

FCC SAR Test Report

FCC ID : IHDT56AX2
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2625-11
APPLICANT : Motorola Mobility LLC
222 W,MERCHANDISE MART PLAZA, CHICAGO
IL 60654 USA
MANUFACTURER : Motorola Mobility LLC
222 W,MERCHANDISE MART PLAZA, CHICAGO
IL 60654 USA
STANDARD : FCC 47 CFR Part 2 (2.1093)

The product was received on Jun. 30, 2026 and testing was started from Jul. 01, 2026 and completed on Aug. 26, 2026. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA610603-18	Rev. 01	Initial issue of report.	Sep. 07, 2026

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Motorola Mobility LLC, Mobile Cellular Phone, XT2625-11**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary				Highest Simultaneous Transmission 1g SAR (W/kg)	Highest Simultaneous Transmission 10g SAR (W/kg)
		Head (Separation 0mm)	Hotspot (Separation 5mm)	Body worn (Separation 5mm)	Extremity (Separation 0mm)		
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	10g SAR (W/kg)		
Licensed	GSM850	0.36	0.94	0.94	2.57	1.58	3.79
	GSM1900	0.23	1.02	1.02	3.22		
	WCDMA II	0.17	1.17	1.22	2.98		
	WCDMA IV	0.26	0.87	0.92	2.48		
	WCDMA V	0.31	1.07	1.07	1.99		
	LTE Band 7	0.75	1.25	1.25	3.22		
	LTE Band 12/17	0.20	0.79	0.79			
	LTE Band 13	0.65	1.27	1.27	2.01		
	LTE Band 25/2	0.91	1.02	1.26	3.00		
	LTE Band 26/5	0.79	1.27	1.35	2.43		
	LTE Band 41/38	0.79	1.21	1.19	3.39		
	LTE Band 66/4	0.92	0.80	0.81	2.53		
	LTE Band 42	0.61	0.54	0.73	1.74		
	LTE Band 48/42	0.90	0.62	0.90	2.37		
	FR1 n2	0.81	1.16	1.27	2.32		
	FR1 n7	0.87	1.31	1.30	3.29		
	FR1 n26/5	0.78	1.23	1.23	1.27		
	FR1 n41/38	0.66	0.72	1.09	1.95		
	FR1 n66	0.49	1.04	0.98	2.58		
	FR1 n77/78	0.44	1.00	0.91	2.27		
DTS	2.4GHz WLAN	0.42	0.55	0.81		1.58	
NII	5GHz WLAN	1.20	0.76	1.00	2.06	1.58	3.79
DSS	Bluetooth	0.10	0.21	0.21		1.58	
DXX	NFC				<0.10		3.79
Date of Testing:		2026/07/01 ~ 2026/08/26					

Remark:

- This device supports LTE B5 / B17 / B4 / B38 / B42(3550MHz~3600MHz) and B26 / B12 / B66 / B41/ B48. Since the supported frequency span for LTE B5 / B17 / B4 / B38/ B42(3550MHz~3600MHz) falls completely within the support's frequency span for LTE B26 / B12 / B66 / B41/ B48, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B26 / B12 / B66 / B41/ B48.
- This device supports 5G NR n5 / n38 / n78 and n26 / n41 / n77. Since the supported frequency span for 5G NR n5 / n38 / n78 falls completely within the support's frequency span for n26 / n41 / n77, both 5G NR bands have the same target power, and both 5G NR bands share the same transmission path; therefore, SAR was only assessed for n26 / n41 / n77.
- This is a variant report, the change notes please refer to the XT2625-11_Operational Description of Product Equality Declaration which is exhibited separately. According to the differences, added new ENDC combinations, and the conducted power for LTE Bands 2/25 at Ant4 (under head (DSI2) / body-worn (DSI3)), 5G NR 5/26 at Ant4 (under hotspot, DSI7), 5G NR n77/78 at ant1, 5G NR n77/78 at ant8 (under body-worn (DSI3) / hotspot (DSI7)) was reduced by software and then re-measured for those bands. Full SAR testing was performed for added bands (LTE B48 and FR1 n77/78 Part27Q), and the worst cases for other bands from original test report (Sporton Report No. FA610618-02) were verified for the differences.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the



manufacturer takes all the responsibilities for the accuracy of product specification.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

Reviewed by: Jason Wang

Report Producer: Carlie Tsai

2. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards, the below KDB standard may not including in the TAF code without accreditation.

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- IEC/IEEE 62209-1528:2020
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2625-11
FCC ID	IHDT56AX2
IMEI Code	357532780015070/357532780014982,357532780015070/357532780015088 357532780015013/357532780015021
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3600 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 48: 3550 MHz ~ 3700 MHz 5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n26: 814 MHz ~ 849 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is supported) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC: ASK
GSM / (E)GPRS	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously

Transfer mode	but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark:	
1. This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation. 2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications. 3. This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only). 4. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 12. 5. This device supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). 6. The device implements the power management and proximity sensor /receiver detection/hotspot mode for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity) and the MediaTek TA-SAR will manage to ensure the power level not exceeding the associated power table. Details about the power management decision and sensor detection are provided in the operational description. And the device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to power table at appendix E and original report. 7. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, body-worn, hotspot, extremity exposure condition. For WLAN when transmit simultaneous with WWAN/BT and Proximity sensors trigger, power reduction will be activated to body-worn and extremity exposure conditions. 8. For some WWAN bands, sensor on power level is higher than hotspot power level, so front/back sensor on SAR can represent hotspot conservatively. 9. For 5G NR NR bands, SAR testing was performed using FTM (Factory Test Mode) with default 100% duty cycle. 10. The TAS Part2 report for model XT2625-11 is referenced from the original report (No. FA610618-02B). Only the Plimit for LTE Bands 2/25 at Ant4 (under head (DSI2) and body-worn (DSI3)), 5G NR 5/26 at Ant4 (under hotspot, DSI7), and 5G NR n77/78 was changed, and Plimit for LTE B48 and head Pmax were added. No other Plimit or target changes were made. Since these changes do not affect the essential test cases already evaluated in the original assessment, no additional Part 2 testing was required. Therefore, the TAS Part2 report from the reference model is considered fully representative of the model XT2625-11 variant. 11. This device supports 5GNR FR1 bands as following table, including NSA mode and SA mode. NSA and SA mode performed SAR separately.	

<5G NR>

Mode	Band	Duplex	SCS(KHz)	Bandwidths(BW)
NSA	n2	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 50
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 45
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
SA	n2	FDD	15	5, 10, 15, 20, 25, 30, 35, 40
	n5	FDD	15	5, 10, 15, 20
	n7	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 50
	n26	FDD	15	5, 10, 15, 20
	n66	FDD	15	5, 10, 15, 20, 25, 30, 35, 40, 45
	n38	TDD	30	10, 15, 20, 25, 30, 40
	n41	TDD	30	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
	n77	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
	n78	TDD	30	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100



3.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																													
FCC ID	IHDT56AX2																																																																												
Equipment Name	Mobile Cellular Phone																																																																												
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3600 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 48: 3550 MHz ~ 3700 MHz																																																																												
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz																																																																												
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM																																																																												
LTE Voice / Data requirements	Voice and Data																																																																												
LTE Release Version	R15																																																																												
CA Support	Supported, Uplink and Downlink																																																																												
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table>							Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1																																																																						
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64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2																																																																						
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3																																																																						
256 QAM	≥ 1						≤ 5																																																																						
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)																																																																												
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.																																																																												
Power reduction applied to satisfy SAR compliance	Yes, when operating in Proximity sensors/receiver/hotspot detect mechanism, head/body-worn/hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to original report.																																																																												
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to original report.																																																																												
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for intra-band and inter-band with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 2 carriers in the uplink.																																																																												

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20407	824.7	20415	825.5	20425	826.5	20450	829	20450	829	20450	829
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5	20525	836.5
H	20643	848.3	20635	847.5	20625	846.5	20600	844	20600	844	20600	844
LTE Band 7												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510	20850	2510	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560	21350	2560	21350	2560
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704	23060	704	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711	23130	711	23130	711
LTE Band 13												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)
L	23205	779.5	23230	782	23230	782	23230	782	23230	782	23230	782
M	23230	782	23230	782	23230	782	23230	782	23230	782	23230	782
H	23255	784.5	23255	784.5	23255	784.5	23255	784.5	23255	784.5	23255	784.5
LTE Band 17												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)	Channel #	Freq. (MHz)
L	23755	706.5	23780	709	23780	709	23780	709	23780	709	23780	709
M	23790	710	23790	710	23790	710	23790	710	23790	710	23790	710
H	23825	713.5	23800	711	23800	711	23800	711	23800	711	23800	711
LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860
M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5	26790	824.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5	26940	838.5

LTE Band 38								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610
LTE Band 41								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680
LTE Band 66								
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715
M	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775
LTE Band 42								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	42115	3452.5	42140	3455	42165	3457.5	42190	3460
M	42590	3500	42590	3500	42590	3500	42590	3500
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540
LTE Band 42(3550MHz-3600MHz)								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	43115	3552.5	43140	3555	43165	3557.5	43190	3560
M	43340	3575	43340	3575	43340	3575	43340	3575
H	43565	3597.5	43540	3595	43515	3592.5	43490	3590
LTE Band 48								
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560
LM	55810	3607	55815	3607.5	55820	3608	55830	3609
HM	56170	3643	56165	3642.5	56160	3642	56150	3641
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690

<For LTE Overlap Bands Description>

1) LTE Bands BW

Band	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz
LTE Band 42 part96			Yes	Yes	Yes	Yes
LTE Band 48 part96			Yes	Yes	Yes	Yes

2) LTE Bands tune up:

Band	Antenna	Head	Bodyworn	Hotspot	Extremity	Sensor off	Default
		ECI2	ECI3	ECI7	ECI6	ECI4	Tune-up Limit
LTE Band 42 part96	Ant5	18	18.7	17.2	21.6	24.0	24.0
LTE Band 48 part96	Ant5	19.5	19.6	18.0	21.6	24.0	24.0

3.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information																		
Operating Frequency Range of each 5G NR transmission band				5G NR n2: 1850 MHz ~ 1910 MHz														
				5G NR n5: 824 MHz ~ 849 MHz														
				5G NR n7: 2500 MHz ~ 2570 MHz														
				5G NR n26: 814 MHz ~ 849 MHz														
				5G NR n38: 2570 MHz ~ 2620 MHz														
				5G NR n41: 2496 MHz ~ 2690 MHz														
				5G NR n66: 1710 MHz ~ 1780 MHz														
				5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz														
Channel Bandwidth				5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz														
Channel Bandwidth				The detail please refers to section 4.1 5GNR FR1 bands table.														
SCS				FDD: SCS15KHz, TDD: SCS30KHz														
uplink modulations used				DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM														
				CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM														
A-MPR (Additional MPR) disabled for SAR Testing?				Yes														
LTE Anchor Bands for n2				LTE B4/7/12/13/5/66														
LTE Anchor Bands for n5				LTE B2/66														
LTE Anchor Bands for n7				LTE B2/4/5/66														
LTE Anchor Bands for n66				LTE B2/7/12/13/5														
LTE Anchor Bands for n38				LTE B2/5/66/4/12														
LTE Anchor Bands for n41				LTE B2/12/5/66/4														
LTE Anchor Bands for n77				LTE B12/13/26/2/41/5/66														
LTE Anchor Bands for n78				LTE B2/4/5/7/12/38/66/41/26														
Transmission (H, M, L) channel numbers and frequencies in each 5G NR band																		
NR Band 2																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	373500	1867.5	374000	1870		
M	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880	376000	1880		
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379500	1897.5	379000	1895	378500	1892.5	378000	1890		
NR Band 5																		
	Bandwidth 5MHz				Bandwidth 10MHz				Bandwidth 15MHz				Bandwidth 20MHz					
	Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)			
L	165300		826.5		165800		829		166300		831.5		166800		834			
M	167300		836.5		167300		836.5		167300		836.5		167300		836.5			
H	169300		846.5		168800		844		168300		841.5		167800		839			
NR Band 7																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 50MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	503500	2517.5	504000	2520	505000	2525
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535
H	513500	2567.5	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510500	2552.5	510000	2550	509000	2545
NR Band 26																		
	Bandwidth 5MHz				Bandwidth 10MHz				Bandwidth 15MHz				Bandwidth 20MHz					
	Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)			
L	163300		816.5		163800		819		164300		821.5		164800		824			
M	166300		831.5		166300		831.5		166300		831.5		166300		831.5			
H	169300		846.5		168800		844		168300		841.5		167800		839			
NR Band 66																		
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	342500	1712.5	343000	1715	343500	1717.5	344000	1720	344500	1722.5	345000	1725	345500	1727.5	346000	1730	346500	1732.5
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	353500	1767.5	353000	1765	352500	1762.5	352000	1760	351500	1757.5



NR Band 38												
	Bandwidth10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	515000	2575	515500	2577.5	516000	2580	516500	2582.5	517000	2585	518000	2590
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	523000	2615	522500	2612.5	522000	2610	521500	2607.5	521000	2605	520000	2600

NR Band 41																											
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 35MHz		Bandwidth 40MHz		Bandwidth 45MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L 500202	2501.01	500700	2503.5	501204	2506.02	501702	2508.51	502200	2511	502704	2513.52	503202	2516.01	503700	2518.5	504204	2521.02	505200	2526	500202	2501.01	507204	2536.02	508200	2541	509202	2546.01
M 518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99	518598	2592.99
H 537000	2685	536496	2682.48	535998	2679.99	535500	2677.5	534996	2674.98	534498	2672.49	534000	2670	533496	2667.48	532998	2664.99	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640

NR Band 77																								
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840.00	656000	3840.00	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664832	3972.48	664666	3969.99	664500	3967.50	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	663000	3945	662666	3939.99	662332	3934.98	662000	3930

NR Band 78																								
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02		
M	650000	3750	650000	3750	650000	3750	650000	3750.00	650000	3750.00	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652832	3792.48	652662	3789.99	652500	3787.5	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	651000	3765	650666	3759.99	650332	3754.98		

For <3450 MHz ~ 3550 MHz >

NR Band 77 SCS30KHz																								
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495		
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98
H	636332	3544.98	636166	3542.49	636000	3540	635832	3537.48	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		

NR Band 78 SCS30KHz																									
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 70MHz		Bandwidth 80MHz		Bandwidth 90MHz		Bandwidth 100MHz		
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	
L	630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495			
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	
H	636332	3544.98	636166	3542.49	636000	3540	635832	3537.48	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99			

4. TA-SAR feature for RF Exposure compliance

WWAN bands and mmWave are all enabled with MediaTek TA-SAR feature. This feature performs time averaging algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time. Note that WLAN/BT operations are not enabled with TA-SAR feature.

The FCC RF exposure limit is defined based on time-averaged RF exposure. The product implements MediaTek TA-SAR feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with FCC RF exposure limit over a defined time window, for SAR (transmit frequency $\leq$ 6GHz). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.

The purpose of this report (Part 1 test) is to demonstrate that the EUT meets FCC SAR limits when transmitting in static transmission scenario at maximum allowable time-averaged power levels.

The P_{limit} values correspond to SAR_{design_target}. The power will be fixed at the static reduce power level at different exposure conditions for RF exposure compliance. For the GSM (TDD) P_{limit} power levels in the table correspond to the burst average power levels which don't account for TX duty cycle.

This report describes the procedures for the SAR char generation, and the parameters obtained from SAR characterization (referred to as SAR char, respectively) will be used as input for TA-SAR algorithm. SAR char will be entered via the MediaTek's NV suggestion to enable the TA-SAR Feature.

<Terminologies in this report>

P_{limit}	The time-averaged RF power which corresponds to SAR _{design_target} .
P_{max}	Maximum target power level
SAR_{design_target}:	The design target for SAR compliance. It should be less than regulatory SAR limit to account for all device design related uncertainty.
SAR char	P _{limit} for all the technologies/bands for all applicable ECI

<SAR Characterization>

SAR char must be generated to cover all radio configurations and usage scenarios that the wireless device supports for operating at 6 GHz or below. It will then be used as input for TA-SAR to control and manage RF exposure for f < 6 GHz.

SPLSR_Group (Antenna Group):

Antenna Group 0 (AG0)	ANT0 & ANT1
Antenna Group 1 (AG1)	ANT2 & ANT4 & ANT5 & ANT8

<SAR design target and uncertainty>

Item	Uncertainty dB (k=2)
Total uncertainty	1.5

To account for total uncertainty, SAR_{design_target} should be determined as:

$$SAR_{design_target} < SAR_{regulatory_limit} \times 10^{\frac{-total\ uncertainty}{10}}$$

The TA-SAR algorithm maintains the time-averaged transmit power, in turn, time-averaged RF exposure of SAR_design_target, below the predefined time-averaged power limit, for each characterized technology and band.

TA-SAR allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit.

<Plimit for supported technologies and bands >

Band	Antenna	Head ECI2	Head-P-max	Bodyworn ECI3	Extremity ECI6	Hotspot ECI7	Sensor off ECI4	Pmax*
GSM850	Ant 0	28.6	24.5	22.9	24.8	22.9	31.8	24.5
GSM1900	Ant 0	31.4	22.5	20.1	21.8	20.1	30.5	22.5
WCDMA II	Ant 0	31.8	23.0	19.4	21.6	17.5	30.2	23.0
WCDMA IV	Ant 0	31.7	23.0	18.9	20.9	17.0	29.9	23.0
WCDMA V	Ant 0	28.7	23.0	22.1	23.0	22.1	30.5	23.0
LTE Band 2 PA (Reference Designator)	Ant 0	31.2	23.0	18.5	21.1	17.2	28.3	23.0
LTE Band 4 PA (Reference Designator)	Ant 4	16.4	23.0	17.1	19.2	14.5	26.0	23.0
LTE Band 7	Ant 1	27.9	23.0	20.0	21.3	20.0	28.4	23.0
LTE Band 7 PA (Reference Designator)	Ant 4	16.7	23.0	15.0	20.2	12.2	25.1	23.0
LTE Band 12(17)	Ant 0	31.4	23.0	23.9	23.0	23.9	23.0	23.0
LTE Band 12	Ant 4	28.3	23.0	29.2	23.0	27.6	23.0	23.0
LTE Band 13	Ant 0	30.2	23.0	23.0	23.0	23.0	30.3	23.0
LTE Band 13	Ant 4	24.4	23.0	24.8	23.0	23.4	23.0	23.0
LTE Band 25(2)	Ant 0	31.2	23.0	18.5	21.1	17.2	28.3	23.0
LTE Band 25(2)	Ant 4	14.8	21.0	14.4	18.8	12.9	23.7	21.0
LTE Band 26(5)	Ant 0	31.2	23.0	22.1	23.0	22.1	23.0	23.0
LTE Band 26(5)	Ant 4	24.8	23.0	24.5	23.0	23.0	28.8	23.0
LTE Band 66(4)	Ant 0	31.4	23.0	18.7	20.8	16.7	27.1	23.0
LTE Band 66(4) PA (Reference Designator)	Ant 0	31.4	23.0	18.7	20.8	16.7	27.1	23.0
LTE Band 66(4)	Ant 4	15.9	21.0	16.4	18.5	14.1	26.0	21.0
LTE Band 66 PA (Reference Designator)	Ant 4	15.9	21.0	16.4	18.5	14.1	26.0	21.0
LTE Band 41(38) PA (Reference Designator)	Ant 1	28.3	21.0	18.7	21.0	18.7	27.2	21.0
LTE Band 41(38)	Ant 4	17.3	18.0	14.9	20.8	13.1	26.5	21.0
LTE Band 42 Part 27Q	Ant 5	15.0	15.0	15.7	19.7	14.2	30.4	21.0
LTE Band 42 Part 96	Ant 5	15.0	15.0	15.7	18.6	14.2	30.4	21.0
LTE Band 48	Ant 5	16.5	17.0	16.6	18.6	15.0	32.4	21.0
FR1 n2	Ant 0	33.0	23.0	20.1	22.1	18.7	30.4	23.0
FR1 n2 PA (Reference Designator)	Ant 0	33.0	23.0	20.1	22.1	18.7	30.4	23.0
FR1 n2	Ant 4	14.7	21.0	16.1	18.7	12.3	23.1	21.0
FR1 n2 PA (Reference Designator)	Ant 4	14.7	23.0	16.1	18.7	12.3	23.1	23.0
FR1 n7	Ant 1	27.8	23.0	20.9	21.8	20.9	29.4	23.0
FR1 n7 PA (Reference Designator)	Ant 4	16.6	23.0	16.3	21.0	14.6	25.1	23.0
FR1 n26(5)	Ant 0	31.5	23.0	23.0	23.0	23.0	23.0	23.0
FR1 n26(5)	Ant 4	24.2	23.0	24.7	23.0	21.5	29.6	23.0
FR1 n66	Ant 0	31.3	23.0	18.7	21.5	18.0	29.6	23.0
FR1 n66 PA (Reference Designator)	Ant 0	31.3	23.0	18.7	21.5	18.0	29.6	23.0
FR1 n66	Ant 4	16.2	21.0	18.9	19.7	15.8	26.8	21.0
FR1 n66 PA (Reference Designator)	Ant 4	16.2	23.0	18.9	19.7	15.8	26.8	23.0
FR1 n41(38)	Ant 4	17.5	19.0	15.8	20.4	14.5	25.8	23.0
FR1 n77(78)part27O	Ant 5	13.0	13.0	16.1	19.8	14.6	25.9	23.0
FR1 n77(78)part27Q	Ant 5	13.0	13.0	16.1	19.8	14.6	25.9	23.0
FR1 n77(78)part27O	Ant 1	18.5	18.5	18.5	18.5	18.5	18.5	18.5
FR1 n77(78)part27Q	Ant 1	18.5	18.5	18.5	18.5	18.5	18.5	18.5
FR1 n77(78)part27O	Ant 2	19.5	19.5	19.5	19.5	19.5	19.5	19.5
FR1 n77(78)part27Q	Ant 2	20.0	20.0	20.0	20.0	20.0	20.0	20.0
FR1 n77(78)part27O	Ant 8	21.5	21.5	17.5	21.5	16.0	21.5	21.5
FR1 n77(78)part27Q	Ant 8	22.0	22.0	18.0	22.0	16.5	22.0	22.0

Note:

- 1) *Pmax is used for RF tune up procedure. The maximum allowed output power is equal to $P_{max} + 1.0$ dB device uncertainty.
- 2) All Plimit power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).
- 3) The max allowed output power is the Plimit + 1.0 dB device uncertainty, and if Plimit is higher than Pmax, the device output power will be Pmax instead.
- 4) During a head-mode call, when the receiver detection mechanism triggers (i.e., earpiece on), the maximum power level for head exposure conditions is reduced to a level below the full power level.

5. RF Exposure Limits

5.1 Uncontrolled Environment

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.

5.2 Controlled Environment

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. The 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.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

6. Specific Absorption Rate (SAR)

6.1 Introduction

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.

