

FCC SAR Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : POCO
MODEL NAME : 22041216G
FCC ID : 2AFZZ1216
STANDARD : FCC 47 CFR Part 2 (2.1093)

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.



Approved by: Si Zhang



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Revision History

Form version. : 200414

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Xiaomi Communications Co., Ltd., Mobile Phone, 22041216G**, are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.89	0.39	0.26	1.59
		GSM1900	0.98	0.44	0.29	
	WCDMA	Band II	0.93	1.00	0.50	
		Band IV	0.89	0.65	0.55	
		Band V	0.77	0.36	0.34	
	LTE	Band 2	0.87	0.84	0.51	
		Band 4	1.02	0.67	0.71	
		Band 5	0.78	0.38	0.31	
		Band 7	0.96	0.65	0.54	
		Band 38	0.84	0.42	0.48	
		Band 41	0.95	0.63	0.46	
	5G NR	n5	1.02	0.46	0.37	
		n7	0.65	0.52	0.59	
		n38	1.09	0.70	0.67	
		n41	0.73	0.66	0.92	
		n77	0.69	0.33	0.33	
		n78	0.80	0.61	0.52	
DTS	WLAN	2.4GHz WLAN	1.06	0.44	0.17	1.59
NII		5GHz WLAN	0.99	0.93	0.39	1.59
DSS	Bluetooth	2.4GHz Bluetooth	0.27	0.11	<0.10	1.59

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	WCDMA	Band II	1.85	3.89
		Band IV	1.93	
	LTE	Band 2	1.98	
		Band 4	1.99	
		Band 7	1.78	
	5G NR	n7	1.60	
		n38	1.77	
		n41	1.75	
		n77	1.89	
		n78	1.89	
NII	WLAN	5GHz WLAN	1.83	3.89
Date of Testing:			2022/4/2 ~ 2022/4/20	

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.

2. Administration Data

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR04-KS	CN1257	314309

Applicant	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

3. Guidance Applied

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- 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

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Phone
Brand Name	POCO
Model Name	22041216G
FCC ID	2AFZZ1216
IMEI Code	SIM1: 861508060026598 SIM2: 861508060026606
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 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 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) LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR : CP-OFDM / DFT-s-OFDM, $\pi/2$ BPSK,QPSK, 16QAM, 64QAM, 256QAM WLAN 2.4GHz 802.11b/g/n HT20 WLAN 2.4GHz 802.11ax HE20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac/ax VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	P2
SW Version	MIUI13
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype
Remark: 802.11n-HT40 is not supported in 2.4GHz WLAN. - This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation. - This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications. - This device 2.4GHz WLAN/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).	

5. This device does not support DTM operation and supports GPRS/EGPRS mode up to multi-slot class 33.
6. This device has NFC operations, the NFC antenna is integrated into the device for this model, therefore, all SAR test were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the antenna can be found in the operational description. According to FCC KDB publication 447498 D01v06, transmitters are consider to be operating simultaneously when there is overlapping transmission, with the exception of transmission during network hand-offs with maximum hand-off duration less than 30 seconds.
7. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
8. There are two samples. The sample 1 is memory for Micron of 8G+128GB capacity; the sample 2 is memory for Samsung or Hynix of 8G+256GB capacity. According to the differences, we choose sample 1 to perform full test.
9. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (DSI 0: receiver on reduced power for head; DSI 4: hotspot on power; DSI 1: P-sensor on for Body-worn/extremity; DSI 3: receiver off/P-sensor off).
10. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot.
11. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
12. 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.
13. 5GNR NSA mode, the power level is the same as 5GNR SA mode, so 5GNR NSA mode and SA mode power table only show one time.
14. 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.
15. 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.
16. 5G NR n78 supports HPUE, HPUE power and SAR testing performed separately.
17. 5G NR n78 HPUE with higher power, n78 HPUE SAR can represent power class 3 level SAR.
18. For 5GNR EN-DC mode, standalone SAR performed for 5GNR band with the maximum power, EN-DC SAR summed 5GNR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
19. For 5GNR FDD/TDD supports SCS15KHz and SCS30KHz, chose higher power which is SCS30KHz to perform SAR testing.
20. This device supports 5GNR FR1 bands as following table, including NSA mode and SA mode.

<5G NR>

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

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05								
FCC ID	2AFZZ1216							
Equipment Name	Mobile 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 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 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 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz							
uplink modulations used	QPSK / 16QAM / 64QAM /256QAM							
LTE Voice / Data requirements	Voice and Data							
LTE Release Version	R15, Cat18							
CA Support	Supported, Uplink and Downlink							
LTE MPR permanently built-in by design	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
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 detect mechanism/hotspot; head/body-worn/ hotspot/extremity will trigger reduced power for some bands applied to satisfy SAR compliance, the detail please referred to section 13.							
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.							
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 3 carriers in the downlink and 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 20 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 38												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 20 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580	37850	2580	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610	38150	2610	38150	2610
LTE Band 41												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz		Bandwidth 20 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506	39750	2506	39750	2506
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5	40185	2549.5	40185	2549.5
M	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593	40620	2593
HM	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5	41055	2636.5	41055	2636.5
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680	41490	2680	41490	2680

4.3 General 5G NR SAR Test and Reporting Considerations

5G NR Information	
Operating Frequency Range of each 5G NR transmission band	5G NR n5: 824 MHz ~ 849 MHz 5G NR n7: 2500 MHz ~ 2570 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41: 2496 MHz ~ 2690 MHz 5G NR n77: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3980 MHz 5G NR n78: 3450 MHz ~ 3550 MHz, 3700 MHz ~ 3800 MHz
Channel Bandwidth	SCS15KHz: 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz 5G NR n38: 5MHz, 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz 5G NR n41: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz 5G NR n77: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz 5G NR n78: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz SCS30KHz: 5G NR n5: 10MHz, 15MHz, 20MHz 5G NR n7: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz 5G NR n38: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz 5G NR n41: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz 5G NR n77: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz 5G NR n78: 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz
SCS	FDD/TDD: SCS15KHz/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 n5	LTE B7
LTE Anchor Bands for n7	LTE B5/7
LTE Anchor Bands for n78	LTE B2/5/7/38/41

NR Band 5 SCS15KHz								
	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 5 SCS30KHz						
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5
H	168800	844	168300	841.5	167800	839

NR Band 7 SCS15KHz																
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		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)
L	500500	2502.5	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520	505000	2525
M	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	510000	2550	509000	2545
NR Band 7 SCS30KHz																
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		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)		
L	501000	2505	501500	2507.5	502000	2510	502500	2512.5	503000	2515	504000	2520	505000	2525		
M	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535	507000	2535		
H	513000	2565	512500	2562.5	512000	2560	511500	2557.5	511000	2555	510000	2550	509000	2545		



NR Band 38 SCS15KHz														
	Bandwidth5MHz		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)	Ch. #	Freq. (MHz)
L	514500	2572.5	515004	2575.02	515502	2577.51	516000	2580	516504	2582.52	517002	2585.01	518004	2590.02
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595
H	523500	2617.5	522996	2614.98	522498	2612.49	522000	2610	521496	2607.48	520998	2604.99	519996	2599.98
NR Band 38 SCS30KHz														
	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	515004	2575.02	515502	2577.51	516000	2580	516504	2582.52	517002	2585.01	518004	2590.02		
M	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595	519000	2595		
H	522996	2614.98	522498	2612.49	522000	2610	521496	2607.48	520998	2604.99	519996	2599.98		

NR Band 41 SCS15KHz													
	Bandwidth10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		
	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	502200	2511	503202	2516.01	509202	2546.01	
M	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	534996	2674.98	534000	2670	528000	2640	

NR Band 41 SCS30KHz																						
Bandwidth10MHz			Bandwidth 15MHz		Bandwidth 20MHz		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)
L	500202	2501.01	500700	2503.5	501204	2506.02	502200	2511	503202	2516.01	504204	2521.02	505200	2526	506202	2531.01	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
H	537000	2685	536496	2682.48	535998	2679.99	534996	2674.98	534000	2670	532998	2664.99	531996	2659.98	531000	2655	529998	2649.99	528996	2644.98	528000	2640

<3700 MHz ~ 3980 MHz>

NR Band 77 SCS15KHz															
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		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)	
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	647668	3715.02	648000	3720	648334	3725.01	
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	
H	665000	3975	664832	3972.48	664666	3969.99	664500	3967.5	664334	3965.01	664000	3960	663666	3954.99	

NR Band 77 SCS30KHz																								
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		Bandwidth 50MHz		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	648334	3725.01	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664834	3972.51	664668	3970.02	664500	3967.5	664334	3965.01	664000	3960	663668	3955.02	663334	3950.01	663666	3954.99	662668	3940.02	662334	3935.01	662000	3930

NR Band 78 SCS15KHz															
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		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)	
L	647000	3705	647168	3707.52	647334	3710.01	647500	3712.5	647668	3715.02	648000	3720	648334	3725.01	
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	
H	653000	3795	652834	3792.51	652668	3790.02	652334	3797.5	652334	3785.01	652000	3780			

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	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	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750
H	653000	3795	652834	3792.51	652668	3790.02	652334	3797.5	652334	3785.01	652000	3780	651668	3775.02	651334	3770.01	651000	3765	650668	3760.02	650334	3755.01		



<3450 MHz ~ 3550 MHz>

NR Band 77 SCS15KHz													
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		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)
L 630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	631000	3465	631334	3470.01		
M 633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H 636334	3545.01	636168	3542.52	636000	3540	635834	3537.51	635668	3535.02	635334	3530.01		

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 633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H 636334	3545.01	636168	3542.52	636000	3540	635834	3537.51	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

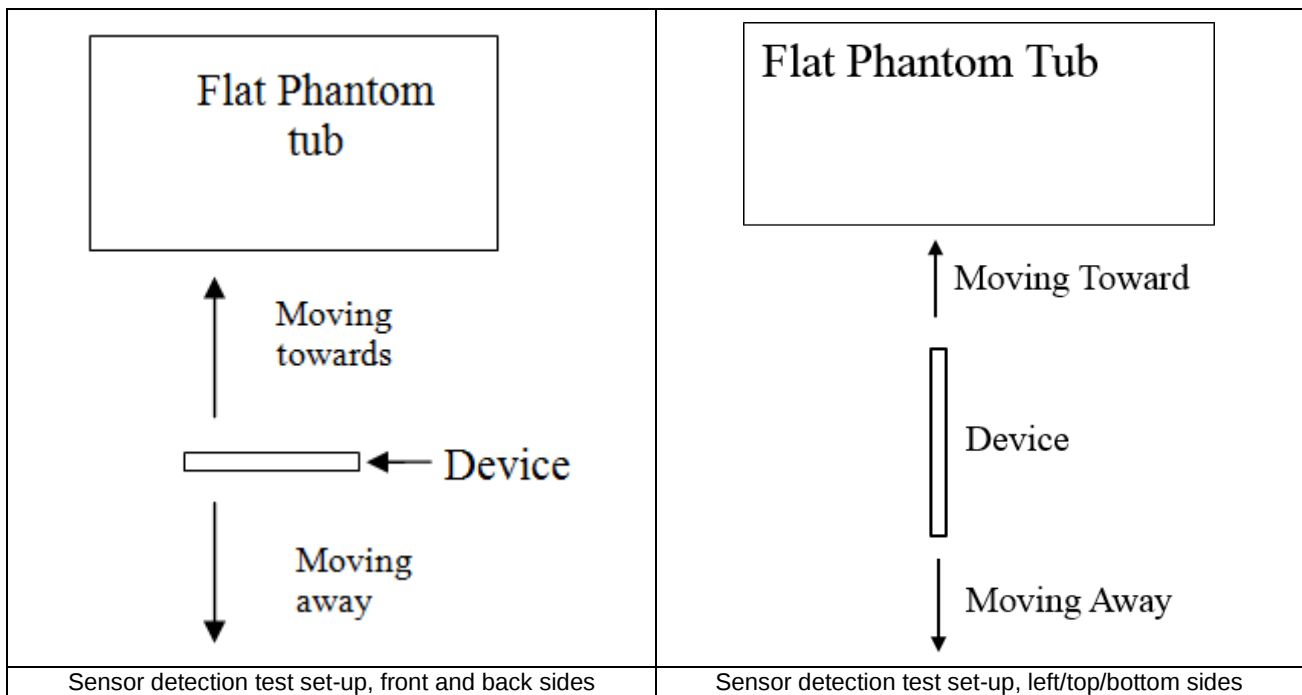
NR Band 78 SCS15KHz													
Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz	
Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L 630334	3455.01	630500	3457.5	630668	3460.02	630834	3462.51	631000	3465	631334	3470.01		
M 633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01		
H 636334	3545.01	636168	3542.52	636000	3540	635834	3537.51	635668	3535.02	635334	3530.01		

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 633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01	633334	3500.01
H 636334	3545.01	636168	3542.52	636000	3540	635834	3537.51	635668	3535.02	635334	3530.01	635000	3525	634668	3520.02	634334	3515.01	634000	3510	633668	3505.02		

5. Proximity Sensor Triggering Test

5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.
2. Proximity sensor triggering distance testing was performed according and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed and the tissue-equivalent medium for highest frequency (3980MHz) and lowest (1750MHz) frequency was used for proximity sensor triggering testing.
3. Capacitive proximity sensor placed coincident with antenna elements at the top/bottom end of the phone are utilized to determine when the device comes in proximity of the user's body or finger or hand at the front or back or bottom or left or top side of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
4. The sensors can use to detect the proximity of the user's body or handheld states at the front or back or bottom or top or left side of the device use a detection threshold distance. When front/back/left/top/bottom sides of body or handheld condition is detected reduced power will be active. The trigger distance shown in the sections below. The verification test and more details please refer to sensor operation description.
5. For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance -1mm was performed.



<P-Sensor>

<Sensor on for Ant0/5 >

Proximity Sensor Triggering Distance (mm)						
Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	16	16	16	16	16	16

<Sensor on for Ant1 >

Proximity Sensor Triggering Distance (mm)								
Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	6	6	6	6	6	6	6

<Sensor on for Ant2/4 >

Proximity Sensor Triggering Distance (mm)				
Position	Back		Left Side	
	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	6	6	6

6. RF Exposure Limits

6.1 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.

6.2 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.

7. Specific Absorption Rate (SAR)

7.1 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.

7.2 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:

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

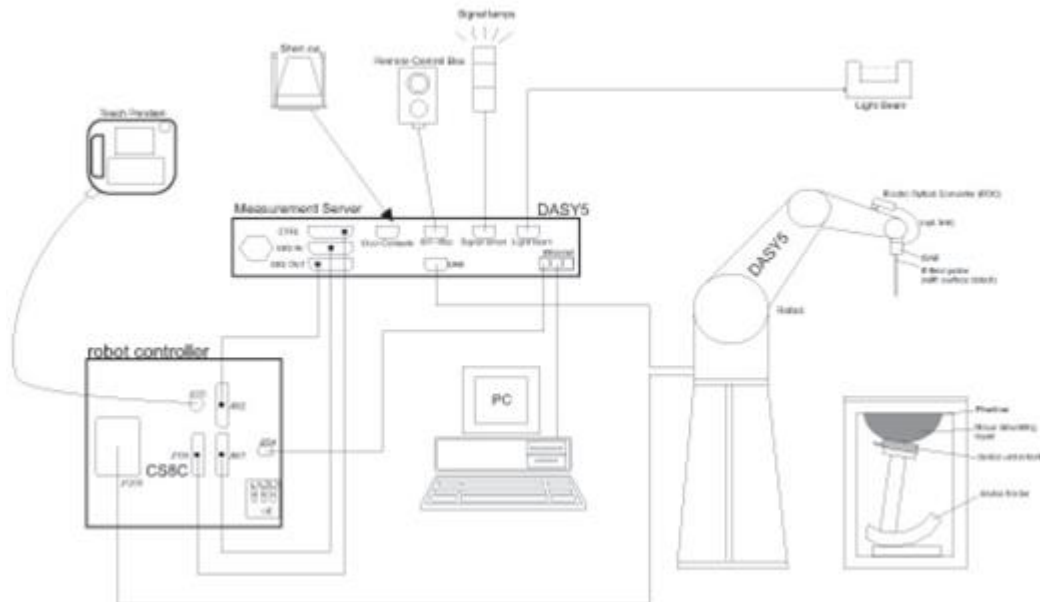
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. 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 WinXP or Win7 and the DASY5 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.

8.1 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	10 MHz – >6 GHz Linearity: ± 0.2 dB (30 MHz – 6 GHz)	
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)	
Dynamic Range	10 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	

8.2 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

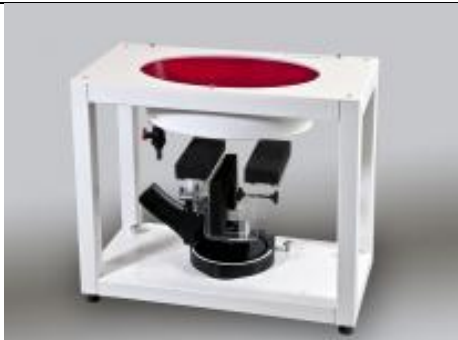
8.3 Phantom

<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 in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 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

9. 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

9.1 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

9.2 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.

9.3 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 dB0) 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.	

9.4 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 <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> 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.				

9.5 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.

9.6 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.

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d258	2020/5/7	2023/5/6
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2022/2/24	2023/2/23
SPEAG	1900MHz System Validation Kit	D1900V2	5d182	2021/12/20	2022/12/19
SPEAG	2450MHz System Validation Kit	D2450V2	924	2020/9/2	2023/9/1
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2023/11/25
SPEAG	3500MHz System Validation Kit	D3500V2	1037	2020/11/25	2023/11/24
SPEAG	3700MHz System Validation Kit	D3700V2	1008	2020/11/25	2023/11/24
SPEAG	3900MHz System Validation Kit	D3900V2	1048	2020/5/14	2023/5/13
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2022/9/22
SPEAG	Data Acquisition Electronics	DAE4	1303	2021/6/18	2022/6/17
SPEAG	Dosimetric E-Field Probe	EX3DV4	7706	2022/1/20	2023/1/19
SPEAG	SAM Twin Phantom	SAM Twin	TP-2024	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6262306173	2022/7/14	2023/7/13
Agilent	ENA Series Network Analyzer	E5071C	MY46106933	2021/7/31	2022/7/30
SPEAG	Dielectric Probe Kit	DAK-3.5	1138	2021/6/9	2022/6/8
Anritsu	Vector Signal Generator	MG3710A	6201682672	2022/1/6	2023/1/5
Rohde & Schwarz	Power Meter	NRVD	102081	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2021/8/12	2022/8/11
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2021/8/12	2022/8/11
R&S	CBT BLUETOOTH TESTER	CBT	100641	2022/1/5	2023/1/4
EXA	Spectrum Analyzer	FSV7	101631	2021/10/14	2022/10/13
FLUKE	DIGITAC THERMOMETER	51II	97240029	2021/8/13	2022/8/12
Testo	Thermo-Hygrometer	608-H1	1241332126	2022/1/6	2023/1/5
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	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.
- 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.

11. System Verification

11.1 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.

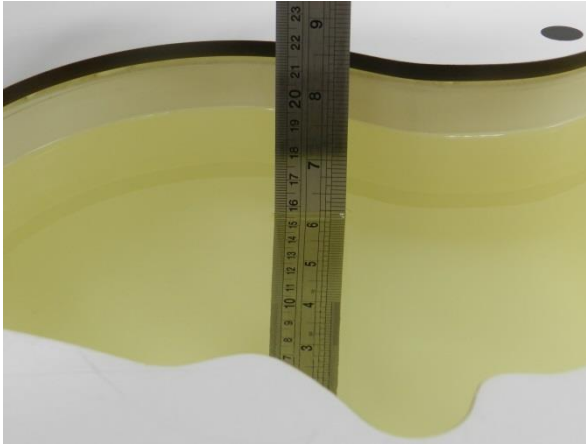


Fig 11.1 Photo of Liquid Height for Head SAR

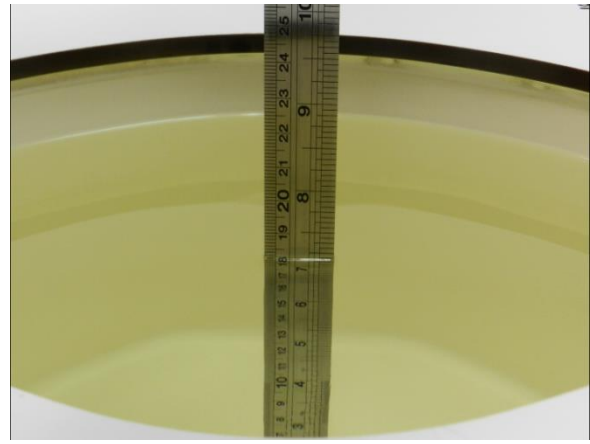


Fig 11.2 Photo of Liquid Height for Body SAR

11.2 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ϵ_r)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
835	Head	22.9	0.934	41.163	0.90	41.50	3.78	-0.81	±5	2022/4/2
1750	Head	22.7	1.410	40.674	1.37	40.10	2.92	1.43	±5	2022/4/4
1900	Head	22.7	1.432	39.779	1.40	40.00	2.29	-0.55	±5	2022/4/7
2450	Head	22.6	1.881	40.822	1.80	39.20	4.50	4.14	±5	2022/4/10
2600	Head	22.8	2.008	40.561	1.96	39.00	2.45	4.00	±5	2022/4/11
3500	Head	22.7	2.849	38.604	2.91	37.90	-2.10	1.86	±5	2022/4/12
3700	Head	22.9	3.043	38.161	3.12	37.70	-2.47	1.22	±5	2022/4/12
3900	Head	22.7	3.247	37.754	3.32	37.50	-2.20	0.68	±5	2022/4/12
5250	Head	22.8	4.609	35.865	4.71	35.90	-2.14	-0.10	±5	2022/4/13
5600	Head	22.9	5.02	35.329	5.07	35.50	-0.99	-0.48	±5	2022/4/13
5750	Head	22.9	5.176	35.157	5.22	35.40	-0.84	-0.69	±5	2022/4/13
835	Head	22.9	0.940	41.259	0.90	41.50	4.44	-0.58	±5	2022/4/14
1750	Head	22.7	1.351	40.380	1.37	40.10	-1.39	0.70	±5	2022/4/15
1900	Head	22.8	1.459	40.035	1.40	40.00	4.21	0.09	±5	2022/4/16
2450	Head	22.8	1.856	39.105	1.80	39.20	3.11	-0.24	±5	2022/4/17
2600	Head	22.9	1.981	39.067	1.96	39.00	1.07	0.17	±5	2022/4/18
3500	Head	22.7	2.879	38.500	2.91	37.90	-1.07	1.58	±5	2022/4/19
3700	Head	22.7	3.076	38.038	3.12	37.70	-1.41	0.90	±5	2022/4/19
3900	Head	22.8	3.279	37.617	3.32	37.50	-1.23	0.31	±5	2022/4/19
5250	Head	22.7	4.562	35.974	4.71	35.90	-3.14	0.21	±5	2022/4/20
5600	Head	22.8	4.960	35.422	5.07	35.50	-2.17	-0.22	±5	2022/4/20
5750	Head	22.9	5.131	35.224	5.22	35.40	-1.70	-0.50	±5	2022/4/20

11.3 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.

