FCC 47 CFR Parts 1 & 2
Published RF Exposure KDB Procedures
IEEE Std 1528-2013

SAR EVALUATION REPORT

For
Tablet Device

Model: A1567
FCC ID: BCGA1567

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Prepared for
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A	9/14/2014	Report revised based on reviewer's comments: 1. Cover Page: Updated Device Name. 2. Sec. 1: Updated Approval Signature formatting. 3. Sec. 8.5: Updated statement.	Bobby Bayani
B	10/14/2014	Report revised based on reviewer's comments: 1. Sec. 8.5.: Updated statement	Kenneth Mak

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1. Attestation of Test Results

Applicant Name	APPLE INC.			
FCC ID	BCGA1567			
DUT Description	Tablet Device			
Exposure Category	General Population/Uncontrolled Exposure (1g SAR limit: 1.6 W/kg)			
The highest reported SAR	RF Exposure Conditions	Equipment Class		
		Licensed	DTS	UNII
	Stand-alone	1.190 W/kg	1.156 W/kg	1.180 W/kg
	Simultaneous Transmission	1.485 W/kg	1.257 W/kg	1.485 W/kg
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013			
Test Results	Pass			
Date tested	7/28/2014 – 8/25/2014			

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government (NIST Handbook 150, Annex A). This report is written to support regulatory compliance of the applicable standards stated above.

Approved & Released By:	Prepared By:
Bobby Bayani Senior Engineer UL Verification Services Inc.	Ray Su Laboratory Engineer UL Verification Services Inc.

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2. Test Methodology

The tests documented in this report were performed in accordance with FCC 47 CFR Parts 1 & 2, IEEE STD 1528-2013, the following FCC Published RF exposure KDB procedures, and TCB workshop updates:

- 447498 D01 General RF Exposure Guidance v05r02
- 616217 D04 SAR for Laptop and Tablets v01r01
- 941225 D01 SAR test for 3G devices v02
- 941225 D02 HSPA and 1x Advanced v02r02
- 941225 D03 SAR Test Reduction GSM GPRS EDGE v01
- 941225 D04 SAR for GSM E GPRS Dual Xfer Mode v01
- 941225 D05 SAR for LTE Devices v02r03
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01
- 248227 D01 SAR Meas for 802 11abg v01r02
- 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- 865664 D02 SAR Reporting v01r01
- 690783 D01 SAR Listings on Grants v01r02

3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

47173 Benicia Street	47266 Benicia Street
SAR Lab A	SAR Lab 1
SAR Lab B	SAR Lab 2
SAR Lab C	SAR Lab 3
SAR Lab D	SAR Lab 4
SAR Lab E	
SAR Lab F	
SAR Lab G	
SAR Lab H	

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

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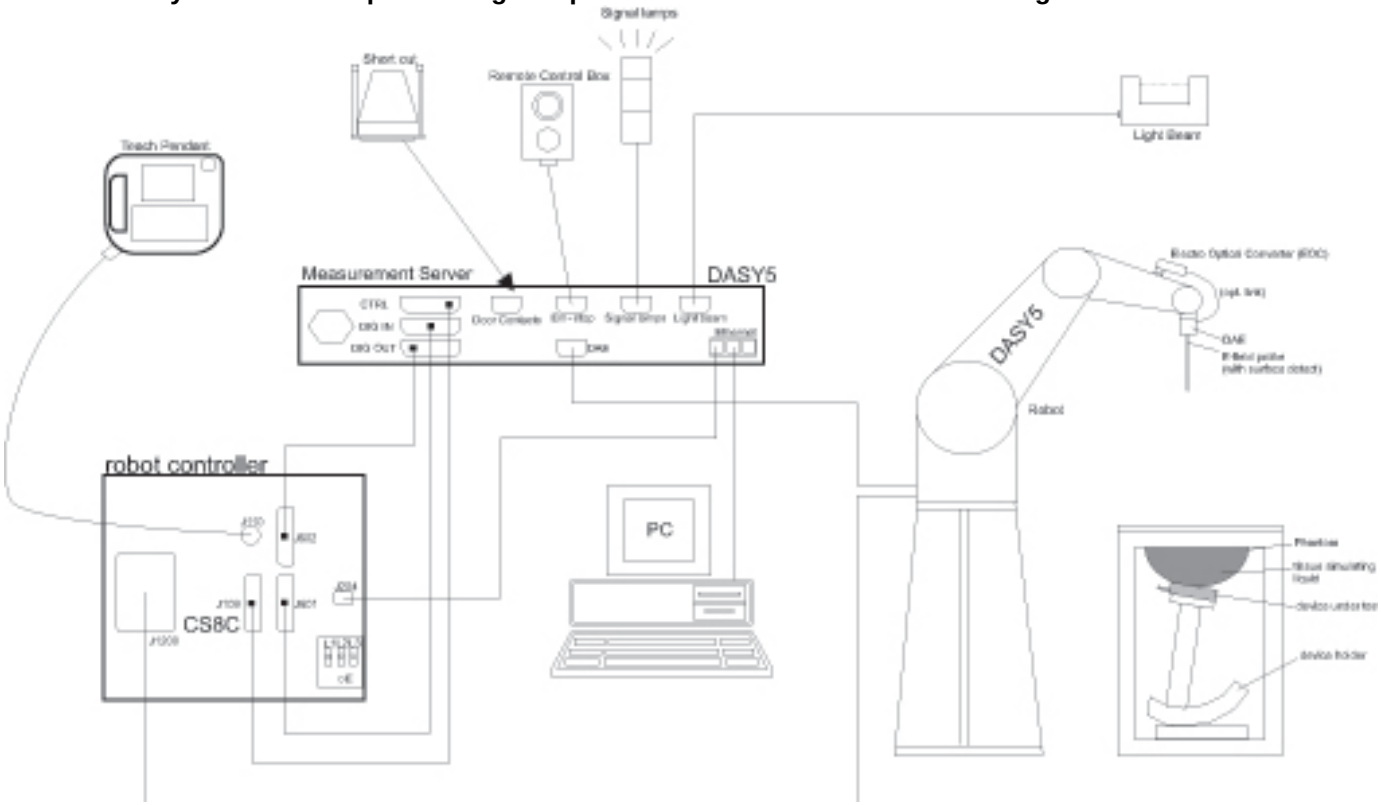
4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY5 system used for performing compliance tests consists of the following items:



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

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4.2.Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E8363C	1391298J	12/3/2014
Dielectronic Probe kit	SPEAG	DAK-3.5	1082	9/10/2014
Dielectronic Probe kit	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	Control Company	4242	122529162	9/19/2014

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Synthesized Signal Generator	HP	8665B	3744A01084	5/20/2015
Power Meter	Agilent	N1912A	MY52310061	12/12/2015
Power Sensor	Agilent	E9323A	MY53070005	5/1/2015
Power Sensor	Agilent	E9323A	MY53070009	5/28/2015
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1795093	N/A
Directional coupler	Werlatone	C8060-102	2149	N/A
DC Power Supply	AMETEK	XT 20-3	1318A00530	N/A
Synthesized Signal Generator	HP	8665B	3744A01155	3/12/2015
Power Meter	Agilent	N1912A	MY52310061	12/12/2014
Power Sensor	Agilent	N1921A	MY52270022	12/12/2014
Power Sensor	Agilent	N1921A	MY52260009	12/12/2014
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1795092	N/A
Directional coupler	Werlatone	C8060-102	2141	N/A
DC Power Supply	BK PRECISION	1611	215-02292	N/A
E-Field Probe	SPEAG	EX3DV4	3772	2/26/2015
E-Field Probe	SPEAG	EX3DV4	3749	1/29/2015
E-Field Probe	SPEAG	EX3DV4	3751	11/21/2014
E-Field Probe	SPEAG	EX3DV4	3989	4/15/2015
E-Field Probe	SPEAG	EX3DV4	3901	2/25/2015
E-Field Probe	SPEAG	EX3DV4	3885	9/18/2014
E-Field Probe	SPEAG	EX3DV4	3990	5/15/2015
E-Field Probe	SPEAG	EX3DV4	3686	3/18/2015
Data Acquisition Electronics	SPEAG	DAE4	1259	1/23/2015
Data Acquisition Electronics	SPEAG	DAE3	500	5/15/2015
Data Acquisition Electronics	SPEAG	DAE4	1360	3/17/2015
Data Acquisition Electronics	SPEAG	DAE4	1433	1/14/2015
Data Acquisition Electronics	SPEAG	DAE4	1357	2/14/2015
Data Acquisition Electronics	SPEAG	DAE4	1239	1/15/2015
Data Acquisition Electronics	SPEAG	DAE4	1434	4/14/2015
Data Acquisition Electronics	SPEAG	DAE4	1258	5/15/2014

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System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
System Validation Dipole	SPEAG	D750V3	1019	3/17/2015
System Validation Dipole	SPEAG	D835V2	4d142	9/17/2014
System Validation Dipole	SPEAG	D1750V2	1053	8/27/2014
System Validation Dipole	SPEAG	D1900V2	5d140	4/23/2015
System Validation Dipole	SPEAG	D1900V2	5d163	9/14/2014
System Validation Dipole	SPEAG	D2450V2	706	5/20/2015
System Validation Dipole	SPEAG	D2600V2	1006	9/11/2014
System Validation Dipole	SPEAG	D5GHzV2	1003	2/26/2015
System Validation Dipole	SPEAG	D5GHzV2	1168	12/12/2014

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMU200	838114	7/23/2014
Base Station Simulator	R & S	CMW500	124593-ss	7/25/2014
Base Station Simulator	R & S	CMW500	113915-da	8/14/2014
Base Station Simulator	R & S	CMW500	135390-ws	7/3/2015
Base Station Simulator	R & S	CMW500	132911-tu	2/27/2015
Base Station Simulator	R & S	CMW500	103766-ly	8/19/2014
Base Station Simulator	R & S	CMW500	112268-rf	6/6/2015
Power Meter	Agilent	N1911A	MY53060009	5/5/2015
Power Sensor	Agilent	E9323A	US40411681	10/4/2014
Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Power Meter	R & S	NRP2	103076-TJ	9/3/2015
Power Sensor	R & S	NRP-Z11	112141-BE	4/26/2015
Power Meter	R & S	NRP2	102820-FG	4/24/2015
Power Sensor	R & S	NRP-Z11	112140-JZ	4/26/2015

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5. Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

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6. Device Under Test (DUT) Information

6.1. DUT Description

Model A1567 is a tablet with multimedia functions (music, application support, and video), Cellular GSM/GPRS/EGPRS/CDMA2000 1xAdvanced/EVDO Rev. A/EVDO Rev. B/WCDMA/HSPA+/DC-HSPA/LTE FDD & Carrier Aggregation/TDD-LTE radio, IEEE 802.11a/b/g/n/ac radio (MIMO 2x2), Bluetooth radio and NFC

There are two vendors of the Wi-Fi/Bluetooth radio modules to support the production volumes of the device. The two variants are referenced in this report as:

Variant 1 = Wi-Fi/BT module vendor 1

Variant 2 = Wi-Fi/BT module vendor 2

The Wi-Fi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

Complete SAR evaluation is performed on the device with one Wi-Fi/Bluetooth radio module and then, the test is repeated on the device with the other Wi-Fi/Bluetooth module at the highest peak SAR value.

Device dimension	Overall (Length x Width): 240 mm x 169.47 mm Overall Diagonal: 285 mm Display Diagonal: 245.7 mm
AirPlay	AirPlay mode enabled devices transfer data directly between each other ☒ AirPlay (Wi-Fi 2.4 GHz) ☒ AirPlay (Wi-Fi 5 GHz)
RF Exposure Condition(s)	Body Exposure with all surfaces and edges

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6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode	Duty Cycle used for SAR testing
GSM	850, 1900	GPRS (GMSK) and EGPRS (8PSK)	GPRS 1 Slot: 12.5%; 2 Slots: 25%
	GPRS Multi-Slot Class: ☐ Class 8 - One Up ☒ Class 10 - Two Up ☐ Class 12 - Four Up DTM (Dual Transfer Mode): Not supported		
CDMA2000	BC0, BC1, BC10, and BC15	1xRTT 1xEV-DO Rel. 0 1xEV-DO Rev. A 1xAdvanced 1xEV-DO Rev. B (BC0 only)	1xRTT: 100% 1xEV-DO Rel. 0: 100% 1xEV-DO Rev. B: 100%
	Does this device SV-DO (1xRTT-1xEVDO)? ☐Yes ☒ No		
W-CDMA (UMTS)	Band V, IV, and II	UMTS Rel. 99 (Voice & Data) HSDPA (Rel. 7, CAT 14) HSUPA (Rel. 6, CAT 6) DC-HSDPA (Rel. 8, CAT 24) HSPA+ (Rel. 6, CAT 6)	Rel. 99: 100%
LTE (FDD)	Band 2 / 4 / 5/ 13 / 17 / 25 / 26	QPSK, 16QAM Rel. 10 Carrier Aggregation (1 Uplink and 2 Downlinks)	100%
	Does this device SV-LTE (1xRTT-LTE)? ☐Yes ☒ No		
LTE (TDD)	Band 41	QPSK, 16QAM	63.3%
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20)	100%
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (HT20) 802.11ac (HT40) 802.11ac (VHT80)	100%
Bluetooth	2.4 GHz	Version 4.0 LE	77.52% (DH5)

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6.3. Maximum Output Power

Maximum Output Power for Cellular Bands and Bluetooth

RF Air interface	Mode	Maximum Output Power (dBm)	
		Emission Power	Body Power
GSM850	GPRS 1 slot	33.5	27.8
	GPRS 2 slots	32.5	25.0
	EGPRS 1 slot	29.0	27.8
	EGPRS 2 slots	29.0	24.8
GSM1900	GPRS 1 slot	30.5	23.3
	GPRS 2 slots	29.5	20.5
	EGPRS 1 slot	28.0	23.3
	EGPRS 2 slots	28.0	20.3
W-CDMA Band V	R99	25.0	19.8
	HSDPA	25.0	19.8
	HSUPA	25.0	19.8
	DC-HSDPA	25.0	19.8
W-CDMA Band IV	R99	23.5	13.8
	HSDPA	23.5	13.8
	HSUPA	23.5	13.8
	DC-HSDPA	23.5	13.8
W-CDMA Band II	R99	23.5	12.8
	HSDPA	23.5	12.8
	HSUPA	23.5	12.8
	DC-HSDPA	23.5	12.8
CDMA BC0	1xRTT	24.5	19.8
	1xAdvanced	24.5	19.8
	1xEVDO Rel. 0	24.5	19.8
	1xEVDO Rev. A	24.5	19.8
	1xEVDO Rev. B	22.0	19.8
CDMA BC1	1xRTT	23.5	13.0
	1xAdvanced	23.5	13.0
	1xEVDO Rel. 0	23.5	13.0
	1xEVDO Rev. A	23.5	13.0
CDMA BC10	1xRTT	25.0	19.8
	1xAdvanced	25.0	19.8
	1xEVDO Rel. 0	25.0	19.8
	1xEVDO Rev. A	25.0	19.8
CDMA BC15	1xRTT	23.5	14.0
	1xAdvanced	23.5	14.0
	1xEVDO Rel. 0	23.5	14.0
	1xEVDO Rev. A	23.5	14.0
LTE Band 2	QPSK	23.5	13.3
LTE Band 4	QPSK	23.5	13.5
LTE Band 5	QPSK	24.0	19.8
LTE Band 13	QPSK	24.0	19.5
LTE Band 17	QPSK	24.0	19.0
LTE Band 25	QPSK	23.5	13.3
LTE Band 26	QPSK	23.5	19.8
LTE Band 41	QPSK	22.5	13.5
Bluetooth Antenna B		10.5	10.5
Bluetooth Antenna C		10.5	10.5

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Maximum Output Power for Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		
					Antenna A	Antenna B	Antenna C
2.4	802.11b	1 Tx	1	2412	13.0		
			6	2437	13.0		
			11	2462	13.0		
			12	2467	13.0		
			13	2472	13.0		
			1	2412		18.0	
			6	2437		18.0	
			11	2462		18.0	
			12	2467		15.0	
			13	2472		12.5	
			1	2412			16.0
			6	2437			16.0
			11	2462			16.0
			12	2467			15.0
			13	2472			12.5
	802.11g	1 Tx	1	2412	13.0		
			2	2417	13.0		
			6	2437	13.0		
			10	2457	13.0		
			11	2462	13.0		
			12	2467	9.5		
			13	2472	3.0		
			1	2412		18.0	
			2	2417		18.0	
			6	2437		18.0	
			10	2457		18.0	
			11	2462		14.0	
			12	2467		9.5	
			13	2472		3.0	
			1	2412			16.0
			2	2417			16.0
			6	2437			16.0
			10	2457			16.0
			11	2462			14.0
			12	2467			9.5
			13	2472			3.0

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Maximum Output Power for Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		
					Antenna A	Antenna B	Antenna C
2.4	802.11g	2 Tx CDD (Antenna A + B)	1	2412	13.0	18.0	
			2	2417	13.0	18.0	
			6	2437	13.0	18.0	
			10	2457	13.0	18.0	
			11	2462	13.0	13.0	
			12	2467	9.5	9.5	
			13	2472	3.0	3.0	
		2 Tx CDD (Antenna A + C)	1	2412	13.0		16.0
			2	2417	13.0		16.0
			6	2437	13.0		16.0
			10	2457	13.0		16.0
			11	2462	13.0		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0
	802.11n	1 Tx HT20	1	2412	13.0		
			2	2417	13.0		
			6	2437	13.0		
			10	2457	13.0		
			11	2462	13.0		
			12	2467	9.5		
			13	2472	3.0		
			1	2412		18.0	
			2	2417		18.0	
			6	2437		18.0	
			10	2457		18.0	
			11	2462		14.0	
			12	2467		9.5	
			13	2472		3.0	
			1	2412			16.0
			2	2417			16.0
			6	2437			16.0
			10	2457			16.0
			11	2462			14.0
			12	2467			9.5
			13	2472			3.0

