TEST REPORT

KCTL Inc. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-31-285-0894 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR22-SPF0015-B Page (1) of (337)	eurofins | KCTL

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677 Rep. of Korea
- Date of Receipt : 2022-03-11

2. Use of Report : Certification

3. Name of Product and Model : Tablet PC
- Model Name : SM-P619
- Manufacturer and Country of Origin : Samsung Electronics Co., Ltd. / VIETNAM

4. FCC ID : A3LSMP619

5. Date of Test : 2022-03-25 ~ 2022-04-11

6. Location of Test : ■ Permanent Testing Lab ☐ On Site Testing
(Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

7. Test Standards : IEEE 1528-2013, ANSI/IEEE C95.1, KDB Publication

8. Test Results : Refer to the test result in the test report

Affirmation	Tested by	Technical Manager
	Name : Dongkyu Kim (Signature)	Name : Jongwon Ma (Signature)

2022-04-19

KCTL Inc.

REPORT REVISION HISTORY

Date	Revision	Page No
2022-04-14	Originally issued	-
2022-04-18	Updated -SAR Test Exclusion Considerations of GSM:Section 2.5.2.1 -NII 5710 ㎒ Conducted Output Power:Section 9.7.3 -SPLSR of GSM850 Sensor Off :Section 12.3.1	- 13 63 103~106
2022-04-19	Updated -WCDMA IV Auto-Tune state	- 306

Note: The Report No. KR22-SPF0015-A is superseded by the report No. KR22-SPF0015-B.

General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ **Statement not required by the standard or client used for type testing**

1. Identification when information is provided by the customer: Information marked " # " is provided by the customer. - Disclaimer: This information is provided by the customer and can affect the validity of results.

CONTENTS

1. General information

Client	:	Samsung Electronics Co., Ltd.
Address	:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Manufacturer	:	Samsung Electronics Co., Ltd.
Address	:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Factory	:	Samsung Electronics Vietnam Thai Nguyen Co., Ltd
Address	:	Yen Binh Industrial Park, Dong Tien Ward, Pho Yen Town, Thai Nguyen Province, Vietnam
Laboratory	:	KCTL Inc.
Address	:	65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	:	FCC Site Designation No: KR0040, FCC Site Registration No: 687132 VCCI Registration No. : R-3327, G-198, C-3706, T-1849 CAB Identifier: KR0040, ISED Number: 8035A KOLAS No.: KT231

1.1 Report Overview

This report details the results of testing carried out on the samples listed in section 2, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this test report is used in any configuration other than that detailed in the test report, the manufacturer must ensure the new configuration complies with all relevant standards and certification requirements. Any mention of KCTL Inc. Wireless lab or testing done by KCTL Inc. Wireless lab made in connection with the distribution or use of the tested product must be approved in writing by KCTL Inc. Wireless lab.

2. Device information

2.1 Basic description

Product Name		Tablet PC		
Product Model Name		SM-P619		
Product Manufacturer		Samsung Electronics Co., Ltd.		
Product Serial Number	WWAN Radiation	R32T2001G1Z, R32T2001G7L		
	WLAN Radiation	R32T3000QCZ, R32T2001G2M, R32T3000LAR		
	Conduction	R32T2001YRV, R32T2001PME		
		R32T2001R7V, 613b59517f197ece		
Device Overview		Band & Mode	Operating Modes	Tx Frequency (㎒)
		GSM/GPRS/EDGE 850	Voice/Data	824.2 ~ 848.8
		GSM/GPRS/EDGE 1900	Voice/Data	1 850.2 ~ 1 909.8
		WCDMA Band II	Voice/Data	1 852.4 ~ 1 907.6
		WCDMA Band IV	Voice/Data	1 712.4 ~ 1 752.6
		WCDMA Band V	Voice/Data	826.4 ~ 846.6
		LTE Band 2	Voice/Data	1 850.7 ~ 1 909.3
		LTE Band 4	Voice/Data	1 710.7 ~ 1 754.3
		LTE Band 5	Voice/Data	824.7 ~ 848.3
		LTE Band 12	Voice/Data	699.7 ~ 715.3
		LTE Band 17	Voice/Data	706.5 ~ 713.5
		LTE Band 41	Voice/Data	2 498.5 ~ 2 687.5
		LTE Band 66	Voice/Data	1 710.7 ~ 1 779.3
		2.4 ㎓ WLAN	Voice/Data	2 412.0 ~ 2 472.0
		U-NII-1	Voice/Data	5 180.0 ~ 5 240.0
		U-NII-2A	Voice/Data	5 260.0 ~ 5 320.0
		U-NII-2C	Voice/Data	5 500.0 ~ 5 720.0
		U-NII-3	Voice/Data	5 745.0 ~ 5 825.0
		Bluetooth	Data	2 402.0 ~ 2 480.0
TDWR Information		5.60 ㎓~ 5.65 ㎓ band (TDWR) is supported by the device.		

2.2 Summary of SAR Test Results

Band	Equipment Class	Highest Reported 1g SAR (W/kg) Body
GSM/GPRS/EDGE 850	PCE	**1.26**
GSM/GPRS/EDGE 1900	PCE	0.90
WCDMA Band II	PCE	0.98
WCDMA Band IV	PCE	0.99
WCDMA Band V	PCE	0.74
LTE Band 2	PCE	1.02
LTE Band 4	PCE	N/A
LTE Band 5	PCE	0.51
LTE Band 12	PCE	0.76
LTE Band 17	PCE	N/A
LTE Band 41	PCE	0.84
LTE Band 66	PCE	0.77
2.4 ㎓ WLAN	DTS	0.45
U-NII-1	NII	N/A
U-NII-2A	NII	0.74
U-NII-2C	NII	0.69
U-NII-3	NII	0.68
Bluetooth	DSS	0.47
Simultaneous SAR per KDB 690783 D01v01r03		1.59

2.3 Power Reduction for SAR

This device utilizes a power reduction mechanism for some wireless modes and bands for SAR compliance under some conditions when the device is being used in close proximity to the user's hand. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device when being used in Tablet use conditions. Detailed descriptions of the power reduction mechanism are included in the operational description.

2.4 #Maximum Tune-up power

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

When the specified maximum output power is the same for both UNII Band1 and UNII Band 2A, begins SAR measurement in UNII band 2A; and if the highest reported SAR for U NII band 2A is ≤ 1.2W/kg, SAR is not required for U-NII-1 band for that configuration; otherwise, each band is tested independently for SAR.

2.4.1 Maximum 2G/3G/4G Output Power

Band	Mode	Output Power (dBm)					
		Normal			Grip Sensor (Back-off)		
		Target	Max. Allowed	SAR Test	Target	Max. Allowed	SAR Test
GSM 850	GSM Voice	33.00	**34.00**	No	23.50	**24.50**	No
	GPRS 1 TX	33.00	**34.00**	No	23.50	**24.50**	No
	GPRS 2 TX	32.50	**33.50**	**Yes**	21.00	**22.00**	No
	GPRS 3 TX	29.50	**30.50**	No	19.50	**20.50**	No
	GPRS 4 TX	29.00	**30.00**	No	18.50	**19.50**	**Yes**
	EGPRS 1 TX	26.00	**27.00**	No	22.50	**23.50**	No
	EGPRS 2 TX	24.50	**25.50**	No	19.50	**20.50**	No
	EGPRS 3 TX	22.50	**23.50**	No	16.50	**17.50**	No
	EGPRS 4 TX	21.00	**22.00**	No	14.50	**15.50**	No
GSM 1900	GSM Voice	30.00	**31.00**	No	22.00	**23.00**	No
	GPRS 1 TX	30.00	**31.00**	No	22.00	**23.00**	No
	GPRS 2 TX	29.00	**30.00**	**Yes**	19.00	**20.00**	**Yes**
	GPRS 3 TX	25.50	**26.50**	No	16.50	**17.50**	No
	GPRS 4 TX	24.50	**25.50**	No	14.50	**15.50**	No
	EGPRS 1 TX	25.50	**26.50**	No	21.00	**22.00**	No
	EGPRS 2 TX	24.00	**25.00**	No	18.00	**19.00**	No
	EGPRS 3 TX	21.50	**22.50**	No	15.50	**16.50**	No
	EGPRS 4 TX	21.00	**22.00**	No	14.00	**15.00**	No

Mode		Output Power (dBm)					
		Normal			Grip Sensor (Back-off)		
		Target	Max. Allowed	SAR Test	Target	Max. Allowed	SAR Test
WCDMA Band II							
RMC		23.50	**24.50**	**Yes**	13.00	**14.00**	**Yes**
AMR		23.50	**24.50**	No	13.00	**14.00**	No
HSDPA	Subtest 1	23.00	**24.00**	No	12.50	**13.50**	No
	Subtest 2	23.00	**24.00**		12.50	**13.50**	
	Subtest 3	22.50	**23.50**		12.00	**13.00**	
	Subtest 4	22.50	**23.50**		12.00	**13.00**	
HSUPA	Subtest 1	23.00	**24.00**	No	12.50	**13.50**	No
	Subtest 2	21.00	**22.00**		10.50	**11.50**	
	Subtest 3	22.00	**23.00**		11.50	**12.50**	
	Subtest 4	21.00	**22.00**		10.50	**11.50**	
	Subtest 5	23.00	**24.00**		12.50	**13.50**	
DC-HSDPA	Subtest 1	23.00	**24.00**	No	12.50	**13.50**	No
	Subtest 2	23.00	**24.00**		12.50	**13.50**	
	Subtest 3	22.50	**23.50**		12.00	**13.00**	
	Subtest 4	22.50	**23.50**		12.00	**13.00**	
WCDMA Band IV							
RMC		23.50	**24.50**	**Yes**	14.00	**15.00**	**Yes**
AMR		23.50	**24.50**	No	14.00	**15.00**	No
HSDPA	Subtest 1	23.00	**24.00**	No	13.50	**14.50**	No
	Subtest 2	23.00	**24.00**		13.50	**14.50**	
	Subtest 3	22.50	**23.50**		13.00	**14.00**	
	Subtest 4	22.50	**23.50**		13.00	**14.00**	
HSUPA	Subtest 1	23.00	**24.00**	No	13.50	**14.50**	No
	Subtest 2	21.00	**22.00**		11.50	**12.50**	
	Subtest 3	22.00	**23.00**		12.50	**13.50**	
	Subtest 4	21.00	**22.00**		11.50	**12.50**	
	Subtest 5	23.00	**24.00**		13.50	**14.50**	
DC-HSDPA	Subtest 1	23.00	**24.00**	No	13.50	**14.50**	No
	Subtest 2	23.00	**24.00**		13.50	**14.50**	
	Subtest 3	22.50	**23.50**		13.00	**14.00**	
	Subtest 4	22.50	**23.50**		13.00	**14.00**	
WCDMA Band V							
RMC		23.50	**24.50**	**Yes**	15.00	**16.00**	**Yes**
AMR		23.50	**24.50**	No	15.00	**16.00**	No
HSDPA	Subtest 1	23.00	**24.00**	No	14.50	**15.50**	No
	Subtest 2	23.00	**24.00**		14.50	**15.50**	
	Subtest 3	22.50	**23.50**		14.00	**15.00**	
	Subtest 4	22.50	**23.50**		14.00	**15.00**	
HSUPA	Subtest 1	23.00	**24.00**	No	14.50	**15.50**	No
	Subtest 2	21.00	**22.00**		12.50	**13.50**	
	Subtest 3	22.00	**23.00**		13.50	**14.50**	
	Subtest 4	21.00	**22.00**		12.50	**13.50**	
	Subtest 5	23.00	**24.00**		14.50	**15.50**	
DC-HSDPA	Subtest 1	23.00	**24.00**	No	14.50	**15.50**	No
	Subtest 2	23.00	**24.00**		14.50	**15.50**	
	Subtest 3	22.50	**23.50**		14.00	**15.00**	
	Subtest 4	22.50	**23.50**		14.00	**15.00**	

Mode	Output Power (dBm)					
	Normal			Grip Sensor (Back-off)		
	Target	Max. Allowed	SAR Test	Target	Max. Allowed	SAR Test
LTE Band 2	23.50	**24.50**	**Yes**	13.00	**14.00**	**Yes**
LTE Band 4	23.50	**24.50**	*No	13.00	**14.00**	*No
LTE Band 5	23.50	**24.50**	**Yes**	15.00	**16.00**	**Yes**
LTE Band 12	24.00	**25.00**	**Yes**	17.00	**18.00**	**Yes**
LTE Band 17	24.00	**25.00**	*No	17.00	**18.00**	*No
LTE Band 41	22.50	**23.50**	**Yes**	14.50	**15.50**	**Yes**
LTE Band 66	23.50	**24.50**	**Yes**	13.00	**14.00**	**Yes**

Notes:

LTE Band 4 Measured Results

SAR for LTE Band 4 (Frequency range: 1 710.7 ~ 1 754.3 ㎒) is covered by LTE Band 66 (Frequency range: 1 710.7 ~ 1 779.3 ㎒) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 17 Measured Results

SAR for LTE Band 17 (Frequency range: 706.5 ~ 713.5 ㎒) is covered by LTE Band 12 (Frequency range: 699.7 ~ 715.3 ㎒) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

2.4.2 Maximum WLAN and Bluetooth Output Power

Band	Ant.	Mode	Channel	Output Power(dBm)		
				Normal		
				Target	Max. Allowed	SAR Test
WLAN 2.4 GHz	Ant.1, Ant.2	802.11b	1	15.00	**16.00**	Yes
			11	13.00	**14.00**	
			12	5.00	**6.00**	
			13	4.00	**5.00**	
			Except 1,11,12,13	12.00	**13.00**	
		802.11g	1	14.00	**15.00**	No
			12	5.00	**6.00**	
			13	4.00	**5.00**	
			Except 1,12,13	17.00	**18.00**	
		802.11n(HT20)	1	15.00	**16.00**	No
			12	5.00	**6.00**	
			13	4.00	**5.00**	
			Except 1,12,13	17.00	**18.00**	
	MIMO	802.11b	1	18.00	**19.00**	No
			11	16.00	**17.00**	
			12	8.00	**9.00**	
			13	7.00	**8.00**	
			Except 1,11,12,13	15.00	**16.00**	
		802.11g	1	17.00	**18.00**	No
			12	8.00	**9.00**	
			13	7.00	**8.00**	
			Except 1,12,13	20.00	**21.00**	
		802.11n(HT20)	1	18.00	**19.00**	No
			12	8.00	**9.00**	
			13	7.00	**8.00**	
			Except 1,12,13	20.00	**21.00**	

Band	Ant.	Mode	Channel	Output Power(dBm)		
				Grip Sensor (Back-off)		
				Target	Max. Allowed	SAR Test
WLAN 2.4 GHz	Ant.1, Ant.2	802.11b	12	5.00	**6.00**	Yes
			13	4.00	**5.00**	
			Except 12,13	11.00	**12.00**	
		802.11g	12	5.00	**6.00**	No
			13	4.00	**5.00**	
			Except 12,13	11.00	**12.00**	
		802.11n(HT20)	12	5.00	**6.00**	No
			13	4.00	**5.00**	
			Except 12,13	11.00	**12.00**	
	MIMO	802.11b	12	8.00	**9.00**	No
			13	7.00	**8.00**	
			Except 12,13	14.00	**15.00**	
		802.11g	12	8.00	**9.00**	No
			13	7.00	**8.00**	
			Except 12,13	14.00	**15.00**	
		802.11n(HT20)	12	8.00	**9.00**	No
			13	7.00	**8.00**	
			Except 12,13	14.00	**15.00**	

Band	Ant.	Mode	Channel	Output Power(dBm)					
				Normal			Grip Sensor (Back-off)		
				Target	Max. Allowed	SAR Test	Target	Max. Allowed	SAR Test
U-NII-1, U-NII-2A	Ant.1, Ant.2	802.11a	All Channel	15.00	**16.00**	Yes	10.00	**11.00**	No
		802.11n(HT20)	All Channel	15.00	**16.00**	No	10.00	**11.00**	No
		802.11n(HT40)	38,62	9.00	**10.00**	No	9.00	**10.00**	Yes
			Except 38,62	13.00	**14.00**		10.00	**11.00**	
		802.11ac(VHT20)	All Channel	15.00	**16.00**	No	10.00	**11.00**	No
		802.11ac(VHT40)	38,62	9.00	**10.00**	No	9.00	**10.00**	No
			Except 38,62	13.00	**14.00**		10.00	**11.00**	
		802.11ac(VHT80)	All Channel	8.00	**9.00**	No	8.00	**9.00**	No
	MIMO	802.11a	All Channel	18.00	**19.00**	No	13.00	**14.00**	No
		802.11n(HT20)	All Channel	18.00	**19.00**	No	13.00	**14.00**	No
		802.11n(HT40)	38,62	12.00	**13.00**	No	12.00	**13.00**	No
			Except 38,62	16.00	**17.00**		13.00	**14.00**	
		802.11ac(VHT20)	All Channel	18.00	**19.00**	No	13.00	**14.00**	No
		802.11ac(VHT40)	38,62	12.00	**13.00**	No	12.00	**13.00**	No
			Except 38,62	16.00	**17.00**		13.00	**14.00**	
		802.11ac(VHT80)	All Channel	11.00	**12.00**	No	11.00	**12.00**	No
U-NII-2C	Ant.1, Ant.2	802.11a	All Channel	15.00	**16.00**	Yes	10.00	**11.00**	No
		802.11n(HT20)	All Channel	15.00	**16.00**	No	10.00	**11.00**	No
		802.11n(HT40)	102	11.00	**12.00**	No	10.00	**11.00**	No
			Except 102	13.00	**14.00**				
		802.11ac(VHT20)	All Channel	15.00	**16.00**	No	10.00	**11.00**	No
		802.11ac(VHT40)	102	11.00	**12.00**	No	10.00	**11.00**	No
			Except 102	13.00	**14.00**				
		802.11ac(VHT80)	106	8.00	**9.00**	No	8.00	**9.00**	Yes
			Except 106	12.00	**13.00**		10.00	**11.00**	
	MIMO	802.11a	All Channel	18.00	**19.00**	No	13.00	**14.00**	No
		802.11n(HT20)	All Channel	18.00	**19.00**	No	13.00	**14.00**	No
		802.11n(HT40)	102	14.00	**15.00**	No	13.00	**14.00**	No
			Except 102	16.00	**17.00**				
		802.11ac(VHT20)	All Channel	18.00	**19.00**	No	13.00	**14.00**	No
		802.11ac(VHT40)	102	14.00	**15.00**	No	13.00	**14.00**	No
			Except 102	16.00	**17.00**				
		802.11ac(VHT80)	106	11.00	**12.00**	No	11.00	**12.00**	No
			Except 106	15.00	**16.00**		13.00	**14.00**	

Band	Ant.	Mode	Channel	Output Power(dBm)					
				Normal			Grip Sensor (Back-off)		
				Target	Max. Allowed	SAR Test	Target	Max. Allowed	SAR Test
U-NII-3	Ant.1, Ant.2	802.11a	All Channel	13.00	**14.00**	No	10.00	**11.00**	No
		802.11n(HT20)	All Channel	13.00	**14.00**	No	10.00	**11.00**	No
		802.11n(HT40)	All Channel	13.00	**14.00**	**Yes**	10.00	**11.00**	No
		802.11ac(VHT20)	All Channel	13.00	**14.00**	No	10.00	**11.00**	No
		802.11ac(VHT40)	All Channel	13.00	**14.00**	No	10.00	**11.00**	No
		802.11ac(VHT80)	All Channel	12.00	**13.00**	No	10.00	**11.00**	**Yes**
	MIMO	802.11a	All Channel	16.00	**17.00**	No	13.00	**14.00**	No
		802.11n(HT20)	All Channel	16.00	**17.00**	No	13.00	**14.00**	No
		802.11n(HT40)	All Channel	16.00	**17.00**	No	13.00	**14.00**	No
		802.11ac(VHT20)	All Channel	16.00	**17.00**	No	13.00	**14.00**	No
		802.11ac(VHT40)	All Channel	16.00	**17.00**	No	13.00	**14.00**	No
		802.11ac(VHT80)	All Channel	15.00	**16.00**	No	13.00	**14.00**	No

Band	Mode	Channel	Output Power (dB m)		
			Target	Max. Allowed	SAR Test
Bluetooth	BDR(GFSK)	All Channel	10.00	**11.00**	**Yes**
	EDR (π/4DQPSK)	All Channel	8.00	**9.00**	No
	EDR(8DPSK)	All Channel	8.00	**9.00**	No
	LE(GFSK)	All Channel	5.00	**6.00**	No

2.5 SAR Test Configurations

2.5.1 #DUT Antenna Locations

The overall dimensions of this device are > 20 cm. A diagram showing the location of the device antennas can be found in Appendix F.

2.5.2 SAR Test Exclusion Considerations

2.5.2.1 Maximum Tune-up Power

Band / Ant.		Freq. [MHz]	Output Power		Separation distances [mm]					SAR 1-g					SAR 10-g	
			dBm	mW	Rear	Left	Right	Top	Bot.	Rear	Left		Right		Top	Bot.
											Edge	Corner	Edge	Corner		
GSM850		848.5	Note5) 27.48	560	5	46	46	5	240	103.17 Measure	11.21 Measure	N/A	11.21 Measure	N/A	103.17 Measure	1238mW EXEMPT
GSM1900		1 909.8	Note5) 23.98	250	5	46	46	5	240	69.10 Measure	7.51 Measure		7.51 Measure		69.10 Measure	2009mW EXEMPT
WCDMA II		1 907.6	24.50	282	5	46	46	5	240	77.90 Measure	8.47 Measure		8.47 Measure		77.90 Measure	2009mW EXEMPT
WCDMA IV		1 752.6	24.50	282	5	46	46	5	240	74.67 Measure	8.12 Measure		8.12 Measure		74.67 Measure	2013mW EXEMPT
WCDMA V		8 46.6	24.50	282	5	46	46	5	240	51.89 Measure	5.64 Measure		5.64 Measure		51.89 Measure	1235mW EXEMPT
LTE Band 2		1 909.3	24.50	282	5	46	46	5	240	77.93 Measure	8.47 Measure		8.47 Measure		77.93 Measure	2009mW EXEMPT
LTE Band 5		848.3	24.50	282	5	46	46	5	240	51.95 Measure	5.65 Measure		5.65 Measure		51.95 Measure	1237mW EXEMPT
LTE Band 12		715.3	25.00	316	5	46	46	5	240	53.45 Measure	5.81 Measure		5.81 Measure		53.45 Measure	1083mW EXEMPT
LTE Band 41		2 687.5	23.50	224	5	46	46	5	240	73.44 Measure	7.98 Measure		7.98 Measure		73.44 Measure	1991mW EXEMPT
LTE Band 66		1 779.3	24.50	282	5	46	46	5	240	75.23 Measure	8.18 Measure		8.18 Measure		75.23 Measure	2012mW EXEMPT
2.4 GHz	Ant.1	2 480.0	16.00	40	5	110	5	5	233	12.60 Measure	695mW EXEMPT		12.60 Measure		12.60 Measure	1925mW EXEMPT
U-NII-2A	Ant.1	5 320.0	16.00	40	5	110	5	5	233	18.45 Measure	665mW EXEMPT		18.45 Measure		18.45 Measure	1895mW EXEMPT
U-NII-2C	Ant.1	5 720.0	16.00	40	5	110	5	5	233	19.13 Measure	663mW EXEMPT		19.13 Measure		19.13 Measure	1893mW EXEMPT
U-NII-3	Ant.1	5 825.0	14.00	25	5	110	5	5	233	12.07 Measure	662mW EXEMPT		12.07 Measure		12.07 Measure	1892mW EXEMPT
2.4GHz	Ant.2	2 480.0	16.00	40	5	5	110	5	233	12.60 Measure	12.60 Measure		695mW EXEMPT		12.60 Measure	1925mW EXEMPT
U-NII-2A	Ant.2	5 320.0	16.00	40	5	5	110	5	233	18.45 Measure	18.45 Measure		665mW EXEMPT		18.45 Measure	1895mW EXEMPT
U-NII-2C	Ant.2	5 720.0	16.00	40	5	5	110	5	233	19.13 Measure	19.13 Measure		663mW EXEMPT		19.13 Measure	1893mW EXEMPT
U-NII-3	Ant.2	5 825.0	14.00	25	5	5	110	5	233	12.07 Measure	12.07 Measure		662mW EXEMPT		12.07 Measure	1892mW EXEMPT
Bluetooth		2 480.0	11.00	13	5	110	5	5	233	4.09 Measure	695mW EXEMPT		4.09 Measure		4.09 Measure	1925mW EXEMPT

Note 1: For distances < 5mm, a distance of 5mm is used to determine SAR exclusion and estimated SAR value.
Note 2: Output power is the maximum rated power (including tune-up or manufacturing tolerances) and includes source-based averaging.
Note 3: If the antenna separation distance is > 50mm then the value listed is the output power threshold, above which SAR measurement is required. For separation <= 50mm the value is the KDB 447498 calculated value and must be less than 3.0 for SAR exemption.
Note 4: Formulas round separation distance to nearest mm and power to nearest mW before calculating thresholds or exemption values.
Note 5: In the case of GSM mode, it was Calculated by applying frame power for SAR test conditions.

SAR Test Exclusion (Maximum Output Power)

Band / Ant.		Device Edge for SAR Testing (Front View)							
		Front	Rear	Left		Right		Top	Bottom
				Edge	Corner	Edge	Corner		
GSM850		No	Yes	Yes	N/A	Yes	N/A	Yes	No
GSM1900		No	Yes	Yes	N/A	Yes	N/A	Yes	No
WCDMA II		No	Yes	Yes	N/A	Yes	N/A	Yes	No
WCDMA IV		No	Yes	Yes	N/A	Yes	N/A	Yes	No
WCDMA V		No	Yes	Yes	N/A	Yes	N/A	Yes	No
LTE Band 2		No	Yes	Yes	N/A	Yes	N/A	Yes	No
LTE Band 5		No	Yes	Yes	N/A	Yes	N/A	Yes	No
LTE Band 12		No	Yes	Yes	N/A	Yes	N/A	Yes	No
LTE Band 41		No	Yes	Yes	N/A	Yes	N/A	Yes	No
LTE Band 66		No	Yes	Yes	N/A	Yes	N/A	Yes	No
WLAN 2.4 ㎓	Ant.1	No	Yes	No		Yes		Yes	No
U-NII-2A		No	Yes	No		Yes		Yes	No
U-NII-2C		No	Yes	No		Yes		Yes	No
U-NII-3		No	Yes	No		Yes		Yes	No
WLAN 2.4 ㎓	Ant.2	No	Yes	Yes		No		Yes	No
U-NII-2A		No	Yes	Yes		Note)Yes	No	Yes	No
U-NII-2C		No	Yes	Yes		Note)Yes	No	Yes	No
U-NII-3		No	Yes	Yes		Note)Yes	No	Yes	No
Bluetooth		No	Yes	No		Yes		Yes	No

Note: Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

2.5.2.2 Reduced Tune-up Power

Band / Ant.		Freq. [MHz]	Output Power		Separation distances [mm]					SAR Exemption					
			dBm	mW	Rear	Left	Right	Top	Bot.	Rear	Left		Right		Top	Bot.
											Edge	Corner	Edge	Corner		
GSM850		848.5	24.50	282	5	46	46	5	240	51.95 Measure	Non-Power-Back-off		Non-Power-Back-off		51.95 Measure	Non-Power-Back-off
GSM1900		1 909.8	23.00	200	5	46	46	5	240	55.28 Measure					55.28 Measure	
WCDMA II		1 907.6	14.00	25	5	46	46	5	240	6.91 Measure					6.91 Measure	
WCDMA IV		1 752.6	15.00	32	5	46	46	5	240	8.47 Measure					8.47 Measure	
WCDMA V		8 46.6	16.00	40	5	46	46	5	240	7.36 Measure					7.36 Measure	
LTE Band 2		1 909.3	14.00	25	5	46	46	5	240	6.91 Measure					6.91 Measure	
LTE Band 5		848.3	16.00	40	5	46	46	5	240	7.37 Measure					7.37 Measure	
LTE Band 12		715.3	18.00	63	5	46	46	5	240	10.66 Measure					10.66 Measure	
LTE Band 41		2 687.5	15.50	35	5	46	46	5	240	11.48 Measure					11.48 Measure	
LTE Band 66		1 779.3	14.00	25	5	46	46	5	240	6.67 Measure					6.67 Measure	
2.4 GHz	Ant.1	2 480.0	12.00	16	5	110	5	5	233	5.04 Measure	Non-Power-Back-off		5.04 Measure		5.04 Measure	Non-Power-Back-off
U-NII-2A		5 320.0	11.00	13	5	110	5	5	233	6.00 Measure			6.00 Measure		6.00 Measure	
U-NII-2C		5 720.0	11.00	13	5	110	5	5	233	6.22 Measure			6.22 Measure		6.22 Measure	
U-NII-3		5 825.0	11.00	13	5	110	5	5	233	6.28 Measure			6.28 Measure		6.28 Measure	
2.4GHz	Ant.2	2 480.0	12.00	16	5	5	110	5	233	5.04 Measure	5.04 Measure		Non-Power-Back-off		5.04 Measure	Non-Power-Back-off
U-NII-2A		5 320.0	11.00	13	5	5	110	5	233	6.00 Measure	6.00 Measure				6.00 Measure	
U-NII-2C		5 720.0	11.00	13	5	5	110	5	233	6.22 Measure	6.22 Measure				6.22 Measure	
U-NII-3		5 825.0	11.00	13	5	5	110	5	233	6.28 Measure	6.28 Measure				6.28 Measure	

Note 1: For distances < 5mm, a distance of 5mm is used to determine SAR exclusion and estimated SAR value.
Note 2: Output power is the maximum rated power (including tune-up or manufacturing tolerances) and includes source-based averaging.
Note 3: If the antenna separation distance is > 50mm then the value listed is the output power threshold, above which SAR measurement is required. For separation <= 50mm the value is the KDB 447498 calculated value and must be less than 3.0 for SAR exemption.
Note 4: Formulas round separation distance to nearest mm and power to nearest mW before calculating thresholds or exemption values.
Note 5: Non-power back-off means Grip Sensor is not applied.(This is calculated as the maximum output power in section 2.5.2.1)

SAR Test Exclusion (Reduced Output Power)

Band / Ant.		Device Edge for SAR Testing (Front View)							
		Front	Rear	Left Edge		Right Edge		Top	Bottom
				Edge	Corner	Edge	Corner		
GSM850		No	Yes	N/A		N/A		Yes	N/A
GSM1900		No	Yes					Yes	
WCDMA II		No	Yes					Yes	
WCDMA IV		No	Yes					Yes	
WCDMA V		No	Yes					Yes	
LTE Band 2		No	Yes					Yes	
LTE Band 5		No	Yes					Yes	
LTE Band 12		No	Yes					Yes	
LTE Band 41		No	Yes					Yes	
LTE Band 66		No	Yes					Yes	
2.4 GHz	Ant.1	No	Yes	N/A		Yes		No	N/A
U-NII-2A		No	Yes			Yes		No	
U-NII-2C		No	Yes			Yes		No	
U-NII-3		No	Yes			Yes		No	
2.4 GHz	Ant.2	No	Yes	Yes		N/A		Yes	N/A
U-NII-2A		No	Yes	Yes				Yes	
U-NII-2C		No	Yes	Yes				Yes	
U-NII-3		No	Yes	Yes				Yes	

2.6 SAR Test Methods and Procedures

The tests documented in this report were performed in accordance with IEEE 1528-2013 and the following published KDB procedures:

- IEEE 1528-2013
- 248227 D01 802.11 Wi-Fi SAR v02r02
- 447498 D01 General RF Exposure Guidance v06
- 616217 D04 SAR for laptop and tablets v01r02 (Proximity Sensor)
- 865664 D01 SAR measurement 100 ㎒ to 6 ㎓ v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel. 10 KDB Inquiry Sheet v01r02
- October 2014 TCB Workshop Notes (Other LTE Considerations)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)
- April 2019 TCB Workshop Notes (Tissue Simulation Liquids)
- November 2019 TCB Workshop Notes (SPLSR Hotspot Combination)

3. #LTE Information

LTE Information					
Form Factor	Tablet				
Frequency Range of each LTE transmission band	LTE Band 2 (1 850.7 ~ 1 909.3) ㎒ LTE Band 4 (1 710.7 ~ 1 754.3) ㎒ LTE Band 5 (824.7 ~ 848.3) ㎒ LTE Band 12 (699.7 ~ 715.3) ㎒ LTE Band 17 (706.5 ~ 713.5) ㎒ LTE Band 41 (2 498.5 ~ 2 687.5) ㎒ LTE Band 66 (1 710.7 ~ 1 779.3) ㎒				
Channel Bandwidths	LTE Band 2: 1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒ LTE Band 4: 1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒ LTE Band 5: 1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒ LTE Band 12: 1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒ LTE Band 17: 5 ㎒, 10 ㎒ LTE Band 41: 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒ LTE Band 66: 1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒				
Channel Numbers and Frequencies (㎒)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 2: 1.4 ㎒	1 850.7 (18 607)		1 880.0 (18 900)		1 909.3 (19 193)
LTE Band 2: 3 ㎒	1 851.5 (18 615)		1 880.0 (18 900)		1 908.5 (19 185)
LTE Band 2: 5 ㎒	1 852.5 (18 625)		1 880.0 (18 900)		1 907.5 (19 175)
LTE Band 2: 10 ㎒	1 855.0 (18 650)		1 880.0 (18 900)		1 905.0 (19 150)
LTE Band 2: 15 ㎒	1 857.5 (18 675)		1 880.0 (18 900)		1 902.5 (19 125)
LTE Band 2: 20 ㎒	1 860.0 (18 700)		1 880.0 (18 900)		1 900.0 (19 100)
LTE Band 4: 1.4 ㎒	1 710.7 (19 957)		1 732.5 (20 175)		1 754.3 (20 393)
LTE Band 4: 3 ㎒	1 711.5 (19 965)		1 732.5 (20 175)		1 753.5 (20 385)
LTE Band 4: 5 ㎒	1 712.5 (19 975)		1 732.5 (20 175)		1 752.5 (20 375)
LTE Band 4: 10 ㎒	1 715.0 (20 000)		1 732.5 (20 175)		1 750.0 (20 350)
LTE Band 4: 15 ㎒	1 717.5 (20 025)		1 732.5 (20 175)		1 747.5 (20 325)
LTE Band 4: 20 ㎒	1 720.0 (20 050)		1 732.5 (20 175)		1 745.0 (20 300)
LTE Band 5: 1.4 ㎒	824.7 (20 407)		836.5 (20 525)		848.3 (20 643)
LTE Band 5: 3 ㎒	825.5 (20 415)		836.5 (20 525)		847.5 (20 635)
LTE Band 5: 5 ㎒	826.5 (20 425)		836.5 (20 525)		846.5 (20 625)
LTE Band 5: 10 ㎒	829.0 (20 450)		836.5 (20 525)		844.0 (20 600)
LTE Band 12: 1.4 ㎒	699.7 (23 017)		707.5 (23 095)		715.3 (23 173)
LTE Band 12: 3 ㎒	700.5 (23 025)		707.5 (23 095)		714.5 (23 655)
LTE Band 12: 5 ㎒	701.5 (23 035)		707.5 (23 095)		713.5 (23 155)
LTE Band 12: 10 ㎒	704.0 (23 060)		707.5 (23 095)		711.0 (23 130)

Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 17: 5 MHz	706.5 (23 755)		710.0 (23 790)		713.5 (23 825)
LTE Band 17: 10 MHz	709.0 (23 780)		710.0 (23 790)		711.0 (23 800)
LTE Band 41: 5 MHz	2 506.0 (39 750)	2 549.5 (40 185)	2 593.0 (40 620)	2 636.5 (41 055)	2 680.0 (41 490)
LTE Band 41: 10 MHz	2 506.0 (39 750)	2 549.5 (40 185)	2 593.0 (40 620)	2 636.5 (41 055)	2 680.0 (41 490)
LTE Band 41: 15 MHz	2 506.0 (39 750)	2 549.5 (40 185)	2 593.0 (40 620)	2 636.5 (41 055)	2 680.0 (41 490)
LTE Band 41: 20 MHz	2 506.0 (39 750)	2 549.5 (40 185)	2 593.0 (40 620)	2 636.5 (41 055)	2 680.0 (41 490)
LTE Band 66: 1.4 MHz	1 710.7 (131 979)		1 745.0 (132 322)		1 779.3 (132 665)
LTE Band 66: 3 MHz	1 711.5 (131 987)		1 745.0 (132 322)		1 778.5 (132 657)
LTE Band 66: 5 MHz	1 712.5 (131 997)		1 745.0 (132 322)		1 777.5 (132 647)
LTE Band 66: 10 MHz	1 715.0 (132 022)		1 745.0 (132 322)		1 775.0 (132 622)
LTE Band 66: 15 MHz	1 717.5 (132 047)		1 745.0 (132 322)		1 772.5 (132 597)
LTE Band 66: 20 MHz	1 720.0 (132 072)		1 745.0 (132 322)		1 770.0 (132 572)
UE Category	UL:5, DL:11				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3 ~ 6.2.5?(manufacturer attestation to be provided)	YES				
A-MPR(Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	This device only supports LTE DL CA aggregation.				
LTE Additional Information	This device does not support full CA features on 3GPP Release 12. It supports carrier aggregation as shown in Appendix D. Uplink communications are done on the PCC. The following LTE Release 12 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

4. Specific Absorption Rate

4.1 Introduction

The SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational / controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

4.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dv}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = C\left(\frac{\delta T}{\delta t}\right)$$

Where: C is the specific head capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength. However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

5. SAR Measurement Procedures

5.1 SAR Scan Procedures

Step 1: Power Reference Measurement
The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 1.4 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties.
Step 2: Area Scan & Zoom Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot and Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing1 g and 10 g of simulated tissue. If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly. Area Scan & Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm ± 1 mm	½·δ·ln(2) mm 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·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details. * When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

Step 3: Power drift measurement
The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

6. SAR Measurement Configurations

6.1 SAR Testing for Tablet Configurations

Per FCC KDB Publication 616217 D04v01r02, for the back surface and edges of the tablet should be tested touching the phantom.

