

FCC SAR TEST REPORT

FCC ID : E2KT99W373PC15
Equipment : 5G WWAN Module
Brand Name : DELL
Model Name : T99W373
Applicant : Dell Inc.
One Dell Way Round Rock, Texas 78682 United States
Manufacturer : Dell Inc.
One Dell Way Round Rock, Texas 78682 United States
Standard : FCC 47 CFR Part 2 (2.1093)

The product was installed into Portable Computer (Brand Name DELL, Model Name: P166G) during test.

The product was received on Dec. 01, 2023 and testing was started from Dec. 10, 2023 and completed on Jan. 01, 2024. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample provide by manufacturer and the test data has been evaluated in accordance with the test procedures given in 47 CFR Part 2.1093 and FCC KDB and has been pass the FCC requirement.

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



Approved by: Cona Huang / Deputy Manager



Sporton International Inc. Wensan Laboratory

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History of this test report

Report No.	Version	Description	Issued Date
FA3N0927	01	Initial issue of report	Jan. 30, 2024

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) for **Dell Inc., 5G WWAN Module , T99W373**, are as follows.

Equipment Class	Frequency Band		Highest SAR Summary	Highest Simultaneous Transmission 1g SAR (W/kg)	
			Body		
			1g SAR (W/kg)		
Licensed	WCDMA	WCDMA II	0.70	1.36	
		WCDMA IV	0.93		
		WCDMA V	1.09		
	LTE	LTE Band 7	0.88		
		LTE Band 12 / 17	0.77		
		LTE Band 13	0.68		
		LTE Band 14	0.64		
		LTE Band 2 / 25	0.63		
		LTE Band 5 / 26	0.96		
		LTE Band 30	0.89		
		LTE Band 38 / 41	0.97		
		LTE Band 42	0.93		
		LTE Band 43	0.80		
		LTE Band 48	0.86		
		LTE Band 4 / 66	0.79		
		LTE Band 71	0.70		
		FR1	FR1 n7		0.74
			FR1 n12		0.78
	FR1 n13		0.76		
	FR1 n14		0.78		
	FR1 n2 / n25		0.78		
	FR1 n5 / n26		0.98		
	FR1 n30		0.80		
	FR1 n38 / n41		0.97		
	FR1 n48		0.90		
	FR1 n4 / n66		0.68		
	FR1 n70		0.85		
	FR1 n71	0.54			
	FR1 n77/78	1.09			
Date of Testing:			2023/12/10 ~ 2024/1/1		

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications

Reviewed by: Jason Wang
Report Producer: Daisy Peng



2. Guidance Applied

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

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



3. Equipment Under Test (EUT) Information

3.1 General Information

Product Feature & Specification	
Equipment Name	5G WWAN Module
Brand Name	DELL
Model Name	T99W373
FCC ID	E2KT99W373PC15
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48 : 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n13: 777 MHz ~ 787 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3700 MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3700 MHz
Mode	RMC 12.2Kbps HSDPA HSUPA DC-HSDPA LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM
Remark: 1. There are two antenna vendors, RF exposure evaluation selects WNC as the main test, Speed will spot check worst case found in WNC. 2. When EN-DC is active, operate with a combination of WWAN antenna 0 and a combination of antenna 1/2/3, and analyze Sim-Tx as outlined in section 16 3. The device implements P and G sensor detection, the G-sensor is control when the device from laptop change to tablet mode that device will limit different output power for SAR compliance. The P-sensor will detect device is close or away human body and limit output power for SAR compliance. 4. The FCC ID: PD9BE200D2, Intel BE200D2W WLAN/BT module is integrated into this host, and the Sim-Tx compliance include in section16. 5. This device support UL MIMO mode for NR n41, n77 and n78. In addition to PC1.5, PC2 and PC3 implemented to specification. Since the output power from each antenna will be reduced for 3 dB when UL MIMO activated and hence SAR were performed with the UL SISO mode for worse case.	

Host Information	
Equipment Name	Portable Computer
Brand Name	DELL
Model Name	P166G
Integrated WiFi/BT module	Brand Name: Intel Model Name: BE200D2W



Laptop Mode WWAN Antenna Information

Communication System	Band	Frequency(MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D
							*Peak Gain W/ Cable loss (dBi)
WCDMA/ LTE/5G NR FR1	1	1920	1980	Antenna P/N: F-0G-FH-6177-001-00 COMPAL P/N: DC33002W50L	Speed Wireless Technology CO.,LTD.	PIFA	2.70
WCDMA/ LTE/5G NR FR1	2	1850	1910				2.84
LTE/5G NR FR1	3	1710	1785				2.97
WCDMA/ LTE	4	1710	1755				2.97
WCDMA/ LTE/5G NR FR1	5	824	849				2.29
LTE/5G NR FR1	7	2500	2570				1.90
WCDMA/ LTE/5G NR FR1	8	880	915				1.97
LTE/5G NR FR1	12	699	716				2.12
LTE/5G NR FR1	13	777	787				1.70
LTE/5G NR FR1	14	788	798				2.18
LTE	17	704	716				2.12
LTE/5G NR FR1	18	815	830				1.86
LTE	19	830	845				2.10
LTE/5G NR FR1	20	832	862				2.29
LTE/5G NR FR1	25	1850	1915				2.84
LTE/5G NR FR1	26	814	849				2.29
LTE/5G NR FR1	28	703	748				2.12
LTE/5G NR FR1	30	2305	2315				0.92
LTE	34	2010	2025				2.95
LTE/5G NR FR1	38	2570	2620				0.98
LTE	39	1880	1920				2.84
LTE/5G NR FR1	40	2300	2400				1.37
LTE/5G NR FR1	41	2496	2690				2.00
LTE	42	3400	3600				-0.27
LTE	43	3600	3800				0.66
LTE/5G NR FR1	48	3550	3700				0.66
LTE/5G NR FR1	66	1710	1780				2.97
LTE/5G NR FR1	71	663	698				2.30
5G NR FR1	77	3300	4200				0.66
5G NR FR1	78	3300	3800				0.66
5G NR FR1	79	4400	5000				0.45
5G NR FR1	1	1920	1980				1.99
5G NR FR1	2	1850	1910				1.83
5G NR FR1	3	1710	1785				2.27
5G NR FR1	5	824	849				-2.85
5G NR FR1	7	2500	2570				0.02
5G NR FR1	25	1850	1915				1.83
5G NR FR1	30	2305	2315				0.85
5G NR FR1	38	2570	2620				1.72
5G NR FR1	40	2300	2400				2.41
5G NR FR1	41	2496	2690				2.12
5G NR FR1	48	3550	3700				0.78
5G NR FR1	66	1710	1780				2.27
5G NR FR1	77	3300	4200				0.95
5G NR FR1	78	3300	3800				0.81
5G NR FR1	79	4400	5000				2.46



Communication System	Band	Frequency(MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D *Peak Gain W/ Cable loss (dBi)
WCDMA/ LTE/5G NR FR1	1	1920	1980	Ant0 P/N : 81ELA715.GCJ COMPAL P/N: DC33002WA0L	WNC	PIFA	2.01
WCDMA/ LTE/5G NR FR1	2	1850	1910				1.50
LTE/5G NR FR1	3	1710	1785				2.81
WCDMA/ LTE	4	1710	1755				2.81
WCDMA/ LTE/5G NR FR1	5	824	849				2.42
LTE/5G NR FR1	7	2500	2570				2.08
WCDMA/ LTE/5G NR FR1	8	880	915				2.36
LTE/5G NR FR1	12	699	716				2.13
LTE/5G NR FR1	13	777	787				2.38
LTE/5G NR FR1	14	788	798				2.08
LTE	17	704	716				2.10
LTE/5G NR FR1	18	815	830				1.96
LTE	19	830	845				2.42
LTE/5G NR FR1	20	832	862				2.42
LTE/5G NR FR1	25	1850	1915				1.59
LTE/5G NR FR1	26	814	849				2.42
LTE/5G NR FR1	28	703	748				2.18
LTE/5G NR FR1	30	2305	2315				0.85
LTE	34	2010	2025				2.23
LTE/5G NR FR1	38	2570	2620				1.55
LTE	39	1880	1920				1.60
LTE/5G NR FR1	40	2300	2400				2.32
LTE/5G NR FR1	41	2496	2690				2.08
LTE	42	3400	3600				-0.85
LTE	43	3600	3800				-0.54
LTE/5G NR FR1	48	3550	3700				-0.85
LTE/5G NR FR1	66	1710	1780				2.81
LTE/5G NR FR1	71	663	698				1.31
5G NR FR1	77	3300	4200				-0.54
5G NR FR1	78	3300	3800				-0.54
5G NR FR1	79	4400	5000				1.26
5G NR FR1	53	2483.5	2495				2.34
5G NR FR1	70	1695	1710				2.81



Tablet Mode WWAN Antenna Information

Communication System	Band	Frequency(MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D *Peak Gain W/ Cable loss (dBi)
WCDMA/ LTE/5G NR FR1	1	1920	1980	Antenna P/N: F-0G-FH-6177-001-00 COMPAL P/N: DC33002W50L	Speed Wireless Technology CO.,LTD.	PIFA	0.34
WCDMA/ LTE/5G NR FR1	2	1850	1910				0.64
LTE/5G NR FR1	3	1710	1785				-0.79
WCDMA/ LTE	4	1710	1755				-0.79
WCDMA/ LTE/5G NR FR1	5	824	849				-3.45
LTE/5G NR FR1	7	2500	2570				0.43
WCDMA/ LTE/5G NR FR1	8	880	915				-3.30
LTE/5G NR FR1	12	699	716				-12.02
LTE/5G NR FR1	13	777	787				-6.87
LTE/5G NR FR1	14	788	798				-6.62
LTE	17	704	716				-12.02
LTE/5G NR FR1	18	815	830				-4.54
LTE	19	830	845				-4.09
LTE/5G NR FR1	20	832	862				-3.06
LTE/5G NR FR1	25	1850	1915				0.64
LTE/5G NR FR1	26	814	849				-3.45
LTE/5G NR FR1	28	703	748				-7.82
LTE/5G NR FR1	30	2305	2315				-1.24
LTE	34	2010	2025				-1.55
LTE/5G NR FR1	38	2570	2620				0.35
LTE	39	1880	1920				0.64
LTE/5G NR FR1	40	2300	2400				0.10
LTE/5G NR FR1	41	2496	2690				0.43
LTE	42	3400	3600				0.98
LTE	43	3600	3800				0.87
LTE/5G NR FR1	48	3550	3700				0.85
LTE/5G NR FR1	66	1710	1780				-0.79
LTE/5G NR FR1	71	663	698				-12.68
5G NR FR1	77	3300	4200				0.98
5G NR FR1	78	3300	3800				0.98
5G NR FR1	79	4400	5000				2.28
5G NR FR1	1	1920	1980				-0.52
5G NR FR1	2	1850	1910				-1.07
5G NR FR1	3	1710	1785				-0.34
5G NR FR1	5	824	849				-13.73
5G NR FR1	7	2500	2570				0.82
5G NR FR1	25	1850	1915				-1.07
5G NR FR1	30	2305	2315				-0.03
5G NR FR1	38	2570	2620				0.82
5G NR FR1	40	2300	2400				-0.03
5G NR FR1	41	2496	2690				0.92
5G NR FR1	48	3550	3700				0.91
5G NR FR1	66	1710	1780				-0.34
5G NR FR1	77	3300	4200				0.93
5G NR FR1	78	3300	3800				0.93
5G NR FR1	79	4400	5000				2.72



Communication System	Band	Frequency(MHz) from low to high spectrum		1A Part Number for Antenna Assembly	1B Antenna Manufacturer Name	1C Description of Antenna Type	1D *Peak Gain W/ Cable loss (dBi)
WCDMA/ LTE/5G NR FR1	1	1920	1980	Ant0 P/N : 81ELA715.GCJ COMPAL P/N: DC33002WA0L	WNC	PIFA	1.00
WCDMA/ LTE/5G NR FR1	2	1850	1910				0.87
LTE/5G NR FR1	3	1710	1785				0.94
WCDMA/ LTE	4	1710	1755				0.94
WCDMA/ LTE/5G NR FR1	5	824	849				-3.84
LTE/5G NR FR1	7	2500	2570				1.82
WCDMA/ LTE/5G NR FR1	8	880	915				-3.58
LTE/5G NR FR1	12	699	716				-4.07
LTE/5G NR FR1	13	777	787				-4.10
LTE/5G NR FR1	14	788	798				-4.09
LTE	17	704	716				-4.14
LTE/5G NR FR1	18	815	830				-3.84
LTE	19	830	845				-3.94
LTE/5G NR FR1	20	832	862				-3.94
LTE/5G NR FR1	25	1850	1915				0.97
LTE/5G NR FR1	26	814	849				-3.84
LTE/5G NR FR1	28	703	748				-4.07
LTE/5G NR FR1	30	2305	2315				0.10
LTE	34	2010	2025				-0.11
LTE/5G NR FR1	38	2570	2620				2.01
LTE	39	1880	1920				0.97
LTE/5G NR FR1	40	2300	2400				2.02
LTE/5G NR FR1	41	2496	2690				2.02
LTE	42	3400	3600				0.89
LTE	43	3600	3800				0.81
LTE/5G NR FR1	48	3550	3700				0.81
LTE/5G NR FR1	66	1710	1780				0.94
LTE/5G NR FR1	71	663	698				-4.25
5G NR FR1	77	3300	4200				0.89
5G NR FR1	78	3300	3800				0.89
5G NR FR1	79	4400	5000				1.71
5G NR FR1	53	2483.5	2495				2.42
5G NR FR1	70	1695	1710				-0.32

3.1 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05																																																																									
FCC ID	E2KT99W373PC15																																																																								
Equipment Name	5G WWAN Module																																																																								
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 42: 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3600 MHz LTE Band 43: 3600 MHz ~ 3700 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz																																																																								
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 30: 5MHz, 10MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 42: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 43: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 48: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz																																																																								
uplink modulations used	QPSK / 16QAM / 64QAM / 256QAM																																																																								
LTE Voice / Data requirements	Data only																																																																								
LTE MPR permanently built-in by design	<table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 2</td></tr><tr><td>64 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 3</td></tr><tr><td>256 QAM</td><td colspan="6">≥ 1</td><td>≤ 5</td></tr></table>			Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3								Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1	16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1	16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2	64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2	64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3	256 QAM	≥ 1						≤ 5
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, Proximity and G-Sensor.																																																																								
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power measurement please referred to section 12.																																																																								
LTE Carrier Aggregation Additional Information	This device supports maximum of 5 carriers in the downlink and 2 carriers in the uplink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO. eICI. WiFi Offloading. MDH. eMBMA. Cross-Carrier Scheduling. Enhanced																																																																								

				SC-FDMA.								
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					
	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				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 7												
	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	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				
LTE Band 12												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	23017	699.7	23025	700.5	23035	701.5	23060	704				
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5				
H	23173	715.3	23165	714.5	23155	713.5	23130	711				
LTE Band 13												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq.(MHz)					
L	23205		779.5		23230		782					
M	23230		782									
H	23255		784.5									
LTE Band 14												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Channel #		Channel #		Freq.(MHz)					
L	23305		790.5		23330		793					
M	23330		793									
H	23355		795.5									
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
LTE Band 25												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26047	1850.7	26055	1851.5	26065	1852.5	26090	1855	26115	1857.5	26140	1860

M	26340	1880	26340	1880	26340	1880	26340	1880	26340	1880		
H	26683	1914.3	26675	1913.5	26665	1912.5	26640	1910	26615	1907.5	26590	1905
LTE Band 26												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz			
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5		
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5		
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5		
LTE Band 30												
	Bandwidth 5 MHz					Bandwidth 10 MHz						
	Channel #		Freq.(MHz)			Channel #			Freq.(MHz)			
L	27685		2307.5			27710			2310			
M	27710		2310									
H	27735		2312.5									
LTE Band 38												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	37775	2572.5	37800	2575	37825	2577.5	37850	2580				
M	38000	2595	38000	2595	38000	2595	38000	2595				
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610				
LTE Band 41												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	39675	2498.5	39700	2501	39725	2503.5	39750	2506				
LM	40148	2545.8	40160	2547	40173	2548.3	40185	2549.5				
M	40620	2593	40620	2593	40620	2593	40620	2593				
H	41093	2640.3	41080	2639	41068	2637.8	41055	2636.5				
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680				
LTE Band 42 (3450 MHz ~ 3550 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)		
L	42115	3452.5	42140	3455	42165	3457.5	42190	3460				
M	42590	3500	42590	3500	42590	3500	42590	3500				
H	43065	3547.5	43040	3545	43015	3542.5	42990	3540				
LTE Band 42 (3550 MHz ~ 3600 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)		
L	43315	3552.5	43140	3555	43165	3557.5	43190	3560				
M	43340	3575	43340	3575	43340	3575	43340	3575				
H	43565	3597.5	43540	3595	43515	3592.5	43490	3590				
LTE Band 43												
	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)		
L	43615	3602.5	43640	3605	43665	3607.5	43690	3610				
M	44090	3650	44090	3650	44090	3650	44090	3650				
H	44565	3697.5	44540	3695	44515	3692.5	44490	3690				
LTE Band 48												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)		
L	55265	3552.5	55290	3555	55315	3557.5	55340	3560				
LM	55810	3607	55815	3607.5	55820	3608	55830	3609				
M	56170	3643	56165	3642.5	56160	3642	56150	3641				
H	56715	3697.5	56690	3695	56665	3692.5	56640	3690				
LTE Band 66												



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	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	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770
LTE Band 71												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	133147	665.5	133172	668	133197	670.5	133222	673				
M	133297	680.5	133297	680.5	133297	680.5	133297	680.5				
H	133447	695.5	133422	693	133397	690.5	133372	688				



3.2 General 5G NR SAR Test and Reporting Considerations

5G NR Information								
FCC ID	E2KT99W373PC15							
Equipment Name	5G WWAN Module							
Operating Frequency Range of each 5G NR transmission band	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n13: 777 MHz ~ 787 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3700 MHz ~ 3980 MHz, 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3700 MHz 5G NR n78: 3700 MHz ~ 3800 MHz, 3450 MHz ~ 3550 MHz, 3550 MHz ~ 3700 MHz							
Channel Bandwidth	5G NR n2: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n5: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n7: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz, 30MHz, 40MHz 5G NR n12: 5MHz, 10MHz, 15MHz 5G NR n13: 5MHz, 10MHz 5G NR n14: 5MHz, 10MHz 5G NR n25: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz, 30MHz, 40MHz 5G NR n26: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n30: 5MHz, 10MHz 5G NR n38: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz 5G NR n41: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz 5G NR n48: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz 5G NR n66: 5MHz, 10MHz, 15MHz, 20MHz, 25 MHz, 30MHz, 40MHz 5G NR n70: 5MHz, 10MHz, 15MHz 5G NR n71: 5MHz, 10MHz, 15MHz, 20MHz 5G NR n77: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz 5G NR n78: 10MHz, 15MHz, 20MHz, 30MHz, 40MHz, 50MHz, 60MHz, 70MHz, 80MHz, 90MHz, 100MHz							
SCS	FDD: SCS15KHz, TDD: SCS30KHz							
uplink modulations used	DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM CP-OFDM QPSK / 16QAM / 64QAM / 256QAM							
A-MPR (Additional MPR) disabled for SAR Testing?	Yes							
LTE Anchor Bands for n2	LTE B5/12/14/30/66/71							
LTE Anchor Bands for n5	LTE B2/5/7/12/30/48/66							
LTE Anchor Bands for n7	LTE B5/12/13/66/71							
LTE Anchor Bands for n12	LTE B2/30/66							
LTE Anchor Bands for n25	LTE B2/7/12/26/48/66/71							
LTE Anchor Bands for n38	LTE B2/4/5/12/66/71							
LTE Anchor Bands for n41	LTE B2/5/7/12/25/26/66/71							
LTE Anchor Bands for n66	LTE B2/5/12/13/14/30/48/66/71							
LTE Anchor Bands for n71	LTE B2/7/66							
LTE Anchor Bands for n77	LTE B7/41							
LTE Anchor Bands for n78	LTE B7/38/41							
NR Band 2								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	370500	1852.5	371000	1855	371500	1857.5	372000	1860
M	376000	1880	376000	1880	376000	1880	376000	1880
H	381500	1907.5	381000	1905	380500	1902.5	380000	1900
NR Band 5								
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	165300	826.5	165800	829	166300	831.5	166800	834
M	167300	836.5	167300	836.5	167300	836.5	167300	836.5
H	169300	846.5	168800	844	168300	841.5	167800	839



NR Band 7															
	Bandwidth 5MHz		Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 25MHz		Bandwidth 30MHz		Bandwidth 40MHz		
	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	
M	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	
NR Band 12															
	Bandwidth 5MHz				Bandwidth 10MHz				Bandwidth 15MHz						
	Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		Freq. (MHz)		Ch. #		
L	140300		701.5		140800		704		141300		706.5				
M	141500		707.5		141500		707.5		141500		707.5				
H	142700		713.5		142200		711		141700		708.5				
NR Band 13															
	Bandwidth 5MHz						Bandwidth 10MHz								
	Ch. #			Freq. (MHz)			Ch. #				Freq. (MHz)				
L	155900			779.5			156400				782				
M	156400			782											
H	156900			784.5											
NR Band 14															
	Bandwidth 5MHz						Bandwidth 10MHz								
	Ch. #			Freq. (MHz)			Ch. #				Freq. (MHz)				
L	158100			790.5			158600				793				
M	158600			793											
H	159100			795.5											
NR Band 25															
	Bandwidth 5MHz		Bandwidth 10MHz		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	370500	1852.5	371000	1855	371500	1857.5	372000	1860	372500	1862.5	373000	1865	374000	1870	
M	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	376500	1882.5	
H	382500	1912.5	382000	1910	381500	1907.5	381000	1905	380500	1902.5	380000	1900	379000	1895	
NR Band 26															
	Bandwidth 5MHz			Bandwidth 10MHz			Bandwidth 15MHz			Bandwidth 20MHz					
	Ch. #		Freq. (MHz)	Ch. #		Freq. (MHz)	Ch. #		Freq. (MHz)	Ch. #		Freq. (MHz)	Ch. #		
L	163300		816.5	163800		819	164300		821.5	164800		824			
M	166300		831.5	166300		831.5	166300		831.5	166300		831.5			
H	169300		846.5	168800		844	168300		841.5	167800		839			
NR Band 30															
	Bandwidth 5MHz						Bandwidth 10MHz								
	Ch. #			Freq. (MHz)			Ch. #				Freq. (MHz)				
L	461500			2307.5			462000				2310				
M	462000			2310											
H	462500			2312.5											
NR Band 38															
	Bandwidth 10MHz			Bandwidth 15MHz			Bandwidth 20MHz			Bandwidth 30MHz			Bandwidth 40MHz		
	Ch. #		Freq. (MHz)	Ch. #		Freq. (MHz)	Ch. #		Freq. (MHz)	Ch. #		Freq. (MHz)	Ch. #		
L	515004		2575.02	515502		2577.51	516000		2580	517002		2585.01	518004		
M	519000		2595	519000		2595	519000		2595	519000		2595	519000		
H	522996		2614.98	522498		2612.49	522000		2610	520998		2604.99	519996		
NR Band 41															
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz		Bandwidth 50MHz		Bandwidth 60MHz		
	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	
M	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	

NR Band 48																						
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 30MHz		Bandwidth 40MHz													
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)												
L	637000	3555	637168	3557.52	637334	3560.01	637668	3565.02	638000	3570												
M	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99												
H	646332	3694.98	646166	3692.49	646000	3690	645666	3684.99	645332	3679.98												
NR Band 66																						
	Bandwidth 5MHz		Bandwidth 10MHz		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	342500	1712.5	343000	1715	343500	1717.5	344000	1720	342000	1710	345000	1725	346000	1730								
M	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745	349000	1745								
H	355500	1777.5	355000	1775	354500	1772.5	354000	1770	356000	1780	353000	1765	352000	1760								
NR Band 70																						
	Bandwidth 5MHz			Bandwidth 10MHz			Bandwidth 15MHz			Bandwidth 15MHz												
	Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)											
L	339500	1697.5		340000	1700		340500			1702.5												
M	340500	1702.5		340500	1702.5																	
H	341500	1707.5		341000	1705																	
NR Band 71																						
	Bandwidth 5MHz			Bandwidth 10MHz			Bandwidth 15MHz			Bandwidth 20MHz												
	Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)		Ch. #	Freq. (MHz)											
L	133100	665.5		133600	668		13410	670.5		134600	673											
M	136100	680.5		136100	680.5		136100	680.5		136100	680.5											
H	139100	695.5		138600	693		13810	690.5		137600	688											
NR Band 77																						
	Bandwidth 10MHz		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	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840	656000	3840
H	665000	3975	664832	3972.48	664666	3969.99	664332	3964.98	664000	3960	663666	3954.99	663332	3949.98	663000	3945	662666	3939.99	662332	3934.98	662000	3930
NR Band 78																						
	Bandwidth 10MHz		Bandwidth 15MHz		Bandwidth 20MHz		Bandwidth 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	647000	3705	647168	3707.52	647334	3710.01	647668	3715.02	648000	3720	648334	3725.01	648668	3730.02	649000	3735	649334	3740.01	649668	3745.02	650000	3750
M	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750	650000	3750		
H	653000	3795	652832	3792.48	652666	3789.99	652332	3784.98	652000	3780	651666	3774.99	651332	3769.98	651000	3765	650666	3759.99	650332	3754.98		
NR Band 77/78(3450MHz ~ 3550MHz)																						
	Bandwidth 10MHz		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	630334	3455.01	630500	3457.5	630668	3460.02	631000	3465	631334	3470.01	631668	3475.02	632000	3480	632334	3485.01	632668	3490.02	633000	3495	633332	3499.98
M	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98	633332	3499.98		
H	636332	3544.98	636166	3542.49	636000	3540	635666	3534.99	635332	3529.98	635000	3525	634666	3519.99	634332	3514.98	634000	3510	633666	3504.99		
NR Band 77/78(3550MHz ~ 3700MHz)																						
	Bandwidth 10MHz		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	637000	3555	637168	3557.52	637334	3560.01	637668	3565.02	638000	3570	638334	3575.01	638668	3580.02	639000	3585	639334	3590.01	639668	3595.02	640000	3600
M	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99	641666	3624.99
H	646332	3694.98	646166	3692.49	646000	3690	645666	3684.99	645332	3679.98	645000	3675	644666	3669.99	644332	3664.98	644000	3660	643666	3654.99	643332	3649.98



1. The following guidance should be applied to laptops/tablets that use Hall Effect or gravity sensors to detect lid angle for the purpose of power reduction:

Step 7: Reverse this procedure going from tablet mode back down to closed mode

when the screen angle is from 0 degree to 360 degree

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Ant 2

when the screen angle is from 0 degree to 360 degree																																				
Screen angle (degrees) vs. power	Lid Close	Band	MIMO2																																	
			LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 25	LTE Band 30	LTE Band 56	LTE Band 38	LTE Band41 PC2	LTE Band42 PC2	LTE Band43 Part 96	LTE Band43 Part 96	LTE Band43 Part 96	LTE Band43 Part 96	FR1 n2	FR1 n7	FR1 n25	FR1 n30	FR1 n38	FR1 n41 PC3	FR1 n41 PC2	FR1 n48	FR1 n66	FR1 n70	FR1 n77 PC3 Part 270	FR1 n77 PC3 Part 270	FR1 n77 PC3 Part 270	FR1 n77 PC3 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 270	
			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Notebook	0	17.30	17.85	16.36	17.33	17.95	17.94	18.74	18.82	18.81	15.93	15.95	18.50	17.98	17.42	16.99	17.46	17.40	15.90	15.96	15.92	15.66	18.74	19.47	14.98	14.97	14.90	14.87	17.46	17.49	17.44	17.40	17.37	17.46		
	1	17.10	17.81	16.23	17.30	17.66	17.82	18.49	18.58	18.78	15.72	15.87	18.33	17.91	17.21	16.95	17.16	17.40	15.74	15.66	15.64	15.40	18.57	19.40	14.89	14.75	14.66	14.77	17.28	17.32	17.23	17.37	17.25	17.18		
	2	17.17	17.77	16.07	17.30	17.81	17.82	18.51	18.62	18.79	15.64	15.67	18.49	17.86	17.28	16.78	17.40	17.30	15.76	15.79	15.72	15.54	18.44	19.45	14.70	14.69	14.61	14.59	17.27	17.27	17.19	17.27	17.27	17.37		
	3	17.20	17.63	16.25	17.12	17.92	17.68	18.57	18.67	18.81	15.84	15.82	18.33	17.93	17.34	16.99	17.27	17.26	15.68	15.76	15.77	15.54	18.60	19.35	14.81	14.74	14.68	14.66	17.29	17.46	17.36	17.26	17.13	17.36		
	4	17.18	17.56	16.09	17.33	17.93	17.88	18.58	18.52	18.56	15.91	15.69	18.40	17.79	17.13	16.75	17.38	17.18	15.69	15.93	15.70	15.44	18.57	19.34	14.94	14.96	14.78	14.73	17.26	17.23	17.16	17.38	17.10	17.33		
	5	17.01	17.74	16.33	17.33	17.71	17.86	18.61	18.71	18.70	15.69	15.92	18.23	17.72	17.36	16.98	17.22	17.22	15.63	15.72	15.75	15.49	18.57	19.44	14.90	14.91	14.82	14.78	17.28	17.35	17.39	17.20	17.28	17.13		
	10	17.24	17.61	16.06	17.27	17.79	17.85	18.68	18.76	18.60	15.68	15.69	18.42	17.78	17.21	16.75	17.30	17.28	15.71	15.93	15.87	15.62	18.58	19.43	14.77	14.88	14.85	14.83	17.34	17.37	17.31	17.34	17.08	17.29		
	38	17.26	17.66	16.13	17.06	17.66	17.66	18.49	18.63	18.74	15.67	15.80	18.39	17.83	17.38	16.69	17.24	17.29	15.84	15.92	15.78	15.48	18.59	19.22	14.82	14.94	14.76	14.80	17.26	17.49	17.30	17.19	17.13	17.20		
	39	17.23	17.55	16.25	17.21	17.91	17.79	18.45	18.75	18.71	15.91	15.75	18.34	17.74	17.42	16.84	17.22	17.11	15.73	15.71	15.77	15.36	18.51	19.45	14.89	14.81	14.77	14.77	17.39	17.31	17.17	17.10	17.25	17.37		
	49	17.08	17.60	16.28	17.25	17.66	17.88	18.59	18.71	18.67	15.77	15.95	18.33	17.95	17.33	16.78	17.44	17.10	15.86	15.96	15.63	15.53	18.70	19.18	14.75	14.87	14.66	14.70	17.41	17.26	17.34	17.37	17.27	17.23		
	50	17.10	17.59	16.19	17.30	17.91	17.75	18.65	18.52	18.65	15.91	15.69	18.25	17.86	17.21	16.99	17.42	17.17	15.88	15.90	15.63	15.37	18.65	19.26	14.71	14.77	14.61	14.74	17.28	17.27	17.29	17.18	17.15	17.36		
	60	17.26	17.60	16.34	17.19	17.90	17.76	18.58	18.70	18.77	15.79	15.85	18.43	17.96	17.15	16.70	17.29	17.36	15.78	15.71	15.77	15.59	18.53	19.39	14.68	14.76	14.64	14.80	17.27	17.29	17.32	17.16	17.14	17.28		
	70	17.28	17.59	16.09	17.33	17.74	17.66	18.70	18.64	18.59	15.86	15.87	18.42	17.89	17.39	16.74	17.45	17.33	15.70	15.86	15.69	15.44	18.56	19.42	14.86	14.87	14.71	14.82	17.34	17.27	17.28	17.30	17.28	17.42		
	80	17.01	17.57	16.27	17.28	17.95	17.74	18.67	18.74	18.69	15.89	15.93	18.41	17.78	17.39	16.99	17.19	17.38	15.75	15.93	15.71	15.39	18.69	19.30	14.83	14.91	14.81	14.66	17.34	17.46	17.39	17.36	17.20	17.38		
	90	17.21	17.70	16.32	17.17	17.75	17.68	18.55	18.58	18.59	15.66	15.70	18.41	17.79	17.22	16.72	17.17	17.17	15.73	15.74	15.82	15.54	18.61	19.46	14.95	14.82	14.70	14.86	17.16	17.29	17.36	17.14	17.23	17.37		
	100	17.04	17.59	16.20	17.12	17.84	17.68	18.48	18.70	18.59	15.67	15.69	18.39	17.68	17.38	16.95	17.31	17.33	15.76	15.87	15.87	15.65	18.60	19.24	14.94	14.72	14.87	14.60	17.28	17.19	17.15	17.12	17.19	17.21		
	110	17.17	17.63	16.27	17.18	17.73	17.81	18.47	18.81	18.72	15.74	15.85	18.45	17.73	17.30	16.79	17.34	17.28	15.82	15.88	15.88	15.58	18.74	19.33	14.90	14.77	14.90	14.68	17.19	17.19	17.16	17.19	17.15	17.36		
	120	17.29	17.75	16.14	17.22	17.84	17.88	18.74	18.60	18.79	15.76	15.68	18.23	17.93	17.23	16.71	17.21	17.33	15.86	15.83	15.64	15.62	18.50	19.32	14.85	14.67	14.67	14.74	17.25	17.24	17.20	17.12	17.16	17.23		
	130	17.13	17.78	16.10	17.18	17.84	17.71	18.51	18.73	18.79	15.89	15.85	18.35	17.86	17.25	16.88	17.37	17.12	15.70	15.90	15.63	15.50	18.65	19.38	14.85	14.79	14.84	14.63	17.26	17.27	17.22	17.11	17.33	17.20		
	140	17.05	17.71	16.27	17.26	17.74	17.82	18.72	18.80	18.69	15.76	15.72	18.39	17.78	17.31	16.93	17.45	17.18	15.63	15.94	15.74	15.59	18.45	19.40	14.97	14.75	14.77	14.69	17.36	17.41	17.29	17.12	17.27	17.17		
150	17.15	17.71	16.27	17.15	17.75	17.69	18.56	18.76	18.53	15.81	15.82	18.47	17.79	17.31	16.97	17.45	17.23	15.66	15.91	15.87	15.44	18.52	19.46	14.69	14.89	14.71	14.65	17.30	17.36	17.26	17.27	17.35	17.30			
160	17.06	17.81	16.15	17.20	17.79	17.82	18.44	18.77	18.76	15.91	15.85	18.50	17.71	17.16	16.78	17.29	17.18	15.79	15.70	15.66	15.55	18.53	19.29	14.95	14.89	14.60	14.67	17.44	17.37	17.29	17.27	17.35	17.46			
170	17.04	17.80	16.21	17.17	17.83	17.92	18.48	18.55	18.71	15.81	15.78	18.20	17.78	17.28	16.79	17.31	17.33	15.65	15.67	15.66	15.48	18.69	19.33	14.83	14.69	14.73	14.63	17.25	17.33	17.40	17.32	17.31	17.44			
180	17.14	17.60	16.08	17.07	17.73	17.71	18.63	18.58	18.64	15.88	15.77	18.40	17.76	17.34	16.95	17.40	17.25	15.83	15.88	15.92	15.54	18.55	19.27	14.92	14.67	14.64	14.82	17.17	17.30	17.36	17.20	17.31	17.24			
186	17.05	17.55	16.09	17.09	17.88	17.76	18.72	18.61	18.64	15.90	15.73	18.36	17.81	17.30	16.96	17.35	17.11	15.73	15.94	15.68	15.43	18.72	19.43	14.82	14.97	14.87	14.67	17.36	17.34	17.24	17.18	17.25	17.29			
186	17.21	17.62	16.21	17.25	17.73	17.82	18.71	18.63	18.54	15.71	15.66	18.39	17.70	17.33	16.75	17.42	17.27	15.88	15.89	15.71	15.48	18.54	19.29	14.95	14.94	14.65	14.83	17.31	17.49	17.22	17.14	17.24	17.17			
187	17.14	17.57	16.33	17.18	17.85	17.79	18.46	18.77	18.75	15.75	15.91	18.23	17.83	17.21	16.79	17.39	17.14	15.88	15.85	15.66	15.49	18.64	19.27	14.69	14.94	14.64	14.84	17.33	17.41	17.18	17.16	17.20	17.21			
188	17.01	17.68	16.31	17.25	17.71	17.71	18.54	18.64	18.51	15.65	15.92	18.39	17.68	17.42	16.70	17.31	17.11	15.88	15.79	15.88	15.57	18.48	19.17	14.98	14.71	14.81	14.59	17.21	17.19	17.38	17.33	17.09	17.32			
189	17.13	17.62	16.29	17.10	17.78	17.88	18.46	18.53	18.75	15.66	15.70	18.46	17.93	17.39	16.84	17.26	17.23	15.62	15.68	15.76	15.44	18.69	19.32	14.95	14.67	14.72	14.77	17.34	17.37	17.30	17.15	17.36	17.23			
190	17.30	17.60	16.12	17.25	17.75	17.82	18.66	18.57	18.60	15.75	15.76	18.27	17.96	17.13	16.75	17.17	17.30	15.90	15.73	15.78	15.63	18.68	19.26	14.85	14.73	14.85	14.74	17.29	17.35	17.44	17.19	17.21	17.46			
191	15.40	15.95	14.49	15.43	14.89	15.98	16.20	16.31	16.24	11.81	11.88	12.00	11.31	15.98	15.47	15.97	15.85	14.40	14.45	14.13	10.25	17.73	17.47	11.41	11.40	11.49	11.39	21.93	9.45	9.46	9.47	9.43	11.50			
192	15.27	15.73	14.43	15.34	14.89	15.70	15.98	16.24	16.01	11.65	11.73	11.88	11.18	15.70	15.26	15.97	15.65	14.37	14.20	14.13	10.15	17.48	17.42	11.30	11.38	11.48	11.34	21.76	9.35	9.33	9.36	9.43	11.46			
193	15.15	15.75	14.30	15.26	14.84	15.89	16.20	16.08	16.17	11.72	11.73	11.99	11.23	15.96	15.44	15.74	15.80	14.19	14.24	13.90	10.16	17.47	17.42	11.23	11.30	11.28	11.20	21.68	9.24	9.23	9.37	9.19	11.49			
194	15.15	15.81	14.49	15.26	14.68	15.90	16.18	16.07	15.94	11.52	11.58	11.99	11.01	15.98	15.43	15.94	15.55	14.24	14.43	14.07	9.95	17.64	17.30	11.25	11.18	11.30	11.25	21.72	9.20	9.24	9.36	9.31	11.36			
195	15.35	15.65																																		