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Maximum Output Power for Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max})_continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		
					Antenna A	Antenna B	Antenna C
2.4	802.11n	2 Tx HT20 CDD (Antenna A + B)	1	2412	13.0	18.0	
			2	2417	13.0	18.0	
			6	2437	13.0	18.0	
			10	2457	13.0	18.0	
			11	2462	13.0	13.0	
			12	2467	9.5	9.5	
			13	2472	3.0	3.0	
		2 Tx HT20 CDD (Antenna A + C)	1	2412	13.0		16.0
			2	2417	13.0		16.0
			6	2437	13.0		16.0
			10	2457	13.0		16.0
			11	2462	13.0		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0
		2 Tx HT20 STBC (Antenna A + B)	1	2412	13.0	18.0	
			2	2417	13.0	18.0	
			6	2437	13.0	18.0	
			10	2457	13.0	18.0	
			11	2462	13.0	13.0	
			12	2467	9.5	9.5	
			13	2472	3.0	3.0	
		2 Tx HT20 STBC (Antenna A + C)	1	2412	13.0		16.0
			2	2417	13.0		16.0
			6	2437	13.0		16.0
			10	2457	13.0		16.0
			11	2462	13.0		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0
		2 Tx HT20 SDM (Antenna A + B)	1	2412	13.0	18.0	
			2	2417	13.0	18.0	
			6	2437	13.0	18.0	
			10	2457	13.0	18.0	
			11	2462	13.0	13.0	
			12	2467	9.5	9.5	
			13	2472	3.0	3.0	
		2 Tx HT20 SDM (Antenna A + C)	1	2412	13.0		16.0
			2	2417	13.0		16.0
			6	2437	13.0		16.0
			10	2457	13.0		16.0
			11	2462	13.0		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0

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Maximum Output Power for Wi-Fi 5.2 GHz P_{Cell_OFF} (P_{max})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.2	802.11a	1 Tx	36	5180	17.0	
			40	5200	17.0	
			44	5220	17.0	
			48	5240	17.0	
			36	5180		17.0
			40	5200		18.0
			44	5220		18.0
			48	5240		18.0
		2 Tx CDD	36	5180	15.5	15.5
			40	5200	17.0	17.0
			44	5220	17.0	17.0
			48	5240	17.0	17.0
	802.11n	1 Tx HT20	36	5180	17.0	
			40	5200	17.0	
			44	5220	17.0	
			48	5240	17.0	
			36	5180		17.0
			40	5200		18.0
			44	5220		18.0
			48	5240		18.0
		1 Tx HT40	38	5180	13.5	
			46	5230	17.0	
			38	5180		13.5
			46	5230		18.0
		2 Tx HT20 CDD	36	5180	15.5	15.5
			40	5200	17.0	17.0
			48	5240	17.0	17.0
		2 Tx HT20 STBC	36	5180	15.5	15.5
			40	5200	17.0	17.0
			48	5240	17.0	17.0
		2 Tx HT20 SDM	36	5180	15.5	15.5
			40	5200	17.0	17.0
			48	5240	17.0	17.0
		2 Tx HT40 CDD	38	5190	12.5	12.5
			46	5230	17.0	18.0
		2 Tx HT40 STBC	38	5190	12.5	12.5
			46	5230	17.0	18.0
		2 Tx HT40 SDM	38	5190	12.5	12.5
			46	5230	17.0	18.0

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Maximum Output Power for Wi-Fi 5.2 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.2	802.11ac	1 Tx HT20	36	5180	17.0	
			40	5200	17.0	
			48	5240	17.0	
			36	5180		17.0
			40	5200		18.0
			48	5240		18.0
		1 Tx HT40	38	5180	13.5	
			46	5230	17.0	
			38	5180		13.5
			46	5230		18.0
		1 Tx VHT80	42	5210	13.0	
			42	5210		13.0
		2 Tx HT20 CDD	36	5180	15.5	15.5
			40	5200	17.0	17.0
			48	5240	17.0	17.0
		2 Tx HT20 STBC	36	5180	15.5	15.5
			40	5200	17.0	17.0
			48	5240	17.0	17.0
		2 Tx HT20 SDM	36	5180	15.5	15.5
			40	5200	17.0	17.0
			48	5240	17.0	17.0
		2 Tx HT40 CDD	38	5190	12.5	12.5
			46	5230	17.0	18.0
		2 Tx HT40 STBC	38	5190	12.5	12.5
			46	5230	17.0	18.0
		2 Tx HT40 SDM	38	5190	12.5	12.5
			46	5230	17.0	18.0
		2 Tx VHT80 CDD	38	5190	12.0	12.0
		2 Tx VHT80 STBC	38	5190	12.0	12.0
		2 Tx VHT80 SDM	38	5190	12.0	12.0

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Maximum Output Power for Wi-Fi 5.3 GHz P_{Cell_OFF} (P_{max})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.3	802.11a	1 Tx	52	5260	16.0	
			56	5280	16.0	
			60	5300	16.0	
			64	5320	16.0	
			52	5260		18.0
			56	5280		18.0
			60	5300		18.0
			64	5320		17.0
		2 Tx CDD	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
	802.11n	1 Tx HT20	52	5260	16.0	
			56	5280	16.0	
			60	5300	16.0	
			64	5320	16.0	
			52	5260		18.0
			56	5280		18.0
			60	5300		18.0
			64	5320		17.0
		1 Tx HT40	54	5270	16.0	
			62	5310	15.0	
			54	5270		18.0
			62	5310		15.0
		2 Tx HT20 CDD	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
		2 Tx HT20 STBC	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
		2 Tx HT20 SDM	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
		2 Tx HT40 CDD	54	5270	16.0	18.0
			62	5310	14.5	14.5
		2 Tx HT40 STBC	54	5270	16.0	18.0
			62	5310	14.5	14.5
		2 Tx HT40 SDM	54	5270	16.0	18.0
			62	5310	14.5	14.5

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Maximum Output Power for Wi-Fi 5.3 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.3	802.11ac	1 Tx HT20	52	5260	16.0	
			60	5300	16.0	
			64	5320	16.0	
			52	5260		18.0
			60	5300		18.0
			64	5320		17.0
		1 Tx HT40	54	5270	16.0	
			62	5310	15.0	
			54	5270		18.0
			62	5310		15.0
		1 Tx VHT80	58	5290	15.0	
			58	5290		15.0
		2 Tx HT20 CDD	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
		2 Tx HT20 STBC	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
		2 Tx HT20 SDM	52	5260	16.0	17.0
			56	5280	16.0	17.0
			60	5300	16.0	17.0
			64	5320	16.0	16.0
		2 Tx HT40 CDD	54	5270	16.0	18.0
			62	5310	14.5	14.5
		2 Tx HT40 STBC	54	5270	16.0	18.0
			62	5310	14.5	14.5
		2 Tx HT40 SDM	54	5270	16.0	18.0
			62	5310	14.5	14.5
		2 Tx VHT80 CDD	54	5270	14.5	14.5
		2 Tx VHT80 STBC	54	5270	14.5	14.5
		2 Tx VHT80 SDM	54	5270	14.5	14.5

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11a	1 Tx	100	5500	16.5	
			104	5520	16.5	
			108	5540	16.5	
			112	5560	16.5	
			116	5580	16.5	
			120	5600	16.5	
			124	5620	16.5	
			128	5640	16.5	
			132	5660	16.5	
			136	5680	16.5	
			140	5700	15.0	
			100	5500		17.0
			104	5520		18.0
			108	5540		18.0
			112	5560		18.0
			116	5580		18.0
			120	5600		18.0
			124	5620		18.0
			128	5640		18.0
			132	5660		18.0
			136	5680		18.0
			140	5700		15.0
		2 Tx CDD	100	5500	16.0	16.0
			104	5520	16.5	17.0
			108	5540	16.5	17.0
			112	5560	16.5	17.0
			116	5580	16.5	17.0
			120	5600	16.5	17.0
			124	5620	16.5	17.0
			128	5640	16.5	17.0
			132	5660	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11n	1 Tx HT20	100	5500	16.5	
			104	5520	16.5	
			120	5600	16.5	
			136	5680	16.5	
			140	5700	15.0	
			100	5500		17.0
			104	5520		18.0
			120	5600		18.0
			136	5680		18.0
			140	5700		15.0
		1 Tx HT40	102	5510	15.0	
			110	5550	16.5	
			118	5590	16.5	
			126	5630	16.5	
			134	5670	14.0	
			102	5510		15.0
			110	5550		18.0
			118	5590		18.0
			126	5630		18.0
			134	5670		14.0
		2 Tx HT20 CDD	100	5500	16.0	16.0
			104	5520	16.5	17.0
			120	5600	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0
		2 Tx HT20 STBC	100	5500	16.0	16.0
			104	5520	16.5	17.0
			120	5600	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0
		2 Tx HT20 SDM	100	5500	16.0	16.0
			104	5520	16.5	17.0
			120	5600	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0
		2 Tx HT40 CDD	102	5510	13.5	13.5
			110	5550	16.5	18.0
			118	5590	16.5	18.0
			126	5630	16.5	18.0
			134	5670	13.0	13.0
		2 Tx HT40 STBC	102	5510	13.5	13.5
			110	5550	16.5	18.0
			118	5590	16.5	18.0
			126	5630	16.5	18.0
			134	5670	13.0	13.0
		2 Tx HT40 SDM	102	5510	13.5	13.5
			110	5550	16.5	18.0
			118	5590	16.5	18.0
			126	5630	16.5	18.0
			134	5670	13.0	13.0

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11ac	1 Tx HT20	100	5500	16.5	
			104	5520	16.5	
			120	5600	16.5	
			136	5680	16.5	
			140	5700	15.0	
			100	5500		17.0
			104	5520		18.0
			120	5600		18.0
			136	5680		18.0
			140	5700		15.0
		1 Tx HT40	102	5510	15.0	
			110	5550	16.5	
			118	5590	16.5	
			126	5630	16.5	
			134	5670	14.0	
			102	5510		15.0
			110	5550		18.0
			118	5590		18.0
			126	5630		18.0
			134	5670		14.0
		1 Tx VHT80	106	5530	16.0	
			122	5610	16.5	
			138	5690	16.5	
			106	5530		16.0
			122	5610		18.0
			138	5690		18.0
		2 Tx HT20 CDD	100	5500	16.0	16.0
			104	5520	16.5	17.0
			120	5600	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0
		2 Tx HT20 STBC	100	5500	16.0	16.0
			104	5520	16.5	17.0
			120	5600	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0
		2 Tx HT20 SDM	100	5500	16.0	16.0
			104	5520	16.5	17.0
			120	5600	16.5	17.0
			136	5680	16.5	17.0
			140	5700	14.0	14.0

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11ac	2 Tx HT40 CDD	102	5510	13.5	13.5
			110	5550	16.5	18.0
			118	5590	16.5	18.0
			126	5630	16.5	18.0
			134	5670	13.0	13.0
		2 Tx HT40 STBC	102	5510	13.5	13.5
			110	5550	16.5	18.0
			118	5590	16.5	18.0
			126	5630	16.5	18.0
			134	5670	13.0	13.0
		2 Tx HT40 SDM	102	5510	13.5	13.5
			110	5550	16.5	18.0
			118	5590	16.5	18.0
			126	5630	16.5	18.0
			134	5670	13.0	13.0
		2 Tx VHT80 CDD	106	5530	14.0	14.0
			122	5610	16.5	18.0
			138	5690	16.5	18.0
		2 Tx VHT80 STBC	106	5530	14.0	14.0
			122	5610	16.5	18.0
			138	5690	16.5	18.0
		2 Tx VHT80 SDM	106	5530	14.0	14.0
			122	5610	16.5	18.0
			138	5690	16.5	18.0

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Maximum Output Power for Wi-Fi 5.8 GHz P_{Cell_OFF} (P_{max})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.8	802.11a	1 Tx	149	5745	16.0	
			153	5765	17.0	
			157	5785	17.0	
			161	5805	17.0	
			165	5825	17.0	
			149	5745		16.0
			153	5765		18.0
			157	5785		18.0
			161	5805		18.0
			165	5825		17.0
		2 Tx CDD	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
	802.11n	1 Tx HT20	149	5745	16.0	
			153	5765	17.0	
			157	5785	17.0	
			161	5805	17.0	
			165	5825	17.0	
			149	5745		16.0
			153	5765		18.0
			157	5785		18.0
			161	5805		18.0
			165	5825		17.0
		1 Tx HT40	151	5755	14.5	
			159	5795	17	
			151	5755		14.5
			159	5795		17.0
		2 Tx HT20 CDD	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
		2 Tx HT20 STBC	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
		2 Tx HT20 SDM	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
		2 Tx HT40 CDD	151	5755	14.0	14.0
			159	5795	16.0	16.0
		2 Tx HT40 STBC	151	5755	14.0	14.0
			159	5795	16.0	16.0
		2 Tx HT40 SDM	151	5755	14.0	14.0
			159	5795	16.0	16.0

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Maximum Output Power for Wi-Fi 5.8 GHz P_{Cell_OFF} (P_{max}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.8	802.11ac	1 Tx HT20	149	5745	16.0	
			153	5765	17.0	
			157	5785	17.0	
			161	5805	17.0	
			165	5825	17.0	
			149	5745		16.0
			153	5765		18.0
			157	5785		18.0
			161	5805		18.0
			165	5825		17.0
		1 Tx HT40	151	5755	14.5	
			159	5795	17	
			151	5755		14.5
			159	5795		17.0
		1 Tx VHT80	155	5775	13.5	
			155	5775		13.5
		2 Tx HT20 CDD	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
		2 Tx HT20 STBC	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
		2 Tx HT20 SDM	149	5745	15.0	15.0
			153	5765	17.0	18.0
			157	5785	17.0	18.0
			161	5805	17.0	18.0
			165	5825	16.0	16.0
		2 Tx HT40 CDD	151	5755	14.0	14.0
			159	5795	16.0	16.0
		2 Tx HT40 STBC	151	5755	14.0	14.0
			159	5795	16.0	16.0
		2 Tx HT40 SDM	151	5755	14.0	14.0
			159	5795	16.0	16.0
		2 Tx VHT80 CDD	155	5775	13.0	13.0
		2 Tx VHT80 STBC	155	5775	13.0	13.0
		2 Tx VHT80 SDM	155	5775	13.0	13.0

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Maximum Output Power for Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		
					Antenna A	Antenna B	Antenna C
2.4	802.11b	1 Tx	1	2412	10.5	Disabled under P_{Cell_ON}(P_{low})	
			6	2437	10.5		
			11	2462	10.5		
			12	2467	10.5		
			13	2472	10.5		
			1	2412			
			6	2437			
			11	2462			
			12	2467			
			13	2472			
			1	2412			16.0
			6	2437			16.0
			11	2462			16.0
			12	2467			15.0
			13	2472			12.5
	802.11g	1 Tx	1	2412	10.5		
			2	2417	10.5		
			6	2437	10.5		
			10	2457	10.5		
			11	2462	10.5		
			12	2467	9.5		
			13	2472	3.0		
			1	2412			
			2	2417			
			6	2437			
			10	2457			
			11	2462			
			12	2467			
			13	2472			
			1	2412			16.0
			2	2417			16.0
			6	2437			16.0
			10	2457			16.0
			11	2462			14.0
			12	2467			9.5
			13	2472			3.0

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Maximum Output Power for Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		
					Antenna A	Antenna B	Antenna C
2.4	802.11n	1 Tx HT20	1	2412	10.5	Disabled under P_{Cell_ON}(P_{low})	
			2	2417	10.5		
			6	2437	10.5		
			10	2457	10.5		
			11	2462	10.5		
			12	2467	9.5		
			13	2472	3.0		
			1	2412			16.0
			2	2417			16.0
			6	2437			16.0
			10	2457			16.0
			11	2462			14.0
			12	2467			9.5
			13	2472			3.0
		2 Tx HT20 CDD	1	2412	10.5		16.0
			2	2417	10.5		16.0
			6	2437	10.5		16.0
			10	2457	10.5		16.0
			11	2462	10.5		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0
		2 Tx HT20 STBC	1	2412	10.5		16.0
			2	2417	10.5		16.0
			6	2437	10.5		16.0
			10	2457	10.5		16.0
			11	2462	10.5		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0
		2 Tx HT20 SDM	1	2412	10.5		16.0
			2	2417	10.5		16.0
			6	2437	10.5		16.0
			10	2457	10.5		16.0
			11	2462	10.5		13.0
			12	2467	9.5		9.5
			13	2472	3.0		3.0

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Maximum Output Power for Wi-Fi 5.2 GHz P_{Cell_ON} (P_{low})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.2	802.11a	1 Tx	36	5180	11.5	
			40	5200	11.5	
			44	5220	11.5	
			48	5240	11.5	
			36	5180		17.0
			40	5200		18.0
			44	5220		18.0
			48	5240		18.0
		2 Tx CDD	36	5180	11.5	15.5
			40	5200	11.5	17.0
			44	5220	11.5	17.0
			48	5240	11.5	17.0
	802.11n	1 Tx HT20	36	5180	11.5	
			40	5200	11.5	
			44	5220	11.5	
			48	5240	11.5	
			36	5180		17.0
			40	5200		18.0
			44	5220		18.0
			48	5240		18.0
		1 Tx HT40	38	5180	11.5	
			46	5230	11.5	
			38	5180		13.5
			46	5230		18.0
		2 Tx HT20 CDD	36	5180	11.5	15.5
			40	5200	11.5	17.0
			48	5240	11.5	17.0
		2 Tx HT20 STBC	36	5180	11.5	15.5
			40	5200	11.5	17.0
			48	5240	11.5	17.0
		2 Tx HT20 SDM	36	5180	11.5	15.5
			40	5200	11.5	17.0
			48	5240	11.5	17.0
		2 Tx HT40 CDD	38	5190	11.5	12.5
			46	5230	11.5	18.0
		2 Tx HT40 STBC	38	5190	11.5	12.5
			46	5230	11.5	18.0
		2 Tx HT40 SDM	38	5190	11.5	12.5
			46	5230	11.5	18.0