SAR evaluation for the front surface of tablet display screens are generally not necessary, except for tablets that are designed to require continuous operations with the hand next to the antenna.

The SAR exclusion threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configuration. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

6.2 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close to the user's body.
When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions.

7. RF Exposure Limits

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

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). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Partial Peak SAR [1] (Partial)	1.60 mW/g	8.00 mW/g
Partial Average SAR [2] (Whole Body)	0.08 mW/g	0.40 mW/g
Partial Peak SAR [3] (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

1) The spatial Peak value of the SAR averaged over any 1g gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2) The spatial Average value of the SAR averaged over the whole body.
3) 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.

8. FCC SAR General Measurement Procedures

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as reported SAR. Test highest reported SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

8.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

8.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.”
The device is placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviates by more than 5%, the SAR test and drift measurements are repeated.

8.4 SAR Measurement Conditions for UMTS

8.4.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in sec. 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all “1s” or 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, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

8.4.2 Head SAR Measurements

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.

8.4.3 Body SAR measurements

SAR for body exposure configurations is measured using the 12.2kbps RMC with the TPC bits all “1s”. 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 and applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported SAR configuration in 12.2kbps RMC.

8.4.4 SAR Measurements with Rel. 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using and FRC with H-SET 1 in Sub-test and a 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to release 6 HSPA test procedures. 8.4.5 SAR Measurement with Rel.6 HSUPA The 3G SAR test Reduction Procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, Using H-Set 1 and QPSK for FRC and a 12.2kbps RMC configured in Test Loop Mode 1 and Power Control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

8.4.5 SAR Measurements with Rel. 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

8.4.6 SAR Measurements with Rel. 8 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 secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable

8.5 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r05 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

8.5.1 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.

8.5.2 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.

8.5.3 A-MPR

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

8.5.4 Required RB Size and RB offsets for SAR testing

According to FCC KDB 941225 D05v02r05

1. Per sec 4.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   a. The required channel and offset combination with the highest maximum output power is required for SAR.
   b. When the reported SAR is ≤ 0.8 W/Kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   c. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel
2. Per Sec 4.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Sec 4.2.1.
3. Per Sec. 4.2.3, QPSK SAR is not required for the 100% all0cation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
4. Per Sec. 4.2.4 and 4.3, SAR test for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sec. 4.2.1 through 4.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/Kg.

8.5.5 LTE(TDD) Considerations

According to KDB 941225 D05v02r05, 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 sub-frame configuration 6.

LTE TDD Band supports 3GPP TS 36.211 section 4.2 for Type 2 Frame and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special sub frame configurations.

Table 4.2-1: 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	$6592 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$	$7680 \cdot T_s$	$(1+X) \cdot 2192 \cdot T_s$	$(1+X) \cdot 2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$
5	$6592 \cdot T_s$	$(2+X) \cdot 2192 \cdot T_s$	$(2+X) \cdot 2560 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-
10	$13168 \cdot T_s$	$13152 \cdot T_s$	$12800 \cdot T_s$	-	-	-

Table 4.2-2: 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
Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = (5120 x [1/(15000 x 2048)] x 2 + 0.006)/0.01 = 63.33 %
Ts = 1/(15000 x 2048) seconds

Note: This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1.

8.6 SAR Testing with 802.11 Transmitters

The normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable.

8.6.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 – 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

8.6.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 ㎒ (5.47 – 5.85 ㎓), 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, the channels at 5.60 – 5.65 ㎓ in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. When band gap channels are disabled, each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency point requirements.

8.6.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.

8.6.5 2.4 ㎓ SAR Test Requirement

SAR is measured for 2.4 ㎓ 802.11b DSSS using either the 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 position using the next highest measured output power channel; i.e., all channels require testing.

2.4 ㎓ 802.11g/n OFDM are additionally evaluated for SAR if highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 ㎓ band, the Initial Test Configuration Procedures should be followed.

8.6.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 ㎓ and 5 ㎓ band, when the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel band width, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.6.7 Initial Test Configuration Procedure

For OFDM, in both 2.4 and 5 ㎓ bands, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, and lowest data rate. If the average RF output powers of the highest identical transmission modes are within 0.25 ㏈ of each other, mid channel of the transmission mode with highest average RF output power is the initial test channel. Otherwise, the channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements.

8.6.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9. RF Average Conducted Output Power

9.1 GSM Average Conducted Output Power

Maximum Burst-Average Output Power (dB m)											
Band	Freq. [MHz]	Channel	GSM	GPRS (GMSK)				EGPRS (8-PSK)			
			Voice	1Tx	2Tx	3Tx	4Tx	1Tx	2Tx	3Tx	4Tx
GSM 850	824.2	128	32.47	32.46	**31.52**	29.27	28.01	25.34	24.12	21.84	20.39
	836.6	190	33.10	33.09	**32.02**	29.67	28.21	25.74	24.02	22.09	20.23
	848.8	251	33.02	33.00	**31.79**	30.02	28.56	25.64	24.35	22.10	20.51
GSM 1900	1850.2	512	30.03	30.02	**28.90**	24.83	24.51	25.22	24.12	21.24	20.02
	1880.0	661	30.06	30.05	**29.06**	25.22	24.86	25.31	24.14	21.20	20.01
	1909.8	810	29.92	29.89	**29.02**	25.46	25.02	25.38	24.19	21.25	20.01

Maximum Frame-Average Output Power (dB m)											
Band	Freq. [MHz]	Channel	GSM	GPRS (GMSK)				EGPRS (8-PSK)			
			Voice	1Tx	2Tx	3Tx	4Tx	1Tx	2Tx	3Tx	4Tx
GSM 850	824.2	128	23.44	23.43	25.50	25.01	25.00	16.31	18.10	17.58	17.38
	836.6	190	24.07	24.06	26.00	25.41	25.20	16.71	18.00	17.83	17.22
	848.8	251	23.99	23.97	25.77	25.76	25.55	16.61	18.33	17.84	17.50
GSM 1900	1850.2	512	21.00	20.99	22.88	20.57	21.50	16.19	18.10	16.98	17.01
	1880.0	661	21.03	21.02	23.04	20.96	21.85	16.28	18.12	16.94	17.00
	1909.8	810	20.89	20.86	23.00	21.20	22.01	16.35	18.17	16.99	17.00
GSM 850	Frame Avg, Target		24.97	24.97	**27.48**	26.24	26.99	17.97	19.48	19.24	18.99
GSM 1900			21.97	21.97	**23.98**	22.24	22.49	17.47	18.98	18.24	18.99

9.2 GSM Reduced Average Conducted Output Power (Grip Sensor)

Maximum Burst-Average Output Power (dB m)											
Band	Freq. [MHz]	Channel	GSM	GPRS (GMSK)				EGPRS (8-PSK)			
			Voice	1Tx	2Tx	3Tx	4Tx	1Tx	2Tx	3Tx	4Tx
GSM 850	824.2	128	22.55	22.65	20.72	19.65	18.04	22.00	19.03	16.43	14.54
	836.6	190	23.05	23.07	20.53	19.54	**18.13**	22.41	19.28	16.77	14.40
	848.8	251	23.39	23.40	20.76	19.58	18.03	22.70	19.61	16.98	14.60
GSM 1900	1850.2	512	21.90	21.91	18.96	16.33	14.88	20.63	17.92	15.65	13.91
	1880.0	661	21.95	21.96	**19.20**	16.88	14.60	20.69	17.94	15.65	13.90
	1909.8	810	21.74	21.75	18.90	16.38	14.75	20.76	17.99	15.70	13.92

Maximum Frame-Average Output Power (dB m)											
Band	Freq. [MHz]	Channel	GSM	GPRS (GMSK)				EGPRS (8-PSK)			
			Voice	1Tx	2Tx	3Tx	4Tx	1Tx	2Tx	3Tx	4Tx
GSM 850	824.2	128	13.52	13.62	14.70	15.39	15.03	12.97	13.01	12.17	11.53
	836.6	190	14.02	14.04	14.51	15.28	15.12	13.38	13.26	12.51	11.39
	848.8	251	14.36	14.37	14.74	15.32	15.02	13.67	13.59	12.72	11.59
GSM 1900	1850.2	512	12.87	12.88	12.94	12.07	11.87	11.60	11.90	11.39	10.90
	1880.0	661	12.92	12.93	13.18	12.62	11.59	11.66	11.92	11.39	10.89
	1909.8	810	12.71	12.72	12.88	12.12	11.74	11.73	11.97	11.44	10.91
GSM 850	Frame Avg, Target		15.47	15.47	15.98	16.24	**16.49**	14.47	14.48	13.24	12.49
GSM 1900			13.97	13.97	**13.98**	13.24	12.49	12.97	12.98	12.24	11.99

9.3 WCDMA Average Conducted Output Power

Band	Mode	Average Conducted Power (dBm)			MPR [dB]
		Channel			
		9 262	9 400	9 538	
		1 852.4 MHz	1 880.0 MHz	1 907.6 MHz	
WCDMA II	RMC	**23.66**	**23.63**	**23.58**	-
	AMR	23.61	23.60	23.55	-
	HSDPA-Subtest 1	22.58	22.57	22.56	0
	HSDPA-Subtest 2	22.56	22.31	22.12	0
	HSDPA-Subtest 3	21.85	21.62	21.54	0.5
	HSDPA-Subtest 4	21.52	21.51	21.52	0.5
	HSUPA-Subtest 1	22.62	22.63	22.58	0
	HSUPA-Subtest 2	20.60	20.66	20.62	2
	HSUPA-Subtest 3	21.67	21.65	21.56	1
	HSUPA-Subtest 4	20.69	20.66	20.62	2
	HSUPA-Subtest 5	22.69	22.66	22.62	0
	DC-HSDPA-Subtest 1	22.56	22.67	22.63	0
	DC-HSDPA-Subtest 2	22.63	22.62	22.59	0
	DC-HSDPA-Subtest 3	22.08	22.07	22.05	0.5
	DC-HSDPA-Subtest 4	22.12	22.09	22.10	0.5

Band	Mode	Average Conducted Power (dBm)			MPR [dB]
		Channel			
		1 312	1 412	1 513	
		1 712.4 MHz	1 732.4 MHz	1 752.6 MHz	
WCDMA IV	RMC	23.69	**23.70**	23.49	-
	AMR	23.66	23.68	23.44	-
	HSDPA-Subtest 1	22.66	22.63	22.46	0
	HSDPA-Subtest 2	22.31	22.30	22.32	0
	HSDPA-Subtest 3	21.54	21.54	21.63	0.5
	HSDPA-Subtest 4	21.51	21.53	21.53	0.5
	HSUPA-Subtest 1	22.70	22.17	22.65	0
	HSUPA-Subtest 2	20.72	20.74	20.51	2
	HSUPA-Subtest 3	21.64	21.64	21.58	1
	HSUPA-Subtest 4	20.63	20.62	20.55	2
	HSUPA-Subtest 5	22.67	22.64	22.54	0
	DC-HSDPA-Subtest 1	22.63	22.70	22.52	0
	DC-HSDPA-Subtest 2	22.55	22.70	22.39	0
	DC-HSDPA-Subtest 3	22.08	22.10	21.88	0.5
	DC-HSDPA-Subtest 4	22.06	22.08	21.89	0.5

Band	Mode	Average Conducted Power (dBm)			MPR [dB]
		Channel			
		4 132	4 183	4 233	
		826.4 ㎒	836.6 ㎒	846.6 ㎒	
WCDMA V	RMC	23.86	**23.87**	23.76	-
	AMR	23.84	23.84	23.70	-
	HSDPA-Subtest 1	22.78	22.77	22.65	0
	HSDPA-Subtest 2	22.58	22.55	22.37	0
	HSDPA-Subtest 3	21.99	21.76	21.71	0.5
	HSDPA-Subtest 4	21.69	21.70	21.65	0.5
	HSUPA-Subtest 1	22.85	22.82	22.76	0
	HSUPA-Subtest 2	20.87	20.86	20.74	2
	HSUPA-Subtest 3	21.91	21.89	21.81	1
	HSUPA-Subtest 4	20.81	20.84	20.78	2
	HSUPA-Subtest 5	22.86	22.93	22.78	0
	DC-HSDPA-Subtest 1	22.71	22.74	22.77	0
	DC-HSDPA-Subtest 2	22.82	22.81	22.76	0
	DC-HSDPA-Subtest 3	22.37	22.36	22.26	0.5
	DC-HSDPA-Subtest 4	22.34	22.32	22.26	0.5

9.4 WCDMA Reduced Average Conducted Output Power (Grip Sensor)

Band	Mode	Average Conducted Power (dBm)			MPR [dB]
		Channel			
		9 262	9 400	9 538	
		1 852.4 MHz	1 880.0 MHz	1 907.6 MHz	
WCDMA II (Grip Sensor)	RMC	**13.51**	**13.52**	**13.44**	-
	AMR	13.48	13.44	13.42	-
	HSDPA-Subtest 1	12.44	12.43	12.37	0
	HSDPA-Subtest 2	11.60	11.64	11.56	0
	HSDPA-Subtest 3	11.29	11.28	11.03	0.5
	HSDPA-Subtest 4	11.12	11.12	11.04	0.5
	HSUPA-Subtest 1	12.49	12.43	12.38	0
	HSUPA-Subtest 2	10.46	10.49	10.41	2
	HSUPA-Subtest 3	11.52	11.48	11.39	1
	HSUPA-Subtest 4	10.52	10.43	10.44	2
	HSUPA-Subtest 5	12.47	12.52	12.49	0
	DC-HSDPA-Subtest 1	12.49	12.48	12.42	0
	DC-HSDPA-Subtest 2	12.46	12.45	12.41	0
	DC-HSDPA-Subtest 3	11.97	11.91	11.91	0.5
	DC-HSDPA-Subtest 4	11.97	11.98	11.94	0.5

Band	Mode	Average Conducted Power (dBm)			MPR [dB]
		Channel			
		1 312	1 412	1 513	
		1 712.4 MHz	1 732.4 MHz	1 752.6 MHz	
WCDMA IV (Grip Sensor)	RMC	**14.54**	**14.53**	**14.33**	-
	AMR	14.43	14.49	14.24	-
	HSDPA-Subtest 1	13.51	13.43	13.30	0
	HSDPA-Subtest 2	12.51	12.81	12.55	0
	HSDPA-Subtest 3	12.11	12.17	12.07	0.5
	HSDPA-Subtest 4	12.12	12.17	12.04	0.5
	HSUPA-Subtest 1	13.53	13.51	13.32	0
	HSUPA-Subtest 2	11.50	11.58	11.31	2
	HSUPA-Subtest 3	12.59	12.59	12.37	1
	HSUPA-Subtest 4	11.54	11.55	11.36	2
	HSUPA-Subtest 5	13.42	13.49	13.37	0
	DC-HSDPA-Subtest 1	13.52	13.51	13.36	0
	DC-HSDPA-Subtest 2	13.45	13.54	13.37	0
	DC-HSDPA-Subtest 3	12.91	13.06	12.87	0.5
	DC-HSDPA-Subtest 4	12.95	13.05	12.87	0.5

Band	Mode	Average Conducted Power (dBm)			MPR [dB]
		Channel			
		4 132	4 183	4 233	
		826.4 ㎒	836.6 ㎒	846.6 ㎒	
WCDMA V (Grip Sensor)	RMC	15.43	**15.41**	15.38	-
	AMR	15.40	15.35	15.31	-
	HSDPA-Subtest 1	14.34	14.32	14.31	0
	HSDPA-Subtest 2	13.64	13.63	13.62	0
	HSDPA-Subtest 3	13.09	13.10	13.05	0.5
	HSDPA-Subtest 4	13.09	13.09	13.04	0.5
	HSUPA-Subtest 1	14.42	14.35	14.39	0
	HSUPA-Subtest 2	12.34	12.41	12.32	2
	HSUPA-Subtest 3	13.40	13.44	13.44	1
	HSUPA-Subtest 4	12.46	12.43	12.38	2
	HSUPA-Subtest 5	14.46	14.39	14.39	0
	DC-HSDPA-Subtest 1	14.39	14.41	14.38	0
	DC-HSDPA-Subtest 2	14.42	14.41	14.34	0
	DC-HSDPA-Subtest 3	13.90	13.88	13.87	0.5
	DC-HSDPA-Subtest 4	13.93	13.95	13.87	0.5

9.5 LTE Average Conducted Output Power

9.5.1 LTE Band 2

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 700	18 900	19 100	
				1 860.0 ㎒	1 880.0 ㎒	1 900.0 ㎒	
20 ㎒	QPSK	1	0	**23.44**	**23.22**	**23.20**	0
		1	49	23.35	23.31	23.20	0
		1	99	23.37	23.21	23.25	0
		50	0	**22.44**	22.30	22.23	1
		50	24	22.40	22.32	22.33	1
		50	50	22.43	22.33	22.38	1
		100	0	**22.43**	22.30	22.24	1
	16QAM	1	0	22.85	22.50	22.53	1
		1	49	22.65	22.58	22.53	1
		1	99	22.62	22.50	22.74	1
		50	0	21.52	21.46	21.32	2
		50	24	21.56	21.50	21.46	2
		50	50	21.58	21.49	21.46	2
		100	0	21.50	21.43	21.32	2
	64QAM	1	0	21.91	21.60	21.70	2
		1	49	21.81	21.57	21.61	2
		1	99	21.78	21.75	21.76	2
		50	0	20.74	20.60	20.51	3
		50	24	20.75	20.60	20.65	3
		50	50	20.70	20.68	20.64	3
		100	0	20.72	20.60	20.57	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 675	18 900	19 125	
				1 857.5 ㎒	1 880.0 ㎒	1 902.5 ㎒	
15 ㎒	QPSK	1	0	23.39	23.21	23.21	0
		1	36	23.41	23.24	23.22	0
		1	74	23.35	23.26	23.33	0
		36	0	22.44	22.30	22.31	1
		36	18	22.48	22.34	22.33	1
		36	37	22.44	22.29	22.32	1
		75	0	22.44	22.33	22.40	1
	16QAM	1	0	22.87	22.54	22.56	1
		1	36	22.74	22.62	22.62	1
		1	74	22.64	22.72	22.78	1
		36	0	21.59	21.43	21.43	2
		36	18	21.53	21.47	21.48	2
		36	37	21.54	21.47	21.49	2
		75	0	21.55	21.42	21.44	2
	64QAM	1	0	21.90	21.64	21.70	2
		1	36	21.79	21.73	21.64	2
		1	74	21.81	21.78	21.81	2
		36	0	20.79	20.65	20.53	3
		36	18	20.75	20.66	20.64	3
		36	37	20.69	20.69	20.63	3
		75	0	20.76	20.62	20.68	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 650	18 900	19 150	
				1 855.0 ㎒	1 880.0 ㎒	1 905.0 ㎒	
10 ㎒	QPSK	1	0	23.36	23.23	23.27	0
		1	25	23.40	23.22	23.23	0
		1	49	23.39	23.22	23.26	0
		25	0	22.40	22.30	22.34	1
		25	12	22.44	22.29	22.32	1
		25	25	22.42	22.29	22.32	1
		50	0	22.44	22.32	22.34	1
	16QAM	1	0	22.75	22.63	22.57	1
		1	25	22.72	22.58	22.57	1
		1	49	22.70	22.62	22.71	1
		25	0	21.52	21.41	21.41	2
		25	12	21.59	21.49	21.49	2
		25	25	21.57	21.39	21.42	2
		50	0	21.56	21.42	21.40	2
	64QAM	1	0	21.94	21.65	21.66	2
		1	25	21.85	21.69	21.70	2
		1	49	21.76	21.61	21.83	2
		25	0	20.75	20.59	20.62	3
		25	12	20.79	20.68	20.61	3
		25	25	20.71	20.61	20.61	3
		50	0	20.75	20.62	20.64	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 625	18 900	19 175	
				1 852.5 ㎒	1 880.0 ㎒	1 907.5 ㎒	
5 ㎒	QPSK	1	0	23.43	23.24	23.25	0
		1	12	23.34	23.28	23.24	0
		1	24	23.47	23.22	23.24	0
		12	0	22.44	22.35	22.29	1
		12	7	22.47	22.37	22.37	1
		12	13	22.42	22.30	22.31	1
		25	0	22.44	22.27	22.32	1
	16QAM	1	0	22.74	22.55	22.56	1
		1	12	22.80	22.58	22.64	1
		1	24	22.65	22.59	22.51	1
		12	0	21.62	21.44	21.43	2
		12	7	21.60	21.44	21.44	2
		12	13	21.61	21.40	21.47	2
		25	0	21.52	21.38	21.45	2
	64QAM	1	0	21.83	21.66	21.69	2
		1	12	21.90	21.74	21.71	2
		1	24	21.82	21.66	21.72	2
		12	0	20.75	20.61	20.61	3
		12	7	20.72	20.65	20.70	3
		12	13	20.80	20.58	20.65	3
		25	0	20.72	20.57	20.58	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 615	18 900	19 185	
				1 851.5 ㎒	1 880.0 ㎒	1 908.5 ㎒	
3 ㎒	QPSK	1	0	23.38	23.13	23.22	0
		1	8	23.45	23.19	23.29	0
		1	14	23.36	23.22	23.24	0
		8	0	22.42	22.29	22.31	1
		8	4	22.46	22.34	22.34	1
		8	7	22.45	22.30	22.29	1
		15	0	22.44	22.25	22.33	1
	16QAM	1	0	22.73	22.49	22.63	1
		1	8	22.84	22.49	22.69	1
		1	14	22.78	22.56	22.58	1
		8	0	21.64	21.42	21.50	2
		8	4	21.70	21.48	21.56	2
		8	7	21.58	21.44	21.49	2
		15	0	21.53	21.44	21.42	2
	64QAM	1	0	21.92	21.62	21.80	2
		1	8	21.89	21.72	21.78	2
		1	14	21.85	21.66	21.72	2
		8	0	20.80	20.65	20.70	3
		8	4	20.82	20.60	20.69	3
		8	7	20.75	20.62	20.70	3
		15	0	20.71	20.58	20.61	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 607	18 900	19 193	
				1 850.7 ㎒	1 880.0 ㎒	1 909.3 ㎒	
1.4 ㎒	QPSK	1	0	23.32	23.17	23.15	0
		1	3	23.42	23.26	23.31	0
		1	5	23.28	23.20	23.21	0
		3	0	23.37	23.15	23.21	0
		3	1	23.40	23.26	23.27	0
		3	3	23.37	23.19	23.20	0
		6	0	22.38	22.25	22.29	1
	16QAM	1	0	22.75	22.56	22.55	1
		1	3	22.77	22.50	22.52	1
		1	5	22.68	22.58	22.57	1
		3	0	22.55	22.34	22.37	1
		3	1	22.50	22.39	22.42	1
		3	3	22.52	22.23	22.30	1
		6	0	21.60	21.43	21.43	2
	64QAM	1	0	21.71	21.51	21.63	2
		1	3	21.78	21.66	21.75	2
		1	5	21.69	21.59	21.64	2
		3	0	21.71	21.52	21.58	2
		3	1	21.76	21.56	21.57	2
		3	3	21.66	21.51	21.60	2
		6	0	20.72	20.51	20.55	3

9.5.2 LTE Band 5

Band width	Modulation	RB Size	RB offset	Maximum Average Power 20 525 836.5 ㎒	MPR
10 ㎒	QPSK	1	0	**23.52**	0
		1	25	23.48	0
		1	49	23.46	0
		25	0	22.63	1
		25	12	**22.65**	1
		25	25	22.57	1
		50	0	22.60	1
	16QAM	1	0	22.83	1
		1	25	22.70	1
		1	49	22.76	1
		25	0	21.65	2
		25	12	21.66	2
		25	25	21.60	2
		50	0	21.65	2
	64QAM	1	0	21.74	2
		1	25	21.71	2
		1	49	21.66	2
		25	0	20.62	3
		25	12	20.70	3
		25	25	20.62	3
		50	0	20.66	3

10 ㎒ Bandwidths does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.

Band width	Modulation	RB Size	RB offset	Maximum Average Power 20 425 826.5 ㎒	20 525 836.5 ㎒	20 625 846.5 ㎒	MPR
5 ㎒	QPSK	1	0	23.61	23.47	23.54	0
		1	12	23.50	23.48	23.42	0
		1	24	23.54	23.42	23.46	0
		12	0	22.61	22.58	22.54	1
		12	7	22.62	22.58	22.55	1
		12	13	22.58	22.56	22.55	1
		25	0	22.63	22.60	22.59	1
	16QAM	1	0	22.80	22.78	22.82	1
		1	12	22.71	22.74	22.72	1
		1	24	22.67	22.60	22.62	1
		12	0	21.66	21.61	21.51	2
		12	7	21.62	21.56	21.59	2
		12	13	21.57	21.56	21.51	2
		25	0	21.65	21.61	21.60	2
	64QAM	1	0	21.75	21.70	21.80	2
		1	12	21.69	21.62	21.61	2
		1	24	21.57	21.66	21.59	2
		12	0	20.68	20.59	20.66	3
		12	7	20.70	20.62	20.61	3
		12	13	20.68	20.55	20.58	3
		25	0	20.64	20.61	20.61	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				20 415	20 525	20 635	
				825.5 ㎒	836.5 ㎒	847.5 ㎒	
3 ㎒	QPSK	1	0	23.54	23.49	23.49	0
		1	8	23.51	23.44	23.45	0
		1	14	23.51	23.41	23.36	0
		8	0	22.61	22.55	22.55	1
		8	4	22.61	22.56	22.57	1
		8	7	22.58	22.54	22.50	1
		15	0	22.69	22.58	22.59	1
	16QAM	1	0	22.84	22.76	22.63	1
		1	8	22.79	22.68	22.63	1
		1	14	22.73	22.76	22.60	1
		8	0	21.70	21.66	21.58	2
		8	4	21.67	21.68	21.59	2
		8	7	21.66	21.61	21.59	2
		15	0	21.69	21.62	21.63	2
	64QAM	1	0	21.71	21.72	21.64	2
		1	8	21.63	21.67	21.65	2
		1	14	21.72	21.60	21.58	2
		8	0	20.67	20.59	20.64	3
		8	4	20.67	20.58	20.63	3
		8	7	20.60	20.61	20.61	3
		15	0	20.62	20.59	20.64	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				20 407	20 525	20 643	
				824.7 ㎒	836.5 ㎒	848.3 ㎒	
1.4 ㎒	QPSK	1	0	23.49	23.41	23.40	0
		1	3	23.55	23.49	23.43	0
		1	5	23.44	23.39	23.36	0
		3	0	23.47	23.42	23.39	0
		3	1	23.49	23.52	23.43	0
		3	3	23.51	23.39	23.42	0
		6	0	22.47	22.46	22.53	1
	16QAM	1	0	22.76	22.71	22.57	1
		1	3	22.83	22.70	22.60	1
		1	5	22.60	22.67	22.69	1
		3	0	22.55	22.40	22.44	1
		3	1	22.62	22.47	22.52	1
		3	3	22.49	22.49	22.43	1
		6	0	21.72	21.64	21.53	2
	64QAM	1	0	21.66	21.59	21.51	2
		1	3	21.63	21.59	21.61	2
		1	5	21.70	21.70	21.55	2
		3	0	21.64	21.56	21.60	2
		3	1	21.64	21.63	21.61	2
		3	3	21.63	21.58	21.57	2
		6	0	20.60	20.48	20.44	3

9.5.3 LTE Band 12

Band width	Modulation	RB Size	RB offset	Maximum Average Power 23 095 707.5 ㎒	MPR
10 ㎒	QPSK	1	0	23.88	0
		1	25	**23.98**	0
		1	49	23.91	0
		25	0	**23.15**	1
		25	12	23.03	1
		25	25	22.99	1
		50	0	23.06	1
	16QAM	1	0	23.16	1
		1	25	23.14	1
		1	49	23.12	1
		25	0	22.12	2
		25	12	22.07	2
		25	25	22.08	2
		50	0	22.07	2
	64QAM	1	0	22.24	2
		1	25	22.33	2
		1	49	22.26	2
		25	0	21.31	3
		25	12	21.25	3
		25	25	21.22	3
		50	0	21.31	3

10 ㎒ Bandwidths does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.

Band width	Modulation	RB Size	RB offset	Maximum Average Power 23 035 701.5 ㎒	23 095 707.5 ㎒	23 155 713.5 ㎒	MPR
5 ㎒	QPSK	1	0	23.87	23.98	23.89	0
		1	12	23.92	23.92	23.76	0
		1	24	23.87	23.90	23.68	0
		12	0	23.02	23.08	22.86	1
		12	7	22.97	23.04	22.84	1
		12	13	23.00	22.97	22.84	1
		25	0	23.10	23.05	22.85	1
	16QAM	1	0	23.11	23.13	23.13	1
		1	12	23.03	23.24	22.88	1
		1	24	23.23	23.16	22.89	1
		12	0	22.06	22.02	21.87	2
		12	7	22.00	22.07	21.90	2
		12	13	22.11	22.03	21.89	2
		25	0	22.11	22.07	21.95	2
	64QAM	1	0	22.23	22.33	22.17	2
		1	12	22.24	22.17	22.12	2
		1	24	22.29	22.26	22.03	2
		12	0	21.17	21.19	21.04	3
		12	7	21.14	21.24	21.06	3
		12	13	21.19	21.25	21.00	3
		25	0	21.30	21.21	21.10	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				23 025	23 095	23 655	
				700.5 MHz	707.5 MHz	714.5 MHz	
3 MHz	QPSK	1	0	23.80	23.74	23.87	0
		1	8	23.64	23.66	23.65	0
		1	14	23.73	23.65	23.65	0
		8	0	22.81	22.92	22.76	1
		8	4	22.77	22.88	22.85	1
		8	7	22.86	22.71	22.70	1
		15	0	22.85	22.93	22.71	1
	16QAM	1	0	22.84	22.92	23.07	1
		1	8	22.86	23.14	23.04	1
		1	14	22.83	23.05	22.98	1
		8	0	21.83	21.77	21.81	2
		8	4	21.80	21.91	21.83	2
		8	7	21.95	21.88	21.99	2
		15	0	21.84	21.85	21.89	2
	64QAM	1	0	21.92	21.85	22.01	2
		1	8	21.76	22.01	21.95	2
		1	14	21.95	21.92	21.89	2
		8	0	20.89	20.96	21.04	3
		8	4	20.90	21.00	20.92	3
		8	7	20.84	20.92	20.86	3
		15	0	20.81	21.05	20.87	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				23 017	23 095	23 173	
				699.7 MHz	707.5 MHz	715.3 MHz	
1.4 MHz	QPSK	1	0	23.66	23.65	23.59	0
		1	3	23.70	23.69	23.48	0
		1	5	23.54	23.69	23.44	0
		3	0	23.65	23.66	23.55	0
		3	1	23.68	23.89	23.57	0
		3	3	23.76	23.66	23.43	0
		6	0	22.83	22.74	22.65	1
	16QAM	1	0	23.02	22.95	22.85	1
		1	3	22.99	22.95	22.75	1
		1	5	22.86	23.09	22.74	1
		3	0	22.69	22.88	22.54	1
		3	1	22.78	22.76	22.46	1
		3	3	22.77	22.61	22.60	1
		6	0	22.00	21.86	21.76	2
	64QAM	1	0	21.85	21.81	21.68	2
		1	3	21.87	21.99	21.81	2
		1	5	21.78	21.73	21.64	2
		3	0	21.89	21.80	21.72	2
		3	1	21.98	21.97	21.73	2
		3	3	21.76	21.94	21.79	2
		6	0	20.75	20.93	20.68	3

9.5.4 LTE Band 41

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
20 MHz	QPSK	1	0	22.22	22.43	22.26	22.41	22.33	0
		1	49	22.20	22.39	22.17	22.39	22.22	0
		1	99	22.23	**22.56**	22.15	22.43	21.94	0
		50	0	21.38	21.61	21.36	21.57	21.32	1
		50	24	21.36	**21.75**	21.35	21.61	20.69	1
		50	50	21.37	21.68	21.28	21.52	21.38	1
		100	0	21.39	21.73	21.31	21.59	21.46	1
	16QAM	1	0	21.26	21.51	21.36	21.51	21.45	1
		1	49	21.21	21.49	21.26	21.56	21.32	1
		1	99	21.30	21.58	21.27	21.55	21.26	1
		50	0	20.43	20.67	20.47	20.66	20.99	2
		50	24	20.44	20.79	20.40	20.68	20.40	2
		50	50	20.43	20.72	20.38	20.68	20.44	2
		100	0	20.41	20.74	20.37	20.66	20.65	2
	64QAM	1	0	20.00	20.18	20.01	20.16	20.09	2
		1	49	19.91	20.16	19.92	20.18	20.00	2
		1	99	20.00	20.23	19.94	20.19	19.65	2
		50	0	19.41	19.65	19.44	19.64	19.49	3
		50	24	19.44	19.75	19.39	19.67	19.51	3
		50	50	19.44	19.74	19.36	19.67	19.44	3
		100	0	19.42	19.75	19.41	19.66	19.51	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
15 MHz	QPSK	1	0	22.29	22.53	22.39	22.49	22.43	0
		1	36	22.23	22.55	22.27	22.53	22.32	0
		1	74	22.33	22.39	22.36	22.52	22.39	0
		36	0	21.39	21.58	21.55	21.74	21.40	1
		36	18	21.38	21.75	21.59	21.67	21.53	1
		36	37	21.35	21.63	21.37	21.67	21.37	1
		75	0	21.57	21.64	21.45	21.66	21.64	1
	16QAM	1	0	21.40	21.55	21.40	21.70	21.50	1
		1	36	21.33	21.49	21.38	21.58	21.49	1
		1	74	21.33	21.44	21.32	21.62	21.49	1
		36	0	20.46	20.70	20.56	20.74	21.04	2
		36	18	20.46	20.68	20.46	20.72	20.68	2
		36	37	20.41	20.66	20.45	20.81	20.33	2
		75	0	20.46	20.76	20.66	20.73	20.82	2
	64QAM	1	0	20.13	20.18	20.15	20.33	20.29	2
		1	36	19.99	20.10	20.16	20.30	20.08	2
		1	74	20.01	20.20	19.98	20.22	19.96	2
		36	0	19.54	19.61	19.58	19.71	19.49	3
		36	18	19.44	19.77	19.56	19.67	19.51	3
		36	37	19.38	19.68	19.52	19.69	19.40	3
		75	0	19.60	19.84	19.52	19.68	19.53	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
10 MHz	QPSK	1	0	22.45	22.60	22.40	22.57	22.33	0
		1	25	22.52	22.46	22.32	22.50	22.42	0
		1	49	22.31	22.58	22.24	22.53	22.08	0
		25	0	21.60	21.67	21.53	21.62	21.49	1
		25	12	21.41	21.91	21.57	21.66	21.55	1
		25	25	21.55	21.74	21.37	21.72	21.42	1
		50	0	21.53	21.89	21.52	21.61	21.60	1
	16QAM	1	0	21.42	21.54	21.46	21.62	21.39	1
		1	25	21.23	21.59	21.36	21.70	21.40	1
		1	49	21.25	21.68	21.40	21.61	21.31	1
		25	0	20.53	20.61	20.54	20.74	20.59	2
		25	12	20.48	20.79	20.62	20.65	20.50	2
		25	25	20.37	20.68	20.49	20.84	20.57	2
		50	0	20.39	20.86	20.58	20.74	20.58	2
	64QAM	1	0	20.17	20.24	20.12	20.40	20.14	2
		1	25	19.88	20.18	20.20	20.39	20.02	2
		1	49	20.10	20.33	20.10	20.28	20.12	2
		25	0	19.61	19.71	19.69	19.80	19.65	3
		25	12	19.64	19.88	19.56	19.83	19.77	3
		25	25	19.56	19.90	19.44	19.82	19.90	3
		50	0	19.51	19.80	19.50	19.73	19.93	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
5 MHz	QPSK	1	0	22.37	22.65	22.33	22.64	22.35	0
		1	12	22.31	22.63	22.38	22.62	22.34	0
		1	24	22.47	22.61	22.35	22.58	22.42	0
		12	0	21.41	21.63	21.44	21.62	21.37	1
		12	7	21.51	21.69	21.41	21.60	21.41	1
		12	13	21.50	21.74	21.51	21.58	21.49	1
		25	0	21.45	21.80	21.46	21.57	21.49	1
	16QAM	1	0	21.32	21.49	21.48	21.76	21.51	1
		1	12	21.31	21.43	21.34	21.62	21.47	1
		1	24	21.38	21.69	21.44	21.64	21.35	1
		12	0	20.57	20.62	20.41	20.73	20.49	2
		12	7	20.40	20.71	20.45	20.61	20.41	2
		12	13	20.52	20.77	20.37	20.61	20.33	2
		25	0	20.35	20.69	20.49	20.68	20.43	2
	64QAM	1	0	20.06	20.17	20.19	20.34	20.24	2
		1	12	20.04	20.13	20.06	20.27	20.12	2
		1	24	20.11	20.38	20.09	20.40	20.17	2
		12	0	19.44	19.74	19.62	19.69	19.57	3
		12	7	19.45	19.85	19.51	19.82	19.57	3
		12	13	19.49	19.79	19.58	19.75	19.48	3
		25	0	19.53	19.80	19.57	19.89	19.66	3