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		280	15.33	15.91	14.46	15.40	14.60	15.83	16.17	16.06	16.01	11.58	11.75	11.73	11.09	15.78	15.41	15.86	15.69	14.33	14.35	14.13	9.98	17.47	17.20	11.27	11.32	11.32	11.22	21.88	9.35	9.24	9.39	9.32	11.28
		290	15.21	15.68	14.36	15.27	14.60	15.83	15.92	16.28	16.22	11.70	11.83	11.91	11.17	15.91	15.24	15.81	15.72	14.18	14.42	14.11	10.16	17.70	17.28	11.29	11.39	11.39	11.29	21.80	9.37	9.43	9.23	9.36	11.38
		300	15.16	15.94	14.26	15.39	14.79	15.88	15.98	16.23	15.95	11.72	11.71	11.96	11.28	15.71	15.33	15.73	15.69	14.28	14.34	14.05	10.10	17.53	17.42	11.33	11.15	11.23	11.26	21.80	9.35	9.19	9.28	9.14	11.45
		310	15.34	15.73	14.26	15.39	14.84	15.86	16.09	16.27	15.98	11.65	11.88	11.83	11.28	15.72	15.24	15.77	15.57	14.34	14.28	14.03	10.01	17.68	17.22	11.26	11.18	11.25	11.37	21.63	9.15	9.25	9.32	9.23	11.44
		320	15.21	15.65	14.25	15.33	14.68	15.70	15.91	16.11	15.99	11.65	11.60	11.77	11.18	15.84	15.21	15.86	15.59	14.39	14.25	13.90	10.08	17.51	17.46	11.31	11.23	11.46	11.18	21.63	9.20	9.27	9.22	9.13	11.39
		330	15.30	15.70	14.40	15.17	14.80	15.68	15.96	16.13	16.11	11.58	11.84	11.87	11.18	15.90	15.41	15.80	15.69	14.36	14.17	13.94	10.09	17.50	17.44	11.20	11.30	11.47	11.30	21.89	9.18	9.18	9.24	9.32	11.22
		340	15.38	15.77	14.45	15.43	14.66	15.83	16.04	16.11	15.98	11.78	11.61	11.74	11.11	15.69	15.27	15.73	15.68	14.23	14.32	14.07	10.09	17.73	17.42	11.15	11.31	11.47	11.32	21.82	9.38	9.27	9.24	9.40	11.30
		350	15.14	15.76	14.25	15.32	14.66	15.74	15.98	16.02	16.07	11.52	11.76	11.83	11.09	15.77	15.24	15.79	15.75	14.24	14.25	14.11	10.16	17.72	17.38	11.38	11.39	11.30	11.12	21.82	9.32	9.30	9.35	9.27	11.48
		360	15.30	15.78	14.46	15.30	14.72	15.91	16.02	16.16	16.15	11.64	11.88	11.79	11.12	15.78	15.24	15.92	15.60	14.21	14.41	13.98	9.99	17.60	17.43	11.20	11.11	11.43	11.23	21.82	9.35	9.28	9.38	9.39	11.47

when the screen angle is from 0 degree to 360 degree																																														
Screen angle (degree) vs. power	Wireless		MIMO2																																											
	Band		LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 25	LTE Band 30	LTE Band 66	LTE Band 38	LTE Band41 PC3	LTE Band41 PC2	LTE Band42 Part 96	LTE Band42 Part 270	LTE Band43 Part 96	LTE Band 48 Part 96	FR1 n2	FR1 n7	FR1 n25	FR1 n30	FR1 n38	FR1 n41 PC3	FR1 n41 PC2	FR1 n48	FR1 n66	FR1 n70	FR1 n77 PC3 Part 270	FR1 n77 PC2 Part 270	FR1 n77 PC3 Part 270	FR1 n77 PC2 Part 270	FR1 n77 PC3 Part 96	FR1 n78 PC2 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 270	FR1 n78 PC3 Part 96												
			360	350	340	330	320	310	300	290	280	270	260	250	240	230	220	210	200	195	194	193	192	191	190	189	188	187	186	185	180	175	170	165	160	155	150	140	130	120	110	100	90	80	70	60
Tablet Mode		360	15.40	15.95	14.49	15.43	14.89	15.96	16.20	16.31	16.24	11.81	11.88	12.00	11.31	15.98	15.47	15.97	15.85	14.40	14.45	14.13	10.25	17.73	17.47	11.41	11.40	11.49	11.39	21.93	9.45	9.46	9.47	9.43	11.50											
		350	15.26	15.93	14.24	15.43	14.87	15.84	16.01	16.09	16.17	11.59	11.69	11.91	11.20	15.88	15.35	15.97	15.55	14.26	14.38	13.83	10.17	17.44	17.43	11.39	11.24	11.33	11.32	21.91	9.37	9.30	9.37	9.31	11.20											
		340	15.38	15.68	14.49	15.39	14.61	15.68	15.99	16.04	16.01	11.60	11.88	11.77	11.29	15.79	15.33	15.93	15.80	14.34	14.33	14.08	10.21	17.46	17.27	11.16	11.33	11.30	11.27	21.68	9.28	9.21	9.34	9.28	11.31											
		330	15.28	15.87	14.32	15.17	14.69	15.90	15.90	16.06	16.01	11.64	11.72	11.78	11.05	15.80	15.30	15.88	15.71	14.27	14.19	13.83	10.09	17.55	17.37	11.26	11.28	11.31	11.15	21.69	9.34	9.44	9.40	9.35	11.22											
		320	15.38	15.93	14.19	15.21	14.79	15.83	16.12	16.29	16.12	11.80	11.62	12.00	11.02	15.84	15.18	15.80	15.67	14.17	14.24	13.90	10.24	17.48	17.34	11.21	11.12	11.35	11.30	21.85	9.19	9.29	9.29	9.42	11.26											
		310	15.26	15.90	14.35	15.35	14.82	15.96	16.18	16.23	15.94	11.79	11.88	11.87	11.30	15.68	15.32	15.93	15.81	14.36	14.17	13.99	10.20	17.47	17.22	11.28	11.14	11.20	11.39	21.88	9.28	9.28	9.35	9.24	11.26											
		300	15.29	15.76	14.43	15.28	14.66	15.76	16.15	16.15	16.12	11.57	11.58	11.91	11.19	15.82	15.46	15.97	15.69	14.13	14.39	13.84	10.08	17.43	17.23	11.36	11.39	11.30	11.21	21.84	9.22	9.24	9.25	9.28	11.45											
		290	15.36	15.91	14.43	15.30	14.85	15.78	15.95	16.02	15.97	11.57	11.65	12.00	11.26	15.83	15.21	15.92	15.56	14.14	14.36	13.83	10.11	17.65	17.41	11.14	11.26	11.32	11.32	21.75	9.30	9.33	9.37	9.33	11.44											
		280	15.33	15.67	14.41	15.40	14.82	15.68	16.20	16.15	16.15	11.58	11.73	11.97	11.27	15.93	15.29	15.96	15.61	14.38	14.21	14.12	10.04	17.44	17.23	11.13	11.10	11.38	11.25	21.88	9.34	9.25	9.28	9.42	11.24											
		270	15.16	15.71	14.45	15.27	14.83	15.71	16.08	16.05	15.96	11.53	11.83	11.72	11.18	15.74	15.29	15.87	15.65	14.24	14.18	13.84	10.14	17.72	17.17	11.19	11.17	11.42	11.34	21.80	9.15	9.35	9.21	9.35	11.43											
		260	15.28	15.90	14.32	15.13	14.68	15.94	15.95	16.17	15.95	11.81	11.85	11.78	11.20	15.91	15.39	15.76	15.84	14.17	14.27	13.94	10.23	17.45	17.44	11.21	11.24	11.46	11.16	21.74	9.21	9.32	9.44	9.15	11.28											
		250	15.29	15.69	14.42	15.18	14.71	15.69	16.01	16.09	16.17	11.53	11.78	11.90	11.07	15.70	15.43	15.70	15.80	14.20	14.41	13.92	9.97	17.59	17.38	11.39	11.20	11.32	11.35	21.90	9.23	9.16	9.45	9.41	11.33											
		240	15.22	15.75	14.46	15.20	14.71	15.86	16.10	16.18	16.22	11.75	11.84	11.91	11.14	15.76	15.41	15.73	15.71	14.40	14.24	13.95	10.20	17.73	17.34	11.23	11.14	11.20	11.27	21.90	9.34	9.45	9.28	9.23	11.47											
		230	15.30	15.67	14.31	15.40	14.88	15.94	15.99	16.09	16.03	11.55	11.63	11.95	11.14	15.93	15.39	15.91	15.71	14.36	14.43	13.87	9.98	17.54	17.39	11.40	11.15	11.37	11.36	21.72	9.35	9.17	9.24	9.39	11.45											
		220	15.35	15.92	14.27	15.35	14.85	15.96	16.05	16.29	16.07	11.67	11.88	11.99	11.12	15.76	15.25	15.88	15.55	14.31	14.31	13.88	10.03	17.69	17.26	11.12	11.12	11.25	11.23	21.67	9.18	9.46	9.25	9.23	11.32											
		210	15.33	15.69	14.19	15.43	14.88	15.90	16.03	16.24	16.03	11.78	11.87	11.76	11.23	15.89	15.46	15.69	15.77	14.27	14.43	14.12	10.03	17.58	17.30	11.32	11.27	11.29	11.35	21.80	9.23	9.17	9.23	9.22	11.31											
		200	15.27	15.74	14.47	15.22	14.74	15.81	16.20	16.08	16.04	11.55	11.75	11.98	11.12	15.92	15.26	15.91	15.71	14.28	14.30	14.02	10.22	17.44	17.39	11.15	11.35	11.41	11.13	21.84	9.22	9.37	9.30	9.20	11.28											
		195	15.28	15.80	14.24	15.35	14.64	15.81	16.14	16.27	16.19	11.64	11.84	11.87	11.19	15.86	15.38	15.73	15.82	14.25	14.38	14.02	9.99	17.51	17.41	11.29	11.24	11.38	11.35	21.80	9.40	9.38	9.24	9.43	11.21											
		194	15.28	15.92	14.47	15.35	14.64	15.67	16.02	16.07	15.97	11.74	11.64	11.93	11.11	15.92	15.37	15.94	15.63	14.31	14.41	14.04	9.99	17.55	17.20	11.27	11.13	11.19	11.27	21.81	9.26	9.30	9.28	9.26	11.23											
		193	15.17	15.81	14.27	15.24	14.78	15.86	16.10	16.16	16.04	11.51	11.74	11.85	11.14	15.75	15.40	15.71	15.69	14.34	14.39	13.90	10.01	17.61	17.24	11.26	11.21	11.20	11.26	21.75	9.27	9.41	9.45	9.43	11.32											
		192	15.17	15.87	14.20	15.40	14.81	15.77	15.97	16.09	16.14	11.52	11.82	11.76	11.25	15.79	15.40	15.95	15.73	14.27	14.40	13.91	10.07	17.68	17.35	11.36	11.10	11.46	11.22	21.76	9.16	9.17	9.20	9.38	11.48											
		191	15.22	15.89	14.46	15.35	14.83	15.72	16.11	16.24	16.15	11.62	11.60	11.90	11.10	15.85	15.46	15.93	15.65	14.26	14.26	13.95	10.25	17.55	17.24	11.29	11.30	11.38	11.10	21.68	9.23	9.40	9.39	9.25	11.25											
	190	15.17	15.95	14.32	15.29	14.59	15.76	16.11	16.29	16.24	11.61	11.67	11.96	11.14	15.86	15.22	15.77	15.68	14.22	14.22	14.04	10.01	17.63	17.21	11.23	11.37	11.29	11.17	21.65	9.18	9.34	9.47	9.28	11.34												
Notebook		189	17.30	17.85	16.36	17.33	17.95	17.94	18.74	18.82	18.81	15.93	15.95	18.50	17.98	17.42	16.99	17.46	17.40	15.90	15.96	15.92	15.66	18.74	19.47	14.98	14.97	14.90	14.87	17.46	17.49	17.44	17.40	17.37	17.46											
		188	17.20	17.64	16.32	17.11	17.92	17.70	18.57	18.61	18.54	15.64	15.89	18.48	17.92	17.36	16.92	17.34	17.33	15.86	15.83	15.84	15.62	18.67	19.21	14.78	14.96	14.69	14.82	17.17	17.19	17.37	17.21	17.20	17.36											
		187	17.22	17.68	16.20	17.06	17.78	17.89	18.58	18.63	18.62	15.63	15.88	18.35	17.73	17.37	16.92	17.45	17.15	15.69	15.87	15.80	15.60	18.68	19.38	14.77	14.92	14.67	14.73	17.24	17.48	17.39	17.26	17.18	17.26											
		186	17.19	17.55	16.26	17.18	17.88	17.87	18.51	18.55	18.64	15.73	15.69	18.28	17.96	17.34	16.77	17.41	17.25	15.61	15.77	15.72	15.43	18.60	19.23	14.81	14.93	14.63	14.80	17.18	17.26	17.24	17.30	17.09	17.29											
		185	17.16	17.77	16.27	17.31	17.73	17.85	18.72	18.69	18.78	15.71	15.89	18.44	17.75	17.19	16.92	17.17	17.24	15.96	15.69	15.71	15.46	18.61	19.30	14.81	14.74	14.82	14.74	17.21	17.42	17.35	17.32	17.30	17.31											
		180	17.07	17.77	16.19	17.06	17.89	17.74	18.63	18.74	18.67	15.71	15.72	18.36	17.75	17.30	16.94	17.33	17.32	15.83	15.69	15.75	15.50	18.69	19.40	14.80	14.88	14.90	14.68	17.40	17.45	17.18	17.25	17.34	17.29											
		175	17.14	17.83	16.36	17.10	17.71	17.76	18.61	18.56	18.77	15.67	15.69	18.41	17.85	17.23	16.82	17.25	17.17	15.83	15.90	15.70	15.52	18.68	19.40	14.90	14.77	14.66	14.84	17.20	17.44	17.18	17.35	17.07	17.27											
		170	17.06	17.74	16.14	17.15	17.78	17.84	18.72	18.69	18.68	15.84	15.75	18.23	17.78	17.16	16.98	17.18	17.40	15.77	15.67	15.92	15.44	18.72	19.37	14.77	14.88	14.80	14.79	17.23	17.28	17.16	17.29	17.15	17.30											
		165	17.07	17.75	16.20	17.16	17.66	17.77	18.58	18.59	18.67	15.64	15.93	18.30	17.86	17.33	16.87	17.31	17.35	15.67	15.90	15.70	15.65	18.45	19.47	14.97	14.74	14.86	14.59	17.27	17.24	17.19	17.20	17.25	17.18											
		160	17.21	17.73	16.09	17.14	17.92	17.90	18.66	18.63	18.60	15.89	15.71	18.28	17.75	17.18	16.81	17.21	17.20	15.69	15.68	15.71	15.46	18.44	19.23	14.95	14.68	14.90	14.69	17.42	17.38	17.14	17.38	17.16	17.46											
		155	17.10	17.77	16.09	17.14	17.86	17.76	18.67	18.59	18.79	15.79	15.84	18.26	17.88	17.37	16.91	17.45	17.38	15.8																										



FCC SAR TEST REPORT

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		40	17.10	17.72	16.17	17.10	17.81	17.67	18.47	18.68	18.57	15.67	15.81	18.38	17.76	17.40	16.99	17.17	17.14	15.73	15.71	15.62	15.38	18.69	19.44	14.84	14.79	14.74	14.85	17.20	17.49	17.27	17.26	17.13	17.34
		30	17.30	17.75	16.30	17.14	17.94	17.72	18.45	18.59	18.75	15.80	15.81	18.47	17.78	17.42	16.81	17.27	17.29	15.69	15.87	15.71	15.64	18.44	19.35	14.95	14.97	14.72	14.60	17.45	17.36	17.17	17.28	17.37	17.33
		20	17.05	17.82	16.33	17.13	17.76	17.67	18.72	18.70	18.76	15.67	15.85	18.26	17.83	17.36	16.94	17.41	17.22	15.77	15.80	15.75	15.36	18.53	19.20	14.97	14.72	14.66	14.63	17.21	17.47	17.22	17.18	17.16	17.37
		10	17.08	17.70	16.17	17.15	17.95	17.78	18.72	18.52	18.51	15.70	15.79	18.44	17.98	17.14	16.93	17.44	17.11	15.65	15.82	15.68	15.50	18.59	19.27	14.77	14.68	14.82	14.62	17.34	17.24	17.26	17.31	17.29	17.41
		5	17.19	17.57	16.19	17.25	17.82	17.80	18.50	18.59	18.77	15.71	15.71	18.30	17.86	17.33	16.79	17.41	17.39	15.65	15.70	15.89	15.39	18.67	19.31	14.82	14.67	14.76	14.64	17.22	17.47	17.27	17.17	17.16	17.28
		4	17.29	17.66	16.32	17.17	17.65	17.69	18.56	18.65	18.67	15.70	15.67	18.27	17.82	17.39	16.78	17.38	17.17	15.68	15.87	15.84	15.55	18.64	19.26	14.85	14.87	14.84	14.64	17.44	17.33	17.18	17.38	17.28	17.17
		3	17.23	17.85	16.20	17.13	17.95	17.80	18.65	18.67	18.62	15.90	15.71	18.39	17.86	17.15	16.83	17.46	17.13	15.74	15.81	15.63	15.44	18.44	19.29	14.98	14.83	14.70	14.66	17.45	17.22	17.35	17.36	17.36	17.38
		2	17.02	17.84	16.15	17.10	17.76	17.90	18.54	18.61	18.65	15.87	15.67	18.21	17.94	17.13	16.94	17.26	17.37	15.84	15.74	15.68	15.56	18.64	19.39	14.79	14.71	14.74	14.60	17.30	17.25	17.27	17.38	17.22	17.16
		1	17.06	17.81	16.08	17.14	17.74	17.88	18.56	18.81	18.52	15.70	15.84	18.30	17.96	17.15	16.74	17.45	17.12	15.80	15.79	15.68	15.57	18.65	19.23	14.92	14.74	14.81	14.60	17.24	17.21	17.41	17.40	17.24	17.39
		Ltd Close	0	17.3	17.85	16.32	17.33	17.87	17.72	18.6	18.6	18.6	15.87	15.8	18.3	17.69	17.2	16.74	17.3	17.29	15.85	15.89	15.82	15.41	18.6	19.2	14.9	14.90	14.8	14.68	17.31	17.27	17.43	17.28	17.2

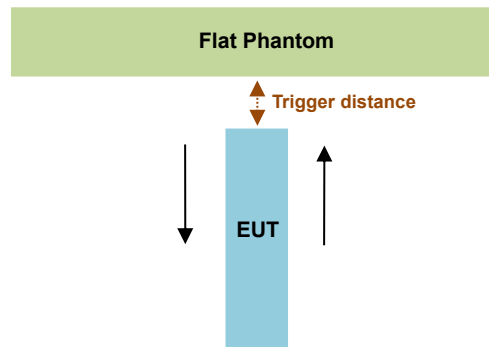
5. Proximity Sensor Triggering Test

<Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

For the device is fully integrated, touch sensing capacitive sensor. It uses a charge transfer capacitive acquisition method that is capable of near range proximity detection. In this device offers a state of the art capacitive sensing engine with an embedded sampling capacitor and voltage regulator allowing the overall solution cost to be reduced and improving system immunity in noisy environments.

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. The details are illustrated as following, and the shortest triggering distances were reported and used for SAR assessment.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



Main Antenna 0						
Proximity Sensor Trigger Distance (mm)						
Position	Bottom of Laptop		Bottom Face		Edge 3	
	moving toward	moving away	moving toward	moving toward	moving toward	moving away
Minimum	22	22	34	34	18	18

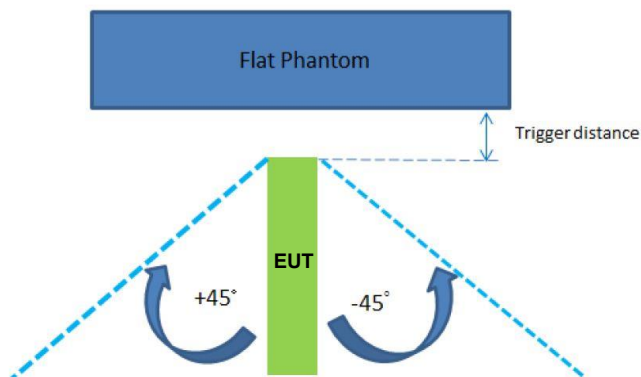
MIMO Antenna 2						
Proximity Sensor Trigger Distance (mm)						
Position	Bottom of Laptop		Bottom Face		Edge 3	
	moving toward	moving away	moving toward	moving toward	moving toward	moving away
Minimum	14	14	23	23	13	13

<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:

Since the antenna and sensor are collocated and all of the peak SAR location is overlapping with the sensor pad for this device, therefore, According to KDB 616217 section6.3, these procedures do not apply and are not required for this device. due to the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor on this device.

<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at above separation distance. Rotating the tablet around the edge next to the phantom in $\leq 10^\circ$ increments until the tablet is $\pm 45^\circ$ from the vertical position at 0° , and the maximum output power remains in the reduced mode.



Main Antenna 0		
The Sensor Trigger Distance (mm)		
Position	Edge 3	
	45	-45
Minimum	20	18

MIMO 2 Antenna 2		
The Sensor Trigger Distance (mm)		
Position	Edge 3	
	45	-45
Minimum	24	13

Proximity sensor power reduction

Band	Antenna	For Laptop Mode	For Tablet Mode
		Reduce Level Bottom of Laptop ⁽¹⁾	Reduce Level Bottom Face / Edge 3 ⁽¹⁾
WCDMA B2	Ant 0	5 dB	9.5 dB
WCDMA B4	Ant 0	4.5 dB	7.5 dB
WCDMA B5	Ant 0	3.5 dB	6 dB
LTE B2	Ant 0	6.5 dB	8.5 dB
LTE B4	Ant 0	3.5 dB	8 dB
LTE B5	Ant 0	2 dB	6 dB
LTE B7	Ant 0	7.5 dB	10 dB
LTE B12	Ant 0	1.5 dB	5.5 dB
LTE B13	Ant 0	1.5 dB	5.5 dB
LTE B14	Ant 0	1.5 dB	5.5 dB
LTE B17	Ant 0	1.5 dB	5.5 dB
LTE B25	Ant 0	6.5 dB	8.5 dB
LTE B26	Ant 0	2 dB	6 dB
LTE B30	Ant 0	5.5 dB	8.5 dB
LTE B38	Ant 0	4 dB	6.5 dB
LTE B41 PC3	Ant 0	4 dB	6.5 dB
LTE B41 PC2	Ant 0	7 dB	9.5 dB
LTE B42 Part 96	Ant 0	6 dB	10 dB
LTE B42 Part 27Q	Ant 0	8 dB	12 dB
LTE B43 Part 96	Ant 0	6 dB	9 dB
LTE B48 Part 96	Ant 0	6 dB	9 dB
LTE B66	Ant 0	3.5 dB	8 dB
LTE B71	Ant 0	1 dB	5.5 dB
FR1 n2	Ant 0	4 dB	8 dB
FR1 n5	Ant 0	1 dB	4.5 dB
FR1 n7	Ant 0	7.5 dB	10.5 dB
FR1 n12	Ant 0	1.5 dB	5.5 dB
FR1 n13	Ant 0	2 dB	4 dB
FR1 n14	Ant 0	1.5 dB	4.5 dB
FR1 n25	Ant 0	4 dB	8 dB
FR1 n26	Ant 0	1 dB	4.5 dB
FR1 n30	Ant 0	5 dB	8 dB
FR1 n38	Ant 0	7.5 dB	10 dB
FR1 n41 PC3	Ant 0	7.5 dB	10 dB
FR1 n41 PC2	Ant 0	10.5 dB	13 dB
FR1 n48	Ant 0	11 dB	13.5 dB
FR1 n66	Ant 0	2.5 dB	7 dB
FR1 n70	Ant 0	2.5 dB	8 dB
FR1 n71	Ant 0	1.5 dB	5 dB
FR1 n77 PC3 Part 27O	Ant 0	10.5 dB	13 dB
FR1 n77 PC2 Part 27O	Ant 0	13 dB	15.5 dB
FR1 n77 PC3 Part 27Q	Ant 0	10.5 dB	13 dB
FR1 n77 PC2 Part 27Q	Ant 0	13 dB	15.5 dB
FR1 n77 Part 96	Ant 0	8.5 dB	11 dB
FR1 n78 PC3 Part 27O	Ant 0	11.5 dB	13.5 dB
FR1 n78 PC2 Part 27O	Ant 0	14 dB	16 dB
FR1 n78 PC3 Part 27Q	Ant 0	11.5 dB	13.5 dB
FR1 n78 PC2 Part 27Q	Ant 0	14 dB	16 dB
FR1 n78 Part 96	Ant 0	8.5 dB	11 dB

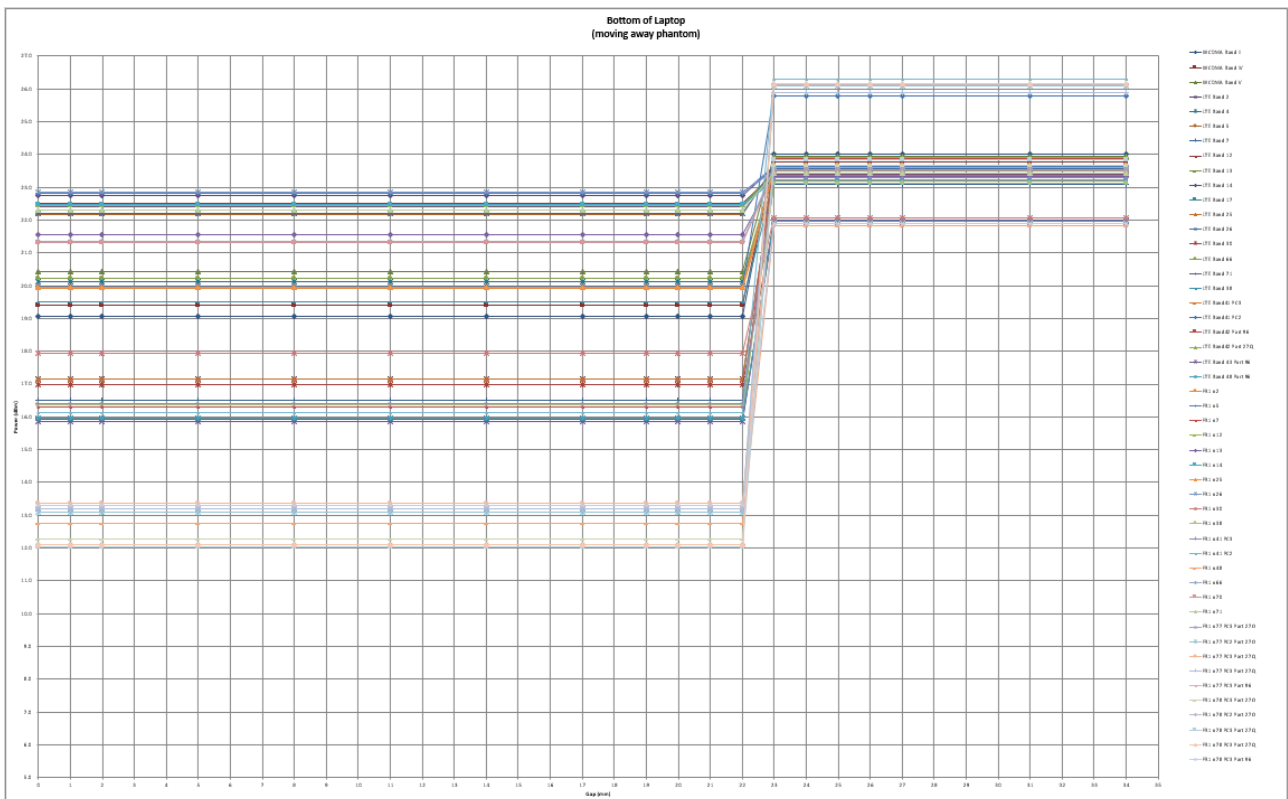
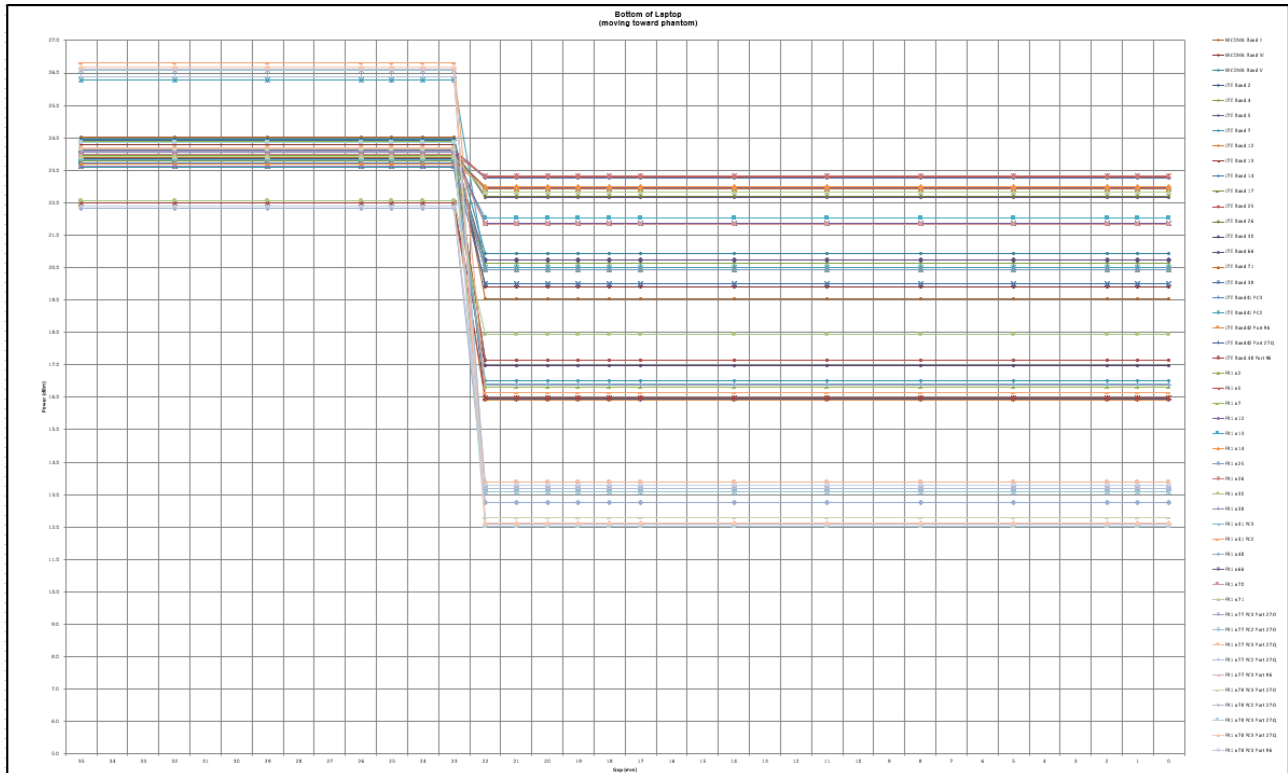
Band	Antenna	For Laptop Mode	For Tablet Mode
		Reduce Level Bottom of Laptop ⁽¹⁾	Reduce Level Bottom Face / Edge 3 ⁽¹⁾
LTE B2	Ant 2	6.5 dB	8.5 dB
LTE B4	Ant 2	6 dB	8 dB
LTE B7	Ant 2	6 dB	8 dB
LTE B25	Ant 2	6.5 dB	8.5 dB
LTE B30	Ant 2	5 dB	8 dB
LTE B38	Ant 2	5 dB	7.5 dB
LTE B41 PC3	Ant 2	5 dB	7.5 dB
LTE B41 PC2	Ant 2	8 dB	10.5 dB
LTE B42 Part 96	Ant 2	6 dB	10 dB
LTE B42 Part 27Q	Ant 2	8 dB	12 dB
LTE B43 Part 96	Ant 2	3.5 dB	10 dB
LTE B48 Part 96	Ant 2	4 dB	10.5 dB
LTE B66	Ant 2	6 dB	8 dB
FR1 n2	Ant 2	6.5 dB	8 dB
FR1 n7	Ant 2	5.5 dB	7 dB
FR1 n25	Ant 2	6.5 dB	8 dB
FR1 n30	Ant 2	5.5 dB	7 dB
FR1 n38	Ant 2	8 dB	9.5 dB
FR1 n41 PC3	Ant 2	8 dB	9.5 dB
FR1 n41 PC2	Ant 2	11 dB	12.5 dB
FR1 n48	Ant 2	6 dB	11.5 dB
FR1 n66	Ant 2	5 dB	9.5 dB
FR1 n70	Ant 2	4.5 dB	7 dB
FR1 n77 PC3 Part 27O	Ant 2	9 dB	12.5 dB
FR1 n77 PC2 Part 27O	Ant 2	9.5 dB	13 dB
FR1 n77 PC3 Part 27Q	Ant 2	9 dB	12.5 dB
FR1 n77 PC2 Part 27Q	Ant 2	9.5 dB	13 dB
FR1 n77 Part 96	Ant 2	4.5 dB	10.5 dB
FR1 n78 PC3 Part 27O	Ant 2	6.5 dB	14.5 dB
FR1 n78 PC2 Part 27O	Ant 2	7 dB	15 dB
FR1 n78 PC3 Part 27Q	Ant 2	6.5 dB	14.5 dB
FR1 n78 PC2 Part 27Q	Ant 2	7 dB	15 dB
FR1 n78 Part 96	Ant 2	4.5 dB	10.5 dB

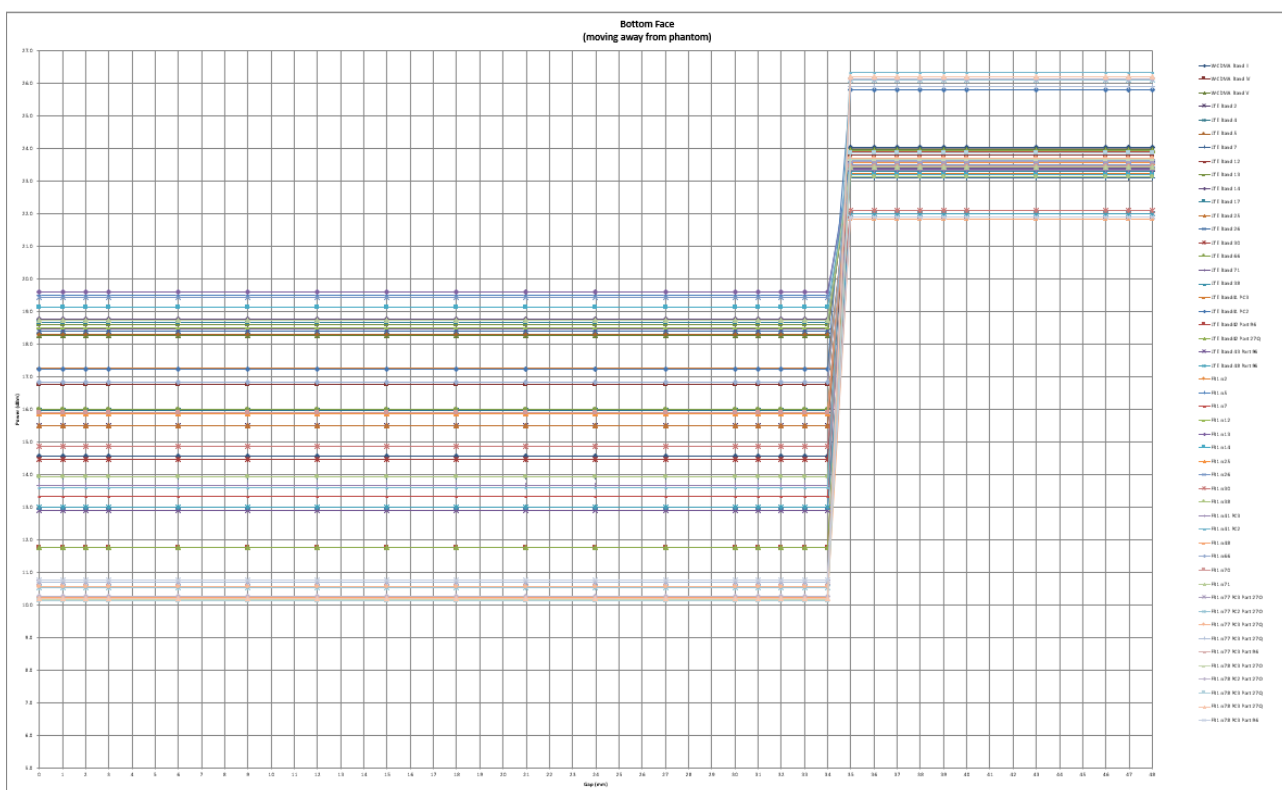
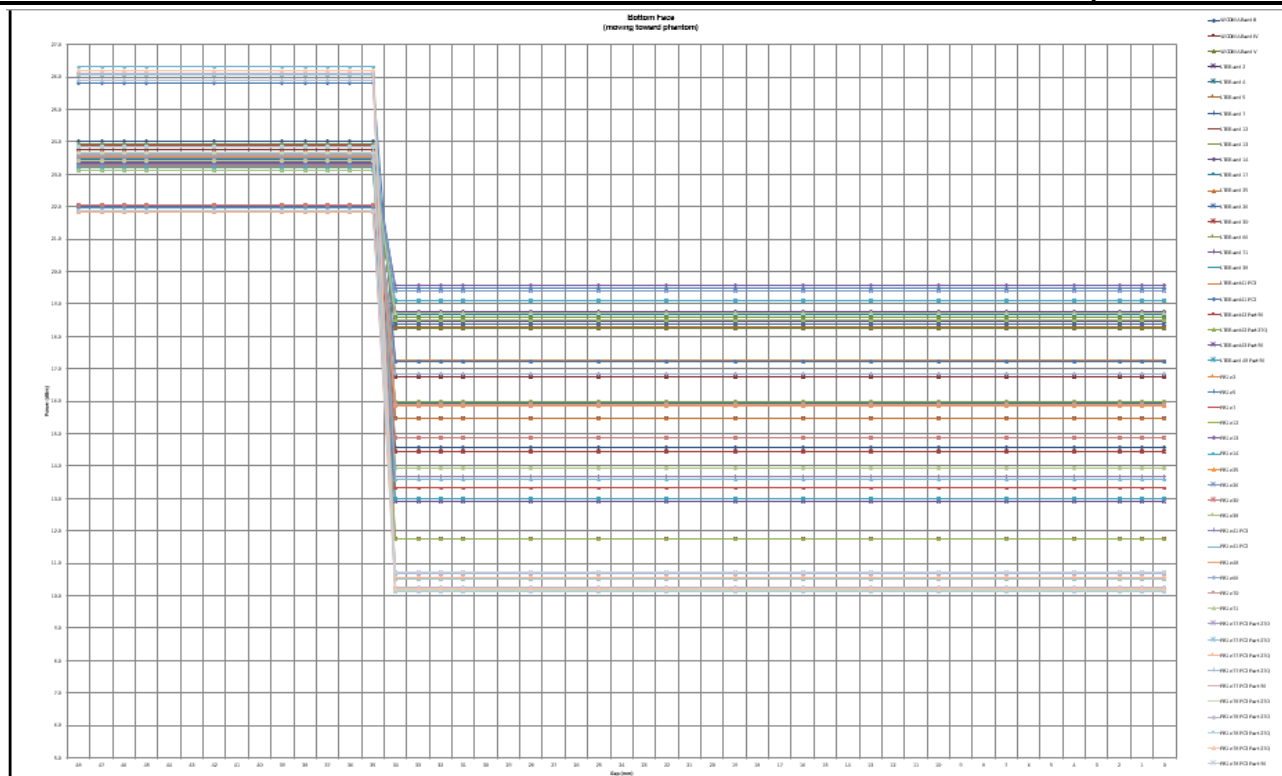
Remark:

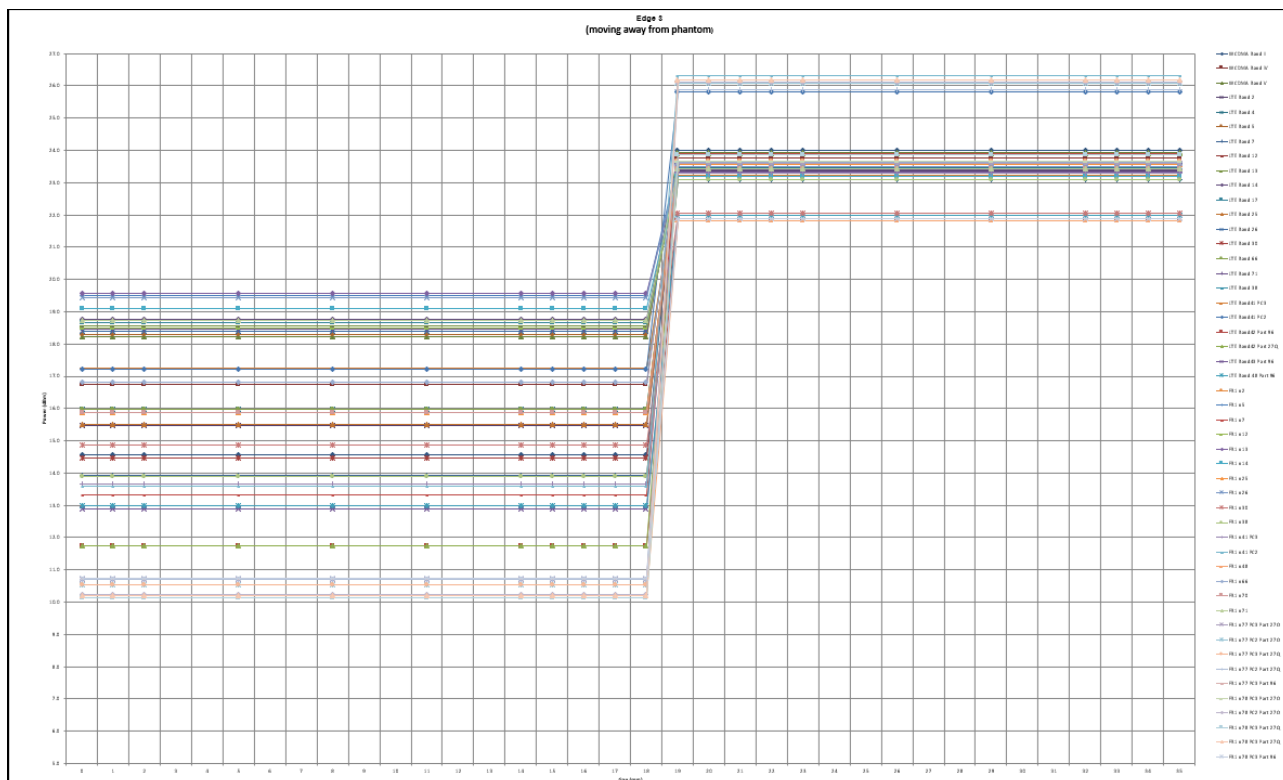
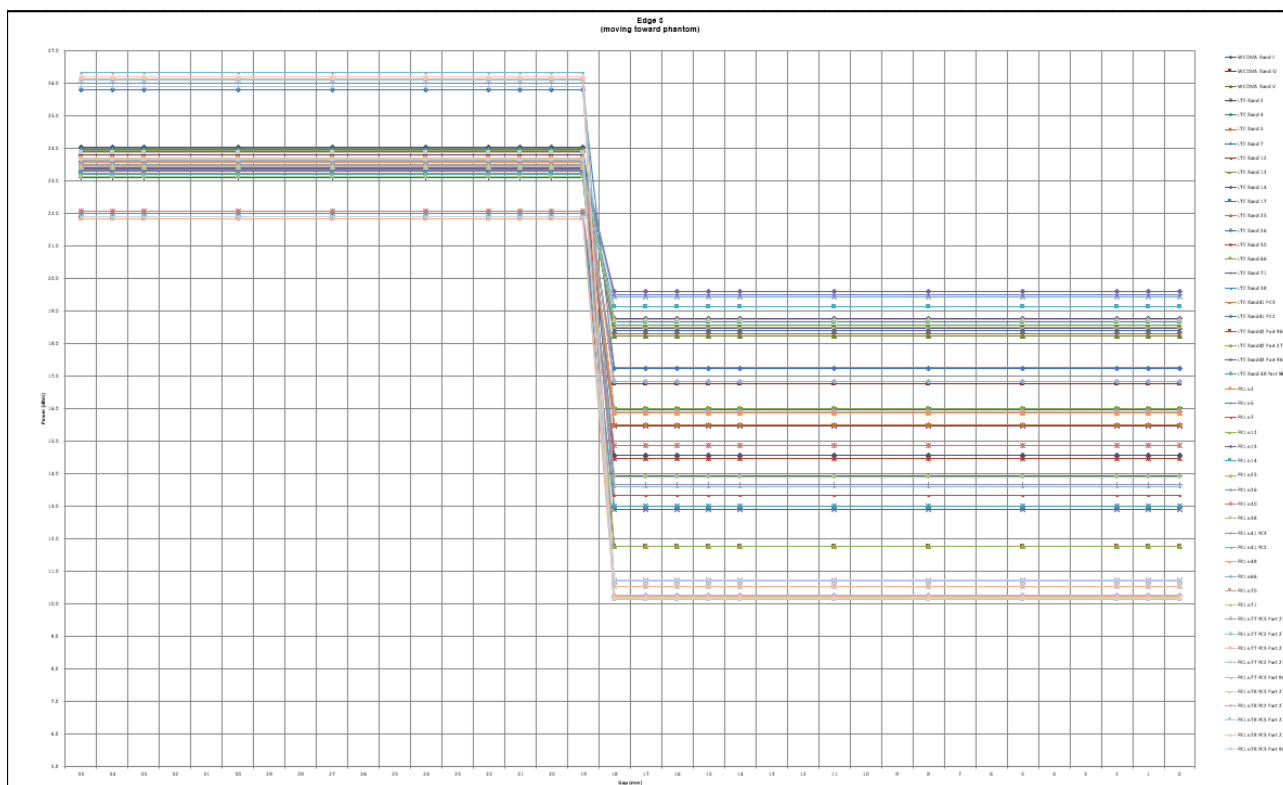
- ⁽¹⁾: Reduced maximum limit applied by activation of proximity sensor.
- Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown as below.
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
 - Ant 0**
 - Bottom of Laptop: [21 mm](#)
 - Bottom Face: [33 mm](#)
 - Edge 3: [17 mm](#)
 - Ant 2**
 - Bottom of Laptop: [13 mm](#)
 - Bottom Face: [22 mm](#)
 - Edge 3: [12 mm](#)