<1g SAR>

Date	Frequency (MHz)	Tissue Type	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 (%)
2022/4/2	835	Head	50	4d258	7706	1303	0.504	9.44	10.08	6.78
2022/4/4	1750	Head	50	1090	7706	1303	1.760	37.00	35.2	-4.86
2022/4/7	1900	Head	50	5d182	7706	1303	2.100	39.60	42	6.06
2022/4/10	2450	Head	50	924	7706	1303	2.460	51.40	49.2	-4.28
2022/4/11	2600	Head	50	1061	7706	1303	3.050	56.60	61	7.77
2022/4/12	3500	Head	50	1037	7706	1303	3.210	68.00	64.2	-5.59
2022/4/12	3700	Head	50	1008	7706	1303	3.330	67.60	66.6	-1.48
2022/4/12	3900	Head	50	1048	7706	1303	3.450	70.20	69	-1.71
2022/4/13	5250	Head	50	1113	7706	1303	3.850	80.50	77	-4.35
2022/4/13	5600	Head	50	1113	7706	1303	3.890	83.40	77.8	-6.71
2022/4/13	5750	Head	50	1113	7706	1303	3.990	80.00	79.8	-0.25
2022/4/14	835	Head	50	4d258	7706	1303	0.435	9.44	8.7	-7.84
2022/4/15	1750	Head	50	1090	7706	1303	1.750	37.00	35	-5.41
2022/4/16	1900	Head	50	5d182	7706	1303	2.030	39.60	40.6	2.53
2022/4/17	2450	Head	50	924	7706	1303	2.480	51.40	49.6	-3.50
2022/4/18	2600	Head	50	1061	7706	1303	3.010	56.60	60.2	6.36
2022/4/19	3500	Head	50	1037	7706	1303	3.250	68.00	65	-4.41
2022/4/19	3700	Head	50	1008	7706	1303	3.350	67.60	67	-0.89
2022/4/19	3900	Head	50	1048	7706	1303	3.520	70.20	70.4	0.28
2022/4/20	5250	Head	50	1113	7706	1303	3.770	80.50	75.4	-6.34
2022/4/20	5600	Head	50	1113	7706	1303	3.850	83.40	77	-7.67
2022/4/20	5750	Head	50	1113	7706	1303	3.980	80.00	79.6	-0.50

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2022/4/2	835	Head	50	4d258	7706	1303	0.315	6.13	6.3	2.77
2022/4/4	1750	Head	50	1090	7706	1303	0.986	19.50	19.72	1.13
2022/4/7	1900	Head	50	5d182	7706	1303	0.987	20.20	19.74	-2.28
2022/4/10	2450	Head	50	924	7706	1303	1.279	24.00	25.58	6.58
2022/4/11	2600	Head	50	1061	7706	1303	1.220	25.10	24.4	-2.79
2022/4/12	3500	Head	50	1037	7706	1303	1.310	25.40	26.2	3.15
2022/4/12	3700	Head	50	1008	7706	1303	1.300	24.40	26	6.56
2022/4/12	3900	Head	50	1048	7706	1303	1.220	24.40	24.4	0.00
2022/4/13	5250	Head	50	1113	7706	1303	1.150	23.10	23	-0.43
2022/4/13	5600	Head	50	1113	7706	1303	1.250	23.80	25	5.04
2022/4/13	5750	Head	50	1113	7706	1303	1.190	22.80	23.8	4.39
2022/4/14	835	Head	50	4d258	7706	1303	0.323	6.13	6.46	5.38
2022/4/15	1750	Head	50	1090	7706	1303	1.020	19.50	20.4	4.62
2022/4/16	1900	Head	50	5d182	7706	1303	1.070	20.20	21.4	5.94
2022/4/17	2450	Head	50	924	7706	1303	1.290	24.00	25.8	7.50
2022/4/18	2600	Head	50	1061	7706	1303	1.230	25.10	24.6	-1.99
2022/4/19	3500	Head	50	1037	7706	1303	1.290	25.40	25.8	1.57
2022/4/19	3700	Head	50	1008	7706	1303	1.240	24.40	24.8	1.64
2022/4/19	3900	Head	50	1048	7706	1303	1.310	24.40	26.2	7.38
2022/4/20	5250	Head	50	1113	7706	1303	1.190	23.10	23.8	3.03
2022/4/20	5600	Head	50	1113	7706	1303	1.250	23.80	25	5.04
2022/4/20	5750	Head	50	1113	7706	1303	1.210	22.80	24.2	6.14

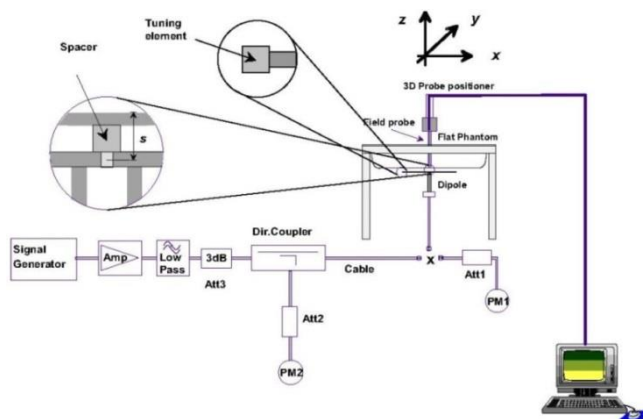


Fig 11.3.1 System Performance Check Setup



Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 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.

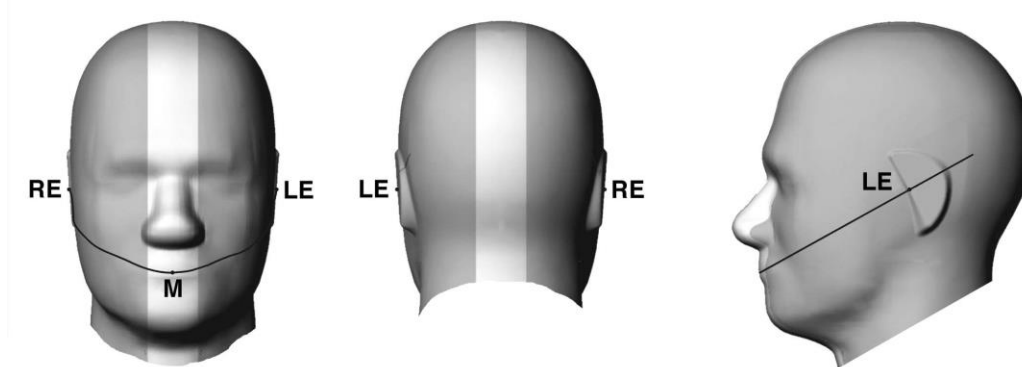


Fig 12.1.1 Front, back, and side views of SAM twin phantom

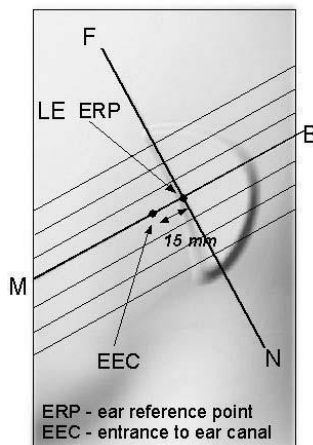


Fig 12.1.2 Close-up side view of phantom showing the ear region.

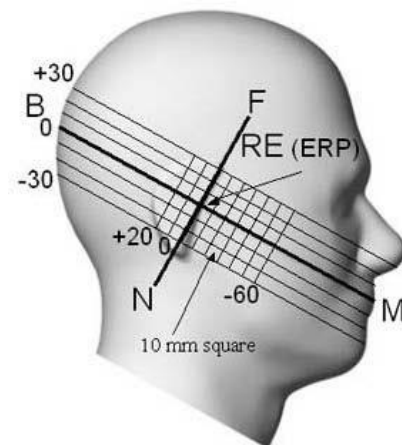


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 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 handset. 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.

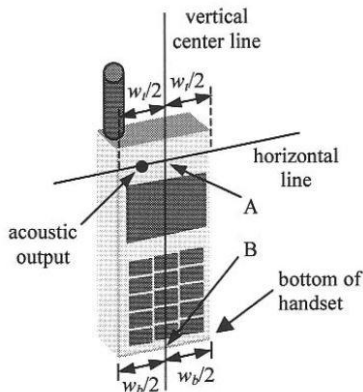


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case"

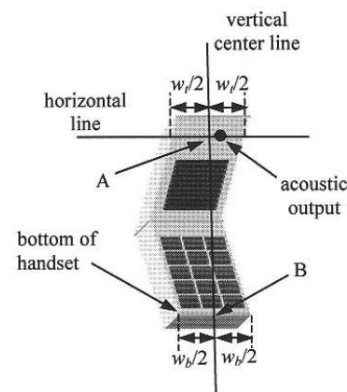


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

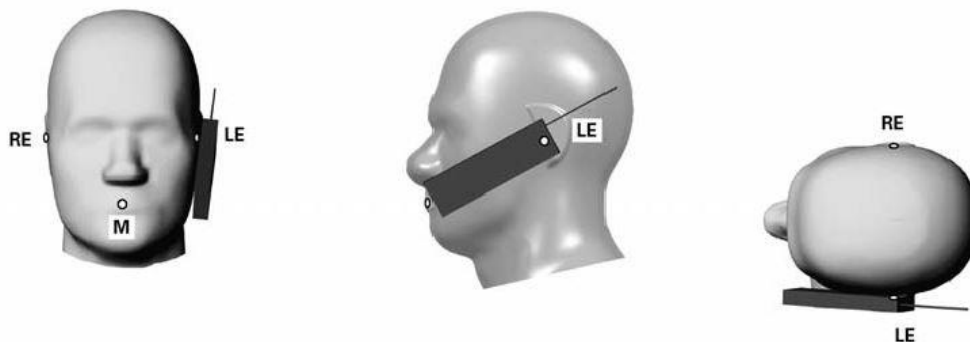


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 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

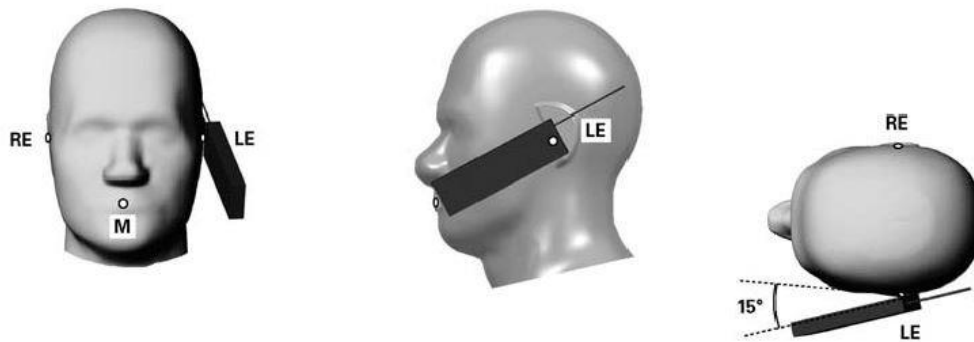


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 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.

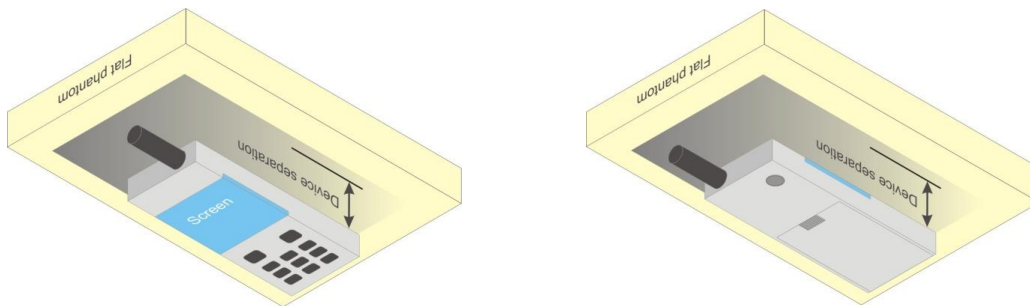


Fig 12.4 Body Worn Position

12.5 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 provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that 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.

12.6 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.

13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01v03r01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For HSPA+ devices supporting 16 QAM in the uplink, power measurements procedure is according to the configurations in Table C.11.1.4 of 3GPP TS 34.121-1.
4. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each
 - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - iii. Set RMC 12.2Kbps + HSDPA mode.
 - iv. Set Cell Power = -86 dBm
 - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - vi. Select HSDPA Uplink Parameters
 - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
 - viii. Set Ack-Nack Repetition Factor to 3
 - ix. Set CQI Feedback Cycle (k) to 4 ms
 - x. Set CQI Repetition Factor to 2
 - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_o/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5
Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$. Note 3: CM = 1 for $\beta_o/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases. Note 4: For subtest 2 the β_o/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.							

Setup Configuration

HSUPA Setup Configuration:

- The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- The RF path losses were compensated into the measurements.
- A call was established between EUT and Base Station with following setting * :
 - Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - Set Cell Power = -86 dBm
 - Set Channel Type = 12.2k + HSPA
 - Set UE Target Power
 - Power Ctrl Mode= Alternating bits
 - Set and observe the E-TFCI
 - Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

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

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

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

- a. The EUT was connected to Base Station referred to the Setup Configuration below
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set RMC 12.2Kbps + HSDPA mode.
 - ii. Set Cell Power = -25 dBm
 - iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
 - iv. Select HSDPA Uplink Parameters
 - v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - a). Subtest 1: $\beta_c/\beta_d=2/15$
 - b). Subtest 2: $\beta_c/\beta_d=12/15$
 - c). Subtest 3: $\beta_c/\beta_d=15/8$
 - d). Subtest 4: $\beta_c/\beta_d=15/4$
 - vi. Set Delta ACK, Delta NACK and Delta CQI = 8
 - vii. Set Ack-Nack Repetition Factor to 3
 - viii. Set CQI Feedback Cycle (k) to 4 ms
 - ix. Set CQI Repetition Factor to 2
 - x. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

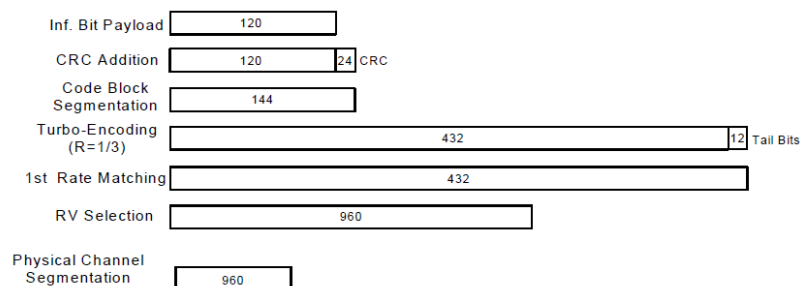


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

HSPA+ 3GPP release 7 (uplink category 7) 16QAM, Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2E:HSPA+:UL with 16QAM
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.4, quoted from the TS 34.121-1 s5.2E
 - iii. Set Channel Params
 - iv. Set Cell Power = -86 dBm
 - v. Set Channel Type = HSPA
 - vi. Set UE Target Power =21 dBm
 - vii. Power Ctrl Mode= All Up Bits
 - viii. Set Manual Uplink DPCH Bc/Bd = Manual
 - ix. Set Manual Uplink DPCH Bc and Bd=15,15(for 34.121-1 v8.10.0 table C11.1.4 sub-test 1)
 - x. Set HSPA Conn DL Channel Levels
 - xi. Set HS-SCCH Configs
 - xii. Set RB Test Mode Setup
 - xiii. Set Common HSUPA Parameters
 - xiv. Set Serving Grant
 - xv. Confirm that E-TFCI is equal to the target E-TFCI of 105 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

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

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{fs} = 30/15 * \beta_c$.
 Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
 Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.
 Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.
 Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signaled to use the extrapolation algorithm.

Setup Configuration

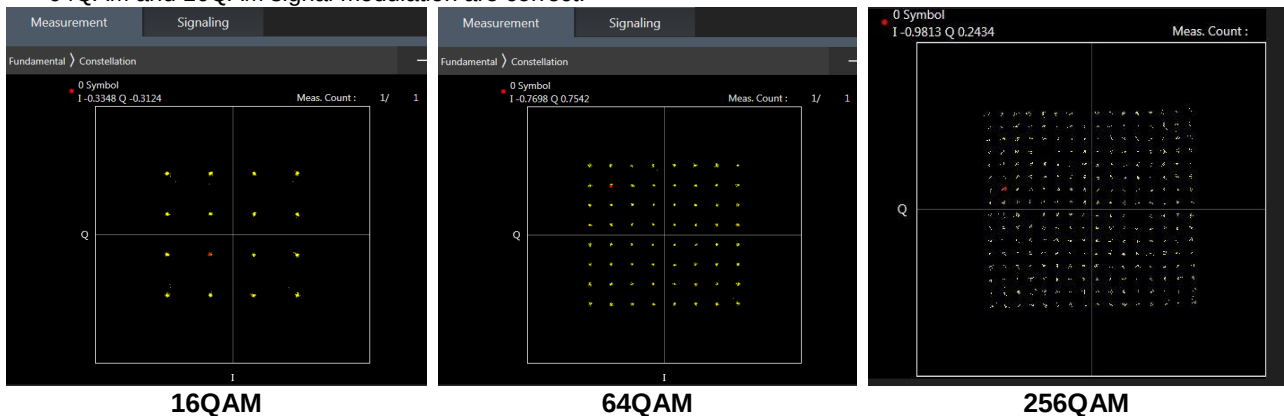
<WCDMA Conducted Power>**General Note:**

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.

<LTE Conducted Power>

General Note:

1. Anritsu MT8821C 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 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 SAR testing is not required.
7. 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.
8. For LTE B4 / B5 / 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. According to 2017 TCB workshop, for 256QAM, 64 QAM and 16 QAM 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.



<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.

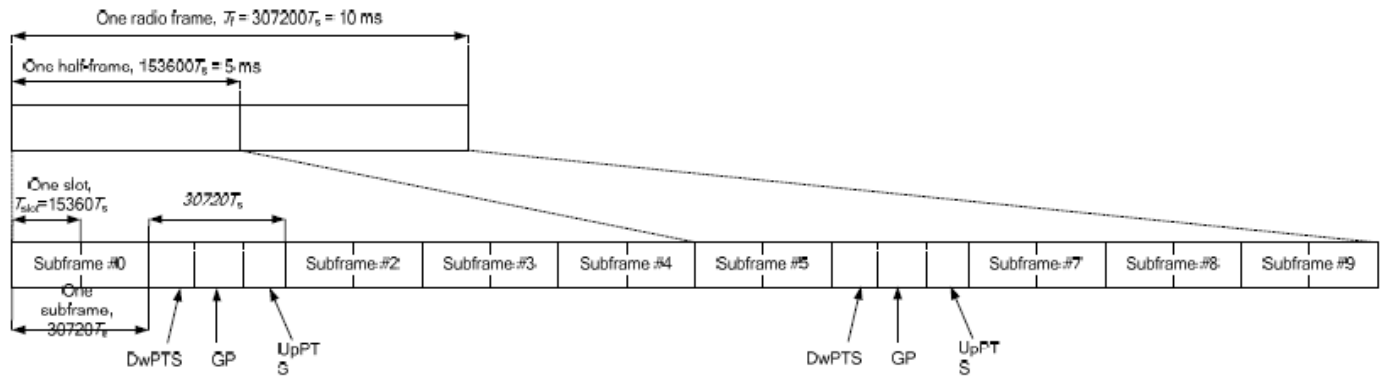


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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:

- 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>
General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. The gray color table is covered by other combinations and no need to verify power.
4. All permutations exist. No restrictions on Pcell & Scell combinations.

2CC Downlink Carrier Aggregation		3CC Downlink Carrier Aggregation	
Number	Combination	Number	Combination
1	CA_2C	1	CA_2A-4A-5A
2	CA_2A-4A	2	CA_2A-4A-7A
3	CA_2A-5A	3	CA_2A-7A-7A
4	CA_2A-7A	4	CA_2A-7C
5	CA_4A-5A	5	CA_4A-7C
6	CA_4A-7A	6	CA_5A-7A-7A
7	CA_5A-7A	7	CA_5A-7C
8	CA_7A-7A		
9	CA_7C		
10	CA_38C		
11	CA_41A-41A		
12	CA_41C		
13	CA_5A-41A		
14	CA_7A-38A		

LTE Carrier Aggregation Conducted Power (Downlink)

- i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.
- ii. 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.
- iii. The device supports downlink three carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.
- v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.
- vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lceil \frac{BW_{\text{Channel}(1)} + BW_{\text{Channel}(2)} - 0.1|BW_{\text{Channel}(1)} - BW_{\text{Channel}(2)}|}{0.6} \right\rceil 0.3 \text{ [MHz]}$$

LTE 4x4 MIMO (Downlink)

This device supports downlink 4x4 MIMO operations for LTE Bands 4/7/38/41 only. Uplink transmission is limited to a single output stream. Power measurements were performed with downlink 4x4 MIMO active for the configuration with highest measured maximum conducted power with 4x4 downlink MIMO inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

Per FCC Guidance, SAR for downlink 4x4 MIMO was not needed since the maximum average output power in 4x4 downlink MIMO mode was not > 0.25 dB higher than the maximum output power with downlink 4x4 MIMO inactive. When carrier aggregation is applicable, power measurements were performed with the downlink carrier aggregation and 4x4 DL MIMO active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.

4X4 MIMO	WWAN Band
	LTE Band: B4/B7/B38/B41

LTE Carrier Aggregation Conducted Power (Uplink)
<Intra-band>

2CC Uplink Carrier Aggregation		
Number	Combination	Ant No.
1	7C	ANT 0/2/1/5
2	38C	ANT 0/2/1/5

General Note:

- i. The device supports intra-band uplink carrier aggregation for LTE B7/B38 with a maximum of two 20MHz 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. The device supports uplink carrier aggregation with a maximum of two 20MHz 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 the 3GPP requirement.
- iii. According 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.
- iv. 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.

<Inter-band uplink carrier aggregation consideration>

LTE Uplink CA	2CC Uplink Carrier Aggregation	
Combination	Band&Ant No.	Band&Ant No.
4A-7A	LTE B4: Ant0/2	LTE B7: Ant1/5

General Note:

The single carrier of inter band CA uplink power level is the same as Non-CA standalone LTE power level. For Inter-band CA co-located SAR analysis is performed using standalone SAR summed together and they are more conservatively for inter band CA.

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

1. 5G NR n5, n7, n38, n41, n77, n78 supports SA operation.
2. 5G NR n5, n7, n78 supports NSA.
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-QPSK and the reported SAR for the DFT-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/64 QAM/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 AM 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. Due to test setup limitations, SAR testing for NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 5G NR n78 supports HPUE, HPUE power and SAR testing performed separately.
11. 5G NR n78 HPUE with higher power, n78 HPUE SAR can represent power class 3 level SAR.
12. For 5G NR EN-DC mode, standalone SAR performed for 5G NR band with the maximum power, EN-DC SAR summed 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
13. For 5G NR FDD/TDD supports SCS15KHz and SCS30KHz, chose higher power which is SCS30KHz to perform SAR testing.

<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		

ENDC List	LTE Ant	NR Ant
DC_7A_n5A	B7 :ANT1/5/0/2	n5 :ANT0/1
DC_5A_n7A	B5 :ANT0/1	n7 :ANT1/5/0/2
DC_7A_n7A	B7:ANT0/2	n7 :ANT/1/5
DC_2A_n78A	B2 :ANT0/2	n78 :ANT4/5/3/2
DC_5A_n78A	B5 :ANT0/1	n78 :ANT4/5/3/2
DC_7A_n78A	B7 :ANT0/2/1/5	n78 :ANT4/5/3/2
DC_38A_n78A	B38 :ANT0/2/1/5	n78 :ANT4/5/3/2
DC_41A_n78A	B41 :ANT0/2/1/5	n78 :ANT4/5/3/2

Inter Band CA Configuration:

NR Uplink CA	2CC Uplink Carrier Aggregation	
Combination	Band&Ant No.	Band&Ant No.
CA_n7A-n78A	n7:ANT0/2/1/5	n78 :ANT4/5/3/2

<WLAN Conducted Power>

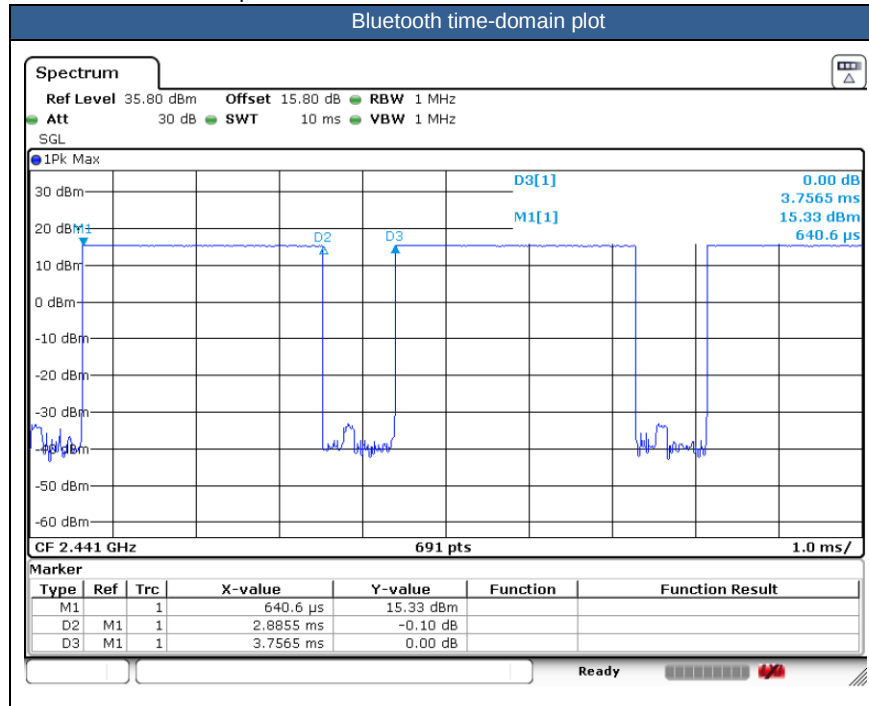
General Note:

1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.¹⁸ The initial test position procedure is described in the following:
 - a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
 - b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
 - c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. 802.11ax supports full tone size and partial tone size, after verification for the partial tone size mode power level will not higher than full tone size power level, so chose full tone power to be measured in this report.
6. The 2.4GHz/5GHz WLAN can transmit in SISO and MIMO antenna mode.

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 76.83 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to 100% for Bluetooth reported SAR calculation.





14. Antenna Location

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

15. 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 BT/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 WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - d. For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
 - e. 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 Reported TDD LTE SAR = 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 KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 W/kg. 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.
4. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (DSI 0: receiver on reduced power for head; DSI 4: hotspot on power; DSI 1: P-sensor on for Body-worn/extremity; DSI 3: receiver off/P-sensor off).
6. For WLAN when transmit simultaneous with WWAN, power reduction will be activated to head, hotspot.
7. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.
8. 5G NR n78 supports HPUE, HPUE power and SAR testing performed separately.
9. 5G NR n78 HPUE with higher power, n78 HPUE SAR can represent power class 3 level SAR.
10. For 5G NR EN-DC mode, standalone SAR performed for 5G NR band with the maximum power, EN-DC SAR summed 5G NR standalone SAR and LTE standalone SAR, the result of EN-DC SAR is more conservatively.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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. WCDMA B2/B4, LTE B2/B4/B7, and FR1 n7/n38/n41/n77/n78 are required to be tested.
 - 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.