9.5.5 LTE Band 66

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				132 072	132 322	132 572	
				1 720.0 ㎒	1 745.0 ㎒	1 770.0 ㎒	
20 ㎒	QPSK	1	0	23.49	23.49	23.39	0
		1	49	23.51	23.50	23.50	0
		1	99	**23.65**	23.56	23.59	0
		50	0	22.59	22.62	22.52	1
		50	24	22.59	22.62	22.61	1
		50	50	**22.70**	22.65	22.61	1
		100	0	22.68	22.62	22.59	1
	16QAM	1	0	22.81	22.90	22.81	1
		1	49	22.89	22.85	22.89	1
		1	99	23.07	22.94	23.12	1
		50	0	21.67	21.71	21.60	2
		50	24	21.73	21.70	21.75	2
		50	50	21.84	21.75	21.76	2
		100	0	21.85	21.69	21.65	2
	64QAM	1	0	21.77	21.83	21.82	2
		1	49	21.82	21.81	21.78	2
		1	99	21.98	21.89	21.91	2
		50	0	20.71	20.70	20.65	3
		50	24	20.74	20.76	20.74	3
		50	50	20.84	20.74	20.77	3
		100	0	20.88	20.77	20.65	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				132 047	132 322	132 597	
				1 717.5 ㎒	1 745.0 ㎒	1 772.5 ㎒	
15 ㎒	QPSK	1	0	23.50	23.55	23.52	0
		1	36	23.53	23.52	23.56	0
		1	74	23.59	23.61	23.56	0
		36	0	22.60	22.59	22.60	1
		36	18	22.61	22.61	22.64	1
		36	37	22.60	22.57	22.64	1
		75	0	22.59	22.60	22.60	1
	16QAM	1	0	22.81	22.87	22.85	1
		1	36	22.89	22.93	22.86	1
		1	74	22.98	23.01	22.83	1
		36	0	21.62	21.64	21.65	2
		36	18	21.72	21.73	21.69	2
		36	37	21.70	21.75	21.71	2
		75	0	21.77	21.71	21.73	2
	64QAM	1	0	21.77	21.75	21.82	2
		1	36	21.82	21.75	21.84	2
		1	74	21.86	21.84	21.96	2
		36	0	20.73	20.72	20.74	3
		36	18	20.80	20.79	20.75	3
		36	37	20.76	20.75	20.77	3
		75	0	20.73	20.73	20.70	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				132 022	132 322	132 622	
				1 715.0 ㎒	1 745.0 ㎒	1 775.0 ㎒	
10 ㎒	QPSK	1	0	23.56	23.54	23.61	0
		1	25	23.57	23.46	23.54	0
		1	49	23.56	23.53	23.58	0
		25	0	22.58	22.56	22.59	1
		25	12	22.57	22.60	22.62	1
		25	25	22.58	22.58	22.62	1
		50	0	22.56	22.57	22.66	1
	16QAM	1	0	22.82	22.91	22.98	1
		1	25	22.95	22.90	22.93	1
		1	49	22.92	22.84	22.94	1
		25	0	21.68	21.71	21.74	2
		25	12	21.74	21.67	21.71	2
		25	25	21.69	21.66	21.71	2
		50	0	21.74	21.65	21.69	2
	64QAM	1	0	21.80	21.85	21.85	2
		1	25	21.87	21.88	21.82	2
		1	49	21.85	21.83	21.86	2
		25	0	20.72	20.69	20.72	3
		25	12	20.70	20.73	20.76	3
		25	25	20.72	20.66	20.71	3
		50	0	20.72	20.69	20.74	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				131 997	132 322	132 647	
				1 712.5 ㎒	1 745.0 ㎒	1 777.5 ㎒	
5 ㎒	QPSK	1	0	23.54	23.50	23.56	0
		1	12	23.52	23.54	23.53	0
		1	24	23.49	23.46	23.54	0
		12	0	22.54	22.59	22.64	1
		12	7	22.58	22.61	22.60	1
		12	13	22.62	22.58	22.57	1
		25	0	22.52	22.58	22.55	1
	16QAM	1	0	22.91	22.77	22.82	1
		1	12	22.81	22.84	22.88	1
		1	24	22.93	22.86	22.86	1
		12	0	21.68	21.64	21.69	2
		12	7	21.65	21.68	21.72	2
		12	13	21.70	21.65	21.73	2
		25	0	21.71	21.67	21.66	2
	64QAM	1	0	21.83	21.87	21.85	2
		1	12	21.74	21.82	21.78	2
		1	24	21.81	21.79	21.88	2
		12	0	20.70	20.73	20.74	3
		12	7	20.76	20.76	20.85	3
		12	13	20.77	20.70	20.78	3
		25	0	20.66	20.66	20.73	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				131 987	132 322	132 657	
				1 711.5 ㎒	1 745.0 ㎒	1 778.5 ㎒	
3 ㎒	QPSK	1	0	23.49	23.48	23.60	0
		1	8	23.51	23.50	23.54	0
		1	14	23.55	23.52	23.51	0
		8	0	22.52	22.56	22.57	1
		8	4	22.52	22.60	22.60	1
		8	7	22.52	22.55	22.55	1
		15	0	22.57	22.59	22.59	1
	16QAM	1	0	22.86	22.82	22.80	1
		1	8	22.75	22.84	22.84	1
		1	14	22.76	22.83	22.88	1
		8	0	21.72	21.67	21.72	2
		8	4	21.73	21.73	21.81	2
		8	7	21.69	21.65	21.78	2
		15	0	21.68	21.67	21.72	2
	64QAM	1	0	21.73	21.72	21.84	2
		1	8	21.73	21.79	21.90	2
		1	14	21.76	21.80	21.86	2
		8	0	20.71	20.71	20.75	3
		8	4	20.75	20.71	20.80	3
		8	7	20.73	20.72	20.74	3
		15	0	20.68	20.63	20.69	3

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				131 979	132 322	132 665	
				1 710.7 ㎒	1 745.0 ㎒	1 779.3 ㎒	
1.4 ㎒	QPSK	1	0	23.37	23.42	23.47	0
		1	3	23.48	23.46	23.55	0
		1	5	23.46	23.38	23.44	0
		3	0	23.46	23.41	23.44	0
		3	1	23.49	23.47	23.56	0
		3	3	23.45	23.46	23.48	0
		6	0	22.52	22.50	22.50	1
	16QAM	1	0	22.78	22.74	22.77	1
		1	3	22.76	22.87	23.04	1
		1	5	22.73	22.73	22.85	1
		3	0	22.59	22.51	22.68	1
		3	1	22.60	22.65	22.60	1
		3	3	22.59	22.50	22.60	1
		6	0	21.65	21.70	21.68	2
	64QAM	1	0	21.79	21.74	21.81	2
		1	3	21.81	21.81	21.89	2
		1	5	21.72	21.76	21.76	2
		3	0	21.74	21.71	21.78	2
		3	1	21.69	21.73	21.76	2
		3	3	21.69	21.68	21.74	2
		6	0	20.64	20.54	20.69	3

9.6 LTE Reduced Average Conducted Output Power(Grip Sensor)

9.6.1 LTE Band 2 (Grip Sensor)

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 700	18 900	19 100	
				1 860.0 ㎒	1 880.0 ㎒	1 900.0 ㎒	
20 ㎒	QPSK	1	0	13.03	12.98	12.83	0
		1	49	**13.15**	**12.88**	**12.95**	0
		1	99	12.98	12.99	12.93	0
		50	0	13.10	13.05	12.97	0
		50	24	13.10	13.07	13.10	0
		50	50	**13.13**	13.02	13.12	0
		100	0	**13.02**	13.00	12.92	0
	16QAM	1	0	13.23	13.30	13.16	0
		1	49	13.28	13.21	13.29	0
		1	99	13.30	13.25	13.40	0
		50	0	13.17	13.10	13.08	0
		50	24	13.13	13.10	13.15	0
		50	50	13.20	13.16	13.18	0
		100	0	13.06	13.07	13.00	0
	64QAM	1	0	13.11	13.17	13.14	0
		1	49	13.23	13.22	13.15	0
		1	99	13.16	13.18	13.33	0
		50	0	13.15	13.15	13.06	0
		50	24	13.19	13.11	13.18	0
		50	50	13.09	13.16	13.22	0
		100	0	13.08	13.04	12.96	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 675	18 900	19 125	
				1 857.5 ㎒	1 880.0 ㎒	1 902.5 ㎒	
15 ㎒	QPSK	1	0	12.98	13.00	12.93	0
		1	36	12.97	13.00	12.94	0
		1	74	13.07	12.92	13.05	0
		36	0	13.06	13.02	13.01	0
		36	18	13.09	13.08	13.13	0
		36	37	13.10	13.06	13.09	0
		75	0	13.03	13.04	13.04	0
	16QAM	1	0	13.33	13.24	13.24	0
		1	36	13.29	13.32	13.34	0
		1	74	13.39	13.34	13.31	0
		36	0	13.12	13.09	13.09	0
		36	18	13.14	13.13	13.15	0
		36	37	13.10	13.09	13.12	0
		75	0	13.14	13.11	13.05	0
	64QAM	1	0	13.25	13.19	13.11	0
		1	36	13.16	13.14	13.05	0
		1	74	13.16	13.20	13.19	0
		36	0	13.12	13.09	13.07	0
		36	18	13.13	13.13	13.15	0
		36	37	13.09	13.08	13.12	0
		75	0	13.13	13.14	13.06	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 650	18 900	19 150	
				1 855.0 ㎒	1 880.0 ㎒	1 905.0 ㎒	
10 ㎒	QPSK	1	0	13.21	12.97	13.02	0
		1	25	13.09	13.11	13.07	0
		1	49	13.15	13.02	13.20	0
		25	0	13.09	13.09	13.06	0
		25	12	13.10	13.10	13.10	0
		25	25	13.09	13.07	13.05	0
		50	0	13.08	13.06	13.04	0
	16QAM	1	0	13.36	13.36	13.26	0
		1	25	13.34	13.26	13.43	0
		1	49	13.46	13.34	13.40	0
		25	0	13.20	13.14	13.14	0
		25	12	13.22	13.17	13.15	0
		25	25	13.18	13.10	13.18	0
		50	0	13.12	13.12	13.12	0
	64QAM	1	0	13.26	13.09	13.33	0
		1	25	13.31	13.34	13.39	0
		1	49	13.23	13.22	13.33	0
		25	0	13.17	13.14	13.16	0
		25	12	13.14	13.15	13.14	0
		25	25	13.14	13.10	13.16	0
		50	0	13.14	13.10	13.12	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 625	18 900	19 175	
				1 852.5 ㎒	1 880.0 ㎒	1 907.5 ㎒	
5 ㎒	QPSK	1	0	13.01	13.02	13.01	0
		1	12	13.01	12.97	13.04	0
		1	24	13.05	13.00	13.04	0
		12	0	13.09	13.03	13.04	0
		12	7	13.13	13.06	13.15	0
		12	13	13.03	13.03	13.09	0
		25	0	13.09	13.00	13.06	0
	16QAM	1	0	13.35	13.31	13.35	0
		1	12	13.30	13.24	13.43	0
		1	24	13.25	13.26	13.38	0
		12	0	13.19	13.06	13.16	0
		12	7	13.17	13.10	13.18	0
		12	13	13.14	13.13	13.14	0
		25	0	13.18	13.09	13.14	0
	64QAM	1	0	13.24	13.19	13.20	0
		1	12	13.24	13.24	13.23	0
		1	24	13.28	13.17	13.13	0
		12	0	13.16	13.03	13.12	0
		12	7	13.13	13.08	13.15	0
		12	13	13.07	13.11	13.12	0
		25	0	13.17	13.10	13.13	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 615	18 900	19 185	
				1 851.5 ㎒	1 880.0 ㎒	1 908.5 ㎒	
3 ㎒	QPSK	1	0	13.08	12.99	12.98	0
		1	8	13.06	12.94	13.05	0
		1	14	13.06	12.93	12.97	0
		8	0	13.04	13.05	13.04	0
		8	4	13.11	13.01	13.10	0
		8	7	13.06	12.98	13.06	0
		15	0	13.06	13.01	13.09	0
	16QAM	1	0	13.30	13.18	13.26	0
		1	8	13.37	13.29	13.33	0
		1	14	13.39	13.31	13.32	0
		8	0	13.18	13.10	13.16	0
		8	4	13.21	13.16	13.21	0
		8	7	13.19	13.14	13.19	0
		15	0	13.16	13.12	13.15	0
	64QAM	1	0	13.15	13.22	13.20	0
		1	8	13.29	13.10	13.28	0
		1	14	13.20	13.12	13.20	0
		8	0	13.12	13.12	13.18	0
		8	4	13.16	13.15	13.17	0
		8	7	13.15	13.12	13.16	0
		15	0	13.16	13.10	13.17	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				18 607	18 900	19 193	
				1 850.7 ㎒	1 880.0 ㎒	1 909.3 ㎒	
1.4 ㎒	QPSK	1	0	13.06	12.93	13.02	0
		1	3	13.12	12.96	13.07	0
		1	5	13.00	12.90	12.96	0
		3	0	13.04	12.96	13.02	0
		3	1	13.14	13.03	13.06	0
		3	3	13.07	12.97	13.02	0
		6	0	13.09	13.00	13.03	0
	16QAM	1	0	13.27	13.32	13.19	0
		1	3	13.35	13.22	13.36	0
		1	5	13.27	13.23	13.22	0
		3	0	13.08	13.05	13.07	0
		3	1	13.17	13.11	13.16	0
		3	3	13.15	13.08	13.12	0
		6	0	13.23	13.17	13.17	0
	64QAM	1	0	13.12	13.15	13.16	0
		1	3	13.27	13.14	13.27	0
		1	5	13.26	13.13	13.20	0
		3	0	13.18	13.08	13.16	0
		3	1	13.21	13.16	13.16	0
		3	3	13.14	13.10	13.11	0
		6	0	13.16	13.06	13.13	0

9.5.2 LTE Band 5 (Grip Sensor)

Band width	Modulation	RB Size	RB offset	Maximum Average Power 20 525 836.5 ㎒	MPR
10 ㎒	QPSK	1	0	15.29	0
		1	25	**15.47**	0
		1	49	15.17	0
		25	0	**15.43**	0
		25	12	15.29	0
		25	25	15.39	0
		50	0	15.36	0
	16QAM	1	0	15.46	0
		1	25	15.53	0
		1	49	15.59	0
		25	0	15.37	0
		25	12	15.35	0
		25	25	15.35	0
		50	0	15.41	0
	64QAM	1	0	15.46	0
		1	25	15.46	0
		1	49	15.43	0
		25	0	15.43	0
		25	12	15.43	0
		25	25	15.34	0
		50	0	15.38	0

10 ㎒ Bandwidths does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.

Band width	Modulation	RB Size	RB offset	Maximum Average Power 20 425 826.5 ㎒	20 525 836.5 ㎒	20 625 846.5 ㎒	MPR
5 ㎒	QPSK	1	0	15.30	15.27	15.25	0
		1	12	15.26	15.17	15.09	0
		1	24	15.21	15.20	15.18	0
		12	0	15.36	15.29	15.31	0
		12	7	15.31	15.30	15.29	0
		12	13	15.32	15.27	15.25	0
		25	0	15.31	15.25	15.27	0
	16QAM	1	0	15.58	15.58	15.50	0
		1	12	15.57	15.49	15.44	0
		1	24	15.45	15.57	15.51	0
		12	0	15.36	15.30	15.30	0
		12	7	15.36	15.34	15.31	0
		12	13	15.34	15.30	15.19	0
		25	0	15.33	15.31	15.34	0
	64QAM	1	0	15.55	15.54	15.54	0
		1	12	15.53	15.40	15.46	0
		1	24	15.48	15.46	15.44	0
		12	0	15.41	15.41	15.34	0
		12	7	15.47	15.37	15.41	0
		12	13	15.35	15.36	15.30	0
		25	0	15.41	15.33	15.31	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				20 407	20 525	20 643	
				824.7 ㎒	836.5 ㎒	848.3 ㎒	
3 ㎒	QPSK	1	0	15.29	15.26	15.27	0
		1	8	15.30	15.18	15.16	0
		1	14	15.27	15.17	15.20	0
		8	0	15.34	15.24	15.24	0
		8	4	15.34	15.28	15.29	0
		8	7	15.28	15.25	15.23	0
		15	0	15.32	15.27	15.25	0
	16QAM	1	0	15.57	15.47	15.53	0
		1	8	15.57	15.52	15.58	0
		1	14	15.55	15.47	15.40	0
		8	0	15.39	15.32	15.33	0
		8	4	15.42	15.38	15.34	0
		8	7	15.38	15.35	15.32	0
		15	0	15.39	15.34	15.29	0
	64QAM	1	0	15.53	15.48	15.43	0
		1	8	15.48	15.45	15.38	0
		1	14	15.50	15.38	15.51	0
		8	0	15.42	15.38	15.39	0
		8	4	15.41	15.34	15.34	0
		8	7	15.41	15.30	15.36	0
		15	0	15.46	15.30	15.35	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				20 407	20 525	20 643	
				824.7 ㎒	836.5 ㎒	848.3 ㎒	
1.4 ㎒	QPSK	1	0	15.24	15.15	15.10	0
		1	3	15.27	15.21	15.17	0
		1	5	15.21	15.13	15.05	0
		3	0	15.22	15.16	15.12	0
		3	1	15.23	15.16	15.16	0
		3	3	15.24	15.12	15.09	0
		6	0	15.29	15.22	15.16	0
	16QAM	1	0	15.51	15.46	15.43	0
		1	3	15.54	15.51	15.45	0
		1	5	15.52	15.33	15.36	0
		3	0	15.31	15.19	15.18	0
		3	1	15.34	15.24	15.20	0
		3	3	15.29	15.13	15.14	0
		6	0	15.33	15.32	15.31	0
	64QAM	1	0	15.47	15.43	15.41	0
		1	3	15.50	15.48	15.38	0
		1	5	15.49	15.36	15.42	0
		3	0	15.48	15.35	15.34	0
		3	1	15.52	15.42	15.38	0
		3	3	15.38	15.38	15.29	0
		6	0	15.28	15.21	15.22	0

9.5.3 LTE Band 12 (Grip Sensor)

Band width	Modulation	RB Size	RB offset	Maximum Average Power 23 095 707.5 ㎒	MPR
10 ㎒	QPSK	1	0	17.13	0
		1	25	**17.29**	0
		1	49	17.12	0
		25	0	**17.30**	0
		25	12	17.27	0
		25	25	17.21	0
		50	0	17.25	0
	16QAM	1	0	17.49	0
		1	25	17.54	0
		1	49	17.49	0
		25	0	17.35	0
		25	12	17.34	0
		25	25	17.27	0
		50	0	17.29	0
	64QAM	1	0	17.50	0
		1	25	17.28	0
		1	49	17.44	0
		25	0	17.34	0
		25	12	17.32	0
		25	25	17.26	0
		50	0	17.27	0

10 ㎒ Bandwidths does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB 941225 D05 SAR for LTE Devices.

Band width	Modulation	RB Size	RB offset	Maximum Average Power 23 035 701.5 ㎒	23 095 707.5 ㎒	23 155 713.5 ㎒	MPR
5 ㎒	QPSK	1	0	17.18	17.22	17.13	0
		1	12	17.13	17.10	16.92	0
		1	24	17.14	17.18	16.98	0
		12	0	17.18	17.26	17.04	0
		12	7	17.17	17.23	17.07	0
		12	13	17.26	17.22	17.01	0
		25	0	17.24	17.17	17.01	0
	16QAM	1	0	17.40	17.60	17.39	0
		1	12	17.24	17.51	17.29	0
		1	24	17.41	17.41	17.40	0
		12	0	17.24	17.30	17.15	0
		12	7	17.31	17.25	17.17	0
		12	13	17.38	17.24	17.10	0
		25	0	17.30	17.31	17.09	0
	64QAM	1	0	17.39	17.29	17.23	0
		1	12	17.28	17.39	17.07	0
		1	24	17.40	17.41	17.11	0
		12	0	17.24	17.28	17.13	0
		12	7	17.26	17.23	17.14	0
		12	13	17.33	17.26	17.09	0
		25	0	17.35	17.31	17.08	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				23 025	23 095	23 655	
				700.5 MHz	707.5 MHz	714.5 MHz	
3 MHz	QPSK	1	0	17.10	17.15	17.00	0
		1	8	17.05	17.05	16.92	0
		1	14	17.07	17.11	16.93	0
		8	0	17.12	17.20	16.95	0
		8	4	17.18	17.20	17.05	0
		8	7	17.15	17.16	16.94	0
		15	0	17.16	17.17	17.04	0
	16QAM	1	0	17.34	17.42	17.20	0
		1	8	17.41	17.49	17.27	0
		1	14	17.25	17.31	17.20	0
		8	0	17.21	17.28	17.13	0
		8	4	17.28	17.32	17.10	0
		8	7	17.19	17.27	17.06	0
		15	0	17.22	17.26	17.09	0
	64QAM	1	0	17.28	17.25	17.07	0
		1	8	17.32	17.34	17.13	0
		1	14	17.28	17.20	17.14	0
		8	0	17.22	17.23	17.05	0
		8	4	17.24	17.27	17.09	0
		8	7	17.20	17.29	17.08	0
		15	0	17.23	17.22	17.06	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				23 017	23 095	23 173	
				699.7 MHz	707.5 MHz	715.3 MHz	
1.4 MHz	QPSK	1	0	17.07	17.08	16.97	0
		1	3	17.08	17.13	17.02	0
		1	5	17.00	17.02	16.96	0
		3	0	17.05	17.06	16.99	0
		3	1	17.10	17.16	17.01	0
		3	3	17.06	17.04	17.00	0
		6	0	17.09	17.13	16.93	0
	16QAM	1	0	17.31	17.40	17.26	0
		1	3	17.35	17.40	17.29	0
		1	5	17.29	17.39	17.28	0
		3	0	17.21	17.23	17.05	0
		3	1	17.17	17.22	16.99	0
		3	3	17.05	17.18	16.97	0
		6	0	17.20	17.25	17.08	0
	64QAM	1	0	17.25	17.27	16.97	0
		1	3	17.31	17.37	17.16	0
		1	5	17.12	17.27	17.03	0
		3	0	17.17	17.17	17.00	0
		3	1	17.22	17.23	17.07	0
		3	3	17.12	17.22	16.97	0
		6	0	17.07	17.16	16.97	0

9.6.4 LTE Band 41 (Grip Sensor)

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
20 MHz	QPSK	1	0	14.68	14.80	14.65	14.74	14.68	0
		1	49	14.60	14.77	14.54	14.70	14.56	0
		1	99	**14.56**	**14.82**	**14.53**	**14.73**	**14.56**	0
		50	0	14.65	14.79	14.64	14.75	14.63	0
		50	24	**14.60**	**14.89**	**14.60**	**14.71**	**14.64**	0
		50	50	14.61	14.83	14.50	14.70	14.58	0
		100	0	14.61	**14.80**	14.55	14.70	14.61	0
	16QAM	1	0	14.76	14.84	14.78	14.88	14.84	0
		1	49	14.70	14.87	14.67	14.84	14.72	0
		1	99	14.67	14.91	14.60	14.83	14.62	0
		50	0	14.69	14.84	14.68	14.85	14.80	0
		50	24	14.71	14.94	14.67	14.90	14.72	0
		50	50	14.64	14.95	14.62	14.88	14.69	0
		100	0	14.66	14.91	14.63	14.87	14.71	0
	64QAM	1	0	14.39	14.52	14.37	14.44	14.37	0
		1	49	14.31	14.47	14.23	14.42	14.27	0
		1	99	14.29	14.52	14.23	14.42	14.19	0
		50	0	14.75	14.89	14.73	14.78	14.75	0
		50	24	14.67	15.01	14.65	14.84	14.71	0
		50	50	14.70	14.96	14.59	14.81	14.65	0
		100	0	14.69	14.93	14.64	14.81	14.69	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
15 MHz	QPSK	1	0	14.61	14.70	14.54	14.65	14.58	0
		1	36	14.54	14.72	14.50	14.67	14.53	0
		1	74	14.56	14.76	14.46	14.63	14.48	0
		36	0	14.64	14.80	14.61	14.71	14.60	0
		36	18	14.60	14.92	14.63	14.76	14.59	0
		36	37	14.58	14.88	14.52	14.73	14.54	0
		75	0	14.56	14.81	14.51	14.70	14.55	0
	16QAM	1	0	14.75	14.89	14.72	14.88	14.78	0
		1	36	14.72	14.90	14.71	14.91	14.75	0
		1	74	14.71	14.93	14.61	14.87	14.67	0
		36	0	14.67	14.81	14.60	14.77	14.73	0
		36	18	14.66	14.94	14.62	14.82	14.70	0
		36	37	14.60	14.90	14.59	14.80	14.67	0
		75	0	14.64	14.89	14.64	14.83	14.69	0
	64QAM	1	0	14.40	14.47	14.39	14.44	14.36	0
		1	36	14.36	14.50	14.29	14.48	14.30	0
		1	74	14.29	14.57	14.20	14.44	14.27	0
		36	0	14.72	14.82	14.66	14.80	14.70	0
		36	18	14.72	14.95	14.68	14.84	14.67	0
		36	37	14.64	14.95	14.64	14.81	14.61	0
		75	0	14.68	14.93	14.68	14.84	14.68	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
10 MHz	QPSK	1	0	14.67	14.77	14.59	14.73	14.55	0
		1	25	14.48	14.68	14.49	14.66	14.47	0
		1	49	14.56	14.83	14.46	14.73	14.50	0
		25	0	14.58	14.74	14.59	14.69	14.57	0
		25	12	14.58	14.83	14.54	14.72	14.55	0
		25	25	14.56	14.80	14.54	14.70	14.52	0
		50	0	14.55	14.85	14.55	14.73	14.60	0
	16QAM	1	0	14.77	14.98	14.70	14.93	14.78	0
		1	25	14.67	14.83	14.67	14.84	14.70	0
		1	49	14.72	15.04	14.73	14.94	14.68	0
		25	0	14.69	14.84	14.67	14.81	14.70	0
		25	12	14.64	14.90	14.61	14.83	14.70	0
		25	25	14.62	14.90	14.61	14.80	14.66	0
		50	0	14.67	14.93	14.65	14.85	14.69	0
	64QAM	1	0	14.42	14.57	14.37	14.55	14.34	0
		1	25	14.29	14.43	14.29	14.41	14.28	0
		1	49	14.35	14.68	14.28	14.52	14.23	0
		25	0	14.73	14.89	14.71	14.84	14.73	0
		25	12	14.76	15.01	14.69	14.87	14.72	0
		25	25	14.68	14.99	14.68	14.86	14.69	0
		50	0	14.65	14.91	14.65	14.79	14.64	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power					MPR
				39 750	40 185	40 620	41 055	41 490	
				2 506.0 MHz	2 549.5 MHz	2 593.0 MHz	2 636.5 MHz	2 680.0 MHz	
5 MHz	QPSK	1	0	14.52	14.64	14.46	14.68	14.50	0
		1	12	14.49	14.65	14.46	14.65	14.47	0
		1	24	14.55	14.76	14.46	14.66	14.51	0
		12	0	14.60	14.73	14.51	14.68	14.59	0
		12	7	14.58	14.85	14.58	14.70	14.58	0
		12	13	14.51	14.83	14.53	14.68	14.50	0
		25	0	14.52	14.76	14.49	14.68	14.55	0
	16QAM	1	0	14.70	14.83	14.69	14.90	14.73	0
		1	12	14.70	14.88	14.63	14.84	14.67	0
		1	24	14.72	14.97	14.65	14.92	14.73	0
		12	0	14.62	14.77	14.53	14.74	14.64	0
		12	7	14.63	14.89	14.60	14.78	14.64	0
		12	13	14.62	14.86	14.55	14.74	14.61	0
		25	0	14.60	14.84	14.56	14.80	14.65	0
	64QAM	1	0	14.32	14.50	14.30	14.45	14.29	0
		1	12	14.31	14.48	14.27	14.47	14.22	0
		1	24	14.35	14.60	14.29	14.51	14.30	0
		12	0	14.69	14.82	14.64	14.81	14.70	0
		12	7	14.71	14.97	14.71	14.83	14.69	0
		12	13	14.70	14.93	14.65	14.81	14.62	0
		25	0	14.68	14.96	14.63	14.83	14.67	0

9.6.5 LTE Band 66 (Grip Sensor)

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				132 072	132 322	132 572	
				1 720.0 ㎒	1 745.0 ㎒	1 770.0 ㎒	
20 ㎒	QPSK	1	0	13.76	13.72	13.65	0
		1	49	13.73	13.72	13.80	0
		1	99	**13.81**	13.73	13.75	0
		50	0	13.77	13.77	13.67	0
		50	24	13.76	13.77	13.82	0
		50	50	**13.87**	13.78	13.81	0
		100	0	13.80	13.78	13.67	0
	16QAM	1	0	13.88	13.94	13.84	0
		1	49	13.94	13.88	13.90	0
		1	99	13.95	13.84	14.00	0
		50	0	13.84	13.81	13.71	0
		50	24	13.82	13.84	13.80	0
		50	50	13.96	13.80	13.86	0
		100	0	13.90	13.80	13.72	0
	64QAM	1	0	13.75	13.97	13.69	0
		1	49	13.94	13.91	13.97	0
		1	99	13.96	13.94	13.94	0
		50	0	13.87	13.82	13.75	0
		50	24	13.88	13.88	13.88	0
		50	50	13.96	13.88	13.90	0
		100	0	13.97	13.85	13.74	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				132 047	132 322	132 597	
				1 717.5 ㎒	1 745.0 ㎒	1 772.5 ㎒	
15 ㎒	QPSK	1	0	13.65	13.70	13.63	0
		1	36	13.70	13.71	13.68	0
		1	74	13.67	13.73	13.72	0
		36	0	13.77	13.74	13.74	0
		36	18	13.74	13.75	13.79	0
		36	37	13.77	13.76	13.80	0
		75	0	13.74	13.74	13.80	0
	16QAM	1	0	13.88	13.81	13.95	0
		1	36	13.96	13.94	13.92	0
		1	74	13.98	13.99	13.98	0
		36	0	13.80	13.79	13.77	0
		36	18	13.83	13.81	13.83	0
		36	37	13.85	13.78	13.83	0
		75	0	13.79	13.77	13.82	0
	64QAM	1	0	13.80	13.96	13.89	0
		1	36	13.90	13.85	13.89	0
		1	74	13.97	13.95	13.93	0
		36	0	13.88	13.85	13.79	0
		36	18	13.88	13.85	13.85	0
		36	37	13.88	13.86	13.86	0
		75	0	13.79	13.81	13.84	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				132 022	132 322	132 622	
				1 715.0 ㎒	1 745.0 ㎒	1 775.0 ㎒	
10 ㎒	QPSK	1	0	13.71	13.70	13.74	0
		1	25	13.69	13.71	13.69	0
		1	49	13.69	13.68	13.76	0
		25	0	13.74	13.77	13.77	0
		25	12	13.80	13.77	13.77	0
		25	25	13.74	13.76	13.79	0
		50	0	13.75	13.75	13.77	0
	16QAM	1	0	13.95	13.91	13.89	0
		1	25	13.99	13.84	13.91	0
		1	49	13.91	13.92	13.93	0
		25	0	13.83	13.85	13.78	0
		25	12	13.82	13.85	13.81	0
		25	25	13.82	13.76	13.83	0
		50	0	13.83	13.78	13.82	0
	64QAM	1	0	13.87	13.86	13.99	0
		1	25	13.89	13.86	13.94	0
		1	49	13.89	13.93	13.92	0
		25	0	13.88	13.81	13.82	0
		25	12	13.83	13.79	13.83	0
		25	25	13.83	13.78	13.87	0
		50	0	13.84	13.79	13.83	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				131 997	132 322	132 647	
				1 712.5 ㎒	1 745.0 ㎒	1 777.5 ㎒	
5 ㎒	QPSK	1	0	13.74	13.69	13.72	0
		1	12	13.66	13.67	13.68	0
		1	24	13.66	13.63	13.69	0
		12	0	13.73	13.77	13.76	0
		12	7	13.74	13.73	13.79	0
		12	13	13.74	13.69	13.75	0
		25	0	13.77	13.74	13.74	0
	16QAM	1	0	13.91	13.89	13.92	0
		1	12	13.89	14.00	13.96	0
		1	24	13.96	13.99	13.93	0
		12	0	13.80	13.73	13.83	0
		12	7	13.78	13.74	13.83	0
		12	13	13.73	13.73	13.75	0
		25	0	13.81	13.76	13.80	0
	64QAM	1	0	13.91	13.92	13.96	0
		1	12	13.91	13.87	13.90	0
		1	24	13.94	13.88	13.96	0
		12	0	13.83	13.86	13.78	0
		12	7	13.88	13.78	13.85	0
		12	13	13.77	13.79	13.86	0
		25	0	13.81	13.74	13.82	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				131 987	132 322	132 657	
				1 711.5 ㎒	1 745.0 ㎒	1 778.5 ㎒	
3 ㎒	QPSK	1	0	13.72	13.63	13.72	0
		1	8	13.65	13.63	13.75	0
		1	14	13.64	13.59	13.67	0
		8	0	13.73	13.67	13.73	0
		8	4	13.76	13.74	13.77	0
		8	7	13.74	13.69	13.74	0
		15	0	13.77	13.75	13.76	0
	16QAM	1	0	13.96	13.89	13.95	0
		1	8	13.99	13.85	13.92	0
		1	14	13.86	13.86	13.94	0
		8	0	13.74	13.74	13.81	0
		8	4	13.79	13.80	13.86	0
		8	7	13.74	13.71	13.82	0
		15	0	13.78	13.79	13.80	0
	64QAM	1	0	13.95	13.78	13.80	0
		1	8	13.90	13.85	13.91	0
		1	14	13.85	13.88	13.89	0
		8	0	13.74	13.83	13.79	0
		8	4	13.80	13.77	13.83	0
		8	7	13.76	13.74	13.80	0
		15	0	13.76	13.84	13.80	0

Band width	Modulation	RB Size	RB offset	Maximum Average Power			MPR
				131 979	132 322	132 665	
				1 710.7 ㎒	1 745.0 ㎒	1 779.3 ㎒	
1.4 ㎒	QPSK	1	0	13.63	13.56	13.64	0
		1	3	13.69	13.61	13.69	0
		1	5	13.65	13.56	13.61	0
		3	0	13.63	13.59	13.63	0
		3	1	13.74	13.68	13.67	0
		3	3	13.67	13.57	13.65	0
		6	0	13.67	13.58	13.73	0
	16QAM	1	0	13.81	13.89	13.84	0
		1	3	13.93	13.85	13.83	0
		1	5	13.84	13.86	13.90	0
		3	0	13.63	13.66	13.66	0
		3	1	13.70	13.73	13.68	0
		3	3	13.69	13.67	13.75	0
		6	0	13.74	13.69	13.82	0
	64QAM	1	0	13.78	13.81	13.84	0
		1	3	13.88	13.82	13.84	0
		1	5	13.83	13.85	13.83	0
		3	0	13.75	13.73	13.82	0
		3	1	13.78	13.86	13.81	0
		3	3	13.79	13.74	13.82	0
		6	0	13.75	13.75	13.75	0

9.7 WLAN & Bluetooth Average Conducted Output Power

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.