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Maximum Output Power for Wi-Fi 5.2 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.2	802.11ac	1 Tx HT20	36	5180	11.5	
			40	5200	11.5	
			48	5240	11.5	
			36	5180		17.0
			40	5200		18.0
			48	5240		18.0
		1 Tx HT40	38	5180	11.5	
			46	5230	11.5	
			38	5180		13.5
			46	5230		18.0
		1 Tx VHT80	42	5210	11.5	
			42	5210		13.0
		2 Tx HT20 CDD	36	5180	11.5	15.5
			40	5200	11.5	17.0
			48	5240	11.5	17.0
		2 Tx HT20 STBC	36	5180	11.5	15.5
			40	5200	11.5	17.0
			48	5240	11.5	17.0
		2 Tx HT20 SDM	36	5180	11.5	15.5
			40	5200	11.5	17.0
			48	5240	11.5	17.0
		2 Tx HT40 CDD	38	5190	11.5	12.5
			46	5230	11.5	18.0
		2 Tx HT40 STBC	38	5190	11.5	12.5
			46	5230	11.5	18.0
		2 Tx HT40 SDM	38	5190	11.5	12.5
			46	5230	11.5	18.0
		2 Tx VHT80 CDD	38	5190	11.5	12.0
		2 Tx VHT80 STBC	38	5190	11.5	12.0
		2 Tx VHT80 SDM	38	5190	11.5	12.0

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Maximum Output Power for Wi-Fi 5.3 GHz P_{Cell_ON} (P_{low})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.3	802.11a	1 Tx	52	5260	11.0	
			56	5280	11.0	
			60	5300	11.0	
			64	5320	11.0	
			52	5260		18.0
			56	5280		18.0
			60	5300		18.0
			64	5320		17.0
		2 Tx CDD	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
	802.11n	1 Tx HT20	52	5260	11.0	
			56	5280	11.0	
			60	5300	11.0	
			64	5320	11.0	
			52	5260		18.0
			56	5280		18.0
			60	5300		18.0
			64	5320		17.0
		1 Tx HT40	54	5270	11.0	
			62	5310	11.0	
			54	5270		18.0
			62	5310		15.0
		2 Tx HT20 CDD	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
		2 Tx HT20 STBC	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
		2 Tx HT20 SDM	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
		2 Tx HT40 CDD	54	5270	11.0	18.0
			62	5310	11.0	14.5
		2 Tx HT40 STBC	54	5270	11.0	18.0
			62	5310	11.0	14.5
		2 Tx HT40 SDM	54	5270	11.0	18.0
			62	5310	11.0	14.5

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Maximum Output Power for Wi-Fi 5.3 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.3	802.11ac	1 Tx HT20	52	5260	11.0	
			60	5300	11.0	
			64	5320	11.0	
			52	5260		18.0
			60	5300		18.0
			64	5320		17.0
		1 Tx HT40	54	5270	11.0	
			62	5310	11.0	
			54	5270		18.0
			62	5310		15.0
		1 Tx VHT80	58	5290	11.0	
			58	5290		15.0
		2 Tx HT20 CDD	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
		2 Tx HT20 STBC	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
		2 Tx HT20 SDM	52	5260	11.0	17.0
			56	5280	11.0	17.0
			60	5300	11.0	17.0
			64	5320	11.0	16.0
		2 Tx HT40 CDD	54	5270	11.0	18.0
			62	5310	11.0	14.5
		2 Tx HT40 STBC	54	5270	11.0	18.0
			62	5310	11.0	14.5
		2 Tx HT40 SDM	54	5270	11.0	18.0
			62	5310	11.0	14.5
		2 Tx VHT80 CDD	54	5270	11.0	14.5
		2 Tx VHT80 STBC	54	5270	11.0	14.5
		2 Tx VHT80 SDM	54	5270	11.0	14.5

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_ON} (P_{low})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11a	1 Tx	100	5500	11.5	
			104	5520	11.5	
			108	5540	11.5	
			112	5560	11.5	
			116	5580	11.5	
			120	5600	11.5	
			124	5620	11.5	
			128	5640	11.5	
			132	5660	11.5	
			136	5680	11.5	
			140	5700	11.5	
			100	5500		17.0
			104	5520		18.0
			108	5540		18.0
			112	5560		18.0
			116	5580		18.0
			120	5600		18.0
			124	5620		18.0
			128	5640		18.0
			132	5660		18.0
			136	5680		18.0
			140	5700		15.0
		2 Tx CDD	100	5500	11.5	16.0
			104	5520	11.5	17.0
			108	5540	11.5	17.0
			112	5560	11.5	17.0
			116	5580	11.5	17.0
			120	5600	11.5	17.0
			124	5620	11.5	17.0
			128	5640	11.5	17.0
			132	5660	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11n	1 Tx HT20	100	5500	11.5	
			104	5520	11.5	
			120	5600	11.5	
			136	5680	11.5	
			140	5700	11.5	
			100	5500		17.0
			104	5520		18.0
			120	5600		18.0
			136	5680		18.0
			140	5700		15.0
		1 Tx HT40	102	5510	11.5	
			110	5550	11.5	
			118	5590	11.5	
			126	5630	11.5	
			134	5670	11.5	
			102	5510		15.0
			110	5550		18.0
			118	5590		18.0
			126	5630		18.0
			134	5670		14.0
		2 Tx HT20 CDD	100	5500	11.5	16.0
			104	5520	11.5	17.0
			120	5600	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0
		2 Tx HT20 STBC	100	5500	11.5	16.0
			104	5520	11.5	17.0
			120	5600	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0
		2 Tx HT20 SDM	100	5500	11.5	16.0
			104	5520	11.5	17.0
			120	5600	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0
		2 Tx HT40 CDD	102	5510	11.5	13.5
			110	5550	11.5	18.0
			118	5590	11.5	18.0
			126	5630	11.5	18.0
			134	5670	11.5	13.0
		2 Tx HT40 STBC	102	5510	11.5	13.5
			110	5550	11.5	18.0
			118	5590	11.5	18.0
			126	5630	11.5	18.0
			134	5670	11.5	13.0
		2 Tx HT40 SDM	102	5510	11.5	13.5
			110	5550	11.5	18.0
			118	5590	11.5	18.0
			126	5630	11.5	18.0
			134	5670	11.5	13.0

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11ac	1 Tx HT20	100	5500	11.5	
			104	5520	11.5	
			120	5600	11.5	
			136	5680	11.5	
			140	5700	11.5	
			100	5500		17.0
			104	5520		18.0
			120	5600		18.0
			136	5680		18.0
			140	5700		15.0
		1 Tx VHT40	102	5510	11.5	
			110	5550	11.5	
			118	5590	11.5	
			126	5630	11.5	
			134	5670	11.5	
			102	5510		15.0
			110	5550		18.0
			118	5590		18.0
			126	5630		18.0
			134	5670		14.0
		1 Tx VHT80	106	5530	11.5	
			122	5610	11.5	
			138	5690	11.5	
			106	5530		16.0
			122	5610		18.0
			138	5690		18.0
		2 Tx HT20 CDD	100	5500	11.5	16.0
			104	5520	11.5	17.0
			120	5600	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0
		2 Tx HT20 STBC	100	5500	11.5	16.0
			104	5520	11.5	17.0
			120	5600	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0
		2 Tx HT20 SDM	100	5500	11.5	16.0
			104	5520	11.5	17.0
			120	5600	11.5	17.0
			136	5680	11.5	17.0
			140	5700	11.5	14.0

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Maximum Output Power for Wi-Fi 5.5 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.5	802.11ac	2 Tx HT40 CDD	102	5510	11.5	13.5
			110	5550	11.5	18.0
			118	5590	11.5	18.0
			126	5630	11.5	18.0
			134	5670	11.5	13.0
		2 Tx HT40 STBC	102	5510	11.5	13.5
			110	5550	11.5	18.0
			118	5590	11.5	18.0
			126	5630	11.5	18.0
			134	5670	11.5	13.0
		2 Tx HT40 SDM	102	5510	11.5	13.5
			110	5550	11.5	18.0
			118	5590	11.5	18.0
			126	5630	11.5	18.0
			134	5670	11.5	13.0
		2 Tx VHT80 CDD	106	5530	11.5	14.0
			122	5610	11.5	18.0
			138	5690	11.5	18.0
		2 Tx VHT80 STBC	106	5530	11.5	14.0
			122	5610	11.5	18.0
			138	5690	11.5	18.0
		2 Tx VHT80 SDM	106	5530	11.5	14.0
			122	5610	11.5	18.0
			138	5690	11.5	18.0

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Maximum Output Power for Wi-Fi 5.8 GHz P_{Cell_ON} (P_{low})

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.8	802.11a	1 Tx	149	5745	12.0	
			153	5765	12.0	
			157	5785	12.0	
			161	5805	12.0	
			165	5825	12.0	
			149	5745		16.0
			153	5765		18.0
			157	5785		18.0
			161	5805		18.0
			165	5825		17.0
		2 Tx CDD	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
	802.11n	1 Tx HT20	149	5745	12.0	
			153	5765	12.0	
			157	5785	12.0	
			161	5805	12.0	
			165	5825	12.0	
			149	5745		16.0
			153	5765		18.0
			157	5785		18.0
			161	5805		18.0
			165	5825		17.0
		1 Tx HT40	151	5755	12.0	
			159	5795	12.0	
			151	5755		14.5
			159	5795		17.0
		2 Tx HT20 CDD	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
		2 Tx HT20 STBC	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
		2 Tx HT20 SDM	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
		2 Tx HT40 CDD	151	5755	12.0	14.0
			159	5795	12.0	16.0
		2 Tx HT40 STBC	151	5755	12.0	14.0
			159	5795	12.0	16.0
		2 Tx HT40 SDM	151	5755	12.0	14.0
			159	5795	12.0	16.0

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Maximum Output Power for Wi-Fi 5.8 GHz P_{Cell_ON} (P_{low}) continued

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)	
					Antenna B	Antenna C
5.8	802.11ac	1 Tx HT20	149	5745	12.0	
			153	5765	12.0	
			157	5785	12.0	
			161	5805	12.0	
			165	5825	12.0	
			149	5745		16.0
			153	5765		18.0
			157	5785		18.0
			161	5805		18.0
			165	5825		17.0
		1 Tx HT40	151	5755	12.0	
			159	5795	12.0	
			151	5755		14.5
			159	5795		17.0
		1 Tx VHT80	155	5775	12.0	
			155	5775		13.5
		2 Tx HT20 CDD	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
		2 Tx HT20 STBC	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
		2 Tx HT20 SDM	149	5745	12.0	15.0
			153	5765	12.0	18.0
			157	5785	12.0	18.0
			161	5805	12.0	18.0
			165	5825	12.0	16.0
		2 Tx HT40 CDD	151	5755	12.0	14.0
			159	5795	12.0	16.0
		2 Tx HT40 STBC	151	5755	12.0	14.0
			159	5795	12.0	16.0
		2 Tx HT40 SDM	151	5755	12.0	14.0
			159	5795	12.0	16.0
		2 Tx VHT80 CDD	155	5775	12.0	13.0
		2 Tx VHT80 STBC	155	5775	12.0	13.0
		2 Tx VHT80 SDM	155	5775	12.0	13.0

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6.4. Simultaneous Transmission Condition

RF Exposure Condition	Capable Transmit Configurations
Body	1. Antenna A Wi-Fi 2.4 GHz SISO+ Antenna B BT 2. Antenna A Wi-Fi 2.4 GHz SISO+ Antenna C BT 3. Antenna A + B Wi-Fi 2.4 GHz MIMO 4. Antenna A + C Wi-Fi 2.4 GHz MIMO 5. Antenna B Wi-Fi 5 GHz SISO + Antenna B BT 6. Antenna B Wi-Fi 5 GHz SISO + Antenna C BT 7. Antenna C Wi-Fi 5 GHz SISO + Antenna B BT 8. Antenna C Wi-Fi 5 GHz SISO + Antenna C BT 9. Antenna B + C Wi-Fi 5 GHz MIMO 10. Antenna B + C Wi-Fi 5 GHz MIMO + Antenna B BT 11. Antenna B + C Wi-Fi 5 GHz MIMO + Antenna C BT 12. Antenna D WWAN+ Antenna C BT 13. Antenna D WWAN + Antenna A Wi-Fi 2.4 GHz SISO 14. Antenna D WWAN + Antenna C Wi-Fi 2.4 GHz SISO 15. Antenna D WWAN + Antenna A Wi-Fi 2.4 GHz SISO+ Antenna C BT 16. Antenna D WWAN + Antenna A + C Wi-Fi 2.4 GHz MIMO 17. Antenna D WWAN + Antenna B Wi-Fi 5 GHz SISO 18. Antenna D WWAN + Antenna C Wi-Fi 5 GHz SISO 19. Antenna D WWAN + Antenna B Wi-Fi 5 GHz SISO + Antenna C BT 20. Antenna D WWAN + Antenna C Wi-Fi 5 GHz SISO + Antenna C BT 21. Antenna D WWAN + Antenna B + C Wi-Fi 5 GHz MIMO + Antenna C BT

Notes:
1. Antenna A is for Wi-Fi 2.4 GHz only
2. 2.4 GHz activity is disabled on Antenna B when cellular transmitter is on.
3. Wi-Fi 2.4GHz Radio on Antenna B and Antenna C cannot transmit simultaneously with Bluetooth Radio.
4. Wi-Fi on Antenna A and Antenna B uses $P_{Cell\ ON}$ power table when cellular transmitter is on.

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6.5. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Frequency range: 1850 - 1910 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	18700 /1860	18675/ 1857.5	18650/ 1855	18625/ 1852.5	18615/ 1851.5	18607/ 1850.7
	Mid	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
	High	19100/ 1900	19125/ 1902.5	19150/ 1905	19175/ 1907.5	19185/ 1908.5	19193/ 1909.3
	Band 4	Frequency range: 1710 - 1755 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20050/ 1720	20025/ 1717.5	20000/ 1715	19975/ 1712.5	19965/ 1711.5	19957/ 1710.7
	Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
	High	20300/ 1745	20325/ 1747.5	20350/ 1750	20375/ 1752.5	20385/ 1753.5	20393/ 1754.3
	Band 5	Frequency range: 824 - 849 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			20450/ 829	20425/ 826.5	20415/ 825.5	20407/ 824.7
	Mid			20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5
	High			20600/ 844	20625/ 846.5	20635/ 847.5	20643/ 848.3
	Band 13	Frequency range: 777 - 787 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23205/ 779.5		
	Mid			23230/ 782	23230/ 782		
	High				23255/ 784.5		
	Band 17	Frequency range: 704 - 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low				23755/ 706.5		
	Mid			23790/ 710	23790/ 710		
	High				23825/ 713.5		

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General LTE SAR Test and Reporting Considerations (Continued)

Frequency range, Channel Bandwidth, Numbers and Frequencies

Band 25	Frequency range: 1850 - 1915 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	26140/ 1860	26115/ 1857.5	26090/ 1855	26065/ 1852.5	26055/ 1851.5	26047/ 1850.7
Mid	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5	26365/ 1882.5
High	26590/ 1905	26615/ 1907.5	26640/ 1910	26665/ 1912.5	26675/ 1913.5	26683/ 1914.3

Band 26	Frequency range: 814 – 824 MHz (Channels straddle part 22 and part 90 not supported)					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low					26705/ 820.3	
Mid			26740/ 819	26865/ 821.3	26865/ 821.3	
High					27025/ 822.3	

Band 41	Frequency range: 2496 - 2690 MHz					
	Channel Bandwidth					
	20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
Low	39750/ 2506.0	39725/ 2503.5	39700/ 2501			
Low-Mid	40185/ 2549.5	40173/ 2548.3	40160/ 2547.0			
Mid	40620/ 2593.0	40620/ 2593.0	40620/ 2593.0			
Mid-High	41055/ 2636.5	41068/ 2547.8	41080/ 2639.0			
High	41490/ 2680.0	41515/ 2682.5	41540/ 2685.0			

LTE transmitter and antenna implementation

LTE transmits from Antenna D

Maximum power reduction (MPR)

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (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

MPR Built-in by design

A-MPR (additional MPR) was disabled during SAR testing

Spectrum plots for RB configurations

A properly configured base station simulator was used for the SAR and power measurements; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.

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6.6. LTE (TDD) Considerations

According to KDB 941225 D05 SAR for LTE Devices, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

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

LTE TDD Band 41 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

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

Table 4.2-2: Uplink-downlink configurations.

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

Calculated Duty Cycle

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

Calculated Duty Cycle = Extended cyclic prefix in uplink x (T_s) x # of S + # of U

<u>Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:</u>
Calculated Duty Cycle = 5120 x [1/(15000 x 2048)] x 2 + 6 ms = 63.33%
where
T_s = 1/(15000 x 2048) seconds

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6.7. Cellular State Dependent Wi-Fi Power

The following tables illustrate the operation of cellular state dependent Wi-Fi power by comparing Wi-Fi conducted output power levels with cellular inactive and with cellular active.

Wi-Fi SISO

Wi-Fi P_{Cell_OFF} (P_{max})

Cellular Inactive, Wi-Fi P_{Cell_OFF} (P_{max})														
Cellular Configuration		Wi-Fi SISO Configurations												
	Antenna D	Antenna A Tune-up Limit (dBm)	Antenna B Tune-up Limit (dBm)						Antenna C Tune-up Limit (dBm)					
Band	Tune-up Limit (dBm)	2.4 GHz	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth
GSM850	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
GSM1900	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
W-CDMA Band V	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
W-CDMA Band IV	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
W-CDMA Band II	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC0	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC1	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC10	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC15	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 2	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 4	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 5	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 13	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 17	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 25	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 26	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 41	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5

Wi-Fi P_{Cell_ON} (P_{low})

Cellular Active, Wi-Fi P_{Cell_ON} (P_{low})														
Cellular Configuration		Wi-Fi SISO Configurations												
	Antenna D	Antenna A Tune-up Limit (dBm)	Antenna B Tune-up Limit (dBm)						Antenna C Tune-up Limit (dBm)					
Band	Tune-up Limit (dBm)	2.4 GHz	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth
GSM850	25.0	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
GSM1900	20.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
W-CDMA Band V	19.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
W-CDMA Band IV	13.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
W-CDMA Band II	12.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC0	19.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC1	13.0	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC10	19.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC15	14.0	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 2	13.3	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 4	13.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 5	19.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 13	19.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 17	19.0	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 25	13.3	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 26	19.8	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 41	13.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5

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Wi-Fi MIMO

Wi-Fi P_{Cell_OFF} (P_{max})

Cellular Inactive, Wi-Fi P_{Cell_OFF} (P_{max})														
Cellular Configuration		Wi-Fi MIMO Configurations												
	Antenna D	Antenna A Tune-up Limit (dBm)	Antenna B Tune-up Limit (dBm)						Antenna C Tune-up Limit (dBm)					
Band	Tune-up Limit (dBm)	2.4 GHz	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth
GSM850	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
GSM1900	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
W-CDMA Band V	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
W-CDMA Band IV	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
W-CDMA Band II	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC0	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC1	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC10	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
CDMA BC15	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 2	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 4	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 5	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 13	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 17	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 25	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 26	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5
LTE Band 41	Inactive	13	18	17	16	16.5	17	10.5	16	18	18	18	18	10.5

Wi-Fi P_{Cell_ON} (P_{low})

Cellular Active, Wi-Fi P_{Cell_ON} (P_{low})														
Cellular Configuration		Wi-Fi MIMO Configurations												
	Antenna D	Antenna A Tune-up Limit (dBm)	Antenna B Tune-up Limit (dBm)						Antenna C Tune-up Limit (dBm)					
Band	Tune-up Limit (dBm)	2.4 GHz	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth	2.4 GHz	5.2 GHz	5.3 GHz	5.5 GHz	5.8 GHz	Bluetooth
GSM850	25	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
GSM1900	20.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
W-CDMA Band V	19.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
W-CDMA Band IV	13.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
W-CDMA Band II	12.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC0	19.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC1	13	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC10	19.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
CDMA BC15	14	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 2	13.3	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 4	13.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 5	19.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 13	19.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 17	19	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 25	13.3	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 26	19.75	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5
LTE Band 41	13.5	10.5	Disabled	11.5	11	11.5	12	Disabled	16	18	18	18	18	10.5

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7. RF Exposure Conditions (Test Configurations)

Refer to the Appendix “Antenna Locations and Separation Distances” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

The EUT implements the power reduction scheme for SAR compliance, for specific device configuration and orientations, as described below. The complete description of the implementation and functionality is provided in the “Operational Description of Power Reduction” exhibit.

