	/
LTE B38	Front side	0.145	0.161	0.154	0.038	0.306	0.299	0.183
	Back side	0.487	0.312	0.618	0.073	0.799	1.105	0.560
	Left side	0.207	0.027	0.049	0.008	0.234	0.256	0.215
	Right side	0.012	0.172	0.405	0.039	0.184	0.417	0.051
	Top side	0.608	0.218	0.502	0.062	0.826	1.110	0.670
	Bottom side	/	/	/	/	/	/	/
LTE B41	Front side	0.190	0.161	0.154	0.038	0.351	0.344	0.228
	Back side	0.576	0.312	0.618	0.073	0.888	1.194	0.649
	Left side	0.265	0.027	0.049	0.008	0.292	0.314	0.273
	Right side	0.014	0.172	0.405	0.039	0.186	0.419	0.053
	Top side	0.672	0.218	0.502	0.062	0.890	1.174	0.734
	Bottom side	/	/	/	/	/	/	/
LTE B66	Front side	0.382	0.161	0.154	0.038	0.543	0.536	0.420
	Back side	0.453	0.312	0.618	0.073	0.765	1.071	0.526
	Left side	0.058	0.027	0.049	0.008	0.085	0.107	0.066
	Right side	0.068	0.172	0.405	0.039	0.240	0.473	0.107
	Top side	0.618	0.218	0.502	0.062	0.836	1.120	0.680
	Bottom side	/	/	/	/	/	/	/

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Test position		SARmax (W/kg)				Summed SAR		
		Main Ant31	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM850	Front side	0.101	0.161	0.154	0.038	0.262	0.255	0.139
	Back side	0.161	0.312	0.618	0.073	0.473	0.779	0.234
	Left side	0.105	0.027	0.049	0.008	0.132	0.154	0.113
	Right side	0.074	0.172	0.405	0.039	0.246	0.479	0.113
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.079	/	/	/	0.079	0.079	0.079
GSM1900	Front side	0.103	0.161	0.154	0.038	0.264	0.257	0.141
	Back side	0.235	0.312	0.618	0.073	0.547	0.853	0.308
	Left side	0.034	0.027	0.049	0.008	0.061	0.083	0.042
	Right side	0.048	0.172	0.405	0.039	0.220	0.453	0.087
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.294	/	/	/	0.294	0.294	0.294
WCDMA B2	Front side	0.156	0.161	0.154	0.038	0.317	0.310	0.194
	Back side	0.347	0.312	0.618	0.073	0.659	0.965	0.420
	Left side	0.055	0.027	0.049	0.008	0.082	0.104	0.063
	Right side	0.080	0.172	0.405	0.039	0.252	0.485	0.119
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.455	/	/	/	0.455	0.455	0.455
WCDMA B4	Front side	0.146	0.161	0.154	0.038	0.307	0.300	0.184
	Back side	0.251	0.312	0.618	0.073	0.563	0.869	0.324
	Left side	0.033	0.027	0.049	0.008	0.060	0.082	0.041
	Right side	0.073	0.172	0.405	0.039	0.245	0.478	0.112
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.375	/	/	/	0.375	0.375	0.375
WCDMA B5	Front side	0.125	0.161	0.154	0.038	0.286	0.279	0.163
	Back side	0.193	0.312	0.618	0.073	0.505	0.811	0.266
	Left side	0.110	0.027	0.049	0.008	0.137	0.159	0.118
	Right side	0.081	0.172	0.405	0.039	0.253	0.486	0.120
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.103	/	/	/	0.103	0.103	0.103
LTE B2	Front side	0.198	0.161	0.154	0.038	0.359	0.352	0.236
	Back side	0.364	0.312	0.618	0.073	0.676	0.982	0.437
	Left side	0.065	0.027	0.049	0.008	0.092	0.114	0.073
	Right side	0.107	0.172	0.405	0.039	0.279	0.512	0.146
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.548	/	/	/	0.548	0.548	0.548
LTE B4	Front side	0.209	0.161	0.154	0.038	0.370	0.363	0.247
	Back side	0.345	0.312	0.618	0.073	0.657	0.963	0.418
	Left side	0.056	0.027	0.049	0.008	0.083	0.105	0.064
	Right side	0.107	0.172	0.405	0.039	0.279	0.512	0.146
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.505	/	/	/	0.505	0.505	0.505