Power Measurement during Sensor Trigger distance testing

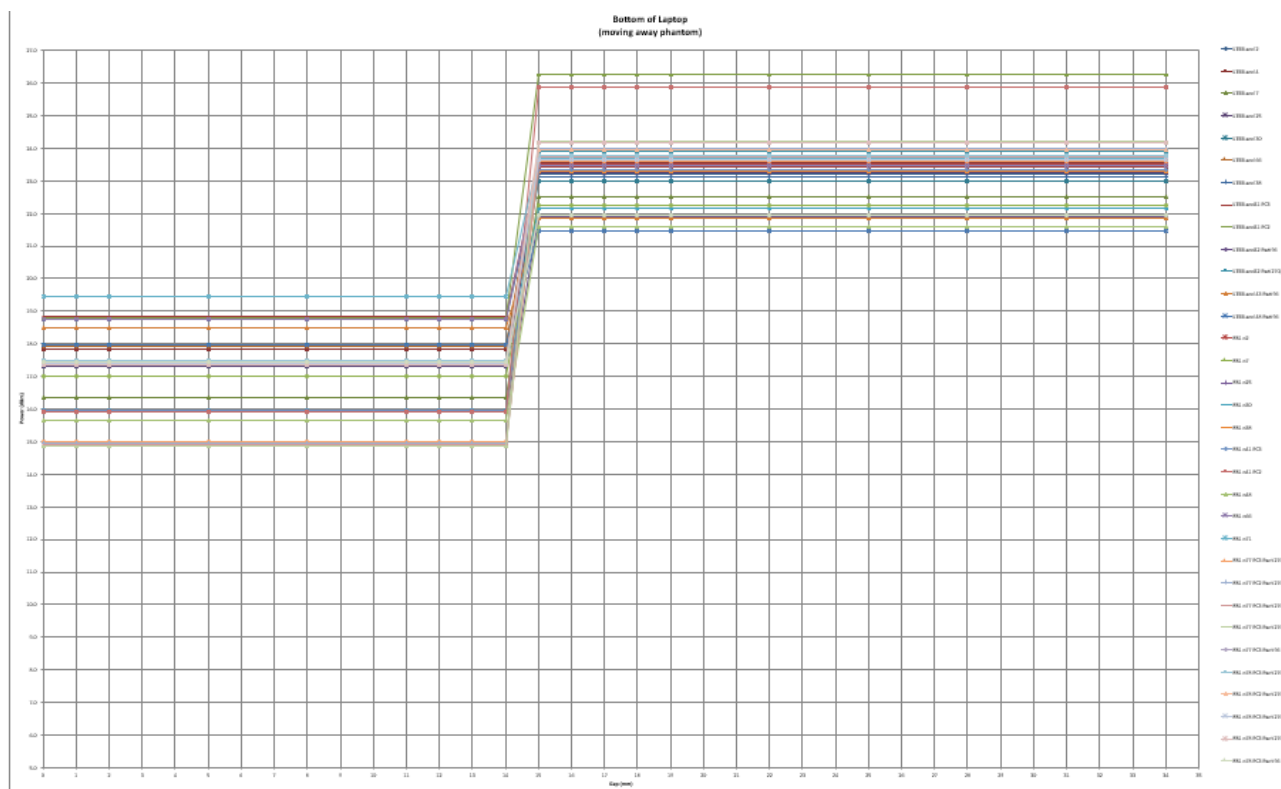
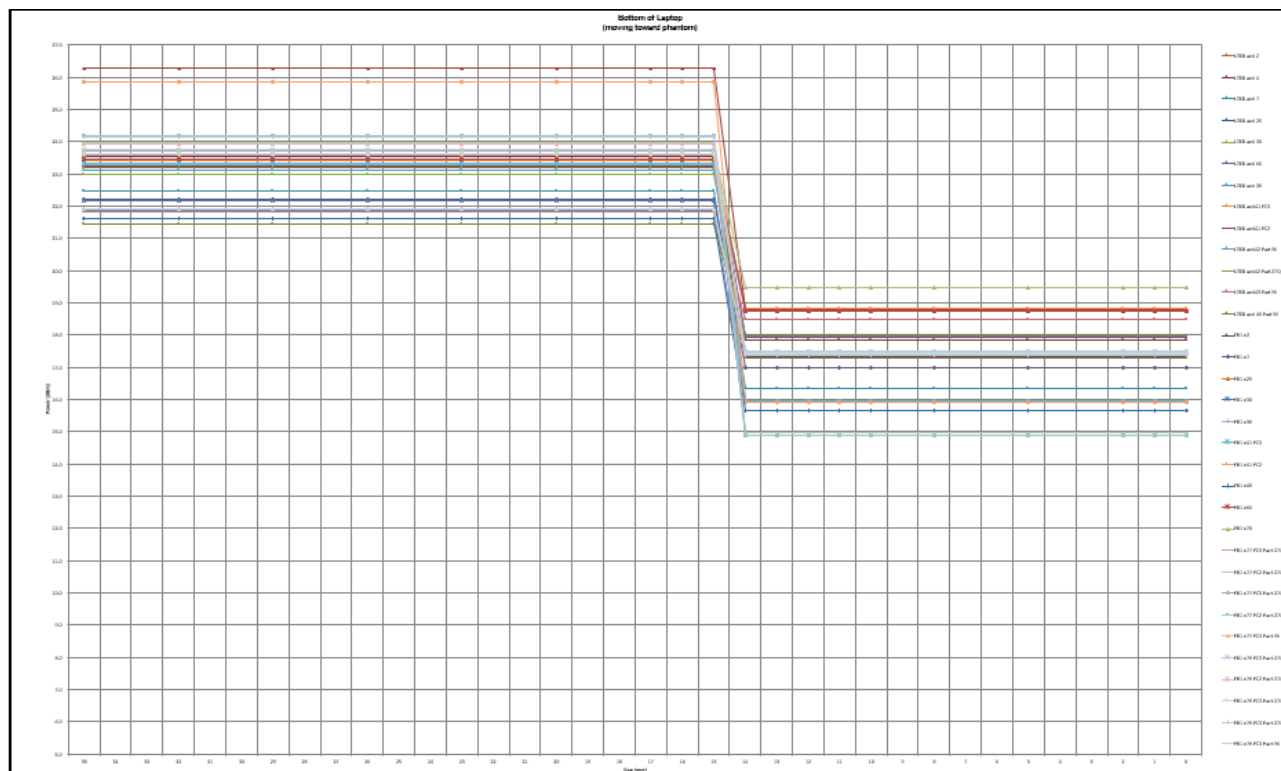
Main Antenna 0

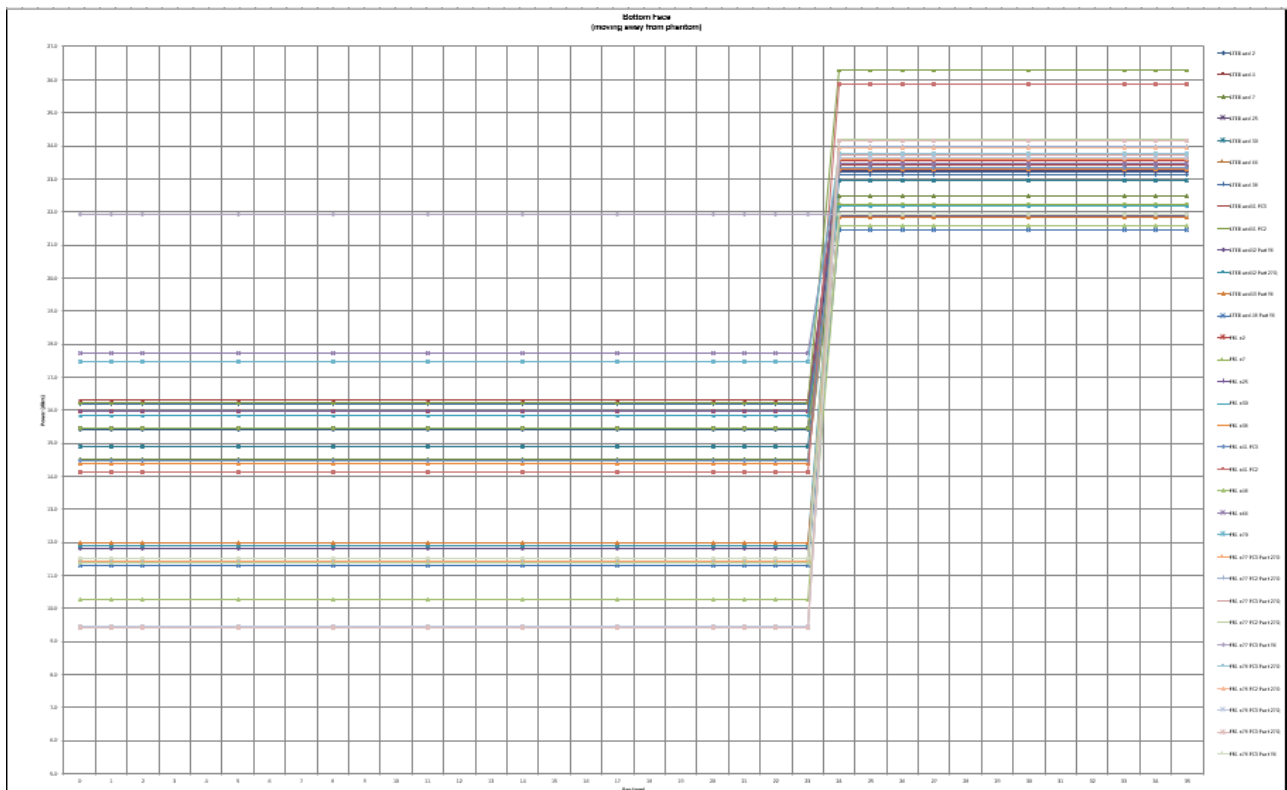
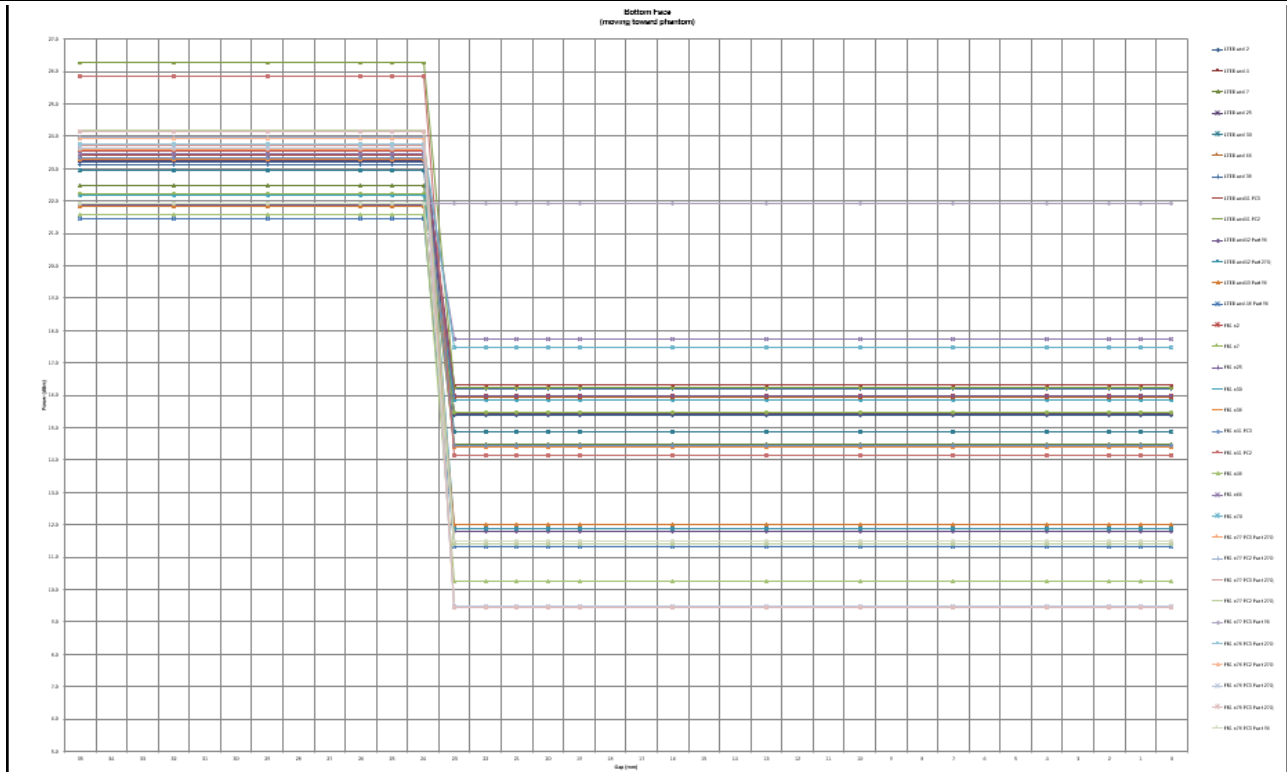


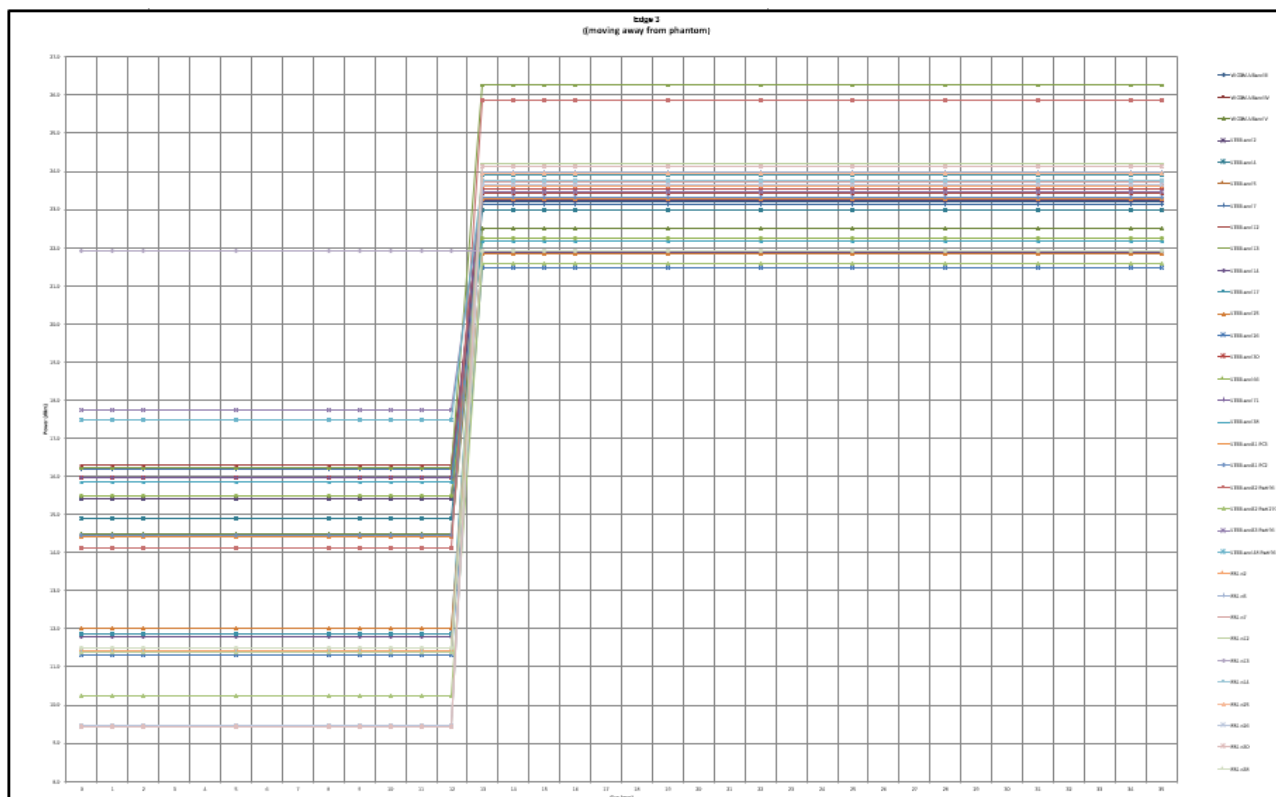
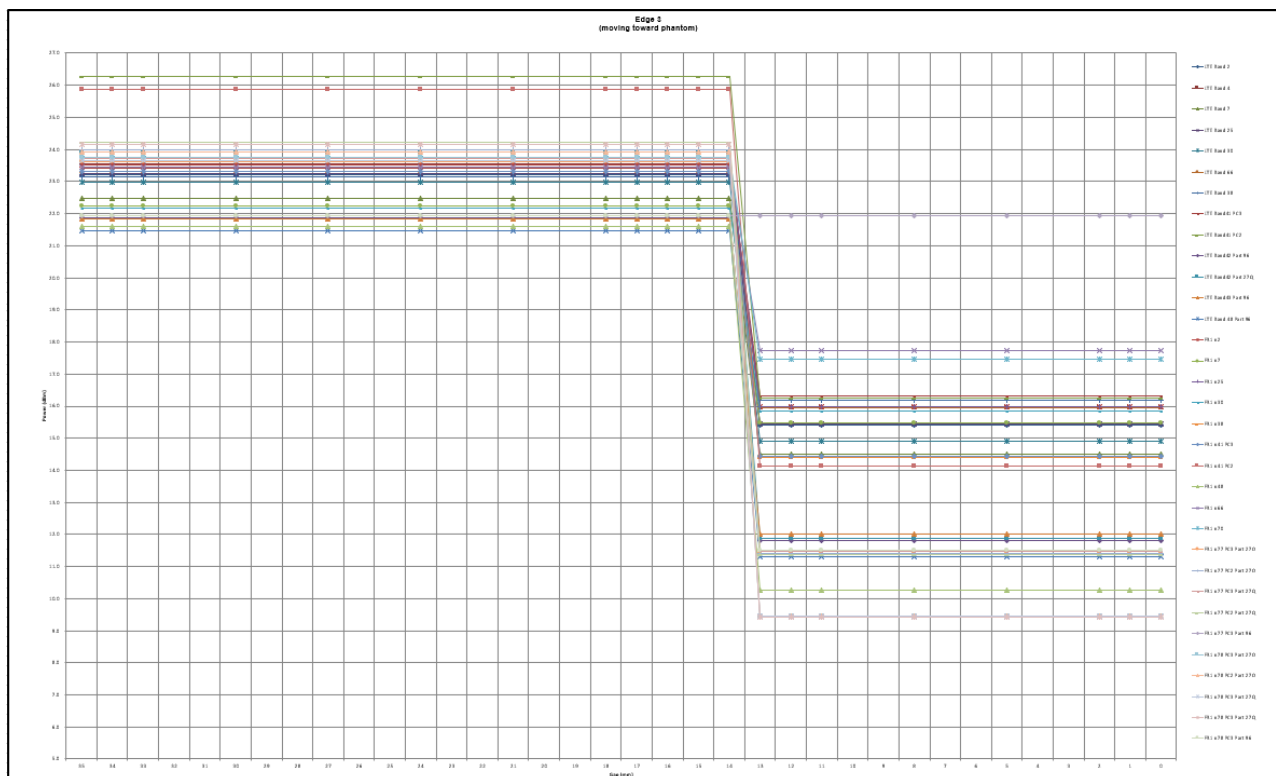




MIMO2 Antenna 2







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

1. 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:

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

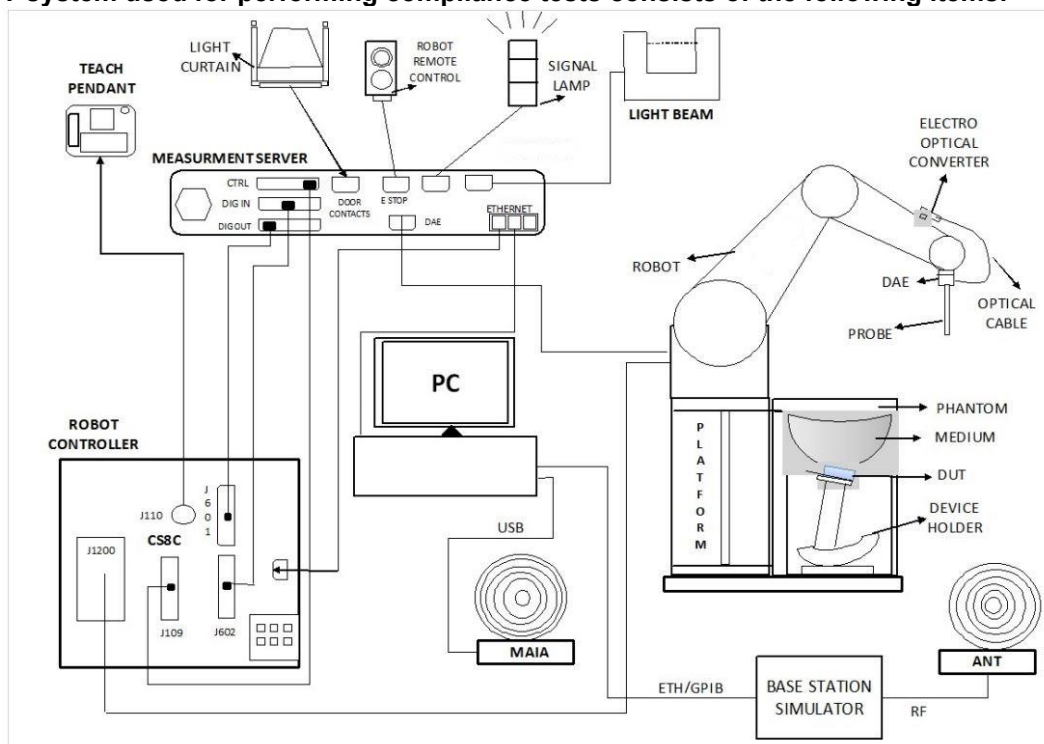
SAR is expressed in units of Watts per kilogram (W/kg)

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

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:



- The DASY system in SAR Configuration is shown above
- 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 windows software and the DASY 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 Test Site Location

The SAR measurement facilities used to collect data are within both Sporton Lab list below test site location are accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190 and 3786) and the FCC designation No. TW1190 and TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC test.

Laboratory	EMC & Wireless Communications Laboratory		Wensan Laboratory				
Test Site Location	TW1190 No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan		TW3786 No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan				
Test Site No.	SAR01-HY	SAR03-HY	SAR08-HY	SAR09-HY	SAR15-HY	SAR18-HY	SAR21-HY
	SAR04-HY	SAR05-HY	SAR11-HY	SAR12-HY	SAR16-HY	SAR19-HY	SAR22-HY
	SAR06-HY	SAR10-HY	SAR13-HY	SAR14-HY	SAR17-HY	SAR20-HY	

8.2 E-Field Probe

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

<ES3DV3 Probe>

Construction	Symmetric design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz – 4 GHz; Linearity: ± 0.2 dB (30 MHz – 4 GHz)	
Directivity	± 0.2 dB in TSL (rotation around probe axis) ± 0.3 dB in TSL (rotation normal to probe axis)	
Dynamic Range	5 μ W/g – >100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 3.9 mm (body: 12 mm) Distance from probe tip to dipole centers: 3.0 mm	

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	4 MHz – >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	

8.3 Data Acquisition Electronics (DAE)

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

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



Fig 5.1 Photo of DAE

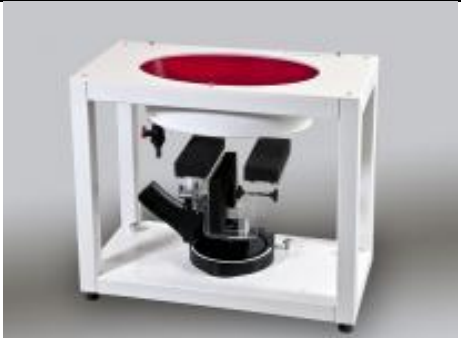
8.4 Phantom

<SAM Twin Phantom>

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

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

<ELI Phantom>

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

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.5 Device Holder

<Mounting Device for Hand-Held Transmitter>

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



Mounting Device for Hand-Held Transmitters



Mounting Device Adaptor for Wide-Phones

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

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



Mounting Device for Laptops

9. Measurement Procedures

The measurement procedures are as follows:

- (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: Δx_{Area} , Δy_{Area}	≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ 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	750MHz System Validation Kit ⁽²⁾	D750V3	1107	Jun. 22, 2022	Jun. 20, 2024
SPEAG	835MHz System Validation Kit ⁽²⁾	D835V2	4d167	Nov. 24, 2022	Nov. 22, 2024
SPEAG	1750MHz System Validation Kit ⁽²⁾	D1750V2	1112	Jun. 22, 2022	Jun. 20, 2024
SPEAG	1900MHz System Validation Kit ⁽²⁾	D1900V2	5d185	Jun. 17, 2022	Jun. 15, 2024
SPEAG	2300MHz System Validation Kit ⁽²⁾	D2300V2	1006	Jan. 18, 2022	Jan. 16, 2024
SPEAG	2600MHz System Validation Kit ⁽²⁾	D2600V2	1078	Jun. 23, 2022	Jun. 21, 2024
SPEAG	3500MHz System Validation Kit ⁽²⁾	D3500V2	1036	Mar. 23, 2022	Mar. 21, 2024
SPEAG	3700MHz System Validation Kit ⁽²⁾	D3700V2	1006	Jun. 20, 2022	Jun. 18, 2024
SPEAG	3900MHz System Validation Kit	D3900V2	1092	May. 15, 2023	May. 14, 2024
SPEAG	Data Acquisition Electronics	DAE4	1696	Oct. 23, 2023	Oct. 22, 2024
SPEAG	Dosimetric E-Field Probe	EX3DV4	7695	May. 22, 2023	May. 21, 2024
Anritsu	Radio Communication Analyzer	MT8821C	6201341950	Nov. 13, 2023	Nov. 12, 2024
Keysight	5G Wireless Test Platform	E7515B	MY59321826	Apr. 26, 2023	Apr. 25, 2024
SPEAG	Device Holder	N/A	N/A	N/A	N/A
Anritsu	Signal Generator	MG3710A	6201502524	Sep. 27, 2023	Sep. 26, 2024
Keysight	ENA Network Analyzer	E5071C	MY46104758	Oct. 30, 2023	Oct. 29, 2024
SPEAG	Dielectric Probe Kit	DAK-3.5	1126	Sep. 19, 2023	Sep. 18, 2024
LINE SEIKI	Digital Thermometer	DTM3000-spezial	3690	Aug. 09, 2023	Aug. 08, 2024
Anritsu	Power Meter	ML2495A	1419002	Aug. 17, 2023	Aug. 16, 2024
Anritsu	Power Sensor	MA2411B	1911176	Aug. 18, 2023	Aug. 17, 2024
Anritsu	Spectrum Analyzer	MS2830A	6201396378	Jul. 10, 2023	Jul. 09, 2024
Mini-Circuits	Power Amplifier	ZVE-8G+	6418	Oct. 16, 2023	Oct. 15, 2024
ATM	Dual Directional Coupler	C122H-10	P610410z-02	Note 1	
Warison	Directional Coupler	WCOU-10-50S-10	WR889BMC4B1	Note 1	
Woken	Attenuator 1	WK0602-XX	N/A	Note 1	
PE	Attenuator 2	PE7005-10	N/A	Note 1	
PE	Attenuator 3	PE7005- 3	N/A	Note 1	

General Note:

1. 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 source.
2. The dipole calibration interval can be extended to 3 years with justification according to KDB 865664 D01. The dipoles are also not physically damaged, or repaired during the interval. The justification data in appendix C can be found which the return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration for each dipole.

11. System Verification

11.1 Tissue Verification

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

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

<Tissue Dielectric Parameter Check Results>

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target (σ)	Permittivity Target (ϵ_r)	Delta (σ) (%)	Delta (ϵ_r) (%)	Limit (%)	Date
750	22.2	0.893	43.100	0.89	41.90	0.34	2.86	± 5	2023/12/20
750	22.3	0.892	43.000	0.89	41.90	0.22	2.63	± 5	2023/12/22
750	22.3	0.885	41.700	0.89	41.90	-0.56	-0.48	± 5	2023/12/31
835	22.1	0.920	41.500	0.90	41.50	2.22	0.00	± 5	2023/12/19
835	22.1	0.930	42.800	0.90	41.50	3.33	3.13	± 5	2023/12/21
1750	22.5	1.360	40.500	1.37	40.10	-0.73	1.00	± 5	2023/12/23
1750	22.5	1.350	40.700	1.37	40.10	-1.46	1.50	± 5	2024/1/1
1900	22.1	1.400	40.600	1.40	40.00	0.00	1.50	± 5	2023/12/19
1900	22.3	1.390	40.400	1.40	40.00	-0.71	1.00	± 5	2023/12/22
2300	22.6	1.640	39.400	1.67	39.50	-1.80	-0.25	± 5	2023/12/26
2600	22.5	1.970	39.400	1.96	39.00	0.51	1.03	± 5	2023/12/18
2600	22.4	1.950	39.500	1.96	39.00	-0.51	1.28	± 5	2023/12/24
2600	22.7	1.970	39.700	1.96	39.00	0.51	1.79	± 5	2023/12/25
3500	22.2	3.010	37.800	2.91	37.90	3.44	-0.26	± 5	2023/12/13
3500	22.4	2.910	37.100	2.91	37.90	0.00	-2.11	± 5	2023/12/14
3500	22.5	2.970	37.900	2.91	37.90	2.06	0.00	± 5	2023/12/15
3500	22.2	3.000	37.800	2.91	37.90	3.09	-0.26	± 5	2023/12/17
3500	22.7	2.980	37.800	2.91	37.90	2.41	-0.26	± 5	2023/12/27
3500	22.4	2.920	37.100	2.91	37.90	0.34	-2.11	± 5	2023/12/28
3500	22.1	2.950	38.600	2.91	37.90	1.37	1.85	± 5	2023/12/30
3700	22.7	3.220	37.700	3.12	37.70	3.21	0.00	± 5	2023/12/11
3700	22.4	3.100	36.900	3.12	37.70	-0.64	-2.12	± 5	2023/12/14
3700	22.2	3.190	37.500	3.12	37.70	2.24	-0.53	± 5	2023/12/17
3700	22.6	3.180	38.300	3.12	37.70	1.92	1.59	± 5	2023/12/29
3700	22.1	3.100	36.800	3.12	37.70	-0.64	-2.39	± 5	2023/12/30
3900	22.3	3.370	37.100	3.33	37.51	1.20	-1.09	± 5	2023/12/10
3900	22.7	3.420	37.400	3.33	37.51	2.70	-0.29	± 5	2023/12/11
3900	22.4	3.390	37.300	3.33	37.51	1.80	-0.56	± 5	2023/12/12
3900	22.6	3.410	37.300	3.33	37.51	2.40	-0.56	± 5	2023/12/16

12. Measurement procedure for output power and SAR

Detail output power measurement data is in the appendix D

<GSM Note>

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. Therefore, the GPRS (4Tx slots) for GSM850/GSM1900 is considered as the primary mode.
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 $\leq \frac{1}{4}$ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

<WCDMA Note>

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. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
4. 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 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 to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $\frac{1}{4}$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

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_c/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 $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases. Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.							

Setup Configuration

HSUPA 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 = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - 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, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. 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

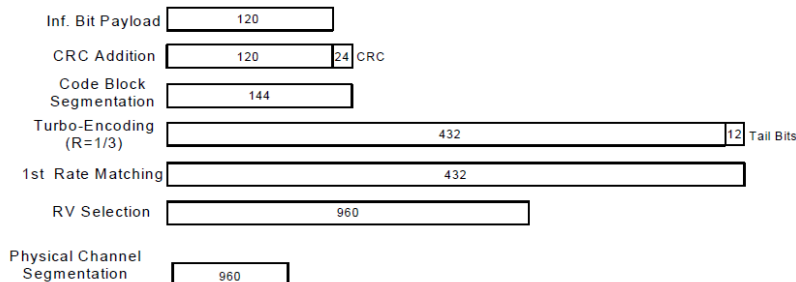
DC-HSDPA 3GPP release 8 Setup Configuration:

- a. The EUT was connected to Base Station Agilent E5515C 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

<LTE Note>

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM 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 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/B12/B17/B26/B38/B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. LTE band 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. the maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion
 - b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band

<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 Base station simulator was used for LTE output power measurements and SAR testing.

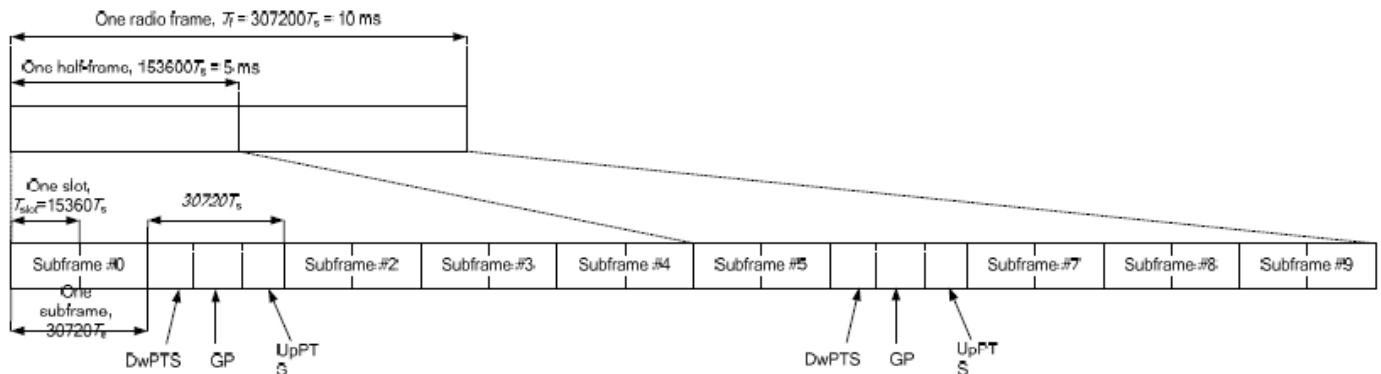


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

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.
- The device supports Power Class 3 uplink-downlink configurations 0 and 6, and Power Class 2 uplink-downlink configurations 1 to 5.
- The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1, for Power Class 3 operation is 63.3% using UL-DL configuration 0. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR among all exposure condition.

<5G NR Note>

1. Referencing the procedure in KDB 941225, the test procedures are outlined as below
 - a. For DFT-OFDM output power measurement, full measurement was done for Pi/2 BPSK and QPSK and for the largest supported bandwidth, repeat test for 16QAM/64QAM/256QAM under 1RB 1Offset configuration. For smaller bandwidth, measure conducted power for Pi/2 BPSK and 1RB 1Offset configuration.
 - b. According to the tune-up, CP-OFDM output power is not ½ dB higher than DFT-OFDM mode, and the reported SAR of DFT-OFDM mode reported SAR is ≤ 1.45 W/kg, SAR test and thus conducted power for CP-OFDM mode is not required.
 - c. To start SAR test for the largest channel bandwidth for Pi/2 BPSK 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. Also do SAR test for 50% RB allocation for Pi/2 BPSK SAR testing using 1RB Pi/2 BPSK allocation procedure
 - d. For Pi/2 BPSK with 100% RB allocation, SAR test 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.
 - e. For higher modulation QPSK/16QAM/64QAM/256QAM, according to tune-up document the power level is not ½ dB higher than the same configuration in Pi/2 BPSK, also reported SAR for the Pi/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
 - f. Smaller bandwidth output power for each RB allocation configuration for this device is 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
2. Due to test setup limitations, SAR testing for TDD NR was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.
3. For NR FDD was establishing connections via a base station simulator to use for output power measurement and 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	



13. DL/UL carrier aggregation

<LTE Carrier Aggregation combinations>

General Note:

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation			4CC Downlink Carrier Aggregation			5CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
1	CA_2C	526	88	CA_48D	540	269	CA_48E	540	454	CA_48F	540
2	CA_5B	532	89	CA_66D	540	270	CA_41A-41A-41C	537	455	CA_41C-41D	537
3	CA_7B	534	90	CA_25A-25A-25A	537	271	CA_48A-48D	540	456	CA_48A-48E	540
4	CA_7C	534	91	CA_48A-48A-48A	540	272	CA_48C-48C	540	457	CA_48C-48D	540
5	CA_12B	529	92	CA_48A-48C	540	273	CA_2A-2A-4A-4A	372	458	CA_2A-2A-46D	525
6	CA_43C	18	93	CA_66A-66A-66A	540	274	CA_2A-2A-5B	511	459	CA_2A-2A-66A-66B	526
7	CA_48B	540	94	CA_66A-66B	540	275	CA_2A-2A-7A-7A	515	460	CA_2A-2A-66A-66C	526
8	CA_48C	540	95	CA_66A-66C	540	276	CA_2A-2A-7C	515	461	CA_2A-46A-46D	525
9	CA_66B	540	96	CA_2A-2A-4A	372	277	CA_2A-2A-12A-12A	516	462	CA_2A-46E	525
10	CA_66C	540	97	CA_2A-2A-5A	511	278	CA_2A-2A-12B	516	463	CA_2A-48A-48D	526
11	CA_2A-2A	526	98	CA_2A-2A-7A	515	279	CA_2A-2A-46C	525	464	CA_2A-48C-48C	526
12	CA_3A-3A		99	CA_2A-2A-12A	516	280	CA_2A-2A-66A-66A	526	465	CA_2A-48E	526
13	CA_4A-4A	527	100	CA_2A-2A-13A	521	281	CA_2A-2A-66B	526	466	CA_4A-46A-46D	
14	CA_5A-5A	532	101	CA_2A-2A-14A	504	282	CA_2A-2A-66C	526	467	CA_4A-48E	
15	CA_7A-7A	534	102	CA_2A-2A-29A	505	283	CA_2A-46A-46C	525	468	CA_5A-46E	531
16	CA_12A-12A	529	103	CA_2A-2A-30A	506	284	CA_2A-46D	525	469	CA_5B-46D	531
17	CA_25A-25A	537	104	CA_2A-2A-46A	525	285	CA_2A-48A-48C	526	470	CA_5B-66A-66B	532
18	CA_43A-43A		105	CA_2A-2A-66A	526	286	CA_2A-48D	526	471	CA_5B-66A-66C	532
19	CA_48A-48A	540	106	CA_2A-2A-71A	414	287	CA_2A-66A-66A-66A	526	472	CA_7A-7A-46D	528
20	CA_66A-66A	540	107	CA_2A-4A-4A	372	288	CA_2A-66A-66B	526	473	CA_7A-46E	528
21	CA_2A-4A	372	108	CA_2A-5B	511	289	CA_2A-66A-66C	526	474	CA_7C-46D	528
22	CA_2A-5A	511	109	CA_2C-5A	511	290	CA_2C-66A-66A	526	475	CA_12A-46E	529
23	CA_2A-7A	515	110	CA_2A-7A-7A	515	291	CA_2A-66D	526	476	CA_13A-46A-46D	535
24	CA_2A-12A	516	111	CA_2A-7C	515	292	CA_4A-4A-5B	527	477	CA_13A-46E	535
25	CA_2A-13A	521	112	CA_2A-12A-12A	516	293	CA_4A-4A-12A-12A	419	478	CA_13A-48A-48D	536
26	CA_2A-14A	504	113	CA_2A-12B	516	294	CA_4A-4A-12B	419	479	CA_13A-48C-48C	536
27	CA_2A-26A	233	114	CA_2C-12A	516	295	CA_4A-46A-46C	466	480	CA_13A-48E	536
28	CA_2A-29A	505	115	CA_2C-29A	505	296	CA_4A-46D	466	481	CA_25A-25A-41D	537
29	CA_2A-30A	506	116	CA_2C-30A	506	297	CA_4A-48D	467	482	CA_25A-41E	537
30	CA_2A-46A	525	117	CA_2A-46A-46A	525	298	CA_5A-5A-66A-66A	532	483	CA_41D-42C	
31	CA_2A-48A	526	118	CA_2A-46C	525	299	CA_5A-5A-66B	532	484	CA_41A-46E	
32	CA_2A-66A	526	119	CA_2A-48A-48A	526	300	CA_5A-5A-66C	532	485	CA_46A-46D-66A	540
33	CA_2A-71A	414	120	CA_2A-48C	526	301	CA_5A-46D	531	486	CA_46D-66A-66A	540
34	CA_4A-5A	527	121	CA_2A-66A-66A	526	302	CA_5B-46C	531	487	CA_46E-66A	540
35	CA_4A-12A	419	122	CA_2A-66B	526	303	CA_5A-48D	532	488	CA_48A-48C-66B	540
36	CA_4A-13A	242	123	CA_2A-66C	526	304	CA_5A-66A-66B	532	489	CA_48A-48C-66C	540
37	CA_4A-29A	418	124	CA_2C-66A	526	305	CA_5A-66A-66C	532	490	CA_48A-48D-66A	540
38	CA_4A-30A	527	125	CA_4A-4A-5A	527	306	CA_5B-66A-66A	532	491	CA_48C-48C-66A	540
39	CA_4A-46A	466	126	CA_4A-4A-7A	371	307	CA_5A-66D	532	492	CA_48E-66A	540
40	CA_4A-48A	467	127	CA_4A-4A-12A	419	308	CA_5B-66B	532	493	CA_2A-2A-5A-66A-66A	511
41	CA_4A-71A	350	128	CA_4A-4A-13A	242	309	CA_5B-66C	532	494	CA_2A-2A-5A-66B	511
42	CA_5A-7A	528	129	CA_4A-4A-29A	418	310	CA_7A-7A-25A-25A	534	495	CA_2A-2A-5A-66C	511