16. The LTE B7 at ant 0/2, and 5G NR n7 at ant 1/2/5 support different PAs, the maximum power of Main PA is higher than and very close to the other PA, for RF exposure, after verification all PAs in a same position, we choose the main PA to perform full SAR tested to ensure the RF exposure is compliance.
17. The LTE B7 at ant 1/5 and 5G NR n7 at ant0 support different PAs, after verification all PAs in a same position, we choose the main PA to perform full SAR tested to ensure the RF exposure is compliance and other PA verify the worst case.
18. For LTE anchors in EN-DC combinations, due to the same configuration as standalone LTE Bands, always chose worse position of standalone LTE Bands to perform SAR testing.
19. For some WWAN bands, full power level higher than receiver off reduced power level, so front/back full power SAR can represent Body-worn receiver off SAR conservatively.
20. For extremity exposure conditions, WLAN 5G distance SAR test at back side 5mm is only for simultaneous transmission analysis with WWAN.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA / HSPA+ is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA / HSPA+ to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA / HSPA+) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA / HSPA+.

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 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 SAR testing is not required.
5. 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.
6. For LTE B4 / B5 / 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.

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. 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, 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 n5/n7/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.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.
6. 802.11ax supports full tone size and partial tone size, after verification for the partial tone size mode power level will not higher than full tone size power level, so chose full tone power to be measured in this report.
7. SISO and MIMO all supported by WLAN2.4GHz/WLAN5GHz, for SISO mode power is less than per chain power of MIMO mode. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to their higher conducted power, so only chose MIMO power to perform SAR testing.
8. For the conducted power measurement is MIMO chains transmitting simultaneously and measured the separately conducted power for both chains and then based on the conducted power of two antennas respectively to calculate sum of the power for MIMO mode.
9. Only chose MIMO power to perform SAR testing.



15.1 Head SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																		
01	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSIO	189	836.4	28.34	29.50	1.306	-0.06	0.119	0.155
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant 0	DSIO	189	836.4	28.34	29.50	1.306	0.04	0.114	0.149
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 0	DSIO	189	836.4	28.34	29.50	1.306	0.05	0.109	0.142
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant 0	DSIO	189	836.4	28.34	29.50	1.306	-0.06	0.055	0.072
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 1	DSIO	189	836.4	28.12	30.00	1.542	-0.06	0.579	0.893
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 1	DSIO	128	824.2	28.02	30.00	1.578	0.02	0.561	0.885
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 1	DSIO	251	848.8	28.06	30.00	1.563	0.03	0.549	0.858
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant 1	DSIO	189	836.4	28.12	30.00	1.542	0.01	0.496	0.765
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 1	DSIO	189	836.4	28.12	30.00	1.542	0.02	0.518	0.799
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant 1	DSIO	189	836.4	28.12	30.00	1.542	-0.01	0.496	0.765
02	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSIO	4182	836.4	24.51	25.00	1.119	0.03	0.141	0.158
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSIO	4182	836.4	24.51	25.00	1.119	0.01	0.084	0.094
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSIO	4182	836.4	24.51	25.00	1.119	0.16	0.139	0.156
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSIO	4182	836.4	24.51	25.00	1.119	-0.02	0.074	0.083
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 1	DSIO	4182	836.4	23.09	24.50	1.384	0.03	0.555	0.768
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 1	DSIO	4182	836.4	23.09	24.50	1.384	-0.06	0.410	0.567
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 1	DSIO	4182	836.4	23.09	24.50	1.384	0.01	0.458	0.634
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 1	DSIO	4182	836.4	23.09	24.50	1.384	0.04	0.403	0.558
03	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSIO	20525	836.5	24.54	25.50	1.247	0.05	0.152	0.190
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 0	DSIO	20525	836.5	23.53	24.50	1.250	0.01	0.164	0.205
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSIO	20525	836.5	24.54	25.50	1.247	0.02	0.099	0.123
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 0	DSIO	20525	836.5	23.53	24.50	1.250	-0.01	0.100	0.125
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	20525	836.5	24.54	25.50	1.247	0.05	0.170	0.212
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 0	DSIO	20525	836.5	23.53	24.50	1.250	-0.06	0.158	0.198
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSIO	20525	836.5	24.54	25.50	1.247	0.04	0.087	0.109
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 0	DSIO	20525	836.5	23.53	24.50	1.250	0.01	0.086	0.108
	LTE Band 5	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSIO	20525	836.5	23.31	24.50	1.315	0.03	0.593	0.780
	LTE Band 5	10M	QPSK	25	0	-	Right Cheek	0mm	Ant 1	DSIO	20525	836.5	23.27	24.50	1.327	0.05	0.569	0.755
	LTE Band 5	10M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	20525	836.5	23.31	24.50	1.315	-0.06	0.472	0.621
	LTE Band 5	10M	QPSK	25	0	-	Right Tilted	0mm	Ant 1	DSIO	20525	836.5	23.27	24.50	1.327	0.04	0.517	0.686
	LTE Band 5	10M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSIO	20525	836.5	23.31	24.50	1.315	-0.03	0.541	0.712
	LTE Band 5	10M	QPSK	25	0	-	Left Cheek	0mm	Ant 1	DSIO	20525	836.5	23.27	24.50	1.327	0.06	0.528	0.701
	LTE Band 5	10M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSIO	20525	836.5	23.31	24.50	1.315	0.08	0.576	0.758
	LTE Band 5	10M	QPSK	25	0	-	Left Tilted	0mm	Ant 1	DSIO	20525	836.5	23.27	24.50	1.327	0.04	0.454	0.603
	LTE Band 5 ENDC	10M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSIO	20525	836.5	22.42	23.50	1.282	0.05	0.411	0.527
04	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSIO	167300	836.5	24.78	25.50	1.180	0.06	0.139	0.164
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSIO	167300	836.5	24.76	25.50	1.186	0.03	0.155	0.184
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 0	DSIO	167300	836.5	24.78	25.50	1.180	0.01	0.090	0.106
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Tilted	0mm	Ant 0	DSIO	167300	836.5	24.76	25.50	1.186	0.02	0.092	0.109
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSIO	167300	836.5	24.78	25.50	1.180	-0.01	0.132	0.156
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSIO	167300	836.5	24.76	25.50	1.186	0.05	0.145	0.172
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSIO	167300	836.5	24.78	25.50	1.180	-0.06	0.076	0.090
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSIO	167300	836.5	24.76	25.50	1.186	0.04	0.076	0.090
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	167300	836.5	24.13	25.70	1.435	0.05	0.710	1.019
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	166800	834	24.06	25.70	1.459	0.02	0.680	0.992
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	167800	839	23.99	25.70	1.483	0.03	0.681	1.010
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	167300	836.5	24.12	25.70	1.439	0.05	0.580	0.835
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	166800	834	24.04	25.70	1.466	0.07	0.570	0.835
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	167800	839	24.01	25.70	1.476	0.03	0.564	0.832
	FR1 n5	20M	QPSK	50	0	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	167300	836.5	23.20	24.70	1.413	0.01	0.690	0.975
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSIO	167300	836.5	24.13	25.70	1.435	-0.02	0.480	0.689



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	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSIO	167300	836.5	24.12	25.70	1.439	0.04	0.520	0.748
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	167300	836.5	24.13	25.70	1.435	-0.03	0.510	0.732
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	167300	836.5	24.12	25.70	1.439	0.06	0.610	0.878
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	166800	834	24.04	25.70	1.466	0.02	0.588	0.862
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	167800	839	24.01	25.70	1.476	0.02	0.570	0.841
	FR1 n5	20M	QPSK	50	0	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	167300	836.5	23.20	24.70	1.413	0.04	0.600	0.848
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSIO	167300	836.5	24.13	25.70	1.435	0.08	0.490	0.703
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSIO	167300	836.5	24.12	25.70	1.439	0.04	0.530	0.763
	FR1 n5 ENDC	20M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	167300	836.5	21.03	22.70	1.469	0.07	0.344	0.505
1750MHz																		
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSIO	1413	1732.6	23.92	25.00	1.282	0.04	0.144	0.103
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSIO	1413	1732.6	23.92	25.00	1.282	-0.05	0.087	0.112
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSIO	1413	1732.6	23.92	25.00	1.282	0.02	0.146	0.102
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSIO	1413	1732.6	23.92	25.00	1.282	0.06	0.122	0.156
05	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSIO	1413	1732.6	21.17	22.50	1.358	-0.08	0.658	0.894
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSIO	1312	1712.4	20.82	22.50	1.472	0.03	0.602	0.886
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSIO	1513	1752.6	20.99	22.50	1.416	0.05	0.611	0.865
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	DSIO	1413	1732.6	21.17	22.50	1.358	0.03	0.251	0.341
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DSIO	1413	1732.6	21.17	22.50	1.358	0.01	0.337	0.458
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	DSIO	1413	1732.6	21.17	22.50	1.358	-0.05	0.263	0.357
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSIO	20175	1732.5	23.76	25.00	1.330	0.01	0.155	0.206
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSIO	20175	1732.5	22.78	24.00	1.324	-0.03	0.109	0.144
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSIO	20175	1732.5	23.76	25.00	1.330	0.02	0.096	0.128
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSIO	20175	1732.5	22.78	24.00	1.324	0.06	0.076	0.101
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	20175	1732.5	23.76	25.00	1.330	0.07	0.141	0.188
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSIO	20175	1732.5	22.78	24.00	1.324	0.09	0.117	0.155
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSIO	20175	1732.5	23.76	25.00	1.330	-0.06	0.117	0.156
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSIO	20175	1732.5	22.78	24.00	1.324	-0.07	0.097	0.128
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSIO	20175	1732.5	18.16	19.50	1.361	0.06	0.555	0.756
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSIO	20175	1732.5	17.97	19.50	1.422	0.08	0.504	0.717
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	20175	1732.5	18.16	19.50	1.361	0.04	0.737	1.003
06	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	20050	1720	18.13	19.50	1.371	-0.04	0.746	1.023
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	20300	1745	18.10	19.50	1.380	0.05	0.733	1.012
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	20175	1732.5	17.97	19.50	1.422	-0.01	0.692	0.984
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	20050	1720	17.91	19.50	1.442	0.03	0.686	0.989
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	20300	1745	17.84	19.50	1.466	0.01	0.670	0.982
	LTE Band 4	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 1	DSIO	20175	1732.5	17.95	19.50	1.429	0.08	0.680	0.972
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSIO	20175	1732.5	18.16	19.50	1.361	0.02	0.339	0.462
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSIO	20175	1732.5	17.97	19.50	1.422	0.06	0.362	0.515
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSIO	20175	1732.5	18.16	19.50	1.361	0.07	0.444	0.604
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSIO	20175	1732.5	17.97	19.50	1.422	0.09	0.472	0.671
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	20175	1732.5	20.62	22.00	1.374	0.02	0.575	0.790
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	20175	1732.5	20.58	22.00	1.387	0.01	0.569	0.789
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSIO	20175	1732.5	20.62	22.00	1.374	-0.03	0.155	0.213
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSIO	20175	1732.5	20.58	22.00	1.387	0.08	0.159	0.220
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSIO	20175	1732.5	20.62	22.00	1.374	0.04	0.209	0.287
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSIO	20175	1732.5	20.58	22.00	1.387	0.06	0.253	0.351
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSIO	20175	1732.5	20.62	22.00	1.374	0.08	0.160	0.220
	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSIO	20175	1732.5	20.58	22.00	1.387	0.04	0.173	0.240
	LTE Band 4	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DSIO	20175	1732.5	22.64	24.00	1.368	-0.05	0.127	0.174
	LTE Band 4	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DSIO	20175	1732.5	21.63	23.00	1.371	0.06	0.094	0.129
	LTE Band 4	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DSIO	20175	1732.5	22.64	24.00	1.368	0.08	0.104	0.142
	LTE Band 4	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DSIO	20175	1732.5	21.63	23.00	1.371	0.04	0.087	0.119
	LTE Band 4	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSIO	20175	1732.5	22.64	24.00	1.368	-0.05	0.206	0.282
	LTE Band 4	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSIO	20175	1732.5	21.63	23.00	1.371	0.02	0.142	0.195
	LTE Band 4	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSIO	20175	1732.5	22.64	24.00	1.368	0.06	0.097	0.133

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	LTE Band 4	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSIO	20175	1732.5	21.63	23.00	1.371	0.03	0.090	0.123
1900MHz																		
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 0	DSIO	661	1880	25.32	26.50	1.312	-0.05	0.053	0.070
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant 0	DSIO	661	1880	25.32	26.50	1.312	0.06	0.051	0.067
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 0	DSIO	661	1880	25.32	26.50	1.312	0.06	0.066	0.087
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant 0	DSIO	661	1880	25.32	26.50	1.312	0.01	0.053	0.070
07	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 2	DSIO	661	1880	24.11	26.00	1.545	0.02	0.632	0.977
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 2	DSIO	512	1850.2	24.03	26.00	1.574	0.07	0.611	0.962
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Cheek	0mm	Ant 2	DSIO	810	1909.8	24.00	26.00	1.585	0.01	0.601	0.953
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Tilted	0mm	Ant 2	DSIO	661	1880	24.11	26.00	1.545	-0.07	0.219	0.338
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Cheek	0mm	Ant 2	DSIO	661	1880	24.11	26.00	1.545	0.01	0.263	0.406
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Tilted	0mm	Ant 2	DSIO	661	1880	24.11	26.00	1.545	0.02	0.111	0.172
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 0	DSIO	9400	1880	24.16	24.50	1.081	0.03	0.123	0.133
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 0	DSIO	9400	1880	24.16	24.50	1.081	0.04	0.111	0.120
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 0	DSIO	9400	1880	24.16	24.50	1.081	-0.06	0.155	0.168
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 0	DSIO	9400	1880	24.16	24.50	1.081	-0.02	0.126	0.136
08	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSIO	9400	1880	19.92	21.50	1.439	-0.1	0.649	0.934
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSIO	9262	1852.4	19.80	21.50	1.479	0.02	0.629	0.930
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Cheek	0mm	Ant 2	DSIO	9538	1907.6	19.70	21.50	1.514	-0.01	0.612	0.926
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Tilted	0mm	Ant 2	DSIO	9400	1880	19.92	21.50	1.439	0.03	0.239	0.344
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Cheek	0mm	Ant 2	DSIO	9400	1880	19.92	21.50	1.439	0.04	0.289	0.416
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Tilted	0mm	Ant 2	DSIO	9400	1880	19.92	21.50	1.439	-0.05	0.128	0.184
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSIO	18900	1880	24.05	25.00	1.245	0.06	0.154	0.192
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSIO	18900	1880	23.04	24.00	1.247	0.07	0.105	0.131
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSIO	18900	1880	24.05	25.00	1.245	0.09	0.112	0.139
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSIO	18900	1880	23.04	24.00	1.247	-0.06	0.087	0.109
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	18900	1880	24.05	25.00	1.245	-0.07	0.182	0.227
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSIO	18900	1880	23.04	24.00	1.247	-0.05	0.144	0.180
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSIO	18900	1880	24.05	25.00	1.245	0.02	0.151	0.188
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSIO	18900	1880	23.04	24.00	1.247	0.01	0.131	0.163
09	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	18900	1880	19.62	21.00	1.374	0.07	0.630	0.866
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	18700	1860	19.59	21.00	1.384	0.02	0.611	0.845
	LTE Band 2	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	19100	1900	19.58	21.00	1.387	0.03	0.620	0.860
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	18900	1880	19.57	21.00	1.390	0.06	0.601	0.835
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	18700	1860	19.53	21.00	1.403	0.01	0.580	0.814
	LTE Band 2	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	19100	1900	19.49	21.00	1.416	0.07	0.599	0.848
	LTE Band 2	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	DSIO	18900	1880	19.58	21.00	1.387	-0.03	0.620	0.860
	LTE Band 2	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSIO	18900	1880	19.62	21.00	1.374	0.01	0.200	0.275
	LTE Band 2	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSIO	18900	1880	19.57	21.00	1.390	0.03	0.218	0.303
	LTE Band 2	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSIO	18900	1880	19.62	21.00	1.374	0.09	0.250	0.344
	LTE Band 2	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSIO	18900	1880	19.57	21.00	1.390	-0.06	0.286	0.398
	LTE Band 2	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSIO	18900	1880	19.62	21.00	1.374	-0.07	0.175	0.240
	LTE Band 2	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSIO	18900	1880	19.57	21.00	1.390	-0.05	0.176	0.245
	LTE Band 2 ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	18900	1880	18.82	20.00	1.312	0.02	0.392	0.514



Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	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)
2600MHz																				
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSIO	21100	2535	24.15	25.00	1.216	-	-	0.03	0.091	0.111
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSIO	21100	2535	23.23	24.00	1.194	-	-	0.09	0.082	0.098
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSIO	21100	2535	24.15	25.00	1.216	-	-	-0.06	0.068	0.083
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSIO	21100	2535	23.23	24.00	1.194	-	-	0.01	0.057	0.068
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	21100	2535	24.15	25.00	1.216	-	-	-0.02	0.165	0.201
	LTE Band 7C UL CA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	21100+21298	2535+2554.8	24.16	25.00	1.213	-	-	0.03	0.144	0.175
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSIO	21100	2535	23.23	24.00	1.194	-	-	-0.05	0.137	0.164
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DSIO	21100	2535	24.15	25.00	1.216	-	-	0.02	0.108	0.131
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DSIO	21100	2535	23.23	24.00	1.194	-	-	0.01	0.092	0.110
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSIO	21100	2535	18.54	20.00	1.400	-	-	0.04	0.406	0.568
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DSIO	21100	2535	18.51	20.00	1.409	-	-	0.09	0.395	0.557
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	21100	2535	18.54	20.00	1.400	-	-	-0.04	0.423	0.592
	LTE Band 7C UL CA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	21100+21298	2535+2554.8	18.43	20.00	1.435	-	-	0.01	0.411	0.590
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	21100	2535	18.51	20.00	1.409	-	-	-0.06	0.416	0.586
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSIO	21100	2535	18.54	20.00	1.400	-	-	0.01	0.287	0.402
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSIO	21100	2535	18.51	20.00	1.409	-	-	0.09	0.286	0.403
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSIO	21100	2535	18.54	20.00	1.400	-	-	0.04	0.337	0.472
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSIO	21100	2535	18.51	20.00	1.409	-	-	0.03	0.338	0.476
	LTE Band 7- ENDC	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	21100	2535	17.58	19.00	1.387	-	-	0.07	0.334	0.463
	LTE Band 7- Other PA	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	21100	2535	19.95	21.00	1.274	-	-	0.07	0.402	0.512
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	21100	2535	17.89	19.00	1.291	-	-	-0.03	0.546	0.705
10	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	21100	2535	17.85	19.00	1.303	-	-	0.04	0.739	0.963
	LTE Band 7C UL CA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	21100+21298	2535+2554.8	17.77	19.00	1.327	-	-	0.01	0.711	0.944
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	20850	2510	17.74	19.00	1.337	-	-	0.02	0.721	0.964
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	21350	2560	17.76	19.00	1.330	-	-	-0.01	0.718	0.955
	LTE Band 7	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	DSIO	21100	2535	17.81	19.00	1.315	-	-	0.02	0.621	0.817
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSIO	21100	2535	17.89	19.00	1.291	-	-	0.1	0.151	0.195
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSIO	21100	2535	17.85	19.00	1.303	-	-	0.05	0.171	0.223
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSIO	21100	2535	17.89	19.00	1.291	-	-	0.09	0.170	0.220
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSIO	21100	2535	17.85	19.00	1.303	-	-	0.04	0.206	0.268
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSIO	21100	2535	17.89	19.00	1.291	-	-	0.03	0.089	0.115
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSIO	21100	2535	17.85	19.00	1.303	-	-	0.1	0.101	0.132
	LTE Band 7- ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	21100	2535	15.93	17.00	1.279	-	-	0.06	0.407	0.521
	LTE Band 7	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DSIO	21100	2535	22.54	23.50	1.247	-	-	0.09	0.189	0.236
	LTE Band 7	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DSIO	21100	2535	21.57	22.50	1.239	-	-	0.01	0.147	0.182
	LTE Band 7	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DSIO	21100	2535	22.54	23.50	1.247	-	-	0.09	0.078	0.097
	LTE Band 7	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DSIO	21100	2535	21.57	22.50	1.239	-	-	0.04	0.072	0.089
	LTE Band 7	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSIO	21100	2535	22.54	23.50	1.247	-	-	0.03	0.234	0.292
	LTE Band 7C UL CA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSIO	21100+21298	2535+2554.8	22.43	23.50	1.279	-	-	0.1	0.212	0.271
	LTE Band 7	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSIO	21100	2535	21.57	22.50	1.239	-	-	0.1	0.192	0.238
	LTE Band 7	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSIO	21100	2535	22.54	23.50	1.247	-	-	0.05	0.076	0.095
	LTE Band 7	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSIO	21100	2535	21.57	22.50	1.239	-	-	0.09	0.064	0.079
	LTE Band 7- Other PA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSIO	21100	2535	23.93	25.50	1.435	-	-	0.07	0.110	0.158
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DSIO	38000	2595	24.08	25.00	1.236	62.9	1.006	0.06	0.128	0.159
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DSIO	38000	2595	23.03	24.00	1.250	62.9	1.006	0.01	0.088	0.111
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DSIO	38000	2595	24.08	25.00	1.236	62.9	1.006	0.09	0.074	0.092
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DSIO	38000	2595	23.03	24.00	1.250	62.9	1.006	0.08	0.058	0.073
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	38000	2595	24.08	25.00	1.236	62.9	1.006	0.06	0.152	0.189
	LTE Band 38C UL CA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DSIO	38000+38198	2595+2614.8	24.03	25.00	1.250	62.9	1.006	0.03	0.144	0.181
	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DSIO	38000	2595	23.03	24.00	1.250	62.9	1.006	-0.06	0.116	0.146



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	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DS10	38000	2595	24.08	25.00	1.236	62.9	1.006	0.01	0.128	0.159
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DS10	38000	2595	23.03	24.00	1.250	62.9	1.006	-0.02	0.100	0.126
11	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	38000	2595	22.94	24.00	1.276	62.9	1.006	0.02	0.655	0.841
	LTE Band 38C UL CA	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	38000+ 38198	2595+ 2614.8	22.77	24.00	1.327	62.9	1.006	0.06	0.617	0.824
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	37850	2580	22.85	24.00	1.303	62.9	1.006	0.01	0.640	0.839
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	38150	2610	22.69	24.00	1.352	62.9	1.006	0.07	0.611	0.831
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS10	38000	2595	21.88	23.00	1.294	62.9	1.006	-0.05	0.501	0.652
	LTE Band 38	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DS10	38000	2595	21.86	23.00	1.300	62.9	1.006	0.02	0.600	0.785
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS10	38000	2595	22.94	24.00	1.276	62.9	1.006	-0.04	0.581	0.746
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DS10	38000	2595	21.88	23.00	1.294	62.9	1.006	0.03	0.492	0.641
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DS10	38000	2595	22.94	24.00	1.276	62.9	1.006	0.04	0.396	0.509
	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DS10	38000	2595	21.88	23.00	1.294	62.9	1.006	-0.07	0.323	0.421
	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DS10	38000	2595	22.94	24.00	1.276	62.9	1.006	-0.05	0.504	0.647
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DS10	38000	2595	21.88	23.00	1.294	62.9	1.006	-0.02	0.399	0.519
	LTE Band 38- ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	38000	2595	20.99	22.00	1.262	62.9	1.006	0.05	0.411	0.522
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DS10	38000	2595	20.36	21.50	1.300	62.9	1.006	-0.08	0.609	0.797
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DS10	38000	2595	20.31	21.50	1.315	62.9	1.006	0.02	0.604	0.799
	LTE Band 38C UL CA	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DS10	38000+ 38198	2595+ 2614.8	20.20	21.50	1.349	62.9	1.006	0.11	0.588	0.798
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DS10	38000	2595	20.36	21.50	1.300	62.9	1.006	0.06	0.229	0.300
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DS10	38000	2595	20.31	21.50	1.315	62.9	1.006	0.01	0.222	0.294
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DS10	38000	2595	20.36	21.50	1.300	62.9	1.006	0.03	0.235	0.307
	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DS10	38000	2595	20.31	21.50	1.315	62.9	1.006	-0.03	0.243	0.322
	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DS10	38000	2595	20.36	21.50	1.300	62.9	1.006	0.06	0.118	0.154
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DS10	38000	2595	20.31	21.50	1.315	62.9	1.006	0.01	0.112	0.148
	LTE Band 38- ENDC	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DS10	38000	2595	18.25	19.50	1.334	62.9	1.006	0.06	0.379	0.508
	LTE Band 38	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DS10	38000	2595	22.86	24.00	1.300	62.9	1.006	0.06	0.117	0.153
	LTE Band 38	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DS10	38000	2595	21.82	23.00	1.312	62.9	1.006	0.01	0.092	0.121
	LTE Band 38	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DS10	38000	2595	22.86	24.00	1.300	62.9	1.006	0.03	0.062	0.081
	LTE Band 38	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DS10	38000	2595	21.82	23.00	1.312	62.9	1.006	-0.03	0.050	0.066
	LTE Band 38	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DS10	38000	2595	22.86	24.00	1.300	62.9	1.006	0.06	0.165	0.216
	LTE Band 38C UL CA	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DS10	38000+ 38198	2595+ 2614.8	22.78	24.00	1.324	62.9	1.006	0.08	0.142	0.189
	LTE Band 38	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DS10	38000	2595	21.82	23.00	1.312	62.9	1.006	0.01	0.130	0.172
	LTE Band 38	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DS10	38000	2595	22.86	24.00	1.300	62.9	1.006	0.05	0.066	0.086
	LTE Band 38	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DS10	38000	2595	21.82	23.00	1.312	62.9	1.006	0.04	0.044	0.058
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 0	DS10	40620	2593	24.19	25.00	1.205	62.9	1.006	0.06	0.102	0.124
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 0	DS10	40620	2593	23.11	24.00	1.227	62.9	1.006	-0.05	0.079	0.098
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 0	DS10	40620	2593	24.19	25.00	1.205	62.9	1.006	-0.04	0.079	0.096
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 0	DS10	40620	2593	23.11	24.00	1.227	62.9	1.006	0.03	0.063	0.078
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 0	DS10	40620	2593	24.19	25.00	1.205	62.9	1.006	0.02	0.149	0.181
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 0	DS10	40620	2593	23.11	24.00	1.227	62.9	1.006	0.04	0.118	0.146
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 0	DS10	40620	2593	24.19	25.00	1.205	62.9	1.006	0.06	0.115	0.139
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 0	DS10	40620	2593	23.11	24.00	1.227	62.9	1.006	0.07	0.103	0.127
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	40620	2593	22.94	24.00	1.276	62.9	1.006	-0.03	0.634	0.814
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	39750	2506	22.88	24.00	1.294	62.9	1.006	0.01	0.640	0.833
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	40185	2549.5	22.69	24.00	1.352	62.9	1.006	0.02	0.613	0.834
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	41055	2636.5	22.79	24.00	1.321	62.9	1.006	-0.02	0.612	0.813
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DS10	41490	2680	22.80	24.00	1.318	62.9	1.006	0.02	0.623	0.826
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS10	40620	2593	21.90	23.00	1.288	62.9	1.006	-0.05	0.520	0.674
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS10	39750	2506	21.78	23.00	1.324	62.9	1.006	-0.11	0.523	0.697
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS10	40185	2549.5	21.81	23.00	1.315	62.9	1.006	0.18	0.510	0.675
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS10	41055	2636.5	21.77	23.00	1.327	62.9	1.006	-0.17	0.489	0.653
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 1	DS10	41490	2680	21.83	23.00	1.309	62.9	1.006	0.02	0.500	0.659
	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 1	DS10	40620	2593	21.88	23.00	1.294	62.9	1.006	0.02	0.611	0.795
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS10	40620	2593	22.94	24.00	1.276	62.9	1.006	-0.09	0.616	0.791
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS10	39750	2506	22.88	24.00	1.294	62.9	1.006	0.15	0.600	0.781
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DS10	40185	2549.5	22.69	24.00	1.352	62.9	1.006	0.03	0.597	0.812