6.2 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:

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

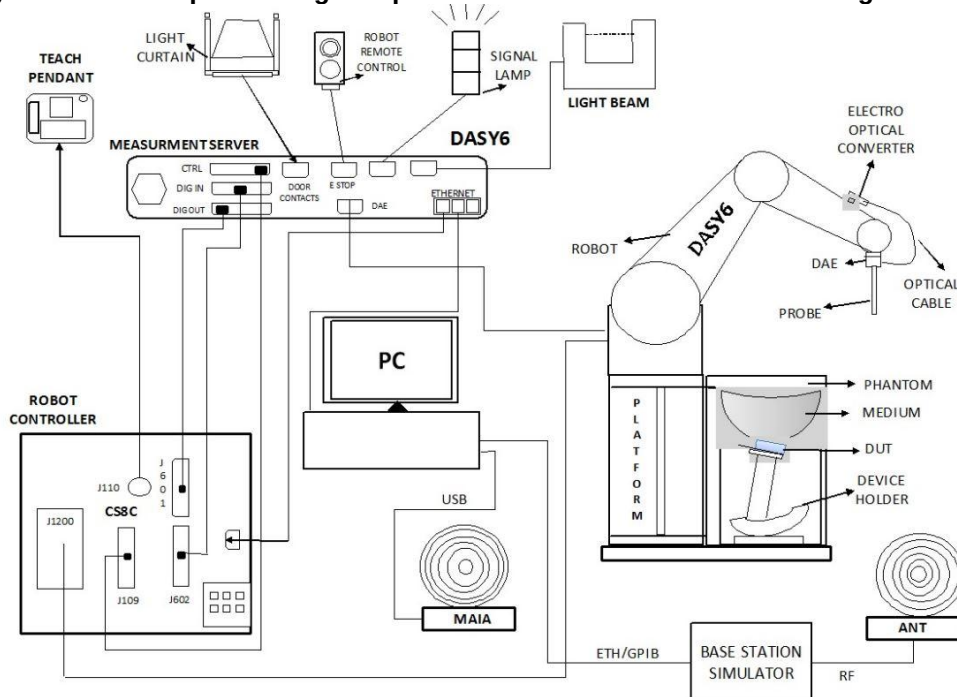
SAR is expressed in units of Watts per kilogram (W/kg)

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

7. System Description and Setup

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



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win7 or Win10 and the DASY5 or DASY6/8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

7.1 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3786) and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Laboratory	Wensan Laboratory		
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan		
Test Site No.	SAR18-HY	SAR19-HY	SAR20-HY

7.2 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz – 10 GHz Linearity: ± 0.2 dB (30 MHz – 10 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 μ W/g – >100 mW/g Linearity: ± 0.2 dB (noise: typically <1 μ W/g)	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	

7.3 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



Photo of DAE

7.4 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)	
Filling Volume	Approx. 30 liters	
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices or for evaluating transmitters operating at low frequencies. ELI is fully compatible with standard and all known tissue simulating liquids.

7.5 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



Mounting Device for Laptops

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

- (a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- (b) Read the WWAN RF power level from the base station simulator.
- (c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
- (d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

- (a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- (b) Place the EUT in the positions as Appendix D demonstrates.
- (c) Set scan area, grid size and other setting on the DASY software.
- (d) Measure SAR results for the highest power channel on each testing position.
- (e) Find out the largest SAR result on these testing positions of each band
- (f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

8.1 *Spatial Peak SAR Evaluation*

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

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

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

8.2 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. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.3 Area 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. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), 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 parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$	≤ 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 $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$			≤ 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: $\Delta z_{\text{Zoom}}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{\text{Zoom}}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <u>reported</u> SAR from the <u>area scan based 1-g SAR estimation</u> procedures of KDB 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.				

8.5 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1107	Jun. 11, 2025	Jun. 09, 2027
SPEAG	750MHz System Validation Kit	D750V3	1117	Mar. 12, 2025	Mar. 10, 2027
SPEAG	835MHz System Validation Kit	D835V2	4d167	Apr. 23, 2026	Apr. 22, 2027
SPEAG	1750MHz System Validation Kit	D1750V2	1112	Feb. 20, 2025	Feb. 18, 2027
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Aug. 15, 2024	Aug. 13, 2026
SPEAG	2450MHz System Validation Kit	D2450V2	929	Nov. 12, 2025	Nov. 11, 2026
SPEAG	2600MHz System Validation Kit	D2600V2	1078	Jun. 11, 2025	Jun. 09, 2027
SPEAG	3500MHz System Validation Kit	D3500V2	1014	Jan. 15, 2025	Jan. 13, 2027
SPEAG	3700MHz System Validation Kit	D3700V2	1006	Jun. 12, 2025	Jun. 10, 2027
SPEAG	3900MHz System Validation Kit	D3900V2	1092	May. 11, 2026	May. 10, 2027
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Oct. 15, 2024	Oct. 13, 2026
SPEAG	13MHz System Validation Kit	CLA13	1022	Sep. 12, 2025	Sep. 11, 2026
SPEAG	Data Acquisition Electronics	DAE3	577	Mar. 13, 2026	Mar. 12, 2027
SPEAG	Data Acquisition Electronics	DAE4	1399	Mar. 11, 2026	Mar. 10, 2027
SPEAG	Data Acquisition Electronics	DAE4	1424	Dec. 03, 2025	Dec. 02, 2026
SPEAG	Data Acquisition Electronics	DAE4	1776	Feb. 13, 2026	Feb. 12, 2027
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Oct. 23, 2025	Oct. 22, 2026
SPEAG	Dosimetric E-Field Probe	EX3DV4	3976	Jan. 27, 2026	Jan. 26, 2027
SPEAG	Dosimetric E-Field Probe	EX3DV4	7694	Oct. 23, 2025	Oct. 22, 2026
SPEAG	Dosimetric E-Field Probe	EX3DV4	7791	Feb. 20, 2026	Feb. 19, 2027
SPEAG	Dosimetric E-Field Probe	EX3DV4	7700	Jan. 26, 2026	Jan. 25, 2027
Testo	Hygro meter	608-H1	45196600	Nov. 04, 2025	Nov. 03, 2026
Testo	Hygro meter	608-H1	45207528	Nov. 04, 2025	Nov. 03, 2026
Testo	Hygro meter	608-H1	45256904	Dec. 08, 2025	Dec. 07, 2026
Testo	Hygro meter	608-H1	45142597	Jan. 19, 2026	Jan. 18, 2027
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Nov. 20, 2025	Nov. 19, 2026
Anritsu	Radio Communication Analyzer	MT8821C	6201074414	Aug. 19, 2025	Aug. 18, 2026
Anritsu	Radio Communication Analyzer	MT8820C	6201381760	Jul. 30, 2025	Jul. 29, 2026
Keysight	Wireless Communication Test Set	E5515C	MY50266977	Apr. 10, 2026	Apr. 09, 2027
Keysight	Wireless Communication Test Set	E5515C	MY50267236	Mar. 02, 2026	Mar. 01, 2027
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Sep. 24, 2025	Sep. 23, 2026
Anritsu	Signal Generator	MG3692C	212506	Nov. 22, 2025	Nov. 21, 2026
Anritsu	Signal Generator	MG3692C	113508	Jan. 22, 2026	Jan. 21, 2027
R&S	Signal Generator	SMA100A	101091	Nov. 18, 2025	Nov. 17, 2026
Keysight	ENA Network Analyzer	E5071C	MY46104758	Oct. 14, 2025	Oct. 13, 2026
Keysight	ENA Network Analyzer	E5071C	MY46316648	Dec. 09, 2025	Dec. 08, 2026
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 16, 2025	Sep. 15, 2026
SPEAG	Dielectric Probe Kit	DAK-3.5	1270	May. 11, 2026	May. 10, 2027
SPEAG	Dielectric Probe Kit	DAK-12	1169	Aug. 18, 2025	Aug. 17, 2026
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3690	Aug. 14, 2025	Aug. 13, 2026
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3902	Feb. 23, 2026	Feb. 22, 2027
Anritsu	Power Meter	ML2495A	1419002	Aug. 13, 2024	Aug. 11, 2026
Anritsu	Power Meter	ML2495A	1804003	Aug. 18, 2025	Aug. 17, 2026
Anritsu	Power Sensor	MA2411B	1726150	Aug. 18, 2025	Aug. 17, 2026
R&S	Power Sensor	NRP8S	103999	May. 22, 2026	May. 21, 2027
R&S	Power Sensor	NRP8S	109687	Sep. 22, 2025	Sep. 21, 2026
R&S	Power Sensor	NRP8S	109688	Sep. 15, 2025	Sep. 14, 2026
R&S	Power Sensor	NRP50S	100983	Dec. 01, 2025	Nov. 30, 2026
Anritsu	Spectrum Analyzer	MS2830A	6272625959	Aug. 14, 2025	Aug. 13, 2026
Anritsu	Spectrum Analyzer	N9010A	MY53470118	Sep. 09, 2025	Sep. 08, 2026
Mini-Circuits	Power Amplifier	ZVE-3W-83+	1651	Dec. 24, 2025	Dec. 23, 2026
Mini-Circuits	Power Amplifier	ZVE-8G+	D120604	Oct. 17, 2025	Oct. 16, 2026
Mini-Circuits	Power Amplifier	ZHL-42W+	QA1344002	Oct. 17, 2025	Oct. 16, 2026
Mini-Circuits	Power Amplifier	ZHL-42W+	N147802518	Jul. 30, 2025	Jul. 29, 2026
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Warison	Directional Coupler	WCOU-10-50S-10	WR889BMC4B1	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005-3	N/A	Note 1	

Note:

- Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check.
- Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.

3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

10. System Verification

10.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.2.

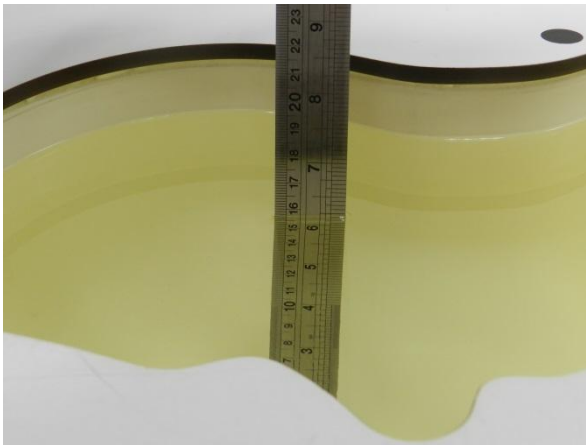


Fig 11.1 Photo of Liquid Height for Head SAR

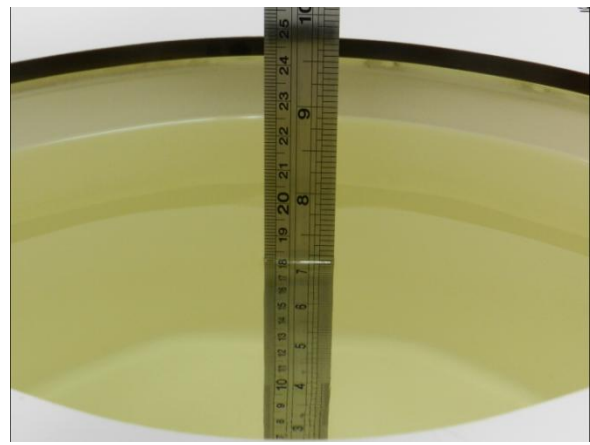


Fig 11.2 Photo of Liquid Height for Body SAR

10.2 Tissue Verification

The tissue dielectric parameters of tissue-equivalent media used for SAR measurements must be characterized within a temperature range of 18°C to 25°C, measured with calibrated instruments and apparatuses, such as network analyzers and temperature probes. The temperature of the tissue-equivalent medium during SAR measurement must also be within 18°C to 25°C and within $\pm 2^\circ\text{C}$ of the temperature when the tissue parameters are characterized. The tissue dielectric measurement system must be calibrated before use. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements.

The depth of the tissue-equivalent liquid in the phantom was at least 15 cm for all SAR testing.

The SPEAG DASY Measurement system implement a SAR error compensation algorithm as documented in IEEE Std 1528-2013 to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, according to KDB 865664 D01 and IEC/IEEE 62209-1528, the tolerance for "Delta (σ)" and "Delta (ϵ_r)" can be relaxed to $\pm 10\%$.



<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp (°C)	Conductivity (σ)	Permittivity (ε _r)	Conductivity Target (σ)	Permittivity Target (ε _r)	Delta (σ) (%)	Delta (ε _r) (%)	Limit (%)	Date
750	22.5	0.858	43.400	0.89	41.90	-3.60	3.58	±10	2026/7/3
835	22.5	0.883	43.2	0.90	41.50	-1.89	4.10	±10	2026/7/3
1750	22.4	1.31	41.4	1.37	40.10	-4.38	3.24	±10	2026/7/2
1900	22.4	1.400	41.200	1.40	40.00	0.00	3.00	±10	2026/7/2
2450	22.6	1.840	39.600	1.80	39.20	2.22	1.02	±10	2026/7/2
2450	22.4	1.790	40.400	1.80	39.20	-0.56	3.06	±10	2026/7/5
2600	22.2	1.900	40.200	1.96	39.00	-3.06	3.08	±10	2026/7/1
2600	22.6	2.060	40.500	1.96	39.00	5.10	3.85	±10	2026/7/6
3500	22.4	2.680	38.500	2.91	37.90	-7.90	1.58	±10	2026/7/1
3500	22.6	2.730	37.700	2.91	37.90	-6.19	-0.53	±10	2026/7/2
3500	22.6	2.770	38.700	2.91	37.90	-4.81	2.11	±10	2026/7/6
3700	22.6	2.910	37.400	3.12	37.70	-6.73	-0.80	±10	2026/7/2
3700	22.6	2.870	37.900	3.12	37.70	-8.01	0.53	±10	2026/7/6
3900	22.4	3.070	38.000	3.33	37.51	-7.81	1.31	±10	2026/7/1
3900	22.6	3.110	37.100	3.33	37.51	-6.61	-1.09	±10	2026/7/2
3900	22.6	3.240	37.900	3.33	37.51	-2.70	1.04	±10	2026/7/6
5250	22.6	4.540	34.800	4.71	35.95	-3.61	-3.20	±10	2026/7/2
5250	22.4	4.540	35.400	4.71	35.95	-3.61	-1.53	±10	2026/7/5
5600	22.6	4.920	34.300	5.07	35.50	-2.96	-3.38	±10	2026/7/2
5600	22.4	4.920	34.700	5.07	35.50	-2.96	-2.25	±10	2026/7/5
5800	22.6	5.140	33.900	5.27	35.30	-2.47	-3.97	±10	2026/7/2
5800	22.4	5.150	34.300	5.27	35.30	-2.28	-2.83	±10	2026/7/5
13	22.6	0.758	55.200	0.75	55.00	1.07	0.36	±10	2026/7/16
750	22.5	0.883	42.300	0.89	41.90	-0.79	0.95	±10	2026/8/26
3500	22.5	2.690	37.400	2.91	37.90	-7.56	-1.32	±10	2026/8/26
3700	22.5	2.870	37.100	3.12	37.70	-8.01	-1.59	±10	2026/8/26

10.3 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2026/7/3	750	250	D750V3-1117	EX3DV4 - SN3976	DAE4 Sn1776	2.070	8.600	8.28	-3.72	1.380	5.570	5.52	-0.90
2026/7/3	835	250	D835V2-4d167	EX3DV4 - SN3976	DAE4 Sn1776	2.260	9.550	9.04	-5.34	1.490	6.250	5.96	-4.64
2026/7/2	1750	50	D1750V2-1112	EX3DV4 - SN3976	DAE4 Sn1776	1.770	36.300	35.4	-2.48	0.955	19.300	19.1	-1.04
2026/7/2	1900	50	D1900V2-5d041	EX3DV4 - SN3976	DAE4 Sn1776	1.940	39.200	38.8	-1.02	1.030	20.700	20.6	-0.48
2026/7/2	2450	50	D2450V2-929	EX3DV4 - SN7791	DAE4 Sn1399	2.520	53.300	50.4	-5.44	1.170	25.200	23.4	-7.14
2026/7/5	2450	50	D2450V2-929	EX3DV4 - SN3976	DAE4 Sn1776	2.520	53.300	50.4	-5.44	1.180	25.200	23.6	-6.35
2026/7/1	2600	50	D2600V2-1078	EX3DV4 - SN3976	DAE4 Sn1776	2.520	55.300	50.4	-8.86	1.150	24.900	23	-7.63
2026/7/6	2600	50	D2600V2-1078	EX3DV4 - SN7694	DAE4 Sn1424	2.700	55.300	54	-2.35	1.220	24.900	24.4	-2.01
2026/7/1	3500	50	D3500V2-1014	EX3DV4 - SN3976	DAE4 Sn1776	3.160	65.700	63.2	-3.81	1.210	24.900	24.2	-2.81
2026/7/2	3500	50	D3500V2-1014	EX3DV4 - SN7791	DAE4 Sn1399	3.070	65.700	61.4	-6.54	1.170	24.900	23.4	-6.02
2026/7/6	3500	50	D3500V2-1014	EX3DV4 - SN7694	DAE4 Sn1424	3.200	65.700	64	-2.59	1.220	24.900	24.4	-2.01
2026/7/2	3700	50	D3700V2-1006	EX3DV4 - SN7791	DAE4 Sn1399	3.240	69.900	64.8	-7.30	1.200	25.600	24	-6.25
2026/7/6	3700	50	D3700V2-1006	EX3DV4 - SN7694	DAE4 Sn1424	3.230	69.900	64.6	-7.58	1.190	25.600	23.8	-7.03
2026/7/1	3900	50	D3900V2-1092	EX3DV4 - SN3976	DAE4 Sn1776	3.020	65.700	60.4	-8.07	1.080	23.100	21.6	-6.49
2026/7/2	3900	50	D3900V2-1092	EX3DV4 - SN7791	DAE4 Sn1399	3.210	65.700	64.2	-2.28	1.130	23.100	22.6	-2.16
2026/7/6	3900	50	D3900V2-1092	EX3DV4 - SN7694	DAE4 Sn1424	3.180	65.700	63.6	-3.20	1.130	23.100	22.6	-2.16
2026/7/2	5250	47.86	D5250V2-1006	EX3DV4 - SN7791	DAE4 Sn1399	3.570	80.600	74.6	-7.45	1.030	22.800	21.5	-5.61
2026/7/5	5250	50	D5GHZv2-1006	EX3DV4 - SN3976	DAE4 Sn1776	3.640	80.600	72.8	-9.68	1.040	22.800	20.8	-8.77
2026/7/2	5600	47.86	D5GHZv2-1006	EX3DV4 - SN7791	DAE4 Sn1399	3.840	83.400	80.2	-3.80	1.090	23.700	22.8	-3.90
2026/7/5	5600	50	D5GHZv2-1006	EX3DV4 - SN3976	DAE4 Sn1776	3.980	83.400	79.6	-4.56	1.120	23.700	22.4	-5.49
2026/7/2	5800	47.86	D5GHZv2-1006	EX3DV4 - SN7791	DAE4 Sn1399	3.700	80.600	77.3	-4.08	1.050	22.700	21.9	-3.35
2026/7/5	5800	50	D5GHZv2-1006	EX3DV4 - SN3976	DAE4 Sn1776	3.860	80.600	77.2	-4.22	1.080	22.700	21.6	-4.85
2026/7/16	13	1000	CLA13-1022	EX3DV4 - SN3931	DAE4 Sn1424	0.515	0.536	0.515	-3.92	0.319	0.337	0.319	-5.34
2026/8/26	750	250	D750V3-1107	EX3DV4 - SN7700	DAE3 Sn577	2.240	8.840	8.96	1.36	1.510	5.810	6.04	3.96
2026/8/26	3500	100	D3500V2-1014	EX3DV4 - SN7700	DAE3 Sn577	6.770	65.700	67.7	3.04	2.520	24.900	25.2	1.20
2026/8/26	3700	100	D3700V2-1006	EX3DV4 - SN7700	DAE3 Sn577	6.630	69.900	66.3	-5.15	2.400	25.600	24	-6.25

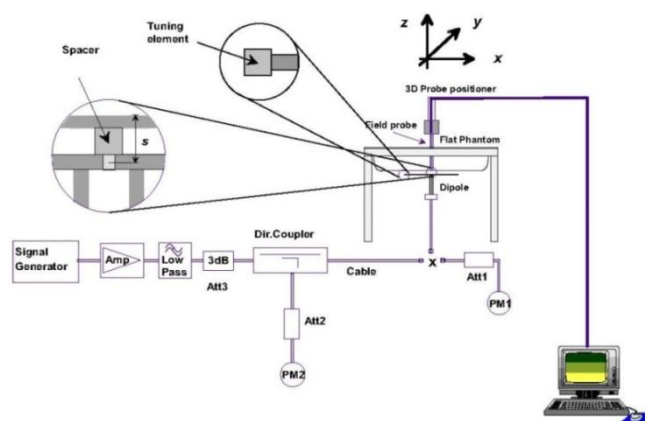


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo



Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 12.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled “M,” the left ear reference point (ERP) is marked “LE,” and the right ERP is marked “RE.” Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 12.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 12.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

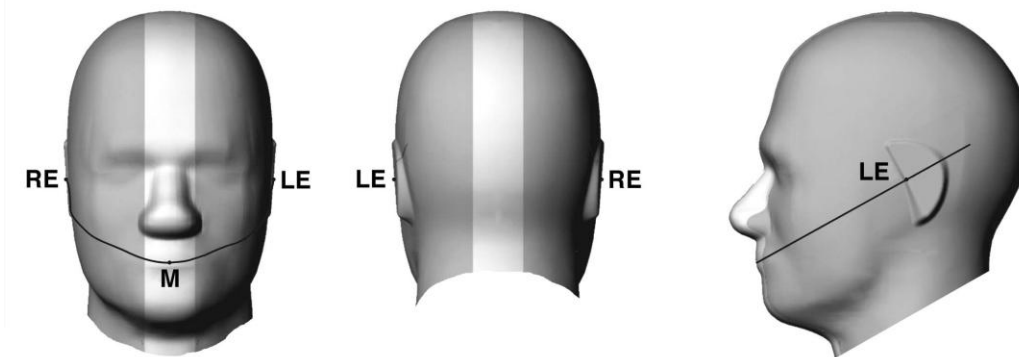


Fig 12.1.1 Front, back, and side views of SAM twin phantom

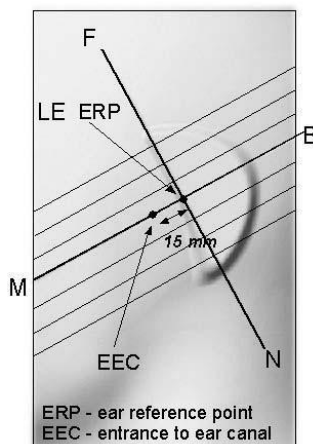


Fig 12.1.2 Close-up side view of phantom showing the ear region.

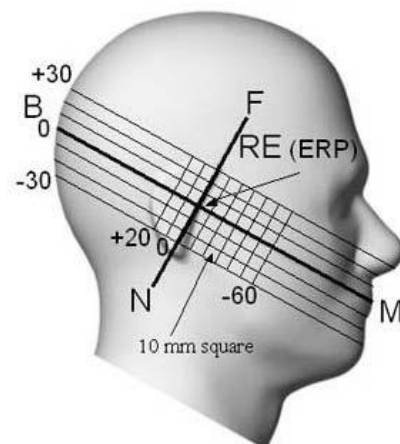


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width w_t of the handset at the level of the acoustic output (point A in Figure 12.2.1 and Figure 12.2.2), and the midpoint of the width w_b of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 12.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 12.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 12.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 12.2.3. The actual rotation angles should be documented in the test report.