7.1. Standalone SAR Test Exclusion Considerations

Since the *Dedicated Host Approach* is applied, the standalone SAR test exclusion procedure in KDB 447498 § 4.3.1 is applied in conjunction with KDB 616217 § 4.3 to determine the minimum test separation distance:

- When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.
- When the separation distance from the antenna to an adjacent edge is > 5 mm, the actual antenna-to-edge separation distance is applied to determine SAR test exclusion.

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7.1.1. SAR Test Exclusion Calculations for WWAN

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna D															
GPRS 2 Slots	848.8	24.50	70	17	2	17.1	227	914		12.9 -MEASURE-	12.9 -MEASURE-	3.8 -MEASURE-	> 50 mm	> 50 mm	
GPRS 2 Slots	1909.8	20.30	27	17	2	17.1	227	914		7.5 -MEASURE-	7.5 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
W-CDMA V	846.6	19.75	94	17	2	17.1	227	914		17.3 -MEASURE-	17.3 -MEASURE-	5.1 -MEASURE-	> 50 mm	> 50 mm	
W-CDMA IV	1752.6	13.75	24	17	2	17.1	227	914		6.4 -MEASURE-	6.4 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
W-CDMA II	1907.6	12.75	19	17	2	17.1	227	914		5.2 -MEASURE-	5.2 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
CDMA BC0	848.31	19.75	94	17	2	17.1	227	914		17.3 -MEASURE-	17.3 -MEASURE-	5.1 -MEASURE-	> 50 mm	> 50 mm	
CDMA BC1	1908.75	13.00	20	17	2	17.1	227	914		5.5 -MEASURE-	5.5 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
CDMA BC10	823.1	19.50	89	17	2	17.1	227	914		16.1 -MEASURE-	16.1 -MEASURE-	4.7 -MEASURE-	> 50 mm	> 50 mm	
CDMA BC15	1753.75	14.00	25	17	2	17.1	227	914		6.6 -MEASURE-	6.6 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
LTE Band 2	1900	13.25	21	17	2	17.1	227	914		5.8 -MEASURE-	5.8 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
LTE Band 4	1745	13.50	22	17	2	17.1	227	914		5.8 -MEASURE-	5.8 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
LTE Band 5	844	19.75	94	17	2	17.1	227	914		17.3 -MEASURE-	17.3 -MEASURE-	5.1 -MEASURE-	> 50 mm	> 50 mm	
LTE Band 13	782	19.50	89	17	2	17.1	227	914		15.7 -MEASURE-	15.7 -MEASURE-	4.6 -MEASURE-	> 50 mm	> 50 mm	
LTE Band 17	711	19.00	79	17	2	17.1	227	914		13.3 -MEASURE-	13.3 -MEASURE-	3.9 -MEASURE-	> 50 mm	> 50 mm	
LTE Band 25	1905	13.25	21	17	2	17.1	227	914		5.8 -MEASURE-	5.8 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	
LTE Band 26	844	19.75	94	17	2	17.1	227	914		17.3 -MEASURE-	17.3 -MEASURE-	5.1 -MEASURE-	> 50 mm	> 50 mm	
LTE Band 41	2680	13.50	22	17	2	17.1	227	914		7.2 -MEASURE-	7.2 -MEASURE-	2 -EXEMPT-	> 50 mm	> 50 mm	

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna D															
GPRS 2 Slots	848.8	24.50	70	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1164.4 mW -EXEMPT-	397.1mW -EXEMPT-	
GPRS 2 Slots	1909.8	20.30	27	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1878.5 mW -EXEMPT-	522.5 mW -EXEMPT-	
W-CDMA V	846.6	19.75	94	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1162 mW -EXEMPT-	396.7 mW -EXEMPT-	
W-CDMA IV	1752.6	13.75	24	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1883.3 mW -EXEMPT-	527.3 mW -EXEMPT-	
W-CDMA II	1907.6	12.75	19	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1878.6 mW -EXEMPT-	522.6 mW -EXEMPT-	
CDMA BC0	848.31	19.75	94	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1163.9 mW -EXEMPT-	397 mW -EXEMPT-	
CDMA BC1	1908.75	13.00	20	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1878.6 mW -EXEMPT-	522.6 mW -EXEMPT-	
CDMA BC10	823.1	19.50	89	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1136.6 mW -EXEMPT-	392.5 mW -EXEMPT-	
CDMA BC15	1753.75	14.00	25	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1883.3 mW -EXEMPT-	527.3 mW -EXEMPT-	
LTE Band 2	1900	13.25	21	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1878.8 mW -EXEMPT-	522.8 mW -EXEMPT-	
LTE Band 4	1745	13.50	22	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1883.6 mW -EXEMPT-	527.6 mW -EXEMPT-	
LTE Band 5	844	19.75	94	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1159.2 mW -EXEMPT-	396.2 mW -EXEMPT-	
LTE Band 13	782	19.50	89	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1092.4 mW -EXEMPT-	385.5 mW -EXEMPT-	
LTE Band 17	711	19.00	79	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1016.9 mW -EXEMPT-	374.1mW -EXEMPT-	
LTE Band 25	1905	13.25	21	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1878.7 mW -EXEMPT-	522.7 mW -EXEMPT-	
LTE Band 26	844	19.75	94	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1159.2 mW -EXEMPT-	396.2 mW -EXEMPT-	
LTE Band 41	2680	13.50	22	17	2	17.1	227	914		< 50 mm	< 50 mm	< 50 mm	1861.6 mW -EXEMPT-	505.6 mW -EXEMPT-	

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.

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7.1.2. SAR Test Exclusion Calculations for Wi-Fi P_{Cell_OFF} (P_{max}), SISO Transmit Conditions

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	13.00	20	17	2	109.8	227.1	23.5		6.3 -MEASURE-	6.3 -MEASURE-	>50 mm	>50 mm	1.3 -EXEMPT-	
Antenna B															
Wi-Fi 2.4 GHz	2462	18.00	63	17	2	914	227.1	60		19.8 -MEASURE-	19.8 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.2 GHz	5240	17.00	50	17	2	914	227.1	60		22.9 -MEASURE-	22.9 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.3 GHz	5320	16.00	40	17	2	914	227.1	60		18.5 -MEASURE-	18.5 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.5 GHz	5680	16.50	45	17	2	914	227.1	60		21.4 -MEASURE-	21.4 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.8 GHz	5825	17.00	50	17	2	914	227.1	60		24.1 -MEASURE-	24.1 -MEASURE-	>50 mm	>50 mm	>50 mm	
Bluetooth	2480	10.50	11	17	2	914	227.1	60		3.5 -MEASURE-	3.5 -MEASURE-	>50 mm	>50 mm	>50 mm	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		12.6 -MEASURE-	>50 mm	>50 mm	12.6 -MEASURE-	7 -MEASURE-	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		28.8 -MEASURE-	>50 mm	>50 mm	28.8 -MEASURE-	16 -MEASURE-	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		29 -MEASURE-	>50 mm	>50 mm	29 -MEASURE-	16.1 -MEASURE-	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		29.8 -MEASURE-	>50 mm	>50 mm	29.8 -MEASURE-	16.6 -MEASURE-	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		30.4 -MEASURE-	>50 mm	>50 mm	30.4 -MEASURE-	16.9 -MEASURE-	
Bluetooth	2480	10.50	11	5.2	228.8	128.3	3.1	9.4		3.5 -MEASURE-	>50 mm	>50 mm	3.5 -MEASURE-	1.9 -EXEMPT-	

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	13.00	20	17	2	109.8	227.1	23.5		<50 mm	<50 mm	693.6 mW -EXEMPT-	1866.6 mW -EXEMPT-	<50 mm	
Antenna B															
Wi-Fi 2.4 GHz	2462	18.00	63	17	2	914	227.1	60		<50 mm	<50 mm	509.6 mW -EXEMPT-	1866.6 mW -EXEMPT-	195.6 mW -EXEMPT-	
Wi-Fi 5.2 GHz	5240	17.00	50	17	2	914	227.1	60		<50 mm	<50 mm	479.5 mW -EXEMPT-	1836.5 mW -EXEMPT-	165.5 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	16.00	40	17	2	914	227.1	60		<50 mm	<50 mm	479 mW -EXEMPT-	1836 mW -EXEMPT-	165 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5680	16.50	45	17	2	914	227.1	60		<50 mm	<50 mm	476.9 mW -EXEMPT-	1833.9 mW -EXEMPT-	162.9 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	17.00	50	17	2	914	227.1	60		<50 mm	<50 mm	476.2 mW -EXEMPT-	1833.2 mW -EXEMPT-	162.2 mW -EXEMPT-	
Bluetooth	2480	10.50	11	17	2	914	227.1	60		<50 mm	<50 mm	509.3 mW -EXEMPT-	1866.3 mW -EXEMPT-	195.3 mW -EXEMPT-	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		<50 mm	1883.6 mW -EXEMPT-	878.6 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1853.5 mW -EXEMPT-	848.5 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1853.2 mW -EXEMPT-	848.2 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1851.4 mW -EXEMPT-	846.4 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1850.2 mW -EXEMPT-	845.2 mW -EXEMPT-	<50 mm	<50 mm	
Bluetooth	2480	10.50	11	5.2	228.8	128.3	3.1	9.4		<50 mm	1883.3 mW -EXEMPT-	878.3 mW -EXEMPT-	<50 mm	<50 mm	

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.

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7.1.3. SAR Test Exclusion Calculations for Wi-Fi P_{Cell_OFF} (P_{max}), MIMO Transmit Conditions

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	13.00	20	17	2	109.8	227.1	23.5		6.3 -MEASURE-	6.3 -MEASURE-	>50 mm	>50 mm	1.3 -EXEMPT-	
Antenna B															
Wi-Fi 2.4 GHz	2462	18.00	63	17	2	91.4	227.1	60		19.8 -MEASURE-	19.8 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.2 GHz	5230	17.00	50	17	2	91.4	227.1	60		22.9 -MEASURE-	22.9 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.3 GHz	5320	16.00	40	17	2	91.4	227.1	60		18.5 -MEASURE-	18.5 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.5 GHz	5680	16.50	45	17	2	91.4	227.1	60		21.4 -MEASURE-	21.4 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.8 GHz	5805	17.00	50	17	2	91.4	227.1	60		24.1 -MEASURE-	24.1 -MEASURE-	>50 mm	>50 mm	>50 mm	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		12.6 -MEASURE-	>50 mm	>50 mm	12.6 -MEASURE-	7 -MEASURE-	
Wi-Fi 5.2 GHz	5230	18.00	63	5.2	228.8	128.3	3.1	9.4		28.8 -MEASURE-	>50 mm	>50 mm	28.8 -MEASURE-	16 -MEASURE-	
Wi-Fi 5.3 GHz	5270	18.00	63	5.2	228.8	128.3	3.1	9.4		28.9 -MEASURE-	>50 mm	>50 mm	28.9 -MEASURE-	16.1 -MEASURE-	
Wi-Fi 5.5 GHz	5690	18.00	63	5.2	228.8	128.3	3.1	9.4		30.1 -MEASURE-	>50 mm	>50 mm	30.1 -MEASURE-	16.7 -MEASURE-	
Wi-Fi 5.8 GHz	5805	18.00	63	5.2	228.8	128.3	3.1	9.4		30.4 -MEASURE-	>50 mm	>50 mm	30.4 -MEASURE-	16.9 -MEASURE-	

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	13.00	20	17	2	109.8	227.1	23.5		6.3 -MEASURE-	6.3 -MEASURE-		>50 mm	1.3 -EXEMPT-	
Antenna B															
Wi-Fi 2.4 GHz	2462	18.00	63	17	2	91.4	227.1	60		19.8 -MEASURE-	19.8 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.2 GHz	5230	17.00	50	17	2	91.4	227.1	60		22.9 -MEASURE-	22.9 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.3 GHz	5320	16.00	40	17	2	91.4	227.1	60		18.5 -MEASURE-	18.5 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.5 GHz	5680	16.50	45	17	2	91.4	227.1	60		21.4 -MEASURE-	21.4 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.8 GHz	5805	17.00	50	17	2	91.4	227.1	60		24.1 -MEASURE-	24.1 -MEASURE-	>50 mm	>50 mm	>50 mm	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		12.6 -MEASURE-	>50 mm	>50 mm	12.6 -MEASURE-	7 -MEASURE-	
Wi-Fi 5.2 GHz	5230	18.00	63	5.2	228.8	128.3	3.1	9.4		28.8 -MEASURE-	>50 mm	>50 mm	28.8 -MEASURE-	16 -MEASURE-	
Wi-Fi 5.3 GHz	5270	18.00	63	5.2	228.8	128.3	3.1	9.4		28.9 -MEASURE-	>50 mm	>50 mm	28.9 -MEASURE-	16.1 -MEASURE-	
Wi-Fi 5.5 GHz	5690	18.00	63	5.2	228.8	128.3	3.1	9.4		30.1 -MEASURE-	>50 mm	>50 mm	30.1 -MEASURE-	16.7 -MEASURE-	
Wi-Fi 5.8 GHz	5805	18.00	63	5.2	228.8	128.3	3.1	9.4		30.4 -MEASURE-	>50 mm	>50 mm	30.4 -MEASURE-	16.9 -MEASURE-	

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.

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7.1.4. SAR Test Exclusion Calculations for Wi-Fi P_{Cell_ON} (P_{low}), SISO Transmit Conditions

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	7.00	5	17	2	109.8	227.1	23.5		16 -EXEMPT-	16 -EXEMPT-	>50 mm	>50 mm	0.3 -EXEMPT-	
Antenna B															
Wi-Fi 5.2 GHz	5240	11.50	14	17	2	914	227.1	60		6.4 -MEASURE-	6.4 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.3 GHz	5320	11.00	13	17	2	914	227.1	60		6 -MEASURE-	6 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.5 GHz	5680	11.50	14	17	2	914	227.1	60		6.7 -MEASURE-	6.7 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.8 GHz	5825	12.00	16	17	2	914	227.1	60		7.7 -MEASURE-	7.7 -MEASURE-	>50 mm	>50 mm	>50 mm	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		12.6 -MEASURE-	>50 mm	>50 mm	12.6 -MEASURE-	7 -MEASURE-	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		28.8 -MEASURE-	>50 mm	>50 mm	28.8 -MEASURE-	16 -MEASURE-	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		29 -MEASURE-	>50 mm	>50 mm	29 -MEASURE-	16.1 -MEASURE-	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		29.8 -MEASURE-	>50 mm	>50 mm	29.8 -MEASURE-	16.6 -MEASURE-	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		30.4 -MEASURE-	>50 mm	>50 mm	30.4 -MEASURE-	16.9 -MEASURE-	

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	7.00	5	17	2	109.8	227.1	23.5		<50 mm	<50 mm	693.6 mW -EXEMPT-	1866.6 mW -EXEMPT-	<50 mm	
Antenna B															
Wi-Fi 5.2 GHz	5240	11.50	14	17	2	914	227.1	60		<50 mm	<50 mm	479.5 mW -EXEMPT-	1836.5 mW -EXEMPT-	165.5 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	11.00	13	17	2	914	227.1	60		<50 mm	<50 mm	479 mW -EXEMPT-	1836 mW -EXEMPT-	165 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5680	11.50	14	17	2	914	227.1	60		<50 mm	<50 mm	476.9 mW -EXEMPT-	1833.9 mW -EXEMPT-	162.9 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	12.00	16	17	2	914	227.1	60		<50 mm	<50 mm	476.2 mW -EXEMPT-	1833.2 mW -EXEMPT-	162.2 mW -EXEMPT-	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		<50 mm	1883.6 mW -EXEMPT-	878.6 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1853.5 mW -EXEMPT-	848.5 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1853.2 mW -EXEMPT-	848.2 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1851.4 mW -EXEMPT-	846.4 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1850.2 mW -EXEMPT-	845.2 mW -EXEMPT-	<50 mm	<50 mm	

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.