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43	CA_5A-12A	529	130	CA_4A-4A-30A	527	311	CA_7A-7A-46C	528	496	CA_2A-2A-5B-66A	511
44	CA_5A-13A	242	131	CA_4A-4A-71A	350	312	CA_7A-7A-66A-66A	534	497	CA_2A-2A-7A-7A-13A	498
45	CA_5A-25A		132	CA_4A-5B	527	313	CA_7C-25A-25A	534	498	CA_2A-2A-7C-13A	
46	CA_5A-29A	243	133	CA_4A-7A-7A	371	314	CA_7A-46D	528	499	CA_2A-2A-7A-66A-66A	515
47	CA_5A-30A	530	134	CA_4A-7C	371	315	CA_7C-46C	528	500	CA_2A-2A-12A-66A-66A	516
48	CA_5A-38A		135	CA_4A-12A-12A	419	316	CA_7C-66A-66A	534	501	CA_2A-2A-12B-66A	516
49	CA_5A-41A		136	CA_4A-12B	419	317	CA_12A-46D	529	502	CA_2A-2A-13A-66A-66A	521
50	CA_5A-46A	531	137	CA_4A-46A-46A	466	318	CA_12A-48D	426	503	CA_2A-2A-13A-66B	521
51	CA_5A-48A	532	138	CA_4A-46C	466	319	CA_12B-66A-66A	516	504	CA_2A-2A-14A-66A-66A	
52	CA_5A-66A	532	139	CA_4A-48C	467	320	CA_13A-46A-46C	535	505	CA_2A-2A-29A-66A-66A	
53	CA_7A-12A	436	140	CA_5A-5A-66A	532	321	CA_13A-46D	535	506	CA_2C-5B-30A	
54	CA_7A-13A	498	141	CA_5A-7A-7A	528	322	CA_13A-48A-48C	536	507	CA_2A-5A-46D	
55	CA_7A-25A	534	142	CA_5A-7C	528	323	CA_13A-48D	536	508	CA_2A-5A-48D	
56	CA_7A-26A	258	143	CA_5A-12B	529	324	CA_13A-66A-66B	536	509	CA_2A-5B-66A-66A	511
57	CA_7A-29A	440	144	CA_5B-30A	530	325	CA_13A-66A-66C	536	510	CA_2A-5B-66B	511
58	CA_7A-46A	528	145	CA_5A-46C	531	326	CA_13A-66D	536	511	CA_2A-5B-66C	
59	CA_7A-66A	534	146	CA_5B-46A	531	327	CA_14A-66A-66A-66A	504	512	CA_2A-7A-7A-46C	514
60	CA_12A-25A		147	CA_5A-48C	532	328	CA_25A-25A-41C	537	513	CA_2A-7A-7A-66A-66A	515
61	CA_12A-30A	441	148	CA_5A-66A-66A	532	329	CA_25A-41D	537	514	CA_2A-7A-46D	
62	CA_12A-46A	529	149	CA_5A-66B	532	330	CA_25A-46D		515	CA_2A-7C-66A-66A	
63	CA_12A-48A	426	150	CA_5A-66C	532	331	CA_40A-40A-42C		516	CA_2A-12B-66A-66A	
64	CA_12A-66A	516	151	CA_5B-66A	532	332	CA_41A-42D	483	517	CA_2A-13A-46D	
65	CA_13A-46A	535	152	CA_7A-7A-13A	498	333	CA_41D-42A	483	518	CA_2A-13A-48D	
66	CA_13A-48A	536	153	CA_7A-7A-25A	534	334	CA_41A-46D	484	519	CA_2A-13A-66A-66B	521
67	CA_13A-66A	536	154	CA_7A-7A-26A	258	335	CA_41A-48D		520	CA_2A-13A-66A-66C	521
68	CA_14A-30A	448	155	CA_7A-7A-29A	440	336	CA_46A-46C-66A	540	521	CA_2A-13A-66D	
69	CA_14A-66A	504	156	CA_7A-7A-46A	528	337	CA_46C-66A-66A	540	522	CA_2A-46A-48D	524
70	CA_25A-26A	537	157	CA_7A-7A-66A	534	338	CA_46D-66A	540	523	CA_2A-46C-48C	524
71	CA_25A-41A	537	158	CA_7A-12B	436	339	CA_46D-71A		524	CA_2A-46D-48A	
72	CA_25A-46A	330	159	CA_7C-13A	498	340	CA_48A-48A-66A-66A	540	525	CA_2A-46D-66A	
73	CA_25A-66A	534	160	CA_7A-25A-25A	534	341	CA_48A-48A-66B	540	526	CA_2A-48D-66A	
74	CA_26A-41A	537	161	CA_7C-25A	534	342	CA_48A-48A-66C	540	527	CA_4A-4A-5B-30A	
75	CA_26A-46A		162	CA_7C-29A	440	343	CA_48A-48C-66A	540	528	CA_5A-7A-46D	
76	CA_29A-30A	451	163	CA_7A-46C	528	344	CA_48C-66A-66A	540	529	CA_5A-12A-46D	
77	CA_29A-66A	505	164	CA_7C-46A	528	345	CA_48C-66B	540	530	CA_5B-30A-66A-66A	
78	CA_30A-66A	530	165	CA_7A-66A-66A	534	346	CA_48C-66C	540	531	CA_5A-46D-66A	
79	CA_38A-40A	188	166	CA_7C-66A	534	347	CA_48D-66A	540	532	CA_5A-48D-66A	
80	CA_40A-41A		167	CA_12A-46C	529	348	CA_2A-2A-4A-5A	369	533	CA_7A-7A-25A-25A-66A	534
81	CA_41A-46A	484	168	CA_12A-48C	426	349	CA_2A-2A-4A-12A	372	534	CA_7C-25A-25A-66A	
82	CA_41A-48A	335	169	CA_12A-66A-66A	516	350	CA_2A-2A-4A-71A		535	CA_13A-46D-66A	
83	CA_46A-66A	540	170	CA_12A-66C	516	351	CA_2A-2A-5A-7A	374	536	CA_13A-48D-66A	
84	CA_46A-71A	339	171	CA_12B-66A	516	352	CA_2A-2A-5A-12A	375	537	CA_25A-25A-26A-41C	
85	CA_48A-66A	540	172	CA_13A-46A-46A	535	353	CA_2A-2A-5A-30A	506	538	CA_46A-48D-66A	540
86	CA_48A-71A	203	173	CA_13A-46C	535	354	CA_2A-2A-5A-66A	511	539	CA_46C-48C-66A	540
87	CA_66A-71A	414	174	CA_13A-48A-48A	536	355	CA_2A-2A-7A-12A	388	540	CA_46D-48A-66A	
			175	CA_13A-48C	536	356	CA_2A-2A-7A-13A	498			
			176	CA_13A-66A-66A	536	357	CA_2A-2A-7A-66A	515			
			177	CA_13A-66B	536	358	CA_2A-2A-12A-30A	394			
			178	CA_13A-66C	536	359	CA_2A-2A-12A-66A	516			
			179	CA_14A-66A-66A	504	360	CA_2A-2A-13A-66A	521			
			180	CA_25A-25A-26A	537	361	CA_2A-2A-14A-30A				
			181	CA_25A-25A-41A	537	362	CA_2A-2A-14A-66A	504			
			182	CA_25A-25A-66A	534	363	CA_2A-2A-29A-30A	404			
			183	CA_25A-41C	537	364	CA_2A-2A-29A-66A	505			
			184	CA_25A-46C	330	365	CA_2A-2A-30A-66A	406			
			185	CA_26A-41C	537	366	CA_2A-2A-66A-71A	414			



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			186	CA_29A-66A-66A	505	367	CA_2A-4A-4A-5A	369			
			187	CA_30A-66A-66A	530	368	CA_2A-4A-4A-12A	372			
			188	CA_38A-40C		369	CA_2A-4A-5B				
			189	CA_41A-42A-42A	483	370	CA_2A-4A-7A-7A	371			
			190	CA_41A-46C	484	371	CA_2A-4A-7C				
			191	CA_41A-48C	335	372	CA_2A-4A-12B				
			192	CA_46A-46A-66A	540	373	CA_2A-5A-7A-7A	374			
			193	CA_46A-66A-66A	540	374	CA_2A-5A-7C				
			194	CA_46A-66C	540	375	CA_2A-5A-12B				
			195	CA_46C-66A	540	376	CA_2A-5B-30A	506			
			196	CA_46C-71A	339	377	CA_2C-5A-30A	506			
			197	CA_48A-48A-66A	540	378	CA_2A-5A-46C	507			
			198	CA_48A-48A-71A	203	379	CA_2A-5A-48C	508			
			199	CA_48A-66A-66A	540	380	CA_2A-5A-66A-66A	511			
			200	CA_48A-66B	540	381	CA_2A-5A-66B	511			
			201	CA_48A-66C	540	382	CA_2A-5A-66C	511			
			202	CA_48C-66A	540	383	CA_2A-5B-66A	511			
			203	CA_48C-71A		384	CA_2A-7A-7A-13A	498			
			204	CA_66A-66A-71A	414	385	CA_2A-7A-7A-29A	390			
			205	CA_66C-71A	414	386	CA_2A-7A-7A-46A	514			
			206	CA_2A-4A-5A	369	387	CA_2A-7A-7A-66A	515			
			207	CA_2A-4A-12A	372	388	CA_2A-7A-12B				
			208	CA_2A-4A-13A		389	CA_2A-7C-13A	498			
			209	CA_2A-4A-29A		390	CA_2A-7C-29A				
			210	CA_2A-4A-30A		391	CA_2A-7A-46C	514			
			211	CA_2A-4A-71A	350	392	CA_2A-7A-66A-66A	515			
			212	CA_2A-5A-7A	374	393	CA_2A-7C-66A	515			
			213	CA_2A-5A-12A	375	394	CA_2C-12A-30A				
			214	CA_2A-5A-13A		395	CA_2A-12A-66A-66A	516			
			215	CA_2A-5A-29A		396	CA_2A-12A-66C	516			
			216	CA_2A-5A-30A	506	397	CA_2A-12B-66A	516			
			217	CA_2A-5A-46A	507	398	CA_2A-13A-46C	517			
			218	CA_2A-5A-48A	508	399	CA_2A-13A-48C	518			
			219	CA_2A-5A-66A	511	400	CA_2A-13A-66A-66A	521			
			220	CA_2A-7A-12A	388	401	CA_2A-13A-66B	521			
			221	CA_2A-7A-13A	498	402	CA_2A-13A-66C	521			
			222	CA_2A-7A-26A		403	CA_2A-14A-66A-66A	504			
			223	CA_2A-7A-29A	390	404	CA_2C-29A-30A				
			224	CA_2A-7A-46A	514	405	CA_2A-29A-66A-66A	505			
			225	CA_2A-7A-66A	515	406	CA_2A-30A-66A-66A				
			226	CA_2A-12A-30A	394	407	CA_2A-46A-48C	524			
			227	CA_2A-12A-66A	516	408	CA_2A-46C-48A	524			
			228	CA_2A-13A-46A	517	409	CA_2A-46A-66A-66A	525			
			229	CA_2A-13A-48A	518	410	CA_2A-46C-66A	525			
			230	CA_2A-13A-66A	521	411	CA_2A-48A-66A-66A	526			
			231	CA_2A-14A-30A	361	412	CA_2A-48C-66A	526			
			232	CA_2A-14A-66A	504	413	CA_2A-66A-66A-71A	414			
			233	CA_2A-26A-66A		414	CA_2A-66C-71A				
			234	CA_2A-29A-30A	404	415	CA_4A-4A-5A-12A	419			
			235	CA_2A-29A-66A	505	416	CA_4A-4A-5A-30A	527			
			236	CA_2A-30A-66A	406	417	CA_4A-4A-12A-30A				
			237	CA_2A-46A-48A	524	418	CA_4A-4A-29A-30A				
			238	CA_2A-46A-66A	525	419	CA_4A-5A-12B				
			239	CA_2A-48A-66A	526	420	CA_4A-5B-30A	527			
			240	CA_2A-66A-71A	414	421	CA_5A-7A-7A-66A	424			
			241	CA_4A-5A-12A	419	422	CA_5A-7A-46C	528			



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			242	CA_4A-5A-13A		423	CA_5A-7A-66A-66A	424			
			243	CA_4A-5A-29A		424	CA_5A-7C-66A				
			244	CA_4A-5A-30A	527	425	CA_5A-12A-46C	529			
			245	CA_4A-7A-12A		426	CA_5A-12A-48C				
			246	CA_4A-12A-30A	417	427	CA_5A-30A-66A-66A	530			
			247	CA_4A-29A-30A	418	428	CA_5B-30A-66A	530			
			248	CA_5A-7A-46A	528	429	CA_5A-46C-66A	531			
			249	CA_5A-7A-66A	424	430	CA_5A-48A-66A-66A	532			
			250	CA_5A-12A-46A	529	431	CA_5A-48C-66A	532			
			251	CA_5A-12A-66A		432	CA_7A-7A-13A-66A	437			
			252	CA_5A-30A-66A	530	433	CA_7A-7A-25A-66A	534			
			253	CA_5A-46A-66A	531	434	CA_7A-7A-29A-66A	440			
			254	CA_5A-48A-66A	532	435	CA_7A-12A-66A-66A	436			
			255	CA_7A-12A-66A	436	436	CA_7A-12B-66A				
			256	CA_7A-13A-66A	437	437	CA_7C-13A-66A				
			257	CA_7A-25A-66A	534	438	CA_7A-25A-25A-66A	534			
			258	CA_7A-26A-66A		439	CA_7C-25A-66A	534			
			259	CA_7A-29A-66A	440	440	CA_7C-29A-66A				
			260	CA_7A-46A-66A		441	CA_12A-30A-66A-66A				
			261	CA_12A-30A-66A	441	442	CA_13A-46A-66A-66A	535			
			262	CA_13A-46A-66A	535	443	CA_13A-46C-66A	535			
			263	CA_13A-48A-66A	536	444	CA_13A-48A-66A-66A	536			
			264	CA_14A-30A-66A	448	445	CA_13A-48A-66B	536			
			265	CA_25A-26A-41A	537	446	CA_13A-48A-66C	536			
			266	CA_29A-30A-66A	451	447	CA_13A-48C-66A	536			
			267	CA_29A-46A-66A		448	CA_14A-30A-66A-66A				
			268	CA_46A-48A-66A	540	449	CA_25A-25A-26A-41A	537			
						450	CA_25A-26A-41C	537			
						451	CA_29A-30A-66A-66A				
						452	CA_46A-48C-66A	540			
						453	CA_46C-48A-66A	540			

<Power verification when LTE Carrier Aggregation Active>
General Note:

- 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 two 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 non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.
- vi. 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.

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

<Two Carrier power verification>

Configure	PCC							SCC				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	5	10	836.5	20525	QPSK	1	0	25	20	1960	8340	23.60	23.65
	5	10	836.5	20525	QPSK	1	0	38	20	2595	38000	23.53	23.65
	5	10	836.5	20525	QPSK	1	0	41	20	2593	40620	23.45	23.65
	12	10	707.5	23095	QPSK	1	0	25	20	1960	8340	23.39	23.40
	26	15	831.5	26865	QPSK	1	0	46	20	5537.5	50665	23.48	23.58
	41	20	2593	40620	QPSK	1	0	48	20	3641	56150	23.08	23.23
	41	20	2593	40620	QPSK	1	0	48	20	3675	56490	23.08	23.23
	43	20	3610	43690	QPSK	1	0	43	20	3662.5	44215	21.85	22.00
	43	20	3610	43690	QPSK	1	0	43	20	3662.5	44215	23.86	23.94

<Three Carrier power verification>

Configure	PCC							SCC1				SCC2				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	13	10	751	5230	23.35	23.36
	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	29	10	722.5	9715	23.36	23.36
	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	30	10	2355	9820	23.24	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	13	10	751	5230	23.25	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	29	10	722.5	9715	23.18	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	26	15	876.5	8865	23.29	23.36
	2	20	1880	18900	QPSK	1	0	26	15	876.5	8865	66	20	2155	66886	23.28	23.36
	4	20	1745	20300	QPSK	1	0	5	10	881.5	2525	13	10	751	5230	23.27	23.45
	4	20	1745	20300	QPSK	1	0	5	10	881.5	2525	29	10	722.5	9715	23.40	23.45
	4	20	1745	20300	QPSK	1	0	7	20	2655	3100	12	10	737.5	5095	23.45	23.45
	5	10	836.5	20525	QPSK	1	0	5	10	881.5	2525	12	10	737.5	5095	23.60	23.65
	7	20	2535	21100	QPSK	1	0	26	15	876.5	8865	66	20	2155	66886	22.91	23.10
	7	20	2535	21100	QPSK	1	0	46	20	5537.5	50665	66	20	2155	66886	23.03	23.10
	66	20	1770	132572	QPSK	1	0	29	10	722.5	9715	46	20	5537.5	50665	23.34	23.50
	48	20	3641	56150	QPSK	1	0	48	20	3660.8	56348	71	20	634.5	68761	21.86	21.98
	48	20	3675	56490	QPSK	1	0	48	10	3689.4	56634	71	20	634.5	68761	21.75	21.84

<Four Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
	2	20	1880	18900	QPSK	1	0	2	5	1987.5	1175	4	20	2132.5	2175	71	20	634.5	68761	23.30	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	12	5	737.5	5095	12	10	744.7	5162	23.36	23.36
	2	20	1880	18900	QPSK	1	0	2	5	1987.5	1175	14	10	763	5330	30	10	2355	9820	23.20	23.36
	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	5	10	881.5	2525	5	10	891.4	2624	23.36	23.36
	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	7	20	2655	3100	7	20	2635.2	2902	23.25	23.36
	2	20	1880	18900	QPSK	1	0	4	20	2132.5	2175	12	5	737.5	5095	12	10	744.7	5162	23.35	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	7	20	2655	3100	7	20	2635.2	2902	23.26	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	12	5	737.5	5095	12	10	744.7	5162	23.29	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	12	5	737.5	5095	12	10	744.7	5162	23.24	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	7	20	2635.2	2902	7	20	2635.2	2902	23.22	23.36
	2	20	1880	18900	QPSK	1	0	2	20	1860.2	702	12	10	737.5	5095	30	10	2355	9820	23.17	23.36
	2	20	1880	18900	QPSK	1	0	2	20	1860.2	702	29	10	722.5	9715	30	10	2355	9820	23.35	23.36
	2	20	1880	18900	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.32	23.36
	2	20	1880	18900	QPSK	1	0	66	20	2155	66886	66	20	2174.8	67084	71	20	634.5	68761	23.20	23.36
	4	20	1745	20300	QPSK	1	0	4	5	2112.5	1975	12	10	737.5	5095	30	10	2355	9820	23.38	23.45
	4	20	1745	20300	QPSK	1	0	4	5	2112.5	1975	29	10	722.5	9715	30	10	2355	9820	23.26	23.45
	4	20	1745	20300	QPSK	1	0	5	10	881.5	2525	12	5	737.5	5095	12	10	744.7	5162	23.35	23.45
	5	10	836.5	20525	QPSK		0	7	20	2655	3100	7	20	2635.2	2902	66	20	2155	66886	23.51	23.65
	5	10	836.5	20525	QPSK		0	12	10	737.5	5095	48	20	3641	56150	48	20	3621.2	55952	23.47	23.65
	5	10	836.5	20525	QPSK		0	48	20	3641	56150	48	20	3660.8	56348	66	20	2155	66886	23.49	23.65
	7	20	2535	21100	QPSK	1	0	7	20	2635.2	2902	13	10	751	5230	66	20	2155	66886	23.09	23.10
	7	20	2535	21100	QPSK	1	0	7	20	2635.2	2902	29	10	722.5	9715	66	20	2155	66886	22.92	23.10
	12	10	707.5	23095	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.21	23.40
	14	10	793	23330	QPSK	1	0	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.43	23.60
	25	20	1880	26340	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.44	23.38
	30	10	2310	27710	QPSK	1	0	29	10	722.5	9715	66	20	2155	66886	66	5	2197.5	67311	21.86	21.90
	71	20	680.5	133297	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.32	23.39



<Five Carrier power verification>

Configure	PCC							SCC1				SCC2				SCC3				SCC4				Power	
	LTE Band	BW (MHz)	UL Freq. (MHz)	UL Channel	Mod.	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	W/O CA Tx.Power (dBm)
Inter-Band	2	20	1880	18900	QPSK	1	0	2	5	1987.5	1175	7	20	2655	3100	7	20	2635.2	2902	13	10	751	5230	23.39	23.36
	2	20	1880	18900	QPSK	1	0	2	5	1987.5	1175	14	10	763	5330	66	20	2155	66886	66	5	2197.5	67311	23.24	23.36
	2	20	1880	18900	QPSK	1	0	2	5	1987.5	1175	29	10	722.5	9715	66	20	2155	66886	66	5	2197.5	67311	23.35	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.36	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	48	20	3641	56150	48	20	3621.2	55952	48	20	3601.4	55754	23.17	23.36
	2	20	1880	18900	QPSK	1	0	2	20	1860.2	702	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	23.35	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	20	2135.2	66688	23.23	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.27	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	7	20	2635.2	2902	66	20	2155	66886	66	5	2197.5	67311	23.21	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.24	23.36
	2	20	1880	18900	QPSK	1	0	5	10	881.5	2525	5	10	891.4	2624	66	20	2155	66886	66	20	2135.2	66688	23.24	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.23	23.36
	2	20	1880	18900	QPSK	1	0	7	20	2655	3100	7	20	2635.2	2902	66	20	2155	66886	66	5	2197.5	67311	23.17	23.36
	2	20	1880	18900	QPSK	1	0	12	5	737.5	5095	12	10	744.7	5162	66	20	2155	66886	66	5	2197.5	67311	23.35	23.36
	2	20	1880	18900	QPSK	1	0	13	10	751	5230	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.16	23.36
	2	20	1880	18900	QPSK	1	0	13	10	751	5230	48	20	3641	56150	48	20	3621.2	55952	48	20	3601.4	55754	23.19	23.36
	2	20	1880	18900	QPSK	1	0	13	10	751	5230	66	20	2155	66886	66	20	2135.2	66688	66	20	2115.4	66490	23.18	23.36
	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	48	20	3641	56150	23.21	23.36
	2	20	1880	18900	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	23.16	23.36
	2	20	1880	18900	QPSK	1	0	48	20	3641	56150	48	20	3621.2	55952	48	20	3601.4	55754	66	20	2155	66886	23.33	23.36
	4	20	1745	20300	QPSK	1	0	4	5	2152.5	2375	5	10	881.5	2525	5	10	891.4	2624	30	10	2355	9820	23.46	23.45
	4	20	1745	20300	QPSK	1	0	46	20	5150	46790	46	20	5925	54539	46	20	5905.2	54341	46	20	5885.4	54143	23.39	23.45
	4	20	1745	20300	QPSK	1	0	48	20	3625	55990	48	20	3644.8	56188	48	20	3664.6	56386	48	20	3684.4	56584	23.41	23.45
	5	10	836.5	20525	QPSK	1	0	7	20	2655	3100	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.52	23.65
	5	10	836.5	20525	QPSK	1	0	12	10	737.5	5095	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.53	23.65
	5	10	836.5	20525	QPSK	1	0	5	10	846.4	2624	30	10	2355	9820	66	20	2155	66886	66	5	2197.5	67311	23.62	23.65
	5	10	836.5	20525	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	66	20	2155	66886	23.49	23.65
	7	20	2535	21100	QPSK	1	0	7	20	2554.8	3298	25	20	1960	8340	25	5	1992.5	8665	66	20	2155	66886	23.00	23.10
	13	10	782	23230	QPSK	1	0	48	20	3641	56150	48	20	3621.2	55952	48	20	3601.4	55754	66	20	2155	66886	23.34	23.44
	13	10	782	23230	QPSK	1	0	48	20	3641	56150	48	20	3621.2	55952	48	20	3601.4	55754	66	20	2155	66886	23.36	23.44
	25	20	1880	26340	QPSK	1	0	25	5	1992.5	8665	26	15	876.5	8865	41	20	2593	40620	41	20	2612.8	40818	23.37	23.38
	41	20	2593	40620	QPSK	1	0	41	20	2573.2	40422	41	20	2553.4	40224	42	20	3575	43340	42	20	3594.8	43538	23.10	23.23
	41	20	2593	40620	QPSK	1	0	41	20	2573.2	40422	41	20	2553.4	40224	42	20	3500	42590	42	20	3519.8	42788	23.16	23.23
	41	20	2593	40620	QPSK	1	0	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	46	20	5596.9	51259	23.10	23.23
	66	20	1770	132572	QPSK	1	0	48	20	3641	56150	46	20	5537.5	50665	46	20	5557.3	50863	46	20	5577.1	51061	23.30	23.50

<LTE Uplink carrier aggregation>

2CC Uplink Carrier Aggregation	
Number	Combination
	Ant 0
1	2C
2	5B
3	7C
4	66B
5	66C
6	38C
7	41C
8	42C
9	43C
10	48C

<Intra-band>
General Note:

- i. The device supports intra-band 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 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. 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.
- v. Additional SAR measurement for LTE UL CA whit 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.

Sensor OFF

CA_2C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18700	18898	QPSK	1	0	0	0	1	0	23.02	24
18900	18702	QPSK	1	0	1	99	2	0	23.27	24
19100	18902	QPSK	1	0	1	99	2	0	22.89	24

CA_5B_Ant 0										
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	23.44	24.5
20475	20574	QPSK	1	49	1	0	2	0	23.6	24.5
20600	20501	QPSK	1	0	1	49	2	0	23.32	24.5

CA_7C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	22.7	24
21100	20902	QPSK	1	0	1	99	2	0	22.88	24
21350	21152	QPSK	1	0	1	99	2	0	22.64	24

CA_66B_Ant 0										
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132047	132140	QPSK	1	0	0	0	1	0	23.1	24
132322	132229	QPSK	1	0	1	24	2	0	23.21	24
132597	132504	QPSK	1	0	1	24	2	0	23.44	24

CA_66C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132072	132270	QPSK	1	0	0	0	1	0	23.11	24
132322	132124	QPSK	1	0	1	99	2	0	23.2	24
132572	132374	QPSK	1	0	1	99	2	0	23.41	24

CA_38C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
37850	38048	QPSK	1	0	0	0	1	0	22.79	24
37901	38099	QPSK	1	0	0	0	1	0	22.84	24
38150	37952	QPSK	1	0	1	99	2	0	22.49	24

CA_41C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	22.74	24
40185	39987	QPSK	1	0	1	99	2	0	22.88	24
40620	40422	QPSK	1	0	1	99	2	0	23.01	24
41055	40857	QPSK	1	0	1	99	2	0	22.55	24
41490	41292	QPSK	1	0	1	99	2	0	22.6	24

CA_41C (HPUE)										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	25.23	27
40185	39987	QPSK	1	0	1	99	2	0	25.44	27
40620	40422	QPSK	1	0	1	99	2	0	25.64	27
41055	40857	QPSK	1	0	1	99	2	0	25.33	27
41490	41292	QPSK	1	0	1	99	2	0	25.21	27

CA_42C Part 96_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
43190	43388	QPSK	1	0	0	0	1	0	21.66	22
43340	43538	QPSK	1	0	1	99	2	0	21.7	22
43490	43292	QPSK	1	0	1	99	2	0	21.98	22

CA_42C Part 27Q_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
42190	42388	QPSK	1	0	0	0	1	0	23.3	24
42590	42788	QPSK	1	0	1	99	2	0	23.44	24
42990	42792	QPSK	1	0	1	99	2	0	23.67	24

CA_43C Part 96_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
43690	43888	QPSK	1	0	0	0	1	0	21.88	22
44090	44288	QPSK	1	0	0	0	2	0	21.5	22
44490	44292	QPSK	1	0	1	99	2	0	21.4	22

CA_48C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
55340	55538	QPSK	1	0	0	0	1	0	21.55	22
55830	55632	QPSK	1	0	1	99	2	0	21.62	22
56150	55952	QPSK	1	0	1	99	2	0	21.88	22
56640	56442	QPSK	1	0	1	99	2	0	21.6	22

Sensor ON_NB

CA_2C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18700	18898	QPSK	1	0	0	0	1	0	17.02	17.5
18900	18702	QPSK	1	0	1	99	2	0	17.04	17.5
19100	18902	QPSK	1	0	1	99	2	0	16.71	17.5

CA_5B										
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	22.01	22.5
20475	20574	QPSK	1	49	1	0	2	0	22.11	22.5
20600	20501	QPSK	1	0	1	49	2	0	21.89	22.5

CA_7C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	16.1	16.5
21100	20902	QPSK	1	0	1	99	2	0	16.11	16.5
21350	21152	QPSK	1	0	1	99	2	0	15.79	16.5

CA_66B_Ant 0										
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132047	132140	QPSK	1	0	0	0	1	0	19.8	20.5
132322	132229	QPSK	1	0	1	24	2	0	19.82	20.5
132597	132504	QPSK	1	0	1	24	2	0	20.11	20.5

CA_66C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132072	132270	QPSK	1	0	0	0	1	0	19.84	20.5
132322	132124	QPSK	1	0	1	99	2	0	19.85	20.5
132572	132374	QPSK	1	0	1	99	2	0	20.12	20.5

CA_38C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
37850	38048	QPSK	1	0	0	0	1	0	19.32	20
37901	38099	QPSK	1	0	0	0	1	0	19.44	20
38150	37952	QPSK	1	0	1	99	2	0	19.3	20

CA_41C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	19.22	20
40185	39987	QPSK	1	0	1	99	2	0	19.48	20
40620	40422	QPSK	1	0	1	99	2	0	19.66	20
41055	40857	QPSK	1	0	1	99	2	0	19	20
41490	41292	QPSK	1	0	1	99	2	0	18.84	20

CA_41C (HPUE)										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	19.3	20
40185	39987	QPSK	1	0	1	99	2	0	19.4	20
40620	40422	QPSK	1	0	1	99	2	0	19.62	20
41055	40857	QPSK	1	0	1	99	2	0	19.43	20
41490	41292	QPSK	1	0	1	99	2	0	19.4	20

CA_42C Part 96_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
43190	43388	QPSK	1	0	0	0	1	0	15.55	16
43340	43538	QPSK	1	0	1	99	2	0	15.5	16
43490	43292	QPSK	1	0	1	99	2	0	15.69	16

CA_42C Part 27Q_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
42190	42388	QPSK	1	0	0	0	1	0	15.55	16
42590	42788	QPSK	1	0	1	99	2	0	15.69	16
42990	42792	QPSK	1	0	1	99	2	0	15.88	16

CA_43C Part 96_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
43690	43888	QPSK	1	0	0	0	1	0	15.66	16
44090	44288	QPSK	1	0	0	0	2	0	15.6	16
44490	44292	QPSK	1	0	1	99	2	0	15.42	16

CA_48C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
55340	55538	QPSK	1	0	0	0	1	0	15.8	16
55830	55632	QPSK	1	0	1	99	2	0	15.85	16
56150	55952	QPSK	1	0	1	99	2	0	15.89	16
56640	56442	QPSK	1	0	1	99	2	0	15.7	16

Sensor ON_TB

CA_2C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
18700	18898	QPSK	1	0	0	0	1	0	15.2	15.5
18900	18702	QPSK	1	0	1	99	2	0	15.4	15.5
19100	18902	QPSK	1	0	1	99	2	0	15.18	15.5

CA_5B										
Combination 10MHz+10MHz (50RB+50RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20450	20549	QPSK	1	0	0	0	1	0	18.01	18.5
20475	20574	QPSK	1	49	1	0	2	0	18.21	18.5
20600	20501	QPSK	1	0	1	49	2	0	17.94	18.5

CA_7C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
20850	21048	QPSK	1	0	0	0	1	0	13.71	14
21100	20902	QPSK	1	0	1	99	2	0	13.81	14
21350	21152	QPSK	1	0	1	99	2	0	13.61	14

CA_66B_Ant 0										
Combination 15MHz+5MHz (75RB+25RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132047	132140	QPSK	1	0	0	0	1	0	15.8	16
132322	132229	QPSK	1	0	1	24	2	0	15.85	16
132597	132504	QPSK	1	0	1	24	2	0	15.88	16

CA_66C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
132072	132270	QPSK	1	0	0	0	1	0	15.81	16
132322	132124	QPSK	1	0	1	99	2	0	15.8	16
132572	132374	QPSK	1	0	1	99	2	0	15.88	16

CA_38C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
37850	38048	QPSK	1	0	0	0	1	0	17.1	17.5
37901	38099	QPSK	1	0	0	0	1	0	17.2	17.5
38150	37952	QPSK	1	0	1	99	2	0	7.01	17.5

CA_41C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	16.8	17.5
40185	39987	QPSK	1	0	1	99	2	0	16.99	17.5
40620	40422	QPSK	1	0	1	99	2	0	17.11	17.5
41055	40857	QPSK	1	0	1	99	2	0	16.7	17.5
41490	41292	QPSK	1	0	1	99	2	0	16.85	17.5

CA_41C (HPUE)										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
39750	39948	QPSK	1	0	0	0	1	0	16.7	17.5
40185	39987	QPSK	1	0	1	99	2	0	16.88	17.5
40620	40422	QPSK	1	0	1	99	2	0	17.14	17.5
41055	40857	QPSK	1	0	1	99	2	0	16.7	17.5
41490	41292	QPSK	1	0	1	99	2	0	16.71	17.5

CA_42C Part 96_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
43190	43388	QPSK	1	0	0	0	1	0	11.58	12
43340	43538	QPSK	1	0	1	99	2	0	11.6	12
43490	43292	QPSK	1	0	1	99	2	0	11.66	12

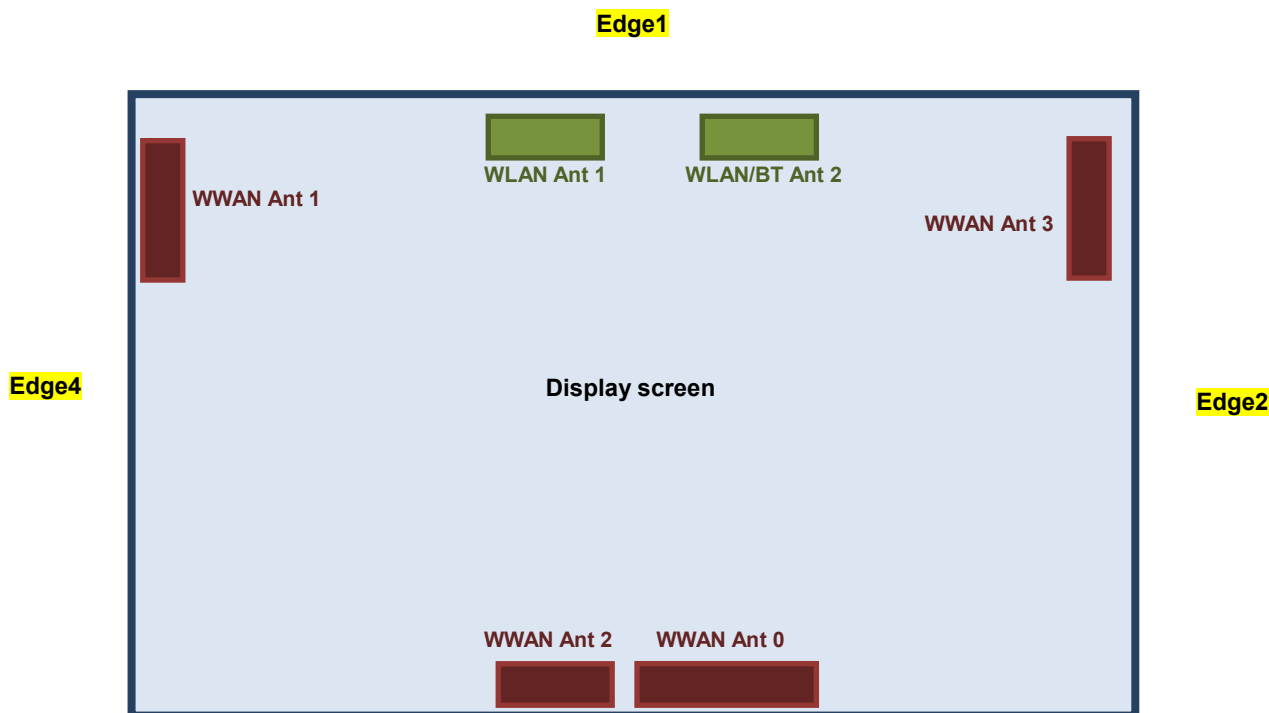
CA_42C Part 27Q_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
42190	42388	QPSK	1	0	0	0	1	0	11.4	12
42590	42788	QPSK	1	0	1	99	2	0	11.4	12
42990	42792	QPSK	1	0	1	99	2	0	11.55	12

CA_43C Part 96_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
43690	43888	QPSK	1	0	0	0	1	0	12.8	13
44090	44288	QPSK	1	0	0	0	2	0	12.6	13
44490	44292	QPSK	1	0	1	99	2	0	12.65	13

CA_48C_Ant 0										
Combination 20MHz+20MHz (100RB+100RB)										
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Target MPR Level (dB)	Measured Power (dBm)	Tune up Power (dBm)
			RB Size	RB offset	RB Size	RB offset				
55340	55538	QPSK	1	0	0	0	1	0	12.7	13
55830	55632	QPSK	1	0	1	99	2	0	12.71	13
56150	55952	QPSK	1	0	1	99	2	0	12.81	13
56640	56442	QPSK	1	0	1	99	2	0	12.7	13

14. Antenna Location

<Tablet Mode>



Edge3

Front View

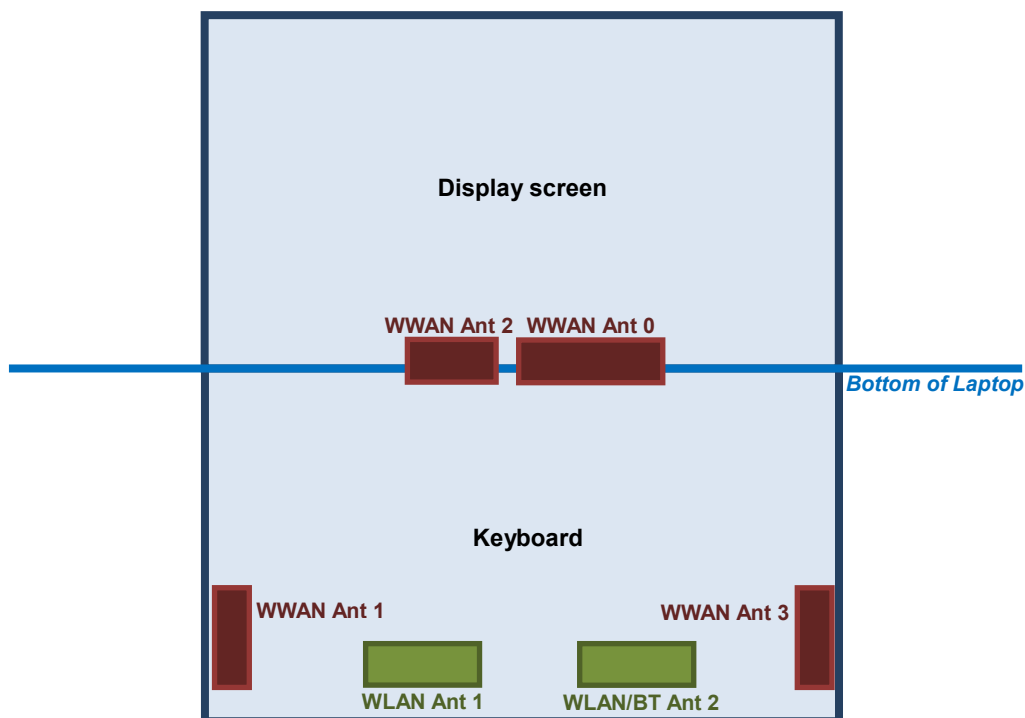
The separation distance for antenna to edge:

Antenna	To Edge1 (mm)	To Edge2 (mm)	To Edge3 (mm)	To Edge4 (mm)
WWAN Ant 0	198	114	< 5	134
WWAN Ant 1	16	287	119	<5
WWAN Ant 2	198	134	< 5	70
WWAN Ant 3	16	< 5	119	287

Minimum distance between WWAN and WLAN/BT:

Distance (mm)	WLAN Ant1	WLAN/BT Ant2
WWAN Ant 0	185	180
WWAN Ant 1	65	145
WWAN Ant 2	180	189
WWAN Ant 3	152	75

<Laptop Mode>



The separation distance for antenna to edge :

Antenna	To Bottom of Laptop (mm)
WWAN Ant 0	3.52
WWAN Ant 1	3.52
WWAN Ant 2	3.52
WWAN Ant 3	3.52

Minimum distance between WWAN and WLAN/BT:

Distance (mm)	WLAN Ant1	WLAN/BT Ant2
WWAN Ant 0	185	180
WWAN Ant 1	65	145
WWAN Ant 2	180	189
WWAN Ant 3	152	75

<SAR test exclusion table>
General Note:

1. The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
2. Maximum power is the source-based time-average power and represents the maximum RF output power among production units
3. Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
4. Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
5. Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$
 - f(GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
6. Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
 - a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150)] mW, at 100 MHz to 1500 MHz
 - b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

<Ant 0>

Exposure Position	Wireless Interface	WCDMA Band V	WCDMA Band IV	WCDMA Band II	LTE Band 7/1/n71	LTE Band 12/17 n12/n17	LTE Band 13/n13	LTE Band 14/n14	LTE Band 5/n5	LTE Band 26/n26	LTE Band n70	LTE Band 66/4 n66/n4	LTE Band 2/n2	LTE Band 25/2 n25/2	LTE Band 30/n30	LTE Band 7/n7	LTE Band 38/n38	LTE Band 41/n41	LTE Band 42	LTE Band 43	LTE Band 48/n48	LTE Band n77	LTE Band n78
Maximum power (dBm)		24.5	24.5	24.5	24.0	24.5	24.5	24.5	24.5	24.5	24.0	24.0	24.0	24.0	23.0	24.0	24.0	27.0	24.0	22.0	22.0	27.0	27.0
	Maximum rated power(mW)	281.84	281.84	281.84	251.19	281.84	281.84	281.84	281.84	281.84	251.19	251.19	251.19	251.19	199.53	251.19	251.19	501.19	251.19	158.49	158.49	501.19	501.19
Bottom Face	Separation distance(mm)	5.0																					
	exclusion threshold	51.9	74.6	77.8	41.9	47.6	49.9	50.3	51.9	51.9	65.7	67.0	69.4	69.5	60.7	80.5	81.3	164.3	95.3	61.0	61.0	199.9	195.3
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	198.0																					
	exclusion threshold	998.0	1593.0	1589.0	866.0	882.0	943.0	953.0	1000.0	1000.0	1595.0	1592.0	1589.0	1588.0	1579.0	1574.0	1573.0	1572.0	1559.0	1618.0	1558.0	1555.0	1557.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Edge 2	Separation distance(mm)	114.0																					
	exclusion threshold	524.0	753.0	749.0	476.0	482.0	504.0	507.0	525.0	525.0	755.0	752.0	749.0	748.0	739.0	734.0	733.0	732.0	719.0	718.0	718.0	715.0	717.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Edge 3	Separation distance(mm)	5.0																					
	exclusion threshold	51.9	74.6	77.8	41.9	47.6	49.9	50.3	51.9	51.9	65.7	67.0	69.4	69.5	60.7	80.5	81.3	164.3	95.3	96.6	61.0	199.9	195.3
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 4	Separation distance(mm)	134.0																					
	exclusion threshold	637.0	953.0	949.0	569.0	577.0	608.0	613.0	638.0	638.0	955.0	952.0	949.0	948.0	939.0	934.0	933.0	932.0	919.0	918.0	918.0	915.0	917.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Bottom of Laptop	Separation distance(mm)	5.0																					
	exclusion threshold	51.9	74.6	77.8	41.9	47.6	49.9	50.3	51.9	51.9	65.7	67.0	69.4	69.5	60.7	80.5	81.3	164.3	95.3	96.6	61.0	199.9	195.3
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

<Ant 2>

Exposure Position	Wireless Interface	LTE Band n70	LTE Band 66/4 n66/n4	LTE Band 25/2 n25/n2	LTE Band 30/n30	LTE Band 7/n7	LTE Band 41/38 n41/n38	LTE Band 42	LTE Band 43	LTE Band 48/n48	LTE Band n77	LTE Band n78
	Maximum power (dBm)	24.0	24.0	24.0	23.0	24.0	27.0	24.0	24.0	22.0	27.0	27.0
	Maximum rated power(mW)	251.19	251.19	251.19	199.53	251.19	501.19	251.19	251.19	158.49	501.19	501.19
Bottom Face	Separation distance(mm)	5.0										
	exclusion threshold	65.7	67.0	69.5	60.7	80.5	164.3	95.3	96.6	96.6	199.9	195.3
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 1	Separation distance(mm)	198.0										
	exclusion threshold	1802.0	1592.0	1588.0	1579.0	1574.0	1572.0	1559.0	1558.0	1618.0	1555.0	1557.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No
Edge 2	Separation distance(mm)	134.0										
	exclusion threshold	1072.0	952.0	948.0	939.0	934.0	932.0	919.0	918.0	918.0	915.0	917.0
	Testing required?	No	No	No	No	No	No	No	No	No	No	No
Edge 3	Separation distance(mm)	5.0										
	exclusion threshold	65.7	67.0	69.5	60.7	80.5	164.3	95.3	96.6	38.0	199.9	195.3
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Edge 4	Separation distance(mm)	70.0										
	exclusion threshold	343.0	312.0	308.0	299.0	294.0	292.0	279.0	278.0	718.0	275.0	277.0
	Testing required?	No	No	No	No	No	Yes	No	No	No	Yes	Yes
Bottom of Laptop	Separation distance(mm)	5.0										
	exclusion threshold	65.7	67.0	69.5	60.7	80.5	164.3	95.3	96.6	96.6	199.9	195.3
	Testing required?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

<Ant 1>

Exposure Position	Wireless Interface	LTE Band n41	LTE Band n77	LTE Band n78
	Maximum power (dBm)	11.5	9.0	9.0
	Maximum rated power(mW)	14.13	7.94	7.94
Bottom Face	Separation distance(mm)	5.0		
	exclusion threshold	4.6	3.0	3.0
	Testing required?	Yes	Yes	Yes
Edge 1	Separation distance(mm)	16.0		
	exclusion threshold	1.5	1.0	1.0
	Testing required?	No	No	No
Edge 2	Separation distance(mm)	287.0		
	exclusion threshold	2462.0	2449.0	2449.0
	Testing required?	No	No	No
Edge 3	Separation distance(mm)	119.0		
	exclusion threshold	782.0	769.0	769.0
	Testing required?	No	No	No
Edge 4	Separation distance(mm)	5.0		
	exclusion threshold	4.6	3.0	3.0
	Testing required?	Yes	Yes	Yes
Bottom of Laptop	Separation distance(mm)	5.0		
	exclusion threshold	4.6	3.0	3.0
	Testing required?	Yes	Yes	Yes

<Ant 3>

Exposure Position	Wireless Interface	LTE Band n41	LTE Band n77	LTE Band n78
	Maximum power (dBm)	15.5	10.0	10.0
	Maximum rated power(mW)	35.48	10.00	10.00
Bottom Face	Separation distance(mm)	5.0		
	exclusion threshold	11.6	3.8	3.8
	Testing required?	Yes	Yes	Yes
Edge 1	Separation distance(mm)	16.0		
	exclusion threshold	3.6	1.2	1.2
	Testing required?	Yes	No	No
Edge 2	Separation distance(mm)	5.0		
	exclusion threshold	11.6	3.8	3.8
	Testing required?	Yes	Yes	Yes
Edge 3	Separation distance(mm)	119.0		
	exclusion threshold	782.0	769.0	769.0
	Testing required?	No	No	No
Edge 4	Separation distance(mm)	287.0		
	exclusion threshold	2462.0	2449.0	2449.0
	Testing required?	No	No	No
Bottom of Laptop	Separation distance(mm)	5.0		
	exclusion threshold	11.6	3.8	3.8
	Testing required?	Yes	Yes	Yes

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 WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
 - c. 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 only when the measured SAR is ≥ 0.8 W/kg.
4. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in sensor trigger distance was performed according to section 5. The test results just verification the sensor trigger distance to meet KDB 616217 requirement, when in normal usage will not operate at trigger distance, therefore, these results were not using performed Sim-Tx analysis.