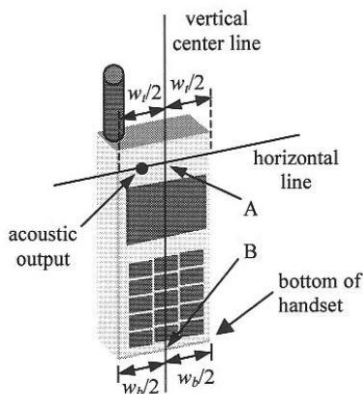


Fig 12.2.1 Handset vertical and horizontal reference lines—“fixed case”

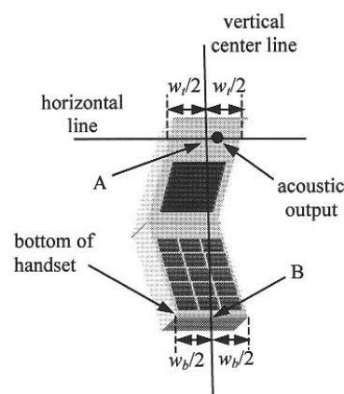


Fig 12.2.2 Handset vertical and horizontal reference lines—“clam-shell case”

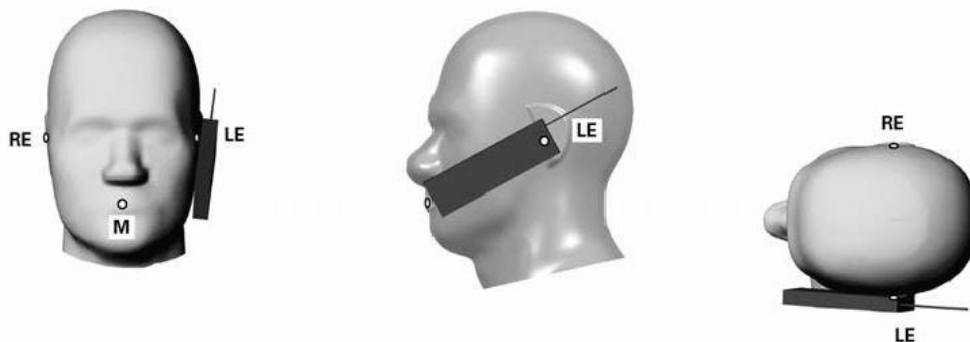


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 12.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

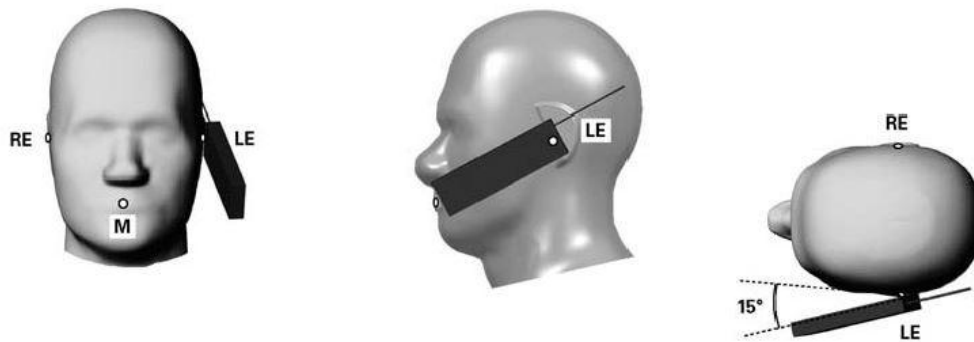


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

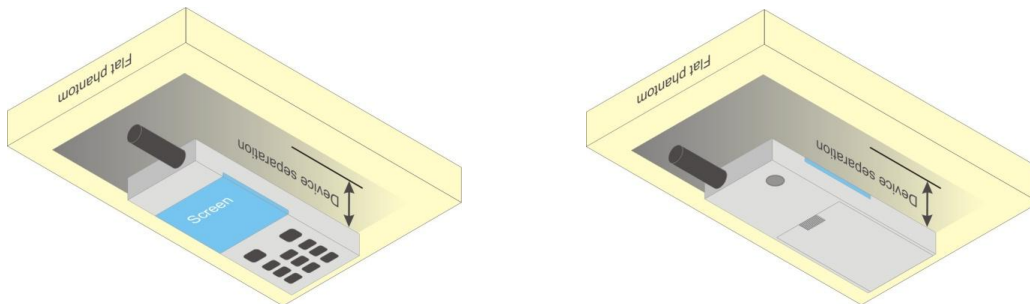


Fig 12.4 Body Worn Position

11.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.⁶ The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

11.6 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 v02r01 where SAR test considerations for handsets ($L \times W \geq 9$ cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

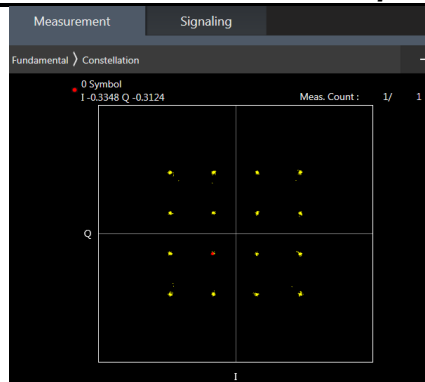
12. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

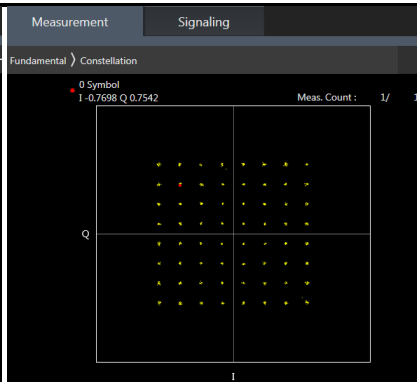
<LTE Conducted Power>

General Note:

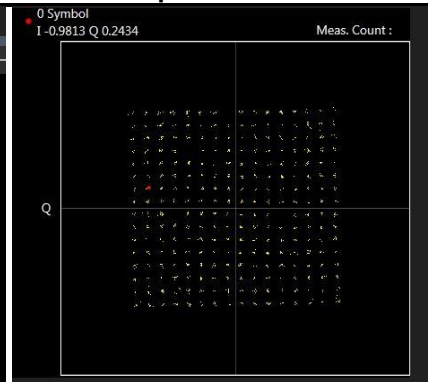
1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $> \text{not } \frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, 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.
9. LTE B17 / B5 SAR test was covered by B12 / B26; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band
10. According to May 2017 TCB workshop, for 16QAM and 64QAM, 256QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 256QAM, 64QAM and 16QAM signal modulation are correct.



16QAM



64QAM



256QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS
- Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

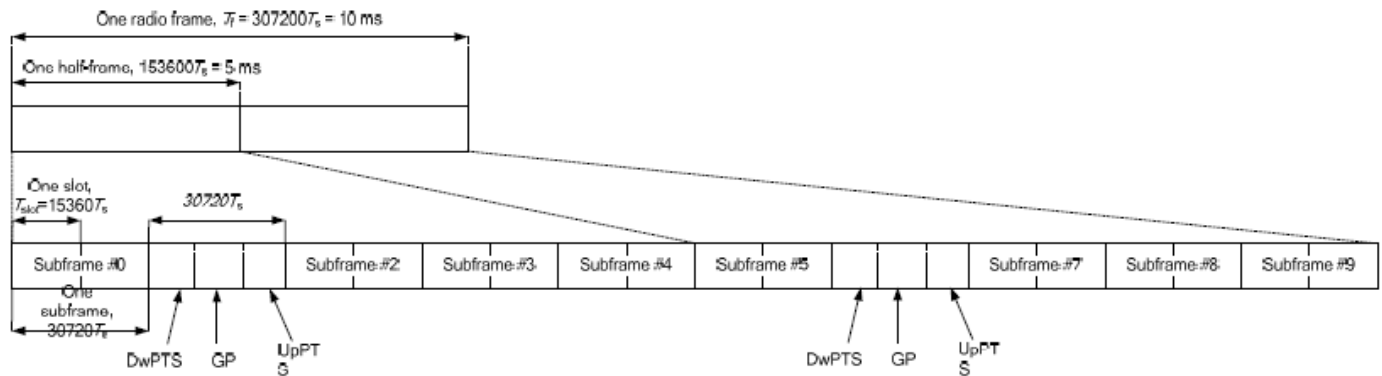


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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

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	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
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	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-		
9	$13168 \cdot T_s$			-		

Special subframe (30720·T _s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~4	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T _s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
Uplink duty factor in one special subframe	0~3	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

For LTE TDD Power class 3

- Uplink-downlink configuration: 0. In a half-frame consisted of 5 subframes, uplink operation is in 3 uplink subframes and 1 special subframe.
- special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink
- for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: $(3+0.167)/5 = 63.3\%$
- for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: $(3+0.143)/5 = 62.9\%$
- For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix $63.3\%/62.9\% = 1.006$ is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<LTE Carrier Aggregation>

The detailed LTE Carrier Aggregation conducted power table can refer to Appendix F.

General Note:

1. Per Oct. 2024 TCB workshop, the downlink (DL) pertains to receiver functionality, thus it is not related to RF exposure compliance limits related to cumulative effects of different transmitters.
2. Per Oct. 2024 TCB workshop, equipment authorization applications shall refer to the worst-case UL powers resulting from all the possible modes of operations. Accordingly, CA-DL cases do not need to be analyzed separately, unless pertinent to establishing UL power setting.
3. Per Oct. 2024 TCB workshop, Manufacturer declares that TX power measurement for multiple DL CA configurations is deemed not required as the DL CA has no impact on the TX power according to preliminary scan. TX power measured in LTE standalone operation represents the worst case.
4. This device supports LTE carrier aggregation in the downlink. All uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

LTE Carrier Aggregation Conducted Power (Uplink)

LTE Uplink CA	2CC Uplink Carrier Aggregation
Intra-band	Antenna Tx
CA_5B	Ant 0
CA_48B	Ant 5
CA_48C	Ant 5

<Intra-band>
General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B5/48 with a maximum of two uplink component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when not-contiguous RB allocation is implemented. The conducted power and MPR setting in this device are permanently implemented pre 3GPP requirement.
- ii. According Nov. 2017 TCB workshop, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
- iii. Additional SAR measurement for LTE UL CA with other DL CA combinations active were not required since the maximum output power for this configuration was not > 0.25dB higher than the maximum output power for UL CA active.
- iv. LTE CA_48B test was covered by LTE CA_48C; therefore, SAR was only assessed for LTE CA_48C.
- v. Only operations relevant to this permissive change were evaluated for compliance.

<Inter-band uplink carrier aggregation consideration>

LTE Uplink CA	2CC Uplink Carrier Aggregation	
Inter-band	LTE TX	LTE TX
CA_2A-48A	ANT0	ANT5
CA_48A-66A	ANT5	ANT0

General Note:

1. The single carrier of inter band CA uplink power level is the same as Non-CA standalone LTE power level.
2. The product implements MediaTek TA-SAR feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with RF exposure limit over a defined time window, for SAR (transmit frequency $\leq 6\text{GHz}$). To control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement.
3. For LTE inter-band CA mode, MediaTek TA-SAR algorithm in WWAN adds directly the time-averaged RF exposure between two LTE bands. TA-SAR algorithm controls the total RF exposure base on LTE inter CA bands to not exceed FCC limit. In Part 1 Report, TA-SAR compliance was evaluated with other Radios (WLAN or BT) using standalone LTE SAR mode.
4. Only operations relevant to this permissive change were evaluated for compliance.

5G NR Output Power (Unit: dBm)**General Note:**

1. 5G NR n2/n5/n7/n66/n38/n41/n78 is NSA mode.
2. 5G NR n2/n5/n7/n26/n66/n38/n41/n77/n78 is SA mode.
3. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-s QPSK and the reported SAR for the DFT-s QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
 - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class2 and 3, for 16QAM/64QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QAM/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
 - c. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel
 - d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested
 - f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK /16QAM/64QAM/256QAM SAR testing are not required.
 - g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
4. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
5. For 5G NR, the simultaneous transmission analysis is used standalone SAR at total power level to show compliance.
6. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.
7. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary.
8. NSA and SA mode should perform SAR separately. For the maximum power of NSA mode is the same as SA total power level, so SA SAR can represent NSA mode SAR.
9. 5G NR NSA mode, the power level is the same as 5G NR SA mode, so 5G NR NSA mode and SA mode power table only show one time.

<3GPP 38.101 MPR for EN-DC>
Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability *powerBoosting-pi2BPSK* and if the IE *powerBoostPi2BPSK* is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE *powerBoostPi2BPSK* is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		



<EN-DC combination>

ENDC	Main Antenna Tx	
	LTE TX	NR TX
DC_12A_n2A	Ant 4	Ant 0
DC_12A_n41A	Ant 0	Ant 4
DC_12A_n66A	Ant 4	Ant 0
DC_12A_n78A	Ant 0	Ant 5
DC_2A_n38A	Ant 0	Ant 4
DC_2A_n41A	Ant 0	Ant 4
DC_2A_n5A	Ant 0	Ant 4
DC_2A_n66A	Ant 0	Ant 4
DC_2A_n78A	Ant 0	Ant 5
DC_2A_n7A	Ant 0	Ant 4
DC_38A_n78A	Ant 1	Ant 5
DC_4A_n2A	Ant 0	Ant 4
DC_4A_n78A	Ant 0	Ant 5
DC_4A_n7A	Ant 0	Ant 4
DC_5A_n38A	Ant 0	Ant 4
DC_5A_n41A	Ant 0	Ant 4
DC_5A_n78A	Ant 0	Ant 5
DC_5A_n7A	Ant 0	Ant 4
DC_66A_n38A	Ant 0	Ant 4
DC_66A_n41A	Ant 0	Ant 4
DC_66A_n78A	Ant 0	Ant 5
DC_66A_n7A	Ant 0	Ant 4
DC_7A_n2A	Ant 1	Ant 4
DC_7A_n66A	Ant 1	Ant 4
DC_7A_n78A	Ant 1	Ant 5
DC_4A_n38A	ANT0	ANT4
DC_4A_n41A	ANT0	ANT4
DC_41A_n78A	ANT1	ANT5
DC_12A_n38A	ANT0	ANT4
DC_12A_n77A	ANT0	ANT5
DC_13A_n2A	ANT4	ANT0
DC_13A_n66A	ANT4	ANT0
DC_13A_n77A	ANT0	ANT5
DC_26A_n77A	ANT0	ANT5
DC_26A_n78A	ANT0	ANT5
DC_2A_n77A	ANT0	ANT5
DC_41A_n77A	ANT1	ANT5
DC_5A_n2A	ANT4	ANT0
DC_5A_n66A	ANT4	ANT0
DC_5A_n77A	ANT0	ANT5
DC_66A_n2A	ANT0	ANT4
DC_66A_n5A	ANT0	ANT4
DC_66A_n77A	ANT0	ANT5

Note: Only operations specifically relevant to this permissive change and marked in yellow in the above table were evaluated for compliance.



13. Antenna Location

The detailed antenna location information can refer to SAR Test Setup Photos.

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
 - a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
 - b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
 - c. For SAR testing of Bluetooth signal with 83.3% theoretical duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle) *83.3%".
 - d. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - e. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - f. For TDD LTE SAR measurement of power class 3, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The reported TDD LTE SAR (W/kg) = Measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
 - a. For this device SAR for WWAN/WLAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of GSM850/1900, WCDMA Band II/IV/V, LTE Band 2/4/5/7/13/25/26/66/38/41/42/48, 5G NR n2/n7/n5/n26/n66/n38/n41/n77/n78, WLAN 5.8GHz/WLAN 5.2GHz, therefore product specific 10g SAR is necessary.
 - b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
 - c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.
4. Although the headset SAR is greater than 0.8 W/kg, the headset SAR verified the worst of the non-headset SAR and less than non-headset SAR, so there is no need to be tested other channels.
5. According to Nov. 2017 TCB workshop, when the reported 1gSAR for UL CA configuration is <1.2 W/kg, UL CA 1gSAR is not required for all required test channels (PCC based).

LTE Note:

1. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, for QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, 16QAM/64QAM/256QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, smaller bandwidth output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B26 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, 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.
7. LTE B5 / B17 SAR test was covered by B26 / B12; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

5G NR Note:

1. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - b. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - c. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
 - d. $\text{PI}/2$ BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not $\frac{1}{2}$ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, $\text{PI}/2$ BPSK /16QAM/64QAM/256QAM SAR testing are not required.
 - e. Smaller bandwidth output power for each RB allocation configuration for this device will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
 - f. For 5G FR1 n2/n5 /n7/n26/n66/n38/n41/n77 the maximum bandwidth does not support three non-overlapping channels, 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.



14.1 Head SAR

Plot No	Band	BW	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Antenna	Power State	PA	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
01	GSM850	-	-	-	-	GPRS 4 Tx slots	Left Cheek	0mm	Ant 0	ECI 2	-	189	836.4	28.05	28.50	1.109	-	-	0.07	0.323	0.358
02	GSM1900	-	-	-	-	GPRS 4 Tx slots	Right Cheek	0mm	Ant 0	ECI 2	-	661	1880	25.24	26.50	1.337	-	-	0.11	0.175	0.234
03	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	ECI 2	-	9400	1880	22.42	24.00	1.439	-	-	0.02	0.121	0.174
04	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	ECI 2	-	1413	1732.6	22.41	24.00	1.442	-	-	0.15	0.178	0.257
05	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	ECI 2	-	4182	836.4	22.57	24.00	1.390	-	-	0.07	0.224	0.311
06	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2-1	PA (Reference Designator)	18900	1880	22.47	24.00	1.422	-	-	0.05	0.145	0.206
07	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 4	ECI 2-1	PA (Reference Designator)	20175	1732.5	16.82	17.40	1.143	-	-	-0.02	0.803	0.918
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2	-	21100	2535	22.93	24.00	1.279	-	-	0.12	0.337	0.431
08	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2-1	PA (Reference Designator)	20850	2510	16.63	17.70	1.279	-	-	0	0.583	0.746
09	LTE Band 12	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	-	23095	707.5	22.27	24.00	1.489	-	-	0.02	0.134	0.200
	LTE Band 12	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 4	ECI 2	-	23095	707.5	22.57	24.00	1.390	-	-	-0.03	0.127	0.177
	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	-	23230	782	22.21	24.00	1.510	-	-	0	0.177	0.267
10	LTE Band 13	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 2	-	23230	782	22.79	24.00	1.321	-	-	0	0.488	0.645
	LTE Band 13	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 4	ECI 2	-	23230	782	22.69	24.00	1.352	-	-	-0.08	0.476	0.644
	LTE Band 13	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2	-	23230	782	22.79	24.00	1.321	-	-	0.12	0.377	0.498
	LTE Band 13	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 4	ECI 2	-	23230	782	22.69	24.00	1.352	-	-	0.03	0.363	0.491
	LTE Band 13	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 4	ECI 2	-	23230	782	22.79	24.00	1.321	-	-	0.18	0.314	0.415
	LTE Band 13	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 4	ECI 2	-	23230	782	22.69	24.00	1.352	-	-	0.16	0.315	0.426
	LTE Band 13	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 4	ECI 2	-	23230	782	22.79	24.00	1.321	-	-	-0.1	0.307	0.406
	LTE Band 13	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 4	ECI 2	-	23230	782	22.69	24.00	1.352	-	-	0.07	0.303	0.410
	LTE Band 25	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	-	26340	1880	22.23	24.00	1.503	-	-	0.07	0.198	0.298
11	LTE Band 25	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2	-	26590	1905	15.26	15.80	1.132	-	-	0.01	0.807	0.914
	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	-	26865	831.5	22.26	24.00	1.493	-	-	0.12	0.223	0.333
	LTE Band 5B	10M	QPSK	1	49	-	Right Cheek	0mm	Ant 0	ECI 2	-	20476+20575	831.6+841.5	22.24	24.00	1.500	-	-	-0.02	0.221	0.332
12	LTE Band 26	15M	QPSK	1	0	-	Right Cheek	0mm	Ant 4	ECI 2	-	26865	831.5	22.31	24.00	1.476	-	-	-0.01	0.533	0.787
	LTE Band 66	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	ECI 2	-	132322	1745	22.26	24.00	1.493	-	-	0.07	0.155	0.231
13	LTE Band 66	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2-1	PA (Reference Designator)	132322	1745	16.77	16.90	1.030	-	-	-0.01	0.548	0.564
14	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2-1	PA (Reference Designator)	38000	2595	22.51	24.00	1.409	62.9	1.006	0.16	0.221	0.313
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	ECI 2-1	PA (Reference Designator)	40620	2593	22.45	24.00	1.429	62.9	1.006	0.08	0.094	0.135
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	ECI 2-1	PA (Reference Designator)	40620	2593	22.45	24.00	1.429	62.9	1.006	0.01	0.078	0.112
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	ECI 2-1	PA (Reference Designator)	40620	2593	22.45	24.00	1.429	62.9	1.006	-0.04	0.150	0.216
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	ECI 2-1	PA (Reference Designator)	40620	2593	22.45	24.00	1.429	62.9	1.006	0.03	0.037	0.053
15	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 4	ECI 2	-	39750	2506	19.05	20.30	1.334	62.9	1.006	0.06	0.586	0.786
16	LTE Band 42	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	-	42590	3500	17.94	18.00	1.014	62.9	1.006	-0.01	0.598	0.610
	LTE Band 48	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	ECI 2	-	55830	3609	17.67	19.50	1.524	62.9	1.006	0.18	0.316	0.484
	LTE Band 48	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	ECI 2	-	55830	3609	17.61	19.50	1.545	62.9	1.006	-0.1	0.256	0.398
	LTE Band 48	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	ECI 2	-	55830	3609	17.67	19.50	1.524	62.9	1.006	0.01	0.332	0.509
	LTE Band 48	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	ECI 2	-	55830	3609	17.61	19.50	1.545	62.9	1.006	-0.15	0.269	0.418
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	-	55830	3609	17.67	19.50	1.524	62.9	1.006	0.19	0.430	0.659
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	-	55340	3560	17.59	19.50	1.552	62.9	1.006	0.07	0.384	0.600
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	-	56150	3641	17.60	19.50	1.549	62.9	1.006	-0.18	0.427	0.665
	LTE Band 48	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	ECI 2	-	56640	3690	17.53	19.50	1.574	62.9	1.006	0.03	0.537	0.850
	LTE Band 48	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	ECI 2	-	55830	3609	17.61	19.50	1.545	62.9	1.006	-0.15	0.334	0.519
	LTE Band 48	20M	QPSK	100	0	-	Left Cheek	0mm	Ant 5	ECI 2	-	55830	3609	17.56	19.50	1.563	62.9	1.006	-0.15	0.334	0.525
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	-	55830	3609	17.67	19.50	1.524	62.9	1.006	0.11	0.445	0.682
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	-	55340	3560	17.59	19.50	1.552	62.9	1.006	-0.08	0.399	0.623
	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	-	56150	3641	17.60	19.50	1.549	62.9	1.006	-0.17	0.452	0.704
107	LTE Band 48	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	ECI 2	-	56640	3690	17.53	19.50	1.574	62.9	1.006	-0.03	0.568	0.899