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7.1.5. SAR Test Exclusion Calculations for Wi-Fi P_{Cell_ON} (P_{low}), MIMO Transmit Conditions

Antennas < 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	7.00	5	17	2	109.8	227.1	23.5		16 -EXEMPT-	16 -EXEMPT-	>50 mm	>50 mm	0.3 -EXEMPT-	
Antenna B															
Wi-Fi 5.2 GHz	5240	11.50	14	17	2	91.4	227.1	60		6.4 -MEASURE-	6.4 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.3 GHz	5320	11.00	13	17	2	91.4	227.1	60		6 -MEASURE-	6 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.5 GHz	5680	11.50	14	17	2	91.4	227.1	60		6.7 -MEASURE-	6.7 -MEASURE-	>50 mm	>50 mm	>50 mm	
Wi-Fi 5.8 GHz	5825	12.00	16	17	2	91.4	227.1	60		7.7 -MEASURE-	7.7 -MEASURE-	>50 mm	>50 mm	>50 mm	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		12.6 -MEASURE-	>50 mm	>50 mm	12.6 -MEASURE-	7 -MEASURE-	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		28.8 -MEASURE-	>50 mm	>50 mm	28.8 -MEASURE-	16 -MEASURE-	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		29 -MEASURE-	>50 mm	>50 mm	29 -MEASURE-	16.1 -MEASURE-	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		29.8 -MEASURE-	>50 mm	>50 mm	29.8 -MEASURE-	16.6 -MEASURE-	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		30.4 -MEASURE-	>50 mm	>50 mm	30.4 -MEASURE-	16.9 -MEASURE-	

Note(s):

1. According to KDB 447498, if the calculated threshold value is >3 then SAR testing is required.

Antennas > 50mm to adjacent edges

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Calculated Threshold Value					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	7.00	5	17	2	109.8	227.1	23.5		<50 mm	<50 mm	693.6 mW -EXEMPT-	1866.6 mW -EXEMPT-	<50 mm	
Antenna B															
Wi-Fi 5.2 GHz	5240	11.50	14	17	2	91.4	227.1	60		<50 mm	<50 mm	479.5 mW -EXEMPT-	1836.5 mW -EXEMPT-	165.5 mW -EXEMPT-	
Wi-Fi 5.3 GHz	5320	11.00	13	17	2	91.4	227.1	60		<50 mm	<50 mm	479 mW -EXEMPT-	1836 mW -EXEMPT-	165 mW -EXEMPT-	
Wi-Fi 5.5 GHz	5680	11.50	14	17	2	91.4	227.1	60		<50 mm	<50 mm	476.9 mW -EXEMPT-	1833.9 mW -EXEMPT-	162.9 mW -EXEMPT-	
Wi-Fi 5.8 GHz	5825	12.00	16	17	2	91.4	227.1	60		<50 mm	<50 mm	476.2 mW -EXEMPT-	1833.2 mW -EXEMPT-	162.2 mW -EXEMPT-	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		<50 mm	1883.6 mW -EXEMPT-	878.6 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1853.5 mW -EXEMPT-	848.5 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1853.2 mW -EXEMPT-	848.2 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1851.4 mW -EXEMPT-	846.4 mW -EXEMPT-	<50 mm	<50 mm	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		<50 mm	1850.2 mW -EXEMPT-	845.2 mW -EXEMPT-	<50 mm	<50 mm	

Note(s):

1. According to KDB 447498, if the calculated Power threshold is less than the output power then SAR testing is required.

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7.2. Required Test Configurations

Based on Section 7.1, the test configurations required for this device were determined to be as follows:

Test Configurations	Rear	Edge 1 (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)
GSM850	Yes	Yes	Yes	No	No
GSM1900	Yes	Yes	No	No	No
W-CDMA Band V	Yes	Yes	Yes	No	No
W-CDMA Band IV	Yes	Yes	No	No	No
W-CDMA Band II	Yes	Yes	No	No	No
CDMA BC0	Yes	Yes	Yes	No	No
CDMA BC1	Yes	Yes	No	No	No
CDMA BC10	Yes	Yes	Yes	No	No
CDMA BC15	Yes	Yes	No	No	No
LTE Band 2	Yes	Yes	No	No	No
LTE Band 4	Yes	Yes	No	No	No
LTE Band 5	Yes	Yes	Yes	No	No
LTE Band 13	Yes	Yes	Yes	No	No
LTE Band 17	Yes	Yes	Yes	No	No
LTE Band 25	Yes	Yes	No	No	No
LTE Band 26	Yes	Yes	Yes	No	No
LTE Band 41	Yes	Yes	No	No	No
Wi-Fi P_{max}, SISO, 2.4 GHz, Antenna A	Yes	Yes	No	No	Yes
Wi-Fi P_{max}, SISO, 2.4 GHz, Antenna B	Yes	Yes	No	No	No
Wi-Fi P_{max}, SISO, 2.4 GHz, Antenna C	Yes	No	No	Yes	Yes
Wi-Fi P_{max}, SISO, 5 GHz, Antenna B	Yes	Yes	No	No	No
Wi-Fi P_{max}, SISO, 5 GHz, Antenna C	Yes	No	No	Yes	Yes
Wi-Fi P_{max}, MIMO, 2.4 GHz, Antenna A + B	Yes	Yes	No	No	Yes
Wi-Fi P_{max}, MIMO, 2.4 GHz, Antenna A + C	Yes	Yes	No	Yes	Yes
Wi-Fi P_{max}, MIMO, 5 GHz, Antenna B + C	Yes	Yes	No	Yes	Yes
Wi-Fi P_{low}, SISO, 2.4 GHz, Antenna A	Yes	Yes	No	No	No
Wi-Fi P_{low}, SISO, 2.4 GHz, Antenna C	Yes	No	No	Yes	Yes
Wi-Fi P_{low}, SISO, 5 GHz, Antenna B	Yes	Yes	No	No	No
Wi-Fi P_{low}, SISO, 5 GHz, Antenna C	Yes	No	No	Yes	Yes
Wi-Fi P_{low}, MIMO, 2.4 GHz, Antenna A + C	Yes	Yes	No	Yes	Yes
Wi-Fi P_{low}, MIMO, 5 GHz, Antenna B + C	Yes	Yes	No	Yes	Yes
Bluetooth, Antenna B	Yes	Yes	No	No	No
Bluetooth, Antenna C	Yes	No	No	Yes	No

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8. Conducted Output Power Measurements

8.1. GSM850 and GSM1900

GSM850 Measured Results

GPRS (GMSK) - Coding Scheme: CS1						
Band	Ch No.	Freq. (MHz)	Emission Power		Body Power	
			1 slot	2 slots	1 slot	2 slots
			Burst Power (dBm)			
850	128	824.2	33.3	32.4	27.6	**23.7**
	190	836.6	33.3	32.3	27.6	**24.3**
	251	848.8	33.2	32.4	27.7	**24.5**
			Frame Power (dBm)			
850	128	824.2	24.3	26.4	18.6	**17.7**
	190	836.6	24.2	26.3	18.6	**18.3**
	251	848.8	24.2	26.4	18.7	**18.5**

EGPRS (8PSK) - Coding Scheme: MCS5						
Band	Ch No.	Freq. (MHz)	Emission Power		Body Power	
			1 slot	2 slots	1 slot	2 slots
			Burst Power (dBm)			
850	128	824.2	29.0	28.9	27.2	23.6
	190	836.6	28.9	28.9	27.2	24.2
	251	848.8	28.9	28.9	27.2	24.1
			Frame Power (dBm)			
850	128	824.2	20.0	22.9	18.2	17.6
	190	836.6	19.9	22.9	18.2	18.2
	251	848.8	19.8	22.8	18.2	18.1

Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- GMSK (GPRS) mode with 2 time slots, based on the output power measurements above
- SAR is not required for EGPRS (8PSK) mode because its output power is no greater than that of GPRS Mode

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GSM1900 Measured Results

GPRS (GMSK) - Coding Scheme: CS1						
Band	Ch No.	Freq. (MHz)	Emission Power		Body Power	
			1 slot	2 slots	1 slot	2 slots
			Burst Power (dBm)			
1900	512	1850.2	30.5	29.4	22.3	**19.3**
	661	1880	30.4	29.3	22.2	**19.8**
	810	1909.8	30.5	29.4	22.0	**19.8**
			Frame Power (dBm)			
1900	512	1850.2	21.4	23.3	13.2	**13.3**
	661	1880	21.4	23.3	13.1	**13.8**
	810	1909.8	21.5	23.4	13.0	**13.8**

EGPRS (8PSK) - Coding Scheme: MCS5						
Band	Ch No.	Freq. (MHz)	Emission Power		Body Power	
			1 slot	2 slots	1 slot	2 slots
			Burst Power (dBm)			
1900	512	1850.2	28.0	27.8	22.2	19.0
	661	1880	27.8	27.7	22.1	19.0
	810	1909.8	27.8	27.7	22.0	19.0
			Frame Power (dBm)			
1900	512	1850.2	18.9	21.7	13.1	13.0
	661	1880	18.8	21.7	13.1	13.0
	810	1909.8	18.8	21.7	13.0	13.0

Notes:

The worst-case configuration and mode for SAR testing is determined to be as follows:

- GMSK (GPRS) mode with 2 time slots, based on the output power measurements above
- SAR is not required for EGPRS (8PSK) mode because its output power is no greater than that of GPRS Mode

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8.2. W-CDMA Band V, IV, and II

For HSPA and DC-HSDPA, output power data was obtained from EMC RF report.

Release 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Release 99 Measured Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	24.9	19.5
		4183	836.6	25.0	19.5
		4233	846.6	24.9	19.5
W-CDMA Band IV	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	23.5	13.8
		1413	1732.6	23.5	13.2
		1513	1752.6	23.4	13.7
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	23.5	12.8
		9400	1880.0	23.4	12.5
		9538	1907.6	23.5	12.8

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HSDPA

The following 4 Sub-tests were completed according to Release 7 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
W-CDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	1	1.5	1.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

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HSDPA Measured Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
W-CDMA Band V	Subtest 1	4132	826.4	24.2	19.4
		4183	836.6	23.9	19.4
		4233	846.6	23.4	19.5
	Subtest 2	4132	826.4	24.1	19.3
		4183	836.6	24.0	19.2
		4233	846.6	23.8	19.2
	Subtest 3	4132	826.4	23.6	18.8
		4183	836.6	23.9	18.8
		4233	846.6	23.4	18.8
	Subtest 4	4132	826.4	23.6	18.7
		4183	836.6	23.5	18.7
		4233	846.6	23.4	18.8
W-CDMA Band IV	Subtest 1	1312	1712.4	22.5	13.6
		1413	1732.6	22.4	13.1
		1513	1752.6	22.5	13.7
	Subtest 2	1312	1712.4	22.5	13.5
		1413	1732.6	22.4	13.1
		1513	1752.6	22.4	13.6
	Subtest 3	1312	1712.4	22.0	13.0
		1413	1732.6	21.9	12.5
		1513	1752.6	21.9	13.0
	Subtest 4	1312	1712.4	22.0	13.0
		1413	1732.6	22.0	12.8
		1513	1752.6	21.9	13.0
W-CDMA Band II	Subtest 1	9262	1852.4	22.4	12.7
		9400	1880.0	22.5	12.6
		9538	1907.6	22.5	12.7
	Subtest 2	9262	1852.4	22.4	12.7
		9400	1880.0	22.0	12.6
		9538	1907.6	22.2	12.5
	Subtest 3	9262	1852.4	22.0	12.1
		9400	1880.0	21.9	12.1
		9538	1907.6	22.1	12.2
	Subtest 4	9262	1852.4	22.0	12.1
		9400	1880.0	21.9	12.0
		9538	1907.6	22.0	12.2

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HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSPA	HSPA	HSPA	HSPA	HSPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

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HSUPA Measured Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
W-CDMA Band V	Subtest 1	4132	826.4	24.1	18.9
		4183	836.6	24.0	19.0
		4233	846.6	24.1	18.9
	Subtest 2	4132	826.4	23.5	18.0
		4183	836.6	23.5	17.9
		4233	846.6	23.5	18.0
	Subtest 3	4132	826.4	22.8	18.0
		4183	836.6	22.8	18.1
		4233	846.6	22.8	18.2
	Subtest 4	4132	826.4	24.0	18.3
		4183	836.6	24.0	18.4
		4233	846.6	24.0	18.5
	Subtest 5	4132	826.4	24.1	19.4
		4183	836.6	24.1	19.5
		4233	846.6	24.0	19.5
W-CDMA Band IV	Subtest 1	1312	1712.4	22.1	13.4
		1413	1732.6	22.1	13.2
		1513	1752.6	22.3	13.8
	Subtest 2	1312	1712.4	21.7	12.1
		1413	1732.6	21.6	11.6
		1513	1752.6	21.6	12.1
	Subtest 3	1312	1712.4	21.0	12.6
		1413	1732.6	20.8	12.1
		1513	1752.6	20.9	12.6
	Subtest 4	1312	1712.4	22.2	12.4
		1413	1732.6	22.1	12.1
		1513	1752.6	22.1	12.7
	Subtest 5	1312	1712.4	22.3	12.9
		1413	1732.6	22.1	12.3
		1513	1752.6	22.3	12.8
W-CDMA Band II	Subtest 1	9262	1852.4	22.2	12.5
		9400	1880.0	22.2	12.6
		9538	1907.6	22.3	12.7
	Subtest 2	9262	1852.4	21.6	11.7
		9400	1880.0	21.6	11.4
		9538	1907.6	22.4	11.6
	Subtest 3	9262	1852.4	20.9	12.1
		9400	1880.0	20.9	11.9
		9538	1907.6	21.7	12.0
	Subtest 4	9262	1852.4	22.1	12.1
		9400	1880.0	22.2	11.9
		9538	1907.6	22.3	11.9
	Subtest 5	9262	1852.4	22.2	12.7
		9400	1880.0	22.2	12.5
		9538	1907.6	22.3	12.7

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DC-HSDPA

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

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

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

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.		

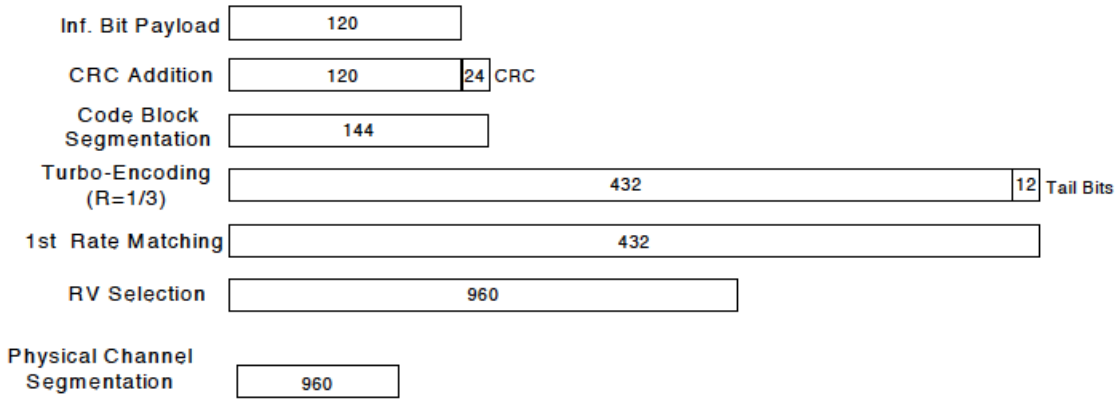

Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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The following 4 Sub-tests for HSDPA were completed according to Release 8 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

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

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DC-HSDPA Measured Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
W-CDMA Band V	Subtest 1	4132	826.4	24.0	19.4
		4183	836.6	24.0	19.4
		4233	846.6	24.0	19.4
	Subtest 2	4132	826.4	23.9	19.4
		4183	836.6	23.9	19.4
		4233	846.6	23.9	19.5
	Subtest 3	4132	826.4	23.5	19.0
		4183	836.6	23.5	19.0
		4233	846.6	23.5	19.0
	Subtest 4	4132	826.4	23.5	18.9
		4183	836.6	23.6	19.0
		4233	846.6	23.4	19.0
W-CDMA Band IV	Subtest 1	1312	1712.4	22.5	13.7
		1413	1732.6	22.4	13.1
		1513	1752.6	22.3	13.7
	Subtest 2	1312	1712.4	22.5	13.7
		1413	1732.6	22.4	13.2
		1513	1752.6	22.4	13.7
	Subtest 3	1312	1712.4	21.9	13.6
		1413	1732.6	21.9	13.2
		1513	1752.6	22.0	13.5
	Subtest 4	1312	1712.4	21.9	13.5
		1413	1732.6	21.9	13.2
		1513	1752.6	21.9	13.5
W-CDMA Band II	Subtest 1	9262	1852.4	22.4	12.8
		9400	1880.0	22.4	12.5
		9538	1907.6	22.4	12.8
	Subtest 2	9262	1852.4	22.3	12.7
		9400	1880.0	22.4	12.6
		9538	1907.6	22.5	12.6
	Subtest 3	9262	1852.4	21.8	12.6
		9400	1880.0	21.9	12.1
		9538	1907.6	22.1	12.3
	Subtest 4	9262	1852.4	21.8	12.5
		9400	1880.0	21.9	12.1
		9538	1907.6	22.1	12.2

HSPA+

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, i.e., CAT 6 Rel 6. Therefore, the RF conducted power is not measured.

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8.3. CDMA BC0, BC1, BC10, and BC15

For 1xAdvanced, 1xEV-DO Rev. A, and 1xEV-DO Rev. B, output power was obtained from EMC RF report.