UMTS 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 is $\leq 1/4$ 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 to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSUPA, HSDPA, DC-HSDPA) are less than $1/4$ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

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 output power for each RB allocation configuration is $> \text{not } 1/2$ 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 SAR testing is not required.
5. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is $> \text{not } 1/2$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4/B5/B12/B17/B26/B38/B71 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
7. LTE band 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
 - a. The maximum output power, including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion.
 - b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

5G NR Note:

1. Referencing the procedure in KDB 941225, the test procedures are outlined as below:
 - a. To start SAR test for the largest channel bandwidth for PI/2 BPSK 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. Also do SAR test for 50% RB allocation for PI/2 BPSK SAR testing using 1RB PI/2 BPSK allocation procedure
 - b. For PI/2 BPSK with 100% RB allocation, SAR test 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.
 - c. For higher modulation QPSK/16QAM/64QAM/256QAM, according to tune-up document the power level is not $\frac{1}{2}$ dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
 - d. Smaller bandwidth output power for each RB allocation configuration for this device 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, smaller bandwidth SAR testing is not required for this device
 - e. For 5G FR1 n5/n12/n41/n71/n77, the maximum channel bandwidth does not support three non-overlapping channels in the frequency band, the middle channel of the group of overlapping channels were selected for testing.
 - f. The NR n2/38 SAR test was covered by NR n25/41; due to SAR test for overlapping NR bands can be reduced if the maximum power including tolerance, for the smaller band is $\leq$ the larger band to qualify for the SAR test exclusion and the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.
 - g. Due to test setup limitations, SAR testing for NR TDD was performed using Factory Test Mode software to establish the connection and perform SAR with 100% transmission.

15.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
1	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	9400	1880	WNC	19.05	19.50	1.109	0.02	0.633	0.702
	WCDMA II	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	9400	1880	WNC	14.55	15.00	1.109	-0.17	0.581	0.644
	WCDMA II	RMC 12.2Kbps	Edge 3	0mm	Ant 0	ON	9400	1880	WNC	14.55	15.00	1.109	0.13	0.148	0.164
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	21mm	Ant 0	OFF	9400	1880	WNC	24.01	24.50	1.119	-0.03	0.270	0.302
	WCDMA II	RMC 12.2Kbps	Bottom Face	33mm	Ant 0	OFF	9400	1880	WNC	24.01	24.50	1.119	0.08	0.090	0.101
	WCDMA II	RMC 12.2Kbps	Edge 3	17mm	Ant 0	OFF	9400	1880	WNC	24.01	24.50	1.119	-0.16	0.189	0.212
	WCDMA II	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	9400	1880	Speed	19.05	19.50	1.109	0.06	0.563	0.624
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	1413	1732.6	WNC	19.40	20.00	1.148	-0.04	0.649	0.745
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1413	1732.6	WNC	16.76	17.00	1.057	0.14	0.824	0.871
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1312	1712.4	WNC	16.57	17.00	1.104	0.06	0.719	0.794
2	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1513	1752.6	WNC	16.67	17.00	1.079	0	0.858	0.926
	WCDMA IV	RMC 12.2Kbps	Edge 3	0mm	Ant 0	ON	1413	1732.6	WNC	16.76	17.00	1.057	-0.11	0.347	0.367
	WCDMA IV	RMC 12.2Kbps	Bottom of Laptop	21mm	Ant 0	OFF	1413	1732.6	WNC	23.78	24.50	1.180	-0.04	0.224	0.264
	WCDMA IV	RMC 12.2Kbps	Bottom Face	33mm	Ant 0	OFF	1413	1732.6	WNC	23.78	24.50	1.180	0.18	0.075	0.089
	WCDMA IV	RMC 12.2Kbps	Edge 3	17mm	Ant 0	OFF	1413	1732.6	WNC	23.78	24.50	1.180	0.08	0.262	0.309
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1513	1752.6	Speed	16.67	17.00	1.079	0.16	0.775	0.836
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1413	1732.6	Speed	16.76	17.00	1.057	0.03	0.796	0.841
	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1312	1712.4	Speed	16.57	17.00	1.104	0.07	0.727	0.803
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	4182	836.4	WNC	20.42	21.00	1.143	-0.03	0.802	0.917
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	4132	826.4	WNC	20.37	21.00	1.156	0.02	0.787	0.910
3	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	4233	846.6	WNC	19.98	21.00	1.265	-0.03	0.862	1.090
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	4182	836.4	WNC	18.03	18.50	1.114	0.16	0.730	0.813
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	4132	826.4	WNC	18.24	18.50	1.062	0.12	0.690	0.733
	WCDMA V	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	4233	846.6	WNC	18.00	18.50	1.122	-0.1	0.768	0.862
	WCDMA V	RMC 12.2Kbps	Edge 2	0mm	Ant 0	OFF	4182	836.4	WNC	23.79	24.50	1.178	0.16	0.001	0.001
	WCDMA V	RMC 12.2Kbps	Edge 3	0mm	Ant 0	ON	4182	836.4	WNC	18.03	18.50	1.114	0.01	0.588	0.655
	WCDMA V	RMC 12.2Kbps	Edge 4	0mm	Ant 0	OFF	4182	836.4	WNC	23.79	24.50	1.178	-0.01	0.001	0.001
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	21mm	Ant 0	OFF	4132	826.4	WNC	23.95	24.50	1.135	0.14	0.187	0.212
	WCDMA V	RMC 12.2Kbps	Bottom Face	33mm	Ant 0	OFF	4132	826.4	WNC	23.95	24.50	1.135	0.14	0.060	0.068
	WCDMA V	RMC 12.2Kbps	Edge 3	17mm	Ant 0	OFF	4132	826.4	WNC	23.95	24.50	1.135	-0.05	0.347	0.394
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	4233	846.6	Speed	19.98	21.00	1.265	-0.18	0.848	1.072
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	4182	836.4	Speed	20.42	21.00	1.143	0.15	0.664	0.759
	WCDMA V	RMC 12.2Kbps	Bottom of Laptop	0mm	Ant 0	ON	4132	826.4	Speed	20.37	21.00	1.156	-0.12	0.669	0.773



<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	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)
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	21100	2535	WNC	16.20	16.50	1.072			0.05	0.523	0.560
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	21100	2535	WNC	14.97	15.50	1.130			0.01	0.414	0.468
	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	21100	2535	WNC	13.93	14.00	1.016			0.14	0.678	0.689
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	21100	2535	WNC	12.98	13.00	1.005			0.05	0.550	0.553
	LTE Band 7	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	21100	2535	WNC	13.93	14.00	1.016			-0.06	0.135	0.137
	LTE Band 7	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	21100	2535	WNC	12.98	13.00	1.005			0	0.123	0.124
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	21100	2535	WNC	23.10	24.00	1.230			-0.12	0.206	0.253
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	21100	2535	WNC	22.06	23.00	1.242			0.07	0.165	0.205
	LTE Band 7	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	21100	2535	WNC	23.10	24.00	1.230			0.13	0.124	0.153
	LTE Band 7	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	21100	2535	WNC	22.06	23.00	1.242			-0.03	0.099	0.123
	LTE Band 7	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	21100	2535	WNC	23.10	24.00	1.230			0.19	0.267	0.328
	LTE Band 7	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	21100	2535	WNC	22.06	23.00	1.242			-0.12	0.214	0.266
	LTE Band 7C	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	21100+20902	2535	WNC	13.81	14.00	1.045			0.14	0.666	0.696
4	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	21100	2535	Speed	13.93	14.00	1.016			0	0.691	0.702
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	21100	2535	WNC	16.36	16.50	1.033			-0.04	0.678	0.700
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	21100	2535	WNC	16.31	16.50	1.045			0.18	0.714	0.746
	LTE Band 7	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	21100	2535	WNC	14.49	14.50	1.002			0	0.532	0.533
	LTE Band 7	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	21100	2535	WNC	14.38	14.50	1.028			-0.06	0.560	0.576
	LTE Band 7	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	21100	2535	WNC	14.49	14.50	1.002			0.08	0.153	0.153
	LTE Band 7	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	21100	2535	WNC	14.38	14.50	1.028			-0.05	0.147	0.151
	LTE Band 7	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	21100	2535	WNC	22.49	22.50	1.002			0.12	0.567	0.568
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	21100	2535	WNC	22.44	22.50	1.014			-0.14	0.502	0.509
	LTE Band 7	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	21100	2535	WNC	22.49	22.50	1.002			0.07	0.112	0.112
	LTE Band 7	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	21100	2535	WNC	22.44	22.50	1.014			0.18	0.098	0.099
	LTE Band 7	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	21100	2535	WNC	22.49	22.50	1.002			-0.13	0.157	0.157
	LTE Band 7	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	21100	2535	WNC	22.44	22.50	1.014			0.1	0.147	0.149
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	21100	2535	Speed	16.31	16.50	1.045			-0.07	0.825	0.862
	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	20850	2510	Speed	16.21	16.50	1.069			-0.03	0.795	0.850
4	LTE Band 7	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	21350	2560	Speed	16.29	16.50	1.050			-0.03	0.837	0.878
5	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	23095	707.5	WNC	22.51	23.00	1.119			0.03	0.684	0.766
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	23095	707.5	WNC	21.58	22.00	1.102			0.15	0.575	0.633
	LTE Band 12	10M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	23095	707.5	WNC	18.66	19.00	1.081			0.17	0.628	0.679
	LTE Band 12	10M	QPSK	25	0	Bottom Face	0mm	Ant 0	ON	23095	707.5	WNC	17.54	18.00	1.112			-0.04	0.502	0.558
	LTE Band 12	10M	QPSK	1	0	Edge 2	0mm	Ant 0	OFF	23095	707.5	WNC	23.40	24.50	1.288			0.11	0.001	0.001
	LTE Band 12	10M	QPSK	25	0	Edge 2	0mm	Ant 0	OFF	23095	707.5	WNC	22.35	23.50	1.303			0.11	0.001	0.001
	LTE Band 12	10M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	23095	707.5	WNC	18.66	19.00	1.081			-0.14	0.624	0.675
	LTE Band 12	10M	QPSK	25	0	Edge 3	0mm	Ant 0	ON	23095	707.5	WNC	17.54	18.00	1.112			0.14	0.535	0.595
	LTE Band 12	10M	QPSK	1	0	Edge 4	0mm	Ant 0	OFF	23095	707.5	WNC	23.40	24.50	1.288			0.12	0.001	0.001
	LTE Band 12	10M	QPSK	25	0	Edge 4	0mm	Ant 0	OFF	23095	707.5	WNC	22.35	23.50	1.303			0.11	0.001	0.001
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	23095	707.5	WNC	23.40	24.50	1.288			-0.09	0.099	0.128
	LTE Band 12	10M	QPSK	25	0	Bottom of Laptop	21mm	Ant 0	OFF	23095	707.5	WNC	22.35	23.50	1.303			0.11	0.084	0.109
	LTE Band 12	10M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	23095	707.5	WNC	23.40	24.50	1.288			-0.07	0.059	0.076
	LTE Band 12	10M	QPSK	25	0	Bottom Face	33mm	Ant 0	OFF	23095	707.5	WNC	22.35	23.50	1.303			-0.19	0.049	0.064
	LTE Band 12	10M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	23095	707.5	WNC	23.40	24.50	1.288			0.15	0.284	0.366
	LTE Band 12	10M	QPSK	25	0	Edge 3	17mm	Ant 0	OFF	23095	707.5	WNC	22.35	23.50	1.303			0	0.232	0.302
	LTE Band 12	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	23095	707.5	Speed	22.51	23.00	1.119			0.18	0.427	0.478
6	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	23230	782	WNC	22.47	23.00	1.130			0.01	0.600	0.678
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	23230	782	WNC	21.56	22.00	1.107			0.14	0.464	0.513
	LTE Band 13	10M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	23230	782	WNC	18.57	19.00	1.104			-0.03	0.438	0.484
	LTE Band 13	10M	QPSK	25	0	Bottom Face	0mm	Ant 0	ON	23230	782	WNC	17.60	18.00	1.096			0.03	0.376	0.412
	LTE Band 13	10M	QPSK	1	0	Edge 2	0mm	Ant 0	OFF	23230	782	WNC	23.44	24.50	1.276			-0.03	0.001	0.001
	LTE Band 13	10M	QPSK	25	0	Edge 2	0mm	Ant 0	OFF	23230	782	WNC	22.43	23.50	1.279			0	0.001	0.001



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	LTE Band 13	10M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	23230	782	WNC	18.57	19.00	1.104		-0.11	0.480	0.530
	LTE Band 13	10M	QPSK	25	0	Edge 3	0mm	Ant 0	ON	23230	782	WNC	17.60	18.00	1.096		0.06	0.386	0.423
	LTE Band 13	10M	QPSK	1	0	Edge 4	0mm	Ant 0	OFF	23230	782	WNC	23.44	24.50	1.276		0.18	0.001	0.001
	LTE Band 13	10M	QPSK	25	0	Edge 4	0mm	Ant 0	OFF	23230	782	WNC	22.43	23.50	1.279		-0.08	0.001	0.001
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	23230	782	WNC	23.44	24.50	1.276		-0.03	0.173	0.221
	LTE Band 13	10M	QPSK	25	0	Bottom of Laptop	21mm	Ant 0	OFF	23230	782	WNC	22.43	23.50	1.279		0.03	0.138	0.177
	LTE Band 13	10M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	23230	782	WNC	23.44	24.50	1.276		-0.11	0.082	0.105
	LTE Band 13	10M	QPSK	25	0	Bottom Face	33mm	Ant 0	OFF	23230	782	WNC	22.43	23.50	1.279		-0.11	0.083	0.106
	LTE Band 13	10M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	23230	782	WNC	23.44	24.50	1.276		0.04	0.405	0.517
	LTE Band 13	10M	QPSK	25	0	Edge 3	17mm	Ant 0	OFF	23230	782	WNC	22.43	23.50	1.279		-0.16	0.319	0.408
	LTE Band 13	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	23230	782	Speed	22.47	23.00	1.130		-0.18	0.547	0.618
7	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	23330	793	WNC	22.76	23.00	1.057		0.04	0.603	0.637
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	23330	793	WNC	21.64	22.00	1.086		-0.15	0.515	0.560
	LTE Band 14	10M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	23330	793	WNC	18.75	19.00	1.059		0	0.456	0.483
	LTE Band 14	10M	QPSK	25	0	Bottom Face	0mm	Ant 0	ON	23330	793	WNC	17.65	18.00	1.084		0.15	0.383	0.415
	LTE Band 14	10M	QPSK	1	0	Edge 2	0mm	Ant 0	OFF	23330	793	WNC	23.60	24.50	1.230		-0.14	0.001	0.001
	LTE Band 14	10M	QPSK	25	0	Edge 2	0mm	Ant 0	OFF	23330	793	WNC	22.51	23.50	1.256		0.11	0.001	0.001
	LTE Band 14	10M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	23330	793	WNC	18.75	19.00	1.059		0.14	0.368	0.390
	LTE Band 14	10M	QPSK	25	0	Edge 3	0mm	Ant 0	ON	23330	793	WNC	17.65	18.00	1.084		0.11	0.313	0.339
	LTE Band 14	10M	QPSK	1	0	Edge 4	0mm	Ant 0	OFF	23330	793	WNC	23.60	24.50	1.230		-0.16	0.001	0.001
	LTE Band 14	10M	QPSK	25	0	Edge 4	0mm	Ant 0	OFF	23330	793	WNC	22.51	23.50	1.256		0.15	0.001	0.001
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	23330	793	WNC	23.60	24.50	1.230		-0.11	0.138	0.170
	LTE Band 14	10M	QPSK	25	0	Bottom of Laptop	21mm	Ant 0	OFF	23330	793	WNC	22.51	23.50	1.256		0.14	0.111	0.139
	LTE Band 14	10M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	23330	793	WNC	23.60	24.50	1.230		-0.02	0.083	0.102
	LTE Band 14	10M	QPSK	25	0	Bottom Face	33mm	Ant 0	OFF	23330	793	WNC	22.51	23.50	1.256		0.05	0.065	0.082
	LTE Band 14	10M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	23330	793	WNC	23.60	24.50	1.230		-0.02	0.311	0.383
	LTE Band 14	10M	QPSK	25	0	Edge 3	17mm	Ant 0	OFF	23330	793	WNC	22.51	23.50	1.256		-0.09	0.253	0.318
	LTE Band 14	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	23330	793	Speed	22.76	23.00	1.057		-0.09	0.518	0.547
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	26340	1880	WNC	17.15	17.50	1.084		0.02	0.358	0.388
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	26340	1880	WNC	16.21	16.50	1.069		0	0.261	0.279
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	26340	1880	WNC	15.49	15.50	1.002		0.11	0.336	0.337
	LTE Band 25	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	26340	1880	WNC	14.49	14.50	1.002		0.12	0.266	0.267
	LTE Band 25	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	26340	1880	WNC	15.49	15.50	1.002		0.16	0.095	0.095
	LTE Band 25	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	26340	1880	WNC	14.49	14.50	1.002		-0.06	0.079	0.079
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	26340	1880	WNC	23.32	24.00	1.169		-0.17	0.094	0.110
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	26340	1880	WNC	22.30	23.00	1.175		-0.04	0.077	0.090
	LTE Band 25	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	26340	1880	WNC	23.32	24.00	1.169		-0.03	0.052	0.061
	LTE Band 25	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	26340	1880	WNC	22.30	23.00	1.175		-0.1	0.040	0.047
	LTE Band 25	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	26340	1880	WNC	23.32	24.00	1.169		-0.13	0.087	0.102
	LTE Band 25	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	26340	1880	WNC	22.30	23.00	1.175		-0.03	0.071	0.083
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	26340	1880	Speed	17.15	17.50	1.084		0.19	0.328	0.356
8	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	26340	1880	WNC	17.33	17.50	1.040		-0.03	0.606	0.630
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	26340	1880	WNC	17.11	17.50	1.094		-0.02	0.570	0.624
	LTE Band 25	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	26340	1880	WNC	15.43	15.50	1.016		0.1	0.346	0.352
	LTE Band 25	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	26340	1880	WNC	15.24	15.50	1.062		0.15	0.347	0.368
	LTE Band 25	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	26340	1880	WNC	15.43	15.50	1.016		0.15	0.224	0.228
	LTE Band 25	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	26340	1880	WNC	15.24	15.50	1.062		0.18	0.197	0.209
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	26340	1880	WNC	23.25	24.00	1.189		0.12	0.307	0.365
	LTE Band 25	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	26340	1880	WNC	22.73	23.00	1.064		-0.17	0.292	0.311
	LTE Band 25	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	26340	1880	WNC	23.25	24.00	1.189		-0.1	0.067	0.080
	LTE Band 25	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	26340	1880	WNC	22.73	23.00	1.064		0.15	0.064	0.068
	LTE Band 25	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	26340	1880	WNC	23.25	24.00	1.189		-0.14	0.174	0.207
	LTE Band 25	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	26340	1880	WNC	22.73	23.00	1.064		0.02	0.155	0.165
	LTE Band 25	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	26340	1880	Speed	17.33	17.50	1.040		-0.17	0.547	0.569
9	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	26865	831.5	WNC	22.20	22.50	1.072		-0.09	0.894	0.958
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	0mm	Ant 0	ON	26865	831.5	WNC	20.96	21.50	1.132		-0.05	0.726	0.822



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	LTE Band 26	15M	QPSK	75	0	Bottom of Laptop	0mm	Ant 0	ON	26865	831.5	WNC	20.92	21.50	1.143			-0.05	0.711	0.813
	LTE Band 26	15M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	26865	831.5	WNC	18.38	18.50	1.028			0.1	0.613	0.630
	LTE Band 26	15M	QPSK	36	0	Bottom Face	0mm	Ant 0	ON	26865	831.5	WNC	17.40	17.50	1.023			0.07	0.506	0.518
	LTE Band 26	15M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	26865	831.5	WNC	18.38	18.50	1.028			0.08	0.649	0.667
	LTE Band 26	15M	QPSK	36	0	Edge 3	0mm	Ant 0	ON	26865	831.5	WNC	17.40	17.50	1.023			0.13	0.532	0.544
	LTE Band 26	15M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	26865	831.5	WNC	23.58	24.50	1.236			0.15	0.169	0.209
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	21mm	Ant 0	OFF	26865	831.5	WNC	22.43	23.50	1.279			-0.05	0.140	0.179
	LTE Band 26	15M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	26865	831.5	WNC	23.58	24.50	1.236			-0.13	0.083	0.103
	LTE Band 26	15M	QPSK	36	0	Bottom Face	33mm	Ant 0	OFF	26865	831.5	WNC	22.43	23.50	1.279			-0.07	0.071	0.091
	LTE Band 26	15M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	26865	831.5	WNC	23.58	24.50	1.236			-0.14	0.341	0.421
	LTE Band 26	15M	QPSK	36	0	Edge 3	17mm	Ant 0	OFF	26865	831.5	WNC	22.43	23.50	1.279			0.03	0.274	0.351
	LTE Band 26	15M	QPSK	36	0	Bottom of Laptop	0mm	Ant 0	ON	26865	831.5	Speed	20.96	21.50	1.132			-0.18	0.694	0.786
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	27710	2310	WNC	16.99	17.50	1.125			-0.06	0.558	0.628
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	27710	2310	WNC	15.97	16.50	1.130			-0.19	0.448	0.506
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	27710	2310	WNC	14.45	14.50	1.012			-0.07	0.455	0.460
	LTE Band 30	10M	QPSK	25	0	Bottom Face	0mm	Ant 0	ON	27710	2310	WNC	13.47	13.50	1.007			0.19	0.395	0.398
	LTE Band 30	10M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	27710	2310	WNC	14.45	14.50	1.012			0.11	0.147	0.149
	LTE Band 30	10M	QPSK	25	0	Edge 3	0mm	Ant 0	ON	27710	2310	WNC	13.47	13.50	1.007			0.09	0.117	0.118
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	27710	2310	WNC	21.90	23.00	1.288			0.07	0.104	0.134
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	21mm	Ant 0	OFF	27710	2310	WNC	20.91	22.00	1.285			0.02	0.084	0.108
	LTE Band 30	10M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	27710	2310	WNC	21.90	23.00	1.288			0.07	0.062	0.080
	LTE Band 30	10M	QPSK	25	0	Bottom Face	33mm	Ant 0	OFF	27710	2310	WNC	20.91	22.00	1.285			-0.15	0.050	0.064
	LTE Band 30	10M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	27710	2310	WNC	21.90	23.00	1.288			-0.17	0.211	0.272
	LTE Band 30	10M	QPSK	25	0	Edge 3	17mm	Ant 0	OFF	27710	2310	WNC	20.91	22.00	1.285			-0.08	0.167	0.215
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	27710	2310	Speed	16.99	17.50	1.125			-0.01	0.549	0.617
10	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	27710	2310	WNC	17.95	18.00	1.012			0.01	0.884	0.894
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	0mm	Ant 2	ON	27710	2310	WNC	17.90	18.00	1.023			0.04	0.851	0.871
	LTE Band 30	10M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	27710	2310	WNC	17.94	18.00	1.014			0.19	0.831	0.843
	LTE Band 30	10M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	27710	2310	WNC	14.89	15.00	1.026			0.04	0.432	0.443
	LTE Band 30	10M	QPSK	25	0	Bottom Face	0mm	Ant 2	ON	27710	2310	WNC	14.88	15.00	1.028			-0.07	0.476	0.489
	LTE Band 30	10M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	27710	2310	WNC	14.89	15.00	1.026			-0.17	0.257	0.264
	LTE Band 30	10M	QPSK	25	0	Edge 3	0mm	Ant 2	ON	27710	2310	WNC	14.88	15.00	1.028			-0.15	0.342	0.352
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	27710	2310	WNC	22.97	23.00	1.007			0.03	0.460	0.463
	LTE Band 30	10M	QPSK	25	0	Bottom of Laptop	13mm	Ant 2	OFF	27710	2310	WNC	21.98	22.00	1.005			-0.04	0.324	0.325
	LTE Band 30	10M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	27710	2310	WNC	22.97	23.00	1.007			0.1	0.088	0.089
	LTE Band 30	10M	QPSK	25	0	Bottom Face	22mm	Ant 2	OFF	27710	2310	WNC	21.98	22.00	1.005			-0.01	0.066	0.066
	LTE Band 30	10M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	27710	2310	WNC	22.97	23.00	1.007			-0.03	0.240	0.242
	LTE Band 30	10M	QPSK	25	0	Edge 3	12mm	Ant 2	OFF	27710	2310	WNC	21.98	22.00	1.005			0.1	0.212	0.213
	LTE Band 30	10M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	27710	2310	Speed	17.95	18.00	1.012			-0.05	0.707	0.715
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	40620	2593	WNC	19.93	20.00	1.016	62.9	1.006	0.11	0.362	0.370
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	40620	2593	WNC	18.60	19.00	1.096	62.9	1.006	-0.18	0.288	0.318
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	40620	2593	WNC	17.26	17.50	1.057	62.9	1.006	0.02	0.787	0.837
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	39750	2506	WNC	16.90	17.50	1.148	62.9	1.006	-0.09	0.790	0.912
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	40185	2549.5	WNC	17.14	17.50	1.086	62.9	1.006	0.02	0.804	0.879
11	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	41055	2636.5	WNC	16.81	17.50	1.172	62.9	1.006	0.06	0.823	0.971
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	41490	2680	WNC	16.88	17.50	1.153	62.9	1.006	-0.1	0.751	0.871
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	40620	2593	WNC	16.50	16.50	1.000	62.9	1.006	0.02	0.697	0.701
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	39790	2510	WNC	15.87	16.50	1.156	62.9	1.006	0.13	0.779	0.906
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	39750	2506	WNC	15.87	16.50	1.156	62.9	1.006	-0.05	0.781	0.908
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	40185	2549.5	WNC	16.49	16.50	1.002	62.9	1.006	0.1	0.727	0.733
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	41055	2636.5	WNC	16.18	16.50	1.076	62.9	1.006	0	0.650	0.704
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	41490	2680	WNC	16.13	16.50	1.089	62.9	1.006	-0.14	0.593	0.650
	LTE Band 41	20M	QPSK	100	0	Bottom Face	0mm	Ant 0	ON	40620	2593	WNC	16.49	16.50	1.002	62.9	1.006	-0.13	0.707	0.713
	LTE Band 41	20M	QPSK	1	0	Edge 2	0mm	Ant 0	ON	40620	2593	WNC	17.26	17.50	1.057	62.9	1.006	0.06	0.001	0.001
	LTE Band 41	20M	QPSK	50	0	Edge 2	0mm	Ant 0	ON	40620	2593	WNC	16.50	16.50	1.000	62.9	1.006	0	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	Edge 3	0mm	Ant 0	OFF	40620	2593	WNC	23.23	24.00	1.194	62.9	1.006	-0.18	0.190	0.228



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	LTE Band 41	20M	QPSK	50	0	Edge 3	0mm	Ant 0	OFF	40620	2593	WNC	22.21	23.00	1.199	62.9	1.006	-0.13	0.155	0.187
	LTE Band 41	20M	QPSK	1	0	Edge 4	0mm	Ant 0	OFF	40620	2593	WNC	23.23	24.00	1.194	62.9	1.006	0.01	0.001	0.001
	LTE Band 41	20M	QPSK	50	0	Edge 4	0mm	Ant 0	OFF	40620	2593	WNC	22.21	23.00	1.199	62.9	1.006	0.02	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	40620	2593	WNC	23.23	24.00	1.194	62.9	1.006	0.02	0.124	0.149
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	40620	2593	WNC	22.21	23.00	1.199	62.9	1.006	0.1	0.100	0.121
	LTE Band 41	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	40620	2593	WNC	23.23	24.00	1.194	62.9	1.006	0.19	0.065	0.078
	LTE Band 41	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	40620	2593	WNC	22.21	23.00	1.199	62.9	1.006	-0.06	0.052	0.063
	LTE Band 41	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	40620	2593	WNC	23.23	24.00	1.194	62.9	1.006	-0.17	0.229	0.275
	LTE Band 41	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	40620	2593	WNC	22.21	23.00	1.199	62.9	1.006	-0.09	0.187	0.226
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	40620	2593	WNC	17.21	17.50	1.069	42.9	1.009	0.13	0.616	0.664
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	39750	2506	WNC	16.76	17.50	1.186	42.9	1.009	0.01	0.498	0.596
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	40185	2549.5	WNC	16.99	17.50	1.125	42.9	1.009	0.11	0.542	0.615
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	41055	2636.5	WNC	16.81	17.50	1.172	42.9	1.009	0.13	0.541	0.640
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	41490	2680	WNC	16.83	17.50	1.167	42.9	1.009	0.06	0.544	0.640
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	41055	2636.5	Speed	16.81	17.50	1.172	62.9	1.006	-0.01	0.777	0.916
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	40620	2593	Speed	17.26	17.50	1.057	62.9	1.006	0.01	0.820	0.872
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	39750	2506	Speed	16.90	17.50	1.148	62.9	1.006	-0.07	0.756	0.873
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	40185	2549.5	Speed	17.14	17.50	1.086	62.9	1.006	-0.1	0.769	0.840
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	41490	2680	Speed	16.88	17.50	1.153	62.9	1.006	0.02	0.787	0.913
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	40620	2593	WNC	18.82	19.00	1.042	62.9	1.006	-0.18	0.692	0.726
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	39750	2506	WNC	18.76	19.00	1.057	62.9	1.006	-0.1	0.701	0.745
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	40185	2549.5	WNC	18.70	19.00	1.072	62.9	1.006	-0.06	0.629	0.678
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	41055	2636.5	WNC	18.77	19.00	1.054	62.9	1.006	-0.19	0.718	0.762
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	41490	2680	WNC	18.39	19.00	1.151	62.9	1.006	-0.04	0.706	0.817
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	40620	2593	WNC	18.51	19.00	1.119	62.9	1.006	-0.12	0.700	0.788
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	39750	2506	WNC	18.45	19.00	1.135	62.9	1.006	-0.18	0.647	0.739
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	40185	2549.5	WNC	18.39	19.00	1.150	62.9	1.006	-0.17	0.662	0.766
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	41055	2636.5	WNC	18.46	19.00	1.132	62.9	1.006	-0.12	0.700	0.797
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	41490	2680	WNC	18.09	19.00	1.234	62.9	1.006	-0.05	0.680	0.844
	LTE Band 41	20M	QPSK	100	0	Bottom of Laptop	0mm	Ant 2	ON	40620	2593	WNC	18.53	19.00	1.114	62.9	1.006	-0.1	0.704	0.789
	LTE Band 41	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	40620	2593	WNC	16.31	16.50	1.045	62.9	1.006	0.14	0.491	0.516
	LTE Band 41	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	40620	2593	WNC	16.30	16.50	1.047	62.9	1.006	0.04	0.495	0.521
	LTE Band 41	20M	QPSK	1	0	Edge 2	0mm	Ant 2	OFF	40620	2593	WNC	23.42	24.00	1.143	62.9	1.006	0.04	0.001	0.001
	LTE Band 41	20M	QPSK	50	0	Edge 2	0mm	Ant 2	OFF	40620	2593	WNC	22.68	23.00	1.076	62.9	1.006	0.03	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	40620	2593	WNC	16.31	16.50	1.045	62.9	1.006	-0.09	0.239	0.251
	LTE Band 41	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	40620	2593	WNC	16.30	16.50	1.047	62.9	1.006	-0.02	0.214	0.225
	LTE Band 41	20M	QPSK	1	0	Edge 4	0mm	Ant 2	OFF	40620	2593	WNC	23.42	24.00	1.143	62.9	1.006	0	0.001	0.001
	LTE Band 41	20M	QPSK	50	0	Edge 4	0mm	Ant 2	OFF	40620	2593	WNC	22.68	23.00	1.076	62.9	1.006	0.09	0.001	0.001
	LTE Band 41	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	40620	2593	WNC	23.42	24.00	1.143	62.9	1.006	-0.08	0.374	0.430
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	40620	2593	WNC	22.68	23.00	1.076	62.9	1.006	-0.14	0.332	0.360
	LTE Band 41	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	40620	2593	WNC	23.42	24.00	1.143	62.9	1.006	-0.15	0.073	0.084
	LTE Band 41	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	40620	2593	WNC	22.68	23.00	1.076	62.9	1.006	0.02	0.065	0.070
	LTE Band 41	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	40620	2593	WNC	23.42	24.00	1.143	62.9	1.006	0.01	0.172	0.198
	LTE Band 41	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	40620	2593	WNC	22.68	23.00	1.076	62.9	1.006	0	0.154	0.167
	LTE Band 41_HPUE	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	40620	2593	WNC	18.81	19.00	1.045	42.9	1.009	0.05	0.572	0.603
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	41490	2680	Speed	18.09	19.00	1.234	62.9	1.006	0.12	0.660	0.819
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	41055	2636.5	Speed	18.46	19.00	1.132	62.9	1.006	-0.16	0.703	0.801
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	40620	2593	Speed	18.51	19.00	1.119	62.9	1.006	0.05	0.736	0.829
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	39790	2510	Speed	18.41	19.00	1.145	62.9	1.006	0.02	0.780	0.899
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	39750	2506	Speed	18.45	19.00	1.135	62.9	1.006	0.03	0.737	0.841
	LTE Band 41	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	40185	2549.5	Speed	18.39	19.00	1.150	62.9	1.006	-0.11	0.705	0.816
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43490	3590	WNC	15.92	16.00	1.019	62.9	1.006	-0.06	0.819	0.839
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43190	3560	WNC	15.63	16.00	1.089	62.9	1.006	0.04	0.808	0.885
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43340	3575	WNC	15.60	16.00	1.096	62.9	1.006	0.1	0.816	0.900
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43490	3590	WNC	15.80	16.00	1.047	62.9	1.006	0.1	0.815	0.859
12	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43190	3560	WNC	15.52	16.00	1.117	62.9	1.006	-0.01	0.824	0.926



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	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43340	3575	WNC	15.67	16.00	1.079	62.9	1.006	0.04	0.822	0.892
	LTE Band 42	20M	QPSK	100	0	Bottom of Laptop	0mm	Ant 0	ON	43490	3590	WNC	15.83	16.00	1.040	62.9	1.006	0	0.802	0.839
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	43490	3590	WNC	11.76	12.00	1.057	62.9	1.006	-0.08	0.492	0.523
	LTE Band 42	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	43490	3590	WNC	11.76	12.00	1.057	62.9	1.006	-0.08	0.520	0.553
	LTE Band 42	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	43490	3590	WNC	11.76	12.00	1.057	62.9	1.006	-0.12	0.283	0.301
	LTE Band 42	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	43490	3590	WNC	11.76	12.00	1.057	62.9	1.006	0.04	0.286	0.304
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	43490	3590	WNC	21.90	22.00	1.023	62.9	1.006	0.02	0.197	0.203
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	43490	3590	WNC	21.70	22.00	1.072	62.9	1.006	0.19	0.182	0.196
	LTE Band 42	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	43490	3590	WNC	21.90	22.00	1.023	62.9	1.006	0.04	0.233	0.240
	LTE Band 42	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	43490	3590	WNC	21.70	22.00	1.072	62.9	1.006	-0.1	0.219	0.236
	LTE Band 42	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	43490	3590	WNC	21.90	22.00	1.023	62.9	1.006	0.09	0.494	0.509
	LTE Band 42	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	43490	3590	WNC	21.70	22.00	1.072	62.9	1.006	-0.1	0.457	0.493
	LTE Band 42C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43490+43292	3590	WNC	15.69	16.00	1.074	62.9	1.006	-0.06	0.800	0.864
	LTE Band 42C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43190+43388	3560	WNC	15.55	16.00	1.109	62.9	1.006	-0.06	0.795	0.887
	LTE Band 42C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43340+43638	3575	WNC	15.50	16.00	1.122	62.9	1.006	-0.06	0.787	0.888
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43190	3560	Speed	15.52	16.00	1.117	62.9	1.006	-0.15	0.801	0.900
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43490	3590	Speed	15.80	16.00	1.047	62.9	1.006	-0.16	0.741	0.781
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43340	3575	Speed	15.67	16.00	1.079	62.9	1.006	-0.14	0.775	0.841
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	43190	3560	WNC	15.93	16.00	1.016	62.9	1.006	-0.11	0.328	0.335
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	43190	3560	WNC	15.77	16.00	1.054	62.9	1.006	0.1	0.356	0.378
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	43190	3560	WNC	11.81	12.00	1.045	62.9	1.006	-0.02	0.663	0.697
	LTE Band 42	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	43190	3560	WNC	11.77	12.00	1.054	62.9	1.006	0.09	0.650	0.689
	LTE Band 42	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	43190	3560	WNC	11.81	12.00	1.045	62.9	1.006	0.18	0.138	0.145
	LTE Band 42	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	43190	3560	WNC	11.77	12.00	1.054	62.9	1.006	0.19	0.177	0.188
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	43490	3590	WNC	21.88	22.00	1.028	62.9	1.006	0.04	0.212	0.219
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	43490	3590	WNC	21.86	22.00	1.033	62.9	1.006	0.19	0.214	0.222
	LTE Band 42	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	43490	3590	WNC	21.88	22.00	1.028	62.9	1.006	-0.14	0.165	0.171
	LTE Band 42	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	43490	3590	WNC	21.86	22.00	1.033	62.9	1.006	0.02	0.163	0.169
	LTE Band 42	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	43490	3590	WNC	21.88	22.00	1.028	62.9	1.006	0.04	0.433	0.448
	LTE Band 42	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	43490	3590	WNC	21.86	22.00	1.033	62.9	1.006	0.04	0.431	0.448
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	43190	3560	Speed	11.81	12.00	1.045	62.9	1.006	-0.12	0.408	0.429
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	42990	3540	WNC	15.96	16.00	1.009	62.9	1.006	-0.05	0.714	0.725
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	42190	3460	WNC	15.69	16.00	1.074	62.9	1.006	-0.04	0.687	0.742
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	42590	3500	WNC	15.79	16.00	1.050	62.9	1.006	-0.1	0.684	0.722
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	42990	3540	WNC	15.82	16.00	1.042	62.9	1.006	0	0.758	0.795
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	42190	3460	WNC	15.56	16.00	1.107	62.9	1.006	0.14	0.701	0.780
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	42590	3500	WNC	15.67	16.00	1.079	62.9	1.006	0.1	0.696	0.755
	LTE Band 42	20M	QPSK	100	0	Bottom of Laptop	0mm	Ant 0	ON	42990	3540	WNC	15.87	16.00	1.030	62.9	1.006	0.02	0.664	0.688
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	42990	3540	WNC	11.76	12.00	1.057	62.9	1.006	0	0.394	0.419
	LTE Band 42	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	42990	3540	WNC	11.56	12.00	1.107	62.9	1.006	-0.12	0.379	0.422
	LTE Band 42	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	42990	3540	WNC	11.76	12.00	1.057	62.9	1.006	-0.13	0.317	0.337
	LTE Band 42	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	42990	3540	WNC	11.56	12.00	1.107	62.9	1.006	0.05	0.329	0.366
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	42990	3540	WNC	23.91	24.00	1.021	62.9	1.006	-0.18	0.217	0.223
	LTE Band 42	20M	QPSK	50	24	Bottom of Laptop	21mm	Ant 0	OFF	42990	3540	WNC	22.96	23.00	1.009	62.9	1.006	0.03	0.182	0.185
	LTE Band 42	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	42990	3540	WNC	23.91	24.00	1.021	62.9	1.006	0.11	0.273	0.280
	LTE Band 42	20M	QPSK	50	24	Bottom Face	33mm	Ant 0	OFF	42990	3540	WNC	22.96	23.00	1.009	62.9	1.006	-0.12	0.223	0.226
	LTE Band 42	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	42990	3540	WNC	23.91	24.00	1.021	62.9	1.006	0.03	0.421	0.432
	LTE Band 42	20M	QPSK	50	24	Edge 3	17mm	Ant 0	OFF	42990	3540	WNC	22.96	23.00	1.009	62.9	1.006	0.07	0.416	0.422
	LTE Band 42C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	42990+42792	3540	WNC	15.88	16.00	1.028	62.9	1.006	-0.05	0.746	0.772
	LTE Band 42C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	42190+42388	3460	WNC	15.55	16.00	1.109	62.9	1.006	-0.04	0.701	0.782
	LTE Band 42C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	42590+42788	3500	WNC	15.69	16.00	1.074	62.9	1.006	-0.1	0.711	0.768
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	42990	3540	Speed	15.82	16.00	1.042	62.9	1.006	0.04	0.754	0.791
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	42190	3460	Speed	15.56	16.00	1.107	62.9	1.006	-0.12	0.635	0.707
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	42590	3500	Speed	15.67	16.00	1.079	62.9	1.006	-0.01	0.712	0.773
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	42190	3460	WNC	15.95	16.00	1.012	62.9	1.006	-0.14	0.350	0.356
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	42190	3460	WNC	15.91	16.00	1.021	62.9	1.006	0.11	0.358	0.368