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	LTE Band 48C	20M	QPSK	100	0		Left Tilted	0mm	Ant 5	ECI 2		56640+56442	3690+3670.2	17.55	19.50	1.567	62.9	1.006	-0.07	0.510	0.804
	LTE Band 48	20M	QPSK	50	0		Left Tilted	0mm	Ant 5	ECI 2		55830	3609	17.61	19.50	1.545	62.9	1.006	-0.08	0.359	0.558
	LTE Band 48	20M	QPSK	100	0		Left Tilted	0mm	Ant 5	ECI 2		55830	3609	17.56	19.50	1.563	62.9	1.006	-0.04	0.362	0.569
	FR1 n2	40M	BPSK	108	54	-	Right Cheek	0mm	Ant 0	ECI 2	-	376000	1880	22.56	24.00	1.393	-	-	0.01	0.119	0.166
17	FR1 n2	40M	BPSK	108	54	-	Right Tilted	0mm	Ant 4	ECI 2-1	PA (Reference Designator)	376000	1880	14.34	15.70	1.368	-	-	0.03	0.593	0.811
	FR1 n7	50M	BPSK	135	68	-	Left Cheek	0mm	Ant 1	ECI 2	-	507000	2535	23.12	24.00	1.225	-	-	0.1	0.289	0.354
18	FR1 n7	50M	BPSK	1	1	-	Right Tilted	0mm	Ant 4	ECI 2-1	PA (Reference Designator)	507000	2535	16.45	17.60	1.303	-	-	0.01	0.667	0.869
	FR1 n26	20M	BPSK	50	28	-	Right Cheek	0mm	Ant 0	ECI 2	-	166300	831.5	22.48	24.00	1.419	-	-	0	0.142	0.201
19	FR1 n26	20M	BPSK	50	28	-	Right Cheek	0mm	Ant 4	ECI 2	-	166300	831.5	22.55	24.00	1.396	-	-	0.02	0.555	0.775
	FR1 n66	45M	BPSK	120	60	-	Right Cheek	0mm	Ant 0	ECI 2	-	349000	1745	22.60	24.00	1.380	-	-	0.04	0.098	0.135
20	FR1 n66	45M	BPSK	120	60	-	Right Tilted	0mm	Ant 4	ECI 2-1	PA (Reference Designator)	349000	1745	16.39	17.20	1.205	-	-	0.01	0.406	0.489
21	FR1 n41	100M	BPSK	1	1	-	Right Tilted	0mm	Ant 4	ECI 2	-	518598	2592.99	17.07	18.50	1.390	-	-	0.11	0.475	0.660
22	FR1 n77	100M	BPSK	135	69	-	Left Cheek	0mm	Ant 5	ECI 2	-	656000	3840	13.43	14.00	1.140	-	-	0.05	0.383	0.437
	FR1 n77	100M	BPSK	1	1	-	Right Cheek	0mm	Ant 5	ECI 2	-	633332	3499.98	13.42	14.00	1.143	-	-	-0.02	0.165	0.189
	FR1 n77	100M	BPSK	135	69	-	Right Cheek	0mm	Ant 5	ECI 2	-	633332	3499.98	13.36	14.00	1.159	-	-	0.08	0.138	0.160
	FR1 n77	100M	BPSK	1	1	-	Right Tilted	0mm	Ant 5	ECI 2	-	633332	3499.98	13.42	14.00	1.143	-	-	0.03	0.236	0.270
	FR1 n77	100M	BPSK	135	69	-	Right Tilted	0mm	Ant 5	ECI 2	-	633332	3499.98	13.36	14.00	1.159	-	-	-0.01	0.133	0.154
	FR1 n77	100M	BPSK	1	1	-	Left Cheek	0mm	Ant 5	ECI 2	-	633332	3499.98	13.42	14.00	1.143	-	-	0.01	0.311	0.355
	FR1 n77	100M	BPSK	135	69	-	Left Cheek	0mm	Ant 5	ECI 2	-	633332	3499.98	13.36	14.00	1.159	-	-	0.09	0.247	0.286
	FR1 n77	100M	BPSK	1	1	-	Left Tilted	0mm	Ant 5	ECI 2	-	633332	3499.98	13.42	14.00	1.143	-	-	-0.02	0.312	0.357
	FR1 n77	100M	BPSK	135	69	-	Left Tilted	0mm	Ant 5	ECI 2	-	633332	3499.98	13.36	14.00	1.159	-	-	-0.04	0.225	0.261
	FR1 n77	100M	BPSK	135	69	-	Left Cheek	0mm	Ant 1	ECI 2	-	656000	3840	18.00	19.50	1.413	-	-	-0.17	0.046	0.065
	FR1 n77	100M	BPSK	1	271	-	Right Cheek	0mm	Ant 1	ECI 2	-	633332	3499.98	18.65	19.50	1.216	-	-	0.01	0.024	0.029
	FR1 n77	100M	BPSK	135	69	-	Right Cheek	0mm	Ant 1	ECI 2	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.05	0.001	0.001
	FR1 n77	100M	BPSK	1	271	-	Right Tilted	0mm	Ant 1	ECI 2	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.05	0.046	0.056
	FR1 n77	100M	BPSK	135	69	-	Right Tilted	0mm	Ant 1	ECI 2	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.07	0.038	0.047
	FR1 n77	100M	BPSK	1	271	-	Left Cheek	0mm	Ant 1	ECI 2	-	633332	3499.98	18.65	19.50	1.216	-	-	0.09	0.061	0.074
	FR1 n77	100M	BPSK	135	69	-	Left Cheek	0mm	Ant 1	ECI 2	-	633332	3499.98	18.58	19.50	1.236	-	-	0.19	0.047	0.058
	FR1 n77	100M	BPSK	1	271	-	Left Tilted	0mm	Ant 1	ECI 2	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.17	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Left Tilted	0mm	Ant 1	ECI 2	-	633332	3499.98	18.58	19.50	1.236	-	-	0.17	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Right Cheek	0mm	Ant 2	ECI 2	-	656000	3840	19.84	20.50	1.164	-	-	0.14	0.099	0.115
	FR1 n77	100M	BPSK	1	1	-	Right Cheek	0mm	Ant 2	ECI 2	-	633332	3499.98	20.17	21.00	1.211	-	-	0.02	0.220	0.266
	FR1 n77	100M	BPSK	135	69	-	Right Cheek	0mm	Ant 2	ECI 2	-	633332	3499.98	20.15	21.00	1.216	-	-	0.11	0.213	0.259
	FR1 n77	100M	BPSK	1	1	-	Right Tilted	0mm	Ant 2	ECI 2	-	633332	3499.98	20.17	21.00	1.211	-	-	0.11	0.121	0.147
	FR1 n77	100M	BPSK	135	69	-	Right Tilted	0mm	Ant 2	ECI 2	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.11	0.119	0.145
	FR1 n77	100M	BPSK	1	1	-	Left Cheek	0mm	Ant 2	ECI 2	-	633332	3499.98	20.17	21.00	1.211	-	-	0.08	0.090	0.109
	FR1 n77	100M	BPSK	135	69	-	Left Cheek	0mm	Ant 2	ECI 2	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.02	0.056	0.068
	FR1 n77	100M	BPSK	1	1	-	Left Tilted	0mm	Ant 2	ECI 2	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.1	0.037	0.045
	FR1 n77	100M	BPSK	135	69	-	Left Tilted	0mm	Ant 2	ECI 2	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.17	0.041	0.050
	FR1 n77	100M	BPSK	1	1	-	Left Cheek	0mm	Ant 8	ECI 2	-	656000	3840	21.56	22.50	1.242	-	-	-0.01	0.020	0.025
	FR1 n77	100M	BPSK	1	1	-	Right Cheek	0mm	Ant 8	ECI 2	-	633332	3499.98	22.11	23.00	1.227	-	-	-0.02	0.060	0.074
	FR1 n77	100M	BPSK	135	69	-	Right Cheek	0mm	Ant 8	ECI 2	-	633332	3499.98	22.08	23.00	1.236	-	-	0.01	0.053	0.066
	FR1 n77	100M	BPSK	1	1	-	Right Tilted	0mm	Ant 8	ECI 2	-	633332	3499.98	22.11	23.00	1.227	-	-	0.08	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Right Tilted	0mm	Ant 8	ECI 2	-	633332	3499.98	22.08	23.00	1.236	-	-	-0.17	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Left Cheek	0mm	Ant 8	ECI 2	-	633332	3499.98	22.11	23.00	1.227	-	-	0.16	0.133	0.163
	FR1 n77	100M	BPSK	135	69	-	Left Cheek	0mm	Ant 8	ECI 2	-	633332	3499.98	22.08	23.00	1.236	-	-	-0.14	0.138	0.171
	FR1 n77	100M	BPSK	1	1	-	Left Tilted	0mm	Ant 8	ECI 2	-	633332	3499.98	22.11	23.00	1.227	-	-	-0.05	0.081	0.099
	FR1 n77	100M	BPSK	135	69	-	Left Tilted	0mm	Ant 8	ECI 2	-	633332	3499.98	22.08	23.00	1.236	-	-	-0.03	0.060	0.074



Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
23	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 6	Head Standalone	1	2412	17.80	19.50	1.479	100	1.000	0.04	0.285	0.422
24	WLAN5GHz	802.11n-HT40 MCS0	Left Tilted	0mm	Ant 6	Head Standalone	54	5270	15.43	17.00	1.435	94.68	1.056	-0.12	0.568	0.861
25	WLAN5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 6	Head Standalone	122	5610	15.12	16.50	1.374	86.15	1.161	-0.14	0.488	0.778
26	WLAN5GHz	802.11a 6Mbps	Left Tilted	0mm	Ant 6	Head Standalone	157	5785	17.84	19.50	1.466	97.46	1.026	0.14	0.797	1.199
27	Bluetooth	1Mbps	Left Cheek	0mm	Ant 6	Full Power	78	2480	13.70	15.50	1.514	76.67	1.086	0.03	0.059	0.097



14.2 Hotspot SAR

Plot No	Band	BW	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Antenna	Power State	PA	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
28	GSM850	-	-	-	-	GPRS 4 Tx slots	Back	5mm	Ant 0	ECI 7	-	189	836.4	26.47	26.90	1.104	-	-	0.07	0.847	0.935
29	GSM1900	-	-	-	-	GPRS 4 Tx slots	Back	5mm	Ant 0	ECI 7	-	810	1909.8	23.27	24.10	1.211	-	-	0	0.845	1.023
30	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	ECI 7	-	9262	1852.4	17.91	18.50	1.146	-	-	0.02	1.020	1.169
31	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	ECI 7	-	1513	1752.6	17.43	18.00	1.140	-	-	0	0.766	0.873
32	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	ECI 7	-	4233	846.6	22.46	23.10	1.159	-	-	0.02	0.921	1.067
33	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	ECI 7-1	PA (Reference Designator)	18900	1880	17.57	18.20	1.156	-	-	-0.01	0.882	1.02
34	LTE Band 4	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	ECI 7-1	PA (Reference Designator)	20175	1732.5	15.46	15.50	1.009	-	-	-0.03	0.427	0.431
35	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	ECI 7	-	21350	2560	19.63	21.00	1.371	-	-	-0.12	0.913	1.252
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 7-1	PA (Reference Designator)	21100	2535	12.73	13.20	1.114	-	-	-0.02	0.395	0.44
36	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 7	-	23095	707.5	22.27	24.00	1.489	-	-	-0.01	0.528	0.786
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 7	-	23095	707.5	22.58	24.00	1.387	-	-	-0.16	0.118	0.164
37	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 7	-	23230	782	22.21	24.00	1.510	-	-	0.04	0.842	1.271
	LTE Band 13	10M	QPSK	1	0	-	Front	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	-0.08	0.176	0.232
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	0.17	0.187	0.253
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	0.18	0.396	0.523
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	-0.07	0.433	0.585
	LTE Band 13	10M	QPSK	1	0	-	Left Side	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	-0.04	0.097	0.128
	LTE Band 13	10M	QPSK	25	0	-	Left Side	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	-0.08	0.098	0.132
	LTE Band 13	10M	QPSK	1	0	-	Right Side	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	-0.13	0.081	0.107
	LTE Band 13	10M	QPSK	25	0	-	Right Side	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	-0.13	0.088	0.119
	LTE Band 13	10M	QPSK	1	0	-	Top Side	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	0.06	0.354	0.468
	LTE Band 13	10M	QPSK	25	0	-	Top Side	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	-0.03	0.354	0.479
	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	-0.03	0.001	0.001
	LTE Band 13	10M	QPSK	25	0	-	Bottom Side	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	0.08	0.001	0.001
38	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	ECI 7	-	26140	1860	17.34	18.20	1.219	-	-	0.01	0.838	1.022
	LTE Band 25	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	ECI 7	-	26340	1880	13.27	13.90	1.156	-	-	0.04	0.661	0.764
39	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 7	-	26865	831.5	22.33	23.10	1.194	-	-	0.01	1.060	1.266
	LTE Band 5B	10M	QPSK	1	49	-	Back	5mm	Ant 0	ECI 7	-	20476+ 20575	831.6+ 841.5	22.24	23.10	1.219	-	-	-0.02	0.912	1.112
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 7	-	26865	831.5	22.31	24.00	1.476	-	-	0	0.437	0.645
40	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 0	ECI 7	-	132072	1720	17.07	17.70	1.156	-	-	0.01	0.695	0.803
	LTE Band 66	20M	QPSK	1	0	-	Top Side	5mm	Ant 4	ECI 7-1	PA (Reference Designator)	132322	1745	15.05	15.10	1.012	-	-	-0.01	0.461	0.467
41	LTE Band 38	20M	QPSK	1	0	-	Back	5mm	Ant 1	ECI 7-1	PA (Reference Designator)	38000	2595	21.21	21.70	1.119	62.9	1.006	-0.18	1.050	1.182
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	-0.08	0.372	0.434
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	-0.08	0.468	0.549
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	0.1	0.951	1.109
42	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	-0.03	1.010	1.186
	LTE Band 41	20M	QPSK	1	0	-	Left Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	-0.18	0.346	0.403
	LTE Band 41	20M	QPSK	50	0	-	Left Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	0.1	0.350	0.411
	LTE Band 41	20M	QPSK	1	0	-	Right Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	0.12	0.100	0.117
	LTE Band 41	20M	QPSK	50	0	-	Right Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	0.08	0.096	0.113
	LTE Band 41	20M	QPSK	1	0	-	Top Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	-0.17	0.001	0.001
	LTE Band 41	20M	QPSK	50	0	-	Top Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	-0.03	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	-	Bottom Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	0.14	0.737	0.859
	LTE Band 41	20M	QPSK	50	0	-	Bottom Side	5mm	Ant 1	ECI 7	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	0.11	0.808	0.949
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 7	-	40620	2593	14.67	16.10	1.390	62.9	1.006	-0.16	0.303	0.424
43	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 7	-	42590	3500	15.59	17.20	1.449	62.9	1.006	0.08	0.372	0.542
	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 5	ECI 7	-	55830	3609	16.25	18.00	1.496	62.9	1.006	-0.07	0.069	0.104
	LTE Band 48	20M	QPSK	50	0	-	Front	5mm	Ant 5	ECI 7	-	55830	3609	16.22	18.00	1.507	62.9	1.006	0.05	0.057	0.086
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 7	-	55830	3609	16.25	18.00	1.496	62.9	1.006	-0.11	0.399	0.600
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 7	-	55340	3560	16.15	18.00	1.531	62.9	1.006	-0.12	0.401	0.618



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	LTE Band 48	20M	QPSK	1	0		Back	5mm	Ant 5	ECI 7		56150	3641	16.13	18.00	1.538	62.9	1.006	0.03	0.391	0.605
108	LTE Band 48	20M	QPSK	1	0		Back	5mm	Ant 5	ECI 7		56640	3690	16.16	18.00	1.528	62.9	1.006	-0.03	0.405	0.623
	LTE Band 48C	20M	QPSK	100	0		Back	5mm	Ant 5	ECI 7		56640+ 56442	3690+ 3670.2	16.15	18.00	1.531	62.9	1.006	-0.02	0.404	0.622
	LTE Band 48	20M	QPSK	50	0		Back	5mm	Ant 5	ECI 7		55830	3609	16.22	18.00	1.507	62.9	1.006	-0.16	0.267	0.405
	LTE Band 48	20M	QPSK	100	0		Back	5mm	Ant 5	ECI 7		55830	3609	16.17	18.00	1.524	62.9	1.006	-0.02	0.323	0.495
	LTE Band 48	20M	QPSK	1	0		Left Side	5mm	Ant 5	ECI 7		55830	3609	16.25	18.00	1.496	62.9	1.006	0.15	0.014	0.021
	LTE Band 48	20M	QPSK	50	0		Left Side	5mm	Ant 5	ECI 7		55830	3609	16.22	18.00	1.507	62.9	1.006	-0.09	0.012	0.018
	LTE Band 48	20M	QPSK	1	0		Right Side	5mm	Ant 5	ECI 7		55830	3609	16.25	18.00	1.496	62.9	1.006	0.11	0.024	0.036
	LTE Band 48	20M	QPSK	50	0		Right Side	5mm	Ant 5	ECI 7		55830	3609	16.22	18.00	1.507	62.9	1.006	-0.05	0.022	0.033
	LTE Band 48	20M	QPSK	1	0		Top Side	5mm	Ant 5	ECI 7		55830	3609	16.25	18.00	1.496	62.9	1.006	-0.08	0.166	0.250
	LTE Band 48	20M	QPSK	50	0		Top Side	5mm	Ant 5	ECI 7		55830	3609	16.22	18.00	1.507	62.9	1.006	0.16	0.136	0.206
	LTE Band 48	20M	QPSK	1	0		Bottom Side	5mm	Ant 5	ECI 7		55830	3609	16.25	18.00	1.496	62.9	1.006	0.05	0.001	0.002
	LTE Band 48	20M	QPSK	50	0		Bottom Side	5mm	Ant 5	ECI 7		55830	3609	16.22	18.00	1.507	62.9	1.006	0.05	0.001	0.002
44	FR1 n2	40M	BPSK	1	1	-	Bottom Side	5mm	Ant 0	ECI 7	-	376000	1880	18.27	19.70	1.390	-	-	0.02	0.831	1.155
	FR1 n2	40M	BPSK	108	54	-	Top Side	5mm	Ant 4	ECI 7-1	PA (Reference Designator)	376000	1880	11.88	13.30	1.387	-	-	0	0.370	0.513
45	FR1 n7	50M	BPSK	135	68	-	Back	5mm	Ant 1	ECI 7	-	507000	2535	21.10	21.90	1.202	-	-	0.01	1.090	1.31
	FR1 n7	50M	BPSK	1	1	-	Back	5mm	Ant 4	ECI 7-1	PA (Reference Designator)	507000	2535	14.65	15.60	1.245	-	-	-0.04	0.623	0.776
46	FR1 n26	20M	BPSK	50	28	-	Back	5mm	Ant 0	ECI 7	-	166300	831.5	22.48	24.00	1.419	-	-	0.01	0.864	1.226
	FR1 n26	20M	BPSK	50	28	-	Back	5mm	Ant 4	ECI 7	-	166300	831.5	20.98	22.50	1.419	-	-	-0.08	0.478	0.678
47	FR1 n66	45M	BPSK	1	1	-	Bottom Side	5mm	Ant 0	ECI 7	-	349000	1745	18.48	19.00	1.127	-	-	-0.01	0.921	1.038
	FR1 n66	45M	BPSK	120	60	-	Top Side	5mm	Ant 4	ECI 7-1	PA (Reference Designator)	349000	1745	16.39	16.80	1.099	-	-	-0.02	0.511	0.562
48	FR1 n41	100M	BPSK	1	1	-	Back	5mm	Ant 4	ECI 7	-	518598	2592.99	14.54	15.50	1.247	-	-	0.15	0.579	0.722
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 5	ECI 7	-	656000	3840	14.69	15.60	1.233	-	-	-0.13	0.474	0.584
	FR1 n77	100M	BPSK	1	1	-	Front	5mm	Ant 5	ECI 7	-	633332	3499.98	14.50	15.60	1.288	-	-	-0.03	0.065	0.084
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 5	ECI 7	-	633332	3499.98	14.49	15.60	1.291	-	-	-0.15	0.098	0.127
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 5	ECI 7	-	633332	3499.98	14.50	15.60	1.288	-	-	-0.12	0.503	0.648
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 5	ECI 7	-	633332	3499.98	14.49	15.60	1.291	-	-	-0.17	0.442	0.571
	FR1 n77	100M	BPSK	1	1	-	Left Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.50	15.60	1.288	-	-	0.08	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Left Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.49	15.60	1.291	-	-	0.01	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Right Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.50	15.60	1.288	-	-	0.03	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Right Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.49	15.60	1.291	-	-	-0.08	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Top Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.50	15.60	1.288	-	-	-0.03	0.190	0.245
	FR1 n77	100M	BPSK	135	69	-	Top Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.49	15.60	1.291	-	-	-0.09	0.184	0.238
	FR1 n77	100M	BPSK	1	1	-	Bottom Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.50	15.60	1.288	-	-	-0.08	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Bottom Side	5mm	Ant 5	ECI 7	-	633332	3499.98	14.49	15.60	1.291	-	-	0.1	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Bottom Side	5mm	Ant 1	ECI 7	-	656000	3840	18.00	19.50	1.413	-	-	-0.07	0.567	0.801
	FR1 n77	100M	BPSK	1	271	-	Front	5mm	Ant 1	ECI 7	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.16	0.298	0.362
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 1	ECI 7	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.04	0.402	0.497
	FR1 n77	100M	BPSK	1	271	-	Back	5mm	Ant 1	ECI 7	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.12	0.481	0.585
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 1	ECI 7	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.11	0.581	0.718
	FR1 n77	100M	BPSK	1	271	-	Left Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.12	0.240	0.292
	FR1 n77	100M	BPSK	135	69	-	Left Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.1	0.276	0.341
	FR1 n77	100M	BPSK	1	271	-	Right Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.65	19.50	1.216	-	-	0.07	0.027	0.033
	FR1 n77	100M	BPSK	135	69	-	Right Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.14	0.040	0.049
	FR1 n77	100M	BPSK	1	271	-	Top Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.18	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Top Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.58	19.50	1.236	-	-	0.1	0.001	0.001
	FR1 n77	100M	BPSK	1	271	-	Bottom Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.13	0.653	0.794
49	FR1 n77	100M	BPSK	135	69	-	Bottom Side	5mm	Ant 1	ECI 7	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.14	0.809	1.000
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 2	ECI 7	-	656000	3840	19.77	20.50	1.183	-	-	-0.13	0.400	0.473
	FR1 n77	100M	BPSK	1	1	-	Front	5mm	Ant 2	ECI 7	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.1	0.087	0.105
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 2	ECI 7	-	633332	3499.98	20.15	21.00	1.216	-	-	0.18	0.086	0.105
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 2	ECI 7	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.17	0.445	0.539
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 2	ECI 7	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.17	0.482	0.586
	FR1 n77	100M	BPSK	1	1	-	Left Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.16	0.316	0.383
	FR1 n77	100M	BPSK	135	69	-	Left Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.19	0.323	0.393