1xRTT Measured Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
BC 0	RC1 SO55 (Loopback)	1013	824.70	24.4	19.2
		384	836.52	24.5	19.3
		777	848.31	24.5	19.2
	RC3 SO55 (Loopback)	1013	824.70	24.4	19.2
		384	836.52	24.5	19.3
		777	848.31	24.5	19.3
	RC3 SO32 (+F-SCH)	1013	824.70	24.4	19.2
		384	836.52	24.4	19.3
		777	848.31	24.5	19.3
BC 1	RC1 SO55 (Loopback)	25	1851.25	23.5	13.0
		600	1880.00	23.5	12.8
		1175	1908.75	23.5	12.9
	RC3 SO55 (Loopback)	25	1851.25	23.5	13.0
		600	1880.00	23.5	12.8
		1175	1908.75	23.5	12.9
	RC3 SO32 (+F-SCH)	25	1851.25	23.5	13.0
		600	1880.00	23.5	12.7
		1175	1908.75	23.5	12.9
BC 10	RC1 SO55 (Loopback)	476	817.9	24.9	19.3
		580	820.5	24.9	19.3
		684	823.1	24.9	19.3
	RC3 SO55 (Loopback)	476	817.9	24.9	19.3
		580	820.5	24.8	19.3
		684	823.1	24.9	19.3
	RC3 SO32 (+F-SCH)	476	817.9	24.9	19.3
		580	820.5	24.8	19.3
		684	823.1	24.8	19.3
BC 15	RC1 SO55 (Loopback)	25	1711.25	23.5	13.9
		450	1732.50	23.5	13.6
		875	1753.75	23.4	14.0
	RC3 SO55 (Loopback)	25	1711.25	23.5	13.9
		450	1732.50	23.5	13.5
		875	1753.75	23.4	14.0
	RC3 SO32 (+F-SCH)	25	1711.25	23.5	14.0
		450	1732.50	23.4	13.7
		875	1753.75	23.4	14.0

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1x Advanced

Call box setup procedure

- Protocol Rev > 6 (IS-2000-0)
- System ID: 331; NID: 65535
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

1x Advanced Measured Results

Band	Mode	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
BC 0	Fwd11/Rvs8 SO75 (Loopback)	1013	824.70	24.4	19.2
		384	836.52	24.5	19.3
		777	848.31	24.5	19.3
BC 1	Fwd11/Rvs8 SO75 (Loopback)	25	1851.25	23.5	12.9
		600	1880.00	23.5	12.7
		1175	1908.75	23.5	12.9
BC 10	Fwd11/Rvs8 SO75 (Loopback)	476	817.9	24.9	19.3
		580	820.5	24.9	19.3
		684	823.1	24.9	19.2
BC 15	Fwd11/Rvs8 SO75 (Loopback)	25	1711.25	23.5	13.9
		450	1732.50	23.5	13.7
		875	1753.75	23.5	13.9

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1xEV-DO Rel. 0 Measured Results

Band	FTAP Rate	RTAP Rate	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
					Emission Power	Body Power
BC 0	307.2 kbps (2 slot, QPSK)	153.6 kbps	1013	824.70	24.5	19.2
			384	836.52	24.5	19.3
			777	848.31	24.5	19.3
BC1	307.2 kbps (2 slot, QPSK)	153.6 kbps	25	1851.25	23.5	13.0
			600	1880.00	23.4	12.7
			1175	1908.75	23.3	12.9
BC10	307.2 kbps (2 slot, QPSK)	153.6 kbps	476	817.9	25.0	19.3
			580	820.5	24.9	19.3
			684	823.1	25.0	19.3
BC15	307.2 kbps (2 slot, QPSK)	153.6 kbps	25	1711.25	23.5	14.0
			450	1732.50	23.5	13.7
			875	1753.75	23.5	14.0

1xEV-DO Rev. A Measured Results

Band	FETAP Traffic Format	RETAP Data Payload Size	UL Ch No.	Freq. (MHz)	Avg Pwr (dBm)	
					Emission Power	Body Power
BC 0	307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	1013	824.70	24.5	19.4
			384	836.52	24.5	19.4
			777	848.31	24.5	19.4
BC1	307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	25	1851.25	23.5	12.8
			600	1880.00	23.5	12.7
			1175	1908.75	23.3	12.8
BC10	307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	476	817.9	25.0	19.2
			580	820.5	25.0	19.2
			684	823.1	25.0	19.3
BC15	307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	25	1711.25	23.5	13.8
			450	1732.50	23.5	13.7
			875	1753.75	23.4	13.9

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1xEV-DO Rev. B

Call box setup procedure

1xEV-DO Release B

- CMW 500 Signal Generator > 1xEV-DO Taskbar Enable
- CMW 500 1xEV-DO Signaling Configuration Window >
- 1xEV-DO Signaling On Window:
  Under Access Network Control:
  Band Class: BC0: US Cellular
  RF Channel: 31
  1xEV-DO Power: -70 dBm
  Release B

- 1xEV-DO Signaling Configuration Window

  Under RF Frequency Band / Channel: Enter Ch. Frequency
  - Under Carrier Configuration: RF Frequency

    For Two Carriers: Low Channel (1013)

	RF Channel	RF Channel Offset
Carrier [0]	31	0
Carrier [1]	1013	982

  - Under Carrier Configuration: RF Pilot

	Carrier Sector	Active on AN	Assigned to AT
Pilot [0]	C0/S0	✓	✓
	CA/S1	✓	✓

    For Three Carriers: Low Channel (1013)

	RF Channel	RF Channel Offset
Carrier [0]	72	0
Carrier [1]	31	-41
Carrier [2]	1013	941

  - Under Carrier Configuration: RF Pilot

	Carrier Sector	Active on AN	Assigned to AT
Pilot [0]	C0/S0	✓	✓
Pilot [1]	C1/S1	✓	✓
Pilot [2]	C2/S2	✓	✓

- Rvs Power Ctrl > All Up bits (to get the maximum power)

1xEV-DO Rev. B Measured Results

Band	Test Set #	Channel	f (MHz)	Avg Pwr (dBm)	
				Emission Power	Body Power
BC0	Two Carrier Mini Separation	1013+31	824.70+825.93	22.0	19.2
		384+425	836.52+837.75	21.9	19.3
		736+777	847.08+848.31	21.9	19.3
	Two Carrier Max Separation	1013+156	824.70+829.68	22.0	19.1
		384+550	836.52+841.50	22.0	19.2
		611+777	843.33+848.31	22.0	19.1
	Three Carrier Max Separation	1013+31+72	824.70+825.93+827.16	22.0	19.2
		384+425+466	836.52+837.75+838.98	21.9	19.3
		695+736+777	845.85+847.08+848.31	21.9	19.3

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8.4. LTE Bands 2, 4, 5, 13, 17, 25, 26, & 41

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (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

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signalling Value of “NS_01”.

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

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8.4.1. LTE Band 2

LTE Band 2 Measured Results

LTE Band 2		Emission Power				Body Power			
20 MHz BW QPSK		Target MPR	18700.00	18900.00	19100.00	Target MPR	18700.00	18900.00	19100.00
No. of RB	RB Offset		1860 MHz	1880 MHz	1900 MHz		1860 MHz	1880 MHz	1900 MHz
1	0	0	23.5	23.5	23.5	0	13.2	13.2	13.2
1	49	0	23.5	23.5	23.5	0	13.2	13.2	13.2
1	99	0	23.5	23.5	23.5	0	13.2	13.2	13.2
50	0	1	22.6	22.6	22.5	0	13.1	13.1	13.1
50	24	1	22.6	22.5	22.6	0	13.1	13.1	13.1
50	49	1	22.6	22.6	22.6	0	13.1	13.1	13.1
100	0	1	22.6	22.6	22.6	0	13.1	13.1	13.1
20 MHz BW 16QAM		Target MPR	18700.00	18900.00	19100.00	Target MPR	18700.00	18900.00	19100.00
No. of RB	RB Offset		1860 MHz	1880 MHz	1900 MHz		1860 MHz	1880 MHz	1900 MHz
1	0	1	22.4	22.5	22.5	0	12.9	13.2	13.1
1	49	1	22.5	22.5	22.5	0	12.9	13.2	13.1
1	99	1	22.5	22.5	22.5	0	12.9	13.2	13.1
50	0	2	21.5	21.6	21.6	0	13.1	13.1	13.1
50	24	2	21.6	21.6	21.5	0	13.2	13.1	13.1
50	49	2	21.6	21.5	21.6	0	13.1	13.0	13.1
100	0	2	21.6	21.6	21.6	0	13.1	13.0	13.1
LTE Band 2		Emission Power				Body Power			
15 MHz BW QPSK		Target MPR	18675.00	18900.00	19125.00	Target MPR	18675.00	18900.00	19125.00
No. of RB	RB Offset		1857.5 MHz	1880 MHz	1902.5 MHz		1857.5 MHz	1880 MHz	1902.5 MHz
1	0	0	23.5	23.5	23.5	0	13.1	13.0	13.1
1	36	0	23.5	23.5	23.5	0	13.1	13.0	13.1
1	74	0	23.5	23.5	23.5	0	13.1	13.0	13.1
36	0	1	22.6	22.6	22.6	0	13.2	13.1	13.1
36	18	1	22.6	22.6	22.5	0	13.2	13.1	13.1
36	37	1	22.6	22.6	22.6	0	13.2	13.0	13.1
75	0	1	22.6	22.6	22.6	0	13.2	13.0	13.1
15 MHz BW 16QAM		Target MPR	18675.00	18900.00	19125.00	Target MPR	18675.00	18900.00	19125.00
No. of RB	RB Offset		1857.5 MHz	1880 MHz	1902.5 MHz		1857.5 MHz	1880 MHz	1902.5 MHz
1	0	1	22.5	22.4	22.4	0	13.2	13.0	13.0
1	36	1	22.5	22.5	22.4	0	13.2	13.1	12.9
1	74	1	22.5	22.5	22.4	0	13.2	13.0	12.9
36	0	2	21.6	21.6	21.6	0	13.2	13.0	13.1
36	18	2	21.6	21.5	21.6	0	13.2	13.1	13.1
36	37	2	21.6	21.6	21.6	0	13.2	13.0	13.1
75	0	2	21.6	21.6	21.6	0	13.2	13.0	13.1
LTE Band 2		Emission Power				Body Power			
10 MHz BW QPSK		Target MPR	18650.00	18900.00	19150.00	Target MPR	18650.00	18900.00	19150.00
No. of RB	RB Offset		1855 MHz	1880 MHz	1905 MHz		1855 MHz	1880 MHz	1905 MHz
1	0	0	23.4	23.5	23.4	0	13.1	13.0	13.2
1	24	0	23.5	23.4	23.3	0	13.1	13.0	13.1
1	49	0	23.4	23.5	23.4	0	13.1	12.9	13.1
25	0	1	22.6	22.6	22.6	0	13.2	13.0	13.1
25	12	1	22.6	22.5	22.6	0	13.2	13.0	13.1
25	24	1	22.5	22.6	22.6	0	13.2	13.0	13.1
50	0	1	22.5	22.6	22.6	0	13.2	13.0	13.2
10 MHz BW 16QAM		Target MPR	18650.00	18900.00	19150.00	Target MPR	18650.00	18900.00	19150.00
No. of RB	RB Offset		1855 MHz	1880 MHz	1905 MHz		1855 MHz	1880 MHz	1905 MHz
1	0	1	22.5	22.5	23.4	0	12.9	13.2	12.9
1	24	1	22.6	22.5	23.3	0	12.9	13.2	12.9
1	49	1	22.5	22.5	23.4	0	12.9	13.2	12.9
25	0	2	21.6	21.6	22.6	0	13.2	13.1	13.2
25	12	2	21.6	21.6	22.6	0	13.2	13.1	13.2
25	24	2	21.6	21.6	22.6	0	13.2	13.1	13.2
50	0	2	21.6	21.5	22.6	0	13.2	13.0	13.2

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LTE Band 2 Measured Results (continued)

LTE Band 2		Emission Power				Body Power			
5 MHz BW QPSK		Target MPR	18625.00	18900.00	19175.00	Target MPR	18625.00	18900.00	19175.00
No. of RB	RB Offset		1852.5 MHz	1880 MHz	1907.5 MHz		1852.5 MHz	1880 MHz	1907.5 MHz
1	0	0	23.4	23.5	23.5	0	13.2	13.0	13.1
1	12	0	23.4	23.5	23.5	0	13.2	13.0	13.1
1	24	0	23.5	23.5	23.5	0	13.2	13.0	13.1
12	0	1	22.6	22.6	22.6	0	13.2	13.0	13.1
12	7	1	22.6	22.6	22.6	0	13.1	13.0	13.1
12	13	1	22.6	22.6	22.6	0	13.2	13.1	13.1
25	0	1	22.6	22.6	22.6	0	13.2	13.1	13.1
5 MHz BW 16QAM		Target MPR	18625.00	18900.00	19175.00	Target MPR	18625.00	18900.00	19175.00
No. of RB	RB Offset		1852.5 MHz	1880 MHz	1907.5 MHz		1852.5 MHz	1880 MHz	1907.5 MHz
1	0	1	22.6	22.5	22.5	0	13.0	13.2	13.0
1	12	1	22.6	22.5	22.5	0	12.9	13.2	13.0
1	24	1	22.5	22.5	22.5	0	13.0	13.2	13.0
12	0	2	21.5	21.5	21.6	0	13.1	13.1	13.1
12	7	2	21.6	21.5	21.5	0	13.1	13.1	13.1
12	13	2	21.5	21.5	21.5	0	13.1	13.1	13.1
25	0	2	21.6	21.5	21.6	0	13.2	13.1	13.2
LTE Band 2		Emission Power				Body Power			
3 MHz BW QPSK		Target MPR	18615.00	18900.00	19185.00	Target MPR	18615.00	18900.00	19185.00
No. of RB	RB Offset		1851.5 MHz	1880 MHz	1908.5 MHz		1851.5 MHz	1880 MHz	1908.5 MHz
1	0	0	23.5	23.4	23.4	0	13.1	13.0	13.1
1	8	0	23.4	23.4	23.3	0	13.0	13.0	13.1
1	14	0	23.4	23.5	23.4	0	13.1	13.0	13.1
8	0	1	22.6	22.6	22.6	0	13.1	13.0	13.1
8	4	1	22.6	22.6	22.6	0	13.0	13.0	13.1
8	7	1	22.6	22.6	22.6	0	13.0	13.0	13.1
15	0	1	22.6	22.6	22.5	0	13.1	13.0	13.1
3 MHz BW 16QAM		Target MPR	18615.00	18900.00	19185.00	Target MPR	18615.00	18900.00	19185.00
No. of RB	RB Offset		1851.5 MHz	1880 MHz	1908.5 MHz		1851.5 MHz	1880 MHz	1908.5 MHz
1	0	1	22.5	22.5	22.5	0	12.9	13.1	13.1
1	8	1	22.5	22.5	22.5	0	12.8	13.2	13.2
1	14	1	22.5	22.5	22.6	0	12.8	13.2	13.1
8	0	2	21.6	21.5	21.5	0	13.0	13.1	13.0
8	4	2	21.6	21.6	21.5	0	13.0	13.1	13.0
8	7	2	21.6	21.6	21.6	0	13.0	13.1	13.0
15	0	2	21.5	21.6	21.5	0	13.1	13.1	13.1
LTE Band 2		Emission Power				Body Power			
1.4 MHz BW QPSK		Target MPR	18607.00	18900.00	19193.00	Target MPR	18607.00	18900.00	19193.00
No. of RB	RB Offset		1850.7 MHz	1880 MHz	1909.3 MHz		1850.7 MHz	1880 MHz	1909.3 MHz
1	0	0	23.5	23.5	23.5	0	13.1	13.0	13.1
1	3	0	23.4	23.4	23.4	0	13.1	13.0	13.1
1	5	0	23.5	23.5	23.5	0	13.1	13.0	13.1
3	0	0	23.5	23.5	23.5	0	13.0	13.1	13.1
3	1	0	23.5	23.5	23.5	0	13.0	13.1	13.1
3	3	0	23.5	23.5	23.5	0	13.0	13.1	13.1
6	0	1	22.6	22.6	22.6	0	13.1	13.0	13.1
1.4 MHz BW 16QAM		Target MPR	18607.00	18900.00	19193.00	Target MPR	18607.00	18900.00	19193.00
No. of RB	RB Offset		1850.7 MHz	1880 MHz	1909.3 MHz		1850.7 MHz	1880 MHz	1909.3 MHz
1	0	1	22.5	22.5	22.4	0	12.8	13.2	12.8
1	3	1	22.5	22.5	22.4	0	12.8	13.2	12.8
1	5	1	22.5	22.5	22.4	0	12.8	13.2	12.9
3	0	2	22.5	22.4	22.4	0	13.2	13.1	13.2
3	1	2	22.5	22.5	22.5	0	13.1	13.1	13.2
3	3	2	22.6	22.5	22.5	0	13.2	13.1	13.2
6	0	2	21.6	21.6	21.6	0	13.2	12.9	13.2