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	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	42190	3460	WNC	11.88	12.00	1.028	62.9	1.006	-0.05	0.613	0.634
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	42990	3540	WNC	11.64	12.00	1.086	62.9	1.006	-0.08	0.552	0.603
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	42590	3500	WNC	11.71	12.00	1.069	62.9	1.006	0.01	0.549	0.590
	LTE Band 42	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	42190	3460	WNC	11.86	12.00	1.033	62.9	1.006	-0.08	0.449	0.466
	LTE Band 42	20M	QPSK	100	0	Bottom Face	0mm	Ant 2	ON	42190	3460	WNC	11.84	12.00	1.038	62.9	1.006	0.06	0.511	0.533
	LTE Band 42	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	42190	3460	WNC	11.88	12.00	1.028	62.9	1.006	0.04	0.195	0.202
	LTE Band 42	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	42190	3460	WNC	11.86	12.00	1.033	62.9	1.006	-0.1	0.161	0.167
	LTE Band 42	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	42190	3460	WNC	23.92	24.00	1.019	62.9	1.006	0.09	0.378	0.387
	LTE Band 42	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	42190	3460	WNC	22.63	23.00	1.089	62.9	1.006	-0.16	0.297	0.325
	LTE Band 42	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	42190	3460	WNC	23.92	24.00	1.019	62.9	1.006	-0.01	0.190	0.195
	LTE Band 42	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	42190	3460	WNC	22.63	23.00	1.089	62.9	1.006	-0.06	0.152	0.167
	LTE Band 42	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	42190	3460	WNC	23.92	24.00	1.019	62.9	1.006	-0.06	0.571	0.585
	LTE Band 42	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	42190	3460	WNC	22.63	23.00	1.089	62.9	1.006	0.15	0.494	0.541
	LTE Band 42	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	42190	3460	Speed	11.88	12.00	1.028	62.9	1.006	-0.19	0.371	0.384
	LTE Band 43	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43690	3610	WNC	15.87	16.00	1.030	62.9	1.006	-0.09	0.762	0.790
13	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43690	3610	WNC	15.82	16.00	1.042	62.9	1.006	0.01	0.764	0.801
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	44090	3650	WNC	15.65	16.00	1.084	62.9	1.006	0.1	0.651	0.710
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	44490	3690	WNC	15.57	16.00	1.104	62.9	1.006	-0.13	0.556	0.618
	LTE Band 43	20M	QPSK	100	0	Bottom of Laptop	0mm	Ant 0	ON	43690	3610	WNC	15.81	16.00	1.045	62.9	1.006	0	0.744	0.782
	LTE Band 43	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	43690	3610	WNC	12.89	13.00	1.026	62.9	1.006	0.08	0.603	0.622
	LTE Band 43	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	43690	3610	WNC	12.73	13.00	1.064	62.9	1.006	0.08	0.608	0.651
	LTE Band 43	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	43690	3610	WNC	12.89	13.00	1.026	62.9	1.006	0.08	0.603	0.622
	LTE Band 43	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	43690	3610	WNC	12.73	13.00	1.064	62.9	1.006	0.08	0.608	0.651
	LTE Band 43	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	43690	3610	WNC	22.00	22.00	1.000	62.9	1.006	-0.06	0.184	0.185
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	43690	3610	WNC	21.98	22.00	1.005	62.9	1.006	-0.02	0.190	0.192
	LTE Band 43	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	43690	3610	WNC	22.00	22.00	1.000	62.9	1.006	-0.08	0.290	0.292
	LTE Band 43	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	43690	3610	WNC	21.98	22.00	1.005	62.9	1.006	0.1	0.335	0.339
	LTE Band 43	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	43690	3610	WNC	22.00	22.00	1.000	62.9	1.006	-0.09	0.264	0.266
	LTE Band 43	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	43690	3610	WNC	21.98	22.00	1.005	62.9	1.006	-0.13	0.267	0.270
	LTE Band 43C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	43690+43888	3610	WNC	15.66	16.00	1.081	62.9	1.006	-0.07	0.658	0.716
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	43690	3610	Speed	15.82	16.00	1.042	62.9	1.006	0.12	0.673	0.706
	LTE Band 43	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	43690	3610	WNC	18.50	18.50	1.000	62.9	1.006	0.16	0.705	0.709
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	43690	3610	WNC	18.45	18.50	1.012	62.9	1.006	-0.06	0.722	0.735
	LTE Band 43	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	43690	3610	WNC	12.00	12.00	1.000	62.9	1.006	0.03	0.508	0.511
	LTE Band 43	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	43690	3610	WNC	11.84	12.00	1.038	62.9	1.006	-0.03	0.513	0.535
	LTE Band 43	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	43690	3610	WNC	12.00	12.00	1.000	62.9	1.006	-0.07	0.191	0.192
	LTE Band 43	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	43690	3610	WNC	11.84	12.00	1.038	62.9	1.006	-0.19	0.178	0.186
	LTE Band 43	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	43690	3610	WNC	21.84	22.00	1.038	62.9	1.006	0	0.192	0.200
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	43690	3610	WNC	20.97	21.00	1.007	62.9	1.006	-0.15	0.200	0.203
	LTE Band 43	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	43690	3610	WNC	21.84	22.00	1.038	62.9	1.006	0.18	0.183	0.191
	LTE Band 43	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	43690	3610	WNC	20.97	21.00	1.007	62.9	1.006	-0.11	0.190	0.192
	LTE Band 43	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	43690	3610	WNC	21.84	22.00	1.038	62.9	1.006	0.06	0.319	0.333
	LTE Band 43	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	43690	3610	WNC	20.97	21.00	1.007	62.9	1.006	-0.04	0.328	0.332
	LTE Band 43	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	43690	3610	Speed	18.45	18.50	1.012	62.9	1.006	0.14	0.598	0.609
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	56150	3641	WNC	15.97	16.00	1.007	62.9	1.006	-0.17	0.713	0.722
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	55340	3560	WNC	15.87	16.00	1.030	62.9	1.006	0.16	0.803	0.832
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	55830	3609	WNC	15.90	16.00	1.023	62.9	1.006	-0.03	0.775	0.798
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	56640	3690	WNC	15.83	16.00	1.040	62.9	1.006	0.14	0.564	0.590
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	56150	3641	WNC	15.91	16.00	1.021	62.9	1.006	0.09	0.724	0.744
14	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	55340	3560	WNC	15.82	16.00	1.042	62.9	1.006	0.04	0.816	0.856
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	55830	3609	WNC	15.85	16.00	1.035	62.9	1.006	-0.13	0.791	0.824
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	56640	3690	WNC	15.77	16.00	1.054	62.9	1.006	-0.11	0.572	0.607
	LTE Band 48	20M	QPSK	100	0	Bottom of Laptop	0mm	Ant 0	ON	56150	3641	WNC	15.90	16.00	1.023	62.9	1.006	-0.07	0.730	0.751
	LTE Band 48	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	56150	3641	WNC	12.98	13.00	1.005	62.9	1.006	-0.12	0.557	0.563
	LTE Band 48	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	56150	3641	WNC	11.96	12.00	1.009	62.9	1.006	-0.11	0.554	0.562
	LTE Band 48	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	56150	3641	WNC	12.98	13.00	1.005	62.9	1.006	-0.11	0.298	0.301



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	LTE Band 48	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	56150	3641	WNC	11.96	12.00	1.009	62.9	1.006	-0.11	0.303	0.308
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	56150	3641	WNC	21.98	22.00	1.005	62.9	1.006	-0.08	0.199	0.201
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	55830	3609	WNC	20.94	21.00	1.014	62.9	1.006	0.16	0.156	0.159
	LTE Band 48	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	56150	3641	WNC	21.98	22.00	1.005	62.9	1.006	0.05	0.224	0.226
	LTE Band 48	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	55830	3609	WNC	20.94	21.00	1.014	62.9	1.006	-0.16	0.183	0.187
	LTE Band 48	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	56150	3641	WNC	21.98	22.00	1.005	62.9	1.006	-0.12	0.437	0.442
	LTE Band 48	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	55830	3609	WNC	20.94	21.00	1.014	62.9	1.006	0.07	0.348	0.355
	LTE Band 48C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	56150+55952	3641	WNC	15.89	16.00	1.026	62.9	1.006	0	0.758	0.782
	LTE Band 48C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	55340+55538	3560	WNC	15.80	16.00	1.047	62.9	1.006	-0.13	0.744	0.784
	LTE Band 48C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	55830+55632	3609	WNC	15.85	16.00	1.035	62.9	1.006	-0.19	0.751	0.782
	LTE Band 48C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	56640+56442	3690	WNC	15.70	16.00	1.072	62.9	1.006	-0.05	0.732	0.789
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	55340	3560	Speed	15.82	16.00	1.042	62.9	1.006	-0.09	0.798	0.837
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	55830	3609	Speed	15.85	16.00	1.035	62.9	1.006	-0.03	0.711	0.740
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	56150	3641	Speed	15.91	16.00	1.021	62.9	1.006	0.02	0.540	0.555
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	56640	3690	Speed	15.77	16.00	1.054	62.9	1.006	-0.13	0.552	0.586
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	56640	3690	WNC	17.98	18.00	1.005	62.9	1.006	0	0.529	0.535
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	56640	3690	WNC	17.68	18.00	1.076	62.9	1.006	-0.07	0.488	0.528
	LTE Band 48	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	56640	3690	WNC	11.31	11.50	1.045	62.9	1.006	-0.01	0.646	0.679
	LTE Band 48	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	56150	3641	WNC	11.30	11.50	1.047	62.9	1.006	0.11	0.622	0.655
	LTE Band 48	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	55340	3560	WNC	11.12	11.50	1.091	62.9	1.006	0.13	0.638	0.701
	LTE Band 48	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	55830	3609	WNC	11.28	11.50	1.052	62.9	1.006	0.15	0.633	0.670
	LTE Band 48	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	56640	3690	WNC	11.20	11.50	1.072	62.9	1.006	-0.15	0.654	0.705
	LTE Band 48	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	56150	3641	WNC	11.19	11.50	1.074	62.9	1.006	0.06	0.651	0.703
	LTE Band 48	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	55340	3560	WNC	11.01	11.50	1.119	62.9	1.006	0	0.621	0.699
	LTE Band 48	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	55830	3609	WNC	11.17	11.50	1.079	62.9	1.006	-0.09	0.637	0.691
	LTE Band 48	20M	QPSK	100	0	Bottom Face	0mm	Ant 2	ON	56640	3690	WNC	11.24	11.50	1.062	62.9	1.006	0.04	0.551	0.589
	LTE Band 48	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	56640	3690	WNC	11.31	11.50	1.045	62.9	1.006	-0.1	0.197	0.207
	LTE Band 48	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	56640	3690	WNC	11.20	11.50	1.072	62.9	1.006	-0.09	0.245	0.264
	LTE Band 48	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	56150	3641	WNC	21.46	22.00	1.132	62.9	1.006	0.12	0.194	0.221
	LTE Band 48	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	56150	3641	WNC	20.31	21.00	1.172	62.9	1.006	-0.02	0.174	0.205
	LTE Band 48	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	56150	3641	WNC	21.46	22.00	1.132	62.9	1.006	0.08	0.114	0.130
	LTE Band 48	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	56150	3641	WNC	20.31	21.00	1.172	62.9	1.006	0.03	0.094	0.111
	LTE Band 48	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	56150	3641	WNC	21.46	22.00	1.132	62.9	1.006	-0.18	0.372	0.424
	LTE Band 48	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	56150	3641	WNC	20.31	21.00	1.172	62.9	1.006	0	0.313	0.369
	LTE Band 48	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	56640	3690	Speed	11.20	11.50	1.072	62.9	1.006	0.19	0.556	0.599
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	132572	1770	WNC	20.24	20.50	1.062			0.11	0.551	0.585
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	132572	1770	WNC	19.20	19.50	1.072			-0.12	0.579	0.620
	LTE Band 66	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	132572	1770	WNC	15.98	16.00	1.005			0	0.544	0.547
	LTE Band 66	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	132572	1770	WNC	14.99	15.00	1.002			-0.02	0.438	0.439
	LTE Band 66	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	132572	1770	WNC	15.98	16.00	1.005			0.05	0.243	0.244
	LTE Band 66	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	132572	1770	WNC	14.99	15.00	1.002			-0.06	0.190	0.190
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	132572	1770	WNC	23.50	24.00	1.122			-0.12	0.120	0.135
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	132572	1770	WNC	22.21	23.00	1.199			-0.15	0.100	0.120
	LTE Band 66	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	132572	1770	WNC	23.50	24.00	1.122			0.1	0.065	0.073
	LTE Band 66	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	132572	1770	WNC	22.21	23.00	1.199			0.07	0.052	0.062
	LTE Band 66	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	132572	1770	WNC	23.50	24.00	1.122			-0.01	0.205	0.230
	LTE Band 66	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	132572	1770	WNC	22.21	23.00	1.199			-0.1	0.154	0.185
	LTE Band 66C	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	132572	1770	WNC	20.12	20.50	1.091			0.11	0.549	0.599
15	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	132572	1770	Speed	19.20	19.50	1.072			0.02	0.740	0.793
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	132322	1745	WNC	17.94	18.00	1.014			-0.12	0.434	0.440
	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	132322	1745	WNC	17.69	18.00	1.074			0.08	0.409	0.439
	LTE Band 66	20M	QPSK	1	0	Bottom Face	0mm	Ant 2	ON	132322	1745	WNC	15.96	16.00	1.009			-0.07	0.228	0.230
	LTE Band 66	20M	QPSK	50	0	Bottom Face	0mm	Ant 2	ON	132322	1745	WNC	15.82	16.00	1.042			0.06	0.225	0.235
	LTE Band 66	20M	QPSK	1	0	Edge 3	0mm	Ant 2	ON	132322	1745	WNC	15.96	16.00	1.009			0.08	0.134	0.135
	LTE Band 66	20M	QPSK	50	0	Edge 3	0mm	Ant 2	ON	132322	1745	WNC	15.82	16.00	1.042			0.02	0.123	0.128
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	13mm	Ant 2	OFF	132322	1745	WNC	23.61	24.00	1.094			-0.1	0.183	0.200



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	LTE Band 66	20M	QPSK	50	0	Bottom of Laptop	13mm	Ant 2	OFF	132322	1745	WNC	22.42	23.00	1.143			0.08	0.153	0.175
	LTE Band 66	20M	QPSK	1	0	Bottom Face	22mm	Ant 2	OFF	132322	1745	WNC	23.61	24.00	1.094			0.16	0.043	0.047
	LTE Band 66	20M	QPSK	50	0	Bottom Face	22mm	Ant 2	OFF	132322	1745	WNC	22.42	23.00	1.143			0.12	0.035	0.040
	LTE Band 66	20M	QPSK	1	0	Edge 3	12mm	Ant 2	OFF	132322	1745	WNC	23.61	24.00	1.094			-0.18	0.077	0.084
	LTE Band 66	20M	QPSK	50	0	Edge 3	12mm	Ant 2	OFF	132322	1745	WNC	22.42	23.00	1.143			0.18	0.064	0.073
	LTE Band 66	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 2	ON	132322	1745	Speed	17.94	18.00	1.014			-0.17	0.374	0.379
16	LTE Band 71	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	133297	680.5	WNC	22.42	23.00	1.143			0	0.615	0.703
	LTE Band 71	20M	QPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	133297	680.5	WNC	21.53	22.00	1.114			0.09	0.531	0.592
	LTE Band 71	20M	QPSK	1	0	Bottom Face	0mm	Ant 0	ON	133297	680.5	WNC	18.46	18.50	1.009			-0.06	0.559	0.564
	LTE Band 71	20M	QPSK	50	0	Bottom Face	0mm	Ant 0	ON	133297	680.5	WNC	17.45	17.50	1.012			0.17	0.449	0.454
	LTE Band 71	20M	QPSK	1	0	Edge 2	0mm	Ant 0	OFF	133297	680.5	WNC	23.39	24.00	1.151			0.17	0.001	0.001
	LTE Band 71	20M	QPSK	50	0	Edge 2	0mm	Ant 0	OFF	133297	680.5	WNC	22.37	23.00	1.156			-0.18	0.001	0.001
	LTE Band 71	20M	QPSK	1	0	Edge 3	0mm	Ant 0	ON	133297	680.5	WNC	18.46	18.50	1.009			0	0.688	0.694
	LTE Band 71	20M	QPSK	50	0	Edge 3	0mm	Ant 0	ON	133297	680.5	WNC	17.45	17.50	1.012			-0.02	0.586	0.593
	LTE Band 71	20M	QPSK	1	0	Edge 4	0mm	Ant 0	OFF	133297	680.5	WNC	23.39	24.00	1.151			-0.17	0.001	0.001
	LTE Band 71	20M	QPSK	50	0	Edge 4	0mm	Ant 0	OFF	133297	680.5	WNC	22.37	23.00	1.156			0.03	0.001	0.001
	LTE Band 71	20M	QPSK	1	0	Bottom of Laptop	21mm	Ant 0	OFF	133297	680.5	WNC	23.39	24.00	1.151			-0.13	0.079	0.091
	LTE Band 71	20M	QPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	133297	680.5	WNC	22.37	23.00	1.156			0.08	0.066	0.076
	LTE Band 71	20M	QPSK	1	0	Bottom Face	33mm	Ant 0	OFF	133297	680.5	WNC	23.39	24.00	1.151			0.12	0.001	0.001
	LTE Band 71	20M	QPSK	50	0	Bottom Face	33mm	Ant 0	OFF	133297	680.5	WNC	22.37	23.00	1.156			0.13	0.001	0.001
	LTE Band 71	20M	QPSK	1	0	Edge 3	17mm	Ant 0	OFF	133297	680.5	WNC	23.39	24.00	1.151			0.03	0.206	0.237
	LTE Band 71	20M	QPSK	50	0	Edge 3	17mm	Ant 0	OFF	133297	680.5	WNC	22.37	23.00	1.156			0.15	0.183	0.212
	LTE Band 71	20M	QPSK	1	0	Bottom of Laptop	0mm	Ant 0	ON	133297	680.5	Speed	22.42	23.00	1.143			-0.04	0.593	0.678

<5G NR SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	FR1 n7	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	507000	2535	WNC	16.31	16.50	1.045	-0.08	0.639	0.668
	FR1 n7	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 0	ON	507000	2535	WNC	16.26	16.50	1.057	0.01	0.654	0.691
	FR1 n7	40M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	507000	2535	WNC	13.32	13.50	1.042	0.01	0.619	0.645
	FR1 n7	40M	BPSK	108	0	Bottom Face	0mm	Ant 0	ON	507000	2535	WNC	13.25	13.50	1.059	0	0.534	0.566
	FR1 n7	40M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	507000	2535	WNC	13.32	13.50	1.042	0.07	0.135	0.141
	FR1 n7	40M	BPSK	108	0	Edge 3	0mm	Ant 0	ON	507000	2535	WNC	13.25	13.50	1.059	0.17	0.140	0.148
	FR1 n7	40M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	507000	2535	WNC	23.89	24.00	1.026	-0.06	0.206	0.211
	FR1 n7	40M	BPSK	108	54	Bottom of Laptop	21mm	Ant 0	OFF	507000	2535	WNC	23.15	24.00	1.216	0.07	0.235	0.286
	FR1 n7	40M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	507000	2535	WNC	23.89	24.00	1.026	0.01	0.090	0.092
	FR1 n7	40M	BPSK	108	54	Bottom Face	33mm	Ant 0	OFF	507000	2535	WNC	23.15	24.00	1.216	0.15	0.082	0.100
	FR1 n7	40M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	507000	2535	WNC	23.89	24.00	1.026	0.09	0.188	0.193
	FR1 n7	40M	BPSK	108	54	Edge 3	17mm	Ant 0	OFF	507000	2535	WNC	23.15	24.00	1.216	0.06	0.210	0.255
	FR1 n7	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 0	ON	507000	2535	Speed	16.26	16.50	1.057	-0.05	0.653	0.690
17	FR1 n7	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	507000	2535	WNC	16.85	17.00	1.035	0.03	0.713	0.738
	FR1 n7	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 2	ON	507000	2535	WNC	16.85	17.00	1.035	-0.04	0.702	0.727
	FR1 n7	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	507000	2535	WNC	15.25	15.50	1.059	-0.09	0.600	0.636
	FR1 n7	40M	BPSK	108	0	Bottom Face	0mm	Ant 2	ON	507000	2535	WNC	15.24	15.50	1.062	0.04	0.607	0.644
	FR1 n7	40M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	507000	2535	WNC	15.25	15.50	1.059	-0.1	0.210	0.222
	FR1 n7	40M	BPSK	108	0	Edge 3	0mm	Ant 2	ON	507000	2535	WNC	15.24	15.50	1.062	0.04	0.196	0.208
	FR1 n7	40M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	507000	2535	WNC	21.96	22.50	1.132	0.13	0.466	0.528
	FR1 n7	40M	BPSK	108	54	Bottom of Laptop	13mm	Ant 2	OFF	507000	2535	WNC	21.91	22.50	1.146	-0.18	0.422	0.483
	FR1 n7	40M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	507000	2535	WNC	21.96	22.50	1.132	0.18	0.090	0.102
	FR1 n7	40M	BPSK	108	54	Bottom Face	22mm	Ant 2	OFF	507000	2535	WNC	21.91	22.50	1.146	0.06	0.095	0.109
	FR1 n7	40M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	507000	2535	WNC	21.96	22.50	1.132	-0.07	0.168	0.190
	FR1 n7	40M	BPSK	108	54	Edge 3	12mm	Ant 2	OFF	507000	2535	WNC	21.91	22.50	1.146	0.18	0.176	0.202
	FR1 n7	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	507000	2535	Speed	16.85	17.00	1.035	0.01	0.694	0.718
	FR1 n12	15M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	141500	707.5	WNC	22.46	22.50	1.009	-0.09	0.740	0.747
18	FR1 n12	15M	BPSK	36	0	Bottom of Laptop	0mm	Ant 0	ON	141500	707.5	WNC	22.40	22.50	1.023	0	0.764	0.782



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	FR1 n12	15M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	141500	707.5	WNC	18.49	18.50	1.002	-0.16	0.684	0.686
	FR1 n12	15M	BPSK	36	0	Bottom Face	0mm	Ant 0	ON	141500	707.5	WNC	18.46	18.50	1.009	0.17	0.635	0.641
	FR1 n12	15M	BPSK	1	1	Edge 2	0mm	Ant 0	OFF	141500	707.5	WNC	23.34	24.00	1.164	0.13	0.001	0.001
	FR1 n12	15M	BPSK	36	22	Edge 2	0mm	Ant 0	OFF	141500	707.5	WNC	23.06	24.00	1.242	0.17	0.001	0.001
	FR1 n12	15M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	141500	707.5	WNC	18.49	18.50	1.002	0.05	0.608	0.609
	FR1 n12	15M	BPSK	36	0	Edge 3	0mm	Ant 0	ON	141500	707.5	WNC	18.46	18.50	1.009	-0.02	0.560	0.565
	FR1 n12	15M	BPSK	1	1	Edge 4	0mm	Ant 0	OFF	141500	707.5	WNC	23.34	24.00	1.164	-0.18	0.001	0.001
	FR1 n12	15M	BPSK	36	22	Edge 4	0mm	Ant 0	OFF	141500	707.5	WNC	23.06	24.00	1.242	-0.04	0.001	0.001
	FR1 n12	15M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	141500	707.5	WNC	23.34	24.00	1.164	0.02	0.063	0.073
	FR1 n12	15M	BPSK	36	22	Bottom of Laptop	21mm	Ant 0	OFF	141500	707.5	WNC	23.06	24.00	1.242	0.03	0.073	0.091
	FR1 n12	15M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	141500	707.5	WNC	23.34	24.00	1.164	0.14	0.001	0.001
	FR1 n12	15M	BPSK	36	22	Bottom Face	33mm	Ant 0	OFF	141500	707.5	WNC	23.06	24.00	1.242	-0.03	0.001	0.001
	FR1 n12	15M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	141500	707.5	WNC	23.34	24.00	1.164	0.01	0.188	0.219
	FR1 n12	15M	BPSK	36	22	Edge 3	17mm	Ant 0	OFF	141500	707.5	WNC	23.06	24.00	1.242	-0.14	0.177	0.220
	FR1 n12	15M	BPSK	36	0	Bottom of Laptop	0mm	Ant 0	ON	141500	707.5	Speed	22.40	22.50	1.023	0.18	0.452	0.463
	FR1 n13	10M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	156400	782	WNC	21.54	22.00	1.112	-0.04	0.532	0.591
	FR1 n13	10M	BPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	156400	782	WNC	21.50	22.00	1.122	0.06	0.516	0.579
	FR1 n13	10M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	156400	782	WNC	19.58	20.00	1.102	-0.12	0.690	0.760
19	FR1 n13	10M	BPSK	25	0	Bottom Face	0mm	Ant 0	ON	156400	782	WNC	19.51	20.00	1.119	-0.04	0.682	0.763
	FR1 n13	10M	BPSK	1	1	Edge 2	0mm	Ant 0	OFF	156400	782	WNC	23.34	24.00	1.164	0.16	0.001	0.001
	FR1 n13	10M	BPSK	25	14	Edge 2	0mm	Ant 0	OFF	156400	782	WNC	23.20	24.00	1.202	-0.01	0.001	0.001
	FR1 n13	10M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	156400	782	WNC	19.58	20.00	1.102	0.14	0.500	0.551
	FR1 n13	10M	BPSK	25	0	Edge 3	0mm	Ant 0	ON	156400	782	WNC	19.51	20.00	1.119	-0.09	0.487	0.545
	FR1 n13	10M	BPSK	1	1	Edge 4	0mm	Ant 0	OFF	156400	782	WNC	23.34	24.00	1.164	0.1	0.001	0.001
	FR1 n13	10M	BPSK	25	14	Edge 4	0mm	Ant 0	OFF	156400	782	WNC	23.20	24.00	1.202	-0.04	0.001	0.001
	FR1 n13	10M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	156400	782	WNC	23.34	24.00	1.164	0.09	0.067	0.078
	FR1 n13	10M	BPSK	25	14	Bottom of Laptop	21mm	Ant 0	OFF	156400	782	WNC	23.20	24.00	1.202	-0.09	0.060	0.072
	FR1 n13	10M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	156400	782	WNC	23.34	24.00	1.164	0.12	0.056	0.065
	FR1 n13	10M	BPSK	25	14	Bottom Face	33mm	Ant 0	OFF	156400	782	WNC	23.20	24.00	1.202	0.17	0.054	0.065
	FR1 n13	10M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	156400	782	WNC	23.34	24.00	1.164	-0.16	0.146	0.170
	FR1 n13	10M	BPSK	25	14	Edge 3	17mm	Ant 0	OFF	156400	782	WNC	23.20	24.00	1.202	0.03	0.130	0.156
	FR1 n13	10M	BPSK	25	0	Bottom Face	0mm	Ant 0	ON	156400	782	Speed	19.51	20.00	1.119	-0.01	0.462	0.517
20	FR1 n14	10M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	158600	793	WNC	22.48	22.50	1.005	0.07	0.774	0.778
	FR1 n14	10M	BPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	158600	793	WNC	22.42	22.50	1.019	-0.12	0.666	0.678
	FR1 n14	10M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	158600	793	WNC	19.11	19.50	1.094	0.18	0.644	0.705
	FR1 n14	10M	BPSK	25	0	Bottom Face	0mm	Ant 0	ON	158600	793	WNC	19.06	19.50	1.107	-0.11	0.643	0.712
	FR1 n14	10M	BPSK	1	1	Edge 2	0mm	Ant 0	OFF	158600	793	WNC	23.20	24.00	1.202	0.16	0.001	0.001
	FR1 n14	10M	BPSK	25	14	Edge 2	0mm	Ant 0	OFF	158600	793	WNC	23.10	24.00	1.230	-0.05	0.001	0.001
	FR1 n14	10M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	158600	793	WNC	19.11	19.50	1.094	0.08	0.417	0.456
	FR1 n14	10M	BPSK	25	0	Edge 3	0mm	Ant 0	ON	158600	793	WNC	19.06	19.50	1.107	-0.01	0.417	0.461
	FR1 n14	10M	BPSK	1	1	Edge 4	0mm	Ant 0	OFF	158600	793	WNC	23.20	24.00	1.202	0.14	0.001	0.001
	FR1 n14	10M	BPSK	25	14	Edge 4	0mm	Ant 0	OFF	158600	793	WNC	23.10	24.00	1.230	0.07	0.001	0.001
	FR1 n14	10M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	158600	793	WNC	23.20	24.00	1.202	-0.05	0.083	0.100
	FR1 n14	10M	BPSK	25	14	Bottom of Laptop	21mm	Ant 0	OFF	158600	793	WNC	23.10	24.00	1.230	0.19	0.070	0.086
	FR1 n14	10M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	158600	793	WNC	23.20	24.00	1.202	0.19	0.001	0.001
	FR1 n14	10M	BPSK	25	14	Bottom Face	33mm	Ant 0	OFF	158600	793	WNC	23.10	24.00	1.230	0.18	0.001	0.001
	FR1 n14	10M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	158600	793	WNC	23.20	24.00	1.202	0.08	0.130	0.156
	FR1 n14	10M	BPSK	25	14	Edge 3	17mm	Ant 0	OFF	158600	793	WNC	23.10	24.00	1.230	0.05	0.133	0.164
	FR1 n14	10M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	158600	793	Speed	22.48	22.50	1.005	-0.03	0.634	0.637
21	FR1 n25	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	376500	1882.5	WNC	19.95	20.00	1.012	0.04	0.773	0.782
	FR1 n25	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 0	ON	376500	1882.5	WNC	19.78	20.00	1.052	0.11	0.718	0.755
	FR1 n25	40M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	376500	1882.5	WNC	15.86	16.00	1.033	0.06	0.400	0.413
	FR1 n25	40M	BPSK	108	0	Bottom Face	0mm	Ant 0	ON	376500	1882.5	WNC	15.70	16.00	1.072	-0.13	0.469	0.503
	FR1 n25	40M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	376500	1882.5	WNC	15.86	16.00	1.033	0.08	0.153	0.158
	FR1 n25	40M	BPSK	108	0	Edge 3	0mm	Ant 0	ON	376500	1882.5	WNC	15.70	16.00	1.072	-0.11	0.170	0.182
	FR1 n25	40M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	376500	1882.5	WNC	23.55	24.00	1.109	0.1	0.196	0.217



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	FR1 n25	40M	BPSK	108	54	Bottom of Laptop	21mm	Ant 0	OFF	376500	1882.5	WNC	23.48	24.00	1.127	0.13	0.167	0.188
	FR1 n25	40M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	376500	1882.5	WNC	23.55	24.00	1.109	-0.16	0.001	0.001
	FR1 n25	40M	BPSK	108	54	Bottom Face	33mm	Ant 0	OFF	376500	1882.5	WNC	23.48	24.00	1.127	-0.14	0.001	0.001
	FR1 n25	40M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	376500	1882.5	WNC	23.55	24.00	1.109	0.14	0.167	0.185
	FR1 n25	40M	BPSK	108	54	Edge 3	17mm	Ant 0	OFF	376500	1882.5	WNC	23.48	24.00	1.127	0.14	0.153	0.172
	FR1 n25	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	376500	1882.5	Speed	19.95	20.00	1.012	-0.15	0.759	0.768
	FR1 n25	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	376500	1882.5	WNC	17.37	17.50	1.030	0.03	0.634	0.653
	FR1 n25	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 2	ON	376500	1882.5	WNC	17.32	17.50	1.042	0	0.694	0.723
	FR1 n25	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	376500	1882.5	WNC	15.86	16.00	1.033	0.06	0.571	0.590
	FR1 n25	40M	BPSK	108	0	Bottom Face	0mm	Ant 2	ON	376500	1882.5	WNC	15.78	16.00	1.052	0.11	0.614	0.646
	FR1 n25	40M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	376500	1882.5	WNC	15.86	16.00	1.033	0.05	0.289	0.298
	FR1 n25	40M	BPSK	108	0	Edge 3	0mm	Ant 2	ON	376500	1882.5	WNC	15.78	16.00	1.052	-0.04	0.269	0.283
	FR1 n25	40M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	376500	1882.5	WNC	23.60	24.00	1.096	-0.01	0.137	0.150
	FR1 n25	40M	BPSK	108	0	Bottom of Laptop	13mm	Ant 2	OFF	376500	1882.5	WNC	22.73	23.50	1.194	-0.18	0.127	0.152
	FR1 n25	40M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	376500	1882.5	WNC	23.60	24.00	1.096	0.1	0.113	0.124
	FR1 n25	40M	BPSK	108	0	Bottom Face	22mm	Ant 2	OFF	376500	1882.5	WNC	22.73	23.50	1.194	-0.13	0.112	0.134
	FR1 n25	40M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	376500	1882.5	WNC	23.60	24.00	1.096	-0.14	0.073	0.080
	FR1 n25	40M	BPSK	108	0	Edge 3	12mm	Ant 2	OFF	376500	1882.5	WNC	22.73	23.50	1.194	-0.07	0.070	0.084
	FR1 n25	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 2	ON	376500	1882.5	Speed	17.32	17.50	1.042	-0.13	0.665	0.693
	FR1 n26	20M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	166300	831.5	WNC	22.84	23.00	1.038	-0.12	0.907	0.941
	FR1 n26	20M	BPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	166300	831.5	WNC	22.77	23.00	1.054	-0.15	0.831	0.876
	FR1 n26	20M	BPSK	100	0	Bottom of Laptop	0mm	Ant 0	ON	166300	831.5	WNC	22.75	23.00	1.059	-0.12	0.826	0.875
	FR1 n26	20M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	166300	831.5	WNC	19.42	19.50	1.019	0.07	0.883	0.899
22	FR1 n26	20M	BPSK	50	0	Bottom Face	0mm	Ant 0	ON	166300	831.5	WNC	19.17	19.50	1.079	-0.01	0.904	0.975
	FR1 n26	20M	BPSK	100	0	Bottom Face	0mm	Ant 0	ON	166300	831.5	WNC	18.89	19.50	1.151	0.07	0.845	0.972
	FR1 n26	20M	BPSK	1	1	Edge 2	0mm	Ant 0	OFF	166300	831.5	WNC	23.50	24.00	1.122	-0.17	0.001	0.001
	FR1 n26	20M	BPSK	50	28	Edge 2	0mm	Ant 0	OFF	166300	831.5	WNC	23.45	24.00	1.135	-0.15	0.001	0.001
	FR1 n26	20M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	166300	831.5	WNC	19.42	19.50	1.019	0.18	0.648	0.660
	FR1 n26	20M	BPSK	50	0	Edge 3	0mm	Ant 0	ON	166300	831.5	WNC	19.17	19.50	1.079	-0.17	0.667	0.720
	FR1 n26	20M	BPSK	1	1	Edge 4	0mm	Ant 0	OFF	166300	831.5	WNC	23.50	24.00	1.122	0.19	0.001	0.001
	FR1 n26	20M	BPSK	50	28	Edge 4	0mm	Ant 0	OFF	166300	831.5	WNC	23.45	24.00	1.135	-0.16	0.001	0.001
	FR1 n26	20M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	166300	831.5	WNC	23.50	24.00	1.122	-0.05	0.090	0.101
	FR1 n26	20M	BPSK	50	28	Bottom of Laptop	21mm	Ant 0	OFF	166300	831.5	WNC	23.45	24.00	1.135	-0.09	0.085	0.096
	FR1 n26	20M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	166300	831.5	WNC	23.50	24.00	1.122	-0.14	0.001	0.001
	FR1 n26	20M	BPSK	50	28	Bottom Face	33mm	Ant 0	OFF	166300	831.5	WNC	23.45	24.00	1.135	-0.07	0.001	0.001
	FR1 n26	20M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	166300	831.5	WNC	23.50	24.00	1.122	-0.18	0.148	0.166
	FR1 n26	20M	BPSK	50	28	Edge 3	17mm	Ant 0	OFF	166300	831.5	WNC	23.45	24.00	1.135	0.03	0.159	0.180
	FR1 n26	20M	BPSK	50	0	Bottom Face	0mm	Ant 0	ON	166300	831.5	Speed	19.17	19.50	1.079	-0.09	0.882	0.952
	FR1 n30	10M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	462000	2310	WNC	17.95	18.00	1.012	-0.04	0.752	0.761
23	FR1 n30	10M	BPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	462000	2310	WNC	17.67	18.00	1.079	0.05	0.741	0.799
	FR1 n30	10M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	462000	2310	WNC	14.86	15.00	1.033	0.13	0.721	0.745
	FR1 n30	10M	BPSK	25	0	Bottom Face	0mm	Ant 0	ON	462000	2310	WNC	14.85	15.00	1.035	-0.1	0.769	0.796
	FR1 n30	10M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	462000	2310	WNC	14.86	15.00	1.033	0.09	0.178	0.184
	FR1 n30	10M	BPSK	25	0	Edge 3	0mm	Ant 0	ON	462000	2310	WNC	14.85	15.00	1.035	0.04	0.174	0.180
	FR1 n30	10M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	462000	2310	WNC	22.07	23.00	1.239	0.11	0.069	0.085
	FR1 n30	10M	BPSK	25	14	Bottom of Laptop	21mm	Ant 0	OFF	462000	2310	WNC	21.88	23.00	1.294	0.11	0.069	0.089
	FR1 n30	10M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	462000	2310	WNC	22.07	23.00	1.239	-0.02	0.065	0.081
	FR1 n30	10M	BPSK	25	14	Bottom Face	33mm	Ant 0	OFF	462000	2310	WNC	21.88	23.00	1.294	0.06	0.063	0.082
	FR1 n30	10M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	462000	2310	WNC	22.07	23.00	1.239	-0.03	0.187	0.232
	FR1 n30	10M	BPSK	25	14	Edge 3	17mm	Ant 0	OFF	462000	2310	WNC	21.88	23.00	1.294	0.12	0.182	0.236
	FR1 n30	10M	BPSK	25	0	Bottom of Laptop	0mm	Ant 0	ON	462000	2310	Speed	17.67	18.00	1.079	0.09	0.733	0.791
	FR1 n30	10M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	462000	2310	WNC	17.40	17.50	1.023	-0.07	0.588	0.602
	FR1 n30	10M	BPSK	25	0	Bottom of Laptop	0mm	Ant 2	ON	462000	2310	WNC	17.02	17.50	1.117	0	0.563	0.629
	FR1 n30	10M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	462000	2310	WNC	15.85	16.00	1.035	-0.19	0.578	0.598
	FR1 n30	10M	BPSK	25	0	Bottom Face	0mm	Ant 2	ON	462000	2310	WNC	15.46	16.00	1.132	0.19	0.549	0.622
	FR1 n30	10M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	462000	2310	WNC	15.85	16.00	1.035	0.04	0.305	0.316