Sporton International Inc. (Kunshan)

TEL : 86-512-57900158 / FAX : 86-512-57900958

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FCC SAR Test Report

Report No. : FA231203-02

	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	41055	2636.5	22.79	24.00	1.321	62.9	1.006	0.09	0.587	0.780
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 1	DSIO	41490	2680	22.80	24.00	1.318	62.9	1.006	0.09	0.570	0.756
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	40620	2593	21.90	23.00	1.288	62.9	1.006	-0.05	0.529	0.686
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	39750	2506	21.78	23.00	1.324	62.9	1.006	0.06	0.498	0.663
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	40185	2549.5	21.81	23.00	1.315	62.9	1.006	0.02	0.500	0.662
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	41055	2636.5	21.77	23.00	1.327	62.9	1.006	0.07	0.512	0.684
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 1	DSIO	41490	2680	21.83	23.00	1.309	62.9	1.006	-0.15	0.510	0.672
	LTE Band 41	20M	QPSK	100	0	-	Right Tilted	0mm	Ant 1	DSIO	40620	2593	21.88	23.00	1.294	62.9	1.006	0.07	0.625	0.814
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 1	DSIO	40620	2593	22.94	24.00	1.276	62.9	1.006	-0.04	0.465	0.597
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 1	DSIO	40620	2593	21.90	23.00	1.288	62.9	1.006	0.03	0.451	0.584
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 1	DSIO	40620	2593	22.94	24.00	1.276	62.9	1.006	0.04	0.355	0.456
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 1	DSIO	40620	2593	21.90	23.00	1.288	62.9	1.006	0.06	0.449	0.582
	LTE Band 41- ENDC	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 1	DSIO	40620	2593	21.08	22.00	1.236	62.9	1.006	0.02	0.402	0.500
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	41490	2680	21.50	22.00	1.122	62.9	1.006	-0.06	0.711	0.803
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	39750	2506	20.19	22.00	1.517	62.9	1.006	0.04	0.460	0.702
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	40185	2549.5	20.12	22.00	1.542	62.9	1.006	0.03	0.431	0.668
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	40620	2593	20.56	22.00	1.393	62.9	1.006	0.09	0.677	0.949
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 2	DSIO	41055	2636.5	20.61	22.00	1.377	62.9	1.006	0.01	0.603	0.835
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	41490	2680	21.41	22.00	1.146	62.9	1.006	0.04	0.706	0.814
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	39750	2506	20.00	22.00	1.585	62.9	1.006	0.05	0.505	0.805
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	40185	2549.5	20.04	22.00	1.570	62.9	1.006	-0.03	0.467	0.738
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	40620	2593	20.56	22.00	1.393	62.9	1.006	-0.03	0.677	0.949
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 2	DSIO	41055	2636.5	20.39	22.00	1.449	62.9	1.006	0.03	0.615	0.896
12	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	DSIO	41490	2680	21.36	22.00	1.159	62.9	1.006	-0.02	0.816	0.951
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 2	DSIO	41490	2680	21.50	22.00	1.122	62.9	1.006	0.04	0.249	0.281
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 2	DSIO	41490	2680	21.41	22.00	1.146	62.9	1.006	0.03	0.246	0.283
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 2	DSIO	41490	2680	21.50	22.00	1.122	62.9	1.006	0.01	0.255	0.288
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 2	DSIO	41490	2680	21.41	22.00	1.146	62.9	1.006	-0.02	0.247	0.285
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 2	DSIO	41490	2680	21.50	22.00	1.122	62.9	1.006	-0.05	0.121	0.137
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 2	DSIO	41490	2680	21.41	22.00	1.146	62.9	1.006	-0.07	0.129	0.149
	LTE Band 41- ENDC	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	DSIO	41490	2680	18.88	19.50	1.153	62.9	1.006	0.03	0.451	0.523
	LTE Band 41	20M	QPSK	1	0	-	Right Cheek	0mm	Ant 5	DSIO	40620	2593	22.79	24.00	1.321	62.9	1.006	0.06	0.131	0.174
	LTE Band 41	20M	QPSK	50	0	-	Right Cheek	0mm	Ant 5	DSIO	40620	2593	21.69	23.00	1.352	62.9	1.006	0.04	0.084	0.114
	LTE Band 41	20M	QPSK	1	0	-	Right Tilted	0mm	Ant 5	DSIO	40620	2593	22.79	24.00	1.321	62.9	1.006	0.03	0.060	0.080
	LTE Band 41	20M	QPSK	50	0	-	Right Tilted	0mm	Ant 5	DSIO	40620	2593	21.69	23.00	1.352	62.9	1.006	0.09	0.046	0.063
	LTE Band 41	20M	QPSK	1	0	-	Left Cheek	0mm	Ant 5	DSIO	40620	2593	22.79	24.00	1.321	62.9	1.006	0.01	0.138	0.183
	LTE Band 41	20M	QPSK	50	0	-	Left Cheek	0mm	Ant 5	DSIO	40620	2593	21.69	23.00	1.352	62.9	1.006	-0.03	0.116	0.158
	LTE Band 41	20M	QPSK	1	0	-	Left Tilted	0mm	Ant 5	DSIO	40620	2593	22.79	24.00	1.321	62.9	1.006	0.04	0.050	0.066
	LTE Band 41	20M	QPSK	50	0	-	Left Tilted	0mm	Ant 5	DSIO	40620	2593	21.69	23.00	1.352	62.9	1.006	0.05	0.049	0.067
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSIO	507000	2535	23.05	24.50	1.396	-	-	0.06	0.069	0.096
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Right Cheek	0mm	Ant 0	DSIO	507000	2535	22.97	24.50	1.422	-	-	0.03	0.072	0.102
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 0	DSIO	507000	2535	23.05	24.50	1.396	-	-	0.01	0.038	0.053
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Right Tilted	0mm	Ant 0	DSIO	507000	2535	22.97	24.50	1.422	-	-	-0.02	0.052	0.074
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSIO	507000	2535	23.05	24.50	1.396	-	-	0.03	0.121	0.169
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSIO	507000	2535	22.97	24.50	1.422	-	-	0.07	0.118	0.168
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSIO	507000	2535	23.05	24.50	1.396	-	-	-0.04	0.060	0.084
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Left Tilted	0mm	Ant 0	DSIO	507000	2535	22.97	24.50	1.422	-	-	0.03	0.075	0.107
	FR1 n7- Other PA	50M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 0	DSIO	507000	2535	24.19	25.00	1.205	-	-	0.05	0.115	0.139
13	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	507000	2535	20.06	21.00	1.242	-	-	0.04	0.523	0.649
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Right Cheek	0mm	Ant 1	DSIO	507000	2535	19.94	21.00	1.276	-	-	0.03	0.501	0.639
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSIO	507000	2535	20.06	21.00	1.242	-	-	0.04	0.469	0.582
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Right Tilted	0mm	Ant 1	DSIO	507000	2535	19.94	21.00	1.276	-	-	-0.02	0.484	0.618
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	507000	2535	20.06	21.00	1.242	-	-	0.04	0.372	0.462
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Left Cheek	0mm	Ant 1	DSIO	507000	2535	19.94	21.00	1.276	-	-	0.03	0.381	0.486
	FR1 n7	50M	QPSK	1	1	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSIO	507000	2535	20.06	21.00	1.242	-	-	0.01	0.431	0.535
	FR1 n7	50M	QPSK	64	35	DFT-SCS-30KHz	Left Tilted	0mm	Ant 1	DSIO	507000	2535	19.94	21.00	1.276	-	-	-0.05	0.445	0.568

Sporton International Inc. (Kunshan)

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FCC SAR Test Report

Report No. : FA231203-02

	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DS10	650000	3750	16.00	17.00	1.259	-	-	0.04	0.587	0.739
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DS10	650000	3750	16.02	17.00	1.253	-	-	0.06	0.299	0.375
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DS10	650000	3750	16.00	17.00	1.259	-	-	0.04	0.297	0.374
	FR1 n78- ENDC&UL CA	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DS10	650000	3750	14.10	15.00	1.230	-	-	0.02	0.426	0.524
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DS10	633334	3500.01	16.31	17.00	1.172	-	-	0.03	0.224	0.263
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 3	DS10	633334	3500.01	16.30	17.00	1.175	-	-	0.04	0.238	0.280
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DS10	633334	3500.01	16.31	17.00	1.172	-	-	-0.02	0.182	0.213
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 3	DS10	633334	3500.01	16.30	17.00	1.175	-	-	0.06	0.186	0.219
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DS10	633334	3500.01	16.31	17.00	1.172	-	-	-0.02	0.675	0.791
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DS10	633334	3500.01	16.30	17.00	1.175	-	-	0.09	0.644	0.757
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DS10	633334	3500.01	16.31	17.00	1.172	-	-	-0.03	0.376	0.441
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 3	DS10	633334	3500.01	16.30	17.00	1.175	-	-	0.04	0.370	0.435
	FR1 n78- ENDC&UL CA	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 3	DS10	633334	3500.01	14.31	15.00	1.172	-	-	0.03	0.452	0.530
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DS10	650000	3750	16.65	17.00	1.084	-	-	0.06	0.503	0.545
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DS10	650000	3750	16.60	17.00	1.096	-	-	0.04	0.500	0.548
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Tilted	0mm	Ant 4	DS10	650000	3750	16.65	17.00	1.084	-	-	-0.02	0.374	0.405
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 4	DS10	650000	3750	16.60	17.00	1.096	-	-	-0.03	0.388	0.425
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DS10	650000	3750	16.65	17.00	1.084	-	-	0.03	0.236	0.256
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DS10	650000	3750	16.60	17.00	1.096	-	-	-0.05	0.239	0.262
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DS10	650000	3750	16.65	17.00	1.084	-	-	0.06	0.281	0.305
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DS10	650000	3750	16.60	17.00	1.096	-	-	0.04	0.275	0.302
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DS10	633334	3500.01	16.75	17.00	1.059	-	-	0.03	0.541	0.573
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 4	DS10	633334	3500.01	16.72	17.00	1.067	-	-	0.01	0.545	0.581
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Tilted	0mm	Ant 4	DS10	633334	3500.01	16.75	17.00	1.059	-	-	-0.06	0.452	0.479
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 4	DS10	633334	3500.01	16.72	17.00	1.067	-	-	0.02	0.452	0.482
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DS10	633334	3500.01	16.75	17.00	1.059	-	-	0.1	0.259	0.274
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 4	DS10	633334	3500.01	16.72	17.00	1.067	-	-	0.06	0.248	0.265
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DS10	633334	3500.01	16.75	17.00	1.059	-	-	0.02	0.264	0.280
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 4	DS10	633334	3500.01	16.72	17.00	1.067	-	-	0.07	0.265	0.283
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DS10	650000	3750	25.25	26.00	1.189	-	-	0.02	0.134	0.159
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DS10	650000	3750	25.18	26.00	1.208	-	-	0.1	0.116	0.140
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DS10	650000	3750	25.25	26.00	1.189	-	-	0.06	0.119	0.141
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DS10	650000	3750	25.18	26.00	1.208	-	-	0.02	0.121	0.146
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DS10	650000	3750	25.25	26.00	1.189	-	-	-0.08	0.169	0.201
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DS10	650000	3750	25.18	26.00	1.208	-	-	0.01	0.157	0.190
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DS10	650000	3750	25.25	26.00	1.189	-	-	0.03	0.069	0.082
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DS10	650000	3750	25.18	26.00	1.208	-	-	0.04	0.077	0.093
	FR1 n78- ENDC&UL CA	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DS10	650000	3750	24.27	25.00	1.183	-	-	0.03	0.087	0.103
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DS10	633334	3500.01	25.27	26.00	1.183	-	-	0.1	0.359	0.425
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Cheek	0mm	Ant 5	DS10	633334	3500.01	25.18	26.00	1.208	-	-	0.06	0.363	0.438
17	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DS10	633334	3500.01	25.27	26.00	1.183	-	-	-0.04	0.680	0.804
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DS10	633334	3500.01	25.18	26.00	1.208	-	-	0.1	0.660	0.797
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DS10	633334	3500.01	25.27	26.00	1.183	-	-	0.06	0.526	0.622
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Cheek	0mm	Ant 5	DS10	633334	3500.01	25.18	26.00	1.208	-	-	0.02	0.536	0.647
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DS10	633334	3500.01	25.27	26.00	1.183	-	-	-0.08	0.401	0.474
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Tilted	0mm	Ant 5	DS10	633334	3500.01	25.18	26.00	1.208	-	-	0.01	0.417	0.504
	FR1 n78- ENDC&UL CA	100M	QPSK	1	137	DFT-SCS-30KHz	Right Tilted	0mm	Ant 5	DS10	633334	3500.01	24.25	25.00	1.189	-	-	0.07	0.486	0.578



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)
2450MHz																
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 8+9	Standalone	1	2412	20.09	21.50	1.384	99.31	1.007	0.01	0.311	0.433
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 8+9	Standalone	1	2412	20.09	21.50	1.384	99.31	1.007	0.03	0.323	0.450
18	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 8+9	Standalone	1	2412	20.09	21.50	1.384	99.31	1.007	-0.03	0.759	1.057
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 8+9	Standalone	11	2462	19.94	21.50	1.432	99.31	1.007	0.03	0.720	1.038
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+9	Standalone	1	2412	20.09	21.50	1.384	99.31	1.007	0.06	0.575	0.801
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	0mm	Ant 8+9	Simultaneous	1	2412	14.13	15.50	1.371	99.31	1.007	0.02	0.072	0.099
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	0mm	Ant 8+9	Simultaneous	1	2412	14.13	15.50	1.371	99.31	1.007	0.07	0.068	0.094
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	0mm	Ant 8+9	Simultaneous	1	2412	14.13	15.50	1.371	99.31	1.007	0.05	0.154	0.213
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	0mm	Ant 8+9	Simultaneous	1	2412	14.13	15.50	1.371	99.31	1.007	0.06	0.108	0.149
	Bluetooth	1Mbps	Right Cheek	0mm	Ant 8	Standalone	78	2441	15.78	17.00	1.324	76.83	1.302	0.02	0.061	0.105
	Bluetooth	1Mbps	Right Tilted	0mm	Ant 8	Standalone	78	2402	15.78	17.00	1.324	76.83	1.302	0.07	0.074	0.128
	Bluetooth	1Mbps	Left Cheek	0mm	Ant 8	Standalone	78	2480	15.78	17.00	1.324	76.83	1.302	0.05	0.157	0.271
19	Bluetooth	1Mbps	Left Tilted	0mm	Ant 8	Standalone	78	2480	15.78	17.00	1.324	76.83	1.302	-0.09	0.159	0.274
5000MHz																
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8+9	Standalone	58	5290	16.93	18.00	1.279	88.19	1.134	0.1	0.112	0.162
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8+9	Standalone	58	5290	16.93	18.00	1.279	88.19	1.134	0.06	0.159	0.231
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+9	Standalone	58	5290	16.93	18.00	1.279	88.19	1.134	0.01	0.208	0.302
20	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8+9	Standalone	58	5290	16.93	18.00	1.279	88.19	1.134	-0.08	0.483	0.701
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8+9	Simultaneous	58	5290	11.23	12.00	1.194	88.19	1.134	0.07	0.065	0.088
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8+9	Simultaneous	58	5290	11.23	12.00	1.194	88.19	1.134	0.03	0.095	0.129
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+9	Simultaneous	58	5290	11.23	12.00	1.194	88.19	1.134	0.01	0.118	0.160
	WLAN5.3GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8+9	Simultaneous	58	5290	11.23	12.00	1.194	88.19	1.134	0.02	0.137	0.185
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8+9	Standalone	138	5690	15.57	17.00	1.390	88.19	1.134	0.02	0.142	0.224
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8+9	Standalone	138	5690	15.57	17.00	1.390	88.19	1.134	-0.08	0.199	0.314
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+9	Standalone	138	5690	15.57	17.00	1.390	88.19	1.134	0.01	0.285	0.449
21	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8+9	Standalone	138	5690	15.57	17.00	1.390	88.19	1.134	0.13	0.436	0.687
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8+9	Simultaneous	138	5690	9.67	11.00	1.358	88.19	1.134	-0.02	0.048	0.074
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8+9	Simultaneous	138	5690	9.67	11.00	1.358	88.19	1.134	0.02	0.084	0.129
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+9	Simultaneous	138	5690	9.67	11.00	1.358	88.19	1.134	0.03	0.065	0.100
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8+9	Simultaneous	138	5690	9.67	11.00	1.358	88.19	1.134	0.07	0.119	0.183
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8+9	Standalone	155	5775	14.74	16.50	1.500	88.19	1.134	0.02	0.151	0.257
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8+9	Standalone	155	5775	14.74	16.50	1.500	88.19	1.134	-0.08	0.180	0.306
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+9	Standalone	155	5775	14.74	16.50	1.500	88.19	1.134	0.01	0.385	0.655
22	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8+9	Standalone	155	5775	14.74	16.50	1.500	88.19	1.134	0.04	0.583	0.991
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Cheek	0mm	Ant 8+9	Simultaneous	155	5775	8.93	10.50	1.435	88.19	1.134	0.1	0.056	0.091
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Tilted	0mm	Ant 8+9	Simultaneous	155	5775	8.93	10.50	1.435	88.19	1.134	0.06	0.080	0.130
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Cheek	0mm	Ant 8+9	Simultaneous	155	5775	8.93	10.50	1.435	88.19	1.134	0.08	0.077	0.125
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Tilted	0mm	Ant 8+9	Simultaneous	155	5775	8.93	10.50	1.435	88.19	1.134	0.01	0.132	0.215



15.2 Hotspot SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																		
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Front	10mm	Ant 0	DSI4	189	836.4	28.34	29.50	1.306	0.01	0.102	0.133
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	10mm	Ant 0	DSI4	189	836.4	28.34	29.50	1.306	-0.07	0.190	0.248
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Side	10mm	Ant 0	DSI4	189	836.4	28.34	29.50	1.306	0.03	0.062	0.081
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Side	10mm	Ant 0	DSI4	189	836.4	28.34	29.50	1.306	0.02	0.148	0.193
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	10mm	Ant 0	DSI4	189	836.4	28.34	29.50	1.306	0.02	0.184	0.240
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Front	10mm	Ant 1	DSI4	189	836.4	28.12	30.00	1.542	0.01	0.121	0.187
23	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	10mm	Ant 1	DSI4	189	836.4	28.12	30.00	1.542	0.05	0.251	0.387
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Left Side	10mm	Ant 1	DSI4	189	836.4	28.12	30.00	1.542	0.03	0.097	0.150
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Right Side	10mm	Ant 1	DSI4	189	836.4	28.12	30.00	1.542	0.02	0.085	0.131
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Top Side	10mm	Ant 1	DSI4	189	836.4	28.12	30.00	1.542	0.01	0.147	0.227
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI4	4182	836.4	24.51	25.00	1.119	0.06	0.135	0.151
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI4	4182	836.4	24.51	25.00	1.119	-0.01	0.255	0.285
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI4	4182	836.4	24.51	25.00	1.119	0.01	0.095	0.106
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI4	4182	836.4	24.51	25.00	1.119	0.03	0.119	0.133
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI4	4182	836.4	24.51	25.00	1.119	0.09	0.155	0.174
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 1	DSI4	4182	836.4	23.09	24.50	1.384	0.06	0.115	0.159
24	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 1	DSI4	4182	836.4	23.09	24.50	1.384	-0.01	0.259	0.358
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 1	DSI4	4182	836.4	23.09	24.50	1.384	0.01	0.091	0.126
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 1	DSI4	4182	836.4	23.09	24.50	1.384	0.09	0.082	0.113
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 1	DSI4	4182	836.4	23.09	24.50	1.384	0.02	0.126	0.174
	LTE Band 5	10M	QPSK	1	0	-	Front	10mm	Ant 0	DSI4	20525	836.5	22.51	23.50	1.256	0.03	0.117	0.147
	LTE Band 5	10M	QPSK	25	0	-	Front	10mm	Ant 0	DSI4	20525	836.5	22.46	23.50	1.271	0.02	0.118	0.150
	LTE Band 5	10M	QPSK	1	0	-	Back	10mm	Ant 0	DSI4	20525	836.5	22.51	23.50	1.256	0.01	0.192	0.241
	LTE Band 5	10M	QPSK	25	0	-	Back	10mm	Ant 0	DSI4	20525	836.5	22.46	23.50	1.271	0.03	0.201	0.255
	LTE Band 5	10M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI4	20525	836.5	22.51	23.50	1.256	0.06	0.071	0.089
	LTE Band 5	10M	QPSK	25	0	-	Left Side	10mm	Ant 0	DSI4	20525	836.5	22.46	23.50	1.271	-0.01	0.072	0.091
	LTE Band 5	10M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI4	20525	836.5	22.51	23.50	1.256	0.01	0.121	0.152
	LTE Band 5	10M	QPSK	25	0	-	Right Side	10mm	Ant 0	DSI4	20525	836.5	22.46	23.50	1.271	0.09	0.126	0.160
	LTE Band 5	10M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI4	20525	836.5	22.51	23.50	1.256	0.02	0.191	0.240
	LTE Band 5	10M	QPSK	25	0	-	Bottom Side	10mm	Ant 0	DSI4	20525	836.5	22.46	23.50	1.271	0.01	0.195	0.248
	LTE Band 5	10M	QPSK	1	0	-	Front	10mm	Ant 1	DSI4	20525	836.5	23.31	24.50	1.315	0.06	0.163	0.214
	LTE Band 5	10M	QPSK	25	0	-	Front	10mm	Ant 1	DSI4	20525	836.5	23.27	24.50	1.327	-0.01	0.169	0.224
	LTE Band 5	10M	QPSK	1	0	-	Back	10mm	Ant 1	DSI4	20525	836.5	23.31	24.50	1.315	0.01	0.284	0.374
25	LTE Band 5	10M	QPSK	25	0	-	Back	10mm	Ant 1	DSI4	20525	836.5	23.27	24.50	1.327	-0.07	0.289	0.384
	LTE Band 5	10M	QPSK	1	0	-	Left Side	10mm	Ant 1	DSI4	20525	836.5	23.31	24.50	1.315	0.04	0.119	0.157
	LTE Band 5	10M	QPSK	25	0	-	Left Side	10mm	Ant 1	DSI4	20525	836.5	23.27	24.50	1.327	0.06	0.122	0.162
	LTE Band 5	10M	QPSK	1	0	-	Right Side	10mm	Ant 1	DSI4	20525	836.5	23.31	24.50	1.315	-0.01	0.125	0.164
	LTE Band 5	10M	QPSK	25	0	-	Right Side	10mm	Ant 1	DSI4	20525	836.5	23.27	24.50	1.327	0.01	0.127	0.169
	LTE Band 5	10M	QPSK	1	0	-	Top Side	10mm	Ant 1	DSI4	20525	836.5	23.31	24.50	1.315	0.09	0.170	0.224
	LTE Band 5	10M	QPSK	25	0	-	Top Side	10mm	Ant 1	DSI4	20525	836.5	23.27	24.50	1.327	0.01	0.173	0.230
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 0	DSI4	167300	836.5	23.93	24.50	1.140	0.06	0.151	0.172
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Front	10mm	Ant 0	DSI4	167300	836.5	23.89	24.50	1.151	0.01	0.170	0.196
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Back	10mm	Ant 0	DSI4	167300	836.5	23.93	24.50	1.140	0.02	0.230	0.262
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Back	10mm	Ant 0	DSI4	167300	836.5	23.89	24.50	1.151	0.02	0.289	0.333
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Left Side	10mm	Ant 0	DSI4	167300	836.5	23.93	24.50	1.140	0.06	0.106	0.121
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Left Side	10mm	Ant 0	DSI4	167300	836.5	23.89	24.50	1.151	-0.01	0.113	0.130
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Right Side	10mm	Ant 0	DSI4	167300	836.5	23.93	24.50	1.140	0.01	0.193	0.220
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Right Side	10mm	Ant 0	DSI4	167300	836.5	23.89	24.50	1.151	0.09	0.200	0.230
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Bottom Side	10mm	Ant 0	DSI4	167300	836.5	23.93	24.50	1.140	0.1	0.206	0.235
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Bottom Side	10mm	Ant 0	DSI4	167300	836.5	23.89	24.50	1.151	0.06	0.212	0.244
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Front	10mm	Ant 1	DSI4	167300	836.5	24.13	25.70	1.435	0.06	0.184	0.264