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8.4.2. LTE Band 4

LTE Band 4 Measured Results

LTE Band 4		Emission Power				Body Power			
20 MHz BW QPSK		Target MPR	20050.00	20175.00	20300.00	Target MPR	20050.00	20175.00	20300.00
No. of RB	RB Offset		1720 MHz	1732.5 MHz	1745 MHz		1720 MHz	1732.5 MHz	1745 MHz
1	0	0	23.5	23.5	23.5	0	13.3	13.3	13.3
1	49	0	23.5	23.5	23.5	0	13.3	13.3	13.3
1	99	0	23.5	23.5	23.5	0	13.3	13.3	13.3
50	0	1	22.5	22.5	22.5	0	13.3	13.3	13.3
50	24	1	22.5	22.5	22.6	0	13.3	13.3	13.3
50	49	1	22.6	22.6	22.6	0	13.3	13.3	13.3
100	0	1	22.5	22.5	22.5	0	13.3	13.4	13.3
20 MHz BW 16QAM		Target MPR	20050.00	20175.00	20300.00	Target MPR	20050.00	20175.00	20300.00
No. of RB	RB Offset		1720 MHz	1732.5 MHz	1745 MHz		1720 MHz	1732.5 MHz	1745 MHz
1	0	1	22.5	22.5	22.6	0	13.5	13.2	13.3
1	49	1	22.6	22.5	22.5	0	13.5	13.2	13.3
1	99	1	22.5	22.5	22.5	0	13.5	13.2	13.3
50	0	2	21.6	21.6	21.4	0	13.3	13.4	13.3
50	24	2	21.5	21.6	21.5	0	13.4	13.4	13.3
50	49	2	21.6	21.5	21.6	0	13.4	13.4	13.3
100	0	2	21.5	21.6	21.6	0	13.4	13.4	13.3
LTE Band 4		Emission Power				Body Power			
15 MHz BW QPSK		Target MPR	20025.00	20175.00	20325.00	Target MPR	20025.00	20175.00	20325.00
No. of RB	RB Offset		1717.5 MHz	1732.5 MHz	1747.5 MHz		1717.5 MHz	1732.5 MHz	1747.5 MHz
1	0	0	23.5	23.5	23.5	0	13.3	13.3	13.3
1	36	0	23.5	23.5	23.5	0	13.3	13.3	13.4
1	74	0	23.5	23.5	23.5	0	13.2	13.3	13.3
36	0	1	22.5	22.4	22.5	0	13.3	13.4	13.3
36	18	1	22.5	22.5	22.6	0	13.4	13.4	13.3
36	37	1	22.5	22.5	22.6	0	13.4	13.4	13.3
75	0	1	22.6	22.6	22.6	0	13.4	13.4	13.4
15 MHz BW 16QAM		Target MPR	20025.00	20175.00	20325.00	Target MPR	20025.00	20175.00	20325.00
No. of RB	RB Offset		1717.5 MHz	1732.5 MHz	1747.5 MHz		1717.5 MHz	1732.5 MHz	1747.5 MHz
1	0	1	22.5	22.6	22.5	0	13.4	13.4	13.1
1	36	1	22.5	22.6	22.5	0	13.5	13.4	13.1
1	74	1	22.5	22.5	22.5	0	13.5	13.4	13.1
36	0	2	21.6	21.6	21.5	0	13.4	13.4	13.3
36	18	2	21.6	21.5	21.6	0	13.4	13.3	13.4
36	37	2	21.5	21.5	21.6	0	13.4	13.4	13.4
75	0	2	21.6	21.5	21.6	0	13.4	13.3	13.4
LTE Band 4		Emission Power				Body Power			
10 MHz BW QPSK		Target MPR	20000.00	20175.00	20350.00	Target MPR	20000.00	20175.00	20350.00
No. of RB	RB Offset		1715 MHz	1732.5 MHz	1750 MHz		1715 MHz	1732.5 MHz	1750 MHz
1	0	0	23.5	23.4	23.4	0	13.3	13.3	13.3
1	24	0	23.5	23.5	23.4	0	13.3	13.3	13.3
1	49	0	23.5	23.5	23.5	0	13.3	13.3	13.3
25	0	1	22.5	22.5	22.5	0	13.4	13.4	13.3
25	12	1	22.5	22.5	22.5	0	13.4	13.4	13.3
25	24	1	22.5	22.5	22.5	0	13.4	13.4	13.4
50	0	1	22.5	22.5	22.5	0	13.3	13.4	13.3
10 MHz BW 16QAM		Target MPR	20000.00	20175.00	20350.00	Target MPR	20000.00	20175.00	20350.00
No. of RB	RB Offset		1715 MHz	1732.5 MHz	1750 MHz		1715 MHz	1732.5 MHz	1750 MHz
1	0	1	22.6	22.6	22.5	0	13.5	13.4	13.0
1	24	1	22.6	22.5	22.5	0	13.5	13.4	13.0
1	49	1	22.6	22.5	22.5	0	13.5	13.4	13.0
25	0	2	21.6	21.6	21.6	0	13.4	13.5	13.4
25	12	2	21.6	21.5	21.6	0	13.4	13.5	13.4
25	24	2	21.6	21.6	21.5	0	13.4	13.5	13.4
50	0	2	21.5	21.5	21.5	0	13.5	13.4	13.3

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LTE Band 4 Measured Results (continued)

LTE Band 4		Emission Power				Body Power			
5 MHz BW QPSK		Target MPR	19975.00	20175.00	20375.00	Target MPR	19975.00	20175.00	20375.00
No. of RB	RB Offset		1712.5 MHz	1732.5 MHz	1752.5 MHz		1712.5 MHz	1732.5 MHz	1752.5 MHz
1	0	0	23.5	23.5	23.4	0	13.3	13.2	13.3
1	12	0	23.5	23.5	23.4	0	13.3	13.3	13.3
1	24	0	23.5	23.5	23.5	0	13.3	13.3	13.3
12	0	1	22.5	22.5	22.4	0	13.3	13.4	13.4
12	7	1	22.5	22.5	22.5	0	13.4	13.4	13.4
12	13	1	22.5	22.5	22.6	0	13.3	13.4	13.3
25	0	1	22.5	22.4	22.5	0	13.3	13.4	13.3
5 MHz BW 16QAM		Target MPR	19975.00	20175.00	20375.00	Target MPR	19975.00	20175.00	20375.00
No. of RB	RB Offset		1712.5 MHz	1732.5 MHz	1752.5 MHz		1712.5 MHz	1732.5 MHz	1752.5 MHz
1	0	1	22.6	22.5	22.6	0	13.1	13.4	13.1
1	12	1	22.6	22.5	22.6	0	13.1	13.4	13.1
1	24	1	22.5	22.5	22.6	0	13.2	13.4	13.1
12	0	2	21.5	21.4	21.6	0	13.3	13.4	13.4
12	7	2	21.5	21.5	21.6	0	13.3	13.4	13.4
12	13	2	21.5	21.4	21.6	0	13.4	13.4	13.4
25	0	2	21.5	21.5	21.6	0	13.3	13.4	13.5
LTE Band 4		Emission Power				Body Power			
3 MHz BW QPSK		Target MPR	19965.00	20175.00	20385.00	Target MPR	19965.00	20175.00	20385.00
No. of RB	RB Offset		1711.5 MHz	1732.5 MHz	1753.5 MHz		1711.5 MHz	1732.5 MHz	1753.5 MHz
1	0	0	23.5	23.5	23.5	0	13.3	13.4	13.3
1	8	0	23.5	23.5	23.4	0	13.3	13.4	13.3
1	14	0	23.5	23.4	23.4	0	13.3	13.4	13.3
8	0	1	22.5	22.5	22.6	0	13.3	13.4	13.4
8	4	1	22.5	22.5	22.5	0	13.3	13.4	13.3
8	7	1	22.5	22.5	22.5	0	13.3	13.4	13.3
15	0	1	22.6	22.5	22.5	0	13.3	13.4	13.3
3 MHz BW 16QAM		Target MPR	19965.00	20175.00	20385.00	Target MPR	19965.00	20175.00	20385.00
No. of RB	RB Offset		1711.5 MHz	1732.5 MHz	1753.5 MHz		1711.5 MHz	1732.5 MHz	1753.5 MHz
1	0	1	22.5	22.6	22.6	0	13.5	13.2	13.1
1	8	1	22.5	22.6	22.6	0	13.4	13.2	13.0
1	14	1	22.4	22.5	22.5	0	13.5	13.2	13.0
8	0	2	21.6	21.6	21.6	0	13.4	13.3	13.3
8	4	2	21.6	21.6	21.6	0	13.4	13.3	13.2
8	7	2	21.6	21.6	21.6	0	13.4	13.3	13.2
15	0	2	21.6	21.6	21.5	0	13.4	13.3	13.3
LTE Band 4		Emission Power				Body Power			
1.4 MHz BW QPSK		Target MPR	19957.00	20175.00	20393.00	Target MPR	19957.00	20175.00	20393.00
No. of RB	RB Offset		1710.7 MHz	1732.5 MHz	1754.3 MHz		1710.7 MHz	1732.5 MHz	1754.3 MHz
1	0	0	23.5	23.5	23.5	0	13.3	13.4	13.2
1	3	0	23.5	23.5	23.5	0	13.2	13.4	13.2
1	5	0	23.5	23.5	23.5	0	13.3	13.4	13.2
3	0	0	23.5	23.5	23.5	0	13.4	13.3	13.2
3	1	0	23.5	23.5	23.5	0	13.4	13.4	13.2
3	3	0	23.4	23.5	23.5	0	13.4	13.4	13.2
6	0	1	22.6	22.6	22.6	0	13.4	13.4	13.2
1.4 MHz BW 16QAM		Target MPR	19957.00	20175.00	20393.00	Target MPR	19957.00	20175.00	20393.00
No. of RB	RB Offset		1710.7 MHz	1732.5 MHz	1754.3 MHz		1710.7 MHz	1732.5 MHz	1754.3 MHz
1	0	1	22.5	22.6	22.5	0	13.5	13.3	13.0
1	3	1	22.5	22.5	22.5	0	13.5	13.3	13.0
1	5	1	22.6	22.5	22.5	0	13.5	13.3	13.0
3	0	2	22.5	22.5	22.5	0	13.4	13.5	13.3
3	1	2	22.5	22.5	22.5	0	13.4	13.5	13.3
3	3	2	22.6	22.6	22.5	0	13.4	13.4	13.3
6	0	2	21.6	21.6	21.6	0	13.2	13.5	13.4

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8.4.3. LTE Band 5

LTE Band 5 Measured Results

LTE Band 5		Emission Power				Body Power			
10 MHz BW QPSK		Target MPR	20450.00	20525.00	20600.00	Target MPR	20450.00	20525.00	20600.00
No. of RB	RB Offset		829 MHz	836.5 MHz	844 MHz		829 MHz	836.5 MHz	844 MHz
1	0	0	24.4	24.4	24.3	0	19.4	19.4	19.4
1	24	0	24.5	24.3	24.4	0	19.4	19.4	19.4
1	49	0	24.4	24.5	24.4	0	19.4	19.4	19.4
25	0	1	23.6	23.5	23.4	0	19.5	19.5	19.4
25	12	1	23.5	23.5	23.5	0	19.5	19.5	19.5
25	24	1	23.6	23.5	23.4	0	19.5	19.5	19.5
50	0	1	23.5	23.5	23.5	0	19.5	19.5	19.5
10 MHz BW 16QAM		Target MPR	20450.00	20525.00	20600.00	Target MPR	20450.00	20525.00	20600.00
No. of RB	RB Offset		829 MHz	836.5 MHz	844 MHz		829 MHz	836.5 MHz	844 MHz
1	0	1	23.5	23.4	23.3	0	19.4	19.4	19.4
1	24	1	23.4	23.3	23.3	0	19.4	19.4	19.4
1	49	1	23.4	23.4	23.4	0	19.4	19.4	19.4
25	0	2	22.5	22.6	22.4	0	19.4	19.4	19.4
25	12	2	22.6	22.5	22.5	0	19.5	19.5	19.5
25	24	2	22.6	22.5	22.5	0	19.5	19.5	19.5
50	0	2	22.6	22.5	22.6	0	19.5	19.5	19.5
LTE Band 5		Emission Power				Body Power			
5 MHz BW QPSK		Target MPR	20425.00	20525.00	20625.00	Target MPR	20425.00	20525.00	20625.00
No. of RB	RB Offset		826.5 MHz	836.5 MHz	846.5 MHz		826.5 MHz	836.5 MHz	846.5 MHz
1	0	0	24.5	24.5	24.4	0	19.3	19.3	19.3
1	12	0	24.5	24.4	24.4	0	19.3	19.3	19.3
1	24	0	24.5	24.4	24.4	0	19.3	19.3	19.3
12	0	1	23.6	23.5	23.4	0	19.3	19.3	19.3
12	7	1	23.6	23.5	23.4	0	19.3	19.3	19.3
12	13	1	23.6	23.5	23.4	0	19.3	19.3	19.3
25	0	1	23.6	23.5	23.4	0	19.3	19.3	19.3
5 MHz BW 16QAM		Target MPR	20425.00	20525.00	20625.00	Target MPR	20425.00	20525.00	20625.00
No. of RB	RB Offset		826.5 MHz	836.5 MHz	846.5 MHz		826.5 MHz	836.5 MHz	846.5 MHz
1	0	1	23.5	23.5	23.4	0	19.3	19.2	19.2
1	12	1	23.5	23.4	23.5	0	19.3	19.2	19.2
1	24	1	23.5	23.5	23.4	0	19.3	19.2	19.2
12	0	2	22.5	22.4	22.4	0	19.3	19.3	19.2
12	7	2	22.5	22.4	22.4	0	19.3	19.3	19.3
12	13	2	22.5	22.4	22.4	0	19.3	19.3	19.3
25	0	2	22.6	22.5	22.4	0	19.3	19.3	19.3
LTE Band 5		Emission Power				Body Power			
3 MHz BW QPSK		Target MPR	20415.00	20525.00	20635.00	Target MPR	20415.00	20525.00	20635.00
No. of RB	RB Offset		825.5 MHz	836.5 MHz	847.5 MHz		825.5 MHz	836.5 MHz	847.5 MHz
1	0	0	24.5	24.4	24.4	0	19.4	19.3	19.3
1	8	0	24.4	24.4	24.4	0	19.3	19.3	19.4
1	14	0	24.5	24.4	24.4	0	19.3	19.3	19.4
8	0	1	23.6	23.5	23.4	0	19.3	19.3	19.4
8	4	1	23.6	23.5	23.4	0	19.3	19.3	19.3
8	7	1	23.5	23.5	23.4	0	19.3	19.3	19.3
15	0	1	23.5	23.5	23.4	0	19.3	19.3	19.3
3 MHz BW 16QAM		Target MPR	20415.00	20525.00	20635.00	Target MPR	20415.00	20525.00	20635.00
No. of RB	RB Offset		825.5 MHz	836.5 MHz	847.5 MHz		825.5 MHz	836.5 MHz	847.5 MHz
1	0	1	23.4	23.4	23.6	0	19.2	19.2	19.4
1	8	1	23.4	23.4	23.6	0	19.3	19.2	19.4
1	14	1	23.5	23.4	23.5	0	19.3	19.2	19.2
8	0	2	22.6	22.6	22.5	0	19.3	19.3	19.2
8	4	2	22.6	22.6	22.5	0	19.4	19.3	19.3
8	7	2	22.6	22.5	22.5	0	19.3	19.3	19.3
15	0	2	22.6	22.5	22.4	0	19.2	19.3	19.3

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LTE Band 5 Measured Results (continued)

LTE Band 5		Emission Power				Body Power			
1.4 MHz BW QPSK		Target MPR	20407.00	20525.00	20643.00	Target MPR	20407.00	20525.00	20643.00
No. of RB	RB Offset		824.7 MHz	836.5 MHz	848.3 MHz		824.7 MHz	836.5 MHz	848.3 MHz
1	0	0	24.5	24.5	24.5	0	19.3	19.3	19.3
1	3	0	24.4	24.4	24.4	0	19.4	19.4	19.3
1	5	0	24.4	24.5	24.4	0	19.3	19.3	19.3
3	0	0	24.4	24.5	24.5	0	19.3	19.3	19.3
3	1	0	24.5	24.4	24.5	0	19.3	19.3	19.3
3	3	0	24.5	24.5	24.5	0	19.3	19.2	19.3
6	0	1	23.6	23.6	23.4	0	19.4	19.2	19.3
1.4 MHz BW 16QAM		Target MPR	20407.00	20525.00	20643.00	Target MPR	20407.00	20525.00	20643.00
No. of RB	RB Offset		824.7 MHz	836.5 MHz	848.3 MHz		824.7 MHz	836.5 MHz	848.3 MHz
1	0	1	23.5	23.6	23.4	0	19.3	19.2	19.2
1	3	1	23.5	23.4	23.4	0	19.3	19.2	19.2
1	5	1	23.5	23.5	23.5	0	19.3	19.2	19.2
3	0	2	23.5	23.4	23.4	0	19.3	19.3	19.2
3	1	2	23.5	23.5	23.5	0	19.2	19.2	19.3
3	3	2	23.5	23.5	23.4	0	19.2	19.2	19.2
6	0	2	22.6	22.6	22.5	0	19.3	19.3	19.2

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8.4.4. LTE Band 13

LTE Band 13 Measured Results

LTE Band 13		Emission Power		Body Power	
10 MHz BW QPSK		Target MPR	23230.00	Target MPR	23230.00
No. of RB	RB Offset		782 MHz		782 MHz
1	0	0	24.0	0	19.3
1	24	0	23.9	0	19.3
1	49	0	23.9	0	19.3
25	0	1	23.0	0	19.4
25	12	1	23.0	0	19.4
25	24	1	23.0	0	19.4
50	0	1	23.1	0	19.4
10 MHz BW 16QAM		Target MPR	23230.00	Target MPR	23230.00
No. of RB	RB Offset		782 MHz		782 MHz
1	0	1	23.0	0	19.2
1	24	1	23.0	0	19.2
1	49	1	22.9	0	19.2
25	0	2	22.0	0	19.4
25	12	2	22.1	0	19.4
25	24	2	22.0	0	19.4
50	0	2	22.0	0	19.4
LTE Band 13		Emission Power		Body Power	
5 MHz BW QPSK		Target MPR	23230.00	Target MPR	23230.00
No. of RB	RB Offset		782 MHz		782 MHz
1	0	0	23.9	0	19.3
1	12	0	23.9	0	19.3
1	24	0	23.9	0	19.3
12	0	1	23.0	0	19.3
12	7	1	23.0	0	19.4
12	13	1	23.1	0	19.3
25	0	1	23.0	0	19.4
5 MHz BW 16QAM		Target MPR	23230.00	Target MPR	23230.00
No. of RB	RB Offset		782 MHz		782 MHz
1	0	1	23.1	0	19.0
1	12	1	23.1	0	19.0
1	24	1	23.1	0	19.0
12	0	2	22.0	0	19.4
12	7	2	22.0	0	19.4
12	13	2	22.1	0	19.4
25	0	2	22.1	0	19.4

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8.4.5. LTE Band 17

LTE Band 17 Measured Results

LTE Band 17		Emission Power		Body Power	
10 MHz BW QPSK		Target MPR	23790.00	Target MPR	23790.00
No. of RB	RB Offset		710 MHz		710 MHz
1	0	0	24.0	0	19.0
1	24	0	24.0	0	19.0
1	49	0	23.9	0	19.0
25	0	1	23.1	0	19.0
25	12	1	23.1	0	19.0
25	24	1	23.0	0	19.0
50	0	1	23.1	0	19.0
10 MHz BW 16QAM		Target MPR	23790.00	Target MPR	23790.00
No. of RB	RB Offset		710 MHz		710 MHz
1	0	1	22.9	0	19.0
1	24	1	22.9	0	18.9
1	49	1	22.9	0	19.0
25	0	2	22.1	0	18.9
25	12	2	22.1	0	18.9
25	24	2	22.1	0	18.8
50	0	2	22.1	0	18.9
LTE Band 17		Emission Power		Body Power	
5 MHz BW QPSK		Target MPR	23790.00	Target MPR	23790.00
No. of RB	RB Offset		710 MHz		710 MHz
1	0	0	24.0	0	19.0
1	12	0	24.0	0	19.0
1	24	0	23.9	0	19.0
12	0	1	23.1	0	19.0
12	7	1	23.1	0	19.0
12	13	1	23.1	0	19.0
25	0	1	23.0	0	19.0
5 MHz BW 16QAM		Target MPR	23790.00	Target MPR	23790.00
No. of RB	RB Offset		710 MHz		710 MHz
1	0	1	23.1	0	19.0
1	12	1	23.1	0	19.0
1	24	1	23.0	0	19.0
12	0	2	22.0	0	18.8
12	7	2	22.1	0	18.8
12	13	2	22.1	0	18.8
25	0	2	22.0	0	18.9