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LTE B5	Front side	0.119	0.161	0.154	0.038	0.280	0.273	0.157
	Back side	0.189	0.312	0.618	0.073	0.501	0.807	0.262
	Left side	0.090	0.027	0.049	0.008	0.117	0.139	0.098
	Right side	0.072	0.172	0.405	0.039	0.244	0.477	0.111
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.085	/	/	/	0.085	0.085	0.085
LTE B7	Front side	0.248	0.161	0.154	0.038	0.409	0.402	0.286
	Back side	0.457	0.312	0.618	0.073	0.769	1.075	0.530
	Left side	0.061	0.027	0.049	0.008	0.088	0.110	0.069
	Right side	0.199	0.172	0.405	0.039	0.371	0.604	0.238
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.235	/	/	/	0.235	0.235	0.235
LTE B12	Front side	0.022	0.161	0.154	0.038	0.183	0.176	0.060
	Back side	0.025	0.312	0.618	0.073	0.337	0.643	0.098
	Left side	0.026	0.027	0.049	0.008	0.053	0.075	0.034
	Right side	0.027	0.172	0.405	0.039	0.199	0.432	0.066
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.012	/	/	/	0.012	0.012	0.012
LTE B13	Front side	0.080	0.161	0.154	0.038	0.241	0.234	0.118
	Back side	0.098	0.312	0.618	0.073	0.410	0.716	0.171
	Left side	0.064	0.027	0.049	0.008	0.091	0.113	0.072
	Right side	0.067	0.172	0.405	0.039	0.239	0.472	0.106
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.042	/	/	/	0.042	0.042	0.042
LTE B26	Front side	0.112	0.161	0.154	0.038	0.273	0.266	0.150
	Back side	0.177	0.312	0.618	0.073	0.489	0.795	0.250
	Left side	0.085	0.027	0.049	0.008	0.112	0.134	0.093
	Right side	0.070	0.172	0.405	0.039	0.242	0.475	0.109
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.080	/	/	/	0.080	0.080	0.080
LTE B38	Front side	0.228	0.161	0.154	0.038	0.389	0.382	0.266
	Back side	0.457	0.312	0.618	0.073	0.769	1.075	0.530
	Left side	0.048	0.027	0.049	0.008	0.075	0.097	0.056
	Right side	0.179	0.172	0.405	0.039	0.351	0.584	0.218
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.214	/	/	/	0.214	0.214	0.214
LTE B41	Front side	0.237	0.161	0.154	0.038	0.398	0.391	0.275
	Back side	0.425	0.312	0.618	0.073	0.737	1.043	0.498
	Left side	0.050	0.027	0.049	0.008	0.077	0.099	0.058
	Right side	0.184	0.172	0.405	0.039	0.356	0.589	0.223
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.223	/	/	/	0.223	0.223	0.223
LTE B66	Front side	0.158	0.161	0.154	0.038	0.319	0.312	0.196
	Back side	0.311	0.312	0.618	0.073	0.623	0.929	0.384
	Left side	0.040	0.027	0.049	0.008	0.067	0.089	0.048
	Right side	0.076	0.172	0.405	0.039	0.248	0.481	0.115
	Top side	/	0.218	0.502	0.062	0.218	0.502	0.062
	Bottom side	0.386	/	/	/	0.386	0.386	0.386

检验检测专用章 Inspection & Testing Services
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Electronic Product & Wireless Laboratory

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Product specific 10g SAR:

Test position		SARmax (W/kg)				Summed SAR		
		Main Ant13	WiFi 2.4G Ant22	WiFi 5G Ant22	BT			
		1	2	3	4	1+2	1+3	1+4
GSM1900	Front side	/	/	0.567	/	/	0.567	/
	Back side	1.327	/	0.967	/	1.327	2.294	1.327
	Left side	/	/	0.074	/	/	0.074	/
	Right side	/	/	0.913	/	/	0.913	/
	Top side	0.950	/	1.197	/	0.950	2.147	0.950
	Bottom side	/	/	/	/	/	/	/
WCDMA B2	Front side	/	/	0.567	/	/	0.567	/
	Back side	/	/	0.967	/	/	0.967	/
	Left side	/	/	0.074	/	/	0.074	/
	Right side	/	/	0.913	/	/	0.913	/
	Top side	1.317	/	1.197	/	1.317	2.514	1.317
	Bottom side	/	/	/	/	/	/	/
LTE B2	Front side	/	/	0.567	/	/	0.567	/
	Back side	1.330	/	0.967	/	1.330	2.297	1.330
	Left side	/	/	0.074	/	/	0.074	/
	Right side	/	/	0.913	/	/	0.913	/
	Top side	1.304	/	1.197	/	1.304	2.501	1.304
	Bottom side	/	/	/	/	/	/	/
LTE B7	Front side	/	/	0.567	/	/	0.567	/
	Back side	/	/	0.967	/	/	0.967	/
	Left side	/	/	0.074	/	/	0.074	/
	Right side	/	/	0.913	/	/	0.913	/
	Top side	0.999	/	1.197	/	0.999	2.196	0.999
	Bottom side	/	/	/	/	/	/	/
LTE B66	Front side	/	/	0.567	/	/	0.567	/
	Back side	/	/	0.967	/	/	0.967	/
	Left side	/	/	0.074	/	/	0.074	/
	Right side	/	/	0.913	/	/	0.913	/
	Top side	2.335	/	1.197	/	2.335	3.532	2.335
	Bottom side	/	/	/	/	/	/	/

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9 Equipment list

Test Platform	SPEAG DASY Professional
Description	SAR Test System (Frequency range 300MHz-6GHz)
Software Reference	DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Hardware Reference

Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	Twin Phantom	SPEAG	SAM 3	2031	NCR	NCR
☒	Twin Phantom	SPEAG	SAM 6	1481	NCR	NCR
☒	DAE	SPEAG	DAE4	1663	2023/03/27	2024/03/26
☒	DAE	SPEAG	DAE4	896	2023/03/17	2024/03/16
☒	E-Field Probe	SPEAG	EX3DV4	7821	2023/07/17	2024/07/16
☒	E-Field Probe	SPEAG	ES3DV3	3137	2023/09/27	2024/09/26
☒	Validation Kits	SPEAG	D750V3	1160	2022/06/06	2025/06/05
☒	Validation Kits	SPEAG	D835V2	4d105	2022/11/02	2025/11/01
☒	Validation Kits	SPEAG	D1750V2	1149	2022/06/17	2025/06/16
☒	Validation Kits	SPEAG	D1900V2	5d028	2022/11/02	2025/11/01
☒	Validation Kits	SPEAG	D2450V2	733	2022/11/02	2025/11/01
☒	Validation Kits	SPEAG	D2600V2	1125	2022/06/14	2025/06/13
☒	Validation Kits	SPEAG	D5GHzV2	1165	2022/11/01	2025/10/31
☒	Dielectric parameter probes	SPEAG	DAKS-3.5	0005	2023/6/15	2024/6/14
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	0140913	2023/6/7	2024/6/6
☒	Radio Communication Analyzer	Anritsu	MT8820C	6201616273	2023/02/16	2024/02/15
☒	Radio Communication Analyzer	Anritsu	MT8820C	6201381734	2023/05/25	2024/05/24
☒	Radio Communication Analyzer	Anritsu	MT8820C	6201074424	2022/11/18	2023/11/17
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	Agilent	N5171B	MY53050736	2023/02/16	2024/02/15
☒	Preamplifier	Mini-Circuits	ZHL-42W	15542	NCR	NCR
☒	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	073501433	NCR	NCR
☒	Power Meter	Agilent	E4416A	GB41292095	2023/02/16	2024/02/15
☒	Power Sensor	Agilent	8481H	MY41091234	2023/02/16	2024/02/15
☒	Power Sensor	R&S	NRP-Z92	100025	2023/02/16	2024/02/15
☒	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
☒	Speed reading thermometer	MingGao	T809	NA	2023/05/26	2024/05/25
☒	Humidity and Temperature Indicator	KIMTOKA	KIMTOKA	NA	2023/02/17	2024/02/16

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☒	Humidity and Temperature Indicator	CHIGAO	HTC-1	ZGL2020120550471	2023/05/26	2024/05/25
☒	Humidity and Temperature Indicator	CHIGAO	HTC-1	ZGL2020120550472	2023/05/26	2024/05/25

Note: All the equipments are within the valid period when the tests are performed.

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10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

Appendix E: Conducted RF Output Power

Appendix F: Antenna Locations

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