FCC SAR Test Report

Report No. : FA231203-02

	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Front	10mm	Ant 0	DSI4	661	1880	22.29	23.50	1.321	0.02	0.104	0.137
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	10mm	Ant 0	DSI4	661	1880	22.29	23.50	1.321	0.06	0.188	0.248
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Side	10mm	Ant 0	DSI4	661	1880	22.29	23.50	1.321	-0.01	0.062	0.082
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Right Side	10mm	Ant 0	DSI4	661	1880	22.29	23.50	1.321	0.01	0.000	0.000
29	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Bottom Side	10mm	Ant 0	DSI4	661	1880	22.29	23.50	1.321	-0.01	0.333	0.440
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Front	10mm	Ant 2	DSI4	661	1880	23.12	25.00	1.542	0.06	0.067	0.103
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Back	10mm	Ant 2	DSI4	661	1880	23.12	25.00	1.542	0.01	0.177	0.273
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Left Side	10mm	Ant 2	DSI4	661	1880	23.12	25.00	1.542	0.01	0.181	0.279
	GSM1900	-	-	-	-	GPRS (3 Tx slots)	Top Side	10mm	Ant 2	DSI4	661	1880	23.12	25.00	1.542	0.03	0.000	0.000
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	0.03	0.325	0.350
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	0.02	0.549	0.591
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	0.06	0.190	0.205
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Right Side	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	-0.01	0.057	0.061
30	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	0.09	0.932	1.003
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI4	9262	1852.4	20.95	21.50	1.135	0.03	0.868	0.985
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI4	9538	1907.6	21.06	21.50	1.107	0.06	0.871	0.964
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Front	10mm	Ant 2	DSI4	9400	1880	19.92	21.50	1.439	0.03	0.118	0.170
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	10mm	Ant 2	DSI4	9400	1880	19.92	21.50	1.439	-0.03	0.355	0.511
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Left Side	10mm	Ant 2	DSI4	9400	1880	19.92	21.50	1.439	0.04	0.337	0.485
	WCDMA II	-	-	-	-	RMC 12.2Kbps	Top Side	10mm	Ant 2	DSI4	9400	1880	19.92	21.50	1.439	0.02	0.000	0.000
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 0	DSI4	18900	1880	19.99	21.00	1.262	0.01	0.229	0.289
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 0	DSI4	18900	1880	19.94	21.00	1.276	0.05	0.227	0.290
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 0	DSI4	18900	1880	19.99	21.00	1.262	0.03	0.390	0.492
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 0	DSI4	18900	1880	19.94	21.00	1.276	0.04	0.384	0.490
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 0	DSI4	18900	1880	19.99	21.00	1.262	0.07	0.114	0.144
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 0	DSI4	18900	1880	19.94	21.00	1.276	0.06	0.112	0.143
	LTE Band 2	20M	QPSK	1	0	-	Right Side	10mm	Ant 0	DSI4	18900	1880	19.99	21.00	1.262	0.01	0.042	0.053
	LTE Band 2	20M	QPSK	50	0	-	Right Side	10mm	Ant 0	DSI4	18900	1880	19.94	21.00	1.276	0.01	0.040	0.051
31	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI4	18900	1880	19.99	21.00	1.262	0.02	0.665	0.839
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI4	18700	1860	19.81	21.00	1.315	0.03	0.634	0.834
	LTE Band 2	20M	QPSK	1	0	-	Bottom Side	10mm	Ant 0	DSI4	19100	1900	19.89	21.00	1.291	0.06	0.640	0.826
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI4	18900	1880	19.94	21.00	1.276	0.02	0.656	0.837
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI4	18700	1860	19.91	21.00	1.285	0.05	0.641	0.824
	LTE Band 2	20M	QPSK	50	0	-	Bottom Side	10mm	Ant 0	DSI4	19100	1900	19.89	21.00	1.291	0.03	0.650	0.839
	LTE Band 2	20M	QPSK	100	0	-	Bottom Side	10mm	Ant 0	DSI4	18900	1880	19.88	21.00	1.294	0.01	0.622	0.805
	LTE Band 2	20M	QPSK	1	0	-	Front	10mm	Ant 2	DSI4	18900	1880	19.62	21.00	1.374	0.01	0.086	0.118
	LTE Band 2	20M	QPSK	50	0	-	Front	10mm	Ant 2	DSI4	18900	1880	19.57	21.00	1.390	0.05	0.092	0.128
	LTE Band 2	20M	QPSK	1	0	-	Back	10mm	Ant 2	DSI4	18900	1880	19.62	21.00	1.374	0.03	0.238	0.327
	LTE Band 2	20M	QPSK	50	0	-	Back	10mm	Ant 2	DSI4	18900	1880	19.57	21.00	1.390	0.04	0.250	0.347
	LTE Band 2	20M	QPSK	1	0	-	Left Side	10mm	Ant 2	DSI4	18900	1880	19.62	21.00	1.374	0.01	0.263	0.361
	LTE Band 2	20M	QPSK	50	0	-	Left Side	10mm	Ant 2	DSI4	18900	1880	19.57	21.00	1.390	-0.05	0.273	0.379
	LTE Band 2	20M	QPSK	1	0	-	Top Side	10mm	Ant 2	DSI4	18900	1880	19.62	21.00	1.374	0.09	0.000	0.000
	LTE Band 2	20M	QPSK	50	0	-	Top Side	10mm	Ant 2	DSI4	18900	1880	19.57	21.00	1.390	0.04	0.035	0.049



FCC SAR Test Report

Report No. : FA231203-02

	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 3	DSI4	633334	3500.01	16.30	17.00	1.175	-	-	0.05	0.112	0.132
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Right Side	10mm	Ant 3	DSI4	633334	3500.01	16.31	17.00	1.172	-	-	0.01	0.118	0.138
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Right Side	10mm	Ant 3	DSI4	633334	3500.01	16.30	17.00	1.175	-	-	0.03	0.130	0.153
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Top Side	10mm	Ant 3	DSI4	633334	3500.01	16.31	17.00	1.172	-	-	0.02	0.061	0.072
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 3	DSI4	633334	3500.01	16.30	17.00	1.175	-	-	0.03	0.065	0.076
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	10mm	Ant 4	DSI4	650000	3750	16.65	17.00	1.084	-	-	-0.02	0.177	0.192
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 4	DSI4	650000	3750	16.60	17.00	1.096	-	-	0.05	0.180	0.197
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	10mm	Ant 4	DSI4	650000	3750	16.65	17.00	1.084	-	-	0.01	0.232	0.251
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 4	DSI4	650000	3750	16.60	17.00	1.096	-	-	0.03	0.236	0.259
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Side	10mm	Ant 4	DSI4	650000	3750	16.65	17.00	1.084	-	-	0.06	0.097	0.105
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 4	DSI4	650000	3750	16.60	17.00	1.096	-	-	0.04	0.102	0.112
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Top Side	10mm	Ant 4	DSI4	650000	3750	16.65	17.00	1.084	-	-	0.02	0.283	0.307
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 4	DSI4	650000	3750	16.60	17.00	1.096	-	-	-0.07	0.285	0.312
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	10mm	Ant 4	DSI4	633334	3500.01	16.75	17.00	1.059	-	-	0.03	0.214	0.227
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 4	DSI4	633334	3500.01	16.72	17.00	1.067	-	-	0.02	0.213	0.227
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	10mm	Ant 4	DSI4	633334	3500.01	16.75	17.00	1.059	-	-	-0.01	0.248	0.263
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 4	DSI4	633334	3500.01	16.72	17.00	1.067	-	-	0.03	0.245	0.261
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Side	10mm	Ant 4	DSI4	633334	3500.01	16.75	17.00	1.059	-	-	0.05	0.105	0.111
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 4	DSI4	633334	3500.01	16.72	17.00	1.067	-	-	0.01	0.100	0.107
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Top Side	10mm	Ant 4	DSI4	633334	3500.01	16.75	17.00	1.059	-	-	0.03	0.239	0.253
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	10mm	Ant 4	DSI4	633334	3500.01	16.72	17.00	1.067	-	-	0.01	0.217	0.231
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	10mm	Ant 5	DSI4	650000	3750	18.32	19.00	1.169	-	-	0.06	0.105	0.123
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 5	DSI4	650000	3750	18.29	19.00	1.178	-	-	-0.04	0.109	0.128
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	10mm	Ant 5	DSI4	650000	3750	18.32	19.00	1.169	-	-	-0.02	0.159	0.186
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 5	DSI4	650000	3750	18.29	19.00	1.178	-	-	0.05	0.134	0.158
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Side	10mm	Ant 5	DSI4	650000	3750	18.32	19.00	1.169	-	-	0.01	0.125	0.146
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 5	DSI4	650000	3750	18.29	19.00	1.178	-	-	0.03	0.151	0.178
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Bottom Side	10mm	Ant 5	DSI4	650000	3750	18.32	19.00	1.169	-	-	0.01	0.120	0.140
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	10mm	Ant 5	DSI4	650000	3750	18.29	19.00	1.178	-	-	0.06	0.135	0.159
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	10mm	Ant 5	DSI4	633334	3500.01	18.25	19.00	1.189	-	-	0.06	0.106	0.126
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	10mm	Ant 5	DSI4	633334	3500.01	18.15	19.00	1.216	-	-	0.01	0.111	0.135
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	10mm	Ant 5	DSI4	633334	3500.01	18.25	19.00	1.189	-	-	0.05	0.193	0.229
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	10mm	Ant 5	DSI4	633334	3500.01	18.15	19.00	1.216	-	-	-0.01	0.199	0.242
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Side	10mm	Ant 5	DSI4	633334	3500.01	18.25	19.00	1.189	-	-	0.06	0.185	0.220
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	10mm	Ant 5	DSI4	633334	3500.01	18.15	19.00	1.216	-	-	0.03	0.201	0.244
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Bottom Side	10mm	Ant 5	DSI4	633334	3500.01	18.25	19.00	1.189	-	-	0.01	0.104	0.124
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Bottom Side	10mm	Ant 5	DSI4	633334	3500.01	18.15	19.00	1.216	-	-	0.04	0.107	0.130



Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Power Setting	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)
2450MHz																	
	WLAN2.4GHz	802.11b 1Mbps	Front	10mm	Ant 8+9	Standalone	1	2412	18	20.84	22.50	1.467	99.31	1.007	-0.01	0.226	0.334
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant 8+9	Standalone	1	2412	18	20.84	22.50	1.467	99.31	1.007	0.06	0.183	0.270
40	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant 8+9	Standalone	1	2412	18	20.84	22.50	1.467	99.31	1.007	0.02	0.298	0.440
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant 8+9	Standalone	1	2412	18	20.84	22.50	1.467	99.31	1.007	-0.01	0.112	0.165
	Bluetooth	1Mbps	Front	10mm	Ant 8	Standalone	78	2480		15.78	17.00	1.323	76.83	1.302	0.01	0.043	0.074
	Bluetooth	1Mbps	Back	10mm	Ant 8	Standalone	78	2480		15.78	17.00	1.323	76.83	1.302	-0.02	0.055	0.095
41	Bluetooth	1Mbps	Right Side	10mm	Ant 8	Standalone	78	2480		15.78	17.00	1.323	76.83	1.302	0.01	0.063	0.109
	Bluetooth	1Mbps	Top Side	10mm	Ant 8	Standalone	78	2480		15.78	17.00	1.323	76.83	1.302	0.04	0.052	0.090
5000MHz																	
	WLAN5.2GHz	802.11a 6Mbps	Front	10mm	Ant 8+9	Standalone	36	5180	13	16.58	17.50	1.236	96.97	1.031	0.06	0.084	0.107
	WLAN5.2GHz	802.11a 6Mbps	Back	10mm	Ant 8+9	Standalone	36	5180	13	16.58	17.50	1.236	96.97	1.031	0.03	0.147	0.187
	WLAN5.2GHz	802.11a 6Mbps	Right Side	10mm	Ant 8+9	Standalone	36	5180	13	16.58	17.50	1.236	96.97	1.031	-0.01	0.153	0.195
42	WLAN5.2GHz	802.11a 6Mbps	Top Side	10mm	Ant 8+9	Standalone	36	5180	13	16.58	17.50	1.236	96.97	1.031	0.01	0.350	0.446
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant 8+9	Standalone	155	5775	15	18.01	19.50	1.409	88.19	1.134	0.06	0.177	0.283
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant 8+9	Standalone	155	5775	15	18.01	19.50	1.409	88.19	1.134	0.03	0.408	0.652
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant 8+9	Standalone	155	5775	15	18.01	19.50	1.409	88.19	1.134	-0.01	0.342	0.547
43	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 8+9	Standalone	155	5775	15	18.01	19.50	1.409	88.19	1.134	0.03	0.579	0.925
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant 8+9	Simultaneous	155	5775	9	11.68	13.50	1.521	88.19	1.134	0.02	0.177	0.305



15.3 Body Worn Accessory SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
835MHz																		
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Front	15mm	Ant 0	DSI3	189	836.4	28.34	29.50	1.306	0.03	0.122	0.159
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	15mm	Ant 0	DSI3	189	836.4	28.34	29.50	1.306	-0.07	0.151	0.197
	GSM850	-	-	-	-	GPRS (3 Tx slots)	Front	15mm	Ant 1	DSI3	189	836.4	28.12	30.00	1.542	0.01	0.130	0.200
44	GSM850	-	-	-	-	GPRS (3 Tx slots)	Back	15mm	Ant 1	DSI3	189	836.4	28.12	30.00	1.542	-0.04	0.170	0.262
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI3	4182	836.4	24.51	25.00	1.119	0.03	0.147	0.165
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI3	4182	836.4	24.51	25.00	1.119	-0.04	0.177	0.198
	WCDMA V	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 1	DSI3	4182	836.4	24.12	25.50	1.374	0.01	0.198	0.272
45	WCDMA V	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 1	DSI3	4182	836.4	24.12	25.50	1.374	-0.01	0.247	0.339
	LTE Band 5	10M	QPSK	1	0	-	Front	15mm	Ant 0	DSI3	20525	836.5	24.54	25.50	1.247	0.01	0.158	0.197
	LTE Band 5	10M	QPSK	25	0	-	Front	15mm	Ant 0	DSI3	20525	836.5	23.53	24.50	1.250	0.03	0.125	0.156
	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 0	DSI3	20525	836.5	24.54	25.50	1.247	-0.09	0.186	0.232
	LTE Band 5	10M	QPSK	25	0	-	Back	15mm	Ant 0	DSI3	20525	836.5	23.53	24.50	1.250	0.01	0.146	0.183
	LTE Band 5	10M	QPSK	1	0	-	Front	15mm	Ant 1	DSI3	20525	836.5	24.22	25.50	1.343	0.03	0.166	0.223
	LTE Band 5	10M	QPSK	25	0	-	Front	15mm	Ant 1	DSI3	20525	836.5	23.36	24.50	1.300	0.02	0.132	0.172
46	LTE Band 5	10M	QPSK	1	0	-	Back	15mm	Ant 1	DSI3	20525	836.5	24.22	25.50	1.343	-0.03	0.233	0.313
	LTE Band 5	10M	QPSK	25	0	-	Back	15mm	Ant 1	DSI3	20525	836.5	23.36	24.50	1.300	0.01	0.184	0.239
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 0	DSI3	167300	836.5	24.78	25.50	1.180	-0.01	0.148	0.175
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Front	15mm	Ant 0	DSI3	167300	836.5	24.76	25.50	1.186	0.01	0.146	0.173
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 0	DSI3	167300	836.5	24.78	25.50	1.180	0.02	0.179	0.211
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Back	15mm	Ant 0	DSI3	167300	836.5	24.76	25.50	1.186	0.06	0.180	0.213
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Front	15mm	Ant 1	DSI3	167300	836.5	24.13	25.70	1.435	0.02	0.166	0.238
	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Front	15mm	Ant 1	DSI3	167300	836.5	24.12	25.70	1.439	0.01	0.179	0.258
	FR1 n5	20M	QPSK	1	1	DFT-SCS-30KHz	Back	15mm	Ant 1	DSI3	167300	836.5	24.13	25.70	1.435	0.02	0.240	0.345
47	FR1 n5	20M	QPSK	25	13	DFT-SCS-30KHz	Back	15mm	Ant 1	DSI3	167300	836.5	24.12	25.70	1.439	-0.03	0.254	0.365
1750MHz																		
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 0	DSI3	1413	1732.6	23.92	25.00	1.282	0.02	0.189	0.242
48	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 0	DSI3	1413	1732.6	23.92	25.00	1.282	-0.01	0.426	0.546
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Front	15mm	Ant 2	DSI3	1413	1732.6	24.06	25.50	1.393	0.01	0.155	0.216
	WCDMA IV	-	-	-	-	RMC 12.2Kbps	Back	15mm	Ant 2	DSI3	1413	1732.6	24.06	25.50	1.393	0.06	0.283	0.394
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 0	DSI3	20175	1732.5	23.76	25.00	1.330	0.01	0.184	0.245
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 0	DSI3	20175	1732.5	22.78	24.00	1.324	0.02	0.156	0.207
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 0	DSI3	20175	1732.5	23.76	25.00	1.330	0.03	0.444	0.591
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 0	DSI3	20175	1732.5	22.78	24.00	1.324	0.03	0.381	0.505
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 1	DSI3	20175	1732.5	22.90	24.50	1.445	0.01	0.319	0.461
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 1	DSI3	20175	1732.5	21.93	23.50	1.435	0.02	0.269	0.386
49	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 1	DSI3	20175	1732.5	22.90	24.50	1.445	0.07	0.489	0.707
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 1	DSI3	20175	1732.5	21.93	23.50	1.435	0.03	0.400	0.574
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 2	DSI3	20175	1732.5	23.65	25.00	1.365	0.01	0.158	0.216
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 2	DSI3	20175	1732.5	22.76	24.00	1.330	0.03	0.132	0.176
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 2	DSI3	20175	1732.5	23.65	25.00	1.365	-0.01	0.271	0.370
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 2	DSI3	20175	1732.5	22.76	24.00	1.330	0.02	0.237	0.315
	LTE Band 4	20M	QPSK	1	0	-	Front	15mm	Ant 5	DSI3	20175	1732.5	19.57	21.00	1.390	0.01	0.044	0.061
	LTE Band 4	20M	QPSK	50	0	-	Front	15mm	Ant 5	DSI3	20175	1732.5	19.52	21.00	1.406	0.03	0.045	0.063
	LTE Band 4	20M	QPSK	1	0	-	Back	15mm	Ant 5	DSI3	20175	1732.5	19.57	21.00	1.390	0.05	0.068	0.095
	LTE Band 4	20M	QPSK	50	0	-	Back	15mm	Ant 5	DSI3	20175	1732.5	19.52	21.00	1.406	0.04	0.073	0.103



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	FR1 n77	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	633334	3500.01	17.50	18.00	1.122	0.02	0.069	0.077
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 2	DSI3	650000	3750	22.31	23.00	1.172	0.06	0.159	0.186
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 2	DSI3	650000	3750	22.26	23.00	1.186	0.01	0.164	0.194
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 2	DSI3	650000	3750	22.31	23.00	1.172	0.09	0.265	0.311
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 2	DSI3	650000	3750	22.26	23.00	1.186	0.1	0.281	0.333
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 2	DSI3	633334	3500.01	22.44	23.00	1.138	0.06	0.241	0.274
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 2	DSI3	633334	3500.01	22.41	23.00	1.146	0.01	0.228	0.261
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 2	DSI3	633334	3500.01	22.44	23.00	1.138	-0.05	0.445	0.506
60	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 2	DSI3	633334	3500.01	22.41	23.00	1.146	-0.03	0.455	0.521
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 3	DSI3	650000	3750	19.05	20.00	1.245	0.07	0.120	0.149
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 3	DSI3	650000	3750	19.00	20.00	1.259	0.06	0.118	0.149
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 3	DSI3	650000	3750	19.05	20.00	1.245	-0.01	0.114	0.142
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 3	DSI3	650000	3750	19.00	20.00	1.259	0.06	0.110	0.138
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 3	DSI3	633334	3500.01	19.48	20.00	1.127	0.03	0.129	0.145
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 3	DSI3	633334	3500.01	19.42	20.00	1.143	-0.04	0.135	0.154
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 3	DSI3	633334	3500.01	19.48	20.00	1.127	0.02	0.169	0.190
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 3	DSI3	633334	3500.01	19.42	20.00	1.143	0.03	0.168	0.192
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 4	DSI3	650000	3750	19.63	20.00	1.089	0.09	0.156	0.170
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 4	DSI3	650000	3750	19.50	20.00	1.122	0.1	0.161	0.181
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 4	DSI3	650000	3750	19.63	20.00	1.089	-0.08	0.218	0.237
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 4	DSI3	650000	3750	19.50	20.00	1.122	0.02	0.211	0.237
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 4	DSI3	633334	3500.01	19.74	20.00	1.062	0.01	0.199	0.211
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 4	DSI3	633334	3500.01	19.72	20.00	1.067	-0.05	0.204	0.218
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 4	DSI3	633334	3500.01	19.74	20.00	1.062	0.11	0.210	0.223
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 4	DSI3	633334	3500.01	19.72	20.00	1.067	-0.04	0.211	0.225
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 5	DSI3	650000	3750	19.30	20.00	1.175	0.03	0.062	0.073
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 5	DSI3	650000	3750	19.25	20.00	1.189	-0.04	0.059	0.070
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	650000	3750	19.30	20.00	1.175	-0.08	0.085	0.100
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	650000	3750	19.25	20.00	1.189	0.01	0.092	0.109
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Front	15mm	Ant 5	DSI3	633334	3500.01	19.43	20.00	1.140	0.02	0.091	0.104
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Front	15mm	Ant 5	DSI3	633334	3500.01	19.31	20.00	1.172	0.03	0.092	0.108
	FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	633334	3500.01	19.43	20.00	1.140	-0.09	0.132	0.151
	FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	633334	3500.01	19.31	20.00	1.172	0.04	0.125	0.147

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)
2450MHz																
61	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant 8+9	Standalone	1	2412	20.84	22.50	1.467	99.31	1.007	-0.04	0.114	0.168
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant 8+9	Standalone	1	2412	20.84	22.50	1.467	99.31	1.007	0.02	0.104	0.154
62	Bluetooth	1Mbps	Front	15mm	Ant 8	Standalone	78	2480	15.78	17.00	1.323	76.83	1.302	-0.05	0.040	0.069
	Bluetooth	1Mbps	Back	15mm	Ant 8	Standalone	78	2480	15.78	17.00	1.323	76.83	1.302	-0.02	0.018	0.031
5000MHz																
	WLAN5.3GHz	802.11a 6Mbps	Front	15mm	Ant 8+9	Standalone	56	5280	18.56	20.00	1.394	96.97	1.031	0.01	0.085	0.122
63	WLAN5.3GHz	802.11a 6Mbps	Back	15mm	Ant 8+9	Standalone	56	5280	18.56	20.00	1.394	96.97	1.031	0.08	0.206	0.296
	WLAN5.5GHz	802.11a 6Mbps	Front	15mm	Ant 8+9	Standalone	144	5720	18.09	19.50	1.384	96.97	1.031	0.02	0.167	0.238
64	WLAN5.5GHz	802.11a 6Mbps	Back	15mm	Ant 8+9	Standalone	144	5720	18.09	19.50	1.384	96.97	1.031	-0.03	0.192	0.274
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant 8+9	Standalone	155	5775	18.01	19.50	1.409	96.97	1.031	0.01	0.102	0.148
65	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant 8+9	Standalone	155	5775	18.01	19.50	1.409	96.97	1.031	-0.05	0.267	0.388