Power Measurement Setup

9.7.1 WLAN Average Conducted Output Power_Ant.1

Band	Freq. [㎒]	Channel	Mode		
			802.11b	802.11g	802.11n
WLAN 2.4 ㎓	2 412.0	1	**15.79**	14.83	15.73
	2 437.0	6	12.79	17.61	17.50
	2 462.0	11	13.81	17.32	17.18
	2 467.0	12	5.74	5.30	5.80
	2 472.0	13	4.49	4.44	4.26
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11a	**802.11n**	**802.11ac**
NII (20 ㎒)	5 180.0	36	15.32	15.29	15.37
	5 200.0	40	15.40	15.40	15.27
	5 220.0	44	15.24	15.05	15.04
	5 240.0	48	15.62	15.47	15.41
	5 260.0	52	**15.52**	15.42	15.37
	5 280.0	56	15.39	15.34	15.25
	5 300.0	60	15.18	15.05	15.01
	5 320.0	64	15.08	15.11	14.85
	5 500.0	100	15.36	15.28	15.15
	5 600.0	120	15.37	15.09	15.21
	5 620.0	124	14.96	14.80	14.90
	5 720.0	144	**15.85**	15.72	15.71
	5 745.0	149	13.63	13.25	13.39
	5 785.0	157	13.46	13.21	13.24
	5 825.0	165	12.91	12.54	12.52

Band	Freq. [㎒]	Channel	Mode	
			802.11n	802.11ac
NII (40 ㎒)	5 190.0	38	9.95	9.94
	5 230.0	46	13.66	13.66
	5 270.0	54	13.97	13.91
	5 310.0	62	9.72	9.70
	5 510.0	102	10.63	10.62
	5 590.0	118	13.85	13.79
	5 630.0	126	12.86	12.73
	5 710.0	142	13.67	13.67
	5 755.0	151	**13.48**	13.51
	5 795.0	159	13.16	13.13

Band	Freq. [㎒]	Channel	Mode
			802.11ac
NII (80 ㎒)	5 210.0	42	8.70
	5 290.0	58	8.49
	5 530.0	106	8.67
	5 610.0	122	12.59
	5 690.0	138	12.59
	5 775.0	155	12.41

9.7.2 WLAN Average Conducted Output Power_Ant.2

Band	Freq. [㎒]	Channel	Mode		
			802.11b	802.11g	802.11n
WLAN 2.4 ㎓	2 412.0	1	**14.73**	14.46	15.56
	2 437.0	6	11.71	17.04	16.84
	2 462.0	11	12.61	17.66	17.48
	2 467.0	12	5.23	5.36	5.22
	2 472.0	13	4.53	4.73	4.57
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11a	**802.11n**	**802.11ac**
NII (20 ㎒)	5 180.0	36	15.21	15.04	15.00
	5 200.0	40	14.99	14.80	14.77
	5 220.0	44	15.17	15.01	15.00
	5 240.0	48	15.34	15.18	15.23
	5 260.0	52	14.94	14.34	14.87
	5 280.0	56	**15.34**	15.19	15.21
	5 300.0	60	15.04	14.88	14.82
	5 320.0	64	15.13	14.93	15.02
	5 500.0	100	**14.51**	14.41	14.42
	5 600.0	120	14.44	14.38	14.37
	5 620.0	124	14.16	14.13	14.10
	5 720.0	144	14.01	14.47	14.41
	5 745.0	149	13.95	13.24	13.10
	5 785.0	157	13.87	13.28	13.18
	5 825.0	165	13.39	13.01	12.95

Band	Freq. [㎒]	Channel		
			802.11n	802.11ac
NII (40 ㎒)	5 190.0	38	9.71	9.72
	5 230.0	46	12.99	13.01
	5 270.0	54	13.61	13.63
	5 310.0	62	9.98	9.90
	5 510.0	102	11.96	11.90
	5 590.0	118	13.08	13.14
	5 630.0	126	12.52	12.54
	5 710.0	142	12.49	12.94
	5 755.0	151	13.55	13.50
	5 795.0	159	**13.98**	13.89

Band	Freq. [㎒]	Channel	Mode
			802.11ac
NII (80 ㎒)	5 210.0	42	8.47
	5 290.0	58	8.83
	5 530.0	106	8.50
	5 610.0	122	11.27
	5 690.0	138	11.65
	5 775.0	155	12.88

9.7.3 WLAN Reduced Average Conducted Output Power_Ant.1(Grip Sensor)

Band	Freq. [㎒]	Channel	Mode		
			802.11b	802.11g	802.11n
WLAN 2.4 ㎓	2 412.0	1	**11.48**	11.47	11.32
	2 437.0	6	10.85	11.33	11.20
	2 462.0	11	11.09	11.21	11.06
	2 467.0	12	5.74	5.30	5.80
	2 472.0	13	4.49	4.44	4.26
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11a	**802.11n**	**802.11ac**
NII (20 ㎒)	5 180.0	36	10.25	10.46	10.08
	5 200.0	40	10.58	10.42	10.51
	5 220.0	44	10.51	10.77	10.45
	5 240.0	48	10.55	10.61	10.56
	5 260.0	52	10.65	10.68	10.64
	5 280.0	56	10.13	10.33	10.25
	5 300.0	60	10.20	10.14	9.87
	5 320.0	64	10.40	9.89	10.02
	5 500.0	100	10.73	10.72	10.67
	5 600.0	120	10.11	9.93	10.05
	5 620.0	124	9.84	9.51	9.58
	5 720.0	144	10.57	10.35	10.61
	5 745.0	149	10.96	10.49	10.54
	5 785.0	157	10.85	10.15	10.41
	5 825.0	165	9.89	9.70	9.88
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11n		**802.11ac**
NII (40 ㎒)	5 190.0	38	9.95		9.94
	5 230.0	46	10.69		10.68
	5 270.0	54	**10.65**		10.15
	5 310.0	62	9.72		9.70
	5 510.0	102	10.32		10.47
	5 590.0	118	10.27		10.24
	5 630.0	126	10.98		10.92
	5 710.0	142	10.89		10.68
	5 755.0	151	10.64		10.48
	5 795.0	159	10.60		10.39
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11ac		
NII (80 ㎒)	5 210.0	42	8.70		
	5 290.0	58	8.49		
	5 530.0	106	8.67		
	5 610.0	122	**10.91**		
	5 690.0	138	10.85		
	5 775.0	155	**10.84**		

9.7.4 WLAN Reduced Average Conducted Output Power_Ant.2(Grip Sensor)

Band	Freq. [㎒]	Channel	Mode		
			802.11b	802.11g	802.11n
WLAN 2.4 ㎓	2 412.0	1	11.24	11.87	11.69
	2 437.0	6	10.91	11.34	11.24
	2 462.0	11	**11.37**	11.87	11.73
	2 467.0	12	5.23	5.36	5.22
	2 472.0	13	4.53	4.73	4.57
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11a	**802.11n**	**802.11ac**
NII (20 ㎒)	5 180.0	36	10.42	10.65	10.31
	5 200.0	40	10.45	10.12	10.05
	5 220.0	44	10.23	10.48	10.47
	5 240.0	48	10.52	10.84	10.60
	5 260.0	52	10.27	10.11	10.20
	5 280.0	56	10.62	10.38	10.40
	5 300.0	60	10.28	10.20	10.24
	5 320.0	64	10.77	10.42	10.39
	5 500.0	100	10.10	10.24	9.93
	5 600.0	120	9.98	10.24	9.92
	5 620.0	124	10.65	10.43	10.30
	5 720.0	144	10.45	10.16	10.53
	5 745.0	149	10.59	10.22	10.19
	5 785.0	157	10.82	10.85	10.84
	5 825.0	165	10.20	9.78	10.11
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11n		**802.11ac**
NII (40 ㎒)	5 190.0	38	9.71		9.72
	5 230.0	46	10.04		9.64
	5 270.0	54	**10.35**		10.53
	5 310.0	62	9.98		9.90
	5 510.0	102	10.63		10.73
	5 590.0	118	10.26		10.07
	5 630.0	126	9.88		9.48
	5 710.0	142	10.11		9.90
	5 755.0	151	10.39		10.68
	5 795.0	159	10.59		10.70
Band	**Freq. [㎒]**	**Channel**	**Mode**		
			802.11ac		
NII (80 ㎒)	5 210.0	42	8.47		
	5 290.0	58	8.83		
	5 530.0	106	8.50		
	5 610.0	122	**10.95**		
	5 690.0	138	10.49		
	5 775.0	155	**10.59**		

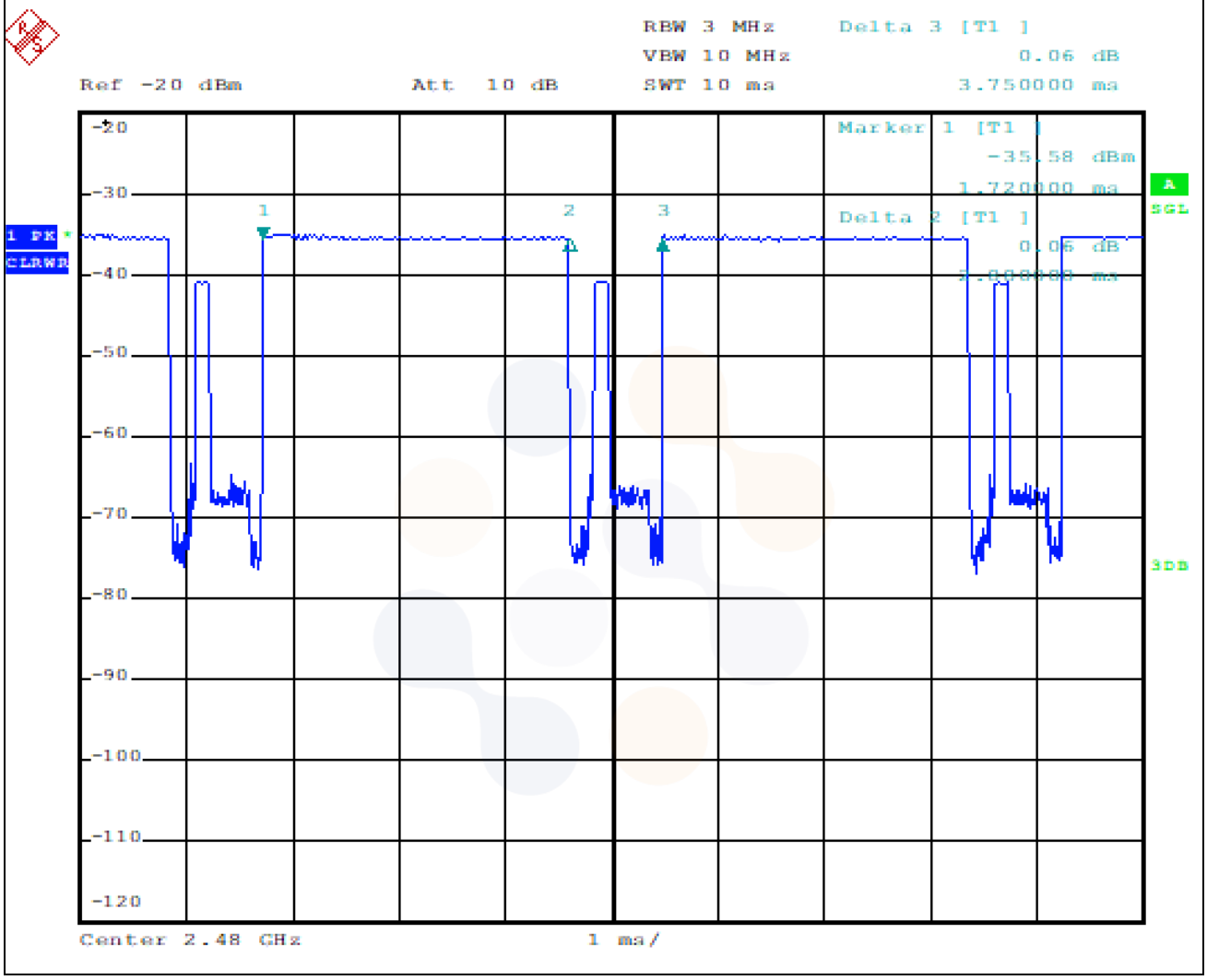
9.8 Bluetooth Average Conducted Output Power

Mode	Freq. [㎒]	Channel	Conducted Powers (㏈m)
BDR_DH5 (1 Mbps)	2 402.0	0	10.28
	2 441.0	39	10.29
	2 480.0	78	**10.43**
EDR_2-DH5 (2 Mbps)	2 402.0	0	7.28
	2 441.0	39	7.11
	2 480.0	78	7.29
EDR_3-DH5 (3 Mbps)	2 402.0	0	7.24
	2 441.0	39	7.08
	2 480.0	78	7.26
LE (1 Mbps 37)	2 402.0	0	4.99
	2 440.0	19	5.23
	2 480.0	39	4.45
LE (1 Mbps 255)	2 402.0	0	4.87
	2 440.0	19	5.12
	2 480.0	39	4.41
LE (2 Mbps 37)	2 402.0	0	4.98
	2 440.0	19	5.24
	2 480.0	39	4.51
LE (2 Mbps 255)	2 402.0	0	4.88
	2 440.0	19	5.13
	2 480.0	39	4.37

9.9 Wireless Band Duty Cycle

Wireless Bands	Frequency Bands	Mode	Duty Cycle (%)
GSM	850 1900	Voice, GPRS(GMSK), EGPRS(8PSK)	Voice: 12.5
			(E)GPRS 1Tx : 12.5
			(E)GPRS 2Tx : 25.0
			(E)GPRS 3Tx : 37.5
			(E)GPRS 4Tx : 50.0
WCDMA	Band II	RMC, AMR, HSDPA, HSUPA,DC-HSDPA	100
	Band IV		
	Band V		
LTE	FDD Band 2	QPSK, 16QAM, 64QAM	100
	FDD Band 5		
	FDD Band 12		
	FDD Band 66		
	TDD Band 41		63.33
WLAN	2.4 GHz	802.11b	98.8
	U-NII	802.11a	97.4
		802.11n(HT40)	94.6
		802.11ac(VHT80)	90.0

Wireless Bands	Frequency Bands		On, Off Time		Duty Cycle	
	Mode	Packet	On Time (ms)	On-Off Time (ms)	Duty Cycle (%)	Duty Cycle Compensate Factor
Bluetooth	BDR(GFSK)	DH5	2.88	3.75	76.8	1.302



10. System Verification

10.1 Tissue Verification

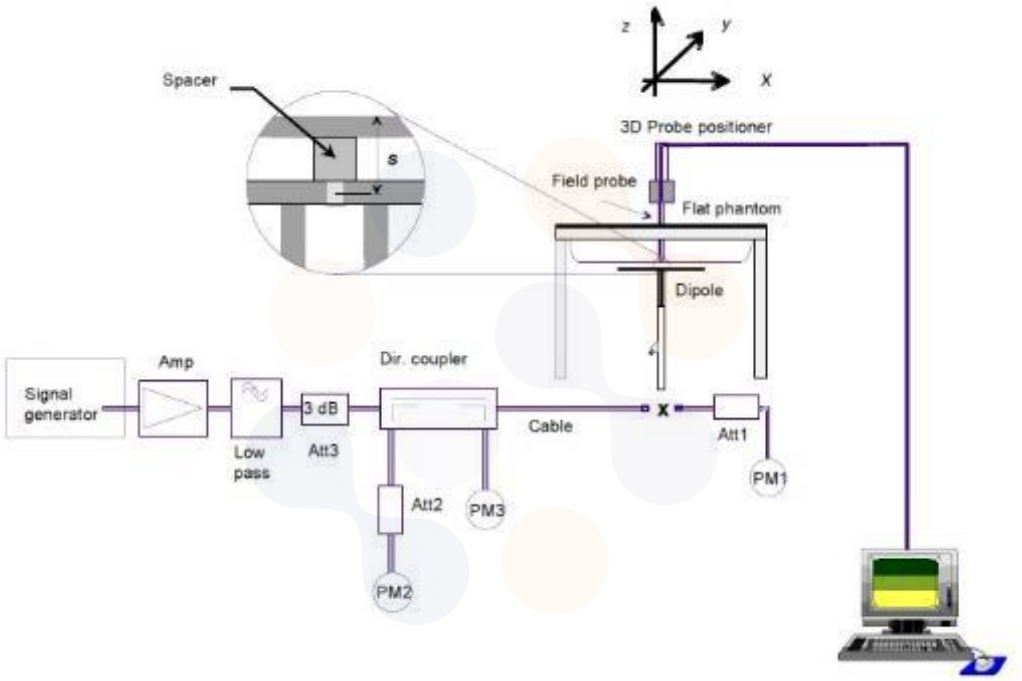
The dielectric properties for this Tissue Simulant Liquids were measured by using the SPEAG Model DAK3.5 Dielectric Probe in conjunction with Agilent E5071B Network Analyzer (300 ㎑ – 8 500 ㎒). The Conductivity (σ) and Permittivity (ρ) are listed in Table 1.For the SAR measurement given in this report. The temperature variation of the Tissue Simulant Liquids was (22 ± 2) ℃.

Freq. (MHz)	Limit/Measured		Permittivity (ρ)	Conductivity (σ)	Temp. (°C)
750.0	Recommended Limit		41.90 ± 5 % (39.81 ~ 44.00)	0.89 ± 5 % (0.85 ~ 0.93)	22 ± 2
	Measured	2022-04-04	43.10	0.90	20.68
850.0	Recommended Limit		41.50 ± 5 % (39.43 ~ 43.58)	0.92 ± 5 % (0.87 ~ 0.97)	22 ± 2
	Measured	2022-03-30	40.60	0.91	20.77
	Measured	2022-04-02	41.42	0.91	20.84
	Measured	2022-04-06	41.40	0.91	20.88
1 750.0	Recommended Limit		40.07 ± 5 % (38.07 ~ 42.07)	1.37 ± 5 % (1.30 ~ 1.44)	22 ± 2
	Measured	2022-03-31	39.21	1.40	20.69
	Measured	2022-04-01	39.20	1.38	20.88
	Measured	2022-04-05	40.54	1.36	20.68
1 900.0	Recommended Limit		40.00 ± 5 % (38.00 ~ 42.00)	1.40 ± 5 % (1.33 ~ 1.47)	22 ± 2
	Measured	2022-03-28	38.68	1.39	20.85
	Measured	2022-03-29	38.68	1.39	20.85
	Measured	2022-04-02	39.20	1.40	20.79
2 450.0	Recommended Limit		39.20 ± 5 % (37.24 ~ 41.16)	1.80 ± 5 % (1.71 ~ 1.89)	22 ± 2
	Measured	2022-03-29	38.18	1.84	20.78
	Measured	2022-04-04	38.53	1.75	20.67
	Measured	2022-04-11	38.85	1.80	20.82
2 600.0	Recommended Limit		39.00 ± 5 % (37.05 ~ 40.95)	1.96 ± 5 % (1.86 ~ 2.06)	22 ± 2
	Measured	2022-03-25	37.94	1.96	20.71
	Measured	2022-04-05	39.46	1.90	20.71
5 250.0	Recommended Limit		35.95 ± 5 % (34.15 ~ 37.75)	4.71 ± 5 % (4.47 ~ 4.95)	22 ± 2
	Measured	2022-03-31	36.64	4.82	20.75
5 600.0	Recommended Limit		35.50 ± 5 % (33.73 ~ 37.28)	5.07 ± 5 % (4.82 ~ 5.32)	22 ± 2
	Measured	2022-04-01	34.71	5.19	20.81
5 800.0	Recommended Limit		35.30 ± 5 % (33.54 ~ 37.07)	5.27 ± 5 % (5.01 ~ 5.53)	22 ± 2
	Measured	2022-04-02	35.98	5.16	20.88
	Measured	2022-04-08	35.64	5.09	20.53

<Table 1. Measurement result Tissue electric parameters>

10.2 Test System Verification

The microwave circuit arrangement for system verification is sketched below picture.
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 t arget 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 Table 2. During the tests, the ambient temperature of the laboratory was in the range (22 ± 2) ℃, th e relative humidity was in the range(50 ± 20)% and the liquid depth Above the ear/grid refer ence points was above 15 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.



Verification Kit	Probe S/N	Frequency (㎒)	Tissue Type	Limit/Measured (Normalized to 1 W)		
D750V3 SN: 1183	EX3DV4 SN: 3928	750	HSL	Recommended Limit 1g (Normalized)		8.36 ± 10 % (7.52~9.20)
				Measured	2022-04-04	8.28
D850V2 SN: 1006	EX3DV4 SN: 3928	850	HSL	Recommended Limit 1g (Normalized)		9.95 ± 10 % (8.96~10.95)
				Measured	2022-03-30	10.16
				Measured	2022-04-02	9.72
				Measured	2022-04-06	9.64
D1750V2 SN: 1072	EX3DV4 SN: 3928	1 750.0	HSL	Recommended Limit 1g (Normalized)		36.50 ± 10 % (32.85~40.15)
				Measured	2022-03-31	38.48
				Measured	2022-04-01	36.08
				Measured	2022-04-05	37.68
D1900V2 SN: 5d160	EX3DV4 SN: 3928	1 900.0	HSL	Recommended Limit 1g (Normalized)		39.40 ± 10 % (35.46~43.34)
				Measured	2022-03-28	40.40
				Measured	2022-03-29	38.80
				Measured	2022-04-02	39.28
D2450V2 SN: 895	EX3DV4 SN: 3865	2 450.0	HSL	Recommended Limit 1g (Normalized)		52.40 ± 10 % (47.16 ~ 57.64)
				Measured	2022-03-29	54.10
				Measured	2022-04-04	51.90
				Measured	2022-04-11	53.00
D2600V2 SN: 1050	EX3DV4 SN: 3928	2 600.0	HSL	Recommended Limit 1g (Normalized)		56.20 ± 10 % (50.58~61.82)
				Measured	2022-03-25	56.80
	EX3DV4 SN: 7540		HSL	Recommended Limit 1g (Normalized)		56.20 ± 10 % (50.58~61.82)
				Measured	2022-04-05	54.60
D5GHzV2 SN: 1134	EX3DV4 SN: 3865	5 250.0	HSL	Recommended Limit 1g (Normalized)		81.40 ± 10 % (73.26 ~ 89.54)
				Measured	2022-03-31	83.20
D5GHzV2 SN: 1134	EX3DV4 SN: 3865	5 600.0	HSL	Recommended Limit 1g (Normalized)		84.50 ± 10 % (76.05 ~ 92.95)
				Measured	2022-04-01	82.90
D5GHzV2 SN: 1134	EX3DV4 SN: 3865	5 800.0	HSL	Recommended Limit 1g (Normalized)		82.60 ± 10 % (74.34 ~ 90.86)
				Measured	2022-04-02	78.80
				Measured	2022-04-08	81.20

<Table 2. Measurement result of Tissue electric parameters>

11. SAR Test Results

11.1 Standalone Body SAR Test Results

GSM 850									
Mode	EUT Position	Distance (mm)	Frequency (㎒)	Measured Conducted Power (dBm)	Max. Tune-up Power (dBm)	Power Scaling Factor	Measured 1 g SAR (W/kg)	Scaled 1 g SAR (W/kg)	Plot No.
GPRS 2Tx	Grip Sensor off								
	Rear	14	836.6	32.02	33.50	1.406	0.698	0.981	
	Rear	14	824.2	31.52	33.50	1.578	0.796	**1.256**	1
	Rear	14	848.8	31.79	33.50	1.483	0.540	0.801	
	Left	0	836.6	32.02	33.50	1.406	0.144	0.202	
	Right	0	836.6	32.02	33.50	1.406	0.233	0.328	
	Top	22	836.6	32.02	33.50	1.406	0.440	0.619	
GPRS 4Tx	Grip Sensor on								
	Rear	0	836.6	18.13	19.50	1.371	0.223	0.306	
	Top	0	836.6	18.13	19.50	1.371	0.209	0.287	

GSM 1900									
Mode	EUT Position	Distance (mm)	Frequency (㎒)	Measured Conducted Power (dBm)	Max. Tune-up Power (dBm)	Power Scaling Factor	Measured 1 g SAR (W/kg)	Scaled 1 g SAR (W/kg)	Plot No.
GPRS 2Tx	Grip Sensor off								
	Rear	14	1 880.0	29.06	30.00	1.242	0.687	0.853	
	Rear	14	1 850.2	28.90	30.00	1.288	0.576	0.742	
	Rear	14	1 909.8	29.02	30.00	1.253	0.717	**0.899**	2
	Left	0	1 880.0	29.06	30.00	1.242	0.080	0.099	
	Right	0	1 880.0	29.06	30.00	1.242	0.309	0.384	
	Top	22	1 880.0	29.06	30.00	1.242	0.432	0.536	
	Grip Sensor on								
	Rear	0	1 880.0	19.20	20.00	1.202	0.656	0.789	
	Top	0	1 880.0	19.20	20.00	1.202	0.271	0.326	

WCDMA Band II									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
RMC	Grip Sensor off								
	Rear	14	1 880.0	23.63	24.50	1.222	0.770	0.941	
	Rear	14	1 852.4	23.66	24.50	1.213	0.719	0.872	
	Rear	14	1 907.6	23.58	24.50	1.236	0.790	**0.976**	3
	Left	0	1 880.0	23.63	24.50	1.222	0.078	0.095	
	Right	0	1 880.0	23.63	24.50	1.222	0.221	0.270	
	Top	22	1 880.0	23.63	24.50	1.222	0.607	0.742	
	Grip Sensor on								
	Rear	0	1 880.0	13.52	14.00	1.117	0.763	0.852	
	Rear	0	1 852.4	13.51	14.00	1.119	0.782	0.875	
	Rear	0	1 907.6	13.44	14.00	1.138	0.781	0.888	
	Top	0	1 880.0	13.52	14.00	1.117	0.324	0.362	

WCDMA Band IV									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
RMC	Grip Sensor off								
	Rear	14	1 732.4	23.70	24.50	1.202	0.487	0.586	
	Left	0	1 732.4	23.70	24.50	1.202	0.069	0.083	
	Right	0	1 732.4	23.70	24.50	1.202	0.208	0.250	
	Top	22	1 732.4	23.70	24.50	1.202	0.326	0.392	
	Grip Sensor on								
	Rear	0	1 732.4	14.53	15.00	1.114	0.746	0.831	
	Rear	0	1 712.4	14.54	15.00	1.112	0.644	0.716	
	Rear	0	1 752.6	14.33	15.00	1.167	0.851	**0.993**	4
	Top	0	1 732.4	14.53	15.00	1.114	0.638	0.711	
	Repeated SAR Test								
	Rear	0	1 752.6	14.33	15.00	1.167	0.849	0.991	

WCDMA Band V									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
RMC	Grip Sensor off								
	Rear	14	836.6	23.87	24.50	1.156	0.504	0.583	
	Left	0	836.6	23.87	24.50	1.156	0.121	0.140	
	Right	0	836.6	23.87	24.50	1.156	0.140	0.162	
	Top	22	836.6	23.87	24.50	1.156	0.326	0.377	
	Grip Sensor on								
	Rear	0	836.6	15.41	16.00	1.146	0.573	0.656	
	Top	0	836.6	15.41	16.00	1.146	0.646	**0.740**	5

LTE Band 2									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
Grip Sensor off									
QPSK 20M 1RB 0Offset	Rear	14	1 860.0	23.44	24.50	1.276	0.749	0.956	
QPSK 20M 1RB 0Offset	Rear	14	1 880.0	23.22	24.50	1.343	0.757	**1.016**	6
QPSK 20M 1RB 0Offset	Rear	14	1 900.0	23.20	24.50	1.349	0.726	0.979	
QPSK 20M 50RB 0Offset	Rear	14	1 860.0	22.44	23.50	1.276	0.616	0.786	
QPSK 20M 100RB 0Offset	Rear	14	1 860.0	22.43	23.50	1.279	0.612	0.783	
QPSK 20M 1RB 0Offset	Left	0	1 860.0	23.44	24.50	1.276	0.076	0.096	
QPSK 20M 50RB 0Offset	Left	0	1 860.0	22.44	23.50	1.276	0.033	0.042	
QPSK 20M 1RB 0Offset	Right	0	1 860.0	23.44	24.50	1.276	0.293	0.374	
QPSK 20M 50RB 0Offset	Right	0	1 860.0	22.44	23.50	1.276	0.228	0.291	
QPSK 20M 1RB 0Offset	Top	22	1 860.0	23.44	24.50	1.276	0.588	0.751	
QPSK 20M 50RB 0Offset	Top	22	1 860.0	22.44	23.50	1.276	0.480	0.613	
Grip Sensor on									
QPSK 20M 1RB 49Offset	Rear	0	1 860.0	13.15	14.00	1.216	0.710	0.863	
QPSK 20M 1RB 49Offset	Rear	0	1 880.0	12.88	14.00	1.294	0.659	0.853	
QPSK 20M 1RB 49Offset	Rear	0	1 900.0	12.95	14.00	1.274	0.651	0.829	
QPSK 20M 50RB 50Offset	Rear	0	1 860.0	13.13	14.00	1.222	0.645	0.788	
QPSK 20M 100RB 0Offset	Rear	0	1 860.0	13.02	14.00	1.253	0.689	0.863	
QPSK 20M 1RB 49Offset	Top	0	1 860.0	13.15	14.00	1.216	0.481	0.585	
QPSK 20M 50RB 50Offset	Top	0	1 860.0	13.13	14.00	1.222	0.488	0.596	

LTE Band 5									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
Grip Sensor off									
QPSK 10M 1RB 0Offset	Rear	14	836.5	23.52	24.50	1.253	0.406	**0.509**	7
QPSK 10M 25RB 12Offset	Rear	14	836.5	22.65	23.50	1.216	0.330	0.401	
QPSK 10M 1RB 0Offset	Left	0	836.5	23.52	24.50	1.253	0.111	0.139	
QPSK 10M 25RB 12Offset	Left	0	836.5	22.65	23.50	1.216	0.078	0.095	
QPSK 10M 1RB 0Offset	Right	0	836.5	23.52	24.50	1.253	0.132	0.165	
QPSK 10M 25RB 12Offset	Right	0	836.5	22.65	23.50	1.216	0.093	0.113	
QPSK 10M 1RB 0Offset	Top	22	836.5	23.52	24.50	1.253	0.316	0.396	
QPSK 10M 25RB 12Offset	Top	22	836.5	22.65	23.50	1.216	0.243	0.296	
Grip Sensor on									
QPSK 10M 1RB 25Offset	Rear	0	836.5	15.47	16.00	1.130	0.360	0.407	
QPSK 10M 25RB 0Offset	Rear	0	836.5	15.43	16.00	1.140	0.370	0.422	
QPSK 10M 1RB 25Offset	Top	0	836.5	15.47	16.00	1.130	0.383	0.433	
QPSK 10M 25RB 0Offset	Top	0	836.5	15.43	16.00	1.140	0.397	0.453	

LTE Band 12									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
Grip Sensor off									
QPSK 10M 1RB 25Offset	Rear	14	707.5	23.98	25.00	1.265	0.240	0.304	
QPSK 10M 25RB 0Offset	Rear	14	707.5	23.15	24.00	1.216	0.195	0.237	
QPSK 10M 1RB 25Offset	Left	0	707.5	23.98	25.00	1.265	0.126	0.159	
QPSK 10M 25RB 0Offset	Left	0	707.5	23.15	24.00	1.216	0.103	0.125	
QPSK 10M 1RB 25Offset	Right	0	707.5	23.98	25.00	1.265	0.116	0.147	
QPSK 10M 25RB 0Offset	Right	0	707.5	23.15	24.00	1.216	0.089	0.108	
QPSK 10M 1RB 25Offset	Top	22	707.5	23.98	25.00	1.265	0.111	0.140	
QPSK 10M 25RB 0Offset	Top	22	707.5	23.15	24.00	1.216	0.084	0.102	
Grip Sensor on									
QPSK 10M 1RB 25Offset	Rear	0	707.5	17.29	18.00	1.178	0.513	0.604	
QPSK 10M 25RB 0Offset	Rear	0	707.5	17.30	18.00	1.175	0.524	0.616	
QPSK 10M 1RB 25Offset	Top	0	707.5	17.29	18.00	1.178	0.642	0.756	
QPSK 10M 25RB 0Offset	Top	0	707.5	17.30	18.00	1.175	0.650	**0.764**	8

LTE Band 41									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
Grip Sensor off									
QPSK 20M 1RB 99Offset	Rear	14	2 549.5	22.56	23.50	1.242	0.159	0.197	
QPSK 20M 50RB 24Offset	Rear	14	2 549.5	21.75	22.50	1.189	0.121	0.144	
QPSK 20M 1RB 99Offset	Left	0	2 549.5	22.56	23.50	1.242	0.105	0.130	
QPSK 20M 50RB 24Offset	Left	0	2 549.5	21.75	22.50	1.189	0.075	0.089	
QPSK 20M 1RB 99Offset	Right	0	2 549.5	22.56	23.50	1.242	0.150	0.186	
QPSK 20M 50RB 24Offset	Right	0	2 549.5	21.75	22.50	1.189	0.125	0.149	
QPSK 20M 1RB 99Offset	Top	22	2 549.5	22.56	23.50	1.242	0.176	0.219	
QPSK 20M 50RB 24Offset	Top	22	2 549.5	21.75	22.50	1.189	0.127	0.151	
Grip Sensor on									
QPSK 20M 1RB 99Offset	Rear	0	2 549.5	14.82	15.50	1.169	0.514	0.601	
QPSK 20M 1RB 99Offset	Rear	0	2 506.0	14.56	15.50	1.242	0.572	0.710	
QPSK 20M 1RB 99Offset	Rear	0	2 593.0	14.53	15.50	1.250	0.611	0.764	
QPSK 20M 1RB 99Offset	Rear	0	2 636.5	14.73	15.50	1.194	0.651	0.777	
QPSK 20M 1RB 99Offset	Rear	0	2 680.0	14.56	15.50	1.242	0.664	0.824	
QPSK 20M 50RB 24Offset	Rear	0	2 549.5	14.89	15.50	1.151	0.550	0.633	
QPSK 20M 50RB 24Offset	Rear	0	2 506.0	14.60	15.50	1.230	0.589	0.725	
QPSK 20M 50RB 24Offset	Rear	0	2 593.0	14.60	15.50	1.230	0.634	0.780	
QPSK 20M 50RB 24Offset	Rear	0	2 636.5	14.71	15.50	1.199	0.660	0.792	
QPSK 20M 50RB 24Offset	Rear	0	2 680.0	14.64	15.50	1.219	0.685	**0.835**	9
QPSK 20M 100RB 0Offset	Rear	0	2 549.5	14.80	15.50	1.175	0.545	0.640	
QPSK 20M 1RB 99Offset	Top	0	2 549.5	14.82	15.50	1.169	0.566	0.662	
QPSK 20M 1RB 99Offset	Top	0	2 506.0	14.56	15.50	1.242	0.583	0.724	
QPSK 20M 1RB 99Offset	Top	0	2 593.0	14.53	15.50	1.250	0.506	0.633	
QPSK 20M 1RB 99Offset	Top	0	2 636.5	14.73	15.50	1.194	0.546	0.652	
QPSK 20M 1RB 99Offset	Top	0	2 680.0	14.56	15.50	1.242	0.550	0.683	
QPSK 20M 50RB 24Offset	Top	0	2 549.5	14.89	15.50	1.151	0.586	0.674	
QPSK 20M 50RB 24Offset	Top	0	2 506.0	14.60	15.50	1.230	0.608	0.748	
QPSK 20M 50RB 24Offset	Top	0	2 593.0	14.60	15.50	1.230	0.527	0.648	
QPSK 20M 50RB 24Offset	Top	0	2 636.5	14.71	15.50	1.199	0.547	0.656	
QPSK 20M 50RB 24Offset	Top	0	2 680.0	14.64	15.50	1.219	0.575	0.701	
QPSK 20M 100RB 0Offset	Top	0	2 549.5	14.80	15.50	1.175	0.590	0.693	