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	FR1 n77	100M	BPSK	1	1	-	Right Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.17	21.00	1.211	-	-	0.12	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Right Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.15	21.00	1.216	-	-	0.08	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Top Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.03	0.044	0.053
	FR1 n77	100M	BPSK	135	69	-	Top Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.17	0.046	0.056
	FR1 n77	100M	BPSK	1	1	-	Bottom Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.17	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Bottom Side	5mm	Ant 2	ECI 7	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.03	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 8	ECI 7	-	656000	3840	15.16	17.00	1.528	-	-	-0.17	0.098	0.150
	FR1 n77	100M	BPSK	1	1	-	Front	5mm	Ant 8	ECI 7	-	633332	3499.98	15.84	17.50	1.466	-	-	-0.02	0.040	0.059
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 8	ECI 7	-	633332	3499.98	15.83	17.50	1.469	-	-	0.09	0.036	0.053
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 8	ECI 7	-	633332	3499.98	15.84	17.50	1.466	-	-	-0.14	0.324	0.475
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 8	ECI 7	-	633332	3499.98	15.83	17.50	1.469	-	-	-0.15	0.347	0.510
	FR1 n77	100M	BPSK	1	1	-	Left Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.84	17.50	1.466	-	-	0.18	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Left Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.83	17.50	1.469	-	-	0.14	0.001	0.001
	FR1 n77	100M	BPSK	1	1	-	Right Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.84	17.50	1.466	-	-	-0.04	0.151	0.221
	FR1 n77	100M	BPSK	135	69	-	Right Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.83	17.50	1.469	-	-	-0.06	0.163	0.239
	FR1 n77	100M	BPSK	1	1	-	Top Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.84	17.50	1.466	-	-	-0.18	0.017	0.025
	FR1 n77	100M	BPSK	135	69	-	Top Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.83	17.50	1.469	-	-	0.14	0.021	0.031
	FR1 n77	100M	BPSK	1	1	-	Bottom Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.84	17.50	1.466	-	-	0.11	0.001	0.001
	FR1 n77	100M	BPSK	135	69	-	Bottom Side	5mm	Ant 8	ECI 7	-	633332	3499.98	15.83	17.50	1.469	-	-	-0.05	0.001	0.001

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
50	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	Hotspot Simultaneous	1	2412	16.17	18.00	1.524	100	1.000	0.15	0.359	0.547
51	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	Hotspot Simultaneous	42	5210	10.08	12.00	1.556	86.15	1.161	0.16	0.253	0.457
52	WLAN5GHz	802.11ac-VHT80 MCS0	Top Side	5mm	Ant 6	Hotspot Simultaneous	155	5775	14.52	16.00	1.406	86.15	1.161	-0.17	0.465	0.759
53	Bluetooth	1Mbps	Back	5mm	Ant 6	Full Power	78	2480	13.70	15.50	1.514	76.67	1.086	-0.19	0.128	0.210



14.3 Body Worn Accessory SAR

Plot No	Band	BW	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Antenna	Power State	PA	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
54	GSM850	-	-	-	-	GPRS 4 Tx slots	Back	5mm	Ant 0	ECI 3	-	189	836.4	26.47	26.90	1.104	-	-	0.07	0.847	0.935
55	GSM1900	-	-	-	-	GPRS 4 Tx slots	Back	5mm	Ant 0	ECI 3	-	810	1909.8	23.27	24.10	1.211	-	-	0	0.845	1.023
56	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	ECI 3	-	9262	1852.4	19.64	20.40	1.191	-	-	-0.19	1.020	1.215
57	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	ECI 3	-	1513	1752.6	18.96	19.90	1.242	-	-	0.03	0.742	0.922
58	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	5mm	Ant 0	ECI 3	-	4233	846.6	22.46	23.10	1.159	-	-	0.02	0.921	1.067
59	LTE Band 2	20M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 3-1	PA (Reference Designator)	18900	1880	18.60	19.50	1.230	-	-	0	0.784	0.964
60	LTE Band 4	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3-1	PA (Reference Designator)	20175	1732.5	17.69	18.10	1.099	-	-	-0.01	0.560	0.615
61	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 1	ECI 3	-	21350	2560	19.63	21.00	1.371	-	-	-0.12	0.913	1.252
	LTE Band 7	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3-1	PA (Reference Designator)	20850	2510	14.42	16.00	1.439	-	-	-0.09	0.578	0.832
62	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 3	-	23095	707.5	22.27	24.00	1.489	-	-	-0.1	0.528	0.786
	LTE Band 12	10M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3	-	23095	707.5	22.58	24.00	1.387	-	-	-0.16	0.118	0.164
63	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 3	-	23230	782	22.21	24.00	1.510	-	-	0.04	0.842	1.271
	LTE Band 13	10M	QPSK	1	0	-	Front	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	0.01	0.176	0.232
	LTE Band 13	10M	QPSK	25	0	-	Front	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	-0.01	0.187	0.253
	LTE Band 13	10M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 7	-	23230	782	22.79	24.00	1.321	-	-	-0.06	0.396	0.523
	LTE Band 13	10M	QPSK	25	0	-	Back	5mm	Ant 4	ECI 7	-	23230	782	22.69	24.00	1.352	-	-	-0.07	0.433	0.585
64	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 3	-	26140	1860	17.79	19.50	1.483	-	-	-0.04	0.848	1.258
	LTE Band 25	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3	-	26340	1880	14.46	15.40	1.242	-	-	-0.12	0.652	0.81
65	LTE Band 26	15M	QPSK	75	0	-	Back	5mm	Ant 0	ECI 3	-	26865	831.5	21.41	23.00	1.442	-	-	0	0.934	1.347
	LTE Band 5B	10M	QPSK	25	25	-	Back	5mm	Ant 0	ECI 3	-	20476+20575	831.6+841.5	21.18	23.00	1.521	-	-	-0.01	0.870	1.323
	LTE Band 5B	10M	QPSK	25	25	-	Back	5mm	Ant 0	ECI 3	-	20450+20549	829+838.9	21.11	23.00	1.545	-	-	-0.01	0.767	1.185
	LTE Band 5	10M	QPSK	25	25	-	Back	5mm	Ant 0	ECI 3	-	20600+20501	844+834.1	21.07	23.00	1.560	-	-	-0.02	0.754	1.176
	LTE Band 26	15M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3	-	26865	831.5	22.31	24.00	1.476	-	-	-0.01	0.623	0.920
66	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 0	ECI 3	-	132072	1720	18.71	19.70	1.256	-	-	-0.05	0.648	0.814
	LTE Band 66	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3-1	PA (Reference Designator)	132322	1745	17.38	17.40	1.005	-	-	-0.13	0.577	0.58
67	LTE Band 38	20M	QPSK	1	0	-	Back	5mm	Ant 1	ECI 3-1	PA (Reference Designator)	38000	2595	21.21	21.70	1.119	62.9	1.006	-0.18	1.050	1.182
	LTE Band 41	20M	QPSK	1	0	-	Front	5mm	Ant 1	ECI 3	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	0.08	0.372	0.434
	LTE Band 41	20M	QPSK	50	0	-	Front	5mm	Ant 1	ECI 3	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	0.01	0.468	0.549
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 1	ECI 3	PA (Reference Designator)	40620	2593	21.06	21.70	1.159	62.9	1.006	0.03	0.951	1.109
68	LTE Band 41	20M	QPSK	50	0	-	Back	5mm	Ant 1	ECI 3	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	-0.03	1.010	1.186
	LTE Band 41 with Headset	20M	QPSK	50	0	-	Back	5mm	Ant 1	ECI 3	PA (Reference Designator)	40620	2593	21.03	21.70	1.167	62.9	1.006	0.03	1.000	1.174
	LTE Band 41	20M	QPSK	1	0	-	Back	5mm	Ant 4	ECI 3	-	39750	2506	16.77	17.90	1.297	62.9	1.006	0.18	0.547	0.714
69	LTE Band 42	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 3	-	42190	3460	16.94	18.70	1.500	62.9	1.006	-0.14	0.486	0.733
	LTE Band 48	20M	QPSK	1	0	-	Front	5mm	Ant 5	ECI 3	-	55830	3609	18.17	19.60	1.390	62.9	1.006	-0.09	0.107	0.150
	LTE Band 48	20M	QPSK	50	0	-	Front	5mm	Ant 5	ECI 3	-	55830	3609	18.07	19.60	1.422	62.9	1.006	-0.17	0.088	0.126
	LTE Band 48	20M	QPSK	1	0	-	Front	14mm	Ant 5	ECI 4	-	55830	3609	23.17	24.00	1.211	62.9	1.006	-0.1	0.022	0.027
	LTE Band 48	20M	QPSK	50	0	-	Front	14mm	Ant 5	ECI 4	-	55830	3609	23.18	24.00	1.208	62.9	1.006	0.18	0.019	0.023
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 3	-	55830	3609	18.17	19.60	1.390	62.9	1.006	-0.17	0.510	0.713
109	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 3	-	55340	3560	18.02	19.60	1.439	62.9	1.006	-0.13	0.624	0.903
	LTE Band 48	20M	QPSK	100	0	-	Back	5mm	Ant 5	ECI 3	-	55340+55538	3560+3579.8	17.94	19.60	1.466	62.9	1.006	-0.02	0.601	0.886
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 3	-	56150	3641	17.96	19.60	1.459	62.9	1.006	-0.04	0.602	0.884
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 3	-	56640	3690	18.02	19.60	1.439	62.9	1.006	-0.05	0.617	0.893
	LTE Band 48	20M	QPSK	50	0	-	Back	5mm	Ant 5	ECI 3	-	55830	3609	18.07	19.60	1.422	62.9	1.006	0	0.422	0.604
	LTE Band 48	20M	QPSK	50	0	-	Back	5mm	Ant 5	ECI 3	-	55340	3560	17.90	19.60	1.479	62.9	1.006	-0.13	0.441	0.656
	LTE Band 48	20M	QPSK	50	0	-	Back	5mm	Ant 5	ECI 3	-	56150	3641	17.92	19.60	1.472	62.9	1.006	-0.01	0.394	0.583
	LTE Band 48	20M	QPSK	50	0	-	Back	5mm	Ant 5	ECI 3	-	56640	3690	18.02	19.60	1.439	62.9	1.006	-0.09	0.380	0.550
	LTE Band 48	20M	QPSK	100	0	-	Back	5mm	Ant 5	ECI 3	-	55830	3609	17.95	19.60	1.462	62.9	1.006	0.05	0.496	0.730
	LTE Band 48	20M	QPSK	1	0	-	Back	19mm	Ant 5	ECI 4	-	55830	3609	23.17	24.00	1.211	62.9	1.006	0.02	0.047	0.057
	LTE Band 48	20M	QPSK	50	0	-	Back	19mm	Ant 5	ECI 4	-	55830	3609	23.18	24.00	1.208	62.9	1.006	-0.13	0.039	0.047



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70	FR1 n2	40M	BPSK	108	54	-	Back	5mm	Ant 0	ECI 3	-	376000	1880	19.51	21.10	1.442	-	-	0.01	0.883	1.273
	FR1 n2	40M	BPSK	108	54	-	Back	5mm	Ant 4	ECI 3-1	PA (Reference Designator)	376000	1880	16.17	17.10	1.239	-	-	0.05	0.753	0.933
71	FR1 n7	50M	BPSK	135	68	-	Back	5mm	Ant 1	ECI 3	-	507000	2535	21.14	21.90	1.191	-	-	0.01	1.090	1.298
	FR1 n7	50M	BPSK	1	1	-	Back	5mm	Ant 4	ECI 3-1	PA (Reference Designator)	507000	2535	16.37	17.30	1.239	-	-	0.08	0.849	1.052
72	FR1 n26	20M	BPSK	50	28	-	Back	5mm	Ant 0	ECI 3	-	166300	831.5	22.48	24.00	1.419	-	-	0.01	0.864	1.226
	FR1 n26	20M	BPSK	50	28	-	Back	5mm	Ant 4	ECI 3	-	166300	831.5	22.55	24.00	1.396	-	-	-0.02	0.694	0.969
	FR1 n66	45M	BPSK	120	60	-	Back	5mm	Ant 0	ECI 3	-	349000	1745	19.51	19.70	1.045	-	-	0	0.894	0.934
73	FR1 n66	45M	BPSK	120	60	-	Back	5mm	Ant 4	ECI 3-1	PA (Reference Designator)	349000	1745	18.61	19.90	1.346	-	-	-0.01	0.730	0.983
74	FR1 n41	100M	BPSK	1	1	-	Back	5mm	Ant 4	ECI 3	-	518598	2592.99	15.51	16.80	1.346	-	-	-0.02	0.811	1.092
75	FR1 n77	100M	BPSK	270	0	-	Back	5mm	Ant 5	ECI 3	-	656000	3840	15.48	17.10	1.452	-	-	-0.05	0.628	0.912
	FR1 n77	100M	BPSK	1	1	-	Front	5mm	Ant 5	ECI 3	-	633332	3499.98	15.88	17.10	1.324	-	-	-0.18	0.093	0.123
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 5	ECI 3	-	633332	3499.98	15.86	17.10	1.330	-	-	-0.12	0.097	0.129
	FR1 n77	100M	BPSK	1	1	-	Front	14mm	Ant 5	ECI 4	-	633332	3499.98	23.34	24.00	1.164	-	-	-0.19	0.159	0.185
	FR1 n77	100M	BPSK	135	69	-	Front	14mm	Ant 5	ECI 4	-	633332	3499.98	23.32	24.00	1.169	-	-	-0.13	0.141	0.165
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 5	ECI 3	-	633332	3499.98	15.88	17.10	1.324	-	-	-0.07	0.507	0.671
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 5	ECI 3	-	633332	3499.98	15.86	17.10	1.330	-	-	-0.08	0.505	0.672
	FR1 n77	100M	BPSK	1	1	-	Back	19mm	Ant 5	ECI 4	-	633332	3499.98	23.34	24.00	1.164	-	-	-0.04	0.291	0.339
	FR1 n77	100M	BPSK	135	69	-	Back	19mm	Ant 5	ECI 4	-	633332	3499.98	23.32	24.00	1.169	-	-	-0.04	0.321	0.375
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 1	ECI 3	-	656000	3840	18.00	19.50	1.413	-	-	-0.16	0.455	0.643
	FR1 n77	100M	BPSK	1	271	-	Front	5mm	Ant 1	ECI 3	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.16	0.298	0.362
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 1	ECI 3	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.04	0.402	0.497
	FR1 n77	100M	BPSK	1	271	-	Back	5mm	Ant 1	ECI 3	-	633332	3499.98	18.65	19.50	1.216	-	-	-0.12	0.481	0.585
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 1	ECI 3	-	633332	3499.98	18.58	19.50	1.236	-	-	-0.11	0.581	0.718
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 2	ECI 3	-	656000	3840	19.77	20.50	1.183	-	-	-0.13	0.400	0.473
	FR1 n77	100M	BPSK	1	1	-	Front	5mm	Ant 2	ECI 3	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.05	0.087	0.105
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 2	ECI 3	-	633332	3499.98	20.15	21.00	1.216	-	-	0.18	0.086	0.105
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 2	ECI 3	-	633332	3499.98	20.17	21.00	1.211	-	-	-0.17	0.445	0.539
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 2	ECI 3	-	633332	3499.98	20.15	21.00	1.216	-	-	-0.17	0.482	0.586
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 8	ECI 3	-	656000	3840	17.58	18.50	1.236	-	-	-0.17	0.269	0.332
	FR1 n77	100M	BPSK	1	1	-	Front	5mm	Ant 8	ECI 3	-	633332	3499.98	18.35	19.00	1.161	-	-	-0.1	0.060	0.070
	FR1 n77	100M	BPSK	135	69	-	Front	5mm	Ant 8	ECI 3	-	633332	3499.98	18.34	19.00	1.164	-	-	-0.04	0.054	0.063
	FR1 n77	100M	BPSK	1	1	-	Front	14mm	Ant 8	ECI 4	-	633332	3499.98	22.11	23.00	1.227	-	-	-0.05	0.031	0.038
	FR1 n77	100M	BPSK	135	69	-	Front	14mm	Ant 8	ECI 4	-	633332	3499.98	22.08	23.00	1.236	-	-	-0.18	0.038	0.047
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 8	ECI 3	-	633332	3499.98	18.35	19.00	1.161	-	-	-0.09	0.656	0.762
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 8	ECI 3	-	633332	3499.98	18.34	19.00	1.164	-	-	-0.19	0.624	0.726
	FR1 n77	100M	BPSK	270	0	-	Back	5mm	Ant 8	ECI 3	-	633332	3499.98	18.27	19.00	1.183	-	-	-0.05	0.537	0.635
	FR1 n77	100M	BPSK	1	1	-	Back	19mm	Ant 8	ECI 4	-	633332	3499.98	22.11	23.00	1.227	-	-	-0.11	0.091	0.112
	FR1 n77	100M	BPSK	135	69	-	Back	19mm	Ant 8	ECI 4	-	633332	3499.98	22.08	23.00	1.236	-	-	-0.16	0.105	0.130

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
76	WLAN2.4GHz	802.11b 1Mbps	Back	5mm	Ant 6	Body worn Standalone	1	2412	17.80	19.50	1.479	100	1.000	-0.06	0.546	0.808
77	WLAN5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Body worn Standalone	58	5290	13.11	15.00	1.545	86.15	1.161	0.12	0.560	1.004
78	WLAN5GHz	802.11ac-VHT80 MCS0	Back	5mm	Ant 6	Body worn Standalone	122	5610	15.12	16.50	1.374	86.15	1.161	-0.12	0.391	0.624
79	WLAN5GHz	802.11a 6Mbps	Back	5mm	Ant 6	Body worn Standalone	157	5785	17.23	19.00	1.503	97.46	1.026	0.19	0.575	0.887
80	Bluetooth	1Mbps	Back	5mm	Ant 6	Full Power	78	2480	13.70	15.50	1.514	76.67	1.086	-0.19	0.128	0.210



14.4 Product specific 10g SAR

Plot No	Band	BW	Modulation	RB Size	RB Offset	Mode	Test Position	Gap (mm)	Antenna	Power State	PA	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
81	GSM850	-	-	-	-	GPRS 4 Tx slots	Bottom Side	0mm	Ant 0	ECI 6	-	251	848.8	28.03	28.50	1.114	-	-	-0.04	2.310	2.573
82	GSM1900	-	-	-	-	GPRS 4 Tx slots	Bottom Side	0mm	Ant 0	ECI 6	-	512	1850.2	25.12	25.80	1.169	-	-	-0.01	2.750	3.215
83	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	ECI 6	-	9262	1852.4	21.62	22.60	1.253	-	-	-0.03	2.380	2.982
84	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	ECI 6	-	1513	1752.6	20.95	21.90	1.245	-	-	-0.02	1.990	2.478
85	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	0mm	Ant 0	ECI 6	-	4182	836.4	22.57	24.00	1.390	-	-	-0.02	1.430	1.988
86	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	ECI 6-1	PA (Reference Designator)	18900	1880	21.87	22.10	1.054	-	-	0.01	2.700	2.846
87	LTE Band 4	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 6-1	PA (Reference Designator)	20175	1732.5	19.74	20.20	1.112	-	-	-0.01	1.930	2.146
88	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 1	ECI 6	-	21350	2560	21.15	22.30	1.303	-	-	-0.02	2.470	3.218
	LTE Band 7	20M	QPSK	1	0	-	Back	0mm	Ant 4	ECI 6-1	PA (Reference Designator)	20850	2510	20.08	21.20	1.294	-	-	-0.14	1.650	2.135
89	LTE Band 13	10M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	ECI 6	-	23230	782	22.21	24.00	1.510	-	-	0	1.330	2.008
90	LTE Band 25	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	ECI 6	-	26140	1860	21.29	22.10	1.205	-	-	0.02	2.490	3.000
	LTE Band 25	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 6	-	26140	1860	18.82	19.80	1.253	-	-	0.03	2.250	2.819
91	LTE Band 26	15M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	ECI 6	-	26865	831.5	22.26	24.00	1.493	-	-	-0.03	1.630	2.434
	LTE Band 5B	10M	QPSK	1	49	-	Bottom Side	0mm	Ant 0	ECI 6	-	20476+ 20575	831.6+ 841.5	22.04	24.00	1.570	-	-	-0.01	1.520	2.386
92	LTE Band 66	20M	QPSK	1	0	-	Bottom Side	0mm	Ant 0	ECI 6	-	132322	1745	21.27	21.80	1.130	-	-	0	2.240	2.531
	LTE Band 66	20M	QPSK	1	0	-	Top Side	0mm	Ant 4	ECI 6	-	132322	1745	18.61	19.50	1.227	-	-	-0.01	1.340	1.644
93	LTE Band 38	20M	QPSK	1	0	-	Back	0mm	Ant 1	ECI 6-1	PA (Reference Designator)	38000	2595	22.51	24.00	1.409	62.9	1.006	-0.16	2.390	3.388
94	LTE Band 41	20M	QPSK	1	0	-	Back	0mm	Ant 4	ECI 6	-	39750	2506	22.22	23.80	1.439	62.9	1.006	-0.11	1.700	2.461
95	LTE Band 42	20M	QPSK	1	0	-	Back	0mm	Ant 5	ECI 6	-	42590	3500	21.58	22.70	1.294	62.9	1.006	-0.11	1.340	1.744
	LTE Band 48	20M	QPSK	1	0	-	Back	0mm	Ant 5	ECI 6	-	55830	3609	19.77	21.60	1.524	62.9	1.006	-0.03	0.334	0.512
	LTE Band 48	20M	QPSK	50	0	-	Back	0mm	Ant 5	ECI 6	-	55830	3609	19.70	21.60	1.549	62.9	1.006	-0.15	0.269	0.419
	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	ECI 6	-	55830	3609	19.77	21.60	1.524	62.9	1.006	0.02	1.310	2.008
	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	ECI 6	-	55340	3560	19.72	21.60	1.542	62.9	1.006	0.07	1.100	1.706
	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	ECI 6	-	56150	3641	19.63	21.60	1.574	62.9	1.006	0.16	1.250	1.979
110	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	ECI 6	-	56640	3690	19.67	21.60	1.560	62.9	1.006	0	1.510	2.37
	LTE Band 48	20M	QPSK	1	0	-	Top Side	0mm	Ant 5	ECI 6	-	56640+ 56442	3690+ 3670.2	18.84	20.00	1.306	62.9	1.006	-0.02	1.090	1.432
	LTE Band 48	20M	QPSK	50	0	-	Top Side	0mm	Ant 5	ECI 6	-	55830	3609	19.70	21.60	1.549	62.9	1.006	0.13	0.967	1.507
	LTE Band 48	20M	QPSK	100	0	-	Top Side	0mm	Ant 5	ECI 6	-	55830	3609	19.71	21.60	1.545	62.9	1.006	-0.03	0.988	1.536
	LTE Band 48	20M	QPSK	1	0	-	Back	5mm	Ant 5	ECI 4	-	55830	3609	23.17	24.00	1.211	62.9	1.006	0.07	0.995	1.212
	LTE Band 48	20M	QPSK	50	0	-	Back	5mm	Ant 5	ECI 4	-	55830	3609	23.18	24.00	1.208	62.9	1.006	0	0.805	0.978
	FR1 n2	40M	BPSK	1	1	-	Bottom Side	0mm	Ant 0	ECI 6	-	376000	1880	22.57	23.10	1.130	-	-	-0.02	1.980	2.237
96	FR1 n2	40M	BPSK	108	54	-	Top Side	0mm	Ant 4	ECI 6-1	PA (Reference Designator)	376000	1880	18.24	19.70	1.400	-	-	-0.01	1.660	2.324
97	FR1 n7	50M	BPSK	135	68	-	Back	0mm	Ant 1	ECI 6	-	507000	2535	21.69	22.80	1.291	-	-	-0.09	2.550	3.292
	FR1 n7	50M	BPSK	1	1	-	Back	0mm	Ant 4	ECI 6-1	PA (Reference Designator)	507000	2535	21.36	22.00	1.159	-	-	-0.12	1.550	1.796
98	FR1 n26	20M	BPSK	1	1	-	Back	0mm	Ant 0	ECI 6	-	166300	831.5	22.58	24.00	1.387	-	-	0.01	0.913	1.266
99	FR1 n66	45M	BPSK	1	1	-	Bottom Side	0mm	Ant 0	ECI 6	-	349000	1745	21.97	22.50	1.130	-	-	-0.02	2.280	2.576
	FR1 n66	45M	BPSK	1	1	-	Top Side	0mm	Ant 4	ECI 6-1	PA (Reference Designator)	349000	1745	20.33	20.70	1.089	-	-	-0.02	1.850	2.015
100	FR1 n41	100M	BPSK	1	1	-	Back	0mm	Ant 4	ECI 6	-	518598	2592.99	20.57	21.40	1.211	-	-	-0.12	1.610	1.950
101	FR1 n77	100M	BPSK	135	69	-	Top Side	0mm	Ant 5	ECI 6	-	656000	3840	19.41	20.80	1.377	-	-	-0.01	1.650	2.272
	FR1 n77	100M	BPSK	1	1	-	Back	0mm	Ant 5	ECI 6	-	633332	3499.98	19.94	20.80	1.219	-	-	-0.17	1.25	1.524
	FR1 n77	100M	BPSK	135	69	-	Back	0mm	Ant 5	ECI 6	-	633332	3499.98	19.88	20.80	1.236	-	-	-0.15	1.40	1.730
	FR1 n77	100M	BPSK	1	1	-	Back	5mm	Ant 5	ECI 4	-	633332	3499.98	23.34	24.00	1.164	-	-	-0.17	1.43	1.665
	FR1 n77	100M	BPSK	135	69	-	Back	5mm	Ant 5	ECI 4	-	633332	3499.98	23.32	24.00	1.169	-	-	-0.11	1.28	1.496
	FR1 n77	100M	BPSK	1	1	-	Top Side	0mm	Ant 5	ECI 6	-	633332	3499.98	19.94	20.80	1.219	-	-	-0.04	1.24	1.512
	FR1 n77	100M	BPSK	135	69	-	Top Side	0mm	Ant 5	ECI 6	-	633332	3499.98	19.88	20.80	1.236	-	-	0	1.22	1.508
	FR1 n77	100M	BPSK	1	1	-	Top Side	7mm	Ant 5	ECI 4	-	633332	3499.98	23.34	24.00	1.164	-	-	-0.01	0.444	0.517
	FR1 n77	100M	BPSK	135	69	-	Top Side	7mm	Ant 5	ECI 4	-	633332	3499.98	23.32	24.00	1.169	-	-	0.05	0.447	0.523