15.4 Product Specific SAR

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
1750MHz																		
66	WCDMA IV					RMC 12.2Kbps	Back	0mm	Ant 0	DSI1	1413	1732.6	19.04	20.00	1.247	0.05	0.971	1.211
	WCDMA IV					RMC 12.2Kbps	Bottom Side	0mm	Ant 0	DSI1	1413	1732.6	19.04	20.00	1.247	0.06	1.55	1.933
	WCDMA IV					RMC 12.2Kbps	Back	15mm	Ant 0	DSI3	1413	1732.6	23.92	25.00	1.282	0.03	0.302	0.387
	WCDMA IV					RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI3	1413	1732.6	23.92	25.00	1.282	0.02	0.480	0.616
67	LTE Band 4	20M	QPSK	1	0		Back	0mm	Ant 0	DSI1	20175	1732.5	18.74	20.00	1.337	-0.02	0.932	1.246
	LTE Band 4	20M	QPSK	50	0		Back	0mm	Ant 0	DSI1	20175	1732.5	18.65	20.00	1.365	0.02	0.988	1.348
	LTE Band 4	20M	QPSK	1	0		Bottom Side	0mm	Ant 0	DSI1	20175	1732.5	18.74	20.00	1.337	0.01	1.40	1.871
	LTE Band 4	20M	QPSK	50	0		Bottom Side	0mm	Ant 0	DSI1	20175	1732.5	18.65	20.00	1.365	0.04	1.46	1.992
	LTE Band 4	20M	QPSK	1	0		Back	15mm	Ant 0	DSI3	20175	1732.5	23.76	25.00	1.330	0.03	0.291	0.387
	LTE Band 4	20M	QPSK	50	0		Back	15mm	Ant 0	DSI3	20175	1732.5	22.78	24.00	1.324	0.01	0.249	0.330
	LTE Band 4	20M	QPSK	1	0		Bottom Side	15mm	Ant 0	DSI3	20175	1732.5	23.76	25.00	1.330	0.03	0.458	0.609
	LTE Band 4	20M	QPSK	50	0		Bottom Side	15mm	Ant 0	DSI3	20175	1732.5	22.78	24.00	1.324	-0.02	0.391	0.518
	LTE Band 4	20M	QPSK	1	0		Back	0mm	Ant 1	DSI1	20175	1732.5	18.95	20.50	1.429	-0.02	0.732	1.046
	LTE Band 4	20M	QPSK	50	0		Back	0mm	Ant 1	DSI1	20175	1732.5	18.90	20.50	1.445	0.03	0.755	1.091
	LTE Band 4	20M	QPSK	1	0		Top Side	0mm	Ant 1	DSI1	20175	1732.5	18.95	20.50	1.429	0.01	1.15	1.643
	LTE Band 4	20M	QPSK	50	0		Top Side	0mm	Ant 1	DSI1	20175	1732.5	18.90	20.50	1.445	-0.01	1.25	1.807
	LTE Band 4	20M	QPSK	1	0		Back	5mm	Ant 1	DSI3	20175	1732.5	22.90	24.50	1.445	0.03	1.01	1.460
	LTE Band 4	20M	QPSK	50	0		Back	5mm	Ant 1	DSI3	20175	1732.5	21.93	23.50	1.435	0.05	0.847	1.216
	LTE Band 4	20M	QPSK	1	0		Top Side	5mm	Ant 1	DSI3	20175	1732.5	22.90	24.50	1.445	0.06	1.32	1.908
	LTE Band 4	20M	QPSK	50	0		Top Side	5mm	Ant 1	DSI3	20175	1732.5	21.93	23.50	1.435	-0.06	1.20	1.723
1900MHz																		
68	WCDMA II					RMC 12.2Kbps	Back	0mm	Ant 0	DSI1	9400	1880	21.18	21.50	1.076	0.01	1.37	1.475
	WCDMA II					RMC 12.2Kbps	Bottom Side	0mm	Ant 0	DSI1	9400	1880	21.18	21.50	1.076	-0.02	1.72	1.852
	WCDMA II					RMC 12.2Kbps	Back	15mm	Ant 0	DSI3	9400	1880	24.16	24.50	1.081	0.07	0.365	0.395
	WCDMA II					RMC 12.2Kbps	Bottom Side	15mm	Ant 0	DSI3	9400	1880	24.16	24.50	1.081	0.03	0.514	0.556
	WCDMA II					RMC 12.2Kbps	Back	0mm	Ant 2	DSI1	9400	1880	19.92	21.50	1.439	0.04	0.826	1.188
	WCDMA II					RMC 12.2Kbps	Left Side	0mm	Ant 2	DSI1	9400	1880	19.92	21.50	1.439	-0.06	1.21	1.741
	WCDMA II					RMC 12.2Kbps	Back	5mm	Ant 2	DSI3	9400	1880	23.82	25.50	1.472	-0.01	0.633	0.932
	WCDMA II					RMC 12.2Kbps	Left Side	5mm	Ant 2	DSI3	9400	1880	23.82	25.50	1.472	0.03	0.614	0.904
69	LTE Band 2	20M	QPSK	1	0		Back	0mm	Ant 0	DSI1	18900	1880	19.99	21.00	1.262	-0.02	1.17	1.476
	LTE Band 2	20M	QPSK	50	0		Back	0mm	Ant 0	DSI1	18900	1880	19.94	21.00	1.276	0.02	1.02	1.302
	LTE Band 2	20M	QPSK	1	0		Bottom Side	0mm	Ant 0	DSI1	18900	1880	19.99	21.00	1.262	0.01	1.57	1.981
	LTE Band 2	20M	QPSK	50	0		Bottom Side	0mm	Ant 0	DSI1	18900	1880	19.94	21.00	1.276	0.03	1.32	1.685
	LTE Band 2	20M	QPSK	1	0		Back	15mm	Ant 0	DSI3	18900	1880	24.05	25.00	1.245	0.02	0.341	0.424
	LTE Band 2	20M	QPSK	1	0		Bottom Side	15mm	Ant 0	DSI3	18900	1880	24.05	25.00	1.245	-0.02	0.560	0.697



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FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 4	DSI1	633334	3500.01	19.72	20.00	1.067	-0.06	0.803	0.856
FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Side	0mm	Ant 4	DSI1	633334	3500.01	19.74	20.00	1.062	0.02	0.921	0.978
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	0mm	Ant 4	DSI1	633334	3500.01	19.72	20.00	1.067	0.05	0.900	0.960
FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Top Side	0mm	Ant 4	DSI1	633334	3500.01	19.74	20.00	1.062	0.02	1.09	1.157
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Top Side	0mm	Ant 4	DSI1	633334	3500.01	19.72	20.00	1.067	-0.04	0.987	1.053
FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	0mm	Ant 5	DSI1	633334	3500.01	18.25	19.00	1.189	0.02	1.00	1.189
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	0mm	Ant 5	DSI1	633334	3500.01	18.15	19.00	1.216	-0.05	1.17	1.423
FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Left Side	0mm	Ant 5	DSI3	633334	3500.01	19.43	20.00	1.140	-0.01	1.32	1.505
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Left Side	0mm	Ant 5	DSI3	633334	3500.01	19.31	20.00	1.172	0.03	1.50	1.758
FR1 n78	100M	QPSK	1	137	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	633334	3500.01	19.43	20.00	1.140	0.02	0.066	0.075
FR1 n78	100M	QPSK	135	69	DFT-SCS-30KHz	Back	15mm	Ant 5	DSI3	633334	3500.01	19.31	20.00	1.172	0.07	0.063	0.074

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power State	Ch.	Freq. (MHz)	Power Setting	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)
5000MHz																	
	WLAN5.3GHz	802.11a 6Mbps	Front	0mm	Ant 8+9	Standalone	56	5280	15	18.56	19.50	1.242	96.97	1.031	0.06	0.383	0.490
	WLAN5.3GHz	802.11a 6Mbps	Back	0mm	Ant 8+9	Standalone	56	5280	15	18.56	19.50	1.242	96.97	1.031	0.03	0.342	0.438
	WLAN5.3GHz	802.11a 6Mbps	Right Side	0mm	Ant 8+9	Standalone	56	5280	15	18.56	19.50	1.242	96.97	1.031	-0.01	0.744	0.952
76	WLAN5.3GHz	802.11a 6Mbps	Top Side	0mm	Ant 8+9	Standalone	56	5280	15	18.56	19.50	1.242	96.97	1.031	-0.08	1.03	1.319
	WLAN5.3GHz	802.11a 6Mbps	Back	5mm	Ant 8+9	Standalone	56	5280	15	18.56	19.50	1.242	96.97	1.031	0.02	0.133	0.170
	WLAN5.5GHz	802.11a 6Mbps	Front	0mm	Ant 8+9	Standalone	144	5720	15	18.09	19.50	1.384	96.97	1.031	0.02	0.624	0.890
	WLAN5.5GHz	802.11a 6Mbps	Back	0mm	Ant 8+9	Standalone	144	5720	15	18.09	19.50	1.384	96.97	1.031	-0.01	0.693	0.989
	WLAN5.5GHz	802.11a 6Mbps	Right Side	0mm	Ant 8+9	Standalone	144	5720	15	18.09	19.50	1.384	96.97	1.031	0.03	1.10	1.569
77	WLAN5.5GHz	802.11a 6Mbps	Top Side	0mm	Ant 8+9	Standalone	144	5720	15	18.09	19.50	1.384	96.97	1.031	0.09	1.28	1.826
	WLAN5.5GHz	802.11a 6Mbps	Back	5mm	Ant 8+9	Standalone	144	5720	15	18.09	19.50	1.384	96.97	1.031	0.05	0.228	0.325

15.5 Repeated SAR Measurement

<1g>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB Offset	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)	Ratio	Reported 1g SAR (W/kg)
1st	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	DSIO	41490	2680	21.36	22.00	1.159	62.9	1.006	-0.02	0.816	1	0.951
2nd	LTE Band 41	20M	QPSK	100	0	-	Right Cheek	0mm	Ant 2	DSIO	41490	2680	21.36	22.00	1.159	62.9	1.006	0.01	0.800	1.020	0.933
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	-	1.000	0.09	0.932	1	1.003
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Bottom Side	10mm	Ant 0	DSI4	9400	1880	21.18	21.50	1.076	-	1.000	0.02	0.912	1.022	0.982

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is $\geq 0.8\text{W/kg}$.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR $< 1.45\text{W/kg}$, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product Specific
1.	WWAN + WLAN2.4GHz SISO/MIMO	Yes	Yes	Yes	Yes
2.	WWAN + WLAN5GHz SISO/MIMO	Yes	Yes	Yes	Yes
3.	WWAN + Bluetooth	Yes	Yes	Yes	Yes
4.	Bluetooth + WLAN5GHz SISO/MIMO	Yes	Yes	Yes	Yes
5.	WWAN + Bluetooth + WLAN5GHz SISO/MIMO	Yes	Yes	Yes	Yes
6.	Bluetooth + WLAN2.4GHz SISO 2	Yes	Yes	Yes	Yes
7.	WWAN + Bluetooth + WLAN2.4GHz SISO 2	Yes	Yes	Yes	Yes

General Note:

- This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP) and LTE supports VoLTE operation.
- WWAN above includes 5G NR bands.
- EN-DC SAR summed the standalone 5G NR SAR and LTE standalone SAR more conservatively.
- EUT will choose each GSM, WCDMA, LTE and 5G NR according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
- This device 2.4GHz WLAN/ 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).
- WLAN 2.4GHz ANT8 and Bluetooth share the same antenna, and they cannot transmit simultaneously each other.
- According to the EUT characteristic, WLAN 5GHz and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 2.4GHz ANT9 and Bluetooth can transmit simultaneously.
- According to the EUT characteristic, WLAN 5GHz and WLAN 2.4GHz cannot transmit simultaneously.
- For simultaneously analysis, since the SAR summation of 3 transmitters can cover others combination of 2 transmitters, therefore in this section did not additional to evaluate 2TX combination of simultaneously transmission.
- The worst case 5 GHz WLAN SAR for each configuration was used for SAR summation.
- Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
- The reported SAR summation is calculated based on the same configuration and test position.
- For standalone WWAN, always choose the highest SAR among all WWAN bands for each exposure position to perform simultaneous transmission analysis with WLAN/BT. This is the worst co-located analysis and can represent each bands.
- For Inter Band CA and EN-DC, always choose the highest SAR among same antenna of all WWAN bands to perform simultaneous transmission analysis with WLAN/BT. The worst co-located analysis and can represent each LTE/NR bands.
- 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.

16.1 Head Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2+4	1+3+4
		WWAN	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Band	Right Cheek	1.087	0.099	0.091	0.105	1.29	1.28
	Right Tilted	1.023	0.094	0.130	0.128	1.25	1.28
	Left Cheek	0.878	0.213	0.160	0.271	1.36	1.31
	Left Tilted	0.765	0.149	0.215	0.274	1.19	1.25

<Inter UL CA Mode>

WWAN Band	WWAN Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	WWAN	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 4 Ant 0	LTE Band 7 Ant 1	Right Cheek	0.206	0.568	0.099	0.091	0.105	0.98	0.97
		Right Tilted	0.128	0.592	0.094	0.130	0.128	0.94	0.98
		Left Cheek	0.188	0.403	0.213	0.160	0.271	1.08	1.02
		Left Tilted	0.156	0.476	0.149	0.215	0.274	1.06	1.12
LTE Band 4 Ant 0	LTE Band 7 Ant 5	Right Cheek	0.206	0.236	0.099	0.091	0.105	0.65	0.64
		Right Tilted	0.128	0.097	0.094	0.130	0.128	0.45	0.48
		Left Cheek	0.188	0.292	0.213	0.160	0.271	0.96	0.91
		Left Tilted	0.156	0.095	0.149	0.215	0.274	0.67	0.74
LTE Band 4 Ant 2	LTE Band 7 Ant 1	Right Cheek	0.790	0.568	0.099	0.091	0.105	1.56	1.55
		Right Tilted	0.220	0.592	0.094	0.130	0.128	1.03	1.07
		Left Cheek	0.351	0.403	0.213	0.160	0.271	1.24	1.19
		Left Tilted	0.240	0.476	0.149	0.215	0.274	1.14	1.21
LTE Band 4 Ant 2	LTE Band 7 Ant 5	Right Cheek	0.790	0.236	0.099	0.091	0.105	1.23	1.22
		Right Tilted	0.220	0.097	0.094	0.130	0.128	0.54	0.58
		Left Cheek	0.351	0.292	0.213	0.160	0.271	1.13	1.07
		Left Tilted	0.240	0.095	0.149	0.215	0.274	0.76	0.82



<5GNR UL CA Mode>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
FR1 n7 Ant 0	FR1 n78 Ant 2	Right Cheek	0.102	0.511	0.099	0.091	0.105	0.82	0.81
		Right Tilted	0.074	0.111	0.094	0.130	0.128	0.41	0.44
		Left Cheek	0.169	0.222	0.213	0.160	0.271	0.88	0.82
		Left Tilted	0.107	0.061	0.149	0.215	0.274	0.59	0.66
FR1 n7 Ant 0	FR1 n78 Ant 3	Right Cheek	0.102	0.530	0.099	0.091	0.105	0.84	0.83
		Right Tilted	0.074	0.530	0.094	0.130	0.128	0.83	0.86
		Left Cheek	0.169	0.530	0.213	0.160	0.271	1.18	1.13
		Left Tilted	0.107	0.530	0.149	0.215	0.274	1.06	1.13
FR1 n7 Ant 0	FR1 n78 Ant 4	Right Cheek	0.102	0.581	0.099	0.091	0.105	0.89	0.88
		Right Tilted	0.074	0.482	0.094	0.130	0.128	0.78	0.81
		Left Cheek	0.169	0.274	0.213	0.160	0.271	0.93	0.87
		Left Tilted	0.107	0.305	0.149	0.215	0.274	0.84	0.90
FR1 n7 Ant 0	FR1 n78 Ant 5	Right Cheek	0.102	0.578	0.099	0.091	0.105	0.88	0.88
		Right Tilted	0.074	0.578	0.094	0.130	0.128	0.87	0.91
		Left Cheek	0.169	0.578	0.213	0.160	0.271	1.23	1.18
		Left Tilted	0.107	0.578	0.149	0.215	0.274	1.11	1.17
FR1 n7 Ant 1	FR1 n78 Ant 2	Right Cheek	0.404	0.511	0.099	0.091	0.105	1.12	1.11
		Right Tilted	0.404	0.111	0.094	0.130	0.128	0.74	0.77
		Left Cheek	0.404	0.222	0.213	0.160	0.271	1.11	1.06
		Left Tilted	0.404	0.061	0.149	0.215	0.274	0.89	0.95
FR1 n7 Ant 1	FR1 n78 Ant 3	Right Cheek	0.404	0.530	0.099	0.091	0.105	1.14	1.13
		Right Tilted	0.404	0.530	0.094	0.130	0.128	1.16	1.19
		Left Cheek	0.404	0.530	0.213	0.160	0.271	1.42	1.37
		Left Tilted	0.404	0.530	0.149	0.215	0.274	1.36	1.42
FR1 n7 Ant 1	FR1 n78 Ant 4	Right Cheek	0.404	0.581	0.099	0.091	0.105	1.19	1.18
		Right Tilted	0.404	0.482	0.094	0.130	0.128	1.11	1.14
		Left Cheek	0.404	0.274	0.213	0.160	0.271	1.16	1.11
		Left Tilted	0.404	0.305	0.149	0.215	0.274	1.13	1.20
FR1 n7 Ant 1	FR1 n78 Ant 5	Right Cheek	0.404	0.578	0.099	0.091	0.105	1.19	1.18
		Right Tilted	0.404	0.578	0.094	0.130	0.128	1.20	1.24
		Left Cheek	0.404	0.578	0.213	0.160	0.271	1.47	1.41
		Left Tilted	0.404	0.578	0.149	0.215	0.274	1.41	1.47
FR1 n7 Ant 2	FR1 n78 Ant 2	Right Cheek	0.547	0.511	0.099	0.091	0.105	1.26	1.25
		Right Tilted	0.179	0.111	0.094	0.130	0.128	0.51	0.55
		Left Cheek	0.228	0.222	0.213	0.160	0.271	0.93	0.88
		Left Tilted	0.101	0.061	0.149	0.215	0.274	0.59	0.65
FR1 n7 Ant 2	FR1 n78 Ant 3	Right Cheek	0.547	0.530	0.099	0.091	0.105	1.28	1.27
		Right Tilted	0.179	0.530	0.094	0.130	0.128	0.93	0.97
		Left Cheek	0.228	0.530	0.213	0.160	0.271	1.24	1.19
		Left Tilted	0.101	0.530	0.149	0.215	0.274	1.05	1.12
FR1 n7 Ant 2	FR1 n78 Ant 5	Right Cheek	0.547	0.578	0.099	0.091	0.105	1.33	1.32
		Right Tilted	0.179	0.578	0.094	0.130	0.128	0.98	1.02
		Left Cheek	0.228	0.578	0.213	0.160	0.271	1.29	1.24
		Left Tilted	0.101	0.578	0.149	0.215	0.274	1.10	1.17
FR1 n7 Ant 5	FR1 n78 Ant 2	Right Cheek	0.204	0.511	0.099	0.091	0.105	0.92	0.91
		Right Tilted	0.132	0.111	0.094	0.130	0.128	0.47	0.50
		Left Cheek	0.280	0.222	0.213	0.160	0.271	0.99	0.93
		Left Tilted	0.087	0.061	0.149	0.215	0.274	0.57	0.64
FR1 n7 Ant 5	FR1 n78 Ant 3	Right Cheek	0.204	0.530	0.099	0.091	0.105	0.94	0.93
		Right Tilted	0.132	0.530	0.094	0.130	0.128	0.88	0.92
		Left Cheek	0.280	0.530	0.213	0.160	0.271	1.29	1.24



		Left Tilted	0.087	0.530	0.149	0.215	0.274	1.04	1.11
FR1 n7 Ant 5	FR1 n78 Ant 4	Right Cheek	0.204	0.581	0.099	0.091	0.105	0.99	0.98
		Right Tilted	0.132	0.482	0.094	0.130	0.128	0.84	0.87
		Left Cheek	0.280	0.274	0.213	0.160	0.271	1.04	0.99
		Left Tilted	0.087	0.305	0.149	0.215	0.274	0.82	0.88

<5G NR EN-DC Mode>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant3 (78A)	Right Cheek	0.236	0.530	0.099	0.091	0.105	0.97	0.96
		Right Tilted	0.097	0.530	0.094	0.130	0.128	0.85	0.89
		Left Cheek	0.292	0.530	0.213	0.160	0.271	1.31	1.25
		Left Tilted	0.095	0.530	0.149	0.215	0.274	1.05	1.11
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant4 (78A)	Right Cheek	0.236	0.581	0.099	0.091	0.105	1.02	1.01
		Right Tilted	0.097	0.482	0.094	0.130	0.128	0.80	0.84
		Left Cheek	0.292	0.274	0.213	0.160	0.271	1.05	1.00
		Left Tilted	0.095	0.305	0.149	0.215	0.274	0.82	0.89
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Right Cheek	0.205	0.505	0.099	0.091	0.105	0.91	0.91
		Right Tilted	0.139	0.505	0.094	0.130	0.128	0.87	0.90
		Left Cheek	0.227	0.505	0.213	0.160	0.271	1.22	1.16
		Left Tilted	0.188	0.505	0.149	0.215	0.274	1.12	1.18
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Right Cheek	0.205	0.547	0.099	0.091	0.105	0.96	0.95
		Right Tilted	0.139	0.179	0.094	0.130	0.128	0.54	0.58
		Left Cheek	0.227	0.228	0.213	0.160	0.271	0.94	0.89
		Left Tilted	0.188	0.101	0.149	0.215	0.274	0.71	0.78
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant3 (78A)	Right Cheek	0.205	0.530	0.099	0.091	0.105	0.94	0.93
		Right Tilted	0.139	0.530	0.094	0.130	0.128	0.89	0.93
		Left Cheek	0.227	0.530	0.213	0.160	0.271	1.24	1.19
		Left Tilted	0.188	0.530	0.149	0.215	0.274	1.14	1.21
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Right Cheek	0.205	0.581	0.099	0.091	0.105	0.99	0.98
		Right Tilted	0.139	0.482	0.094	0.130	0.128	0.84	0.88
		Left Cheek	0.227	0.274	0.213	0.160	0.271	0.99	0.93
		Left Tilted	0.188	0.305	0.149	0.215	0.274	0.92	0.98
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Right Cheek	0.205	0.578	0.099	0.091	0.105	0.99	0.98
		Right Tilted	0.139	0.578	0.094	0.130	0.128	0.94	0.98
		Left Cheek	0.227	0.578	0.213	0.160	0.271	1.29	1.24
		Left Tilted	0.188	0.578	0.149	0.215	0.274	1.19	1.26
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Right Cheek	0.527	0.184	0.099	0.091	0.105	0.92	0.91
		Right Tilted	0.527	0.109	0.094	0.130	0.128	0.86	0.89
		Left Cheek	0.527	0.172	0.213	0.160	0.271	1.18	1.13
		Left Tilted	0.527	0.107	0.149	0.215	0.274	1.06	1.12
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Right Cheek	0.527	0.547	0.099	0.091	0.105	1.28	1.27
		Right Tilted	0.527	0.179	0.094	0.130	0.128	0.93	0.96
		Left Cheek	0.527	0.228	0.213	0.160	0.271	1.24	1.19
		Left Tilted	0.527	0.101	0.149	0.215	0.274	1.05	1.12
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant3 (78A)	Right Cheek	0.527	0.530	0.099	0.091	0.105	1.26	1.25
		Right Tilted	0.527	0.530	0.094	0.130	0.128	1.28	1.32
		Left Cheek	0.527	0.530	0.213	0.160	0.271	1.54	1.49
		Left Tilted	0.527	0.530	0.149	0.215	0.274	1.48	1.55
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Right Cheek	0.527	0.581	0.099	0.091	0.105	1.31	1.30
		Right Tilted	0.527	0.482	0.094	0.130	0.128	1.23	1.27
		Left Cheek	0.527	0.274	0.213	0.160	0.271	1.29	1.23
		Left Tilted	0.527	0.305	0.149	0.215	0.274	1.26	1.32
LTE Band Ant1	FR1 Band	Right Cheek	0.527	0.578	0.099	0.091	0.105	1.31	1.30



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(5A&7A&38A&41A)	Ant5 (7A&78A)	Right Tilted	0.527	0.578	0.094	0.130	0.128	1.33	1.36
		Left Cheek	0.527	0.578	0.213	0.160	0.271	1.59	1.54
		Left Tilted	0.527	0.578	0.149	0.215	0.274	1.53	1.59
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Right Cheek	0.523	0.184	0.099	0.091	0.105	0.91	0.90
		Right Tilted	0.523	0.109	0.094	0.130	0.128	0.85	0.89
		Left Cheek	0.523	0.172	0.213	0.160	0.271	1.18	1.13
		Left Tilted	0.523	0.107	0.149	0.215	0.274	1.05	1.12
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Right Cheek	0.523	0.505	0.099	0.091	0.105	1.23	1.22
		Right Tilted	0.523	0.505	0.094	0.130	0.128	1.25	1.29
		Left Cheek	0.523	0.505	0.213	0.160	0.271	1.51	1.46
		Left Tilted	0.523	0.505	0.149	0.215	0.274	1.45	1.52
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant3 (78A)	Right Cheek	0.523	0.530	0.099	0.091	0.105	1.26	1.25
		Right Tilted	0.523	0.530	0.094	0.130	0.128	1.28	1.31
		Left Cheek	0.523	0.530	0.213	0.160	0.271	1.54	1.48
		Left Tilted	0.523	0.530	0.149	0.215	0.274	1.48	1.54
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant4 (78A)	Right Cheek	0.523	0.581	0.099	0.091	0.105	1.31	1.30
		Right Tilted	0.523	0.482	0.094	0.130	0.128	1.23	1.26
		Left Cheek	0.523	0.274	0.213	0.160	0.271	1.28	1.23
		Left Tilted	0.523	0.305	0.149	0.215	0.274	1.25	1.32
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Right Cheek	0.523	0.578	0.099	0.091	0.105	1.31	1.30
		Right Tilted	0.523	0.578	0.094	0.130	0.128	1.32	1.36
		Left Cheek	0.523	0.578	0.213	0.160	0.271	1.59	1.53
		Left Tilted	0.523	0.578	0.149	0.215	0.274	1.52	1.59
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Right Cheek	0.236	0.184	0.099	0.091	0.105	0.62	0.62
		Right Tilted	0.097	0.109	0.094	0.130	0.128	0.43	0.46
		Left Cheek	0.292	0.172	0.213	0.160	0.271	0.95	0.90
		Left Tilted	0.095	0.107	0.149	0.215	0.274	0.63	0.69
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Right Cheek	0.236	0.505	0.099	0.091	0.105	0.95	0.94
		Right Tilted	0.097	0.505	0.094	0.130	0.128	0.82	0.86
		Left Cheek	0.292	0.505	0.213	0.160	0.271	1.28	1.23
		Left Tilted	0.095	0.505	0.149	0.215	0.274	1.02	1.09
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Right Cheek	0.236	0.547	0.099	0.091	0.105	0.99	0.98
		Right Tilted	0.097	0.179	0.094	0.130	0.128	0.50	0.53
		Left Cheek	0.292	0.228	0.213	0.160	0.271	1.00	0.95
		Left Tilted	0.095	0.101	0.149	0.215	0.274	0.62	0.69