LTE Band 66									
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
Grip Sensor off									
QPSK 20M 1RB 99Offset	Rear	14	1 720.0	23.65	24.50	1.216	0.633	**0.770**	10
QPSK 20M 50RB 50Offset	Rear	14	1 720.0	22.70	23.50	1.202	0.505	0.607	
QPSK 20M 1RB 99Offset	Left	0	1 720.0	23.65	24.50	1.216	0.119	0.145	
QPSK 20M 50RB 50Offset	Left	0	1 720.0	22.70	23.50	1.202	0.096	0.115	
QPSK 20M 1RB 99Offset	Right	0	1 720.0	23.65	24.50	1.216	0.258	0.314	
QPSK 20M 50RB 50Offset	Right	0	1 720.0	22.70	23.50	1.202	0.204	0.245	
QPSK 20M 1RB 99Offset	Top	22	1 720.0	23.65	24.50	1.216	0.432	0.525	
QPSK 20M 50RB 50Offset	Top	22	1 720.0	22.70	23.50	1.202	0.345	0.415	
Grip Sensor on									
QPSK 20M 1RB 99Offset	Rear	0	1 720.0	13.81	14.00	1.045	0.706	0.738	
QPSK 20M 50RB 50Offset	Rear	0	1 720.0	13.87	14.00	1.030	0.698	0.719	
QPSK 20M 1RB 99Offset	Top	0	1 720.0	13.81	14.00	1.045	0.480	0.501	
QPSK 20M 50RB 50Offset	Top	0	1 720.0	13.87	14.00	1.030	0.488	0.503	

WLAN 2.4 GHz Ant.1										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (MHz)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11b	Grip Sensor off									
	Rear	12	2 412.0	15.79	16.00	1.050	1.012	0.117	0.124	
	Right	7	2 412.0	15.79	16.00	1.050	1.012	0.216	0.230	
	Right Corner	8	2 412.0	15.79	16.00	1.050	1.012	0.122	0.130	
	Top	17	2 412.0	15.79	16.00	1.050	1.012	0.102	0.108	
	Grip Sensor on									
	Rear	0	2 412.0	11.48	12.00	1.127	1.012	0.390	**0.445**	11
	Right	0	2 412.0	11.48	12.00	1.127	1.012	0.135	0.154	
	Right Corner	0	2 412.0	11.48	12.00	1.127	1.012	0.086	0.098	
	Top	0	2 412.0	11.48	12.00	1.127	1.012	0.159	0.181	

WLAN 2.4 GHz Ant.2										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (MHz)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11b	Grip Sensor off									
	Rear	9	2 412.0	14.73	16.00	1.340	1.012	0.083	0.113	
	Left	6	2 412.0	14.73	16.00	1.340	1.012	0.134	0.182	
	Left Corner	7	2 412.0	14.73	16.00	1.340	1.012	0.030	0.041	
	Top	16	2 412.0	14.73	16.00	1.340	1.012	0.003	0.004	
	Grip Sensor on									
	Rear	0	2 462.0	11.37	12.00	1.156	1.012	0.127	0.149	
	Left	0	2 462.0	11.37	12.00	1.156	1.012	0.164	**0.192**	12
	Left Corner	0	2 462.0	11.37	12.00	1.156	1.012	0.036	0.042	
	Top	0	2 462.0	11.37	12.00	1.156	1.012	0.025	0.029	

U-NII-2A Ant.1										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (MHz)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11a	Grip Sensor off									
	Rear	12	5 260.0	15.52	16.00	1.117	1.027	0.081	0.093	
	Right	7	5 260.0	15.52	16.00	1.117	1.027	0.584	0.670	
	Right Corner	8	5 260.0	15.52	16.00	1.117	1.027	0.265	0.304	
	Top	17	5 260.0	15.52	16.00	1.117	1.027	0.083	0.095	
802.11n (HT40)	Grip Sensor on									
	Rear	0	5 270.0	10.65	11.00	1.084	1.057	0.494	0.566	
	Right	0	5 270.0	10.65	11.00	1.084	1.057	0.643	**0.737**	13
	Right Corner	0	5 270.0	10.65	11.00	1.084	1.057	0.457	0.524	
	Top	0	5 270.0	10.65	11.00	1.084	1.057	0.254	0.291	

U-NII-2A Ant.2										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11a	Grip Sensor off									
	Rear	9	5 280.0	15.34	16.00	1.164	1.027	0.020	0.024	
	Left	6	5 280.0	15.34	16.00	1.164	1.027	0.066	0.079	
	Left Corner	7	5 280.0	15.34	16.00	1.164	1.027	0.008	0.010	
	Right	G.Note 8)0	5 280.0	15.34	16.00	1.164	1.027	0.000	0.000	
	Top	16	5 280.0	15.34	16.00	1.164	1.027	0.009	0.011	
802.11n (HT40)	Grip Sensor on									
	Rear	0	5 270.0	10.35	11.00	1.161	1.057	0.111	0.136	
	Left	0	5 270.0	10.35	11.00	1.161	1.057	0.445	**0.546**	14
	Left Corner	0	5 270.0	10.35	11.00	1.161	1.057	0.068	0.083	
	Top	0	5 270.0	10.35	11.00	1.161	1.057	0.063	0.077	

U-NII-2C Ant.1										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11a	Grip Sensor off									
	Rear	12	5 720.0	15.85	16.00	1.035	1.027	0.094	0.100	
	Right	7	5 720.0	15.85	16.00	1.035	1.027	0.379	0.403	
	Right Corner	8	5 720.0	15.85	16.00	1.035	1.027	0.175	0.186	
	Top	17	5 720.0	15.85	16.00	1.035	1.027	0.031	0.033	
802.11ac (VHT80)	Grip Sensor on									
	Rear	0	5 610.0	10.91	11.00	1.021	1.111	0.575	0.652	
	Right	0	5 610.0	10.91	11.00	1.021	1.111	0.604	**0.685**	15
	Right Corner	0	5 610.0	10.91	11.00	1.021	1.111	0.364	0.413	
	Top	0	5 610.0	10.91	11.00	1.021	1.111	0.145	0.164	

U-NII-2C Ant.2										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11a	Grip Sensor off									
	Rear	9	5 500.0	14.51	16.00	1.409	1.027	0.013	0.019	
	Left	6	5 500.0	14.51	16.00	1.409	1.027	0.050	0.072	
	Left Corner	7	5 500.0	14.51	16.00	1.409	1.027	0.008	0.012	
	Right	G.Note 8)0	5 500.0	14.51	16.00	1.409	1.027	0.000	0.000	
	Top	16	5 500.0	14.51	16.00	1.409	1.027	0.005	0.007	
802.11ac (VHT80)	Grip Sensor on									
	Rear	0	5 610.0	10.95	11.00	1.012	1.111	0.318	0.358	
	Left	0	5 610.0	10.95	11.00	1.012	1.111	0.388	**0.436**	16
	Left Corner	0	5 610.0	10.95	11.00	1.012	1.111	0.077	0.087	
	Top	0	5 610.0	10.95	11.00	1.012	1.111	0.127	0.143	

U-NII-3 Ant.1										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11n (HT40)	Grip Sensor off									
	Rear	12	5 755.0	13.48	14.00	1.127	1.057	0.099	0.118	
	Right	7	5 755.0	13.48	14.00	1.127	1.057	0.248	0.295	
	Right Corner	8	5 755.0	13.48	14.00	1.127	1.057	0.195	0.232	
	Top	17	5 755.0	13.48	14.00	1.127	1.057	0.041	0.049	
802.11ac (VHT80)	Grip Sensor on									
	Rear	0	5 775.0	10.84	11.00	1.038	1.111	0.409	0.472	
	Right	0	5 775.0	10.84	11.00	1.038	1.111	0.593	**0.684**	17
	Right Corner	0	5 775.0	10.84	11.00	1.038	1.111	0.393	0.453	
	Top	0	5 775.0	10.84	11.00	1.038	1.111	0.120	0.138	

U-NII-3 Ant.2										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
802.11n (HT40)	Grip Sensor off									
	Rear	9	5 795.0	13.98	14.00	1.005	1.057	0.063	0.067	
	Left	6	5 795.0	13.98	14.00	1.005	1.057	0.161	0.171	
	Left Corner	7	5 795.0	13.98	14.00	1.005	1.057	0.012	0.013	
	Right	G.Note 8)0	5 795.0	13.98	14.00	1.005	1.057	0.000	0.000	
	Top	16	5 795.0	13.98	14.00	1.005	1.057	0.039	0.041	
802.11ac (VHT80)	Grip Sensor on									
	Rear	0	5 775.0	10.59	11.00	1.099	1.111	0.374	0.457	
	Left	0	5 775.0	10.59	11.00	1.099	1.111	0.427	**0.521**	18
	Left Corner	0	5 775.0	10.59	11.00	1.099	1.111	0.167	0.204	
	Top	0	5 775.0	10.59	11.00	1.099	1.111	0.128	0.156	

Bluetooth										
Mode	**EUT Position**	**Distance (mm)**	**Frequency (㎒)**	**Measured Conducted Power (dBm)**	**Max. Tune-up Power (dBm)**	**Power Scaling Factor**	**Duty Cycle Compensate Factor**	**Measured 1 g SAR (W/kg)**	**Scaled 1 g SAR (W/kg)**	**Plot No.**
BDR_ DH5	Grip Sensor off									
	Rear	0	2 480.0	10.43	11.00	1.140	1.302	0.245	0.364	
	Right	0	2 480.0	10.43	11.00	1.140	1.302	0.318	**0.472**	19
	Right Corner	0	2 480.0	10.43	11.00	1.140	1.302	0.170	0.252	
	Top	0	2 480.0	10.43	11.00	1.140	1.302	0.228	0.338	

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. All modes of operation were investigated, and worst-case results are reported.
3. Battery is fully charged for all readings and the standard batteries are the only options.
4. Liquid tissue depth was at least 15 cm.
5. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
6. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
7. This device utilizes power reduction for some wireless modes, as outlined in Section 2.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.
8. Additional testing required in order satisfying FCC simultaneous transmission limit criteria.

WCDMA Notes:

1. UMTS mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. 2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).

LTE Notes:

1. Justification Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
2. When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
3. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
4. Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
5. Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.
6. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator.
7. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
8. TDD LTE was tested using UL-DL configuration 0 with 6 UL sub frames and 2S sub-frames using extended cyclic prefix only and special sub frame configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Sec. 4, the duty factor using extended cyclic prefix is 0.633(cf=1.58).
9. For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

WLAN & Bluetooth Notes:

1. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4㎓ WIFI operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement.
   SAR for OFDM modes (2.4㎓ 802.11g/n) was not required due to 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.
2. The device was 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. The reported SAR was scaled to the 100% transmission duty factor to determine compliance.
3. When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n then ac) is selected.
4. When the specified maximum output power is the same for both UNII Band1 and UNII Band 2A, begins SAR measurement in UNII band 2A; and if the highest reported SAR for UNII band 2A is ≤ 1.2W/kg, SAR is not required for UNII band1 > 1.2W/kg, both bands should be tested independently for SAR.
5. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.

12. Simultaneous Transmission

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.
This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g or 10g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is within SAR limits. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

12.1 Estimated SAR

When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2 b), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

1) For Test separation distances ≤ 50 mm.

$$\text{Estimated SAR} = \frac{\sqrt{f(\text{GHz})}}{7.5} \times \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

2) When the minimum test separation distance is > 50mm, the estimated SAR Value is 0.4 W/kg.

3) For distances < 5mm, a distance of 5mm is used to determine SAR exclusion and estimated SAR value.

4) Output power is the maximum rated power (including tune-up or manufacturing tolerances) and includes source-based averaging.

Band / Ant.	Freq. [MHz]	Output Power		Separation distances [mm]					SAR Exemption							
		dBm	mW	Rear	Left	Right	Top	Bot.	Rear	Left		Right		Top	Bot.
										Edge	Corner	Edge	Corner		
GSM850	848.5	34.00	2512	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
GSM1900	1909.8	31.00	1259	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
WCDMA II	1907.6	24.50	282	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
WCDMA IV	1752.6	24.50	282	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
WCDMA V	846.6	24.50	282	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
LTE Band 2	1909.3	24.50	282	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
LTE Band 5	848.3	24.50	282	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
LTE Band 12	715.3	25.00	316	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
LTE Band 41	2687.5	23.50	224	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
LTE Band 66	1779.3	24.50	282	5	46	46	5	240	Measure	Measure	0.400	Measure	0.400	Measure	N/A
2.4 GHz	2480.0	16.00	40	5	110	5	5	233	Measure	0.400		Measure		Measure	N/A
U-NII-2A	5320.0	16.00	40	5	110	5	5	233	Measure	0.400		Measure		Measure	N/A
U-NII-2C	5720.0	16.00	40	5	110	5	5	233	Measure	0.400		Measure		Measure	N/A
U-NII-3	5825.0	14.00	25	5	110	5	5	233	Measure	0.400		Measure		Measure	N/A
2.4 GHz	2480.0	16.00	40	5	5	110	5	233	Measure	Measure		0.400		Measure	N/A
U-NII-2A	5320.0	16.00	40	5	5	110	5	233	Measure	Measure		Measure	0.400	Measure	N/A
U-NII-2C	5720.0	16.00	40	5	5	110	5	233	Measure	Measure		Measure	0.400	Measure	N/A
U-NII-3	5825.0	14.00	25	5	5	110	5	233	Measure	Measure		Measure	0.400	Measure	N/A
Bluetooth	2480.0	11.00	13	5	110	5	5	233	Measure	0.400		Measure		Measure	N/A

12.2 #Simultaneous Transmission Configurations

According to FCC KDB 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.
This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

No.	Scenario	RF Exposure Condition
		Body
1	Licensed + WLAN 2.4GHz Ant.1	Yes
2	Licensed + WLAN 2.4GHz Ant.2	Yes
3	Licensed + WLAN 2.4GHz Ant.1 + WLAN 2.4GHz Ant.2	Yes
4	Licensed + WLAN 5GHz Ant.1	Yes
5	Licensed + WLAN 5GHz Ant.2	Yes
6	Licensed + WLAN 5GHz Ant.1 + WLAN 5GHz Ant.2	Yes
7	Licensed + WLAN 5GHz Ant.1 + Bluetooth	Yes
8	Licensed + WLAN 5GHz Ant.2 + Bluetooth	Yes
9	Licensed + WLAN 5GHz Ant.1 + WLAN 5GHz Ant.2 + Bluetooth	Yes
10	Licensed + Bluetooth	Yes
11	Licensed + WLAN 2.4GHz Ant.1 + Bluetooth	No
12	Licensed + WLAN 2.4GHz Ant.2 + Bluetooth	No
13	Licensed + WLAN 2.4GHz Ant.1 + WLAN 2.4GHz Ant.2 + Bluetooth	No
14	Licensed + WLAN 2.4G Ant.1 + WLAN 2.4G Ant.2 + WLAN 5G Ant.1 + WLAN 5G Ant.2 (RSDB)	No

12.2.1 Simultaneous Transmission Analysis

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
GSM/GPRS 850 Band / Sensor Off							
Body	Rear	1.256	0.124	0.113	0.118	0.067	0.364
	Left	0.202	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.328	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.619	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.380	1.369	1.493	1.374	1.323	1.441	1.738	1.687	1.805	1.620
	Left	0.602	0.384	0.784	0.602	0.373	0.773	1.002	0.773	1.173	0.602
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.558	0.728	0.958	0.998	0.328	0.998	1.470	0.800	1.470	0.800
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.727	0.623	0.731	0.714	0.660	0.755	1.052	0.998	1.093	0.957

GSM/GPRS 850 Band / Sensor On							
Body	Rear	0.306	0.445	0.149	0.652	0.457	0.364
	Left	0.202	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.328	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.287	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.751	0.455	0.900	0.958	0.763	1.415	1.322	1.127	1.779	0.670
	Left	0.602	0.394	0.794	0.602	0.748	1.148	1.002	1.148	1.548	0.602
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.482	0.728	0.882	1.065	0.328	1.065	1.537	0.800	1.537	0.800
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.468	0.316	0.497	0.578	0.443	0.734	0.916	0.781	1.072	0.625

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
GSM/GPRS 1900 Band / Sensor Off							
Body	Rear	0.899	0.124	0.113	0.118	0.067	0.364
	Left	0.099	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.384	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.536	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.023	1.012	1.136	1.017	0.966	1.084	1.381	1.330	1.448	1.263
	Left	0.499	0.281	0.681	0.499	0.270	0.670	0.899	0.670	1.070	0.499
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.614	0.784	1.014	1.054	0.384	1.054	1.526	0.856	1.526	0.856
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.644	0.540	0.648	0.631	0.577	0.672	0.969	0.915	1.010	0.874

GSM/GPRS 1900 Band / Sensor On							
Body	Rear	0.789	0.445	0.149	0.652	0.457	0.364
	Left	0.099	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.384	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.326	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.234	0.938	1.383	1.441	1.246	1.898	1.805	1.610	2.262	1.153
	Left	0.499	0.291	0.691	0.499	0.645	1.045	0.899	1.045	1.445	0.499
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.538	0.784	0.938	1.121	0.384	1.121	**1.593**	0.856	**1.593**	0.856
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.507	0.355	0.536	0.617	0.482	0.773	0.955	0.820	1.111	0.664

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
WCDMA Band II / Sensor Off							
Body	Rear	0.976	0.124	0.113	0.118	0.067	0.364
	Left	0.095	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.270	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.742	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.100	1.089	1.213	1.094	1.043	1.161	1.458	1.407	1.525	1.340
	Left	0.495	0.277	0.677	0.495	0.266	0.666	0.895	0.666	1.066	0.495
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.500	0.670	0.900	0.940	0.270	0.940	1.412	0.742	1.412	0.742
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.850	0.746	0.854	0.837	0.783	0.878	1.175	1.121	1.216	1.080

WCDMA Band II / Sensor On							
Body	Rear	0.888	0.445	0.149	0.652	0.457	0.364
	Left	0.095	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.270	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.362	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.333	1.037	1.482	1.540	1.345	1.997	1.904	1.709	2.361	1.252
	Left	0.495	0.287	0.687	0.495	0.641	1.041	0.895	1.041	1.441	0.495
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.424	0.670	0.824	1.007	0.270	1.007	1.479	0.742	1.479	0.742
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.543	0.391	0.572	0.653	0.518	0.809	0.991	0.856	1.147	0.700

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
WCDMA Band IV / Sensor Off							
Body	Rear	0.586	0.124	0.113	0.118	0.067	0.364
	Left	0.083	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.250	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.392	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.710	0.699	0.823	0.704	0.653	0.771	1.068	1.017	1.135	0.950
	Left	0.483	0.265	0.665	0.483	0.254	0.654	0.883	0.654	1.054	0.483
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.480	0.650	0.880	0.920	0.250	0.920	1.392	0.722	1.392	0.722
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.500	0.396	0.504	0.487	0.433	0.528	0.825	0.771	0.866	0.730

WCDMA Band IV / Sensor On							
Body	Rear	0.993	0.445	0.149	0.652	0.457	0.364
	Left	0.083	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.250	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.711	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.438	1.142	1.587	1.645	1.450	2.102	2.009	1.814	2.466	1.357
	Left	0.483	0.275	0.675	0.483	0.629	1.029	0.883	1.029	1.429	0.483
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.404	0.650	0.804	0.987	0.250	0.987	1.459	0.722	1.459	0.722
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.892	0.740	0.921	1.002	0.867	1.158	1.340	1.205	1.496	1.049

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
WCDMA Band V / Sensor Off							
Body	Rear	0.583	0.124	0.113	0.118	0.067	0.364
	Left	0.140	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.162	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.377	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.707	0.696	0.820	0.701	0.650	0.768	1.065	1.014	1.132	0.947
	Left	0.540	0.322	0.722	0.540	0.311	0.711	0.940	0.711	1.111	0.540
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.392	0.562	0.792	0.832	0.162	0.832	1.304	0.634	1.304	0.634
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.485	0.381	0.489	0.472	0.418	0.513	0.810	0.756	0.851	0.715

WCDMA Band V / Sensor On							
Body	Rear	0.656	0.445	0.149	0.652	0.457	0.364
	Left	0.140	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.162	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.740	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.101	0.805	1.250	1.308	1.113	1.765	1.672	1.477	2.129	1.020
	Left	0.540	0.332	0.732	0.540	0.686	1.086	0.940	1.086	1.486	0.540
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.316	0.562	0.716	0.899	0.162	0.899	1.371	0.634	1.371	0.634
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.921	0.769	0.950	1.031	0.896	1.187	1.369	1.234	1.525	1.078

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
LTE Band 2 / Sensor Off							
Body	Rear	1.016	0.124	0.113	0.118	0.067	0.364
	Left	0.096	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.374	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.751	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.140	1.129	1.253	1.134	1.083	1.201	1.498	1.447	1.565	1.380
	Left	0.496	0.278	0.678	0.496	0.267	0.667	0.896	0.667	1.067	0.496
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.604	0.774	1.004	1.044	0.374	1.044	1.516	0.846	1.516	0.846
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.859	0.755	0.863	0.846	0.792	0.887	1.184	1.130	1.225	1.089

LTE Band 2 / Sensor On							
Body	Rear	0.863	0.445	0.149	0.652	0.457	0.364
	Left	0.096	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.374	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.596	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.308	1.012	1.457	1.515	1.320	1.972	1.879	1.684	2.336	1.227
	Left	0.496	0.288	0.688	0.496	0.642	1.042	0.896	1.042	1.442	0.496
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.528	0.774	0.928	1.111	0.374	1.111	1.583	0.846	1.583	0.846
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.777	0.625	0.806	0.887	0.752	1.043	1.225	1.090	1.381	0.934

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
LTE Band 5 / Sensor Off							
Body	Rear	0.509	0.124	0.113	0.118	0.067	0.364
	Left	0.139	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.165	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.396	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.633	0.622	0.746	0.627	0.576	0.694	0.991	0.940	1.058	0.873
	Left	0.539	0.321	0.721	0.539	0.310	0.710	0.939	0.710	1.110	0.539
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.395	0.565	0.795	0.835	0.165	0.835	1.307	0.637	1.307	0.637
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.504	0.400	0.508	0.491	0.437	0.532	0.829	0.775	0.870	0.734

LTE Band 5 / Sensor On							
Body	Rear	0.422	0.445	0.149	0.652	0.457	0.364
	Left	0.139	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.165	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.453	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.867	0.571	1.016	1.074	0.879	1.531	1.438	1.243	1.895	0.786
	Left	0.539	0.331	0.731	0.539	0.685	1.085	0.939	1.085	1.485	0.539
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.319	0.565	0.719	0.902	0.165	0.902	1.374	0.637	1.374	0.637
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.634	0.482	0.663	0.744	0.609	0.900	1.082	0.947	1.238	0.791

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
LTE Band 12 / Sensor Off							
Body	Rear	0.304	0.124	0.113	0.118	0.067	0.364
	Left	0.159	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.147	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.140	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.428	0.417	0.541	0.422	0.371	0.489	0.786	0.735	0.853	0.668
	Left	0.559	0.341	0.741	0.559	0.330	0.730	0.959	0.730	1.130	0.559
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.377	0.547	0.777	0.817	0.147	0.817	1.289	0.619	1.289	0.619
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.248	0.144	0.252	0.235	0.181	0.276	0.573	0.519	0.614	0.478

LTE Band 12 / Sensor On							
Body	Rear	0.616	0.445	0.149	0.652	0.457	0.364
	Left	0.159	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.147	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.764	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.061	0.765	1.210	1.268	1.073	1.725	1.632	1.437	2.089	0.980
	Left	0.559	0.351	0.751	0.559	0.705	1.105	0.959	1.105	1.505	0.559
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.301	0.547	0.701	0.884	0.147	0.884	1.356	0.619	1.356	0.619
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.945	0.793	0.974	1.055	0.920	1.211	1.393	1.258	1.549	1.102

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
LTE Band 41 / Sensor Off							
Body	Rear	0.197	0.124	0.113	0.118	0.067	0.364
	Left	0.130	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.186	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.219	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.321	0.310	0.434	0.315	0.264	0.382	0.679	0.628	0.746	0.561
	Left	0.530	0.312	0.712	0.530	0.301	0.701	0.930	0.701	1.101	0.530
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.416	0.586	0.816	0.856	0.186	0.856	1.328	0.658	1.328	0.658
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.327	0.223	0.331	0.314	0.260	0.355	0.652	0.598	0.693	0.557

LTE Band 41 / Sensor On							
Body	Rear	0.835	0.445	0.149	0.652	0.457	0.364
	Left	0.130	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.186	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.748	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.280	0.984	1.429	1.487	1.292	1.944	1.851	1.656	2.308	1.199
	Left	0.530	0.322	0.722	0.530	0.676	1.076	0.930	1.076	1.476	0.530
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.340	0.586	0.740	0.923	0.186	0.923	1.395	0.658	1.395	0.658
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.929	0.777	0.958	1.039	0.904	1.195	1.377	1.242	1.533	1.086

Exposure Condition /Position		licensed	WLAN				Bluetooth
			2.4 GHz Ant.1	2.4 GHz Ant.2	5 GHz Ant.1	5 GHz Ant.2	
		[①]	[②]	[③]	[④]	[⑤]	[⑥]
LTE Band 66 / Sensor Off							
Body	Rear	0.770	0.124	0.113	0.118	0.067	0.364
	Left	0.145	0.400	0.182	0.400	0.171	0.400
	Left Corner	0.400	0.400	0.041	0.400	0.013	0.400
	Right	0.314	0.230	0.400	0.670	0.000	0.472
	Right Corner	0.400	0.130	0.400	0.304	0.400	0.252
	Top	0.525	0.108	0.004	0.095	0.041	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	0.894	0.883	1.007	0.888	0.837	0.955	1.252	1.201	1.319	1.134
	Left	0.545	0.327	0.727	0.545	0.316	0.716	0.945	0.716	1.116	0.545
	Left Corner	0.800	0.441	0.841	0.800	0.413	0.813	1.200	0.813	1.213	0.800
	Right	0.544	0.714	0.944	0.984	0.314	0.984	1.456	0.786	1.456	0.786
	Right Corner	0.530	0.800	0.930	0.704	0.800	1.104	0.956	1.052	1.356	0.652
	Top	0.633	0.529	0.637	0.620	0.566	0.661	0.958	0.904	0.999	0.863

LTE Band 66 / Sensor On							
Body	Rear	0.738	0.445	0.149	0.652	0.457	0.364
	Left	0.145	0.400	0.192	0.400	0.546	0.400
	Left Corner	0.400	0.400	0.042	0.400	0.204	0.400
	Right	0.314	0.154	0.400	0.737	0.000	0.472
	Right Corner	0.400	0.098	0.400	0.524	0.400	0.252
	Top	0.503	0.181	0.029	0.291	0.156	0.338

Summation

Scenario		1	2	3	4	5	6	7	8	9	10
		[①]+[②]	[①]+[③]	[①]+[②]+[③]	[①]+[④]	[①]+[⑤]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Body	Rear	1.183	0.887	1.332	1.390	1.195	1.847	1.754	1.559	2.211	1.102
	Left	0.545	0.337	0.737	0.545	0.691	1.091	0.945	1.091	1.491	0.545
	Left Corner	0.800	0.442	0.842	0.800	0.604	1.004	1.200	1.004	1.404	0.800
	Right	0.468	0.714	0.868	1.051	0.314	1.051	1.523	0.786	1.523	0.786
	Right Corner	0.498	0.800	0.898	0.924	0.800	1.324	1.176	1.052	1.576	0.652
	Top	0.684	0.532	0.713	0.794	0.659	0.950	1.132	0.997	1.288	0.841

Simultaneous transmission SAR test exclusion considerations

- Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Per KDB Publication 447498 D01v06.
- When the sum of SAR1g of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR1g 1.6 W/kg), the SPLSR procedures is not required. When the sum of SAR1g is greater than the SAR limit (SAR1g 1.6 W/kg), SAR test exclusion is determined by the SPLSR.
- Yellow entries was verified in section 12.3 by the SPLSR & Volume Scan.

12.2.2 Hybrid SPLSR Procedure

Nov. 2019 TCB Workshop (SPLSR Hotspot Combination)

For devices whose simultaneous SAR is > 1.6 W/kg and who do not meet the SPLSR criteria, enlarged zoom scan/volume scan procedure is available.

This procedure can be quite time consuming, especially for devices where antennas are spatially separated.

Often needed only because one co-located antenna pair does not meet SPLSR.

Hybrid SPLSR and enlarged zoom scan/volume scan approach now being considered.

Can only be applied when simultaneous transmission SAR is > 1.6 W/kg, it does not meet SPLSR criteria, and antenna pair is co-located.

The Hybrid SPLSR was performed according to the following Test Procedure:

step1) Perform enlarged zoom scan/volume scan on the co-located antenna pair to determine 1g/10g aggregate SAR

Step2) Apply SPLSR procedure for the spatially separated antenna and aggregate SAR distribution of the co-located antenna pair

1. Standalone SAR Numbering

licensed	WLAN 2.4 ㎓ Ant.1	WLAN 2.4 ㎓ Ant.2	WLAN 5 ㎓ Ant.1	WLAN 5 ㎓ Ant.2	Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

2. Combination for Hybrid SPLSR

No	Sensor On/Off	Position	Combination	Scenario	Scaled 1g SAR	Coordinates		
						X	Y	Z
1	Sensor Off	Rear	④+⑥	WLAN 5 ㎓ Ant.1 + Bluetooth Ant 1	0.330	0.07200	-0.11600	-0.17800
2	Sensor On	Rear	④+⑥	WLAN 5 ㎓ Ant.1 + Bluetooth Ant 1	0.814	0.06400	-0.11200	-0.17800

WLAN 5 ㎓ Ant.1 Standalone Volume Scan Plot – Rear(Sensor Off)

Date: 2022-04-08

Test Laboratory: KCTL Inc.
File Name: **1. 5.8 GHz_802.11_WLAN1_Rear VS.da53:1**

DUT: SM-P619, Type: Tablet, Serial: R32T2001G2M

Communication System: UID 0, 5GWLAN (0); Frequency: 5755 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5755 MHz; σ = 5.097 S/m; ε_r = 35.904; ρ = 1000 kg/m^3
Phantom section: Flat Section

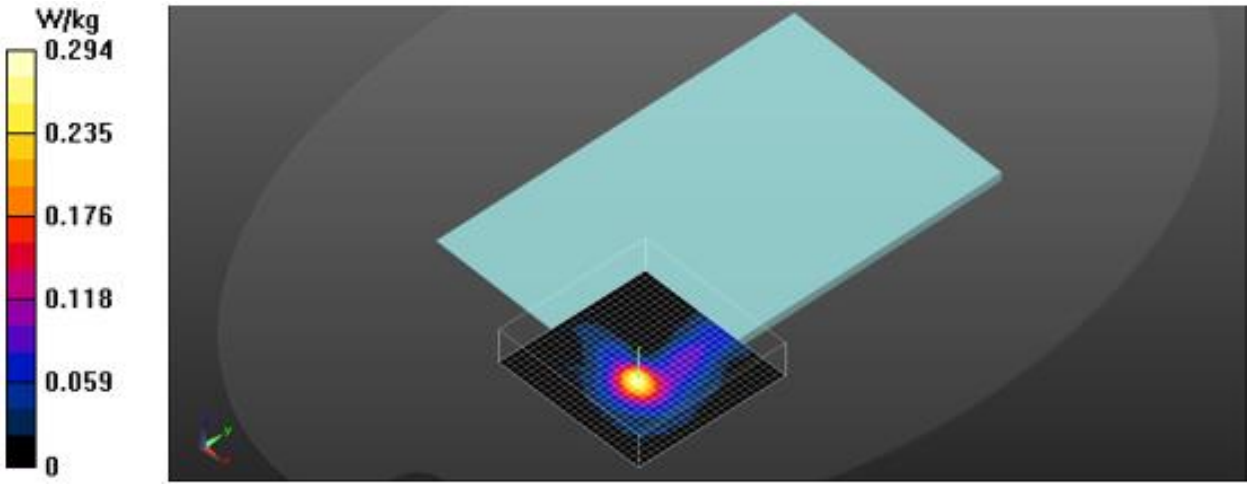
DASY5 Configuration:

- Probe: EX3DV4 - SN3865;ConvF(5.03, 5.03, 5.03) @ 5755 MHz; Calibrated: 2022-01-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn666; Calibrated: 2022-01-26
- Phantom: ELI V5.0 -2; Type: QD OVA 002 BB; Serial: 1220
- Measurement SW: DASY52, Version 52.10 (4);

Configuration 2/802.11 n_HT40_WLAN1_CH151_Rear_12 mm Sensor Off 2/Volume Scan (27x26x7):
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.792 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.745 W/kg
SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.011 W/kg
Total Absorbed Power = 0.000157 W

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.294 W/kg



WLAN 5 ㎓ Ant.1 Standalone Volume Scan Plot – Rear(Sensor On)

Date: 2022-04-01

Test Laboratory: KCTL Inc.
File Name: **3. 5.6 GHz_802.11_WLAN1_Rear VS.da53:1**

DUT: SM-P619, Type: Tablet, Serial: R32T2001G2M

Communication System: UID 0, 5GWLAN (0); Frequency: 5610 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5610 MHz; σ = 5.206 S/m; ε_r = 34.69; ρ = 1000 kg/m^3
Phantom section: Flat Section

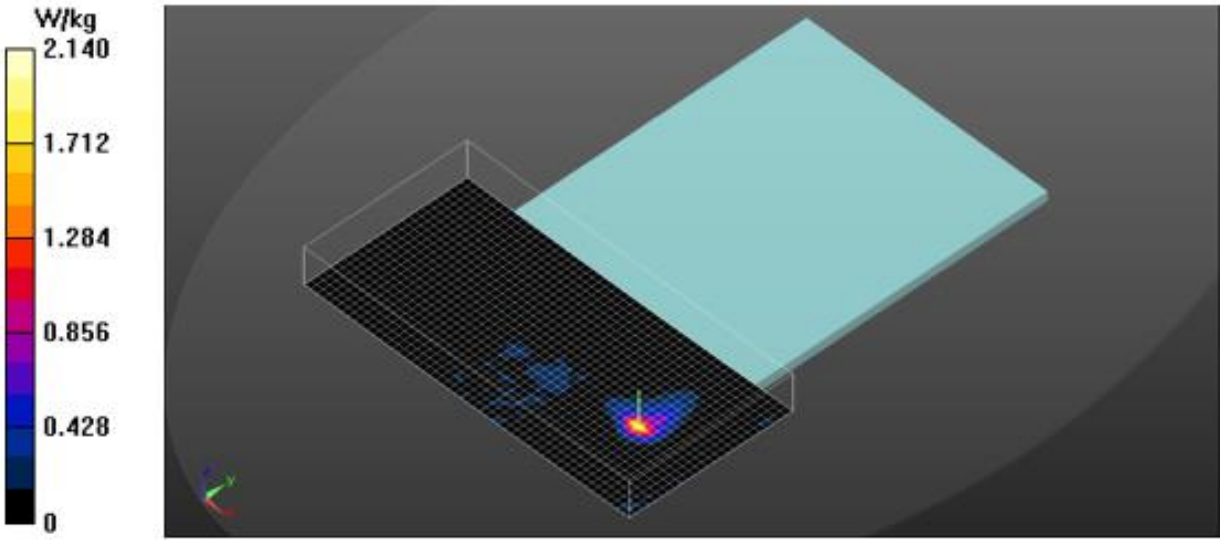
DASY5 Configuration:

- Probe: EX3DV4 - SN3865;ConvF(5.03, 5.03, 5.03) @ 5610 MHz; Calibrated: 2022-01-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn666; Calibrated: 2022-01-26
- Phantom: ELI V5.0 -2; Type: QD OVA 002 BB; Serial: 1220
- Measurement SW: DASY52, Version 52.10 (4);

Configuration 2/802.11 ac_VHT80_WLAN1_CH122_Rear_0 mm Sensor On HW2.0_VS/Volume Scan (53x26x7):
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.744 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 5.07 W/kg
SAR(1 g) = 0.511 W/kg; SAR(10 g) = 0.113 W/kg
Total Absorbed Power = 0.00128 W

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 2.14 W/kg



Bluetooth Standalone Volume Scan Plot – Rear

Date: 2022-04-04

Test Laboratory: KCTL Inc.
File Name: 1. Bluetooth_BDR_DH5_WIFI1_Body_Rear_VS.da53:0

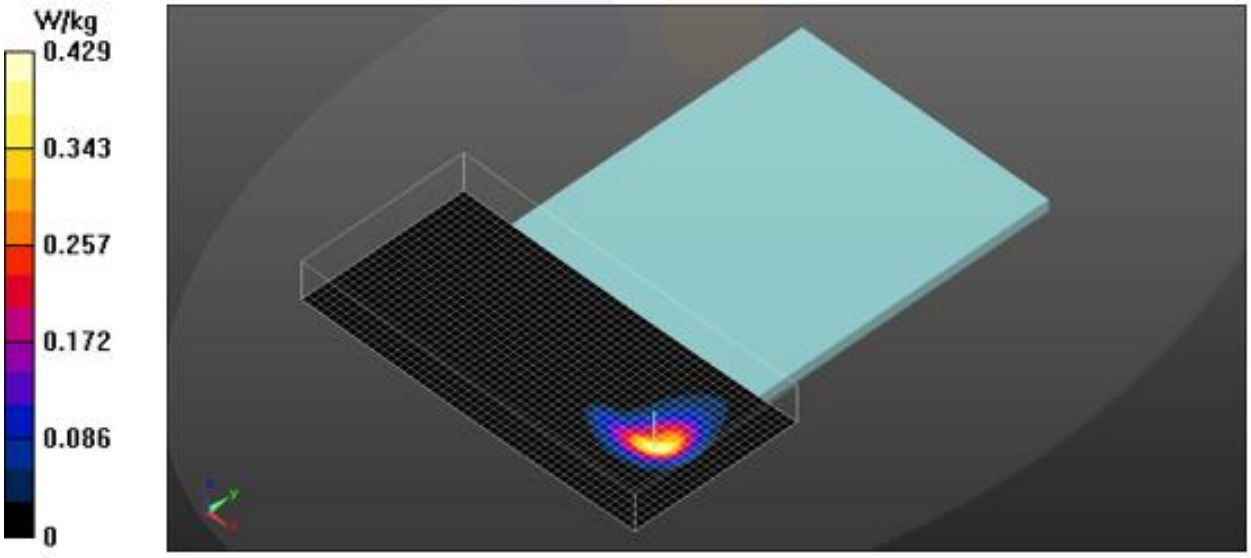
DUT: SM-P619, Type: Tablet, Serial: R32T3000LAR

Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz; Duty Cycle: 1:1.30167
Medium parameters used: f = 2480 MHz; σ = 1.782 S/m; ε_r = 38.415; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865;ConvF(7.82, 7.82, 7.82) @ 2480 MHz; Calibrated: 2022-01-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn666; Calibrated: 2022-01-26
- Phantom: ELI V5.0 -3; Type: QD OVA 002 AA; Serial: 1173
- Measurement SW: DASY52, Version 52.10 (4);

Configuration/Bluetooth_BDR_DH5_CH78_Rear_0 mm Sensor Off_VS/Volume Scan (53x26x7): Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.57 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.720 W/kg
SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.087 W/kg
Total Absorbed Power = 0.00247 W
Maximum value of SAR (measured) = 0.429 W/kg



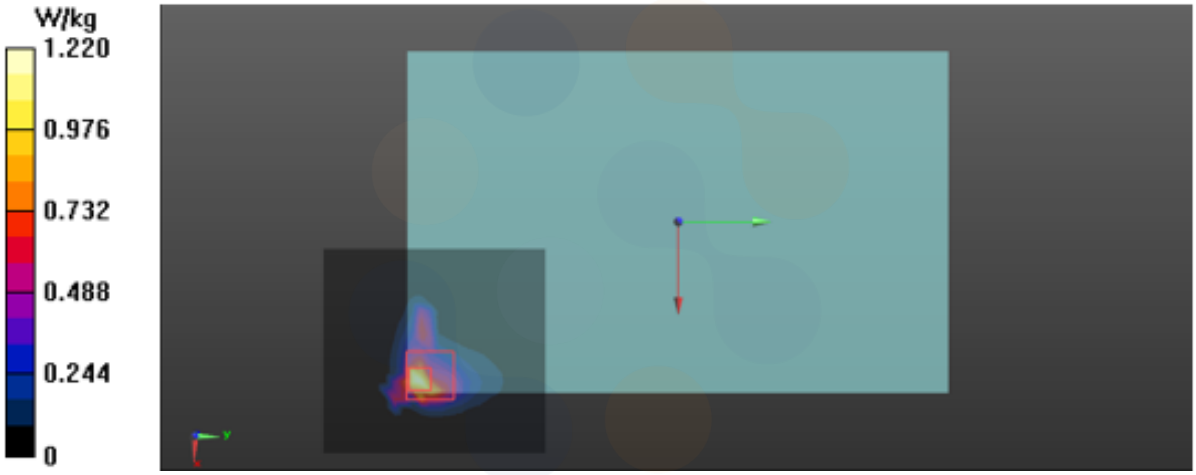
No.1 : Sensor Off Volume Scan Scenario : WLAN 5 GHz Ant.1 + Bluetooth Ant 1

Multi-Band Average SAR
Multi-Band Configurations:

DASY Configuration for Configuration/Bluetooth_BDR_DH5_CH78_Rear_0 mm Sensor Off_VS/Volume Scan:

DASY Configuration for Configuration 2/802.11 n_HT40_WLAN1_CH151_Rear_12 mm Sensor Off 2/Volume Scan:

Multi Band Result:
SAR(1 g) = 0.330 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (interpolated) = 1.22 W/kg



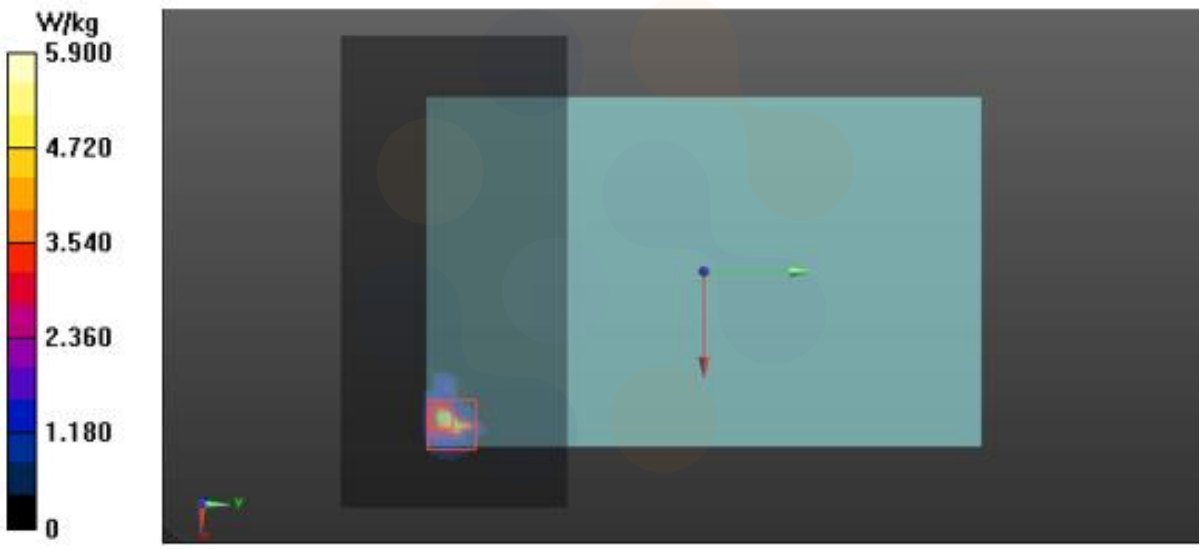
No.2 : Sensor On Volume Scan Scenario : WLAN 5 ㎓ Ant.1 + Bluetooth Ant 1

Multi-Band Average SAR
Multi-Band Configurations:

DASY Configuration for Configuration 2/802.11 ac_VHT80_WLAN1_CH122_Rear_0 mm Sensor On HW2.0_VS/Volume Scan:

DASY Configuration for Configuration/Bluetooth_BDR_DH5_CH78_Rear_0 mm Sensor Off_VS/Volume Scan:

Multi Band Result:
SAR(1 g) = 0.814 W/kg; SAR(10 g) = 0.248 W/kg
Maximum value of SAR (interpolated) = 5.90 W/kg



12.3 SPLSR(Hybrid) and Volume Scan Analysis

Summary Table

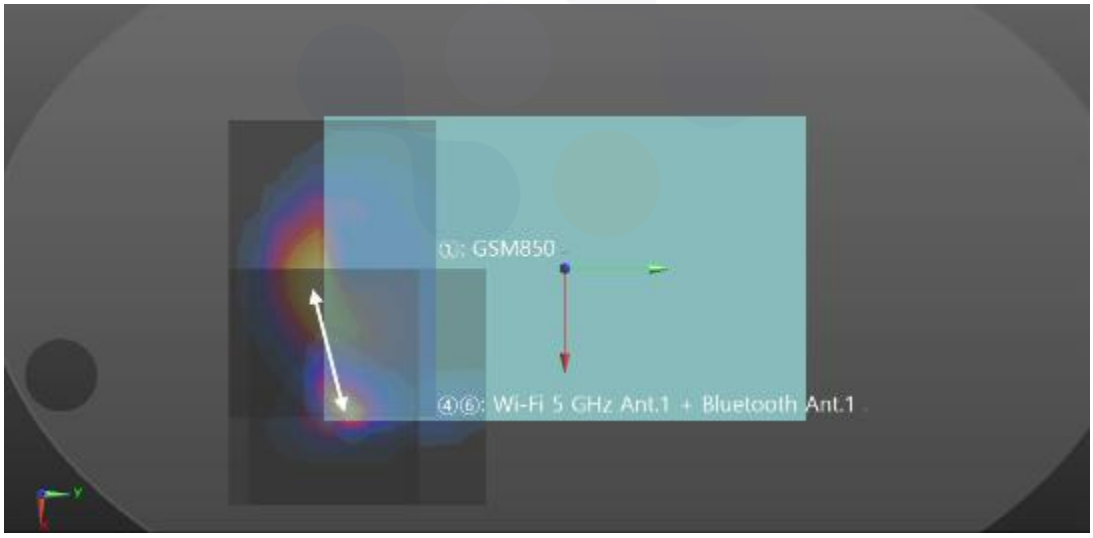
Band	Sensor (On / Off)	Simultaneous Scenario No	Highest SPLSR ≤ 0.04 Limit	Volume scan	
				Required (Yes / No)	Combined SAR Result (W/kg)
GSM 850	Off	7	0.03	No	N/A
		8	0.03	No	N/A
		9	0.03	No	N/A
		10	0.03	No	N/A
	On	9	0.01	No	N/A
GSM 1900	On	6	0.03	No	N/A
		7	0.03	No	N/A
		8	0.03	No	N/A
		9	0.03	No	N/A
WCDMA Band II	On	6	0.03	No	N/A
		7	0.03	No	N/A
		8	0.03	No	N/A
		9	0.03	No	N/A
WCDMA Band IV	On	4	0.03	No	N/A
		6	0.03	No	N/A
		7	0.03	No	N/A
		8	0.03	No	N/A
		9	0.03	No	N/A
WCDMA Band V	On	6	0.02	No	N/A
		7	0.02	No	N/A
		9	0.02	No	N/A
LTE Band 2	On	6	0.03	No	N/A
		7	0.03	No	N/A
		8	0.03	No	N/A
		9	0.03	No	N/A
LTE Band 5	On	9	0.02	No	N/A
LTE Band 12	On	6	0.02	No	N/A
		7	0.02	No	N/A
		9	0.02	No	N/A
LTE Band 41	On	6	0.04	No	N/A
		7	**0.06**	**Yes**	**1.02**
		8	0.03	No	N/A
		9	**0.06**	**Yes**	**1.02**
LTE Band 66	On	6	0.02	No	N/A
		7	0.02	No	N/A
		9	0.02	No	N/A

12.3.1 GSM 850 Sensor Off

licensed	WLAN 2.4 ㎓		WLAN 5 ㎓		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

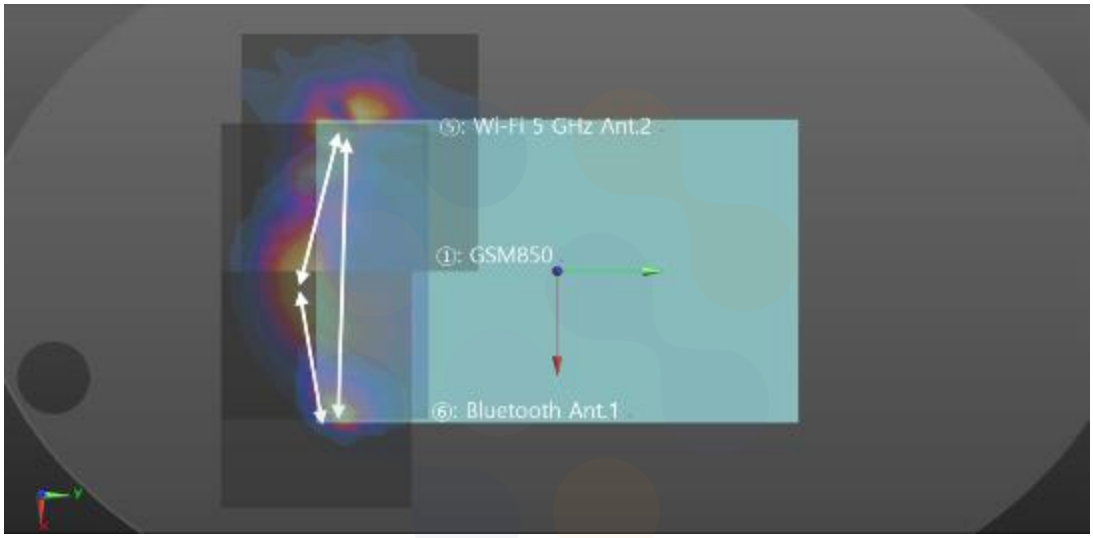
GSM850 SPLSR – Rear Position				
Scenario No.	No.7	No.8	No.9	No.10
Scenario	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]	[①]+[⑥]
Rear	1.738	1.687	1.805	1.620
Volume scan	Not Required	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.738	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
65.88	0.03	①	GSM850	1.256	0.00760	-0.12800	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.330	0.07200	-0.11600	-0.17800

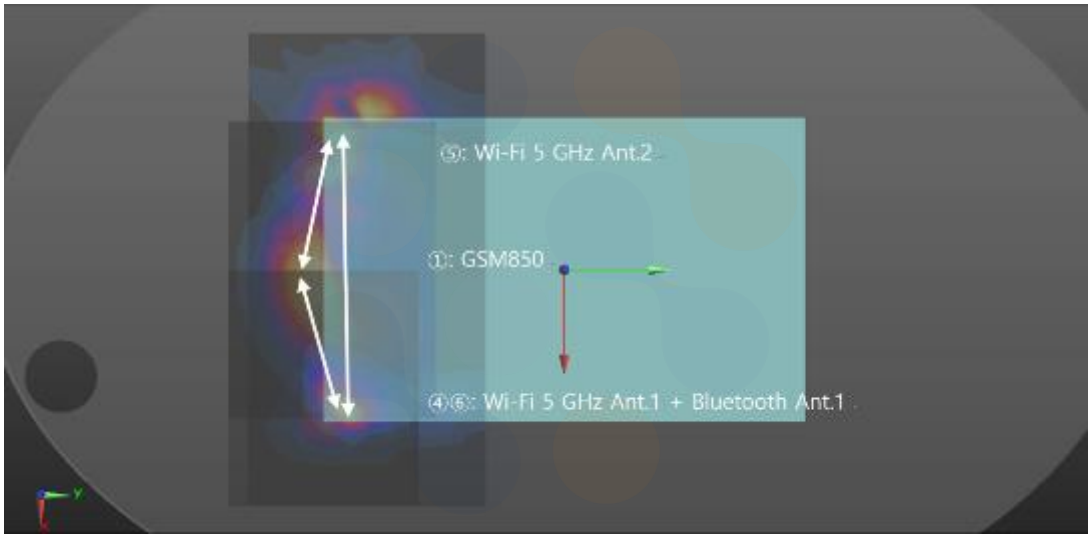


Scenario No.	Scenario	Position	SUM
8	[①]+[⑤]+[⑥]	Rear	1.687

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
92.41	0.02	①	GSM850	1.256	0.00760	-0.12800	-0.18500
		⑤	Wi-Fi 5 ㎓ Ant.2	0.067	-0.08000	-0.09900	-0.18000
64.17	0.03	①	GSM850	1.256	0.00760	-0.12800	-0.18500
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800
150.27	0.00	⑤	Wi-Fi 5 ㎓ Ant.2	0.067	-0.08000	-0.09900	-0.18000
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800

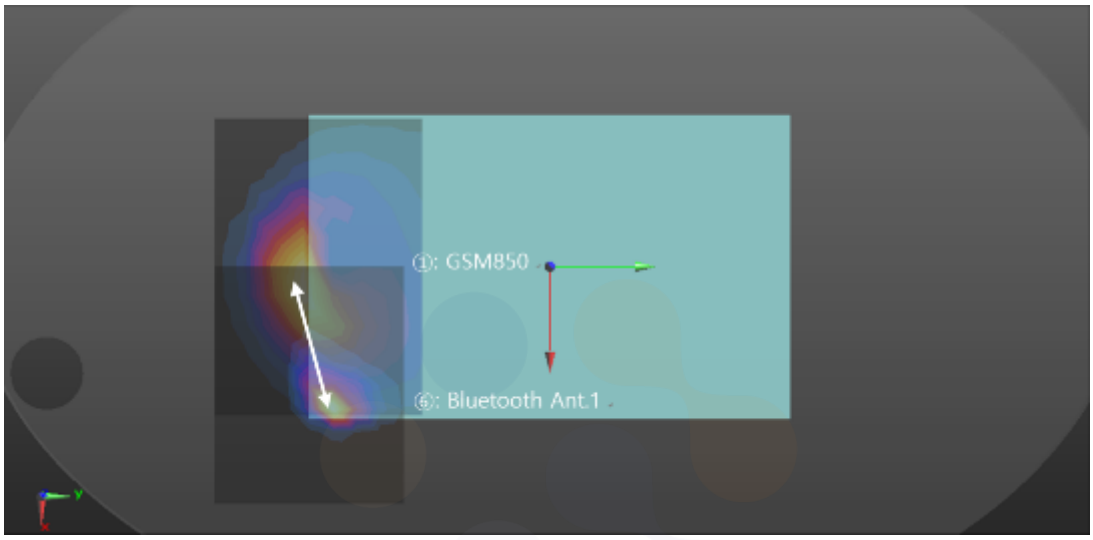


Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		1.805	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
65.88	0.03	①	GSM850	1.256	0.00760	-0.12800	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.330	0.07200	-0.11600	-0.17800
92.41	0.02	①	GSM850	1.256	0.00760	-0.12800	-0.18500
		⑤	Wi-Fi 5 ㎓ Ant.2	0.067	-0.08000	-0.09900	-0.18000
152.96	0.00	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.330	0.07200	-0.11600	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.067	-0.08000	-0.09900	-0.18000



Scenario No.	Scenario	Position	SUM
10	[①]+[⑥]	Rear	1.620

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
64.17	0.03	①	GSM850	1.256	0.00760	-0.12800	-0.18500
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800

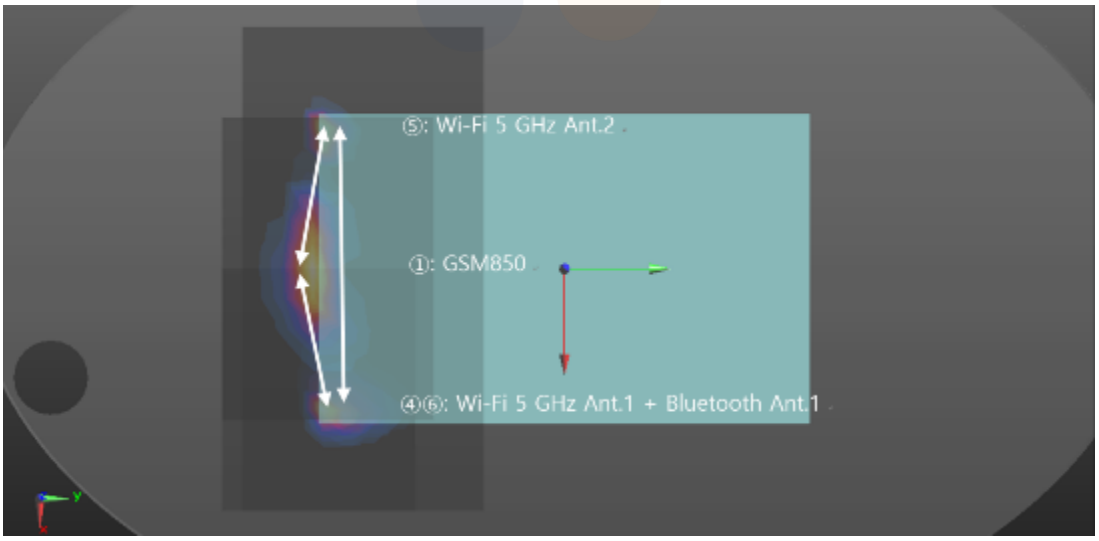


12.3.2 GSM 850 Sensor On

licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

GSM850 SPLSR – Rear Position	
Scenario No.	No.9
Scenario	[①]+[④]+[⑤]+[⑥]
Rear	1.779
Volume scan	Not Required

Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		1.779	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
80.62	0.01	①	GSM850	0.306	-0.01600	-0.12000	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 GHz Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
50.45	0.01	①	GSM850	0.306	-0.01600	-0.12000	-0.18400
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 GHz Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

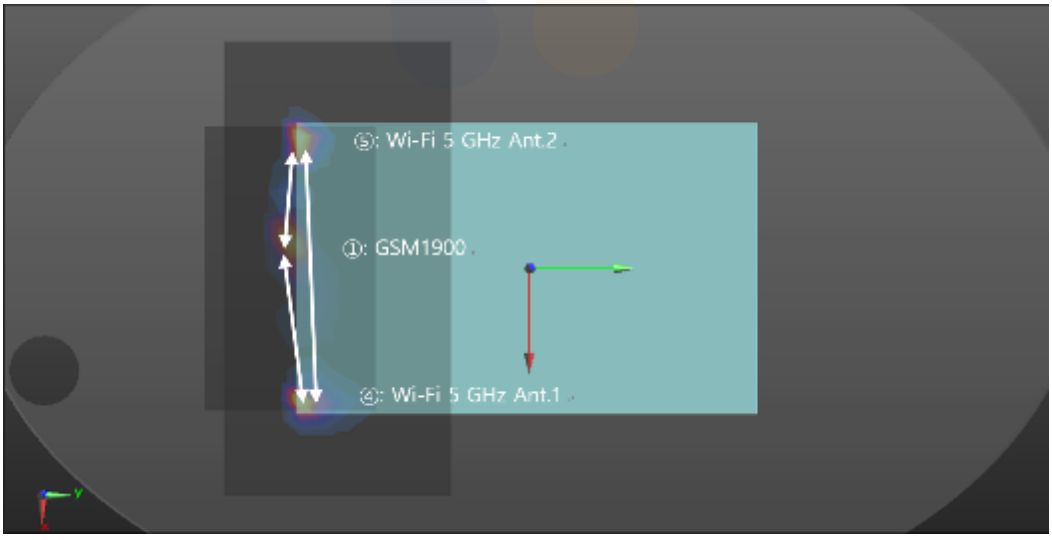


12.3.3 GSM 1900 Sensor On

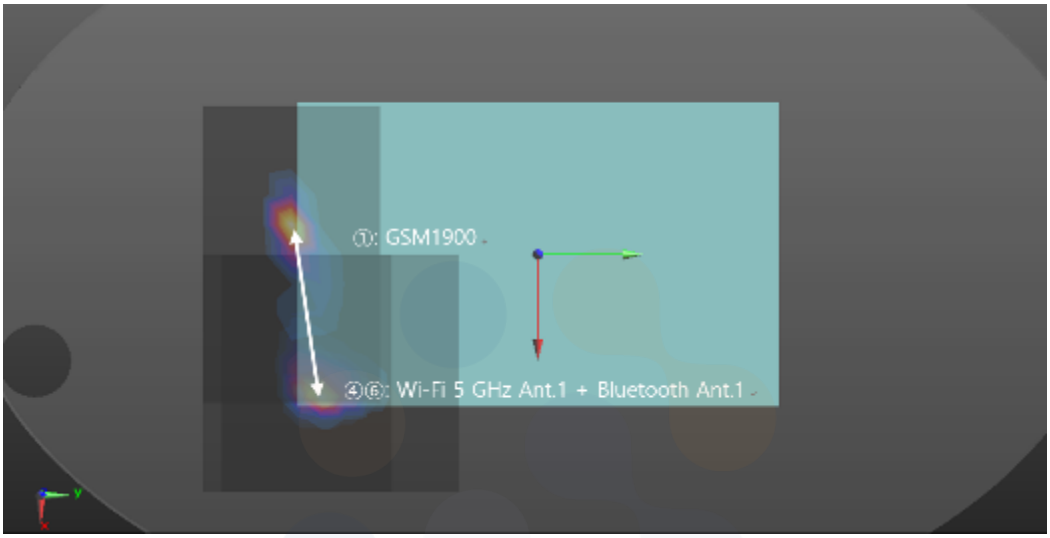
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

GSM1900 SPLSR – Rear Position				
Scenario No.	No.6	No.7	No.8	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.898	1.805	1.610	2.262
Volume scan	Not Required	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.898	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
84.84	0.02	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
52.65	0.03	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

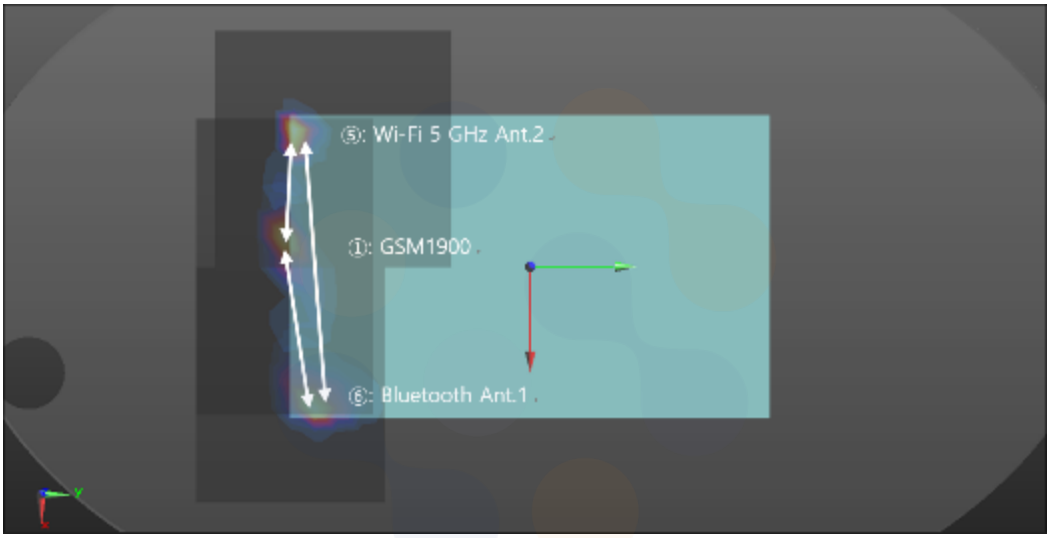


Scenario No.		Scenario		Position		SUM		
7		[①]+[④]+[⑥]		Rear		1.805		
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**			
					X	**Y**	**Z**
78.55	0.03	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800



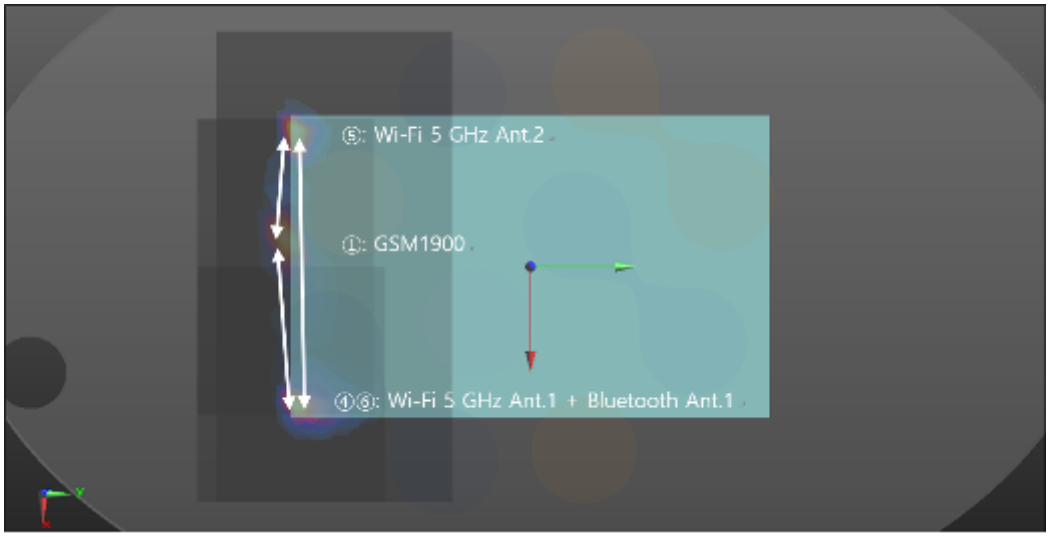
Scenario No.	Scenario	Position	SUM
8	[①]+[⑤]+[⑥]	Rear	1.610

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
52.65	0.03	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
84.00	0.01	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800
135.98	0.01	⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800



Scenario No.	Scenario	Position	SUM
9	[①]+[④]+[⑤]+[⑥]	Rear	2.262

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
78.55	0.03	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
52.65	0.03	①	GSM1900	0.789	-0.01380	-0.12100	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

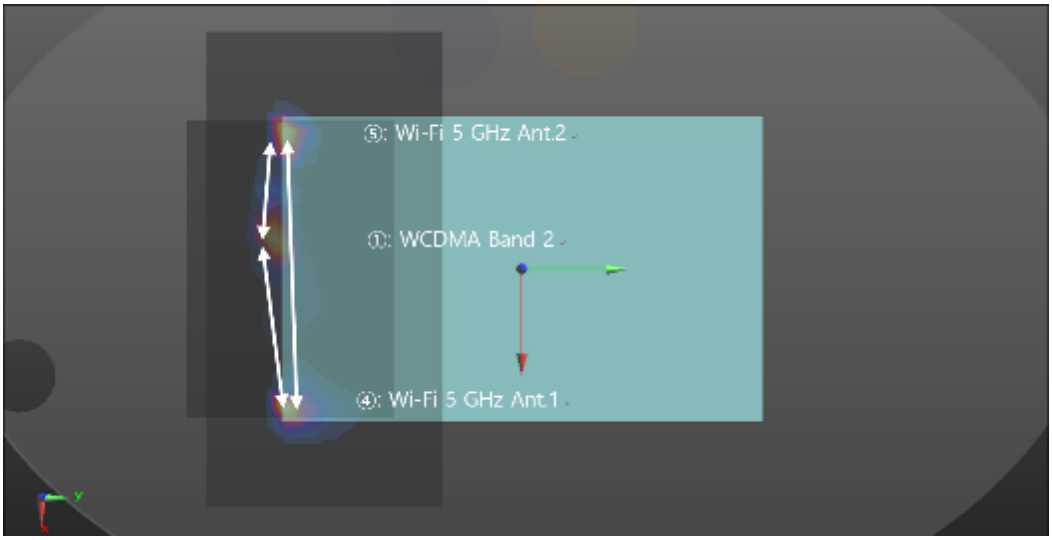


12.3.4 WCDMA Band II Sensor On

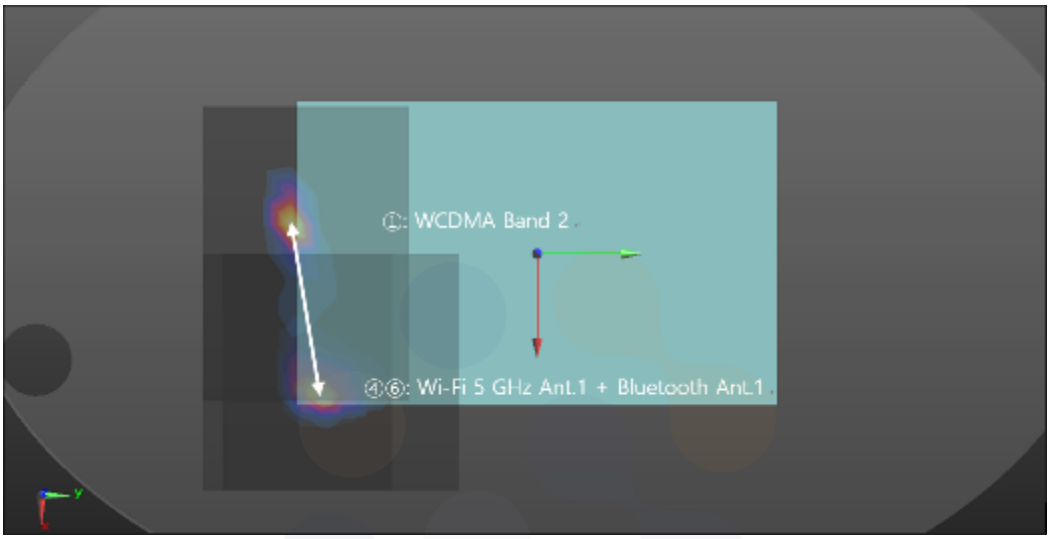
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

WCDMA Band II SPLSR – Rear Position				
Scenario No.	No.6	No.7	No.8	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.997	1.904	1.709	2.361
Volume scan	Not Required	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.997	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
86.59	0.02	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
52.02	0.03	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

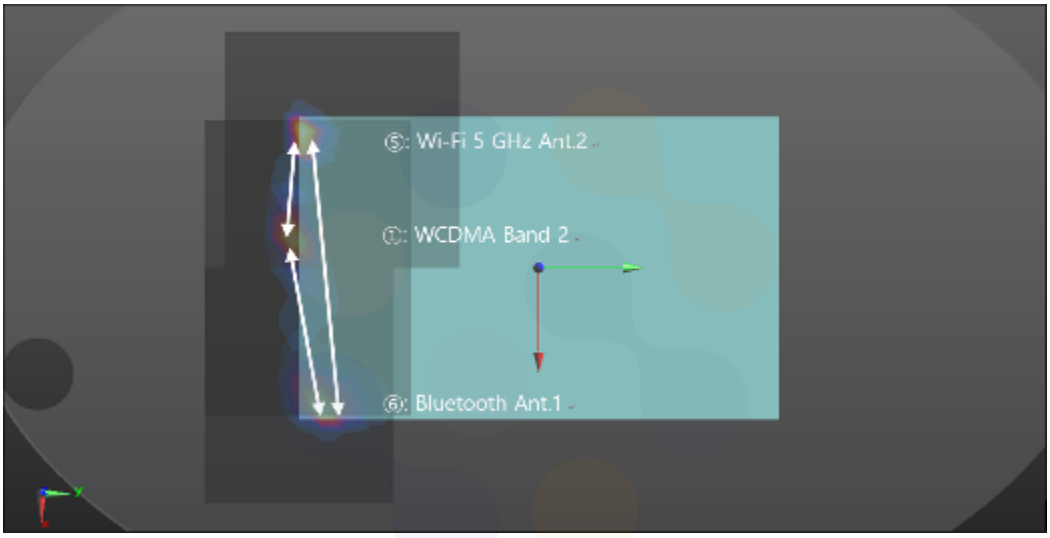


Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.904	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
80.72	0.03	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800