Plot No	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
102	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	Extremity Standalone	36	5180	17.84	19.50	1.466	97.46	1.026	-0.11	1.370	2.061
103	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	Extremity Standalone	60	5300	17.21	19.00	1.510	97.46	1.026	-0.12	1.300	2.014
104	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	Extremity Standalone	100	5500	17.57	19.00	1.390	97.46	1.026	-0.11	1.090	1.554
105	WLAN5GHz	802.11a 6Mbps	Top Side	0mm	Ant 6	Extremity Standalone	157	5785	17.58	19.50	1.556	97.46	1.026	-0.16	0.957	1.528
106	NFC	ASK	Front	0mm	Ant 9	Extremity Standalone	0	13.56				-	-	0.08	0.001	0.001
	NFC	ASK	Back	0mm	Ant 9	Extremity Standalone	0	13.56				-	-	-0.13	0.028	0.028
	NFC	ASK	Left Edge	0mm	Ant 9	Extremity Standalone	0	13.56				-	-	0.01	0.001	0.001
	NFC	ASK	Right Edge	0mm	Ant 9	Extremity Standalone	0	13.56				-	-	0.03	0.001	0.001
	NFC	ASK	Top Edge	0mm	Ant 9	Extremity Standalone	0	13.56				-	-	-0.08	0.001	0.001
	NFC	ASK	Bottom Edge	0mm	Ant 9	Extremity Standalone	0	13.56				-	-	-0.08	0.001	0.001

14.5 Repeated SAR Measurement

【Repeat SAR 1g - FCC】

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)	Ratio
1st	FR1 n66	45M_BPSK_1_1	Bottom Side	5mm	Ant 0	ECI 7	349000	1745	18.48	19.00	1.127			-0.01	0.921	1.038	-
2nd	FR1 n66	45M_BPSK_1_1	Bottom Side	5mm	Ant 0	ECI 7	349000	1745	18.48	19.00	1.127			-0.01	0.856	0.965	1.08
1st	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	ECI 7	9262	1852.4	17.91	18.50	1.146			0.02	1.020	1.169	-
2nd	WCDMA II	RMC 12.2Kbps	Bottom Side	5mm	Ant 0	ECI 7	9262	1852.4	17.91	18.50	1.146			-0.11	0.998	1.144	1.02
1st	LTE Band 13	10M_QPSK_1_0	Back	5mm	Ant 0	ECI 7	23230	782	22.21	24.00	1.510			0.04	0.842	1.271	-
2nd	LTE Band 13	10M_QPSK_1_0	Back	5mm	Ant 0	ECI 7	23230	782	22.21	24.00	1.510			-0.03	0.779	1.176	1.08
1st	LTE Band 26	15M_QPSK_1_0	Back	5mm	Ant 0	ECI 7	26865	831.5	22.33	23.10	1.194			0.01	1.060	1.266	-
2nd	LTE Band 26	15M_QPSK_1_0	Back	5mm	Ant 0	ECI 7	26865	831.5	22.33	23.10	1.194			0.14	0.933	1.114	1.14
1st	FR1 n7	50M_BPSK_135_68	Back	5mm	Ant 1	ECI 7	507000	2535	21.10	21.90	1.202			0.01	1.090	1.31	-
2nd	FR1 n7	50M_BPSK_135_68	Back	5mm	Ant 1	ECI 7	507000	2535	21.10	21.90	1.202			0.03	1.010	1.214	1.08
1st	FR1 n77	100M_BPSK_135_69	Bottom Side	5mm	Ant 1	ECI 7	633332	3499.98	18.58	19.50	1.236			-0.14	0.809	1.000	-
2nd	FR1 n77	100M_BPSK_135_69	Bottom Side	5mm	Ant 1	ECI 7	633332	3499.98	18.58	19.50	1.236			-0.06	0.787	0.973	1.03

【Repeat SAR 10g - FCC】

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-Up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)	Ratio
1st	GSM850	GPRS 4 Tx slots	Bottom Side	0mm	Ant 0	ECI 6	251	848.8	28.03	28.50	1.114			-0.04	2.310	2.573	-
2nd	GSM850	GPRS 4 Tx slots	Bottom Side	0mm	Ant 0	ECI 6	251	848.8	28.03	28.50	1.114			0.07	2.190	2.440	1.05
1st	GSM1900	GPRS 4 Tx slots	Bottom Side	0mm	Ant 0	ECI 6	512	1850.2	25.12	25.80	1.169			-0.01	2.750	3.215	-
2nd	GSM1900	GPRS 4 Tx slots	Bottom Side	0mm	Ant 0	ECI 6	512	1850.2	25.12	25.80	1.169			0.05	2.660	3.110	1.03
1st	FR1 n7	50M_BPSK_135_68	Back	0mm	Ant 1	ECI 6	507000	2535	21.69	22.80	1.291			-0.09	2.550	3.292	-
2nd	FR1 n7	50M_BPSK_135_68	Back	0mm	Ant 1	ECI 6	507000	2535	21.69	22.80	1.291			0.11	2.410	3.111	1.06
1st	FR1 n66	45M_BPSK_1_1	Bottom Side	0mm	Ant 0	ECI 6	349000	1745	21.97	22.50	1.130			-0.02	2.280	2.576	-
2nd	FR1 n66	45M_BPSK_1_1	Bottom Side	0mm	Ant 0	ECI 6	349000	1745	21.97	22.50	1.130			0.15	2.110	2.384	1.08

General Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg.
- Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR is ≥ 1.45 W/kg, only one repeated measurement is required.
- Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
- The ratio is the difference in percentage between original and repeated *measured SAR*.
- All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	WWAN + WLAN2.4GHz	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
4.	WLAN5GHz + Bluetooth	Yes	Yes	Yes	Yes
5.	WWAN + WLAN5GHz + Bluetooth	Yes	Yes	Yes	Yes
6.	WWAN + WLAN2.4GHz + NFC				Yes
7.	WWAN + WLAN5GHz + NFC				Yes
8.	WWAN + Bluetooth + NFC				Yes
9.	WLAN5GHz + Bluetooth + NFC				Yes
10.	WWAN + WLAN5GHz + Bluetooth + NFC				Yes

General Note:

- Simultaneous transmission analysis for all bands and all positions are based on the maximum SAR results selected between the original filing and the spot check verification data.
- This device supports VoIP in GPRS, EGPRS, WCDMA, LTE and 5GNR (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
- WWAN above includes 5G NR bands and EN-DC combination.
- EUT will choose each GSM, WCDMA, LTE and 5GNR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- For EN-DC mode, MediaTek TA-SAR algorithm in WWAN adds directly the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. TA-SAR algorithm controls the total RF exposure from both 4G and 5G NR to not exceed SAR exposure limit. Therefore, simultaneous transmission compliance between 4G+5G NR operation is demonstrated in the Part 2 Report during algorithm validation. In this Report, simultaneous transmission compliance was evaluated individually with other Radios (WLAN or BT) using one of 4G or 5G NR.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz cannot transmit simultaneously.
- WLAN 2.4GHz and Bluetooth share the same antenna, and they cannot transmit simultaneously.
- NFC can transmit simultaneously with other Radios in extremity exposure condition.
- For Headset SAR and non-Headset SAR always chose higher SAR to do co-located analysis.
- For distance SAR and non-distance SAR at extremity exposure conditions always chose higher SAR to do co-located analysis.
- For standalone WWAN, always choose the highest SAR among all WWAN bands within the selected antenna for each exposure position to perform simultaneous transmission analysis with WLAN/BT together. This is the worst co-located analysis and can represent each band.
- The maximum SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/kg.
 - $SPLSR = (SAR1 + SAR2)^{1.5} / (\min. \text{ separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$, where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
 - If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.
 - The SPLSR calculated results please refer to section 15.6.

15.1 5G NR + LTE + WLAN + BT Sim-Tx analysis

In 5G NR + LTE + WLAN + BT simultaneous transmission, 5G NR and LTE transmission are managed and controlled by MediaTek TA-SAR, while the RF exposure from WLAN and BT radios is managed using legacy approach, i.e., through a fixed power back-off if needed.

Since WLAN and BT do not employ time-averaging, 1gSAR and 10gSAR measurement for WLAN and BT need to be conducted at their corresponding rated power following current FCC test procedures to determine reported SAR values.

TA-SAR current implementation assumes hotspots from 5G NR and LTE are collocated. Therefore, for a total of 100% exposure margin, if LTE uses x, then the exposure margin left for 5G NR is capped to y. Thus, the compliance equation for LTE + 5G NR is

$$\begin{aligned} x*A + y*B + m &\leq 1 \\ x + y &= g \leq 1 \\ g + m &\leq 1 \end{aligned}$$

Where, A is normalized reported time-averaged SAR exposure ratio from LTE, and $A \leq 1.0$; B is normalized reported time-averaged exposure ratio from 5G NR (i.e., PD exposure for 5G FR2 or SAR exposure for 5G FR1), and $B \leq 1.0$.

Let m = normalized reported SAR exposure ratio from WLAN+BT, then for compliance,

$$x * A + y * B + m \leq 1.0 \quad (1)$$

$$x * A + y * B \leq x * \max(A, B) + (g-x) * \max(A, B) \leq \max(A, B)$$

$$x * A + (g-x) * B + m \leq \max(A, B) + m \leq 1.0 \quad (2)$$

If $A + m \leq 1.0$ and $B + m \leq 1.0$ can be proven, then " $x * A + y * B + m \leq 1.0$ ". Therefore simultaneous transmission analysis for 5G NR + LTE + WLAN + BT can be performed in two steps

Step 1: Prove total exposure ratio (TER) of LTE + WLAN + BT < 1

Step 2: Prove total exposure ratio (TER) of 5G NR + WLAN + BT < 1

Else, if $A + m > 1.0$ and/or $B + m > 1.0$, then the followings need to hold true for compliance:

- i. A and m are decoupled based on the SPLSR criteria, and
- ii. $y * B + m \leq 1.0$, and
- iii. $x\% * A + y * B \leq 1.0$

Note iii. is covered in Part 2 report; i. and ii. should be addressed in Part 1 report.

Above analysis is also apply to LTE inter-band uplink, LTE1 + LTE2 + WLAN + BT simultaneous transmission, so inter-band uplink CA no need to do additional simultaneously analysis again. Only required comply with total exposure ratio (TER) of LTE + WLAN + BT < 1.

The device also enabled Mediatek's TA-SAR algorithm to improve antenna performance by applying separate SAR budgets to each predefined antenna group. There are two predefined antenna groups of AG0, AG1, more detail as following table. Each antenna group is spatially separated to others. Simultaneous transmission analysis is performed per antenna group. Below analysis demonstrates the spatially separation of AG0, AG1, and the compliance between AG0 and BT/WLAN/NFC and between AG1 and BT/WLAN/NFC.

Thus, the concept was to split the SAR/TER on the transmitting RATs even they are transmitting on different antennas. Such approach is considered as a worst-case scenario in terms of transmitting power. Thus, to enhance the performance of the transmission power of RATs, consider the spatial properties of each antenna and the correlations between the antenna's transmissions.

SPLSR_Group (Antenna Group):

Antenna Group 0 (AG0)	ANT0 & ANT1
Antenna Group 1 (AG1)	ANT2 & ANT4 & ANT5 & ANT8

Note that WLAN/BT operations are not enabled with TA-SAR feature.

The verification of spatial separation of the antenna groups is demonstrated through the following steps, together with WIF/BT simultaneous transmission analysis results.

- The highest reported SAR at Plimit (or Pmax when Plimit > Pmax) for each antenna should be obtained out of all supported technologies and frequency bands for each power index. Demonstrate that the sum of reported SAR of one antenna from each of the antenna groups and the sum of RF exposure from all supported radios outside of TAS feature should be less than the regulatory limit as given below for each power index.
- If the sum of SAR from step i) is over 1.6 W/kg for 1g, demonstrate for a given power index that every antenna from one antenna group meets SPLSR criteria with every antenna in another antenna group for all frequency bands. SPLSR criteria must be demonstrated for all antenna pair combinations irrespective of supported simultaneous transmission scenarios, SPLSR Hotspot combination procedure (Hybrid SPLSR) also be considered for simultaneous transmission analysis.
- If SPLSR evaluation and analysis is needed to determine compliance for a certain power index configuration, SPLSR is performed by taking the highest summation SAR for each of the supported technologies and bands per antenna, along with the minimum of peak SAR location distance. The minimum of peak location distance is documented in the Highest Report SAR and Hotspot Location below for each power index configuration.
- In section 15.6 SPLSR analysis only evaluation Sim-Tx SAR configuration are rounded to two decimal higher or equal to 1.6W/kg.
- The analysis addresses the simultaneous transmission and the transition among non-simultaneous transmission radios

For summed SAR results and SPLSR detailed analysis, please refer to section 15.2/15.3 / 15.4 / 15.5 / 15.6 of this report. All of the combinations of sub6 antenna groups are sufficient to show that AG0 is mutually exclusive from AG1 and that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

15.2 Head Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

AG0 maximum reported SAR:

Test Position	Ant0	Ant1	MAX
Right Cheek	0.445	0.237	0.445
Right Tilted	0.214	0.212	0.214
Left Cheek	0.498	0.431	0.498
Left Tilted	0.212	0.121	0.212

AG1 maximum reported SAR:

Test Position	Ant4	Ant5	Ant2	Ant8	MAX
Right Cheek	0.908	0.551	0.292	0.074	0.908
Right Tilted	1.051	0.599	0.169	0.049	1.051
Left Cheek	0.572	0.903	0.109	0.171	0.903
Left Tilted	0.702	0.899	0.064	0.099	0.899

WLAN2.4GHz/5GHz +BT Worse-case SAR:

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Right Cheek	0.187	0.050	0.175	0.225	0.225
Right Tilted	0.241	0.062	0.203	0.265	0.265
Left Cheek	0.397	0.110	0.361	0.471	0.471
Left Tilted	0.377	0.101	0.358	0.459	0.459

Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT Worse-case:

Test Position	AG0	AG1	WLAN/BT worst case	AG0+AG1+WLAN/BT worst case
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Summed 1g SAR (W/kg)
Right Cheek	0.445	0.908	0.225	1.58
Right Tilted	0.214	1.051	0.265	1.53
Left Cheek	0.498	0.903	0.471	1.87
Left Tilted	0.212	0.899	0.459	1.57

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Left Cheek					
Ant combination	AG0	AG1	WLAN/BT worst case	AG1+AG0+WLAN +BT worst case	SPLSR
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Ant0-Ant4	0.498	0.572	0.471	1.54	
Ant0-Ant5	0.498	0.903	0.471	1.87	1
Ant0-Ant2	0.498	0.109	0.471	1.08	
Ant0-Ant8	0.498	0.171	0.471	1.14	
Ant1-Ant4	0.427	0.572	0.471	1.47	
Ant1-Ant5	0.427	0.903	0.471	1.80	2
Ant1-Ant2	0.427	0.109	0.471	1.01	
Ant1-Ant8	0.427	0.171	0.471	1.07	

Simultaneous Transmission analysis of WLAN 5GHz+BT only and WWAN cell-off :

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Right Cheek	0.388	0.050	0.493	0.543	0.54
Right Tilted	0.346	0.062	0.679	0.741	0.74
Left Cheek	0.571	0.110	0.911	1.021	1.02
Left Tilted	0.542	0.101	1.199	1.300	1.30

15.3 Hotspot Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

AG0 maximum reported SAR:

Test Position	Ant0	Ant1	MAX
Front	0.676	0.732	0.732
Back	1.416	1.310	1.416
Left Side	0.371	0.571	0.571
Right Side	0.801	0.146	0.801
Top Side	0.070	0.050	0.070
Bottom Side	1.368	1.000	1.368

AG1 maximum reported SAR:

Test Position	Ant4	Ant5	Ant2	Ant8	MAX
Front	0.298	0.265	0.105	0.059	0.298
Back	0.776	0.648	0.586	0.695	0.776
Left Side	0.194	0.022	0.393	0.001	0.393
Right Side	0.119	0.080	0.001	0.239	0.239
Top Side	0.764	0.457	0.056	0.031	0.764
Bottom Side	0.029	0.009	0.001	0.001	0.029

WLAN2.4GHz/5GHz +BT Worse-case SAR:

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Front	0.214	0.051	0.206	0.257	0.257
Back	0.626	0.126	0.525	0.651	0.651
Left Side	0.058	0.001	0.224	0.225	0.225
Right Side	0.219	0.001	0.114	0.115	0.219
Top Side	0.441	0.100	0.624	0.724	0.724
Bottom Side	0.002	0.001	0.041	0.042	0.042

Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT Worse-case:

Test Position	AG0	AG1	WLAN/BT worst case	AG0+AG1+WLAN/BT worst case
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Summed 1g SAR (W/kg)
Front	0.732	0.298	0.257	1.29
Back	1.416	0.776	0.651	2.84
Left Side	0.571	0.393	0.225	1.19
Right Side	0.801	0.239	0.219	1.26
Top Side	0.070	0.764	0.724	1.56
Bottom Side	1.368	0.029	0.042	1.44

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Back					
Ant combination	AG0	AG1	WLAN/BT worst case	AG1+AG0+WLAN +BT worse case	SPLSR
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Ant0-Ant4	1.416	0.776	0.651	2.84	14
Ant0-Ant5	1.416	0.648	0.651	2.72	15
Ant0-Ant2	1.416	0.586	0.651	2.65	16
Ant0-Ant8	1.416	0.695	0.651	2.76	17
Ant1-Ant4	1.310	0.776	0.651	2.74	18
Ant1-Ant5	1.310	0.648	0.651	2.61	19
Ant1-Ant2	1.310	0.586	0.651	2.55	20
Ant1-Ant8	1.310	0.695	0.651	2.66	21

Simultaneous Transmission analysis of WLAN 5GHz+BT only and WWAN cell-off :

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Front	0.214	0.051	0.206	0.257	0.26
Back	0.626	0.126	0.525	0.651	0.65
Left Side	0.058	0.001	0.224	0.225	0.23
Right Side	0.219	0.001	0.114	0.115	0.22
Top Side	0.441	0.100	0.624	0.724	0.72
Bottom Side	0.002	0.001	0.041	0.042	0.04

15.4 Body-Worn Accessory Exposure Conditions

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

AG0 maximum reported SAR:

Test Position	Ant0	Ant1	MAX
Front	0.676	0.732	0.732
Back	1.416	1.310	1.416

AG1 maximum reported SAR:

Test Position	Ant4	Ant5	Ant2	Ant8	MAX
Front	0.540	0.376	0.132	0.070	0.540
Back	1.092	0.912	0.586	0.773	1.092

WLAN2.4GHz/5GHz +BT Worse-case SAR:

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Front	0.174	0.051	0.241	0.292	0.292
Back	0.384	0.126	0.425	0.551	0.551

Simultaneous Transmission analysis of AG0 + AG1 + WLAN+BT Worse-case:

Test Position	AG0	AG1	WLAN/BT worst case	AG0+AG1+WLAN/BT worst case
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Summed 1g SAR (W/kg)
Front	0.732	0.540	0.292	1.56
Back	1.416	1.092	0.551	3.06

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Back					
Ant combination	AG0	AG1	WLAN/BT worst case	AG1+AG0+WLAN +BT worse case	SPLSR
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Ant0-Ant4	1.416	1.092	0.551	3.06	3
Ant0-Ant5	1.416	0.912	0.551	2.88	4
Ant0-Ant2	1.416	0.586	0.551	2.55	5
Ant0-Ant8	1.416	0.773	0.551	2.74	6
Ant1-Ant4	1.310	1.092	0.551	2.95	7
Ant1-Ant5	1.310	0.912	0.551	2.77	8
Ant1-Ant2	1.310	0.586	0.551	2.45	9
Ant1-Ant8	1.310	0.773	0.551	2.63	10

Simultaneous Transmission analysis of WLAN 5GHz+BT only and WWAN cell-off :

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Front	0.332	0.051	0.675	0.726	0.73
Back	0.967	0.126	1.191	1.317	1.32

Sensor off

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT:

AG0 maximum reported SAR:

Test Position	Ant0	Ant1	MAX
Front	0.629	0.467	0.629
Back	0.748	0.366	0.748

AG1 maximum reported SAR:

Test Position	Ant4	Ant5	Ant2	Ant8	MAX
Front	0.553	0.456		0.019	0.553
Back	0.613	0.375		0.204	0.613

WLAN2.4GHz/5GHz+BT Worse-case SAR

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	MAX
Front	0.096		0.259	0.259	0.259
Back	0.121		0.659	0.659	0.659

Simultaneous Transmission analysis of AG0 + AG1 + WLAN + BT Worse-case:

Test Position	AG0	AG1	WLAN/BT worst case	AG0+AG1+WLAN/BT worst case
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	Summed 1g SAR (W/kg)
Front	0.629	0.553	0.259	1.44
Back	0.748	0.613	0.659	2.02

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Back					
Ant combination	AG0	AG1	WLAN/BT worst case	AG1+AG0+WLAN +BT worse case	SPLSR
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	
Ant0-Ant4	0.748	0.613	0.659	2.02	11
Ant0-Ant5	0.748	0.375	0.659	1.78	12
Ant0-Ant2	0.748		0.659	1.41	
Ant0-Ant8	0.748	0.019	0.659	1.43	
Ant1-Ant4	0.366	0.613	0.659	1.64	13
Ant1-Ant5	0.366	0.375	0.659	1.40	
Ant1-Ant2	0.366		0.659	1.03	
Ant1-Ant8	0.366	0.204	0.659	1.23	

15.5 Product specific 10g SAR Exposure Conditions

Remark:

- For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is 1.2W/kg.