16.2 Hotspot Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2+4	1+3+4
		WWAN	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Band	Front	0.350	0.334	0.305	0.074	0.76	0.73
	Back	0.697	0.270	0.305	0.095	1.06	1.10
	Left side	0.614				0.61	0.61
	Right side	0.320	0.440	0.305	0.109	0.87	0.73
	Top side	0.621	0.165	0.446	0.090	0.88	1.16
	Bottom side	1.003				1.00	1.00

<Inter UL CA Mode>

WWAN Band	WWAN Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	WWAN	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 4 Ant 0	LTE Band 7 Ant 1	Front	0.206	0.123	0.334	0.305	0.074	0.74	0.71
		Back	0.476	0.492	0.270	0.305	0.095	1.33	1.37
		Left side	0.060	0.068				0.13	0.13
		Right side	0.052	0.060	0.440	0.305	0.109	0.66	0.53
		Top side		0.368	0.165	0.446	0.090	0.62	0.90
		Bottom side	0.651					0.65	0.65
LTE Band 4 Ant 0	LTE Band 7 Ant 5	Front	0.206	0.160	0.334	0.305	0.074	0.77	0.75
		Back	0.476	0.439	0.270	0.305	0.095	1.28	1.32
		Left side	0.060	0.356				0.42	0.42
		Right side	0.052		0.440	0.305	0.109	0.60	0.47
		Top side			0.165	0.446	0.090	0.26	0.54
		Bottom side	0.651	0.114				0.77	0.77
LTE Band 4 Ant 2	LTE Band 7 Ant 1	Front	0.144	0.123	0.334	0.305	0.074	0.68	0.65
		Back	0.400	0.492	0.270	0.305	0.095	1.26	1.29
		Left side	0.440	0.068				0.51	0.51
		Right side		0.060	0.440	0.305	0.109	0.61	0.47
		Top side		0.368	0.165	0.446	0.090	0.62	0.90
		Bottom side							
LTE Band 4 Ant 2	LTE Band 7 Ant 5	Front	0.144	0.160	0.334	0.305	0.074	0.71	0.68
		Back	0.400	0.439	0.270	0.305	0.095	1.20	1.24
		Left side	0.440	0.356				0.80	0.80
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side			0.165	0.446	0.090	0.26	0.54
		Bottom side		0.114				0.11	0.11



<5G NR UL CA Mode>

FR1 Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			FR1	FR1	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
FR1 n7 Ant 0	FR1 n78 Ant 2	Front	0.151	0.146	0.334	0.305	0.074	0.71	0.68
		Back	0.262	0.313	0.270	0.305	0.095	0.94	0.98
		Left side	0.063	0.614				0.68	0.68
		Right side	0.036		0.440	0.305	0.109	0.59	0.45
		Top side		0.059	0.165	0.446	0.090	0.31	0.60
		Bottom side	0.221					0.22	0.22
FR1 n7 Ant 0	FR1 n78 Ant 3	Front	0.151	0.161	0.334	0.305	0.074	0.72	0.69
		Back	0.262	0.150	0.270	0.305	0.095	0.78	0.81
		Left side	0.063					0.06	0.06
		Right side	0.036	0.153	0.440	0.305	0.109	0.74	0.60
		Top side		0.076	0.165	0.446	0.090	0.33	0.61
		Bottom side	0.221					0.22	0.22
FR1 n7 Ant 0	FR1 n78 Ant 4	Front	0.151	0.227	0.334	0.305	0.074	0.79	0.76
		Back	0.262	0.263	0.270	0.305	0.095	0.89	0.93
		Left side	0.063	0.112				0.18	0.18
		Right side	0.036		0.440	0.305	0.109	0.59	0.45
		Top side		0.312	0.165	0.446	0.090	0.57	0.85
		Bottom side	0.221					0.22	0.22
FR1 n7 Ant 0	FR1 n78 Ant 5	Front	0.151	0.135	0.334	0.305	0.074	0.69	0.67
		Back	0.262	0.242	0.270	0.305	0.095	0.87	0.90
		Left side	0.063	0.244				0.31	0.31
		Right side	0.036		0.440	0.305	0.109	0.59	0.45
		Top side			0.165	0.446	0.090	0.26	0.54
		Bottom side	0.221	0.159				0.38	0.38
FR1 n7 Ant 1	FR1 n78 Ant 2	Front	0.137	0.146	0.334	0.305	0.074	0.69	0.66
		Back	0.490	0.313	0.270	0.305	0.095	1.17	1.20
		Left side	0.117	0.614				0.73	0.73
		Right side	0.031		0.440	0.305	0.109	0.58	0.45
		Top side	0.464	0.059	0.165	0.446	0.090	0.78	1.06
		Bottom side							
FR1 n7 Ant 1	FR1 n78 Ant 3	Front	0.137	0.161	0.334	0.305	0.074	0.71	0.68
		Back	0.490	0.150	0.270	0.305	0.095	1.01	1.04
		Left side	0.117					0.12	0.12
		Right side	0.031	0.153	0.440	0.305	0.109	0.73	0.60
		Top side	0.464	0.076	0.165	0.446	0.090	0.80	1.08
		Bottom side							
FR1 n7 Ant 1	FR1 n78 Ant 4	Front	0.137	0.227	0.334	0.305	0.074	0.77	0.74
		Back	0.490	0.263	0.270	0.305	0.095	1.12	1.15
		Left side	0.117	0.112				0.23	0.23
		Right side	0.031		0.440	0.305	0.109	0.58	0.45
		Top side	0.464	0.312	0.165	0.446	0.090	1.03	1.31
		Bottom side							
FR1 n7 Ant 1	FR1 n78 Ant 5	Front	0.137	0.135	0.334	0.305	0.074	0.68	0.65
		Back	0.490	0.242	0.270	0.305	0.095	1.10	1.13
		Left side	0.117	0.244				0.36	0.36
		Right side	0.031		0.440	0.305	0.109	0.58	0.45
		Top side	0.464		0.165	0.446	0.090	0.72	1.00
		Bottom side		0.159				0.16	0.16
FR1 n7 Ant 2	FR1 n78 Ant 3	Front	0.244	0.161	0.334	0.305	0.074	0.81	0.78
		Back	0.523	0.150	0.270	0.305	0.095	1.04	1.07
		Left side	0.295					0.30	0.30

		Right side		0.153	0.440	0.305	0.109	0.70	0.57
		Top side	0.071	0.076	0.165	0.446	0.090	0.40	0.68
		Bottom side							
FR1 n7 Ant 2	FR1 n78 Ant 4	Front	0.244	0.227	0.334	0.305	0.074	0.88	0.85
		Back	0.523	0.263	0.270	0.305	0.095	1.15	1.19
		Left side	0.295	0.112				0.41	0.41
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side	0.071	0.312	0.165	0.446	0.090	0.64	0.92
		Bottom side							
FR1 n7 Ant 2	FR1 n78 Ant 5	Front	0.244	0.135	0.334	0.305	0.074	0.79	0.76
		Back	0.523	0.242	0.270	0.305	0.095	1.13	1.17
		Left side	0.295	0.244				0.54	0.54
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side	0.071		0.165	0.446	0.090	0.33	0.61
		Bottom side		0.159				0.16	0.16
FR1 n7 Ant 5	FR1 n78 Ant 2	Front	0.102	0.146	0.334	0.305	0.074	0.66	0.63
		Back	0.327	0.313	0.270	0.305	0.095	1.01	1.04
		Left side	0.322	0.614				0.94	0.94
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side		0.059	0.165	0.446	0.090	0.31	0.60
		Bottom side	0.067					0.07	0.07
FR1 n7 Ant 5	FR1 n78 Ant 3	Front	0.102	0.161	0.334	0.305	0.074	0.67	0.64
		Back	0.327	0.150	0.270	0.305	0.095	0.84	0.88
		Left side	0.322					0.32	0.32
		Right side		0.153	0.440	0.305	0.109	0.70	0.57
		Top side		0.076	0.165	0.446	0.090	0.33	0.61
		Bottom side	0.067					0.07	0.07
FR1 n7 Ant 5	FR1 n78 Ant 4	Front	0.102	0.227	0.334	0.305	0.074	0.74	0.71
		Back	0.327	0.263	0.270	0.305	0.095	0.96	0.99
		Left side	0.322	0.112				0.43	0.43
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side		0.312	0.165	0.446	0.090	0.57	0.85
		Bottom side	0.067					0.07	0.07



<5G NR EN-DC Mode>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front	0.290	0.291	0.334	0.305	0.074	0.99	0.96
		Back	0.492	0.490	0.270	0.305	0.095	1.35	1.38
		Left side	0.144	0.268				0.41	0.41
		Right side	0.160	0.320	0.440	0.305	0.109	1.03	0.89
		Top side		0.464	0.165	0.446	0.090	0.72	1.00
		Bottom side	0.839					0.84	0.84
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front	0.290	0.244	0.334	0.305	0.074	0.94	0.91
		Back	0.492	0.523	0.270	0.305	0.095	1.38	1.42
		Left side	0.144	0.614				0.76	0.76
		Right side	0.160		0.440	0.305	0.109	0.71	0.57
		Top side		0.071	0.165	0.446	0.090	0.33	0.61
		Bottom side	0.839					0.84	0.84
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.290	0.161	0.334	0.305	0.074	0.86	0.83
		Back	0.492	0.150	0.270	0.305	0.095	1.01	1.04
		Left side	0.144					0.14	0.14
		Right side	0.160	0.153	0.440	0.305	0.109	0.86	0.73
		Top side		0.076	0.165	0.446	0.090	0.33	0.61
		Bottom side	0.839					0.84	0.84
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.290	0.227	0.334	0.305	0.074	0.93	0.90
		Back	0.492	0.263	0.270	0.305	0.095	1.12	1.16
		Left side	0.144	0.112				0.26	0.26
		Right side	0.160		0.440	0.305	0.109	0.71	0.57
		Top side		0.312	0.165	0.446	0.090	0.57	0.85
		Bottom side	0.839					0.84	0.84
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front	0.290	0.135	0.334	0.305	0.074	0.83	0.80
		Back	0.492	0.327	0.270	0.305	0.095	1.18	1.22
		Left side	0.144	0.322				0.47	0.47
		Right side	0.160		0.440	0.305	0.109	0.71	0.57
		Top side			0.165	0.446	0.090	0.26	0.54
		Bottom side	0.839	0.159				1.00	1.00
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Front	0.224	0.196	0.334	0.305	0.074	0.83	0.80
		Back	0.492	0.333	0.270	0.305	0.095	1.19	1.23
		Left side	0.162	0.130				0.29	0.29
		Right side	0.169	0.230	0.440	0.305	0.109	0.95	0.81
		Top side	0.388		0.165	0.446	0.090	0.64	0.92
		Bottom side		0.244				0.24	0.24
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front	0.224	0.244	0.334	0.305	0.074	0.88	0.85
		Back	0.492	0.523	0.270	0.305	0.095	1.38	1.42
		Left side	0.162	0.614				0.78	0.78
		Right side	0.169		0.440	0.305	0.109	0.72	0.58
		Top side	0.388	0.071	0.165	0.446	0.090	0.71	1.00
		Bottom side							
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.224	0.161	0.334	0.305	0.074	0.79	0.76
		Back	0.492	0.150	0.270	0.305	0.095	1.01	1.04
		Left side	0.162					0.16	0.16
		Right side	0.169	0.153	0.440	0.305	0.109	0.87	0.74
		Top side	0.388	0.076	0.165	0.446	0.090	0.72	1.00
		Bottom side							
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.224	0.227	0.334	0.305	0.074	0.86	0.83
		Back	0.492	0.263	0.270	0.305	0.095	1.12	1.16
		Left side	0.162	0.112				0.27	0.27



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		Right side	0.169		0.440	0.305	0.109	0.72	0.58
		Top side	0.388	0.312	0.165	0.446	0.090	0.96	1.24
		Bottom side							
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front	0.224	0.135	0.334	0.305	0.074	0.77	0.74
		Back	0.492	0.327	0.270	0.305	0.095	1.18	1.22
		Left side	0.162	0.322				0.48	0.48
		Right side	0.169		0.440	0.305	0.109	0.72	0.58
		Top side	0.388		0.165	0.446	0.090	0.64	0.92
		Bottom side		0.159				0.16	0.16
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Front	0.241	0.196	0.334	0.305	0.074	0.85	0.82
		Back	0.650	0.333	0.270	0.305	0.095	1.35	1.38
		Left side	0.569	0.130				0.70	0.70
		Right side		0.230	0.440	0.305	0.109	0.78	0.64
		Top side	0.068		0.165	0.446	0.090	0.32	0.60
		Bottom side		0.244				0.24	0.24
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front	0.241	0.291	0.334	0.305	0.074	0.94	0.91
		Back	0.650	0.490	0.270	0.305	0.095	1.51	1.54
		Left side	0.569	0.268				0.84	0.84
		Right side		0.320	0.440	0.305	0.109	0.87	0.73
		Top side	0.068	0.464	0.165	0.446	0.090	0.79	1.07
		Bottom side							
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.241	0.161	0.334	0.305	0.074	0.81	0.78
		Back	0.650	0.150	0.270	0.305	0.095	1.17	1.20
		Left side	0.569					0.57	0.57
		Right side		0.153	0.440	0.305	0.109	0.70	0.57
		Top side	0.068	0.076	0.165	0.446	0.090	0.40	0.68
		Bottom side							
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.241	0.227	0.334	0.305	0.074	0.88	0.85
		Back	0.650	0.263	0.270	0.305	0.095	1.28	1.31
		Left side	0.569	0.112				0.68	0.68
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side	0.068	0.312	0.165	0.446	0.090	0.64	0.92
		Bottom side							
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front	0.241	0.135	0.334	0.305	0.074	0.78	0.76
		Back	0.650	0.327	0.270	0.305	0.095	1.34	1.38
		Left side	0.569	0.322				0.89	0.89
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side	0.068		0.165	0.446	0.090	0.32	0.60
		Bottom side		0.159				0.16	0.16
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Front	0.187	0.196	0.334	0.305	0.074	0.79	0.76
		Back	0.474	0.333	0.270	0.305	0.095	1.17	1.21
		Left side	0.448	0.130				0.58	0.58
		Right side		0.230	0.440	0.305	0.109	0.78	0.64
		Top side			0.165	0.446	0.090	0.26	0.54
		Bottom side	0.132	0.244		0.000		0.38	0.38
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front	0.187	0.291	0.334	0.305	0.074	0.89	0.86
		Back	0.474	0.490	0.270	0.305	0.095	1.33	1.36
		Left side	0.448	0.268				0.72	0.72
		Right side		0.320	0.440	0.305	0.109	0.87	0.73
		Top side		0.464	0.165	0.446	0.090	0.72	1.00
		Bottom side	0.132					0.13	0.13
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front	0.187	0.244	0.334	0.305	0.074	0.84	0.81
		Back	0.474	0.523	0.270	0.305	0.095	1.36	1.40
		Left side	0.448	0.614				1.06	1.06
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side		0.071	0.165	0.446	0.090	0.33	0.61
		Bottom side							

Sporton International Inc. (Kunshan)

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		Bottom side	0.132					0.13	0.13
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.187	0.161	0.334	0.305	0.074	0.76	0.73
		Back	0.474	0.150	0.270	0.305	0.095	0.99	1.02
		Left side	0.448					0.45	0.45
		Right side		0.153	0.440	0.305	0.109	0.70	0.57
		Top side		0.076	0.165	0.446	0.090	0.33	0.61
		Bottom side	0.132					0.13	0.13
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.187	0.227	0.334	0.305	0.074	0.82	0.79
		Back	0.474	0.263	0.270	0.305	0.095	1.10	1.14
		Left side	0.448	0.112				0.56	0.56
		Right side			0.440	0.305	0.109	0.55	0.41
		Top side		0.312	0.165	0.446	0.090	0.57	0.85
		Bottom side	0.132					0.13	0.13



16.3 Body-Worn Accessory Exposure Conditions

WWAN Band	Exposure Position	1	2	3	4	1+2+4	1+3+4
		WWAN	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
		1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
WWAN All Bands	Front	0.461	0.168	0.238	0.069	0.70	0.77
	Back	0.919	0.154	0.388	0.031	1.10	1.34

<Inter UL CA Mode>

WWAN Band	WWAN Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	WWAN	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band 4 Ant 0	LTE Band 7 Ant 1	Front	0.245	0.108	0.168	0.238	0.069	0.59	0.66
		Back	0.591	0.426	0.154	0.388	0.031	1.20	1.44
LTE Band 4 Ant 0	LTE Band 7 Ant 5	Front	0.245	0.105	0.168	0.238	0.069	0.59	0.66
		Back	0.591	0.268	0.154	0.388	0.031	1.04	1.28
LTE Band 4 Ant 2	LTE Band 7 Ant 1	Front	0.216	0.108	0.168	0.238	0.069	0.56	0.63
		Back	0.370	0.426	0.154	0.388	0.031	0.98	1.22
LTE Band 4 Ant 2	LTE Band 7 Ant 5	Front	0.216	0.105	0.168	0.238	0.069	0.56	0.63
		Back	0.370	0.268	0.154	0.388	0.031	0.82	1.06

<5G NR UL CA Mode>

FR1 Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			FR1	FR1	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
FR1 n7 Ant 0	FR1 n78 Ant 2	Front	0.216	0.274	0.168	0.238	0.069	0.73	0.80
		Back	0.391	0.521	0.154	0.388	0.031	1.10	1.33
FR1 n7 Ant 0	FR1 n78 Ant 3	Front	0.216	0.154	0.168	0.238	0.069	0.61	0.68
		Back	0.391	0.192	0.154	0.388	0.031	0.77	1.00
FR1 n7 Ant 0	FR1 n78 Ant 4	Front	0.216	0.218	0.168	0.238	0.069	0.67	0.74
		Back	0.391	0.237	0.154	0.388	0.031	0.81	1.05
FR1 n7 Ant 0	FR1 n78 Ant 5	Front	0.216	0.108	0.168	0.238	0.069	0.56	0.63
		Back	0.391	0.151	0.154	0.388	0.031	0.73	0.96
FR1 n7 Ant 1	FR1 n78 Ant 2	Front	0.190	0.274	0.168	0.238	0.069	0.70	0.77
		Back	0.593	0.521	0.154	0.388	0.031	1.30	1.53
FR1 n7 Ant 1	FR1 n78 Ant 3	Front	0.190	0.154	0.168	0.238	0.069	0.58	0.65
		Back	0.593	0.192	0.154	0.388	0.031	0.97	1.20
FR1 n7 Ant 1	FR1 n78 Ant 4	Front	0.190	0.218	0.168	0.238	0.069	0.65	0.72
		Back	0.593	0.237	0.154	0.388	0.031	1.02	1.25
FR1 n7 Ant 1	FR1 n78 Ant 5	Front	0.190	0.108	0.168	0.238	0.069	0.54	0.61
		Back	0.593	0.151	0.154	0.388	0.031	0.93	1.16
FR1 n7 Ant 2	FR1 n78 Ant 3	Front	0.374	0.154	0.168	0.238	0.069	0.77	0.84
		Back	0.592	0.192	0.154	0.388	0.031	0.97	1.20
FR1 n7 Ant 2	FR1 n78 Ant 4	Front	0.374	0.218	0.168	0.238	0.069	0.83	0.90
		Back	0.592	0.237	0.154	0.388	0.031	1.01	1.25
FR1 n7 Ant 2	FR1 n78 Ant 5	Front	0.374	0.108	0.168	0.238	0.069	0.72	0.79
		Back	0.592	0.151	0.154	0.388	0.031	0.93	1.16
FR1 n7 Ant 5	FR1 n78 Ant 2	Front	0.035	0.274	0.168	0.238	0.069	0.55	0.62
		Back	0.164	0.521	0.154	0.388	0.031	0.87	1.10
FR1 n7 Ant 5	FR1 n78 Ant 3	Front	0.035	0.154	0.168	0.238	0.069	0.43	0.50
		Back	0.164	0.192	0.154	0.388	0.031	0.54	0.78
FR1 n7 Ant 5	FR1 n78 Ant 4	Front	0.035	0.218	0.168	0.238	0.069	0.49	0.56
		Back	0.164	0.237	0.154	0.388	0.031	0.59	0.82



<5G NR EN-DC Mode>

WWAN Band	FR1 Band	Exposure Position	1	2	3	4	5	1+2+3+5	1+2+4+5
			WWAN	FR1	WLAN2.4GHz Ant 8+9	WLAN5GHz Ant 8+9	Bluetooth Ant 8	Summed	Summed
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front	0.345	0.258	0.168	0.238	0.069	0.84	0.91
		Back	0.513	0.593	0.154	0.388	0.031	1.29	1.53
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front	0.345	0.374	0.168	0.238	0.069	0.96	1.03
		Back	0.513	0.592	0.154	0.388	0.031	1.29	1.52
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.345	0.154	0.168	0.238	0.069	0.74	0.81
		Back	0.513	0.142	0.154	0.388	0.031	0.84	1.07
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.345	0.218	0.168	0.238	0.069	0.80	0.87
		Back	0.513	0.237	0.154	0.388	0.031	0.94	1.17
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front	0.345	0.108	0.168	0.238	0.069	0.69	0.76
		Back	0.513	0.151	0.154	0.388	0.031	0.85	1.08
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Front	0.223	0.216	0.168	0.238	0.069	0.68	0.75
		Back	0.426	0.391	0.154	0.388	0.031	1.00	1.24
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front	0.223	0.374	0.168	0.238	0.069	0.83	0.90
		Back	0.426	0.592	0.154	0.388	0.031	1.20	1.44
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.223	0.154	0.168	0.238	0.069	0.61	0.68
		Back	0.426	0.142	0.154	0.388	0.031	0.75	0.99
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.223	0.218	0.168	0.238	0.069	0.68	0.75
		Back	0.426	0.237	0.154	0.388	0.031	0.85	1.08
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front	0.223	0.108	0.168	0.238	0.069	0.57	0.64
		Back	0.426	0.151	0.154	0.388	0.031	0.76	1.00
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Front	0.262	0.216	0.168	0.238	0.069	0.72	0.79
		Back	0.581	0.391	0.154	0.388	0.031	1.16	1.39
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front	0.262	0.258	0.168	0.238	0.069	0.76	0.83
		Back	0.581	0.593	0.154	0.388	0.031	1.36	1.59
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.262	0.154	0.168	0.238	0.069	0.65	0.72
		Back	0.581	0.142	0.154	0.388	0.031	0.91	1.14
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.262	0.218	0.168	0.238	0.069	0.72	0.79
		Back	0.581	0.237	0.154	0.388	0.031	1.00	1.24
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front	0.262	0.108	0.168	0.238	0.069	0.61	0.68
		Back	0.581	0.151	0.154	0.388	0.031	0.92	1.15
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant0 (5A&7A)	Front	0.123	0.216	0.168	0.238	0.069	0.58	0.65
		Back	0.268	0.391	0.154	0.388	0.031	0.84	1.08
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front	0.123	0.258	0.168	0.238	0.069	0.62	0.69
		Back	0.268	0.593	0.154	0.388	0.031	1.05	1.28
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front	0.123	0.374	0.168	0.238	0.069	0.73	0.80
		Back	0.268	0.592	0.154	0.388	0.031	1.05	1.28
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant3 (78A)	Front	0.123	0.154	0.168	0.238	0.069	0.51	0.58
		Back	0.268	0.142	0.154	0.388	0.031	0.60	0.83
LTE Band Ant5 (7A&38A&41A)	FR1 Band Ant4 (78A)	Front	0.123	0.218	0.168	0.238	0.069	0.58	0.65
		Back	0.268	0.237	0.154	0.388	0.031	0.69	0.92

16.4 Product specific 10g SAR Exposure Conditions

Remark:

1. 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.