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	FR1 n30	10M	BPSK	25	0	Edge 3	0mm	Ant 2	ON	462000	2310	WNC	15.46	16.00	1.132	-0.17	0.287	0.325
	FR1 n30	10M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	462000	2310	WNC	22.18	23.00	1.208	0.05	0.300	0.362
	FR1 n30	10M	BPSK	25	14	Bottom of Laptop	13mm	Ant 2	OFF	462000	2310	WNC	22.09	23.00	1.233	0.07	0.287	0.354
	FR1 n30	10M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	462000	2310	WNC	22.18	23.00	1.208	-0.12	0.099	0.120
	FR1 n30	10M	BPSK	25	14	Bottom Face	22mm	Ant 2	OFF	462000	2310	WNC	22.09	23.00	1.233	-0.05	0.097	0.120
	FR1 n30	10M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	462000	2310	WNC	22.18	23.00	1.208	0.08	0.130	0.157
	FR1 n30	10M	BPSK	25	14	Edge 3	12mm	Ant 2	OFF	462000	2310	WNC	22.09	23.00	1.233	-0.19	0.124	0.153
	FR1 n30	10M	BPSK	25	0	Bottom of Laptop	0mm	Ant 2	ON	462000	2310	Speed	17.02	17.50	1.117	0.06	0.550	0.614
	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	518598	2592.99	WNC	16.40	16.50	1.023	0.09	0.845	0.865
	FR1 n41	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 0	ON	518598	2592.99	WNC	16.15	16.50	1.084	-0.13	0.832	0.902
	FR1 n41	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 0	ON	518598	2592.99	WNC	16.11	16.50	1.094	-0.03	0.835	0.913
24	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	518598	2592.99	WNC	13.66	14.00	1.081	-0.01	0.901	0.974
	FR1 n41	100M	BPSK	135	0	Bottom Face	0mm	Ant 0	ON	518598	2592.99	WNC	13.37	14.00	1.156	0.17	0.840	0.971
	FR1 n41	100M	BPSK	270	0	Bottom Face	0mm	Ant 0	ON	518598	2592.99	WNC	13.39	14.00	1.151	0.13	0.838	0.964
	FR1 n41	100M	BPSK	1	1	Edge 2	0mm	Ant 0	OFF	518598	2592.99	WNC	23.31	24.00	1.172	0	0.001	0.001
	FR1 n41	100M	BPSK	135	0	Edge 2	0mm	Ant 0	OFF	518598	2592.99	WNC	23.16	23.50	1.081	0.01	0.001	0.001
	FR1 n41	100M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	518598	2592.99	WNC	13.66	14.00	1.081	-0.17	0.205	0.222
	FR1 n41	100M	BPSK	135	0	Edge 3	0mm	Ant 0	ON	518598	2592.99	WNC	13.37	14.00	1.156	0.07	0.208	0.240
	FR1 n41	100M	BPSK	1	1	Edge 4	0mm	Ant 0	OFF	518598	2592.99	WNC	23.31	24.00	1.172	0.07	0.001	0.001
	FR1 n41	100M	BPSK	135	0	Edge 4	0mm	Ant 0	OFF	518598	2592.99	WNC	23.16	23.50	1.081	0.01	0.001	0.001
	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	518598	2592.99	WNC	23.31	24.00	1.172	-0.07	0.326	0.382
	FR1 n41	100M	BPSK	135	0	Bottom of Laptop	21mm	Ant 0	OFF	518598	2592.99	WNC	23.16	23.50	1.081	0	0.334	0.361
	FR1 n41	100M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	518598	2592.99	WNC	23.31	24.00	1.172	0.17	0.153	0.179
	FR1 n41	100M	BPSK	135	0	Bottom Face	33mm	Ant 0	OFF	518598	2592.99	WNC	23.16	23.50	1.081	-0.07	0.154	0.167
	FR1 n41	100M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	518598	2592.99	WNC	23.31	24.00	1.172	-0.02	0.256	0.300
	FR1 n41	100M	BPSK	135	0	Edge 3	17mm	Ant 0	OFF	518598	2592.99	WNC	23.16	23.50	1.081	-0.13	0.267	0.289
	FR1 n41_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	518598	2592.99	WNC	13.59	14.00	1.099	-0.1	0.811	0.891
	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	518598	2592.99	Speed	13.66	14.00	1.081	0.07	0.720	0.779
	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 1	OFF	518598	2592.99	WNC	11.48	11.50	1.005	0.12	0.190	0.191
	FR1 n41	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 1	OFF	518598	2592.99	WNC	11.40	11.50	1.023	0.18	0.187	0.191
	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	518598	2592.99	WNC	11.48	11.50	1.005	-0.01	0.534	0.536
	FR1 n41	100M	BPSK	135	0	Bottom Face	0mm	Ant 1	OFF	518598	2592.99	WNC	11.40	11.50	1.023	-0.05	0.423	0.433
	FR1 n41	100M	BPSK	1	1	Edge 4	0mm	Ant 1	OFF	518598	2592.99	WNC	11.48	11.50	1.005	0.17	0.001	0.001
	FR1 n41	100M	BPSK	135	0	Edge 4	0mm	Ant 1	OFF	518598	2592.99	WNC	11.40	11.50	1.023	0.06	0.001	0.001
	FR1 n41_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	518598	2592.99	WNC	11.45	11.50	1.012	0	0.391	0.396
	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	518598	2592.99	Speed	11.48	11.50	1.005	-0.1	0.404	0.406
	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	518598	2592.99	WNC	15.96	16.00	1.009	0.02	0.636	0.642
	FR1 n41	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 2	ON	518598	2592.99	WNC	15.56	16.00	1.107	-0.06	0.575	0.636
	FR1 n41	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 2	ON	518598	2592.99	WNC	15.48	16.00	1.127	0.05	0.565	0.637
	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	518598	2592.99	WNC	14.45	14.50	1.012	-0.05	0.502	0.508
	FR1 n41	100M	BPSK	135	0	Bottom Face	0mm	Ant 2	ON	518598	2592.99	WNC	14.18	14.50	1.076	-0.11	0.494	0.532
	FR1 n41	100M	BPSK	1	1	Edge 2	0mm	Ant 2	OFF	518598	2592.99	WNC	23.32	24.00	1.169	0	0.001	0.001
	FR1 n41	100M	BPSK	135	69	Edge 2	0mm	Ant 2	OFF	518598	2592.99	WNC	23.21	24.00	1.199	0.01	0.001	0.001
	FR1 n41	100M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	518598	2592.99	WNC	14.45	14.50	1.012	0.07	0.148	0.150
	FR1 n41	100M	BPSK	135	0	Edge 3	0mm	Ant 2	ON	518598	2592.99	WNC	14.18	14.50	1.076	-0.15	0.146	0.157
	FR1 n41	100M	BPSK	1	1	Edge 4	0mm	Ant 2	OFF	518598	2592.99	WNC	23.32	24.00	1.169	0.07	0.001	0.001
	FR1 n41	100M	BPSK	135	69	Edge 4	0mm	Ant 2	OFF	518598	2592.99	WNC	23.21	24.00	1.199	0.05	0.001	0.001
	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	518598	2592.99	WNC	23.32	24.00	1.169	0.03	0.521	0.609
	FR1 n41	100M	BPSK	135	69	Bottom of Laptop	13mm	Ant 2	OFF	518598	2592.99	WNC	23.21	24.00	1.199	0.18	0.497	0.596
	FR1 n41	100M	BPSK	270	0	Bottom of Laptop	13mm	Ant 2	OFF	518598	2592.99	WNC	22.98	23.50	1.127	0.05	0.532	0.600
	FR1 n41	100M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	518598	2592.99	WNC	23.32	24.00	1.169	0	0.161	0.188
	FR1 n41	100M	BPSK	135	69	Bottom Face	22mm	Ant 2	OFF	518598	2592.99	WNC	23.21	24.00	1.199	0.06	0.185	0.222
	FR1 n41	100M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	518598	2592.99	WNC	23.32	24.00	1.169	0.05	0.321	0.375
	FR1 n41	100M	BPSK	135	69	Edge 3	12mm	Ant 2	OFF	518598	2592.99	WNC	23.21	24.00	1.199	-0.05	0.350	0.420
	FR1 n41_HPUE	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	518598	2592.99	WNC	15.92	16.00	1.019	-0.1	0.621	0.633
	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	518598	2592.99	Speed	15.96	16.00	1.009	-0.19	0.553	0.558



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	FR1 n41	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 3	OFF	518598	2592.99	WNC	15.17	15.50	1.079	0.12	0.228	0.246
	FR1 n41	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 3	OFF	518598	2592.99	WNC	15.01	15.50	1.119	-0.11	0.214	0.240
	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	518598	2592.99	WNC	15.17	15.50	1.079	0.02	0.603	0.651
	FR1 n41	100M	BPSK	135	0	Bottom Face	0mm	Ant 3	OFF	518598	2592.99	WNC	15.01	15.50	1.119	-0.04	0.581	0.650
	FR1 n41	100M	BPSK	270	0	Bottom Face	0mm	Ant 3	OFF	518598	2592.99	WNC	15.03	15.50	1.114	-0.04	0.554	0.617
	FR1 n41	100M	BPSK	1	1	Edge 1	0mm	Ant 3	OFF	518598	2592.99	WNC	15.17	15.50	1.079	0.05	0.062	0.067
	FR1 n41	100M	BPSK	135	0	Edge 1	0mm	Ant 3	OFF	518598	2592.99	WNC	15.01	15.50	1.119	0.01	0.058	0.065
	FR1 n41	100M	BPSK	1	1	Edge 2	0mm	Ant 3	OFF	518598	2592.99	WNC	15.17	15.50	1.079	-0.03	0.029	0.031
	FR1 n41	100M	BPSK	135	0	Edge 2	0mm	Ant 3	OFF	518598	2592.99	WNC	15.01	15.50	1.119	-0.11	0.025	0.028
	FR1 n41_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	518598	2592.99	WNC	15.02	15.50	1.117	0.17	0.544	0.608
	FR1 n41	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	518598	2592.99	Speed	15.17	15.50	1.079	0.06	0.573	0.618
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	645332	3679.98	WNC	12.77	13.00	1.054	0.13	0.690	0.728
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	638000	3570	WNC	12.70	13.00	1.072	0.03	0.824	0.883
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	641666	3624.99	WNC	12.73	13.00	1.064	-0.02	0.788	0.839
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	645332	3679.98	WNC	12.73	13.00	1.064	-0.1	0.648	0.690
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	638000	3570	WNC	12.68	13.00	1.076	-0.1	0.814	0.876
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	641666	3624.99	WNC	12.71	13.00	1.069	-0.02	0.751	0.803
	FR1 n48	40M	BPSK	100	0	Bottom of Laptop	0mm	Ant 0	ON	645332	3679.98	WNC	12.63	13.00	1.089	-0.13	0.587	0.639
	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	645332	3679.98	WNC	10.23	10.50	1.064	-0.11	0.509	0.542
	FR1 n48	40M	BPSK	50	0	Bottom Face	0mm	Ant 0	ON	645332	3679.98	WNC	10.19	10.50	1.074	0.11	0.450	0.483
	FR1 n48	40M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	645332	3679.98	WNC	10.23	10.50	1.064	-0.18	0.297	0.316
	FR1 n48	40M	BPSK	50	0	Edge 3	0mm	Ant 0	ON	645332	3679.98	WNC	10.19	10.50	1.074	0.11	0.278	0.299
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	645332	3679.98	WNC	21.83	22.00	1.040	0.16	0.568	0.591
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	21mm	Ant 0	OFF	645332	3679.98	WNC	21.79	22.00	1.050	-0.02	0.558	0.586
	FR1 n48	40M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	645332	3679.98	WNC	21.83	22.00	1.040	-0.07	0.373	0.388
	FR1 n48	40M	BPSK	50	0	Bottom Face	33mm	Ant 0	OFF	645332	3679.98	WNC	21.79	22.00	1.050	-0.12	0.366	0.384
	FR1 n48	40M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	645332	3679.98	WNC	21.83	22.00	1.040	-0.06	0.648	0.674
	FR1 n48	40M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	638000	3570	WNC	21.76	22.00	1.057	-0.13	0.788	0.833
	FR1 n48	40M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	641666	3624.99	WNC	21.79	22.00	1.050	0.19	0.746	0.783
	FR1 n48	40M	BPSK	50	0	Edge 3	17mm	Ant 0	OFF	645332	3679.98	WNC	21.79	22.00	1.050	-0.17	0.640	0.672
	FR1 n48	40M	BPSK	50	0	Edge 3	17mm	Ant 0	OFF	638000	3570	WNC	21.74	22.00	1.062	-0.13	0.632	0.671
	FR1 n48	40M	BPSK	50	0	Edge 3	17mm	Ant 0	OFF	641666	3624.99	WNC	21.77	22.00	1.054	0.19	0.647	0.682
	FR1 n48	40M	BPSK	100	0	Edge 3	17mm	Ant 0	OFF	645332	3679.98	WNC	21.69	22.00	1.074	-0.06	0.633	0.680
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	638000	3570	Speed	12.70	13.00	1.072	-0.19	0.769	0.824
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	WNC	15.66	16.00	1.081	-0.13	0.715	0.773
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	645332	3679.98	WNC	15.41	16.00	1.146	-0.19	0.704	0.806
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	638000	3570	WNC	15.38	16.00	1.153	-0.17	0.680	0.784
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	WNC	15.56	16.00	1.107	-0.01	0.712	0.788
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	645332	3679.98	WNC	15.31	16.00	1.172	-0.14	0.686	0.804
	FR1 n48	40M	BPSK	50	0	Bottom of Laptop	0mm	Ant 2	ON	638000	3570	WNC	15.28	16.00	1.180	-0.04	0.705	0.832
	FR1 n48	40M	BPSK	100	0	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	WNC	15.52	16.00	1.117	-0.13	0.701	0.783
25	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	641666	3624.99	WNC	10.25	10.50	1.059	0.03	0.847	0.897
	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	645332	3679.98	WNC	9.93	10.50	1.140	-0.07	0.784	0.894
	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	638000	3570	WNC	9.96	10.50	1.132	-0.16	0.762	0.863
	FR1 n48	40M	BPSK	50	0	Bottom Face	0mm	Ant 2	ON	641666	3624.99	WNC	10.17	10.50	1.079	0.08	0.729	0.787
	FR1 n48	40M	BPSK	50	0	Bottom Face	0mm	Ant 2	ON	645332	3679.98	WNC	9.83	10.50	1.167	0.07	0.707	0.825
	FR1 n48	40M	BPSK	50	0	Bottom Face	0mm	Ant 2	ON	638000	3570	WNC	9.86	10.50	1.159	0	0.768	0.890
	FR1 n48	40M	BPSK	100	0	Bottom Face	0mm	Ant 2	ON	641666	3624.99	WNC	10.14	10.50	1.086	-0.13	0.775	0.842
	FR1 n48	40M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	641666	3624.99	WNC	10.25	10.50	1.059	0.15	0.378	0.400
	FR1 n48	40M	BPSK	50	0	Edge 3	0mm	Ant 2	ON	641666	3624.99	WNC	10.17	10.50	1.079	0.05	0.367	0.396
	FR1 n48	40M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	641666	3624.99	WNC	21.60	22.00	1.096	-0.02	0.383	0.420
	FR1 n48	40M	BPSK	50	28	Bottom of Laptop	13mm	Ant 2	OFF	641666	3624.99	WNC	21.33	22.00	1.167	0.06	0.405	0.473
	FR1 n48	40M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	641666	3624.99	WNC	21.60	22.00	1.096	-0.13	0.389	0.427
	FR1 n48	40M	BPSK	50	28	Bottom Face	22mm	Ant 2	OFF	641666	3624.99	WNC	21.33	22.00	1.167	0.18	0.227	0.265
	FR1 n48	40M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	641666	3624.99	WNC	21.60	22.00	1.096	-0.12	0.778	0.853
	FR1 n48	40M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	645332	3679.98	WNC	21.44	22.00	1.138	-0.14	0.767	0.873



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	FR1 n48	40M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	638000	3570	WNC	21.45	22.00	1.135	0.16	0.737	0.837
	FR1 n48	40M	BPSK	50	28	Edge 3	12mm	Ant 2	OFF	641666	3624.99	WNC	21.33	22.00	1.167	0.19	0.718	0.838
	FR1 n48	40M	BPSK	50	28	Edge 3	12mm	Ant 2	OFF	645332	3679.98	WNC	21.17	22.00	1.211	0.04	0.680	0.823
	FR1 n48	40M	BPSK	50	28	Edge 3	12mm	Ant 2	OFF	638000	3570	WNC	21.18	22.00	1.208	0.1	0.699	0.844
	FR1 n48	40M	BPSK	100	0	Edge 3	12mm	Ant 2	OFF	641666	3624.99	WNC	21.35	22.00	1.161	0.18	0.710	0.825
	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	641666	3624.99	Speed	10.25	10.50	1.059	-0.17	0.804	0.852
	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	645332	3679.98	Speed	9.93	10.50	1.140	0.02	0.784	0.894
	FR1 n48	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	638000	3570	Speed	9.96	10.50	1.132	0.01	0.751	0.850
47	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	349000	1745	WNC	21.35	21.50	1.035	0.02	0.635	0.657
	FR1 n66	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 0	ON	349000	1745	WNC	21.23	21.50	1.064	-0.04	0.609	0.648
	FR1 n66	40M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	349000	1745	WNC	16.82	17.00	1.042	0.17	0.480	0.500
	FR1 n66	40M	BPSK	108	0	Bottom Face	0mm	Ant 0	ON	349000	1745	WNC	16.79	17.00	1.050	0.08	0.476	0.500
	FR1 n66	40M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	349000	1745	WNC	16.82	17.00	1.042	0.01	0.329	0.343
	FR1 n66	40M	BPSK	108	0	Edge 3	0mm	Ant 0	ON	349000	1745	WNC	16.79	17.00	1.050	0.1	0.272	0.285
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	349000	1745	WNC	23.62	24.00	1.091	0.15	0.111	0.121
	FR1 n66	40M	BPSK	108	54	Bottom of Laptop	21mm	Ant 0	OFF	349000	1745	WNC	23.41	24.00	1.146	-0.06	0.087	0.100
	FR1 n66	40M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	349000	1745	WNC	23.62	24.00	1.091	-0.15	0.002	0.002
	FR1 n66	40M	BPSK	108	54	Bottom Face	33mm	Ant 0	OFF	349000	1745	WNC	23.41	24.00	1.146	-0.09	0.002	0.002
	FR1 n66	40M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	349000	1745	WNC	23.62	24.00	1.091	-0.18	0.106	0.116
	FR1 n66	40M	BPSK	108	54	Edge 3	17mm	Ant 0	OFF	349000	1745	WNC	23.41	24.00	1.146	-0.07	0.103	0.118
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	349000	1745	Speed	21.35	21.50	1.035	-0.1	0.596	0.617
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	349000	1745	WNC	18.49	19.00	1.125	-0.18	0.599	0.674
26	FR1 n66	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 2	ON	349000	1745	WNC	18.38	19.00	1.153	0.01	0.586	0.676
	FR1 n66	40M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	349000	1745	WNC	17.40	18.00	1.148	0.03	0.477	0.548
	FR1 n66	40M	BPSK	108	0	Bottom Face	0mm	Ant 2	ON	349000	1745	WNC	17.24	18.00	1.191	0.14	0.459	0.547
	FR1 n66	40M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	349000	1745	WNC	17.40	18.00	1.148	-0.09	0.294	0.338
	FR1 n66	40M	BPSK	108	0	Edge 3	0mm	Ant 2	ON	349000	1745	WNC	17.24	18.00	1.191	-0.17	0.320	0.381
	FR1 n66	40M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	349000	1745	WNC	23.13	24.00	1.222	0.09	0.207	0.253
	FR1 n66	40M	BPSK	108	54	Bottom of Laptop	13mm	Ant 2	OFF	349000	1745	WNC	22.91	24.00	1.285	0.13	0.217	0.279
	FR1 n66	40M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	349000	1745	WNC	23.13	24.00	1.222	-0.13	0.089	0.109
	FR1 n66	40M	BPSK	108	54	Bottom Face	22mm	Ant 2	OFF	349000	1745	WNC	22.91	24.00	1.285	-0.15	0.094	0.121
	FR1 n66	40M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	349000	1745	WNC	23.13	24.00	1.222	0.16	0.082	0.100
	FR1 n66	40M	BPSK	108	54	Edge 3	12mm	Ant 2	OFF	349000	1745	WNC	22.91	24.00	1.285	0.13	0.097	0.125
	FR1 n66	40M	BPSK	108	0	Bottom of Laptop	0mm	Ant 2	ON	349000	1745	Speed	18.38	19.00	1.153	0.12	0.525	0.606
49	FR1 n70	15M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	340500	1702.5	WNC	21.32	21.50	1.042	0.04	0.694	0.723
	FR1 n70	15M	BPSK	36	0	Bottom of Laptop	0mm	Ant 0	ON	340500	1702.5	WNC	21.20	21.50	1.072	-0.19	0.670	0.718
	FR1 n70	15M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	340500	1702.5	WNC	15.88	16.00	1.028	0.07	0.440	0.452
	FR1 n70	15M	BPSK	36	0	Bottom Face	0mm	Ant 0	ON	340500	1702.5	WNC	15.69	16.00	1.074	-0.13	0.401	0.431
	FR1 n70	15M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	340500	1702.5	WNC	15.88	16.00	1.028	0.08	0.245	0.252
	FR1 n70	15M	BPSK	36	0	Edge 3	0mm	Ant 0	ON	340500	1702.5	WNC	15.69	16.00	1.074	0.13	0.227	0.244
	FR1 n70	15M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	340500	1702.5	WNC	23.44	24.00	1.138	0.1	0.155	0.176
	FR1 n70	15M	BPSK	36	22	Bottom of Laptop	21mm	Ant 0	OFF	340500	1702.5	WNC	23.21	24.00	1.199	0.18	0.112	0.134
	FR1 n70	15M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	340500	1702.5	WNC	23.44	24.00	1.138	-0.11	0.061	0.069
	FR1 n70	15M	BPSK	36	22	Bottom Face	33mm	Ant 0	OFF	340500	1702.5	WNC	23.21	24.00	1.199	-0.08	0.061	0.073
	FR1 n70	15M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	340500	1702.5	WNC	23.44	24.00	1.138	0.16	0.114	0.130
	FR1 n70	15M	BPSK	36	22	Edge 3	17mm	Ant 0	OFF	340500	1702.5	WNC	23.21	24.00	1.199	-0.02	0.106	0.127
	FR1 n70	15M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	340500	1702.5	Speed	21.32	21.50	1.042	0.09	0.673	0.701
27	FR1 n70	15M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	340500	1702.5	WNC	19.47	19.50	1.007	0	0.839	0.845
	FR1 n70	15M	BPSK	36	0	Bottom of Laptop	0mm	Ant 2	ON	340500	1702.5	WNC	19.25	19.50	1.059	-0.16	0.797	0.844
	FR1 n70	15M	BPSK	75	0	Bottom of Laptop	0mm	Ant 2	ON	340500	1702.5	WNC	19.31	19.50	1.045	0.16	0.689	0.720
	FR1 n70	15M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	340500	1702.5	WNC	17.47	17.50	1.007	0.14	0.580	0.584
	FR1 n70	15M	BPSK	36	0	Bottom Face	0mm	Ant 2	ON	340500	1702.5	WNC	17.36	17.50	1.033	-0.16	0.554	0.572
	FR1 n70	15M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	340500	1702.5	WNC	17.47	17.50	1.007	-0.19	0.240	0.242
	FR1 n70	15M	BPSK	36	0	Edge 3	0mm	Ant 2	ON	340500	1702.5	WNC	17.36	17.50	1.033	0.1	0.324	0.335
	FR1 n70	15M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	340500	1702.5	WNC	23.71	24.00	1.069	-0.01	0.261	0.279
	FR1 n70	15M	BPSK	36	22	Bottom of Laptop	13mm	Ant 2	OFF	340500	1702.5	WNC	23.43	24.00	1.140	0.03	0.257	0.293



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	FR1 n70	15M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	340500	1702.5	WNC	23.71	24.00	1.069	-0.15	0.076	0.081
	FR1 n70	15M	BPSK	36	22	Bottom Face	22mm	Ant 2	OFF	340500	1702.5	WNC	23.43	24.00	1.140	0.15	0.070	0.080
	FR1 n70	15M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	340500	1702.5	WNC	23.71	24.00	1.069	0	0.108	0.115
	FR1 n70	15M	BPSK	36	22	Edge 3	12mm	Ant 2	OFF	340500	1702.5	WNC	23.43	24.00	1.140	-0.01	0.102	0.116
	FR1 n70	15M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	340500	1702.5	Speed	19.47	19.50	1.007	0.03	0.798	0.804
	FR1 n71	20M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	136100	680.5	WNC	22.32	22.50	1.042	0.13	0.499	0.520
	FR1 n71	20M	BPSK	50	0	Bottom of Laptop	0mm	Ant 0	ON	136100	680.5	WNC	22.20	22.50	1.072	0.13	0.478	0.512
	FR1 n71	20M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	136100	680.5	WNC	18.73	19.00	1.064	-0.09	0.406	0.432
28	FR1 n71	20M	BPSK	50	0	Bottom Face	0mm	Ant 0	ON	136100	680.5	WNC	18.69	19.00	1.074	0.03	0.498	0.535
	FR1 n71	20M	BPSK	1	1	Edge 2	0mm	Ant 0	OFF	136100	680.5	WNC	23.42	24.00	1.143	-0.18	0.001	0.001
	FR1 n71	20M	BPSK	50	28	Edge 2	0mm	Ant 0	OFF	136100	680.5	WNC	23.30	24.00	1.175	0.15	0.001	0.001
	FR1 n71	20M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	136100	680.5	WNC	18.73	19.00	1.064	-0.04	0.374	0.398
	FR1 n71	20M	BPSK	50	0	Edge 3	0mm	Ant 0	ON	136100	680.5	WNC	18.69	19.00	1.074	0.01	0.385	0.413
	FR1 n71	20M	BPSK	1	1	Edge 4	0mm	Ant 0	OFF	136100	680.5	WNC	23.42	24.00	1.143	0.13	0.001	0.001
	FR1 n71	20M	BPSK	50	28	Edge 4	0mm	Ant 0	OFF	136100	680.5	WNC	23.30	24.00	1.175	0.05	0.001	0.001
	FR1 n71	20M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	136100	680.5	WNC	23.42	24.00	1.143	0.06	0.054	0.062
	FR1 n71	20M	BPSK	50	28	Bottom of Laptop	21mm	Ant 0	OFF	136100	680.5	WNC	23.30	24.00	1.175	-0.1	0.054	0.063
	FR1 n71	20M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	136100	680.5	WNC	23.42	24.00	1.143	0.1	0.001	0.001
	FR1 n71	20M	BPSK	50	28	Bottom Face	33mm	Ant 0	OFF	136100	680.5	WNC	23.30	24.00	1.175	0.02	0.001	0.001
	FR1 n71	20M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	136100	680.5	WNC	23.42	24.00	1.143	-0.18	0.102	0.117
	FR1 n71	20M	BPSK	50	28	Edge 3	17mm	Ant 0	OFF	136100	680.5	WNC	23.30	24.00	1.175	0.18	0.112	0.132
	FR1 n71	20M	BPSK	50	0	Bottom Face	0mm	Ant 0	ON	136100	680.5	Speed	18.69	19.00	1.074	-0.05	0.464	0.498
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	656000	3840	WNC	13.11	13.50	1.094	-0.01	0.461	0.504
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 0	ON	656000	3840	WNC	12.85	13.50	1.161	0.14	0.418	0.485
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	656000	3840	WNC	10.67	11.00	1.079	0.07	0.352	0.380
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 0	ON	656000	3840	WNC	10.36	11.00	1.159	0.08	0.356	0.413
	FR1 n77	100M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	656000	3840	WNC	10.67	11.00	1.079	0.02	0.258	0.278
	FR1 n77	100M	BPSK	135	0	Edge 3	0mm	Ant 0	ON	656000	3840	WNC	10.36	11.00	1.159	0.09	0.216	0.250
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	656000	3840	WNC	23.42	24.00	1.143	-0.09	0.326	0.373
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	21mm	Ant 0	OFF	656000	3840	WNC	23.39	24.00	1.151	-0.14	0.306	0.352
	FR1 n77	100M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	656000	3840	WNC	23.42	24.00	1.143	0.13	0.423	0.483
	FR1 n77	100M	BPSK	135	0	Bottom Face	33mm	Ant 0	OFF	656000	3840	WNC	23.39	24.00	1.151	0.11	0.407	0.468
	FR1 n77	100M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	656000	3840	WNC	23.42	24.00	1.143	-0.19	0.436	0.498
	FR1 n77	100M	BPSK	135	0	Edge 3	17mm	Ant 0	OFF	656000	3840	WNC	23.39	24.00	1.151	-0.1	0.425	0.489
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	656000	3840	WNC	13.08	13.50	1.102	-0.18	0.456	0.502
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	656000	3840	Speed	13.11	13.50	1.094	-0.07	0.423	0.463
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 1	OFF	656000	3840	WNC	8.96	9.00	1.009	0.15	0.102	0.103
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 1	OFF	656000	3840	WNC	8.80	9.00	1.047	-0.07	0.095	0.099
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	656000	3840	WNC	8.96	9.00	1.009	-0.01	0.270	0.272
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 1	OFF	656000	3840	WNC	8.80	9.00	1.047	-0.16	0.258	0.270
	FR1 n77	100M	BPSK	1	1	Edge 4	0mm	Ant 1	OFF	656000	3840	WNC	8.96	9.00	1.009	0.07	0.106	0.107
	FR1 n77	100M	BPSK	135	0	Edge 4	0mm	Ant 1	OFF	656000	3840	WNC	8.80	9.00	1.047	-0.02	0.124	0.130
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	656000	3840	WNC	8.83	9.00	1.040	0.04	0.257	0.267
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	656000	3840	Speed	8.96	9.00	1.009	-0.05	0.247	0.249
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	656000	3840	WNC	14.46	15.00	1.132	-0.04	0.693	0.785
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 2	ON	656000	3840	WNC	14.40	15.00	1.148	0.15	0.668	0.767
	FR1 n77	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 2	ON	656000	3840	WNC	14.32	15.00	1.169	0.02	0.650	0.760
29	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	656000	3840	WNC	10.95	11.50	1.135	0	0.959	1.088
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 2	ON	656000	3840	WNC	10.93	11.50	1.140	-0.08	0.747	0.852
	FR1 n77	100M	BPSK	270	0	Bottom Face	0mm	Ant 2	ON	656000	3840	WNC	10.81	11.50	1.172	0	0.700	0.821
	FR1 n77	100M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	656000	3840	WNC	10.95	11.50	1.135	-0.04	0.474	0.538
	FR1 n77	100M	BPSK	135	0	Edge 3	0mm	Ant 2	ON	656000	3840	WNC	10.93	11.50	1.140	-0.16	0.447	0.510
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	656000	3840	WNC	23.16	24.00	1.213	-0.09	0.691	0.838
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	13mm	Ant 2	OFF	656000	3840	WNC	23.04	24.00	1.247	-0.19	0.770	0.960
	FR1 n77	100M	BPSK	270	0	Bottom of Laptop	13mm	Ant 2	OFF	656000	3840	WNC	22.98	24.00	1.265	0.08	0.756	0.956
	FR1 n77	100M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	656000	3840	WNC	23.16	24.00	1.213	-0.08	0.605	0.734



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	FR1 n77	100M	BPSK	135	0	Bottom Face	22mm	Ant 2	OFF	656000	3840	WNC	23.04	24.00	1.247	0.02	0.602	0.751
	FR1 n77	100M	BPSK	270	0	Bottom Face	22mm	Ant 2	OFF	656000	3840	WNC	22.98	24.00	1.265	0.01	0.588	0.744
	FR1 n77	100M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	656000	3840	WNC	23.16	24.00	1.213	0.04	0.763	0.926
	FR1 n77	100M	BPSK	135	0	Edge 3	12mm	Ant 2	OFF	656000	3840	WNC	23.04	24.00	1.247	0.08	0.734	0.916
	FR1 n77	100M	BPSK	270	0	Edge 3	12mm	Ant 2	OFF	656000	3840	WNC	22.98	24.00	1.265	0.04	0.727	0.919
	FR1 n77	100M	BPSK	1	1	Edge 4	0mm	Ant 2	OFF	656000	3840	WNC	23.16	24.00	1.213	0.18	0.001	0.001
	FR1 n77	100M	BPSK	135	0	Edge 4	0mm	Ant 2	OFF	656000	3840	WNC	23.04	24.00	1.247	-0.11	0.001	0.001
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	656000	3840	WNC	11.17	11.50	1.079	-0.16	0.836	0.902
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	656000	3840	Speed	10.95	11.50	1.135	0.17	0.779	0.884
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 3	OFF	656000	3840	WNC	9.97	10.00	1.007	-0.1	0.210	0.211
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 3	OFF	656000	3840	WNC	9.95	10.00	1.012	-0.07	0.215	0.217
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	656000	3840	WNC	9.97	10.00	1.007	-0.03	0.513	0.517
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 3	OFF	656000	3840	WNC	9.95	10.00	1.012	-0.04	0.508	0.514
	FR1 n77	100M	BPSK	1	1	Edge 2	0mm	Ant 3	OFF	656000	3840	WNC	9.97	10.00	1.007	-0.01	0.190	0.191
	FR1 n77	100M	BPSK	135	0	Edge 2	0mm	Ant 3	OFF	656000	3840	WNC	9.95	10.00	1.012	0.18	0.187	0.189
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	656000	3840	WNC	9.97	10.00	1.007	-0.11	0.500	0.503
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	656000	3840	Speed	9.97	10.00	1.007	-0.04	0.479	0.482
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	633332	3499.98	WNC	13.38	13.50	1.028	0.03	0.611	0.628
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 0	ON	633332	3499.98	WNC	13.20	13.50	1.072	-0.05	0.595	0.638
	FR1 n77	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 0	ON	633332	3499.98	WNC	13.22	13.50	1.067	0.09	0.541	0.577
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	633332	3499.98	WNC	10.54	11.00	1.112	0.02	0.364	0.405
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 0	ON	633332	3499.98	WNC	10.51	11.00	1.119	0.11	0.395	0.442
	FR1 n77	100M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	633332	3499.98	WNC	10.54	11.00	1.112	-0.11	0.415	0.461
	FR1 n77	100M	BPSK	135	0	Edge 3	0mm	Ant 0	ON	633332	3499.98	WNC	10.51	11.00	1.119	0.06	0.465	0.521
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	21mm	Ant 0	OFF	633332	3499.98	WNC	23.68	24.00	1.076	-0.11	0.242	0.261
	FR1 n77	100M	BPSK	135	69	Bottom of Laptop	21mm	Ant 0	OFF	633332	3499.98	WNC	23.57	24.00	1.104	0.02	0.294	0.325
	FR1 n77	100M	BPSK	1	1	Bottom Face	33mm	Ant 0	OFF	633332	3499.98	WNC	23.68	24.00	1.076	-0.1	0.351	0.378
	FR1 n77	100M	BPSK	135	69	Bottom Face	33mm	Ant 0	OFF	633332	3499.98	WNC	23.57	24.00	1.104	-0.17	0.447	0.494
	FR1 n77	100M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	633332	3499.98	WNC	23.68	24.00	1.076	0.08	0.524	0.564
	FR1 n77	100M	BPSK	135	69	Edge 3	17mm	Ant 0	OFF	633332	3499.98	WNC	23.57	24.00	1.104	-0.02	0.572	0.632
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	633332	3499.98	WNC	13.18	13.50	1.076	0.02	0.553	0.595
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 0	ON	633332	3499.98	Speed	13.20	13.50	1.072	0.01	0.524	0.561
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 1	OFF	633332	3499.98	WNC	8.97	9.00	1.007	0.03	0.045	0.045
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 1	OFF	633332	3499.98	WNC	8.90	9.00	1.023	-0.07	0.044	0.045
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	633332	3499.98	WNC	8.97	9.00	1.007	0.06	0.234	0.236
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 1	OFF	633332	3499.98	WNC	8.90	9.00	1.023	-0.16	0.219	0.224
	FR1 n77	100M	BPSK	1	1	Edge 4	0mm	Ant 1	OFF	633332	3499.98	WNC	8.97	9.00	1.007	-0.09	0.044	0.044
	FR1 n77	100M	BPSK	135	0	Edge 4	0mm	Ant 1	OFF	633332	3499.98	WNC	8.90	9.00	1.023	0.11	0.050	0.051
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	633332	3499.98	WNC	8.94	9.00	1.014	-0.14	0.218	0.221
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	633332	3499.98	Speed	8.97	9.00	1.007	-0.07	0.207	0.208
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	WNC	14.90	15.00	1.023	-0.02	0.434	0.444
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	WNC	14.78	15.00	1.052	-0.05	0.418	0.440
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	633332	3499.98	WNC	11.49	11.50	1.002	-0.03	0.840	0.842
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 2	ON	633332	3499.98	WNC	11.44	11.50	1.014	-0.03	0.798	0.809
	FR1 n77	100M	BPSK	270	0	Bottom Face	0mm	Ant 2	ON	633332	3499.98	WNC	11.39	11.50	1.026	-0.11	0.791	0.811
	FR1 n77	100M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	633332	3499.98	WNC	11.49	11.50	1.002	0.02	0.001	0.001
	FR1 n77	100M	BPSK	135	0	Edge 3	0mm	Ant 2	ON	633332	3499.98	WNC	11.44	11.50	1.014	0.01	0.001	0.001
	FR1 n77	100M	BPSK	1	1	Edge 4	0mm	Ant 2	OFF	633332	3499.98	WNC	23.73	24.00	1.064	0.11	0.001	0.001
	FR1 n77	100M	BPSK	135	0	Edge 4	0mm	Ant 2	OFF	633332	3499.98	WNC	23.55	24.00	1.109	-0.19	0.001	0.001
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	633332	3499.98	WNC	23.73	24.00	1.064	-0.14	0.444	0.472
	FR1 n77	100M	BPSK	135	69	Bottom of Laptop	13mm	Ant 2	OFF	633332	3499.98	WNC	23.59	24.00	1.099	-0.19	0.459	0.504
	FR1 n77	100M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	633332	3499.98	WNC	23.73	24.00	1.064	0.07	0.305	0.325
	FR1 n77	100M	BPSK	135	69	Bottom Face	22mm	Ant 2	OFF	633332	3499.98	WNC	23.59	24.00	1.099	0.02	0.302	0.332
	FR1 n77	100M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	633332	3499.98	WNC	23.73	24.00	1.064	-0.03	0.550	0.585
	FR1 n77	100M	BPSK	135	69	Edge 3	12mm	Ant 2	OFF	633332	3499.98	WNC	23.59	24.00	1.099	-0.09	0.597	0.656
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	633332	3499.98	WNC	11.39	11.50	1.026	-0.05	0.806	0.827



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	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	633332	3499.98	Speed	11.49	11.50	1.002	0.06	0.746	0.748
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 3	OFF	633332	3499.98	WNC	9.97	10.00	1.007	-0.19	0.128	0.129
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 3	OFF	633332	3499.98	WNC	9.95	10.00	1.012	-0.02	0.126	0.127
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	633332	3499.98	WNC	9.97	10.00	1.007	0	0.753	0.758
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 3	OFF	633332	3499.98	WNC	9.95	10.00	1.012	-0.03	0.730	0.738
	FR1 n77	100M	BPSK	270	0	Bottom Face	0mm	Ant 3	OFF	633332	3499.98	WNC	9.88	10.00	1.028	0.02	0.720	0.740
	FR1 n77	100M	BPSK	1	1	Edge 2	0mm	Ant 3	OFF	633332	3499.98	WNC	9.97	10.00	1.007	0.17	0.077	0.078
	FR1 n77	100M	BPSK	135	0	Edge 2	0mm	Ant 3	OFF	633332	3499.98	WNC	9.95	10.00	1.012	0.14	0.076	0.077
	FR1 n77_HPUE	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	633332	3499.98	WNC	9.91	10.00	1.021	0	0.739	0.754
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	633332	3499.98	Speed	9.97	10.00	1.007	0.02	0.671	0.676
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	641666	3624.99	WNC	13.29	13.50	1.050	0.01	0.875	0.918
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 0	ON	641666	3624.99	WNC	13.05	13.50	1.109	-0.09	0.536	0.595
	FR1 n77	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 0	ON	641666	3624.99	WNC	13.04	13.50	1.112	0.18	0.751	0.835
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 0	ON	641666	3624.99	WNC	10.74	11.00	1.062	0.13	0.778	0.826
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 0	ON	641666	3624.99	WNC	10.52	11.00	1.117	0.06	0.490	0.547
	FR1 n77	100M	BPSK	270	0	Bottom Face	0mm	Ant 0	ON	641666	3624.99	WNC	13.04	13.50	1.112	0.07	0.727	0.808
	FR1 n77	100M	BPSK	1	1	Edge 3	0mm	Ant 0	ON	641666	3624.99	WNC	10.74	11.00	1.062	-0.11	0.504	0.535
	FR1 n77	100M	BPSK	135	0	Edge 3	0mm	Ant 0	ON	641666	3624.99	WNC	10.52	11.00	1.117	0.16	0.305	0.341
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 0	OFF	641666	3624.99	WNC	21.90	22.00	1.023	-0.08	0.540	0.553
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	13mm	Ant 0	OFF	641666	3624.99	WNC	21.83	22.00	1.040	0.13	0.507	0.527
	FR1 n77	100M	BPSK	1	1	Bottom Face	22mm	Ant 0	OFF	641666	3624.99	WNC	21.90	22.00	1.023	-0.1	0.447	0.457
	FR1 n77	100M	BPSK	135	0	Bottom Face	22mm	Ant 0	OFF	641666	3624.99	WNC	21.83	22.00	1.040	0.02	0.393	0.409
	FR1 n77	100M	BPSK	1	1	Edge 3	17mm	Ant 0	OFF	641666	3624.99	WNC	21.90	22.00	1.023	0.02	0.621	0.635
	FR1 n77	100M	BPSK	135	0	Edge 3	17mm	Ant 0	OFF	641666	3624.99	WNC	21.83	22.00	1.040	0.15	0.539	0.561
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 0	ON	641666	3624.99	Speed	13.29	13.50	1.050	0.16	0.721	0.757
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 1	OFF	641666	3624.99	WNC	8.89	9.00	1.026	0.1	0.077	0.079
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 1	OFF	641666	3624.99	WNC	8.72	9.00	1.067	0.14	0.083	0.089
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	641666	3624.99	WNC	8.89	9.00	1.026	-0.04	0.284	0.291
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 1	OFF	641666	3624.99	WNC	8.72	9.00	1.067	0.07	0.272	0.290
	FR1 n77	100M	BPSK	1	1	Edge 4	0mm	Ant 1	OFF	641666	3624.99	WNC	8.89	9.00	1.026	-0.17	0.072	0.074
	FR1 n77	100M	BPSK	135	0	Edge 4	0mm	Ant 1	OFF	641666	3624.99	WNC	8.72	9.00	1.067	0.14	0.083	0.089
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 1	OFF	641666	3624.99	Speed	8.89	9.00	1.026	-0.02	0.265	0.272
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	WNC	17.46	17.50	1.009	0.02	0.790	0.797
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	WNC	17.40	17.50	1.023	-0.07	0.755	0.773
	FR1 n77	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	WNC	17.27	17.50	1.054	0.01	0.700	0.738
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 2	ON	641666	3624.99	WNC	11.50	11.50	1.000	0.04	0.558	0.558
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 2	ON	641666	3624.99	WNC	11.48	11.50	1.005	0	0.554	0.557
	FR1 n77	100M	BPSK	1	1	Edge 3	0mm	Ant 2	ON	641666	3624.99	WNC	11.50	11.50	1.000	-0.15	0.309	0.309
	FR1 n77	100M	BPSK	135	0	Edge 3	0mm	Ant 2	ON	641666	3624.99	WNC	11.48	11.50	1.005	0.17	0.313	0.314
	FR1 n77	100M	BPSK	1	1	Edge 4	0mm	Ant 2	OFF	641666	3624.99	WNC	21.93	22.00	1.016	-0.01	0.001	0.001
	FR1 n77	100M	BPSK	135	0	Edge 4	0mm	Ant 2	OFF	641666	3624.99	WNC	21.75	22.00	1.059	0.19	0.001	0.001
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	641666	3624.99	WNC	21.93	22.00	1.016	-0.1	0.223	0.227
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	13mm	Ant 2	OFF	641666	3624.99	WNC	21.75	22.00	1.059	-0.18	0.208	0.220
	FR1 n77	100M	BPSK	1	1	Bottom Face	22mm	Ant 2	OFF	641666	3624.99	WNC	21.93	22.00	1.016	-0.03	0.322	0.327
	FR1 n77	100M	BPSK	135	0	Bottom Face	22mm	Ant 2	OFF	641666	3624.99	WNC	21.75	22.00	1.059	0.03	0.320	0.339
	FR1 n77	100M	BPSK	1	1	Edge 3	12mm	Ant 2	OFF	641666	3624.99	WNC	21.93	22.00	1.016	0.16	0.486	0.494
	FR1 n77	100M	BPSK	135	0	Edge 3	12mm	Ant 2	OFF	641666	3624.99	WNC	21.75	22.00	1.059	0.04	0.478	0.506
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	641666	3624.99	Speed	17.46	17.50	1.009	-0.13	0.715	0.722
	FR1 n77	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 3	OFF	641666	3624.99	WNC	9.59	10.00	1.099	-0.01	0.149	0.164
	FR1 n77	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 3	OFF	641666	3624.99	WNC	9.61	10.00	1.094	-0.07	0.145	0.159
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	641666	3624.99	WNC	9.59	10.00	1.099	0.03	0.520	0.571
	FR1 n77	100M	BPSK	135	0	Bottom Face	0mm	Ant 3	OFF	641666	3624.99	WNC	9.61	10.00	1.094	0.14	0.499	0.546
	FR1 n77	100M	BPSK	1	1	Edge 2	0mm	Ant 3	OFF	641666	3624.99	WNC	9.59	10.00	1.099	0.06	0.055	0.060
	FR1 n77	100M	BPSK	135	0	Edge 2	0mm	Ant 3	OFF	641666	3624.99	WNC	9.61	10.00	1.094	0.19	0.053	0.058
	FR1 n77	100M	BPSK	1	1	Bottom Face	0mm	Ant 3	OFF	641666	3624.99	Speed	9.59	10.00	1.099	0.11	0.453	0.498
	FR1 n78	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	WNC	17.49	17.50	1.002	0.02	0.912	0.914

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	FR1 n78	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	WNC	17.43	17.50	1.016	-0.15	0.895	0.910
	FR1 n78	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	WNC	17.30	17.50	1.047	0.19	0.871	0.912
	FR1 n78	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	650000	3750	WNC	23.76	24.00	1.057	-0.01	0.540	0.571
	FR1 n78	100M	BPSK	135	69	Bottom of Laptop	13mm	Ant 2	OFF	650000	3750	WNC	23.23	24.00	1.194	0.01	0.509	0.608
	FR1 n78_HPUE	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	WNC	17.44	17.50	1.014	-0.07	0.900	0.913
	FR1 n78	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	Speed	17.49	17.50	1.002	0.19	0.881	0.883
	FR1 n78	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	WNC	17.40	17.50	1.023	-0.03	0.780	0.798
	FR1 n78	100M	BPSK	135	0	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	WNC	17.34	17.50	1.038	0.04	0.764	0.793
	FR1 n78	100M	BPSK	270	0	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	WNC	17.21	17.50	1.069	0.04	0.688	0.736
	FR1 n78	100M	BPSK	1	1	Bottom of Laptop	13mm	Ant 2	OFF	633332	3499.98	WNC	23.65	24.00	1.084	0.12	0.526	0.570
	FR1 n78	100M	BPSK	135	0	Bottom of Laptop	13mm	Ant 2	OFF	633332	3499.98	WNC	23.46	24.00	1.132	-0.11	0.500	0.566
	FR1 n78_HPUE	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	WNC	17.37	17.50	1.030	0.18	0.756	0.779
	FR1 n78	100M	BPSK	1	1	Bottom of Laptop	0mm	Ant 2	ON	633332	3499.98	Speed	17.40	17.50	1.023	-0.09	0.746	0.763

15.2 Repeated SAR Measurement

No.	Band	Mode	Test Position	Gap (mm)	Antenna	Power Reduction	Ch.	Freq. (MHz)	Antenna Vendor	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1513	1752.6	WNC	16.67	17.00	1.079	0	0.858		0.926
2nd	WCDMA IV	RMC 12.2Kbps	Bottom Face	0mm	Ant 0	ON	1513	1752.6	WNC	16.67	17.00	1.079	0	0.822	1.04	0.887
1st	LTE Band 30	10M_QPSK_1_0	Bottom of Laptop	0mm	Ant 2	ON	27710	2310	WNC	17.95	18.00	1.012	0.01	0.884		0.894
2nd	LTE Band 30	10M_QPSK_1_0	Bottom of Laptop	0mm	Ant 2	ON	27710	2310	WNC	17.95	18.00	1.012	0.03	0.844	1.05	0.854
1st	FR1 n26	20M_BPSK_1_1	Bottom of Laptop	0mm	Ant 0	ON	166300	831.5	WNC	22.84	23.00	1.038	-0.12	0.907		0.941
2nd	FR1 n26	20M_BPSK_1_1	Bottom of Laptop	0mm	Ant 0	ON	166300	831.5	WNC	22.84	23.00	1.038	0.09	0.844	1.07	0.876
1st	FR1 n41	100M_BPSK_1_1	Bottom Face	0mm	Ant 0	ON	518598	2592.99	WNC	13.66	14.00	1.081	-0.01	0.901		0.974
2nd	FR1 n41	100M_BPSK_1_1	Bottom Face	0mm	Ant 0	ON	518598	2592.99	WNC	13.66	14.00	1.081	0.02	0.884	1.02	0.956
1st	FR1 n77	100M_BPSK_1_1	Bottom Face	0mm	Ant 2	ON	656000	3840	WNC	10.95	11.50	1.135	0	0.959		1.088
2nd	FR1 n77	100M_BPSK_1_1	Bottom Face	0mm	Ant 2	ON	656000	3840	WNC	10.95	11.50	1.135	0	0.943	1.02	1.070
1st	FR1 n77	100M_BPSK_1_1	Bottom Face	0mm	Ant 2	ON	633332	3499.98	WNC	11.49	11.50	1.002	-0.03	0.840		0.842
2nd	FR1 n77	100M_BPSK_1_1	Bottom Face	0mm	Ant 2	ON	633332	3499.98	WNC	11.49	11.50	1.002	-0.03	0.821	1.02	0.823
1st	FR1 n78	100M_BPSK_1_1	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	WNC	17.49	17.50	1.002	0.02	0.912		0.914
2nd	FR1 n78	100M_BPSK_1_1	Bottom of Laptop	0mm	Ant 2	ON	650000	3750	WNC	17.49	17.50	1.002	0.01	0.882	1.03	0.884

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.