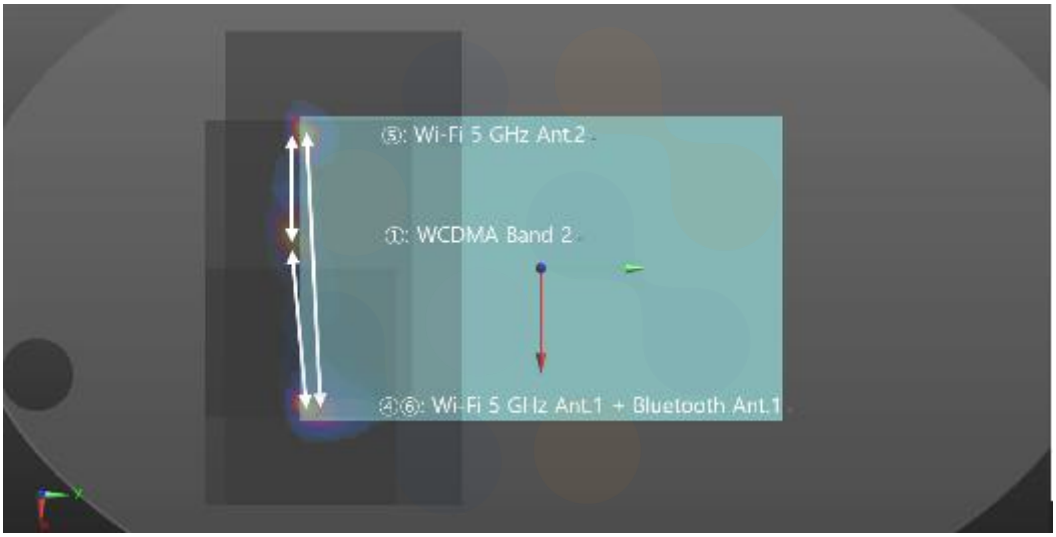


Scenario No.	Scenario	Position	SUM
8	[①]+[⑤]+[⑥]	Rear	1.709

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
52.02	0.03	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
86.04	0.02	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800
135.98	0.01	⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800



Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		2.361	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
80.72	0.03	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
52.02	0.03	①	WCDMA Band II	0.888	-0.01500	-0.12700	-0.18500
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

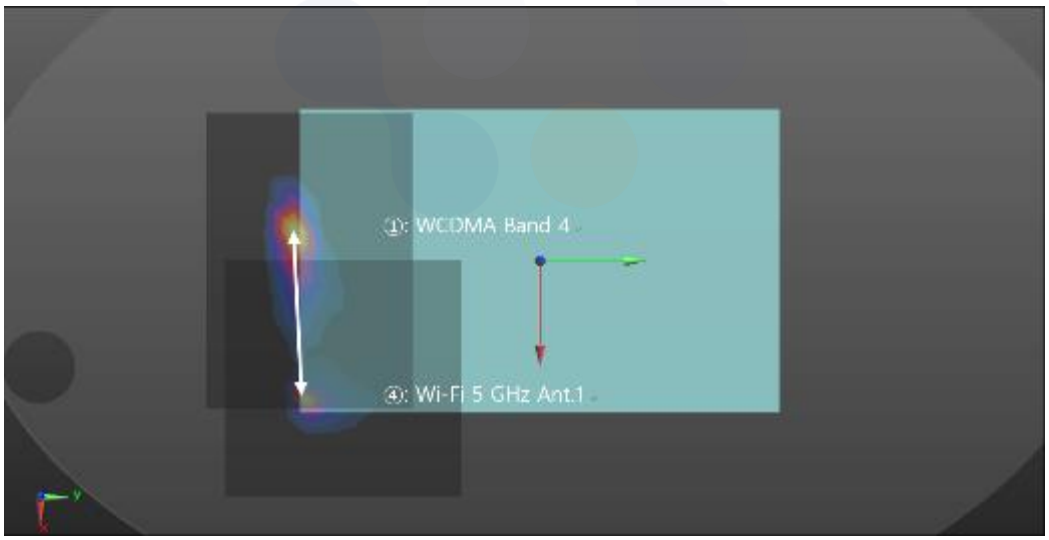


12.3.5 WCDMA Band IV Sensor On

licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

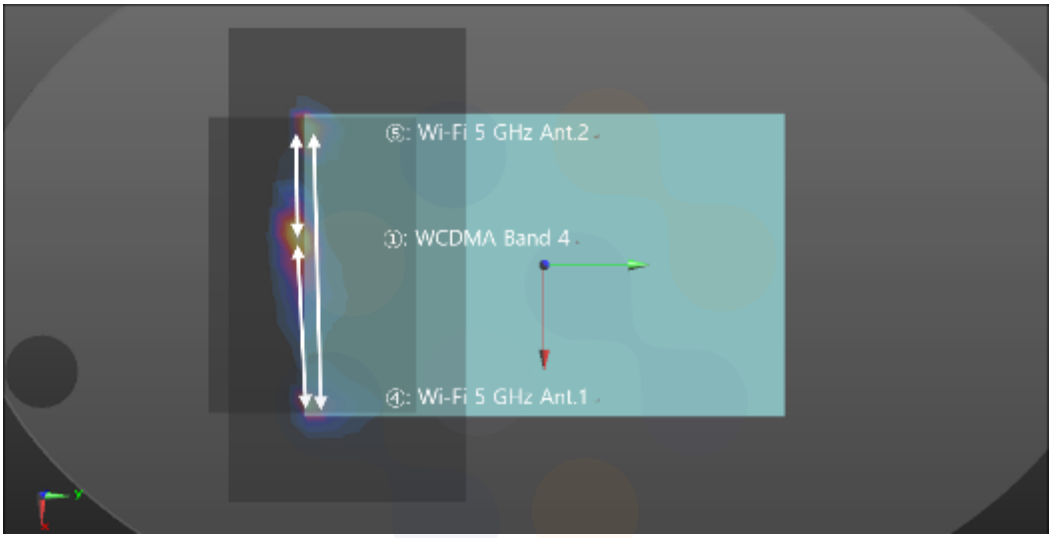
WCDMA Band IV SPLSR – Rear Position					
Scenario No,	No.4	No.6	No.7	No.8	No.9
Scenario	[①]+[④]	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.645	2.102	2.009	1.814	2.466
Volume scan	Not Required	Not Required	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
4		[①]+[④]		Rear		1.645	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
83.55	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900

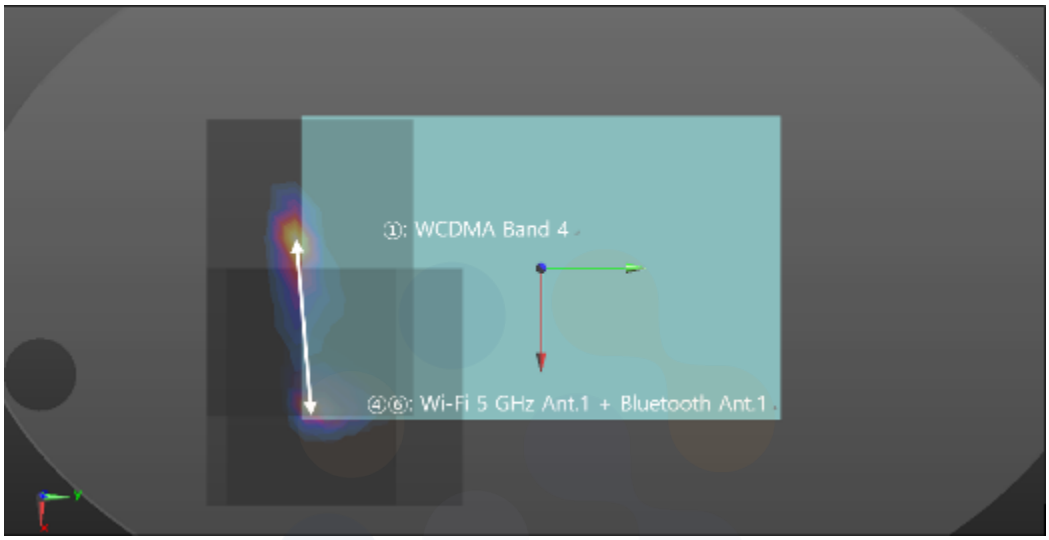


Scenario No.	Scenario	Position	SUM
6	[①]+[④]+[⑤]	Rear	2.102

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
83.55	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
54.88	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

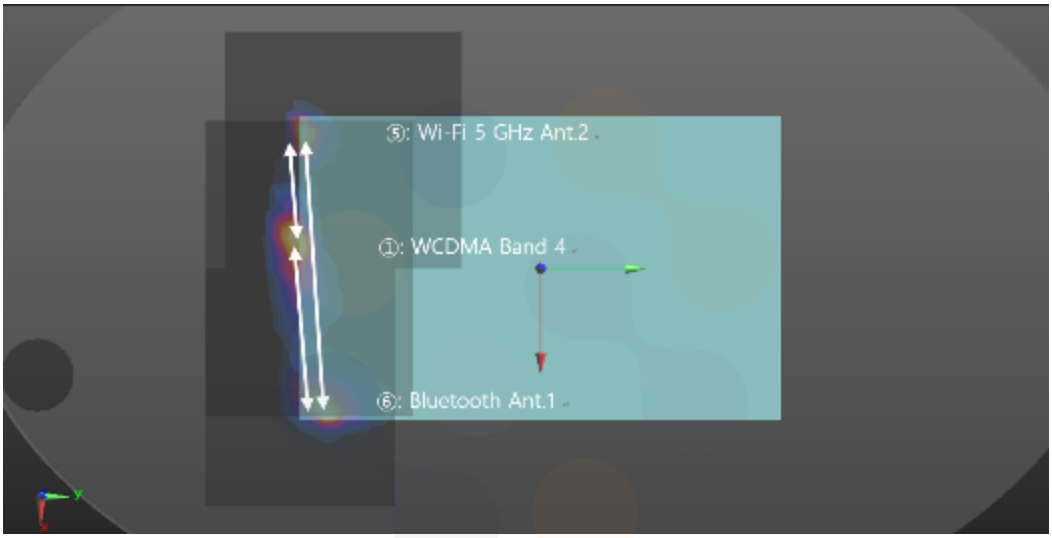


Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		2.009	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
77.70	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800



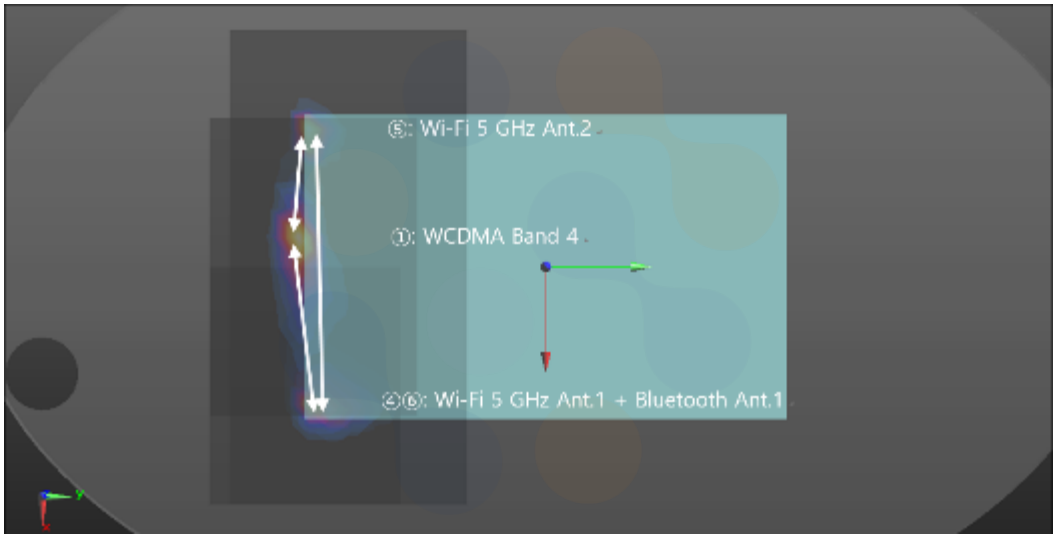
Scenario No.	Scenario	Position	SUM
8	[①]+[⑤]+[⑥]	Rear	1.814

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
54.88	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
83.01	0.02	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800
135.98	0.01	⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800



Scenario No.	Scenario	Position	SUM
9	[①]+[④]+[⑤]+[⑥]	Rear	2.466

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
77.70	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
54.88	0.03	①	WCDMA Band IV	0.993	-0.01200	-0.12700	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

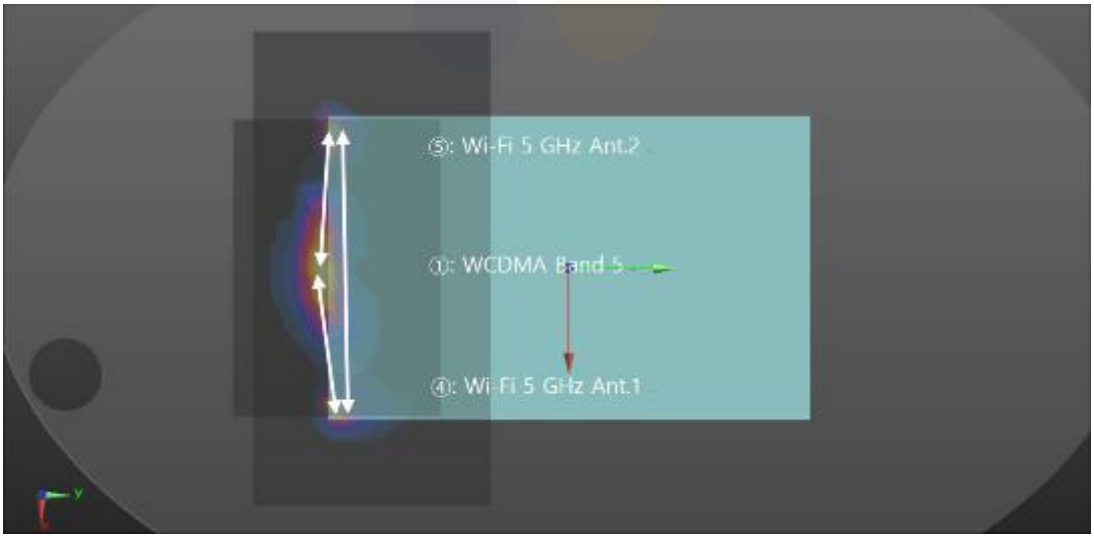


12.3.6 WCDMA Band V Sensor On

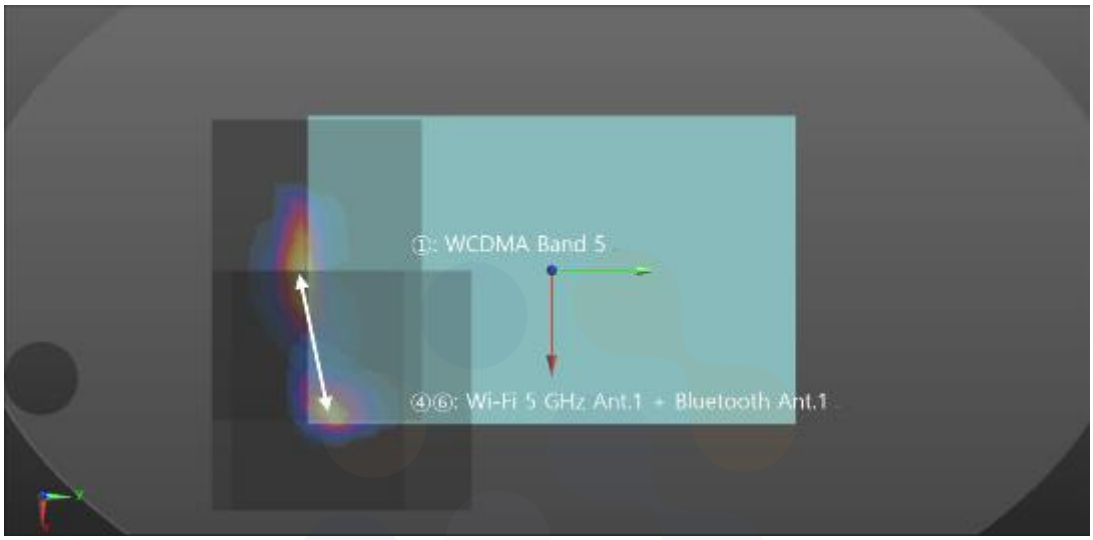
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

WCDMA Band V SPLSR – Rear Position			
Scenario No,	No.6	No.7	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.765	1.672	2.129
Volume scan	Not Required	Not Required	Not Required

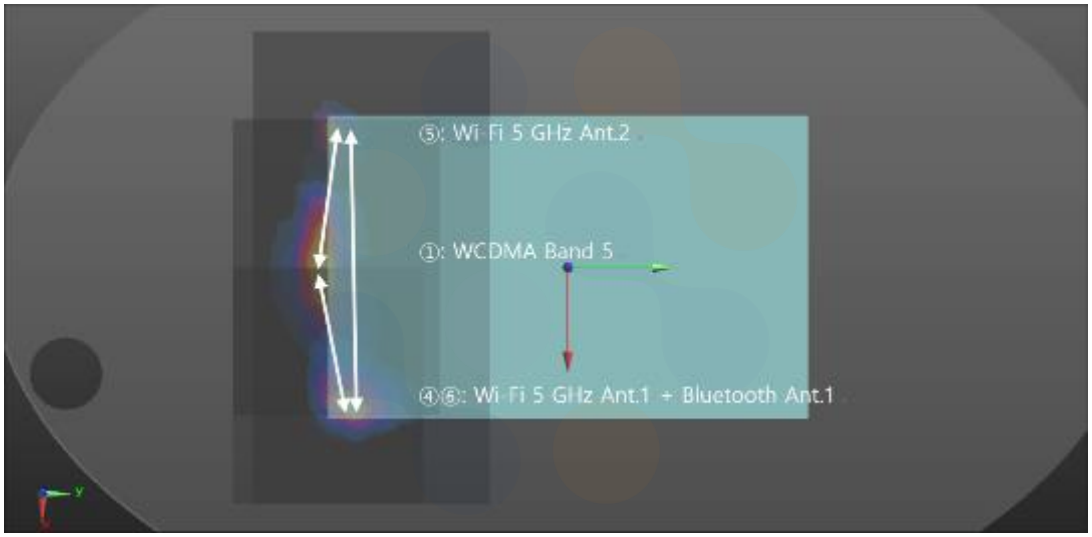
Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.765	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
87.00	0.02	①	WCDMA Band V	0.656	-0.01600	-0.12000	-0.18400
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
50.45	0.02	①	WCDMA Band V	0.656	-0.01600	-0.12000	-0.18400
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900



Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.672	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
80.62	0.02	①	WCDMA Band V	0.656	-0.01600	-0.12000	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800



Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		2.129	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
80.62	0.02	①	WCDMA Band V	0.656	-0.01600	-0.12000	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
50.45	0.02	①	WCDMA Band V	0.656	-0.01600	-0.12000	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

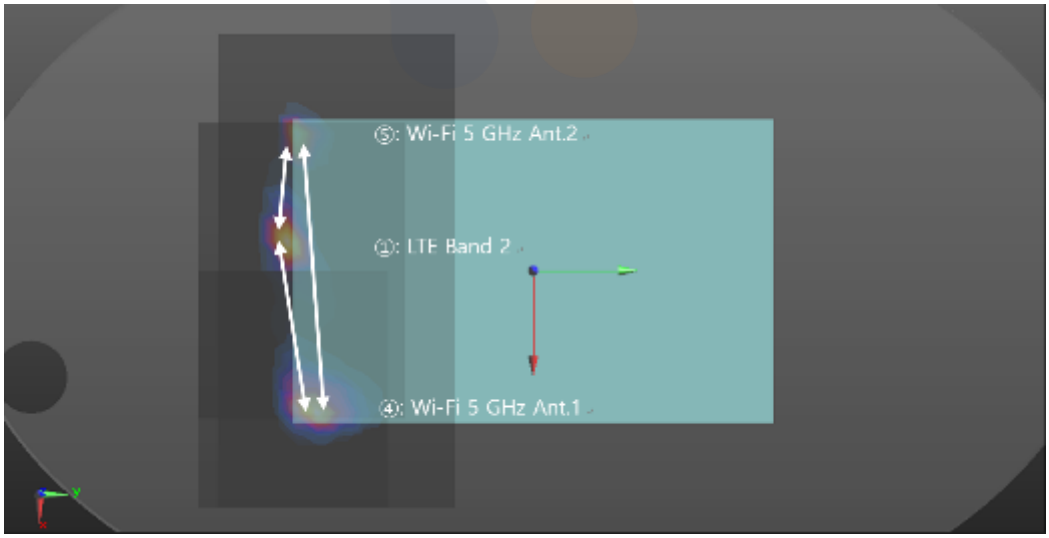


12.3.7 LTE Band 2 Sensor On

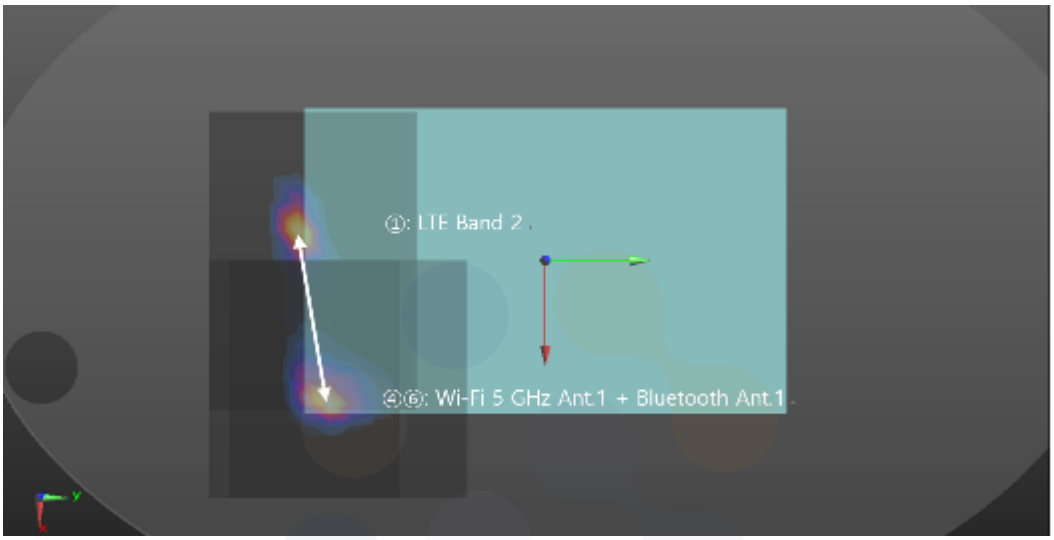
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

LTE Band 2 SPLSR – Rear Position				
Scenario No.	No.6	No.7	No.8	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.972	1.879	1.684	2.336
Volume scan	Not Required	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.972	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
84.83	0.02	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
53.17	0.03	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

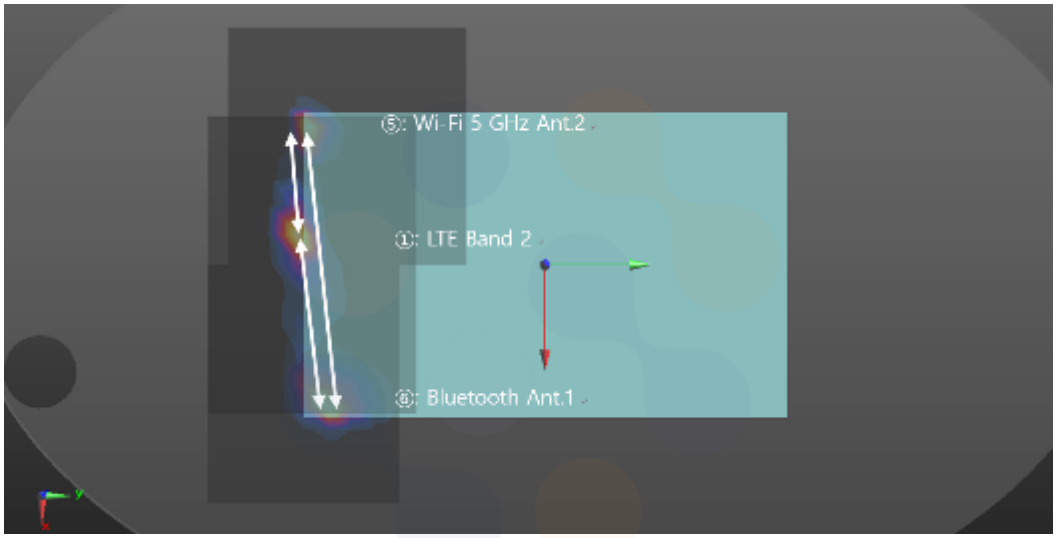


Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.879	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
78.81	0.03	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 GHz Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800

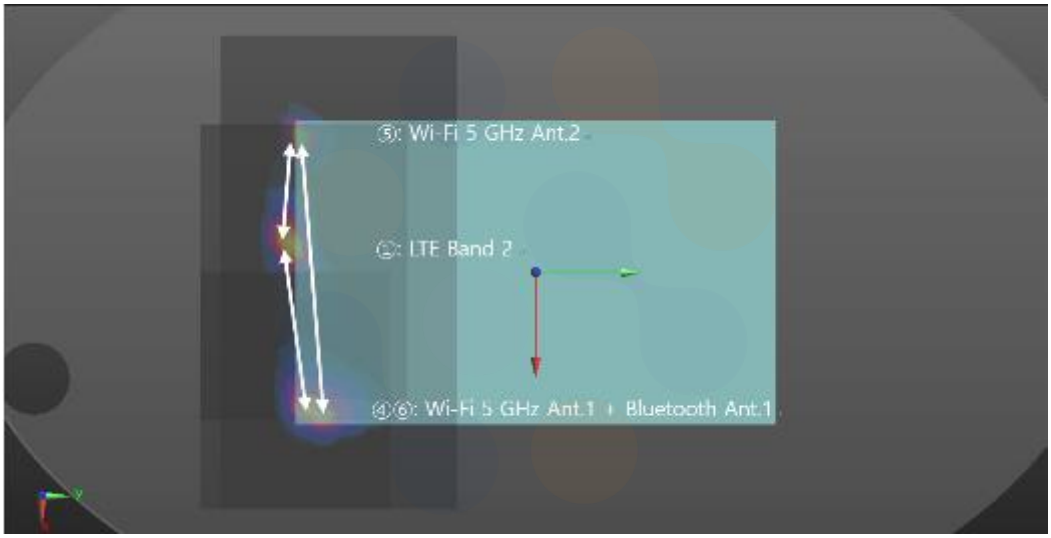


Scenario No.	Scenario	Position	SUM
8	[①]+[⑤]+[⑥]	Rear	1.684

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
53.17	0.03	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
84.18	0.02	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800
135.98	0.01	⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800



Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		2.336	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
78.81	0.03	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
53.17	0.03	①	LTE Band 2	0.863	-0.01350	-0.12500	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

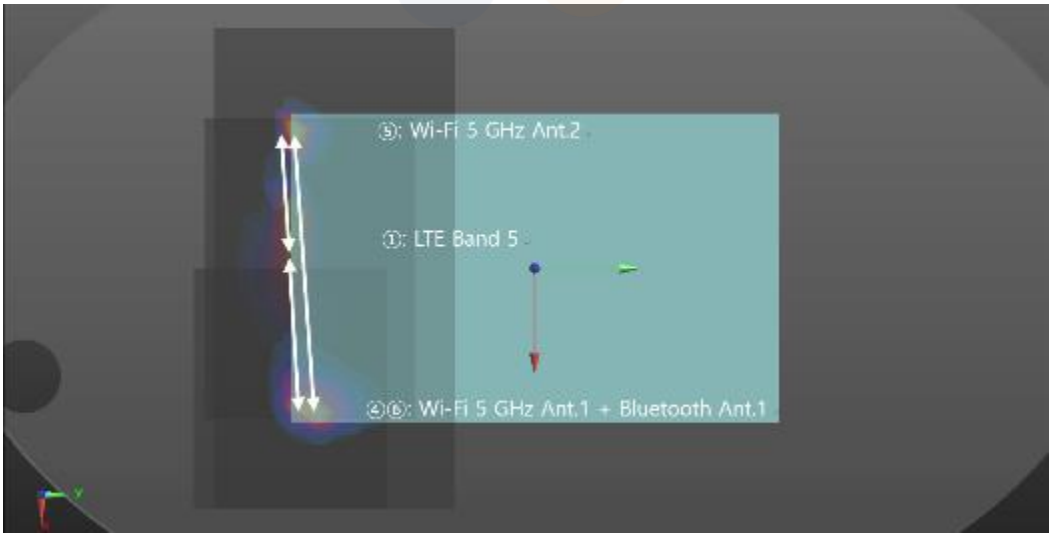


12.3.8 LTE Band 5 Sensor On

licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

LTE Band 5 SPLSR – Rear Position	
Scenario No.	No.9
Scenario	[①]+[④]+[⑤]+[⑥]
Rear	1.895
Volume scan	Not Required

Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		1.895	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
88.74	0.02	①	LTE Band 5	0.422	-0.02390	-0.12200	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 GHz Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
42.77	0.02	①	LTE Band 5	0.422	-0.02390	-0.12200	-0.18500
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 GHz Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

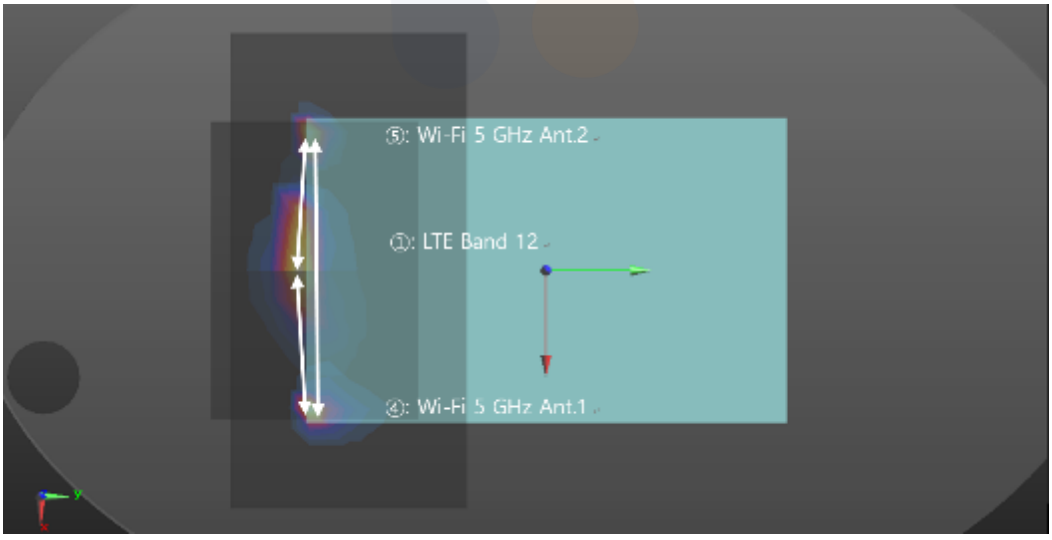


12.3.9 LTE Band 12 Sensor On

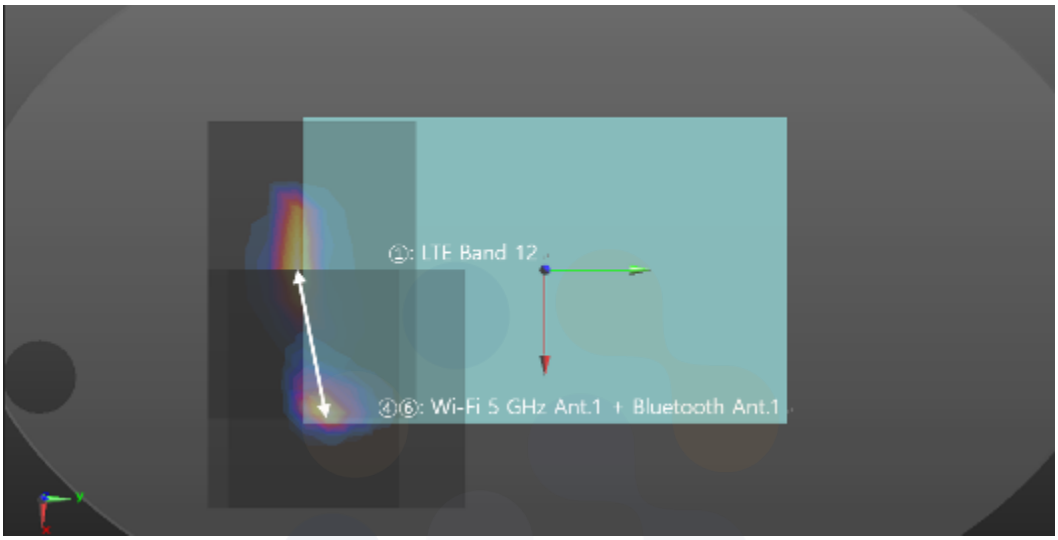
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

LTE Band 12 SPLSR – Rear Position			
Scenario No.	No.6	No.7	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.725	1.632	2.089
Volume scan	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.725	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
80.68	0.02	①	LTE Band 12	0.616	-0.00950	-0.12300	-0.18400
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
57.00	0.02	①	LTE Band 12	0.616	-0.00950	-0.12300	-0.18400
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

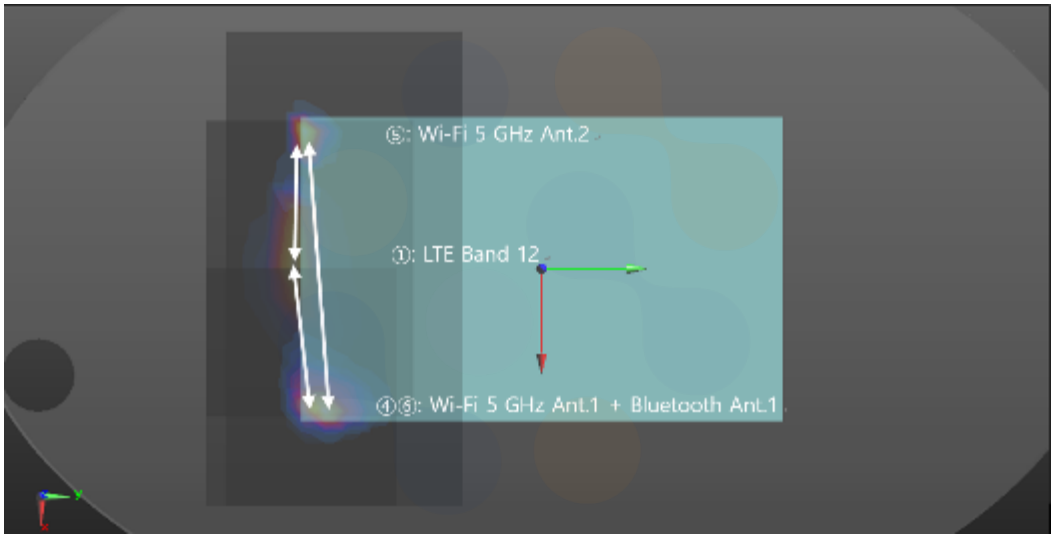


Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.632	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
74.56	0.02	①	LTE Band 12	0.616	-0.00950	-0.12300	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800



Scenario No.	Scenario	Position	SUM
9	[①]+[④]+[⑤]+[⑥]	Rear	2.089

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
74.56	0.02	①	LTE Band 12	0.616	-0.00950	-0.12300	-0.18400
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
57.00	0.02	①	LTE Band 12	0.616	-0.00950	-0.12300	-0.18400
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