WWAN Band	Exposure Position	1	2	1+2
		WWAN	WLAN5GHz Ant 8+9	Summed
		10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
WWAN All Bands	Front	1.157	0.890	2.05
	Back	1.568	0.989	2.56
	Left side	1.741		1.74
	Right side		1.569	1.57
	Top side	1.807	1.826	3.63
	Bottom side	1.992		1.99

<Inter UL CA Mode>

WWAN Band	WWAN Band	Exposure Position	1	2	3	1+2+3
			WWAN	WWAN	WLAN5GHz Ant 8+9	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band 4 Ant 0	LTE Band 7 Ant 1	Front			0.890	0.89
		Back	1.348	0.575	0.989	2.91
		Left side				
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	1.992			1.99

<5G NR UL CA Mode>

FR1 Band	FR1 Band	Exposure Position	1	2	3	1+2+3
			FR1	FR1	WLAN5GHz Ant 8+9	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
FR1 n7 Ant 1	FR1 n78 Ant 2	Front			0.890	0.89
		Back	0.902	0.597	0.989	2.49
		Left side		1.517		1.52
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 1	FR1 n78 Ant 4	Front		1.157	0.890	2.05
		Back	0.902	0.942	0.989	2.83
		Left side		0.978		0.98
		Right side			1.569	1.57
		Top side		1.616	1.826	3.44
		Bottom side				
FR1 n7 Ant 1	FR1 n78 Ant 5	Front			0.890	0.89
		Back	0.902	1.423	0.989	3.31
		Left side		1.758		1.76
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 2	FR1 n78 Ant 4	Front		1.157	0.890	2.05
		Back	0.941	0.942	0.989	2.87
		Left side		0.978		0.98
		Right side			1.569	1.57
		Top side		1.616	1.826	3.44
		Bottom side				
FR1 n7 Ant 2	FR1 n78 Ant 5	Front			0.890	0.89
		Back	0.941	1.423	0.989	3.35



		Left side		1.758		1.76
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 5	FR1 n78 Ant 2	Front			0.890	0.89
		Back	1.032	0.597	0.989	2.62
		Left side	1.554	1.517		3.07
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 5	FR1 n78 Ant 4	Front		1.157	0.890	2.05
		Back	1.032	0.942	0.989	2.96
		Left side	1.554	0.978		2.53
		Right side			1.569	1.57
		Top side		1.616	1.826	3.44
		Bottom side				

<5G NR EN-DC Mode>

WWAN Band	FR1 Band	Exposure Position	1	2	3	1+2+3
			WWAN	FR1	WLAN5GHz Ant 8+9	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front			0.890	0.89
		Back	1.476	0.902	0.989	3.37
		Left side				
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	1.981			1.98
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front			0.890	0.89
		Back	1.476	0.941	0.989	3.41
		Left side		1.517		1.52
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	1.981			1.98
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front		1.157	0.890	2.05
		Back	1.476	0.942	0.989	3.41
		Left side		0.978		0.98
		Right side			1.569	1.57
		Top side		1.616	1.826	3.44
		Bottom side	1.981			1.98
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front			0.890	0.89
		Back	1.476	1.423	0.989	3.89
		Left side		1.758		1.76
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	1.981			1.98
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front			0.890	0.89
		Back	0.575	0.941	0.989	2.51
		Left side		1.517		1.52
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front		1.157	0.890	2.05
		Back	0.575	0.942	0.989	2.51
		Left side		0.978		0.98
		Right side			1.569	1.57



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		Top side		1.616	1.826	3.44
		Bottom side				
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front			0.890	0.89
		Back	0.575	1.423	0.989	2.99
		Left side		1.758		1.76
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front			0.890	0.89
		Back	1.009	0.902	0.989	2.90
		Left side				
		Right side	0.890		1.569	2.46
		Top side			1.826	1.83
		Bottom side				
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant4 (78A)	Front		1.157	0.890	2.05
		Back	1.009	0.942	0.989	2.94
		Left side		0.978		0.98
		Right side	0.890		1.569	2.46
		Top side		1.616	1.826	3.44
		Bottom side				
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front			0.890	0.89
		Back	1.009	1.423	0.989	3.42
		Left side		1.758		1.76
		Right side	0.890		1.569	2.46
		Top side			1.826	1.83
		Bottom side				

<Sensor off>

<Inter UL CA Mode>

WWAN Band	WWAN Band	Exposure Position	1	2	3	1+2+3
			WWAN	WWAN	WLAN5GHz Ant 8+9	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	1g SAR (W/kg)
LTE Band 4 Ant 0	LTE Band 7 Ant 1	Front			0.890	0.89
		Back	0.387	1.204	0.325	1.92
		Left side				
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	0.609			0.61

<5G NR UL CA Mode>

FR1 Band	FR1 Band	Exposure Position	1	2	3	1+2+3
			FR1	FR1	WLAN5GHz Ant 8+9	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
FR1 n7 Ant 1	FR1 n78 Ant 2	Front			0.890	0.89
		Back	1.597	0.808	0.325	2.73
		Left side		1.888		1.89
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 1	FR1 n78 Ant 5	Front			0.890	0.89
		Back	1.597	0.075	0.325	2.00
		Left side				0.00
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 2	FR1 n78 Ant 5	Front			0.890	0.89
		Back	1.168	0.075	0.325	1.57
		Left side				0.00
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
FR1 n7 Ant 5	FR1 n78 Ant 2	Front			0.890	0.89
		Back	0.057	0.808	0.325	1.19
		Left side		1.888		1.89
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				

<5G NR EN-DC Mode>

WWAN Band	FR1 Band	Exposure Position	1	2	3	1+2+3
			WWAN	FR1	WLAN5GHz Ant 8+9	Summed
			10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)	10g SAR (W/kg)
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front			0.890	0.89
		Back	0.424	1.597	0.325	2.35
		Left side				
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	0.697			0.70
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front			0.890	0.89
		Back	0.424	1.168	0.325	1.92
		Left side		1.888		1.89
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	0.697			0.70
LTE Band Ant0 (2A&5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front			0.890	0.89
		Back	0.424	0.057	0.325	0.81
		Left side				
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side	0.697			0.70
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant2 (7A&78A)	Front			0.890	0.89
		Back	1.204	1.168	0.325	2.70
		Left side		1.888		1.89
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
LTE Band Ant1 (5A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front			0.890	0.89
		Back	1.204	0.057	0.325	1.59
		Left side				
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant1 (5A&7A)	Front			0.890	0.89
		Back	1.775	1.597	0.325	3.70
		Left side	1.470			1.47
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				
LTE Band Ant2 (2A&7A&38A&41A)	FR1 Band Ant5 (7A&78A)	Front			0.890	0.89
		Back	1.775	0.057	0.325	2.16
		Left side	1.470			1.47
		Right side			1.569	1.57
		Top side			1.826	1.83
		Bottom side				

Test Engineer : Martin Li, Varus Wang, Light Wang, Ricky Gu, Damon Zhu

17. 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.

18. 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
- [4] SPEAG DASY System Handbook
- [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.
- [7] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [8] FCC KDB 648474 D04 v01r03, "SAR Evaluation Considerations for Wireless Handsets", Oct 2015.
- [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.

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



Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Head_835MHz**DUT: D835V2 - SN:4d258**

Communication System: UID 0, CW (0); Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL_835 Medium parameters used: $f = 835$ MHz; $\sigma = 0.934$ S/m; $\epsilon_r = 41.163$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(10.57, 10.57, 10.57); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.636 W/kg

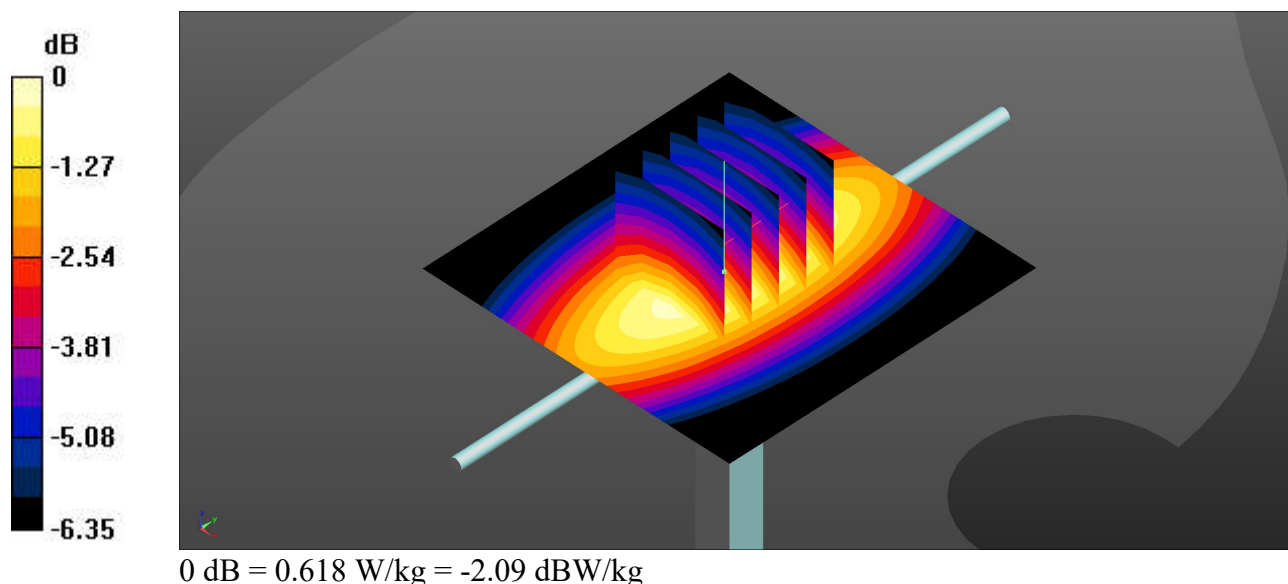
Pin=50mW/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.56 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.670 W/kg

SAR(1 g) = 0.504 W/kg; SAR(10 g) = 0.315 W/kg

Maximum value of SAR (measured) = 0.618 W/kg



System Check_Head_1750MHz**DUT: D1750V2 - SN:1090**

Communication System: UID 0, CW (0); Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: HSL_1750 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.41$ S/m; $\epsilon_r = 40.674$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(9.22, 9.22, 9.22); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.43 W/kg

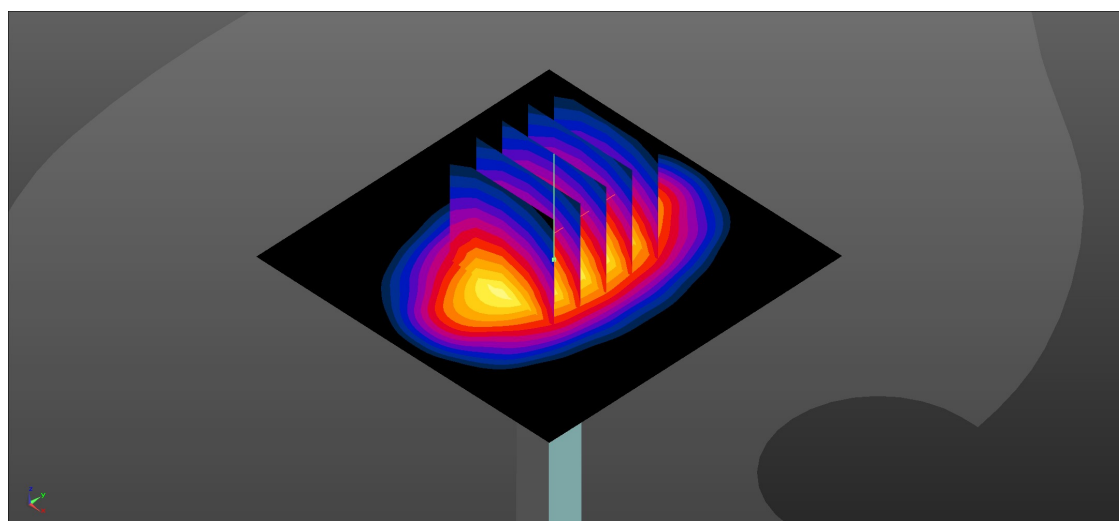
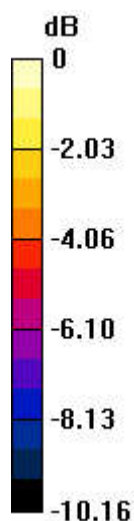
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 42.36 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 2.80 W/kg

SAR(1 g) = 1.76 W/kg; SAR(10 g) = 0.986 W/kg

Maximum value of SAR (measured) = 2.41 W/kg



0 dB = 2.41 W/kg = 3.82 dBW/kg

System Check_Head_1900MHz**DUT: D1900V2 - SN:5d182**

Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL_1900 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.432$ S/m; $\epsilon_r = 39.779$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(8.8, 8.8, 8.8); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.54 W/kg

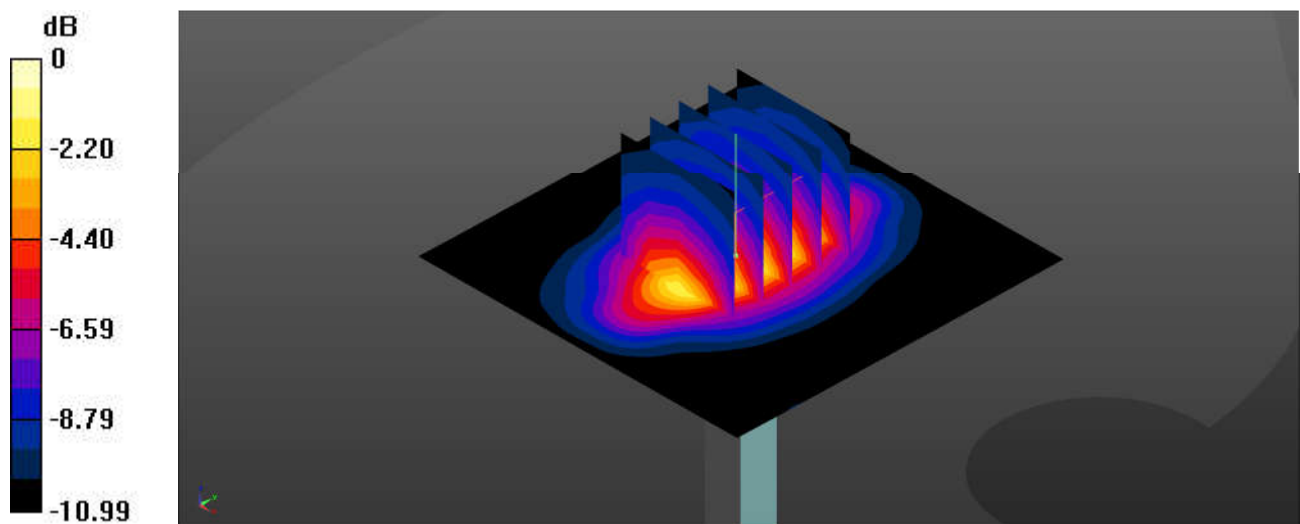
Pin=50mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 42.79 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 2.92 W/kg

SAR(1 g) = 2.1 W/kg; SAR(10 g) = 0.987 W/kg

Maximum value of SAR (measured) = 2.51 W/kg



0 dB = 2.51 W/kg = 4.00 dBW/kg

System Check_Head_2450MHz**DUT: D2450V2 - SN:924**

Communication System: UID 0, CW (0); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL_2450 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.881$ S/m; $\epsilon_r = 40.822$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(8.29, 8.29, 8.29); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 2.73 W/kg

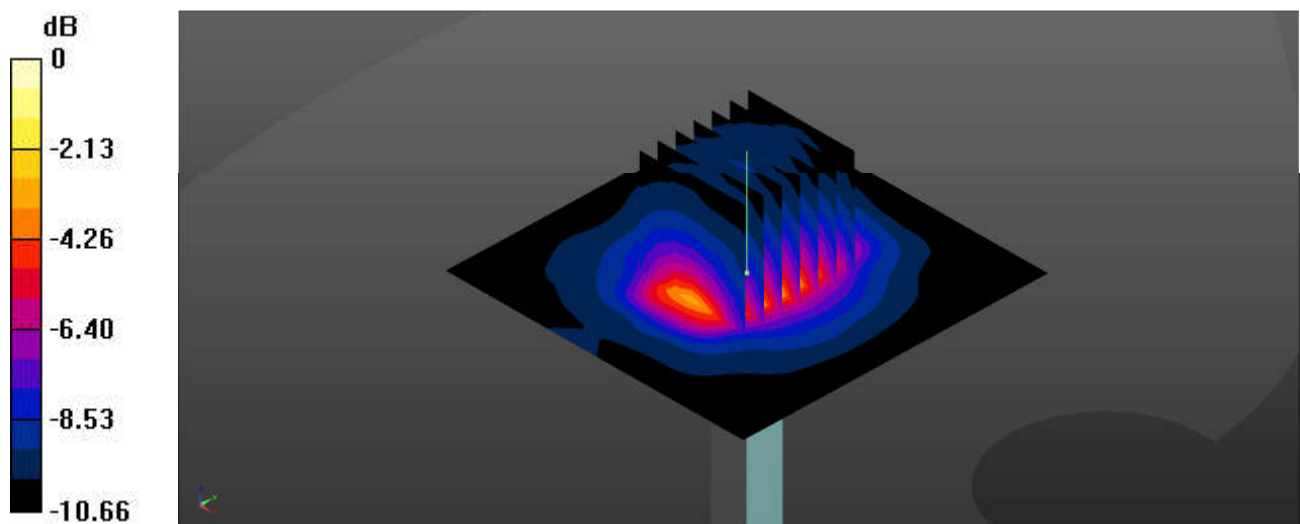
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 38.32 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.23 W/kg

SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.279 W/kg

Maximum value of SAR (measured) = 2.63 W/kg



0 dB = 2.63 W/kg = 4.20 dBW/kg

System Check_Head_2600MHz**DUT: D2600V2 - SN:1061**

Communication System: UID 0, CW (0); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: HSL_2600 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.008$ S/m; $\epsilon_r = 40.561$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.8 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(8.02, 8.02, 8.02); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 5.02 W/kg

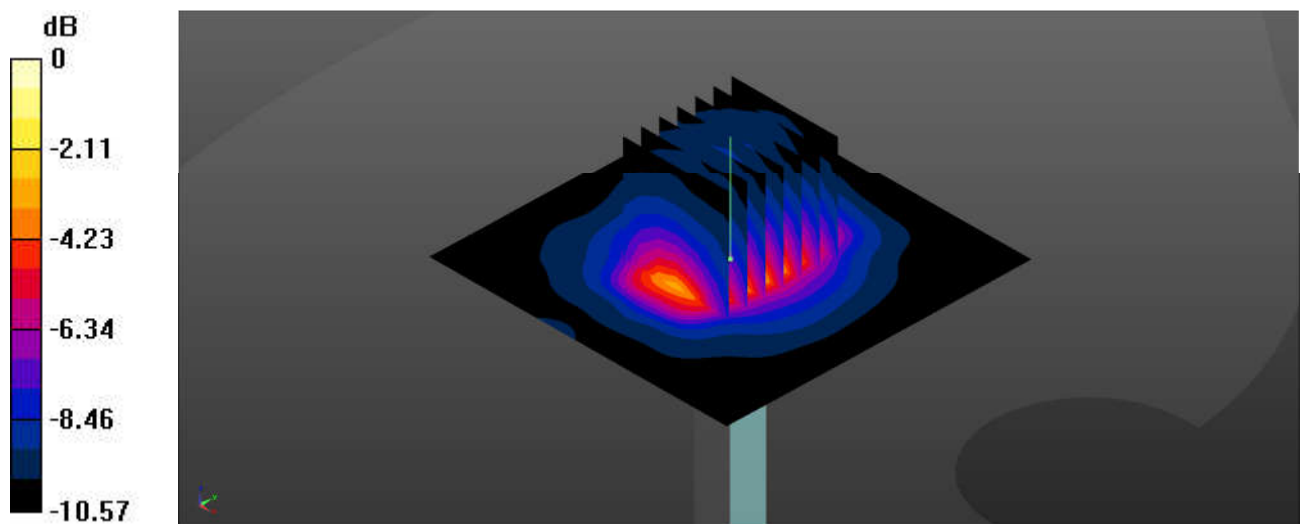
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 66.35 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 5.85 W/kg

SAR(1 g) = 3.05 W/kg; SAR(10 g) = 1.22 W/kg

Maximum value of SAR (measured) = 4.84 W/kg



0 dB = 4.84 W/kg = 6.85 dBW/kg

System Check_Head_3500MHz**DUT: D3500V2 - SN:1037**

Communication System: UID 0, CW (0); Frequency: 3500 MHz; Duty Cycle: 1:1

Medium: HSL_3500 Medium parameters used: $f = 3500$ MHz; $\sigma = 2.849$ S/m; $\epsilon_r = 38.604$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(7.55, 7.55, 7.55); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.8 W/kg

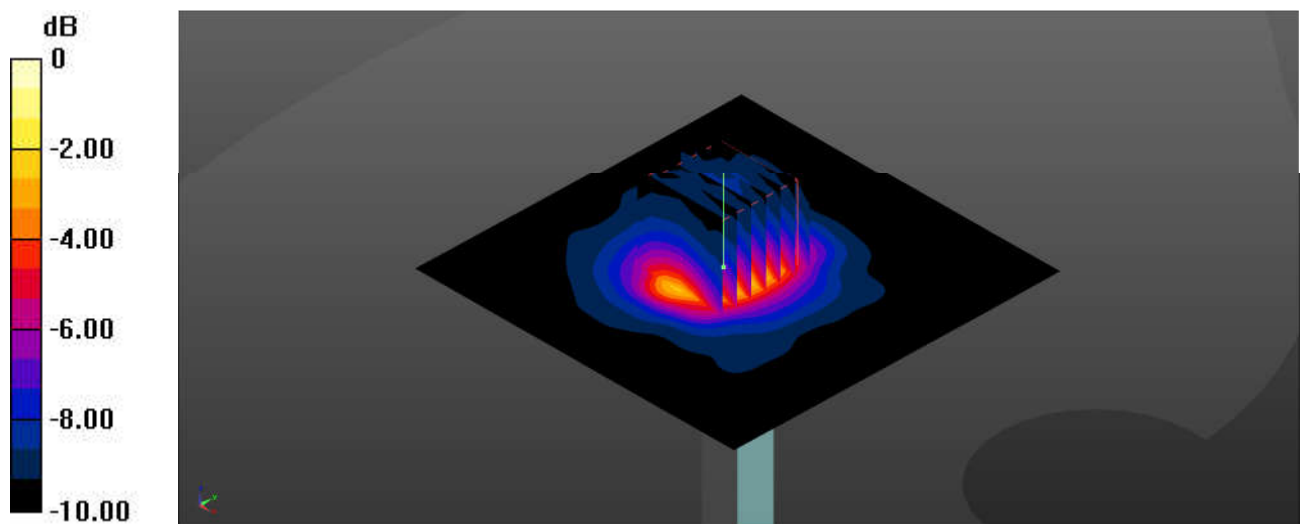
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 39.66 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 5.84 W/kg

SAR(1 g) = 3.21 W/kg; SAR(10 g) = 1.31 W/kg

Maximum value of SAR (measured) = 4.53 W/kg



0 dB = 4.53 W/kg = 6.56 dBW/kg

System Check_Head_3700MHz**DUT: D3700V2 - SN:1008**

Communication System: UID 0, CW (0); Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: HSL_3700 Medium parameters used: $f = 3700$ MHz; $\sigma = 3.043$ S/m; $\epsilon_r = 38.161$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(7.5, 7.5, 7.5); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.77 W/kg

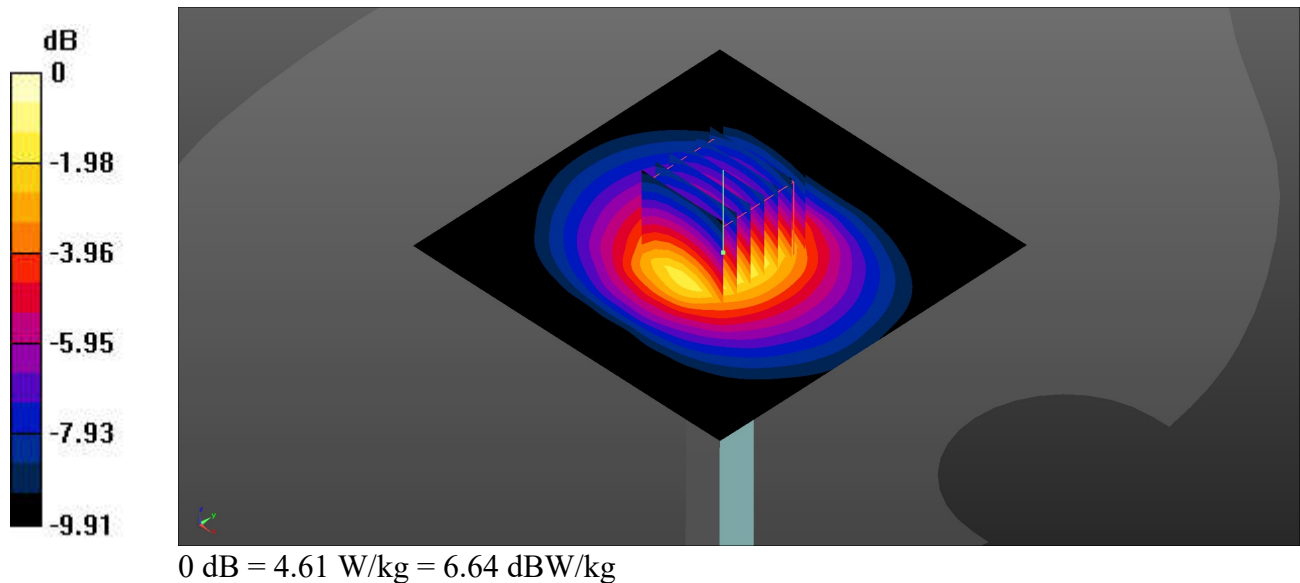
Pin=50mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 40.15 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 5.99 W/kg

SAR(1 g) = 3.33 W/kg; SAR(10 g) = 1.3 W/kg

Maximum value of SAR (measured) = 4.61 W/kg



System Check_Head_3900MHz**DUT: D3900V2 - SN:1048**

Communication System: UID 0, CW (0); Frequency: 3900 MHz; Duty Cycle: 1:1

Medium: HSL_3900 Medium parameters used: $f = 3900$ MHz; $\sigma = 3.247$ S/m; $\epsilon_r = 37.754$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7706; ConvF(7.2, 7.2, 7.2); Calibrated: 2022/1/20
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 2021/6/18
- Phantom: SAM Twin Phantom; Type: SAM Twin; Serial: TP-2024
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 4.55 W/kg

Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 38.57 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 5.89 W/kg

SAR(1 g) = 3.45 W/kg; SAR(10 g) = 1.22 W/kg

Maximum value of SAR (measured) = 4.44 W/kg