15.3 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device support Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operation is 43.3% using UL-DL configuration 1. Per FCC Guidance based on the device behavior, all SAR tests were performed using Power Class 3. Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination, according to the highest time averaged power for all applicable uplink-downlink configurations in Power Class 2. When the reported SAR vs. output power is linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg, Separate SAR testing for Power Class 2 is not required

Use PC3 power level and SAR to estimated PC2 SAR linearly, and check if the deviation from the measured PC2 SAR is <10%

	LTE Band 41_Ant 0	LTE Band 41_Ant 0
	(Power Class 3)	(Power Class 2)
Maximum Tune up Power (dBm)	17.5	17.5
Reported 1g SAR (W/kg)	0.971	0.664
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	35.60	24.35
Linearity SAR(W/kg)	0.66	
% deviation from expected linearity		-0.03%

	LTE Band 41_Ant 2	LTE Band 41_Ant 2
	(Power Class 3)	(Power Class 2)
Maximum Tune up Power (dBm)	19	19
Reported 1g SAR (W/kg)	0.899	0.603
Duty Cycle	63.30%	43.30%
Frame Averaged (mW)	50.28	34.39
Linearity SAR(W/kg)	0.61	
% deviation from expected linearity		-1.94%

16. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body
1.	WWAN Ant 0 + WWAN Ant 2 + WLAN Ant 1 + WLAN/BT Ant 2	Yes
2.	WWAN Ant 0 + WWAN Ant 3 + WLAN Ant 1 + WLAN/BT Ant 2	Yes
3.	WWAN Ant 1 + WWAN Ant 2 + WLAN Ant 1 + WLAN/BT Ant 2	Yes
4.	WWAN Ant 1 + WWAN Ant 3 + WLAN Ant 1 + WLAN/BT Ant 2	Yes

General Note:

- The FCC ID: PD9BE200D2, Intel BE200D2W WLAN/BT module is integrated into this host, and the WLAN/Bluetooth SAR results refer to report no.: 231106-01.TR02 and 231106-01.TR03 were used conservatively for the purpose of simultaneous transmission analysis.
- The WLAN/BT ant2 SAR value has been calculated for WLAN + BT via an intel RF Exposure report.
- The worst case reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission.
- The Scaled SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
 - Scalar SAR summation < 1.6W/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 $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
 - The SPLSR calculated results please refer to section 16.2.

16.1 Body Exposure Conditions for FCC

Exposure Position	1	2	3	4	1+2+3+4 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN Ant 0	Maximum WWAN Ant 2	Maximum WLAN Ant 1	Maximum WLAN/BT Ant 2			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop	1.090	0.914	1.190	1.570	4.764	0.040	Case 1
Bottom Face	0.975	1.088	0.530	0.810	3.403	0.040	Case 2
Edge 2	0.001				0.001		
Edge 3	0.720	0.538			1.258		
Edge 4	0.001	0.001			0.002		

Exposure Position	1	2	3	4	1+2+3+4 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN Ant 0	Maximum WWAN Ant 1	Maximum WLAN Ant 1	Maximum WLAN/BT Ant 2			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop	1.090	0.191	1.190	1.570	4.041	0.020	Case 4
Bottom Face	0.975	0.536	0.530	0.810	2.851	0.020	Case 5
Edge 2	0.001				0.001		
Edge 3	0.720				0.720		
Edge 4	0.001	0.155			0.156		

Exposure Position	1	2	3	4	1+2+3+4 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN Ant 0	Maximum WWAN Ant 3	Maximum WLAN Ant 1	Maximum WLAN/BT Ant 2			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop	1.090	0.246	1.190	1.570	4.096	0.030	Case 6
Bottom Face	0.975	0.758	0.530	0.810	3.073	0.030	Case 7
Edge 1		0.067	0.560	0.730	1.357		
Edge 2	0.001	0.191			0.192		
Edge 3	0.720				0.720		
Edge 4	0.001				0.001		

Exposure Position	1	2	3	4	1+2+3+4 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN Ant 1	Maximum WWAN Ant 2	Maximum WLAN Ant 1	Maximum WLAN/BT Ant 2			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop at 0mm	0.191	0.914	1.190	1.570	3.865	0.020	Case 8
Bottom Face at 0mm	0.536	1.088	0.530	0.810	2.964	0.020	Case 9
Edge 3 at 0mm		0.538			0.538		
Edge 4 at 0mm	0.155	0.001			0.156		

Exposure Position	1	2	3	4	1+2+3+4 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN Ant 1	Maximum WWAN Ant 3	Maximum WLAN Ant 1	Maximum WLAN/BT Ant 2			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop at 0mm	0.191	0.246	1.190	1.570	3.197	0.030	Case 10
Bottom Face at 0mm	0.536	0.758	0.530	0.810	2.634	0.030	Case 11
Edge 2 at 0mm		0.191			0.191		
Edge 4 at 0mm	0.155				0.155		

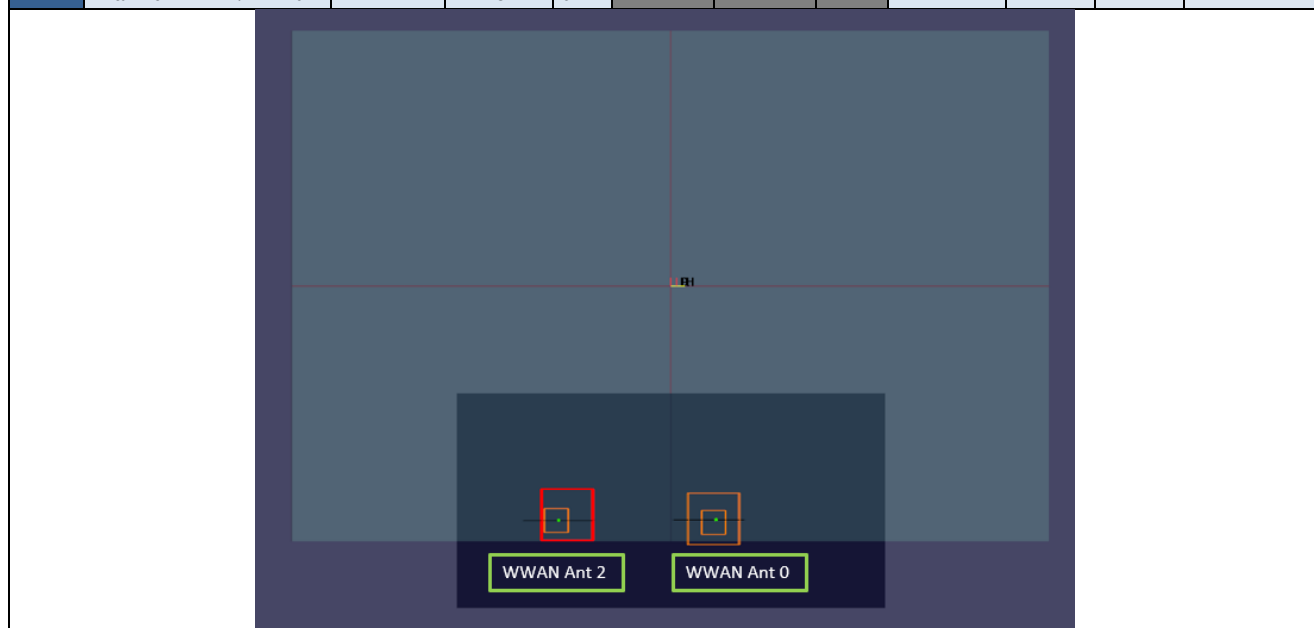
Exposure Position	1	2	3	4	1+2+3+4 Summed 1g SAR (W/kg)	SPLSR	Case No
	Maximum WWAN Ant 2	Maximum WWAN Ant 3	Maximum WLAN Ant 1	Maximum WLAN/BT Ant 2			
	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)			
Bottom of Laptop at 0mm	0.914	0.246	1.190	1.570	3.920	0.030	Case 12
Bottom Face at 0mm	1.088	0.758	0.530	0.810	3.186	0.030	Case 13
Edge 2 at 0mm		0.191			0.191		
Edge 3 at 0mm	0.538				0.538		

16.2 SPLSR Evaluation and Analysis

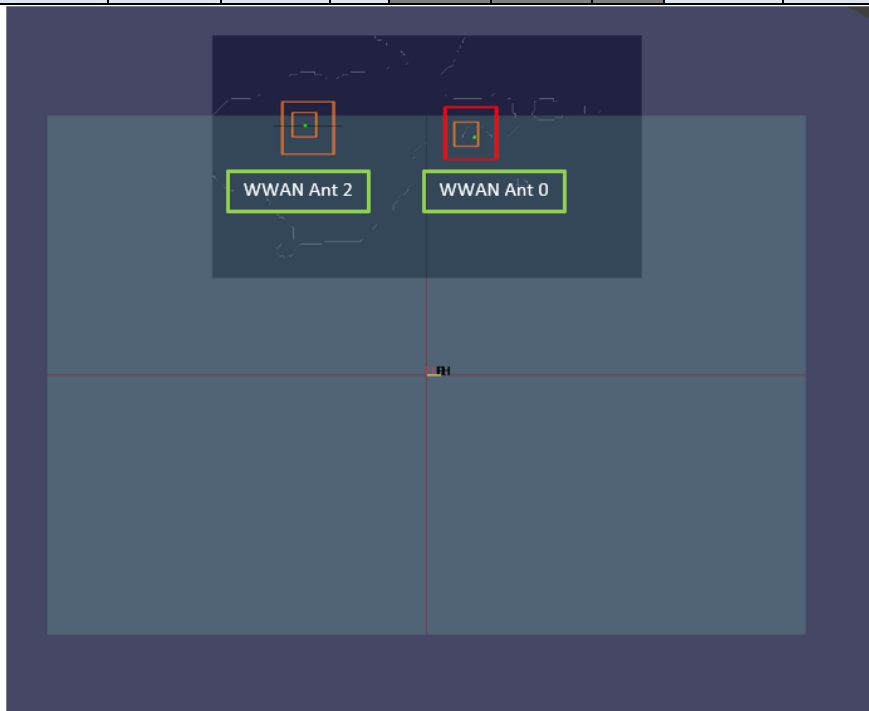
General Note:

1. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.
2. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary
3. The WWAN to WWAN hotspot point for each transmit antenna are showing as below figure and the minimum 3D distance for each sum combination is used for SPLSR analysis, and the WWAN to WLAN each transmit antenna that the minimum distance is used for SPLSR analysis.

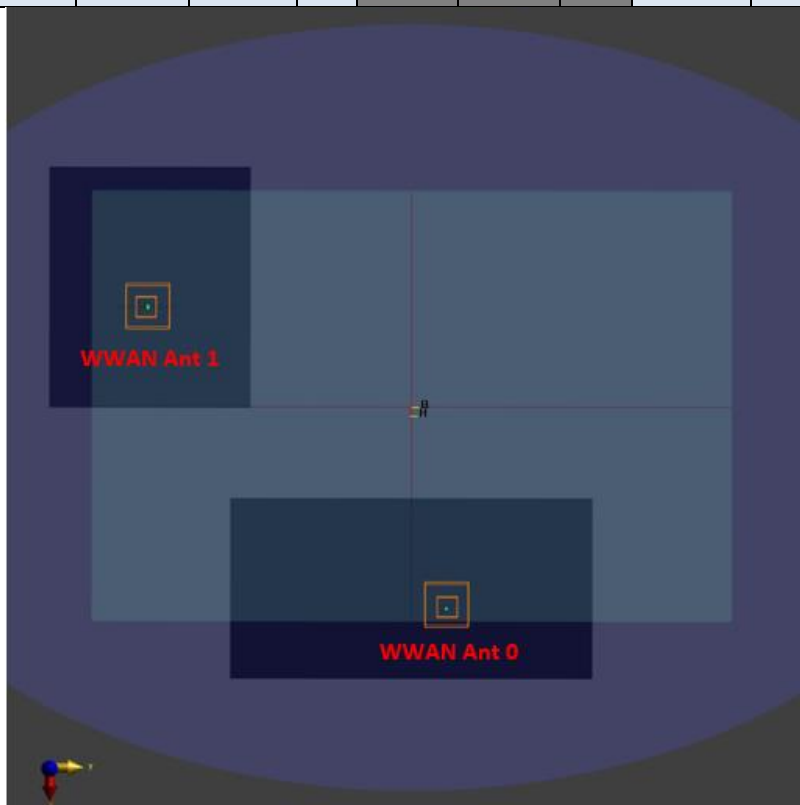
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 1	WCDMA V Ant 0	Bottom of Laptop	1.09	0mm	98.2	15.7	-177	68.2	2.00	0.04	Not required
	FR1 n78_Ant 2		0.914	0mm	98.5	-52.5	-177				
	WCDMA V Ant 0	Bottom of Laptop	1.09	0mm				185.0	2.28	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	WCDMA V Ant 0	Bottom of Laptop	1.09	0mm				180.0	2.66	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							
	FR1 n78_Ant 2	Bottom of Laptop	0.914	0mm				180.0	2.10	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n78_Ant 2	Bottom of Laptop	0.914	0mm				189.0	2.48	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							



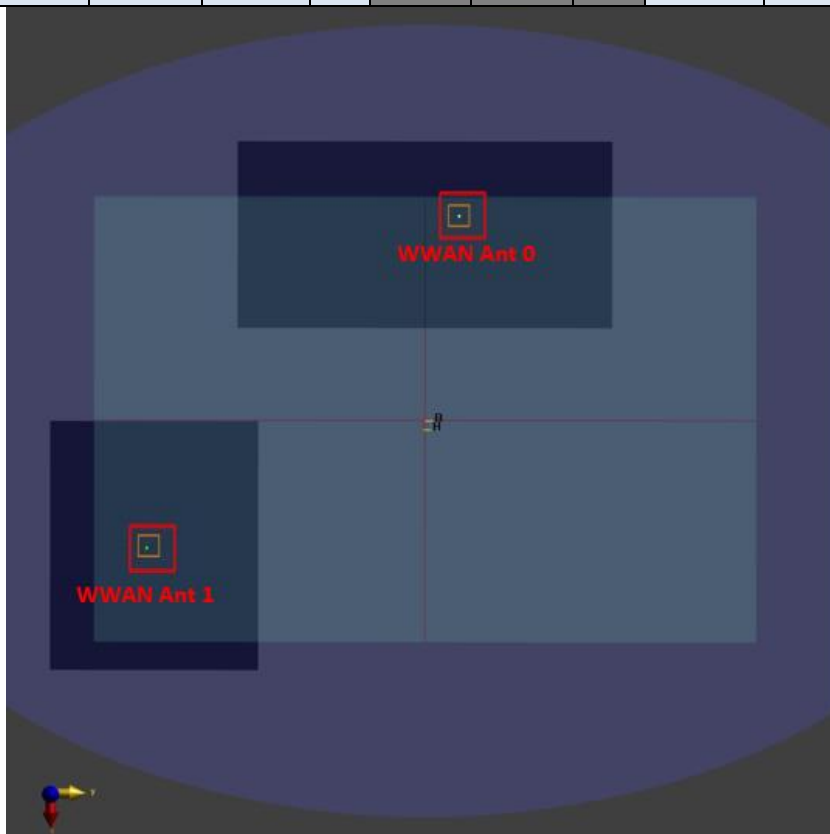
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (mm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 2	FR1 n26 Ant 0	Bottom Face	0.975	0mm	-98.2	19.5	-177	71.2	2.06	0.04	Not required
	FR1 n77 Ant 2		1.088	0mm	-102.8	-51.6	-177				
	FR1 n26 Ant 0	Bottom Face	0.975	0mm				185.0	1.51	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n26 Ant 0	Bottom Face	0.975	0mm				180.0	1.79	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							
	FR1 n77 Ant 2	Bottom Face	1.088	0mm				180.0	1.62	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n77 Ant 2	Bottom Face	1.088	0mm				189.0	1.90	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							



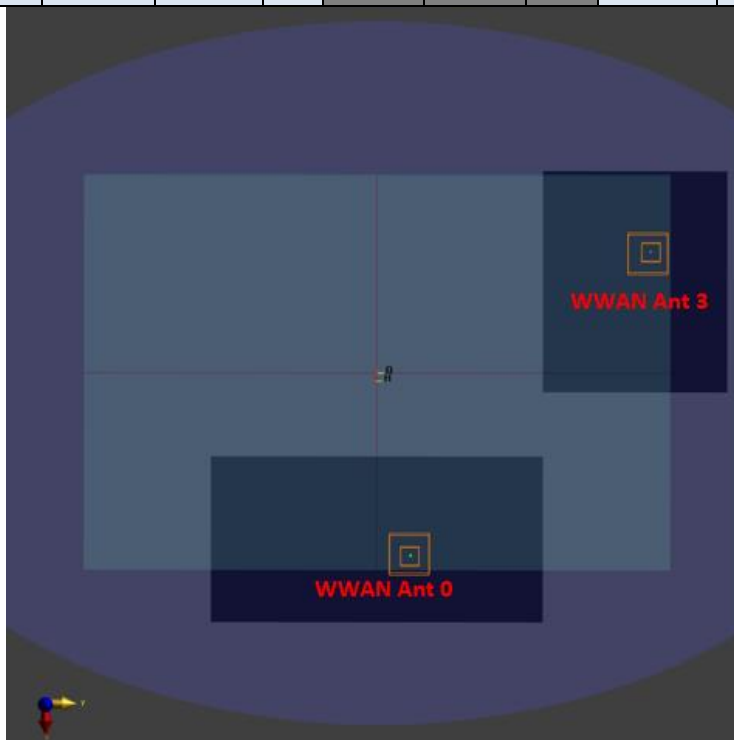
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 4	WCDMA V_Ant 0	Bottom of Laptop	1.09	0mm	98.2	15.7	-177	205.0	1.28	0.01	Not required
	FR1 n41_Ant 1		0.191	0mm	-45.5	-130.5	-177				
	WCDMA V_Ant 0	Bottom of Laptop	1.09	0mm				185.0	2.28	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	WCDMA V_Ant 0	Bottom of Laptop	1.09	0mm				180.0	2.66	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							
	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm				65.0	1.38	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm				145.0	1.76	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							



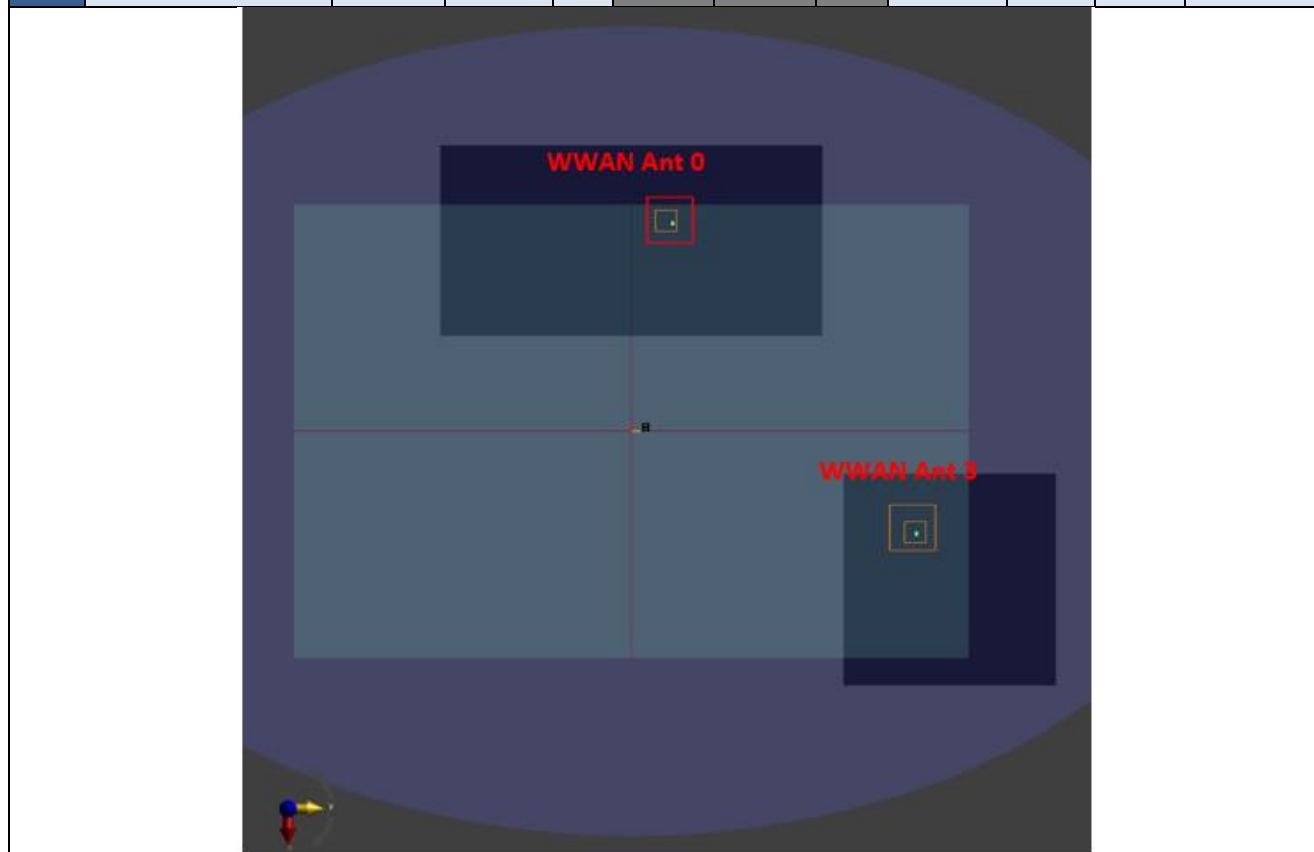
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 5	FR1 n26 Ant 0	Bottom Face	0.975	0mm	-98.2	19.5	-177	217.3	1.51	0.01	Not required
	FR1 n41 Ant 1		0.536	0mm	58	-131.5	-177				
	FR1 n26 Ant 0	Bottom Face	0.975	0mm				185.0	1.51	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n26 Ant 0	Bottom Face	0.975	0mm				180.0	1.79	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							
	FR1 n41 Ant 1	Bottom Face	0.536	0mm				65.0	1.07	0.02	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n41 Ant 1	Bottom Face	0.536	0mm				145.0	1.35	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							



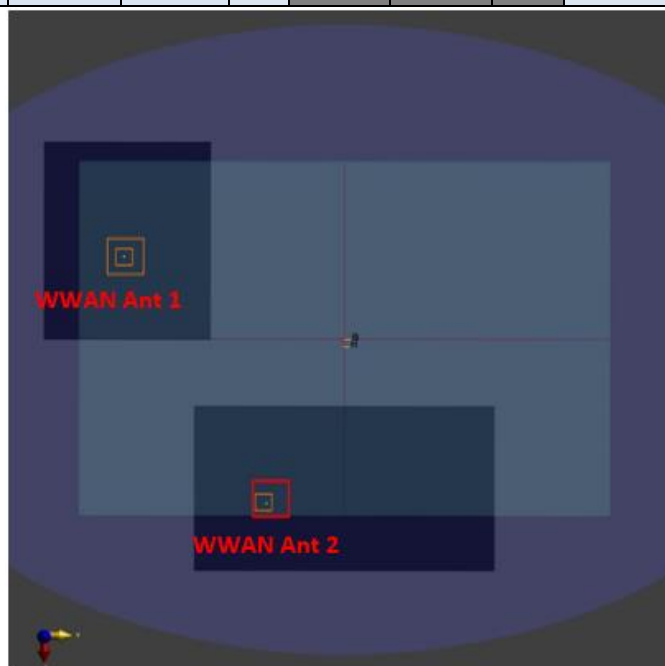
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 6	WCDMA V Ant 0	Bottom of Laptop	1.09	0mm	98.2	15.7	-177	199.4	1.34	0.01	Not required
	FR1 n41_Ant 3		0.246	0mm	-60.5	136.5	-177				
	WCDMA V Ant 0	Bottom of Laptop	1.09	0mm				185.0	2.28	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	WCDMA V Ant 0	Bottom of Laptop	1.09	0mm				180.0	2.66	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							
	FR1 n41_Ant 3	Bottom of Laptop	0.246	0mm				152.0	1.44	0.01	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n41_Ant 3	Bottom of Laptop	0.246	0mm				75.0	1.82	0.03	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							



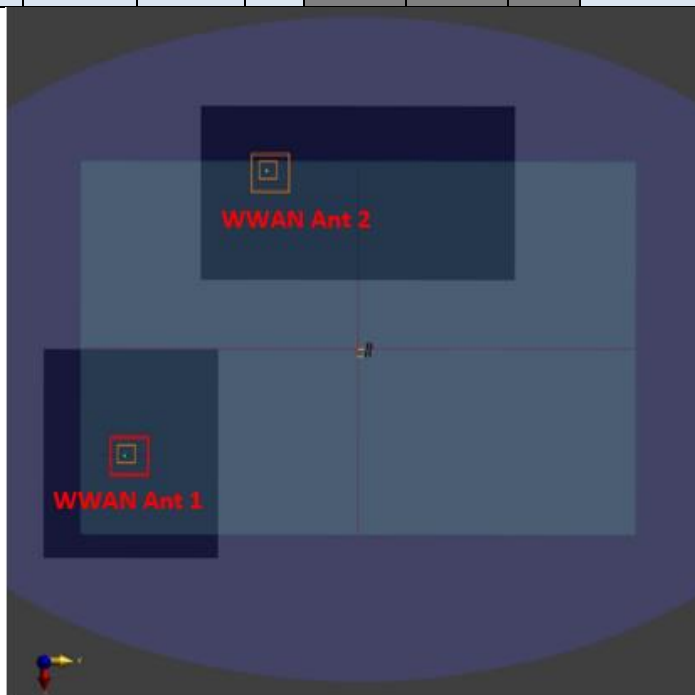
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 7	FR1 n26 Ant 0	Bottom Face	0.975	0mm	-98.2	19.5	-177	186.2	1.73	0.01	Not required
	FR1 n77 Ant 3		0.758	0mm	47.5	135.5	-177				
	FR1 n26 Ant 0	Bottom Face	0.975	0mm				185.0	1.51	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n26 Ant 0	Bottom Face	0.975	0mm				180.0	1.79	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							
	FR1 n77 Ant 3	Bottom Face	0.758	0mm				152.0	1.29	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n77 Ant 3	Bottom Face	0.758	0mm				75.0	1.57	0.03	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							



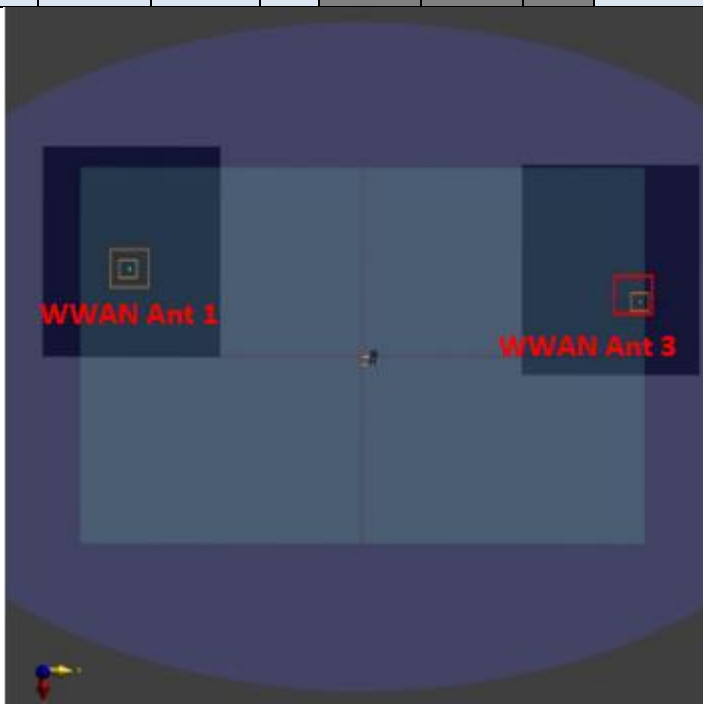
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 8	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm	-45.5	-130.5	-177	163.8	1.11	0.01	Not required
	FR1 n78_Ant 2		0.914	0mm	98.5	-52.5	-177				
	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm				65.0	1.38	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm				145.0	1.76	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							
	FR1 n78_Ant 2	Bottom of Laptop	0.914	0mm				180.0	2.10	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n78_Ant 2	Bottom of Laptop	0.914	0mm				189.0	2.48	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							



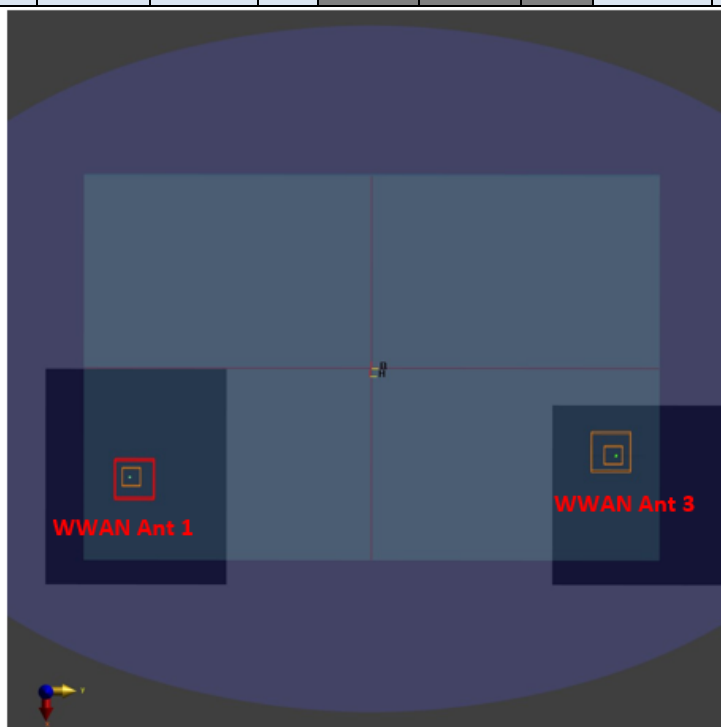
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 9	FR1 n41_Ant 1	Bottom Face	0.536	0mm	58	-131.5	-177	179.6	1.62	0.01	Not required
	FR1 n77_Ant 2		1.088	0mm	-102.8	-51.6	-177				
	FR1 n41_Ant 1	Bottom Face	0.536	0mm				65.0	1.07	0.02	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n41_Ant 1	Bottom Face	0.536	0mm				145.0	1.35	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							
	FR1 n77_Ant 2	Bottom Face	1.088	0mm				180.0	1.62	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n77_Ant 2	Bottom Face	1.088	0mm				189.0	1.90	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							



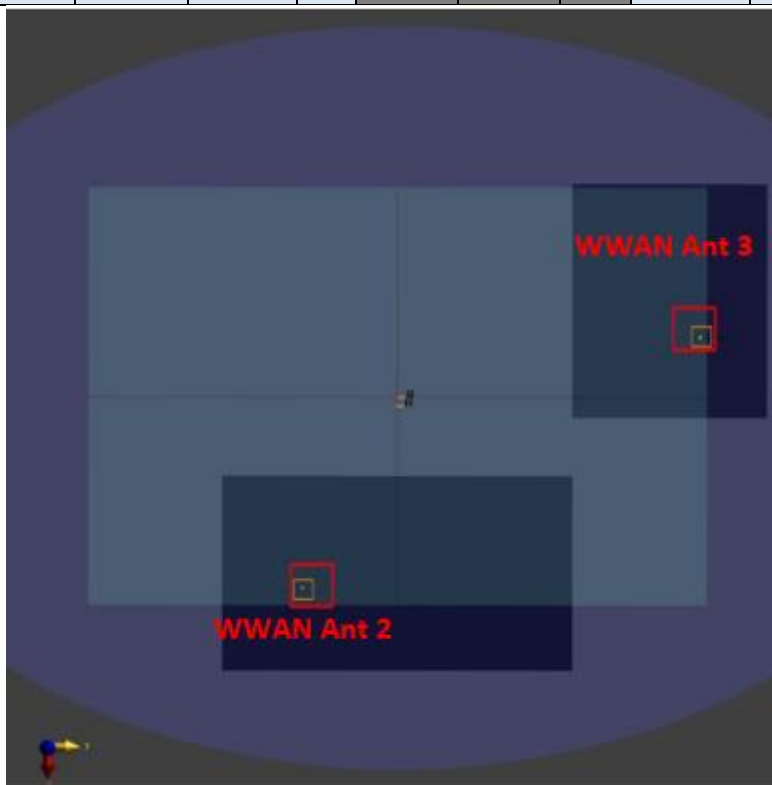
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 10	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm	-45.5	-130.5	-177	267.4	0.44	0.00	Not required
	FR1 n41_Ant 3		0.246	0mm	-60.5	136.5	-177				
	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm				65.0	1.38	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n41_Ant 1	Bottom of Laptop	0.191	0mm				145.0	1.76	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							
	FR1 n41_Ant 3	Bottom of Laptop	0.246	0mm				152.0	1.44	0.01	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n41_Ant 3	Bottom of Laptop	0.246	0mm				75.0	1.82	0.03	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							



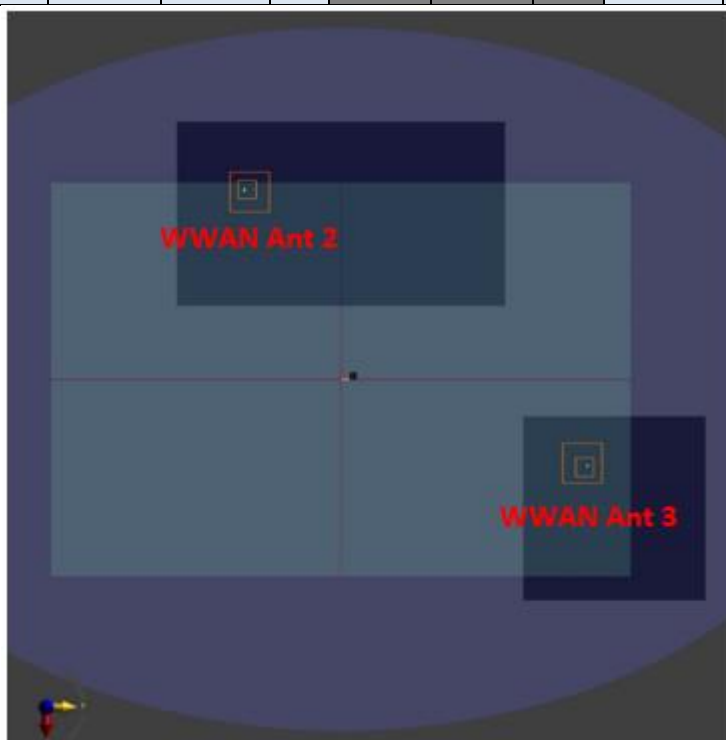
	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 11	FR1 n41_Ant 1	Bottom Face	0.536	0mm	58	-131.5	-177	267.2	1.29	0.01	Not required
	FR1 n77 Ant 3		0.758	0mm	47.5	135.5	-177				
	FR1 n41_Ant 1	Bottom Face	0.536	0mm				65.0	0.98	0.01	Not required
	Maximum WLAN Ant 1		0.44	0mm							
	FR1 n41_Ant 1	Bottom Face	0.536	0mm				145.0	1.35	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							
	FR1 n77 Ant 3	Bottom Face	0.758	0mm				152.0	1.20	0.01	Not required
	Maximum WLAN Ant 1		0.44	0mm							
	FR1 n77 Ant 3	Bottom Face	0.758	0mm				75.0	1.57	0.03	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 12	FR1 n78 Ant 2	Bottom of Laptop	0.914	0mm	98.5	-52.5	-177	247.0	1.16	0.01	Not required
	FR1 n41_Ant 3		0.246	0mm	-60.5	136.5	-177				
	FR1 n78 Ant 2	Bottom of Laptop	0.914	0mm				180.0	2.10	0.02	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n78 Ant 2	Bottom of Laptop	0.914	0mm				189.0	2.48	0.02	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							
	FR1 n41_Ant 3	Bottom of Laptop	0.246	0mm				152.0	1.44	0.01	Not required
	Maximum WLAN Ant 1		1.19	0mm							
	FR1 n41_Ant 3	Bottom of Laptop	0.246	0mm				75.0	1.82	0.03	Not required
	Maximum WLAN/BT Ant 2		1.57	0mm							



	Band	Position	SAR (W/kg)	Gap (mm)	SAR peak location (cm)			Minimum/3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
Case 13	FR1 n77 Ant 2	Bottom Face	1.088	0mm	-102.8	-51.6	-177	240.0	1.85	0.01	Not required
	FR1 n77 Ant 3		0.758	0mm	47.5	135.5	-177				
	FR1 n77 Ant 2	Bottom Face	1.088	0mm				180.0	1.62	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n77 Ant 2	Bottom Face	1.088	0mm				189.0	1.90	0.01	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							
	FR1 n77 Ant 3	Bottom Face	0.758	0mm				152.0	1.29	0.01	Not required
	Maximum WLAN Ant 1		0.53	0mm							
	FR1 n77 Ant 3	Bottom Face	0.758	0mm				75.0	1.57	0.03	Not required
	Maximum WLAN/BT Ant 2		0.81	0mm							



Test Engineer : Casper Hsu and Kevin Guo

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. Therefore, the measurement uncertainty table is not required in this report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded is 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.

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 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [6] FCC KDB 941225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [7] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [8] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [9] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [10] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [11] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.