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT+NFC:

AG0 maximum reported SAR:

Test Position	Ant0	Ant1	MAX
Front		1.764	1.764
Back	3.090	3.388	3.388
Left Side			
Right Side			
Top Side			
Bottom Side	3.395	1.889	3.395

AG1 maximum reported SAR:

Test Position	Ant4	Ant5	Ant2	Ant8	MAX
Front	1.596				1.596
Back	2.495	1.744			2.495
Left Side					
Right Side					
Top Side	2.819	2.490			2.819
Bottom Side					

WLAN2.4GHz/5GHz/BT Worse-case SAR

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	MAX
Front			0.295	0.295
Back			0.342	0.342
Left Side			0.035	0.035
Right Side			0.171	0.171
Top Side			0.973	0.973
Bottom Side			0.014	0.014

Simultaneous Transmission analysis of AG0 + AG1 + WLAN/BT Worse-case+NFC:

Test Position	AG0	AG1	WLAN/BT worst case	NFC	AG0+AG1+WLAN/BT worst case+NFC
	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	Summed 10g SAR (W/kg)
Front	1.764	1.596	0.295		3.66
Back	3.388	2.495	0.342	0.028	6.25
Left Side			0.035		0.04
Right Side			0.171		0.17
Top Side		2.819	0.973		3.79
Bottom Side	3.395		0.014		3.41

Note: The results marked yellow in above table refers to the detailed analysis corresponding to each position below tables.

Back						
Ant combination	AG0	AG1	WLAN/BT worst case	NFC	AG1+AG0+WLAN +BT worse case	SPLSR
	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	
Ant0-Ant4	3.090	2.495	0.342	0.028	5.96	22
Ant0-Ant5	3.090	1.744	0.342	0.028	5.20	23
Ant0-Ant2	3.090		0.342	0.028	3.46	
Ant0-Ant8	3.090		0.342	0.028	3.46	
Ant1-Ant4	3.388	2.495	0.342	0.028	6.25	26
Ant1-Ant5	3.388	1.744	0.342	0.028	5.50	27
Ant1-Ant2	3.388		0.342	0.028	3.76	
Ant1-Ant8	3.388		0.342	0.028	3.76	

Simultaneous Transmission analysis of WLAN/BT+NFC only and WWAN cell-off :

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	WLAN5GHz Ant6+BT Ant6	NFC	NFC+WLAN+BT worst case
Front			0.788	0.788	0.000	0.79
Back			0.925	0.925	0.026	0.95
Left Side			0.092	0.092	0.000	0.09
Right Side			0.454	0.454	0.000	0.45
Top Side			2.827	2.899	0.000	2.90
Bottom Side			0.021	0.021	0.000	0.02

<Sensor off>

General Note: The unit of SAR evaluation is W/kg.

Simultaneous Transmission Evaluation of WWAN+WLAN+BT+NFC:

<AG0 maximum reported SAR>:

Test Position	Ant0	Ant1	MAX
Front			
Back	0.809	0.491	0.809
Left Side			
Right Side			
Top Side			
Bottom Side	1.314		1.314

<AG1 maximum reported SAR>:

Test Position	Ant4	Ant5	Ant2	Ant8	MAX
Front	1.022				1.022
Back	1.208	1.634			1.634
Left Side					
Right Side					
Top Side	0.843	0.838			0.843
Bottom Side					

WLAN2.4GHz/5GHz/BT Worse-case SAR

Test Position	WLAN2.4GHz Ant6	BT Ant6	WLAN5GHz Ant6	MAX
Front			0.342	0.342
Back			0.854	0.854
Left Side				0.000
Right Side			0.203	0.203
Top Side			0.549	0.549
Bottom Side				0.000

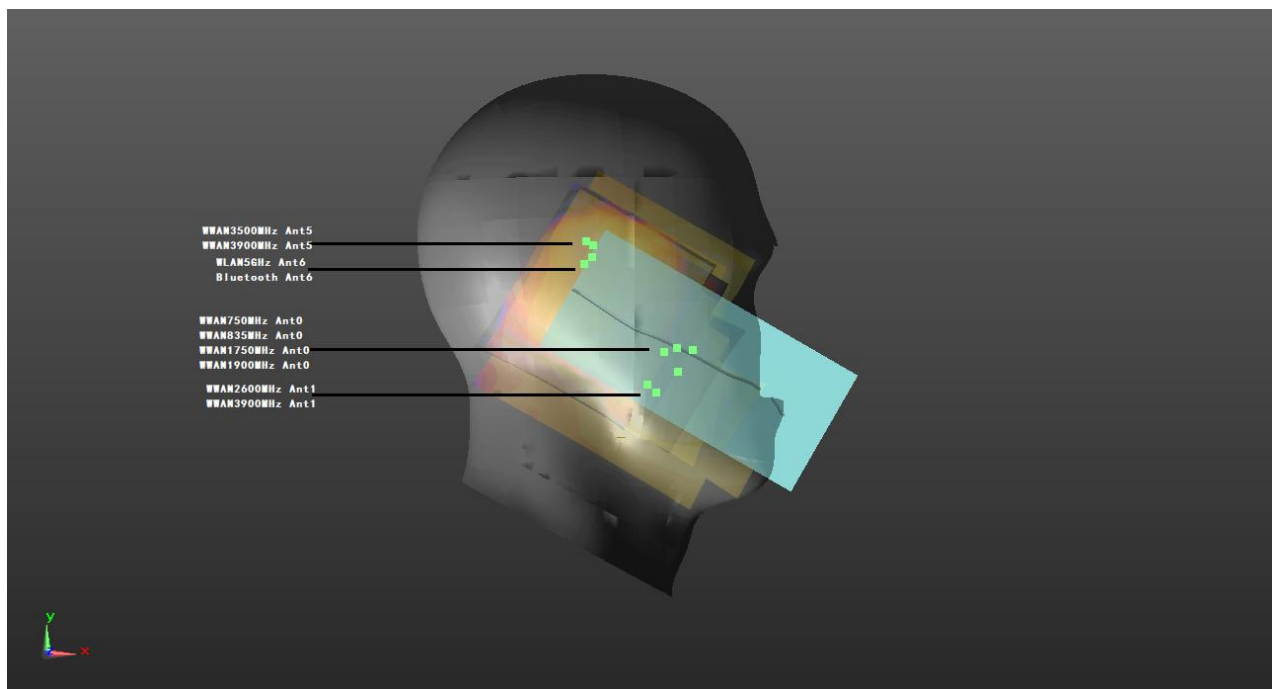
<Simultaneous Transmission analysis of AG0 + AG1 + WLAN/BT Worse-case+NFC>:

Test Position	AG0	AG1	WLAN/BT worst case	NFC	AG0+AG1+WLAN/BT worst case+NFC
	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	Summed 10g SAR (W/kg)
Front		1.022	0.342		1.36
Back	0.809	1.634	0.854	0.026	3.32
Left Side					0.00
Right Side			0.203		0.20
Top Side		0.843	0.549		1.39
Bottom Side	1.314				1.31

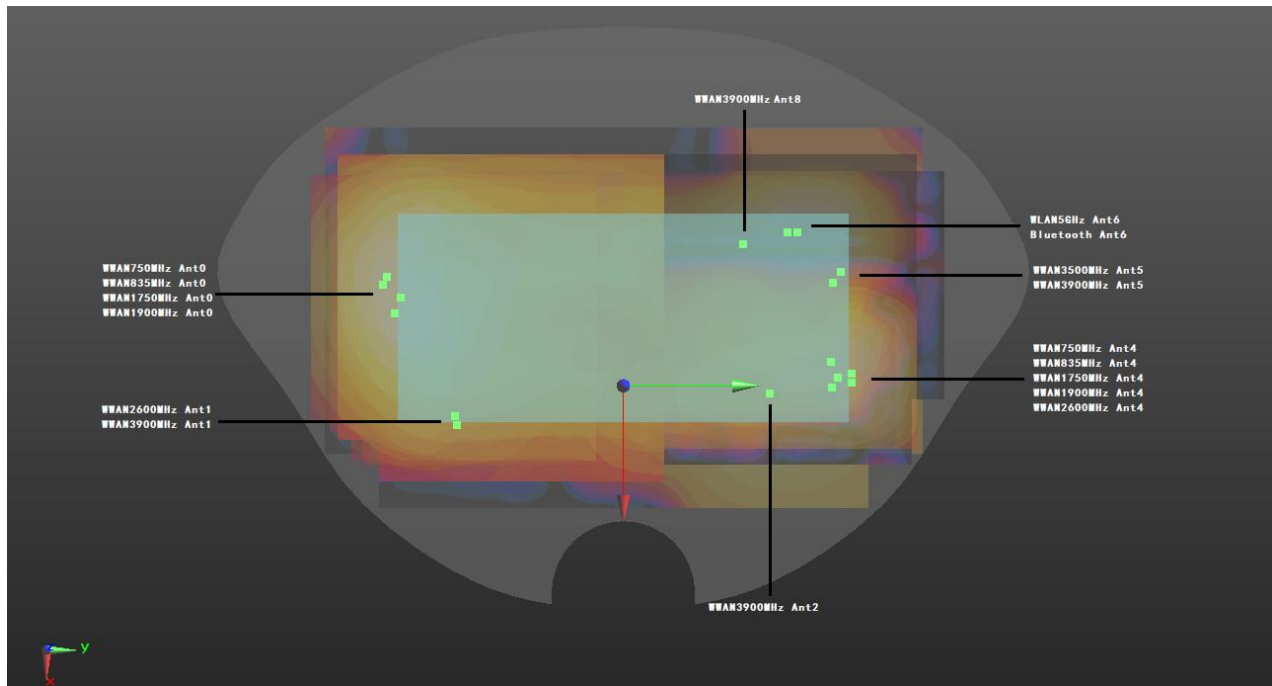
15.6 SPLSR Evaluation and Analysis

General Note:

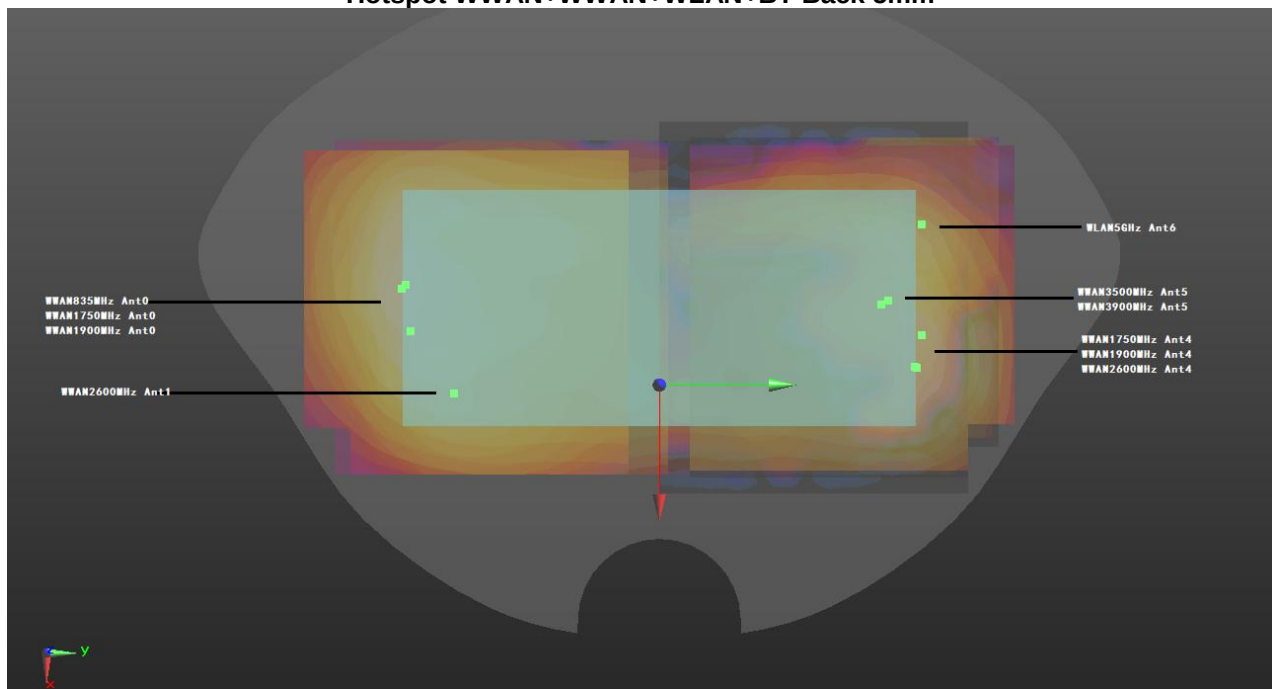
1. When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
2. $SPLSR = (SAR_1 + SAR_2)1.5 / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$ for 1g SAR and $SPLSR \leq 0.10$ for 10g SAR, simultaneously transmission SAR measurement is not necessary.
3. Per April 2022 TCB Workshop Notes, WLAN /BT/ NFC was summed algebraically with the AG1 for the purposes of hybrid SPLSR combination and they are located at the top of the device
4. Per April 2022 TCB Workshop, instead of doing a small volume scan over a co-located antenna pair, used summing the SAR values of the co-located pair and using that value in SPLSR calculation. In the calculation used the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.
5. The detail hotspot point for each transmitter in each exposure condition are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis.
6. The axis peak locations refer to Section 15.7.



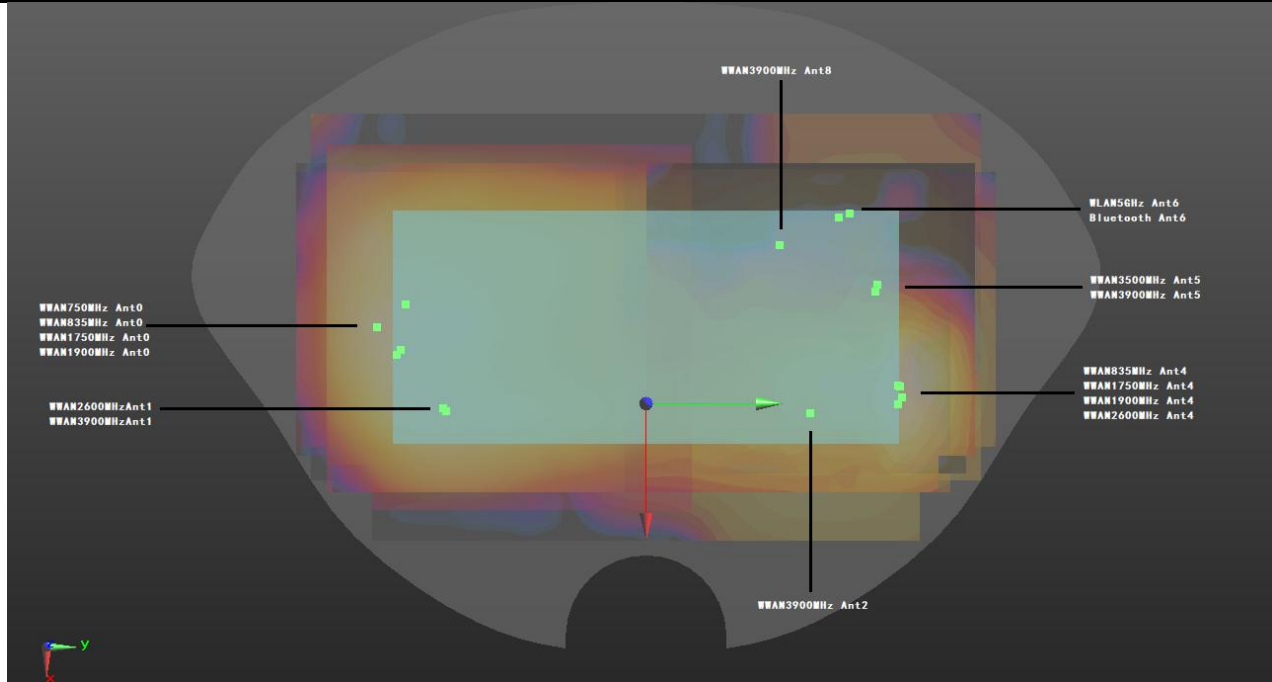
Head WWAN+WWAN+WLAN+BT Left Cheek 0mm



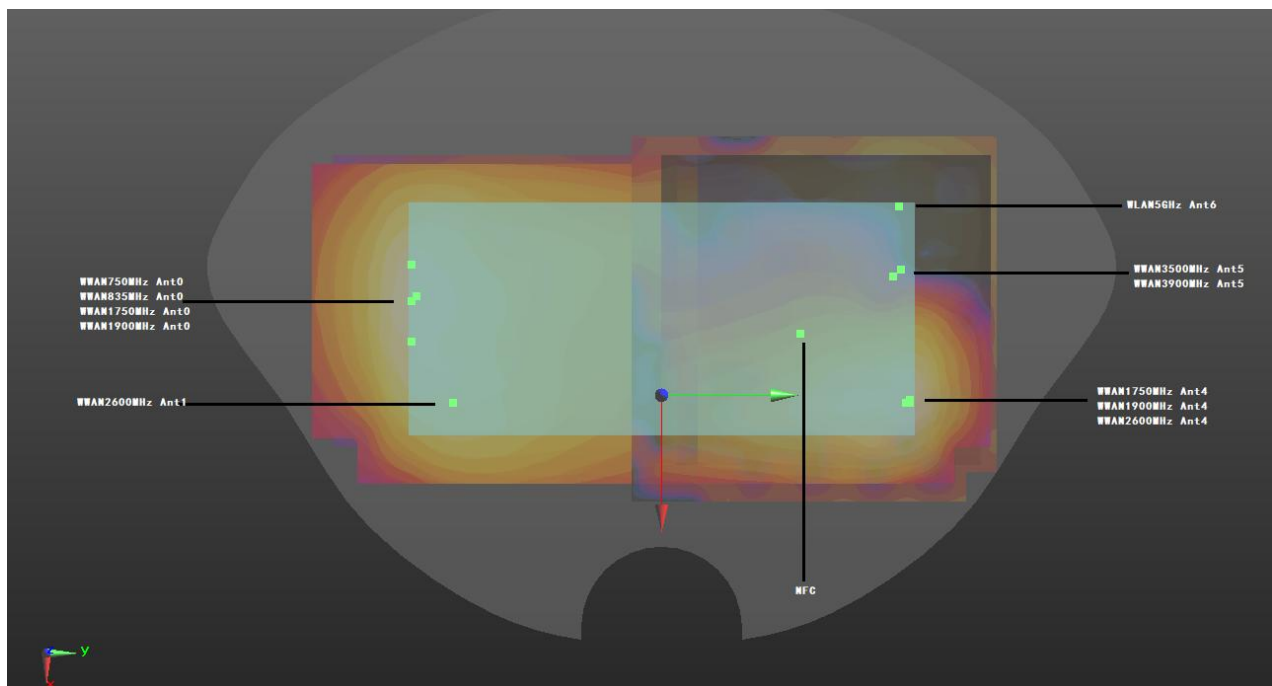
Hotspot WWAN+WWAN+WLAN+BT Back 5mm



Body worn WWAN+WWAN+WLAN Back 19mm



Body worn WWAN+WWAN+WLAN+BT Back 5mm



Extremity WWAN+WWAN+WLAN+NFC Back 0mm

Head

No.1 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Left Cheek	0.498	0.498	0mm	50.25	-47.15	-2.74	77.3	1.87	0.03	Not required
Ant5		0.903	1.374	0mm	-1.66	10.11	-4.54				
WLAN5GHz Ant6		0.361		0mm							
BT Ant6		0.110		0mm							
Ant0	Left Cheek	0.498	0.498	0mm	50.25	-47.15	-2.74	84.9	1.87	0.03	Not required
Ant5		0.903	1.374	0mm							
WLAN5GHz Ant6		0.361		0mm	8.11	26.52	-2.5				
BT Ant6		0.110		0mm							
Ant0	Left Cheek	0.498	0.498	0mm	50.25	-47.15	-2.74	83.9	1.87	0.03	Not required
Ant5		0.903	1.374	0mm							
WLAN5GHz Ant6		0.361		0mm							
BT Ant6		0.110		0mm	6.65	24.58	-1.84				
No.2 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Left Cheek	0.427	0.427	0mm	42.15	-60.15	-3.07	82.8	1.80	0.03	Not required
Ant5		0.903	1.374	0mm	-1.66	10.11	-4.54				
WLAN5GHz Ant6		0.361		0mm							
BT Ant6		0.110		0mm							
Ant1	Left Cheek	0.427	0.427	0mm	42.15	-60.15	-3.07	93.1	1.80	0.03	Not required
Ant5		0.903	1.374	0mm							
WLAN5GHz Ant6		0.361		0mm	8.11	26.52	-2.5				
BT Ant6		0.110		0mm							
Ant1	Left Cheek	0.427	0.427	0mm	42.15	-60.15	-3.07	91.9	1.80	0.03	Not required
Ant5		0.903	1.374	0mm							
WLAN5GHz Ant6		0.361		0mm							
BT Ant6		0.110		0mm	6.65	24.58	-1.84				

Hotspot

No.14 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	146.1	2.84	0.03	Not required
Ant4		0.776	1.427	5mm	20.8	70.6	-2.15				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	152.6	2.84	0.03	Not required
Ant4		0.776	1.427	5mm							
WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	150.8	2.84	0.03	Not required
Ant4		0.776	1.427	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.15 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	146.4	2.72	0.03	Not required
Ant5		0.648	1.299	5mm	-23	73	-4.01				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	152.6	2.72	0.03	Not required
Ant5		0.648	1.299	5mm							



WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	150.8	2.72	0.03	Not required
Ant5		0.648	1.299	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.16 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	131.4	2.65	0.03	Not required
Ant2		0.586	1.237	5mm	36.3	51	-2.15				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	152.6	2.65	0.03	Not required
Ant2		0.586	1.237	5mm							
WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	150.8	2.65	0.03	Not required
Ant2		0.586	1.237	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.17 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	121.0	2.76	0.04	Not required
Ant8		0.695	1.346	5mm	-35.6	45.3	-2.5				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	152.6	2.76	0.03	Not required
Ant8		0.695	1.346	5mm							
WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-8.3	-72.6	-1.58	150.8	2.76	0.03	Not required
Ant8		0.695	1.346	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.18 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	133.5	2.74	0.03	Not required
Ant4		0.776	1.427	5mm	20.8	70.6	-2.15				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	152.2	2.74	0.03	Not required
Ant4		0.776	1.427	5mm							
WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	150.0	2.74	0.03	Not required
Ant4		0.776	1.427	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.19 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	144.0	2.61	0.03	Not required
Ant5		0.648	1.299	5mm	-23	73	-4.01				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	152.2	2.61	0.03	Not required
Ant5		0.648	1.299	5mm							