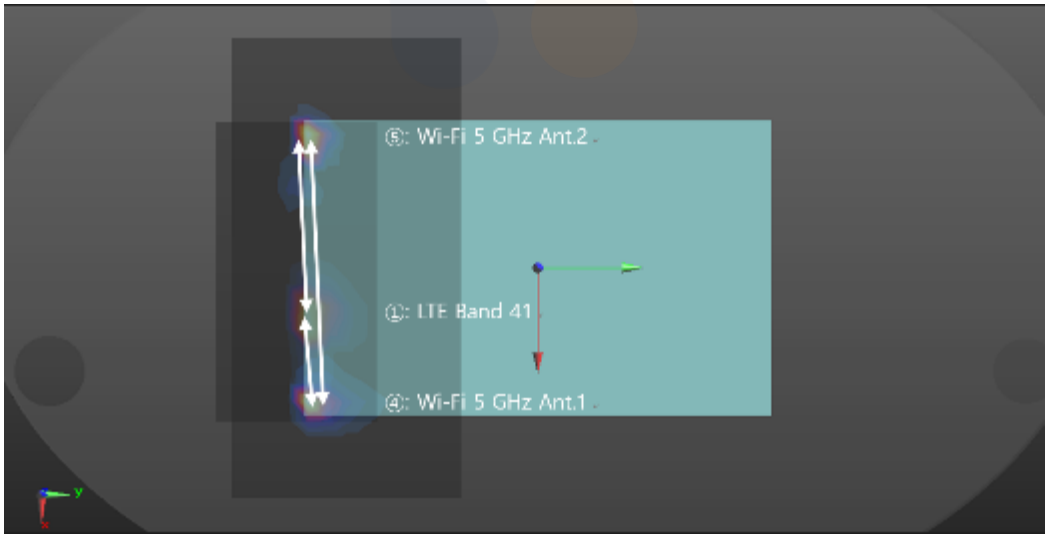


12.3.10 LTE Band 41 Sensor On

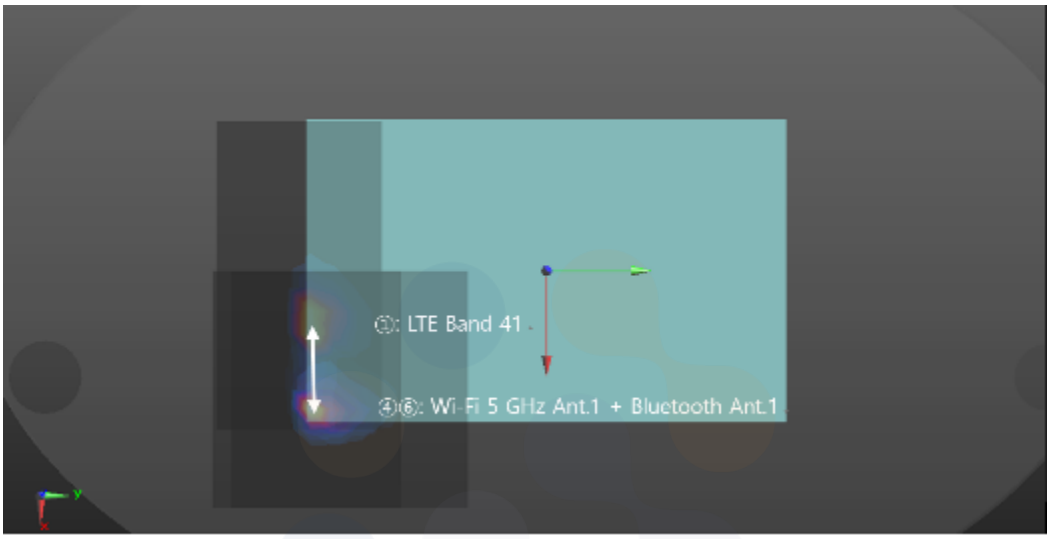
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

LTE Band 41 SPLSR – Rear Position				
Scenario No.	No.6	No.7	No.8	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[⑤]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.944	1.851	1.656	2.308
Volume scan	Not Required	Required	Not Required	Required

Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.944	
Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
40.81	0.04	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
96.22	0.02	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

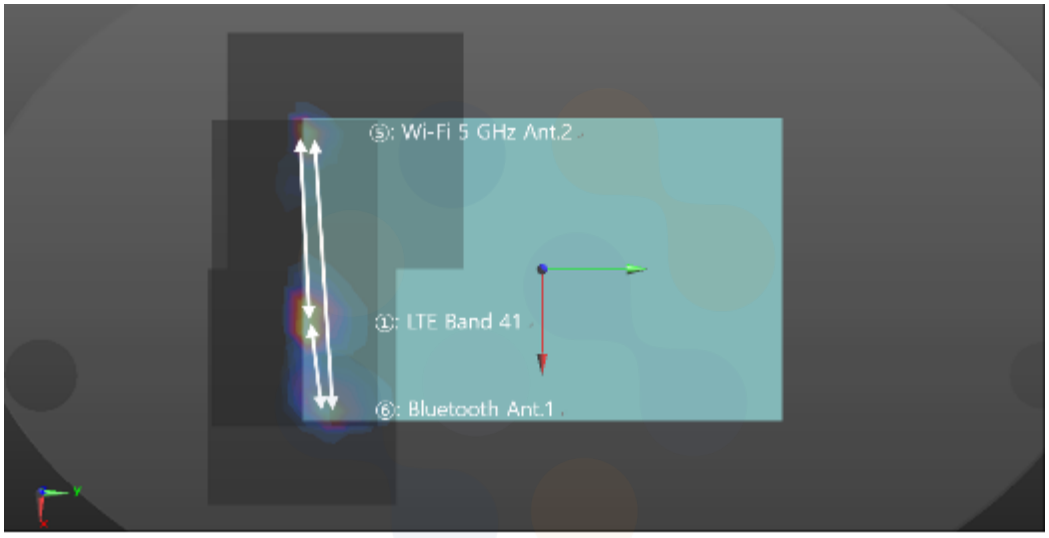


Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.851	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
34.54	0.06	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		④⑥ (Hybird)	Wi-Fi 5 GHz Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800



Scenario No.	Scenario	Position	SUM
8	[①]+[⑤]+[⑥]	Rear	1.656

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
96.22	0.02	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
39.93	0.03	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800
135.98	0.01	⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
		⑥	Bluetooth	0.364	0.06960	-0.11300	-0.17800



Scenario No.		Scenario		Position		SUM	
9		[①]+[④]+[⑤]+[⑥]		Rear		2.308	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
34.54	0.06	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
96.22	0.02	①	LTE Band 41	0.835	0.03000	-0.11800	-0.17900
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900

LTE Band 41 Standalone Volume Scan Plot – Rear

Date: 2022-04-05

Test Laboratory: KCTL Inc.
File Name: 1.LTE Band 41_QPSK_20 MHz_Body_Rear_VS.da53:0

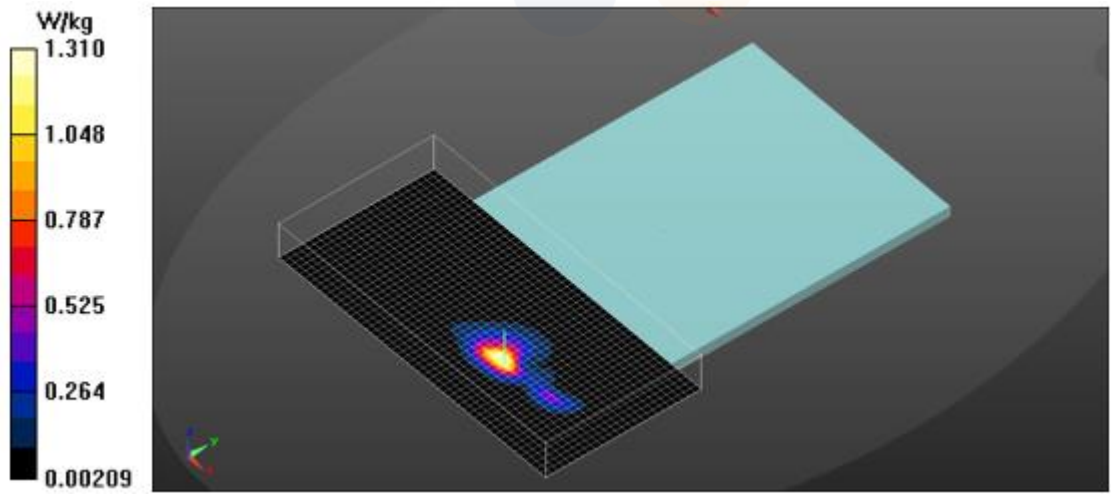
DUT: SM-P619, Type: Tablet, Serial: R32T2001G1Z

Communication System: UID 0, LTE Band 41 (0); Frequency: 2680 MHz; Duty Cycle: 1:1.58016
Medium parameters used: f = 2680 MHz; σ = 1.983 S/m; ε_r = 39.147; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7540;ConvF(7.26, 7.26, 7.26) @ 2680 MHz; Calibrated: 2021-04-29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1587; Calibrated: 2021-07-26
- Phantom: ELI V8.0_Right; Type: QD OVA 004 Ax; Serial: 2098
- Measurement SW: DASY52, Version 52.10 (4);

Configuration/LTE Band 41_QPSK_20 MHz_50RB_24offset_CH41490_Rear_0 mm Grip Sensor On VS/Volume Scan (53x26x7): Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 26.00 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 0.686 W/kg; SAR(10 g) = 0.257 W/kg
Total Absorbed Power = 0.0106 W
Maximum value of SAR (measured) = 1.31 W/kg



WLAN 5GHz Ant.1 Standalone Volume Scan Plot – Rear(Sensor On)

Date: 2022-04-01

Test Laboratory: KCTL Inc.
File Name: 3. 5.6 GHz_802.11_WLAN1_Rear VS.da53:1

DUT: SM-P619, Type: Tablet, Serial: R32T2001G2M

Communication System: UID 0, 5GWLAN (0); Frequency: 5610 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5610 MHz; σ = 5.206 S/m; ε_r = 34.69; ρ = 1000 kg/m^3
Phantom section: Flat Section

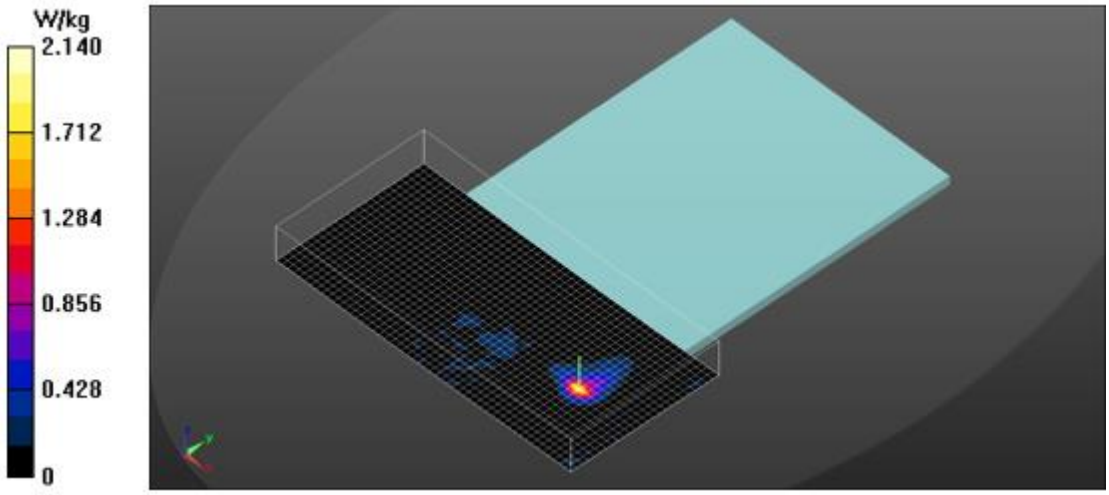
DASY5 Configuration:

- Probe: EX3DV4 - SN3865;ConvF(5.03, 5.03, 5.03) @ 5610 MHz; Calibrated: 2022-01-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn666; Calibrated: 2022-01-26
- Phantom: ELI V5.0 -2; Type: QD OVA 002 BB; Serial: 1220
- Measurement SW: DASY52, Version 52.10 (4);

Configuration 2/802.11 ac_VHT80_WLAN1_CH122_Rear_0 mm Sensor On HW2.0_VS/Volume Scan (53x26x7): Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 4.744 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 5.07 W/kg
SAR(1 g) = 0.511 W/kg; SAR(10 g) = 0.113 W/kg
Total Absorbed Power = 0.00128 W

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 2.14 W/kg



WLAN 5GHz Ant.2 Standalone Volume Scan Plot – Rear(Sensor On)

Date: 2022-04-02

Test Laboratory: KCTL Inc.
File Name: 3. 5.8 GHz_802.11_WLAN2_Rear VS.da53:0

DUT: SM-P619, Type: Tablet, Serial: R32T2001G2M

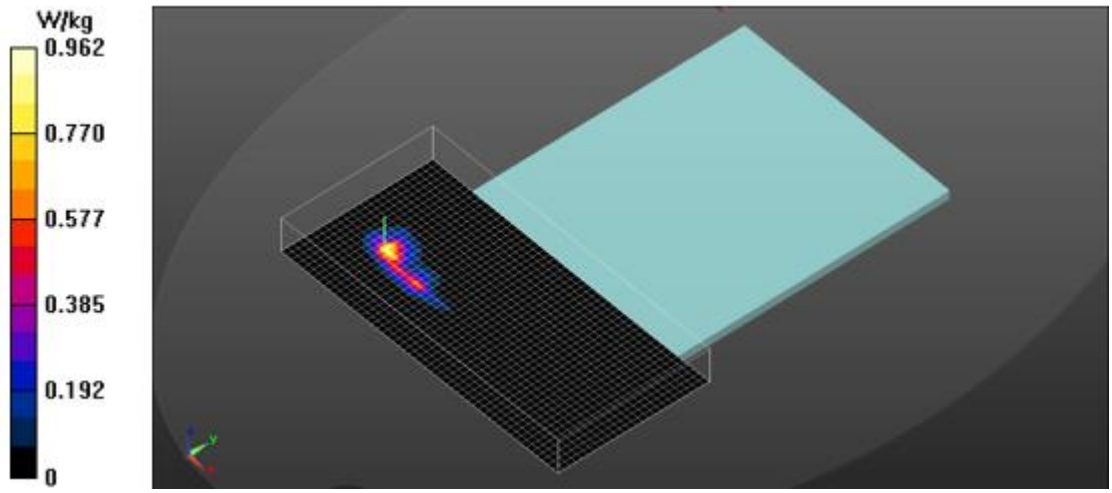
Communication System: UID 0, 5GWLAN (0); Frequency: 5775 MHz; Duty Cycle: 1:1
Medium parameters used: f = 5775 MHz; σ = 5.141 S/m; ε_r = 36.025; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865;ConvF(5.03, 5.03, 5.03) @ 5775 MHz; Calibrated: 2022-01-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn666; Calibrated: 2022-01-26
- Phantom: ELI V5.0 -2; Type: QD OVA 002 BB; Serial: 1220
- Measurement SW: DASY52, Version 52.10 (4);

Configuration/802.11 ac_VHT80_WLAN2_CH155_Rear_0 mm Sensor On_VS/Volume Scan (53x26x7):
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 11.00 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 3.39 W/kg
SAR(1 g) = 0.266 W/kg; SAR(10 g) = 0.061 W/kg
Total Absorbed Power = 0.000890 W

Maximum value of SAR (measured) = 0.962 W/kg



Bluetooth Standalone Volume Scan Plot – Rear

Date: 2022-04-04

Test Laboratory: KCTL Inc.
File Name: 1. Bluetooth_BDR_DH5_WIFI1_Body_Rear_VS.da53:0

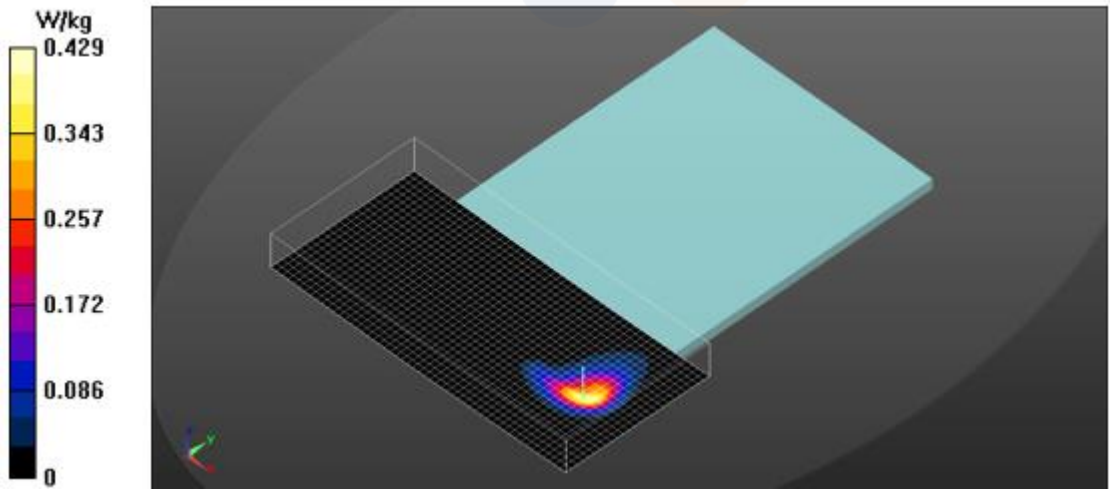
DUT: SM-P619, Type: Tablet, Serial: R32T3000LAR

Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz; Duty Cycle: 1:1.30167
Medium parameters used: f = 2480 MHz; σ = 1.782 S/m; ε_r = 38.415; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865;ConvF(7.82, 7.82, 7.82) @ 2480 MHz; Calibrated: 2022-01-27
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn666; Calibrated: 2022-01-26
- Phantom: ELI V5.0 -3; Type: QD OVA 002 AA; Serial: 1173
- Measurement SW: DASY52, Version 52.10 (4);

Configuration/Bluetooth_BDR_DH5_CH78_Rear_0 mm Sensor Off_VS/Volume Scan (53x26x7):
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.57 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.720 W/kg
SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.087 W/kg
Total Absorbed Power = 0.00247 W
Maximum value of SAR (measured) = 0.429 W/kg



LTE Band 41 Volume Scan – Rear Position	
Scenario No.7	Licensed Band + WLAN 5 ㎓ Ant.1 + Bluetooth Ant 1 = 1.02 W/kg

Multi-Band Average SAR

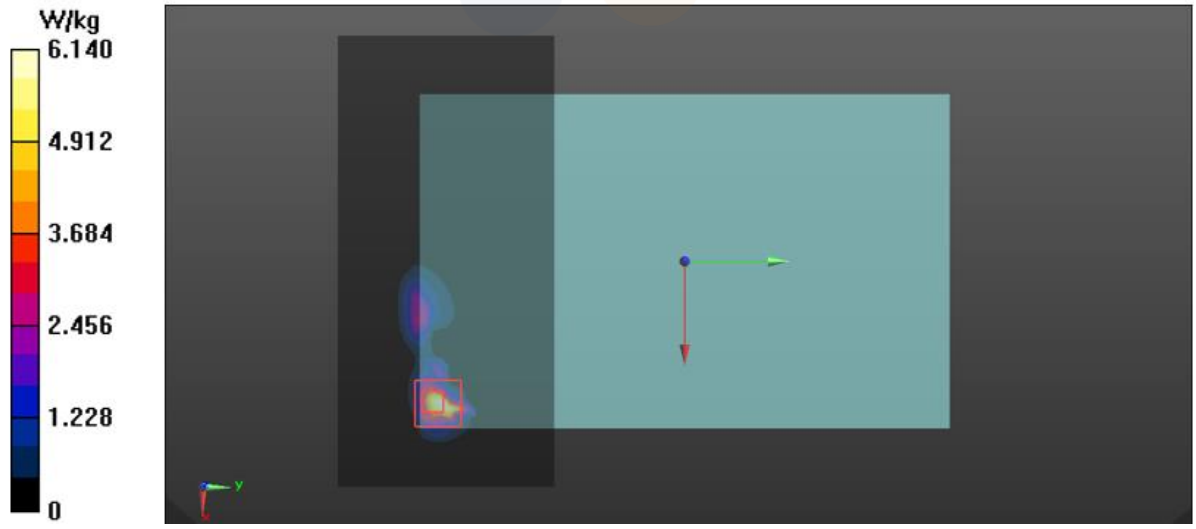
Multi-Band Configurations:

DASY Configuration for Configuration/LTE Band 41_QPSK_20 MHz_50RB_24offset_CH41490_Rear_0 mm Grip Sensor On VS/Volume Scan:

DASY Configuration for Configuration 2/802.11 ac_VHT80_WLAN1_CH122_Rear_0 mm Sensor On HW2.0_VS/Volume Scan:

DASY Configuration for Configuration/Bluetooth_BDR_DH5_CH78_Rear_0 mm Sensor Off_VS/Volume Scan:

Multi Band Result:
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.327 W/kg
Maximum value of SAR (interpolated) = 6.14 W/kg



LTE Band 41 Volume Scan – Rear Position	
Scenario No.9	Licensed Band + WLAN 5 ㎓ Ant 1 + WLAN 5 ㎓ Ant 2 + Bluetooth Ant 1 = 1.02 W/kg

Multi-Band Average SAR

Multi-Band Configurations:

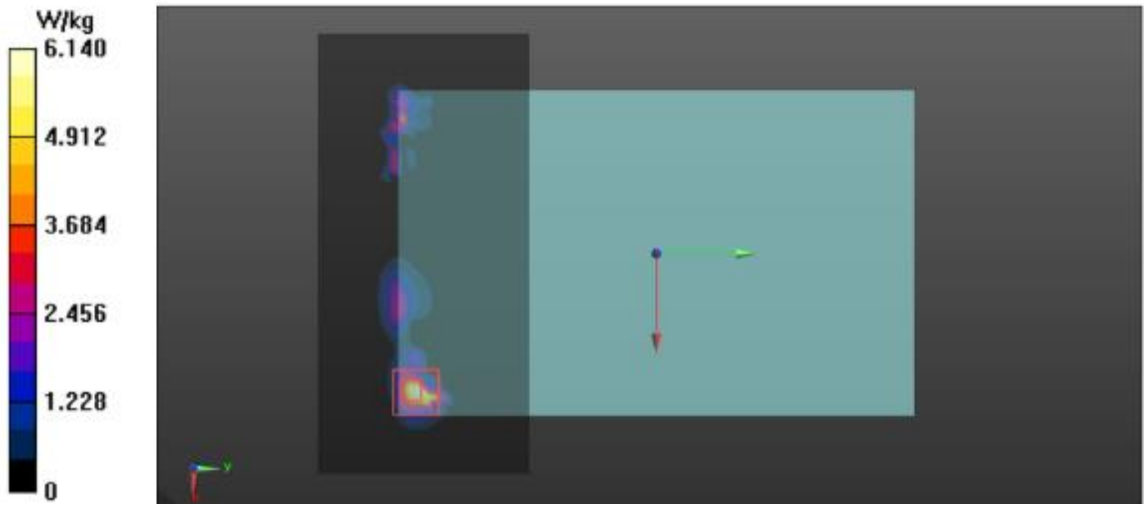
DASY Configuration for Configuration/LTE Band 41_QPSK_20 MHz_50RB_24offset_CH41490_Rear_0 mm Grip Sensor On VS/Volume Scan:

DASY Configuration for Configuration 2/802.11 ac_VHT80_WLAN1_CH122_Rear_0 mm Sensor On HW2.0_VS/Volume Scan:)

DASY Configuration for Configuration/802.11 ac_VHT80_WLAN2_CH155_Rear_0 mm Sensor On_VS/Volume Scan:

DASY Configuration for Configuration/Bluetooth_BDR_DH5_CH78_Rear_0 mm Sensor Off_VS/Volume Scan:

Multi Band Result:
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.327 W/kg
Maximum value of SAR (interpolated) = 6.14 W/kg

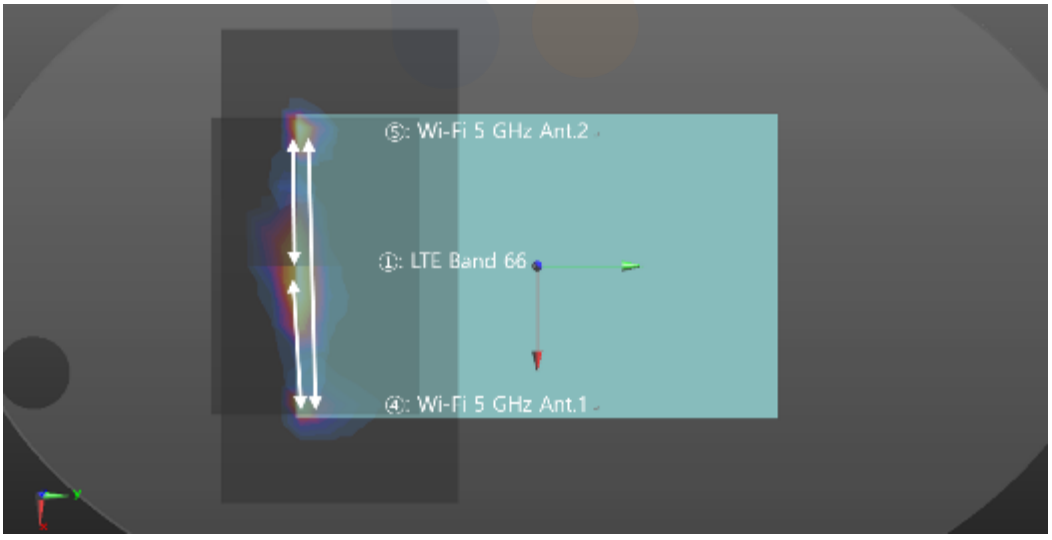


12.3.11 LTE Band 66 Sensor On

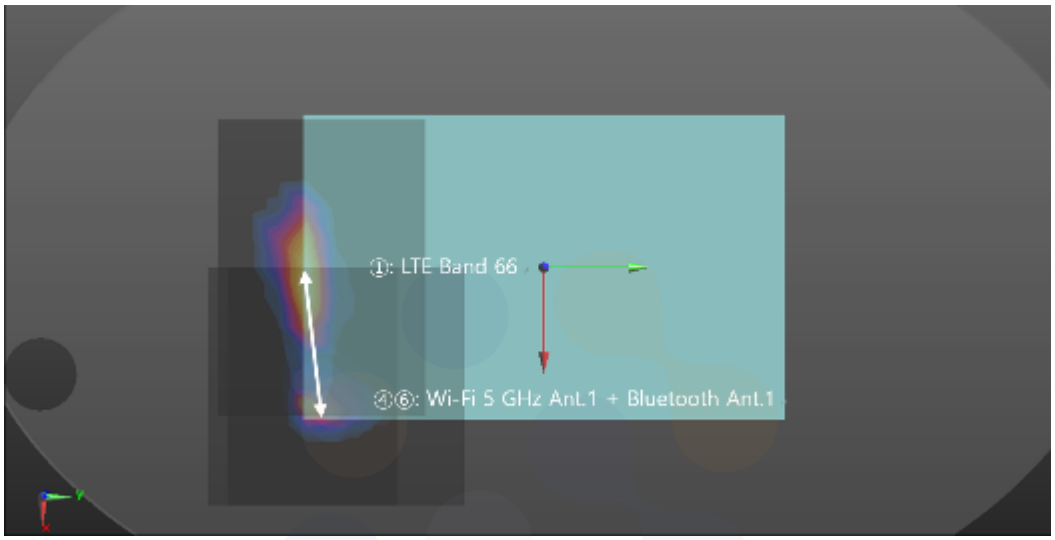
licensed	WLAN 2.4 GHz		WLAN 5 GHz		Bluetooth
[①]	[②]	[③]	[④]	[⑤]	[⑥]

LTE Band 66 SPLSR – Rear Position			
Scenario No.	No.6	No.7	No.9
Scenario	[①]+[④]+[⑤]	[①]+[④]+[⑥]	[①]+[④]+[⑤]+[⑥]
Rear	1.847	1.754	2.211
Volume scan	Not Required	Not Required	Not Required

Scenario No.		Scenario		Position		SUM	
6		[①]+[④]+[⑤]		Rear		1.847	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
85.39	0.02	①	LTE Band 66	0.738	-0.01390	-0.12600	-0.18500
		④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
52.98	0.02	①	LTE Band 66	0.738	-0.01390	-0.12600	-0.18500
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900
137.03	0.01	④	Wi-Fi 5 GHz Ant.1	0.652	0.07080	-0.11700	-0.17900
		⑤	Wi-Fi 5 GHz Ant.2	0.457	-0.06620	-0.12000	-0.17900

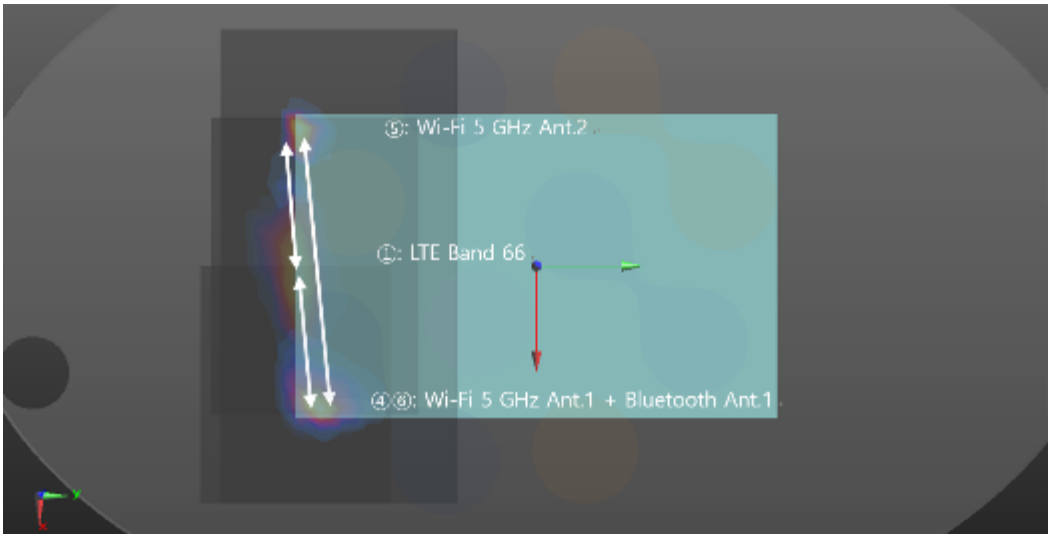


Scenario No.		Scenario		Position		SUM	
7		[①]+[④]+[⑥]		Rear		1.754	
Distance [mm]	**SPLSR ≤ 0.04 Limit**	**Numbering**	**Mode**	**SAR W/kg**	**Coordinates**		
					X	**Y**	**Z**
79.46	0.02	①	LTE Band 66	0.738	-0.01390	-0.12600	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800



Scenario No.	Scenario	Position	SUM
9	[①]+[④]+[⑤]+[⑥]	Rear	2.211

Distance [mm]	SPLSR ≤ 0.04 Limit	Numbering	Mode	SAR W/kg	Coordinates		
					X	Y	Z
79.46	0.02	①	LTE Band 66	0.738	-0.01390	-0.12600	-0.18500
		④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
52.98	0.02	①	LTE Band 66	0.738	-0.01390	-0.12600	-0.18500
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900
130.45	0.01	④⑥ (Hybird)	Wi-Fi 5 ㎓ Ant.1 + Bluetooth	0.814	0.06400	-0.11200	-0.17800
		⑤	Wi-Fi 5 ㎓ Ant.2	0.457	-0.06620	-0.12000	-0.17900



13. SAR Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

1) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg.
2) **When the original highest measured SAR is ≥ 0.80 W/㎏, the measurement was repeated once.**
3) A second repeated measurement was performed 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).
4) A third repeated measurement was performed 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.

Band	Mode	Frequency (㎒)	EUT Position	Separation Distance (㎜)	Measured 1 g SAR (W/kg)	Repeated 1g SAR (W/kg)	Ratio
WCDMA Band IV	RMC	1 752.6	Rear	0	0.851	0.849	1.00

14. Measurement Uncertainty

Per KDB 865664 D01 SAR measurement 100㎒ to 6㎓, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of *k* = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Standard 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

15. Test Equipment Information

Test Platform	SPEAG DASY5 System			
Version	DASY52: 52.10.4.1535 / SEMCAD: 14.6.14 (7501)			
Location	KCTL Inc, 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea			
Manufacture	SPEAG			
Hardware Reference				
Equipment	Model	Serial Number	Date of Calibration	Due date of next Calibration
Shield Room	-	8F - 1	-	-
Shield Room		8F - 2		
Shield Room		8F - 4		
DASY5 Robot	TX90XL speag	F07/554JA1/A/01	-	-
DASY5 Robot	TX90XL	F12/5L7FA1/A/01	-	-
DASY6 Robot	TX60 Lspeag	F/19/0007289/A/001	-	-
Phantom	2mm Oval Phantom ELI5	1173	-	-
Phantom	2mm Oval Phantom ELI5	1220	-	-
Phantom	2mm Oval Phantom ELI5	1178	-	-
Phantom	2mm Oval Phantom ELI5	2098	-	-
Mounting Device	Laptop Holder	-	-	-
DAE	DAE4	666	2022-01-26	2023-01-26
DAE	DAE4	1586	2021-04-27	2022-04-27
DAE	DAE4	1587	2021-07-26	2022-07-26
Probe	EX3DV4	3865	2022-01-27	2023-01-27
Probe	EX3DV4	3928	2022-03-03	2023-03-03
Probe	EX3DV4	7540	2021-04-29	2022-04-29
ESG Vector Signal Generator	E4438C	MY42080486	2021-05-10	2022-05-10
ESG Vector Signal Generator	E4438C	MY42080845	2022-02-24	2023-02-24
Dual Power Meter	E4419B	GB43312301	2021-05-11	2022-05-11
Dual Power Meter	EPM-442A	GB37480680	2021-05-11	2022-05-11
Power Sensor	8481H	3318A 19379	2021-05-11	2022-05-11
Power Sensor	8481H	3318A 19377	2021-05-11	2022-05-11
Power Sensor	8481H	2703A11902	2021-05-11	2022-05-11
Power Sensor	8481H	3318A18090	2021-05-11	2022-05-11
Attenuator	8491B 3dB	17387	2021-05-10	2022-05-10
Attenuator	8491B-6dB	MY39270294	2021-05-10	2022-05-10
Attenuator	8491B 10dB	29425	2021-05-10	2022-05-10

Hardware Reference				
Equipment	Model	Serial Number	Date of Calibration	Due date of next Calibration
Power Amplifier	GRF5039	1062	2021-05-10	2022-05-10
Power Amplifier	5190FE	1012	2021-05-10	2022-05-10
Power Amplifier	2055-BBS3Q7E9I	1005D/C0521	2022-02-24	2023-02-24
Power Amplifier	AMP2027	10010	2021-05-10	2022-05-10
Dual Directional Coupler	778D	16059	2021-05-10	2022-05-10
Dual Directional Coupler	772D	2839A00719	2021-05-10	2022-05-10
Dual Directional Coupler	772D	2839A160504	2021-05-10	2022-05-10
Low Pass Filter	LA-15N	36543	2021-05-10	2022-05-10
Low Pass Filter	LA-30N	40058	2021-05-10	2022-05-10
Low Pass Filter	LA-60N	40059	2021-05-10	2022-05-10
Low Pass Filter	VLF-3000+	31831	2021-05-10	2022-05-10
Power Amplifier	GRF5039	1062	2021-05-10	2022-05-10
Power Amplifier	5190FE	1012	2021-05-10	2022-05-10
Dipole Validation Kits	D750V3	1183	2020-09-15	2022-09-15
Dipole Validation Kits	D850V2	1006	2020-04-21	2022-04-21
Dipole Validation Kits	D1750V2	1072	2020-04-20	2022-04-20
Dipole Validation Kits	D1900V2	5d160	2020-04-22	2022-04-22
Dipole Validation Kits	D2450V2	895	2020-07-21	2022-07-21
Dipole Validation Kits	D2600V2	1050	2020-07-21	2022-07-21
Dipole Validation Kits	D5GHzV2	1134	2022-01-27	2024-01-27
Network Analyzer	E5071B	MY42403524	2022-02-15	2023-02-15
Dielectric Assessment Kit	DAK-3.5	1078	2021-05-26	2022-05-26
Humidity/Temp	MHB-382SD	73871	2021-05-13	2022-05-13
Humidity/Temp	MHB-382SD	23107	2021-05-13	2022-05-13
Humidity/Temp	MHB-382SD	46301	2022-02-25	2023-02-25
Wideband Radio Communication Tester	CMW500	132120	2021-05-10	2022-05-10
Wideband Radio Communication Tester	CMW500	132423	2022-02-24	2023-02-24
Radio Communication Analyzer	MT8821C	6262170372	2021-11-09	2022-11-09
Bluetooth Tester	TC-3000C	3000C000270	2021-07-28	2022-07-28
Spectrum Analyzer	FSP7	100289	2021-12-21	2022-12-21