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WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	150.0	2.61	0.03	Not required
Ant5		0.648	1.299	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.20 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	114.4	2.55	0.04	Not required
Ant2		0.586	1.237	5mm	36.3	51	-2.15				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	152.2	2.55	0.03	Not required
Ant2		0.586	1.237	5mm							
WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	150.0	2.55	0.03	Not required
Ant2		0.586	1.237	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				
No.21 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	123.8	2.66	0.04	Not required
Ant8		0.695	1.346	5mm	-35.6	45.3	-2.5				
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	152.2	2.66	0.03	Not required
Ant8		0.695	1.346	5mm							
WLAN5GHz Ant6		0.525		5mm	-33	78	-3.25				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	24.8	-62.8	-2	150.0	2.66	0.03	Not required
Ant8		0.695	1.346	5mm							
WLAN5GHz Ant6		0.525		5mm							
BT Ant6		0.126		5mm	-30.9	76.5	-1.9				

Body-worn

No.3 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-3.7	-75.4	-2.16	150.2	3.06	0.04	Not required
Ant4		1.092	1.643	5mm	16.3	73.5	-2.26				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	152.3	3.06	0.04	Not required
Ant4		1.092	1.643	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	150.1	3.06	0.04	Not required
Ant4		1.092	1.643	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.4 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-9.1	-75	-2.39	148.7	2.88	0.03	Not required
Ant5		0.912	1.463	5mm	-23	73	-4.01				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	152.3	2.88	0.03	Not required
Ant5		0.912	1.463	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	150.1	2.88	0.03	Not required
Ant5		0.912	1.463	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.5 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	15.4	-78	-1.84	133.4	2.55	0.03	Not required
Ant2		0.586	1.137	5mm	34.4	54	-2.35				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	152.3	2.55	0.03	Not required
Ant2		0.586	1.137	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	150.1	2.55	0.03	Not required
Ant2		0.586	1.137	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.6 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	118.2	2.74	0.04	Not required
Ant8		0.773	1.324	5mm	-29.4	41.6	-2.52				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	152.3	2.74	0.03	Not required
Ant8		0.773	1.324	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				



BT Ant6		0.126		5mm							
Ant0	Back	1.416	1.416	5mm	-12.3	-75.4	-2.24	150.1	2.74	0.03	Not required
Ant8		0.773	1.324	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.7 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	30.6	-72.4	-2.12	146.6	2.95	0.03	Not required
Ant4		1.092	1.643	5mm	16.3	73.5	-2.26				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	161.2	2.95	0.03	Not required
Ant4		1.092	1.643	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	158.2	2.95	0.03	Not required
Ant4		1.092	1.643	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.8 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	30.6	-72.4	-2.12	155.0	2.77	0.03	Not required
Ant5		0.912	1.463	5mm	-23	73	-4.01				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	161.2	2.77	0.03	Not required
Ant5		0.912	1.463	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	158.2	2.77	0.03	Not required
Ant5		0.912	1.463	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.9 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	30.6	-72.4	-2.12	126.5	2.45	0.03	Not required
Ant2		0.586	1.137	5mm	34.4	54	-2.35				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	161.2	2.45	0.02	Not required
Ant2		0.586	1.137	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	158.2	2.45	0.02	Not required
Ant2		0.586	1.137	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				
No.10 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	128.0	2.63	0.03	Not required
Ant8		0.773	1.324	5mm	-29.4	41.6	-2.52				
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm							



Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	161.2	2.63	0.03	Not required
Ant8		0.773	1.324	5mm							
WLAN5GHz Ant6		0.425		5mm	-36	75	-3.41				
BT Ant6		0.126		5mm							
Ant1	Back	1.310	1.310	5mm	26.4	-73.6	-2	158.2	2.63	0.03	Not required
Ant8		0.773	1.324	5mm							
WLAN5GHz Ant6		0.425		5mm							
BT Ant6		0.126		5mm	-32.2	73.4	-1.8				

Sensor off

No.11 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	0.748	0.748	19mm	9.8	-70.2	-1.86	140.7	2.02	0.02	Not required
Ant4		0.613	1.272	19mm	10.8	70.5	-2.45				
WLAN5GHz Ant6		0.659		19mm							
Ant0	Back	0.748	0.748	19mm	9.8	-70.2	-1.86	152.6	2.02	0.02	Not required
Ant4		0.613	1.272	19mm							
WLAN5GHz Ant6		0.659		19mm	-33	76.3	-3.25				
No.12 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	0.748	0.748	19mm	9.8	-70.2	-1.86	147.6	1.78	0.02	Not required
Ant5		0.375	1.034	19mm	-3	76.8	-2.57				
WLAN5GHz Ant6		0.659		19mm							
Ant0	Back	0.748	0.748	19mm	9.8	-70.2	-1.86	152.6	1.78	0.02	Not required
Ant5		0.375	1.034	19mm							
WLAN5GHz Ant6		0.659		19mm	-33	76.3	-3.25				
No.13 Band	Position	SAR 1g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	0.366	0.366	19mm	35.9	-60.5	-2.05	133.4	1.64	0.02	Not required
Ant4		0.613	1.272	19mm	10.8	70.5	-2.45				
WLAN5GHz Ant6		0.659		19mm							
Ant1	Back	0.366	0.366	19mm	35.9	-60.5	-2.05	153.2	1.64	0.01	Not required
Ant4		0.613	1.272	19mm							
WLAN5GHz Ant6		0.659		19mm	-33	76.3	-3.25				

Extremity

No.22 Band	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	3.090	3.090	0mm	-8.5	-70.5	-2.01	153.2	5.93	0.09	Not required
Ant4		2.495	2.837	0mm	24.2	79.2	-2.01				
WLAN5GHz Ant6		0.342		0mm							
Ant0	Back	3.090	3.090	0mm	-11.2	-70.3	-2.14	154.8	5.93	0.09	Not required
Ant4		2.495	2.837	0mm							
WLAN5GHz Ant6		0.342		0mm	-33	83	-1.89				
Ant0	Back	3.090	3.090	0mm	-11.2	-70.3	-2.14	140.8	5.61	0.09	Not required
Ant4		2.495	2.523	0mm							
NFC		0.028		0mm	-8.6	70.5	-2.3				
No.23 Band	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant0	Back	3.090	3.090	0mm	-10.8	-70.3	-2.14	148.1	5.18	0.08	Not required
Ant5		1.744	2.086	0mm	-21	77.4	-3.71				

WLAN5GHz Ant6		0.342		0mm							
Ant0	Back	3.090	3.090	0mm	-11.2	-70.3	-2.14	154.8	5.18	0.08	Not required
Ant5		1.744	2.086	0mm							
WLAN5GHz Ant6		0.342		0mm	-33	83	-1.89				
Ant0	Back	3.090	3.090	0mm	-11.2	-70.3	-2.14	140.8	4.86	0.08	Not required
Ant5		1.744	1.772	0mm							
NFC		0.028		0mm	-8.6	70.5	-2.3				
No.26 Band	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	3.388	3.388	0mm	27.2	-76.8	-1.99	157.4	6.23	0.10	Not required
Ant4		2.495	2.837	0mm	27.6	80.6	-2.09				
WLAN5GHz Ant6		0.342		0mm							
Ant1	Back	3.388	3.388	0mm	27.2	-76.8	-1.99	161.4	6.23	0.10	Not required
Ant4		2.495	2.837	0mm							
WLAN5GHz Ant6		0.342		0mm	-33	73	-1.89				
Ant1	Back	3.388	3.388	0mm	27.2	-76.8	-1.99	151.6	5.91	0.09	Not required
Ant4		2.495	2.523	0mm							
NFC		0.028		0mm	-8.6	70.5	-2.3				
No.27 Band	Position	SAR 10g SAR (W/kg)	Summed	Gap	SAR peak location (mm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Ant1	Back	3.388	3.388	0mm	27.2	-76.8	-1.99	161.6	5.47	0.08	Not required
Ant5		1.744	2.086	0mm	-21	77.4	-3.71				
WLAN5GHz Ant6		0.342		0mm							
Ant1	Back	3.388	3.388	0mm	27.2	-76.8	-1.99	161.4	5.47	0.08	Not required
Ant5		1.744	2.086	0mm							
WLAN5GHz Ant6		0.342		0mm	-33	73	-1.89				
Ant1	Back	3.388	3.388	0mm	27.2	-76.8	-1.99	151.6	5.16	0.08	Not required
Ant5		1.744	1.772	0mm							
NFC		0.028		0mm	-8.6	70.5	-2.3				

15.7 Maximum Reported SAR and SAR Peak Locations

General Note:

1. The maximum reported SAR and SAR Peak Locations corresponding to each position of each frequency band of each antenna in the below tables are as follows.
2. The unit of SAR evaluation is W/kg. The unit of x, y, z with Axis evaluation is mm.

Head

Left Cheek									
Band		Ant0			Ant1			Ant5	
GSM850	SAR	0.498							
	Axis	50.1	-48.99	-2.74					
GSM1900	SAR	0.136							
	Axis	51.5	-48.35	-2.74					
WCDMA II	SAR	0.170							
	Axis	52	-49.21	-2.74					
WCDMA IV	SAR	0.127							
	Axis	52.25	-54.25	-2.74					
WCDMA V	SAR	0.332							
	Axis	51.13	-53.51	-3.47					
LTE Band 7	SAR				0.414				
	Axis				42.15	-60.15	-3.07		
LTE Band 12(17)	SAR	0.177							
	Axis	55.71	-54.61	-3.47					
LTE Band 13	SAR	0.240							
	Axis	50.05	-48.25	-3.47					
LTE Band 25(2)	SAR	0.191							
	Axis	50.25	-47.15	-2.74					
LTE Band 26(5)	SAR	0.193							
	Axis	53	-47.29	-3.47					
LTE Band 66(4)	SAR	0.163							
	Axis	51.2	-48.35	-3.47					
LTE Band 38	SAR				0.242				
	Axis				46.31	-58.45	-3.07		
LTE Band 42	SAR							0.877	
	Axis							9.5	15.02
LTE Band 48	SAR							0.850	
	Axis							-1.66	10.11
FR1 n2	SAR	0.117							
	Axis	52.5	-47.38	-2.74					
FR1 n7	SAR				0.427				
	Axis				42.33	-61.5	-3.07		
FR1 n26(5)	SAR	0.179							
	Axis	53.1	-47.21	-2.74					
FR1 n66	SAR	0.148							
	Axis	55.6	-48.8	-3.47					
FR1 n77(78)	SAR				0.104			0.903	
	Axis				40.85	-63.25	-3.07	9.3	16.08

WLAN5GHz Ant6	SAR (W/kg)	0.361		
	Axis	8.11	26.52	-2.5

BT Ant6	SAR (W/kg)	0.110		
	Axis	6.65	24.58	-1.84



Hotspot

		Back																		
Band		Ant0			Ant1			Ant4			Ant5			Ant2			Ant8			
GSM850	SAR	1.308																		
	Axis	-11.8	-78.6	-1.46																
GSM1900	SAR	1.307																		
	Axis	12.8	-78.7	-1.33																
WCDMA II	SAR	1.050																		
	Axis	-3.8	-75.3	-1.58																
WCDMA IV	SAR	1.040																		
	Axis	-4.2	-78.1	-2.16																
WCDMA V	SAR	1.310																		
	Axis	-9.1	-75	-2.39																
LTE Band 4	SAR							0.352												
	Axis							20.8	70.6	-2.15										
LTE Band 7	SAR				1.301			0.627												
	Axis				30.6	-72.4	-2.12	20.3	75.6	-2.15										
LTE Band 12(17)	SAR	1.047						0.214												
	Axis	-12.3	-75.4	-2.24				21.2	78.1	-2.25										
LTE Band 13	SAR	1.416						0.585												
	Axis	-7.5	-75.7	-2.35				12	78.4	-3.75										
LTE Band 25(2)	SAR	1.031						0.536												
	Axis	-6.8	-73.9	-1.58				21.3	77.5	-2.15										
LTE Band 26(5)	SAR	1.288						0.645												
	Axis	-4.1	-78.5	-2.15				22.8	76.3	-2.25										
LTE Band 66(4)	SAR	1.013						0.451												
	Axis	-8.3	-72.6	-1.58				22.9	75.2	-2.25										
LTE Band 38	SAR				1.285															
	Axis				26.4	-73.6	-2													
LTE Band 41(38)	SAR							0.494												
	Axis							20.8	76.8	-2.15										
LTE Band 42	SAR										0.588									
	Axis										-10	85.6	-2.51							
LTE Band 48	SAR										0.623									
	Axis										-23	73	-4.01							
FR1 n2	SAR	0.935						0.560												
	Axis	-8.5	-73.5	-1.58				18.9	78.9	-2.25										
FR1 n7	SAR				1.310			0.776												
	Axis				29.6	-75.8	-2.02	25.6	75.6	-2.15										
FR1 n26(5)	SAR	1.304						0.678												
	Axis	-5.9	-77.4	-2.25				25.8	71.5	-2.25										
FR1 n66	SAR	0.972						0.531												
	Axis	-11	-78.3	-1.58				26.3	75.6	-2.15										
FR1 n41(38)	SAR							0.722												
	Axis							27.8	72.3	-2.25										
FR1 n77(78)	SAR				0.628						0.648			0.586			0.695			
	Axis				24.8	-62.8	-2				-8	83.2	-2.51	36.3	51	-2.15	-35.6	45.3	-2.5	
WLAN5GHz Ant6	SAR (W/kg)	0.525				BT Ant6	SAR (W/kg)	0.126												
	Axis	-33	78	-3.25				Axis	-30.9	76.5	-1.9									

Body-worn

Back																			
Band		Ant0			Ant1			Ant4			Ant5			Ant2			Ant8		
GSM850	SAR	1.308																	
	Axis	-11.8	-78.6	-1.46															
GSM1900	SAR	1.307																	
	Axis	12.8	-78.7	-1.33															
WCDMA II	SAR	1.271																	
	Axis	-6.9	-78.9	-2.38															
WCDMA IV	SAR	1.376																	
	Axis	-6	-77.1	-2.4															
WCDMA V	SAR	1.310																	
	Axis	-9.1	-75	-2.39															
LTE Band 4	SAR							0.722											
	Axis							12.2	79.7	-2.54									
LTE Band 7	SAR				1.301			1.034											
	Axis				30.6	-72.4	-2.12	25.4	82.8	-2.25									
LTE Band 12(17)	SAR	1.047						0.214											
	Axis	-12.3	-75.4	-2.24				20.3	80.5	-2.21									
LTE Band 13	SAR	1.416						0.585											
	Axis	-7.5	-75.7	-2.35				12	78.4	-3.75									
LTE Band 25(2)	SAR	1.174						0.875											
	Axis	-3.7	-75.4	-2.16				23.4	83.4	-2.17									
LTE Band 26(5)	SAR	1.288						0.920											
	Axis	-4.1	-78.5	-2.15				18.1	82.3	-2.17									
LTE Band 66(4)	SAR	1.225						0.728											
	Axis	9.1	-79.4	-2.02				17.9	79.7	-2.52									
LTE Band 38	SAR				1.285														
	Axis				26.4	-73.6	-2												
LTE Band 41(38)	SAR							0.901											
	Axis							24.2	78.8	-2.21									
LTE Band 42	SAR										0.903								
	Axis										-1	80	-2.57						
LTE Band 48	SAR										0.930								
	Axis										-23	73	-4.01						
FR1 n2	SAR	1.289						0.933											
	Axis	15.4	-78	-1.84				16.3	73.5	-2.26									
FR1 n7	SAR				1.310			1.052											
	Axis				29.6	-75.8	-2.02	24.8	80	-2.32									
FR1 n26(5)	SAR	1.304						0.969											
	Axis	-5.9	-77.4	-2.25				15.8	81.5	-2.03									
FR1 n66	SAR	1.292						0.983											
	Axis	5.9	-77.3	-2.14				14.8	79.2	-2.2									
FR1 n41(38)	SAR							1.092											
	Axis							11.2	76.3	-2.41									
FR1 n77(78)	SAR				0.594						0.912			0.586			0.773		
	Axis				25.61	-75.3	-2.02				-10.8	77.6	-2.58	34.4	54	-2.35	-29.4	41.6	-2.52
WLAN5GHz Ant6	SAR (W/kg)	0.425				BT Ant6	SAR (W/kg)	0.126											
	Axis	-36	75	-3.41			Axis	-32.2	73.4	-1.8									



Sensor off

Back													
Band		Ant0			Ant1			Ant4			Ant5		
GSM850	SAR	0.258											
	Axis	10.2	-79.3	-1.86									
GSM1900	SAR	0.610											
	Axis	9.8	-70.2	-1.86									
WCDMA II	SAR	0.430											
	Axis	11.5	-71.3	-1.86									
WCDMA IV	SAR	0.473											
	Axis	12.3	-79.8	-1.86									
WCDMA V	SAR	0.349											
	Axis	12.1	-71.5	-1.84									
LTE Band 4	SAR							0.231					
	Axis							10.8	73.9	-2.45			
LTE Band 7	SAR				0.366			0.541					
	Axis				35.9	-60.5	-2.05	11.2	75.5	-2.41			
LTE Band 25(2)	SAR	0.594						0.448					
	Axis	11.5	-72.3	-1.84				11.6	76.3	-2.41			
LTE Band 66(4)	SAR	0.748						0.249					
	Axis	11.8	-78.9	-1.86				10.8	75.2	-2.45			
LTE Band 38	SAR				0.255								
	Axis				36.8	-62.3	-2.05						
LTE Band 41(38)	SAR							0.333					
	Axis							15.3	76.3	-2.41			
LTE Band 42	SAR										0.375		
	Axis										-5	82.3	-2.57
FR1 n2	SAR	0.318						0.613					
	Axis	12.4	-73.8	-1.84				15.4	78.5	-2.45			
FR1 n7	SAR				0.251			0.540					
	Axis				33.9	-63.8	-2.05	10.9	73.5	-2.41			
FR1 n66	SAR	0.383						0.307					
	Axis	12.8	-76.8	-1.86				10.8	70.5	-2.45			
FR1 n41(38)	SAR							0.465					
	Axis							11.2	76.3	-2.41			
FR1 n77(78)	SAR										0.338		
	Axis										-3	76.8	-2.57

WLAN5GHz Ant6	SAR (W/kg)	0.659		
	Axis	-33	76.3	-3.25



Extremity

		Back										
Band		Ant0			Ant1			Ant4			Ant5	
GSM850	SAR	2.348										
	Axis	-5.3	-73.5	-1.58								
GSM1900	SAR	2.852										
	Axis	-5.5	-75.5	-1.51								
WCDMA II	SAR	2.775										
	Axis	-10.8	-70.3	-2.14								
WCDMA IV	SAR	3.026										
	Axis	-9.1	-71.2	-2.01								
WCDMA V	SAR	2.225										
	Axis	-7.6	-71.8	-2.01								
LTE Band 4	SAR											
	Axis											
LTE Band 7	SAR				3.218			2.490				
	Axis				27.2	-76.8	-1.99	27.6	81.6	-2.28		
LTE Band 12(17)	SAR											
	Axis											
LTE Band 13	SAR	2.658										
	Axis	-6.3	-72.5	-2.14								
LTE Band 25(2)	SAR	3.090						1.642				
	Axis	-5.9	-73.3	-2.01				26.2	81.8	-2.27		
LTE Band 26(5)	SAR	2.508										
	Axis	-8.1	-73.6	-2.14								
LTE Band 66(4)	SAR	2.797						0.801				
	Axis	-8.9	-76.9	-2.01				27.6	80.6	-2.09		
LTE Band 38	SAR				3.388							
	Axis				28.2	-80.8	-1.93					
LTE Band 41(38)	SAR							2.495				
	Axis							29.6	83.6	-2.24		
LTE Band 42	SAR										1.744	
	Axis										-9.2	80.2 -2.65
LTE Band 48	SAR										1.212	
	Axis										-21	77.4 -3.71
FR1 n2	SAR	2.975						1.556				
	Axis	-8.1	-70.6	-2.14				25.6	80.8	-2.09		
FR1 n7	SAR				3.292			2.308				
	Axis				27.4	-76.8	-1.89	25.1	82.2	-2.09		
FR1 n26(5)	SAR	1.678										
	Axis	-8.5	-70.5	-2.01								
FR1 n66	SAR	2.719						0.944				
	Axis	-11.2	-70.3	-2.14				24.2	83.2	-2.01		
FR1 n41(38)	SAR							2.444				
	Axis							23.8	82.3	-2.09		
FR1 n77(78)	SAR										1.730	
	Axis										-10.8	83.5 -2.5
WLAN5GHz Ant6	SAR (W/kg)	0.342			NFC	SAR (W/kg)			0.026			
	Axis	-33	73	-1.89		Axis			-8.6	70.5	-2.3	

Test Engineer: Luke Lee

16. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, 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 $\leq 30\%$, for a confidence interval of $k = 2$. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 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.

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor ^(a)	$1/k^{(b)}$	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

- (a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity
- (b) k is the coverage factor

Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

Applicable for SAR Measurements:

Uncertainty Budget (4 MHz - 10 GHz range)							
Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	18.60	N	2	1	1	9.3	9.3
Axial Isotropy	4.70	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.60	R	1.732	0.7	0.7	3.9	3.9
Linearity	4.70	R	1.732	1	1	2.7	2.7
Modulation Response	4.68	R	1.732	1	1	2.7	2.7
System Detection Limits	1.00	R	1.732	1	1	0.6	0.6
Boundary Effects	2.00	R	1.732	1	1	1.2	1.2
Readout Electronics	0.30	N	1	1	1	0.3	0.3
Response Time	0.00	R	1.732	1	1	0.0	0.0
Integration Time	2.60	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.00	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.00	R	1.732	1	1	1.7	1.7
Probe Positioner	0.40	R	1.732	1	1	0.2	0.2
Probe Positioning	6.70	R	1.732	1	1	3.9	3.9
Post-processing	4.00	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Holder	3.60	N	1	1	1	3.6	3.6
Test sample Positioning	3.03	N	1	1	1	3.0	3.0
Power Scaling	0.00	R	1.732	1	1	0.0	0.0
Power Drift	5.00	R	1.732	1	1	2.9	2.9
Phantom and Setup							
Phantom Uncertainty	7.60	R	1.732	1	1	4.4	4.4
SAR correction	0.00	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.03	N	1	0.78	0.77	0.0	0.0
Liquid Conductivity (target)	5.00	R	1.732	0.78	0.77	2.3	2.2
Liquid Conductivity (mea.)	2.50	R	1.732	0.78	0.77	1.1	1.1
Temp. unc. - Conductivity	3.68	R	1.732	0.78	0.77	1.7	1.6
Liquid Permittivity Repeatability	0.02	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.00	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.50	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.84	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						14.5%	14.2%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						29.0%	28.4%

17. References

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
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- [5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [6] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.
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- [8] IEC/IEEE 62209-1528:2020, "Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)", Oct. 2020
- [9] FCC KDB 248227 D01 v02r02, "SAR Guidance for IEEE 802.11 (WiFi) Transmitters", Oct 2015.
- [10] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [11] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [12] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [13] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [15] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015

Appendixes

Please refer to separated files for the following appendixes

Appendix A. Plots of System Performance Check

Appendix B. Plots of High SAR Measurement

Appendix C. DASY Calibration Certificate

Appendix D. Test Setup Photos

Appendix E. Conducted RF Output Power Table

Appendix F. Power measurement connection diagram and CA Conducted RF Output Power Table

-----THE END-----