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8.4.6. LTE Band 25

LTE Band 25 Measured Results

LTE Band 25		Emission Power				Body Power			
20 MHz BW QPSK		Target MPR	26140.00	26365.00	26590.00	Target MPR	26140.00	26365.00	26590.00
No. of RB	RB Offset		1860 MHz	1882.5 MHz	1905 MHz		1860 MHz	1882.5 MHz	1905 MHz
1	0	0	23.5	23.5	23.5	0	13.2	13.2	13.2
1	49	0	23.5	23.4	23.5	0	13.2	13.2	13.2
1	99	0	23.5	23.5	23.5	0	13.2	13.2	13.2
50	0	1	22.6	22.6	22.5	0	13.1	13.1	13.1
50	24	1	22.6	22.6	22.5	0	13.1	13.1	13.1
50	49	1	22.5	22.5	22.5	0	13.1	13.1	13.1
100	0	1	22.6	22.5	22.5	0	13.1	13.1	13.1
20 MHz BW 16QAM		Target MPR	26140.00	26365.00	26590.00	Target MPR	26140.00	26365.00	26590.00
No. of RB	RB Offset		1860 MHz	1882.5 MHz	1905 MHz		1860 MHz	1882.5 MHz	1905 MHz
1	0	1	22.5	22.5	22.5	0	13.0	13.1	13.1
1	49	1	22.5	22.6	22.6	0	13.0	13.0	13.0
1	99	1	22.5	22.5	22.5	0	13.0	13.0	13.0
50	0	2	21.5	21.5	21.5	0	13.0	13.0	13.0
50	24	2	21.5	21.5	21.5	0	13.0	13.0	13.0
50	49	2	21.5	21.5	21.4	0	13.0	13.0	13.0
100	0	2	21.5	21.4	21.5	0	13.0	13.0	13.0
LTE Band 25		Emission Power				Body Power			
15 MHz BW QPSK		Target MPR	26115.00	26365.00	26615.00	Target MPR	26115.00	26365.00	26615.00
No. of RB	RB Offset		1857.5 MHz	1882.5 MHz	1907.5 MHz		1857.5 MHz	1882.5 MHz	1907.5 MHz
1	0	0	23.5	23.5	23.4	0	13.2	13.2	13.2
1	36	0	23.5	23.5	23.4	0	13.2	13.2	13.2
1	74	0	23.4	23.5	23.5	0	13.2	13.2	13.1
36	0	1	22.5	22.5	22.6	0	13.1	13.1	13.1
36	18	1	22.5	22.5	22.6	0	13.1	13.1	13.1
36	37	1	22.5	22.6	22.6	0	13.1	13.1	13.1
75	0	1	22.6	22.5	22.6	0	13.1	13.1	13.1
15 MHz BW 16QAM		Target MPR	26115.00	26365.00	26615.00	Target MPR	26115.00	26365.00	26615.00
No. of RB	RB Offset		1857.5 MHz	1882.5 MHz	1907.5 MHz		1857.5 MHz	1882.5 MHz	1907.5 MHz
1	0	1	22.5	22.5	22.5	0	13.0	13.2	13.2
1	36	1	22.5	22.5	22.6	0	13.0	13.2	13.1
1	74	1	22.5	22.5	22.5	0	13.0	13.0	13.0
36	0	2	21.5	21.5	21.5	0	13.0	13.0	13.0
36	18	2	21.5	21.5	21.5	0	13.0	13.0	13.0
36	37	2	21.5	21.5	21.5	0	13.0	13.0	13.0
75	0	2	21.5	21.4	21.5	0	13.0	13.0	13.0
LTE Band 25		Emission Power				Body Power			
10 MHz BW QPSK		Target MPR	26090.00	26365.00	26640.00	Target MPR	26090.00	26365.00	26640.00
No. of RB	RB Offset		1855 MHz	1882.5 MHz	1910 MHz		1855 MHz	1882.5 MHz	1910 MHz
1	0	0	23.4	23.5	23.4	0	13.2	13.2	13.2
1	24	0	23.5	23.4	23.5	0	13.2	13.2	13.2
1	49	0	23.5	23.5	23.5	0	13.2	13.1	13.1
25	0	1	22.5	22.5	22.5	0	13.1	13.1	13.1
25	12	1	22.5	22.5	22.5	0	13.1	13.1	13.1
25	24	1	22.6	22.6	22.5	0	13.1	13.1	13.1
50	0	1	22.6	22.5	22.5	0	13.1	13.1	13.1
10 MHz BW 16QAM		Target MPR	26090.00	26365.00	26640.00	Target MPR	26090.00	26365.00	26640.00
No. of RB	RB Offset		1855 MHz	1882.5 MHz	1910 MHz		1855 MHz	1882.5 MHz	1910 MHz
1	0	1	22.6	22.5	22.4	0	13.1	13.1	13.2
1	24	1	22.5	22.4	22.4	0	13.1	13.1	13.1
1	49	1	22.5	22.5	22.6	0	13.0	13.1	13.0
25	0	2	21.5	21.5	21.5	0	13.0	13.1	13.0
25	12	2	21.5	21.5	21.5	0	13.0	13.0	13.0
25	24	2	21.5	21.5	21.5	0	13.0	13.0	13.0
50	0	2	21.5	21.5	21.5	0	13.0	13.0	13.0

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LTE Band 25 Measured Results (continued)

LTE Band 25		Emission Power				Body Power			
5 MHz BW QPSK		Target MPR	26065.00	26365.00	26665.00	Target MPR	26065.00	26365.00	26665.00
No. of RB	RB Offset		1852.5 MHz	1882.5 MHz	1912.5 MHz		1852.5 MHz	1882.5 MHz	1912.5 MHz
1	0	0	23.5	23.5	23.4	0	13.1	13.2	13.2
1	12	0	23.5	23.5	23.5	0	13.1	13.2	13.2
1	24	0	23.5	23.5	23.5	0	13.2	13.1	13.1
12	0	1	22.5	22.6	22.6	0	13.1	13.1	13.1
12	7	1	22.5	22.5	22.5	0	13.1	13.1	13.1
12	13	1	22.5	22.6	22.6	0	13.1	13.0	13.1
25	0	1	22.5	22.5	22.5	0	13.1	13.0	13.1
5 MHz BW 16QAM		Target MPR	26065.00	26365.00	26665.00	Target MPR	26065.00	26365.00	26665.00
No. of RB	RB Offset		1852.5 MHz	1882.5 MHz	1912.5 MHz		1852.5 MHz	1882.5 MHz	1912.5 MHz
1	0	1	22.6	22.5	22.6	0	13.1	13.0	13.2
1	12	1	22.6	22.5	22.5	0	13.2	13.0	13.1
1	24	1	22.5	22.5	22.5	0	13.1	13.0	13.0
12	0	2	21.5	21.5	21.5	0	13.0	13.0	13.0
12	7	2	21.6	21.4	21.5	0	13.0	13.0	13.0
12	13	2	21.5	21.5	21.5	0	13.0	13.0	13.0
25	0	2	21.5	21.5	21.6	0	13.0	13.0	13.0
LTE Band 25		Emission Power				Body Power			
3 MHz BW QPSK		Target MPR	26055.00	26365.00	26675.00	Target MPR	26055.00	26365.00	26675.00
No. of RB	RB Offset		1851.5 MHz	1882.5 MHz	1913.5 MHz		1851.5 MHz	1882.5 MHz	1913.5 MHz
1	0	0	23.5	23.5	22.4	0	13.1	13.2	13.2
1	8	0	23.4	23.5	22.4	0	13.1	13.2	13.2
1	14	0	23.5	23.5	22.4	0	13.2	13.2	13.2
8	0	1	22.5	22.6	21.6	0	13.1	13.2	13.1
8	4	1	22.5	22.5	21.5	0	13.1	13.1	13.1
8	7	1	22.6	22.5	21.5	0	13.1	13.1	13.1
15	0	1	22.6	22.6	21.5	0	13.2	13.1	13.1
3 MHz BW 16QAM		Target MPR	26055.00	26365.00	26675.00	Target MPR	26055.00	26365.00	26675.00
No. of RB	RB Offset		1851.5 MHz	1882.5 MHz	1913.5 MHz		1851.5 MHz	1882.5 MHz	1913.5 MHz
1	0	1	22.5	22.4	23.5	0	13.2	13.1	13.2
1	8	1	22.6	22.4	23.4	0	13.2	13.0	13.1
1	14	1	22.6	22.4	23.5	0	13.1	13.0	13.0
8	0	2	21.5	21.6	22.5	0	13.0	13.0	13.0
8	4	2	21.4	21.5	22.6	0	13.1	13.1	13.1
8	7	2	21.5	21.5	22.5	0	13.1	13.1	13.1
15	0	2	21.5	21.5	22.6	0	13.1	13.0	13.0
LTE Band 25		Emission Power				Body Power			
1.4 MHz BW QPSK		Target MPR	26047.00	26365.00	26683.00	Target MPR	26047.00	26365.00	26683.00
No. of RB	RB Offset		1850.7 MHz	1882.5 MHz	1914.3 MHz		1850.7 MHz	1882.5 MHz	1914.3 MHz
1	0	0	23.5	23.5	23.4	0	13.1	13.2	13.2
1	3	0	23.5	23.4	23.5	0	13.1	13.2	13.2
1	5	0	23.5	23.4	23.5	0	13.2	13.2	13.2
3	0	0	23.5	23.5	23.4	0	13.1	13.2	13.1
3	1	0	23.5	23.5	23.5	0	13.1	13.1	13.1
3	3	0	23.5	23.5	23.5	0	13.1	13.1	13.1
6	0	1	22.6	22.6	22.5	0	13.2	13.1	13.1
1.4 MHz BW 16QAM		Target MPR	26047.00	26365.00	26683.00	Target MPR	26047.00	26365.00	26683.00
No. of RB	RB Offset		1850.7 MHz	1882.5 MHz	1914.3 MHz		1850.7 MHz	1882.5 MHz	1914.3 MHz
1	0	1	22.5	22.5	22.5	0	13.2	13.1	13.2
1	3	1	22.5	22.6	22.5	0	13.2	13.0	13.1
1	5	1	22.5	22.5	22.5	0	13.1	13.0	13.0
3	0	2	22.5	22.6	22.5	0	13.0	13.0	13.0
3	1	2	22.5	22.5	22.5	0	13.1	13.1	13.1
3	3	2	22.5	22.5	22.5	0	13.1	13.1	13.1
6	0	2	21.6	21.5	21.6	0	13.1	13.1	13.1

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8.4.7. LTE Band 26

LTE Band 26 Measured Results

LTE Band 26		Emission Power				Body Power			
10 MHz BW QPSK		Target MPR		26740.00		Target MPR		26740.00	
No. of RB	RB Offset			819 MHz				819 MHz	
1	0	0		23.5		0		19.4	
1	24	0		23.5		0		19.4	
1	49	0		23.4		0		19.4	
25	0	1		22.5		0		19.4	
25	12	1		22.5		0		19.5	
25	24	1		22.4		0		19.5	
50	0	1		22.6		0		19.4	
10 MHz BW 16QAM		Target MPR		26740.00		Target MPR		26740.00	
No. of RB	RB Offset			819 MHz				819 MHz	
1	0	1		22.4		0		19.5	
1	24	1		22.5		0		19.5	
1	49	1		22.4		0		19.5	
25	0	2		21.5		0		19.5	
25	12	2		21.4		0		19.5	
25	24	2		21.4		0		19.5	
50	0	2		21.4		0		19.5	
LTE Band 26		Emission Power				Body Power			
5 MHz BW QPSK		Target MPR		26865.00		Target MPR		26865.00	
No. of RB	RB Offset			831.5 MHz				831.5 MHz	
1	0	0		23.5		0		19.5	
1	12	0		23.5		0		19.5	
1	24	0		23.5		0		19.5	
12	0	1		22.6		0		19.5	
12	7	1		22.6		0		19.5	
12	13	1		22.6		0		19.5	
25	0	1		22.6		0		19.5	
5 MHz BW 16QAM		Target MPR		26865.00		Target MPR		26865.00	
No. of RB	RB Offset			831.5 MHz				831.5 MHz	
1	0	1		22.5		0		19.5	
1	12	1		22.5		0		19.5	
1	24	1		22.5		0		19.5	
12	0	2		21.6		0		19.5	
12	7	2		21.5		0		19.5	
12	13	2		21.5		0		19.5	
25	0	2		21.6		0		19.5	
LTE Band 26		Emission Power				Body Power			
3 MHz BW QPSK		Target MPR	26705.00	26865.00	27025.00	Target MPR	26705.00	26865.00	27025.00
No. of RB	RB Offset		815.5 MHz	831.5 MHz	847.5 MHz		815.5 MHz	831.5 MHz	847.5 MHz
1	0	0	23.5	23.5	23.5	0	19.5	19.5	19.5
1	8	0	23.5	23.5	23.5	0	19.5	19.5	19.5
1	14	0	23.5	23.5	23.5	0	19.5	19.5	19.5
8	0	1	22.6	22.6	22.6	0	19.5	19.5	19.5
8	4	1	22.6	22.6	22.6	0	19.5	19.5	19.5
8	7	1	22.6	22.6	22.6	0	19.5	19.5	19.5
15	0	1	22.6	22.6	22.6	0	19.5	19.5	19.5
3 MHz BW 16QAM		Target MPR	26705.00	26865.00	27025.00	Target MPR	26705.00	26865.00	27025.00
No. of RB	RB Offset		815.5 MHz	831.5 MHz	847.5 MHz		815.5 MHz	831.5 MHz	847.5 MHz
1	0	1	22.5	22.5	22.5	0	19.5	19.2	19.5
1	8	1	22.4	22.4	22.4	0	19.4	19.2	19.5
1	14	1	22.5	22.5	22.5	0	19.4	19.2	19.5
8	0	2	21.6	21.6	21.6	0	19.5	19.5	19.5
8	4	2	21.6	21.6	21.6	0	19.5	19.5	19.5
8	7	2	21.6	21.6	21.6	0	19.5	19.5	19.5
15	0	2	21.6	21.6	21.6	0	19.5	19.5	19.5

Note(s):

5/3 MHz Bandwidths does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing per KDB941225 D05 SAR for LTE Devices.

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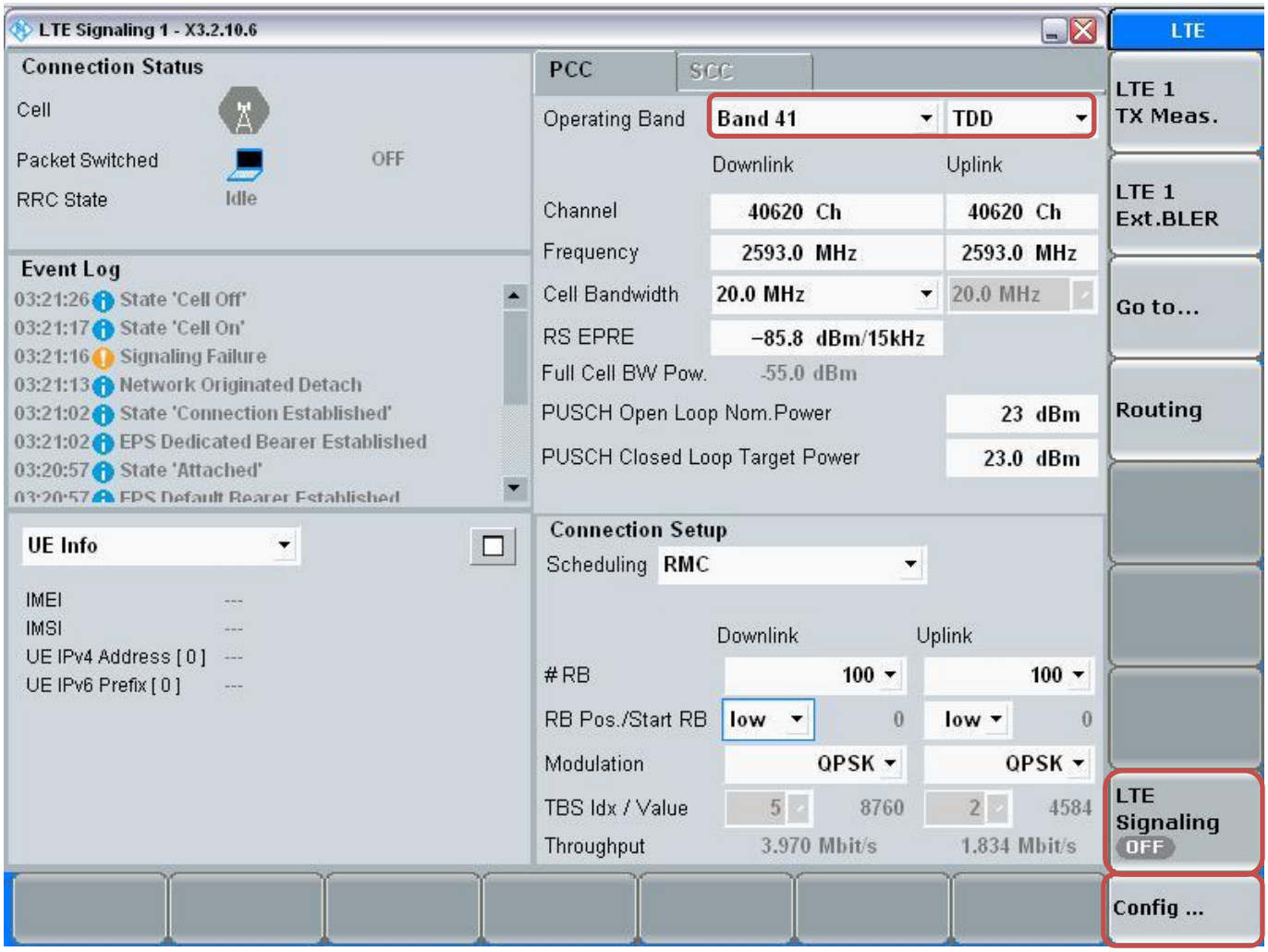
8.4.8. LTE Band 41

Procedure used to establish SAR test signal for LTE TDD Band 41

Set to CMW-500 with following parameters:

- Turn the LTE Signaling off using “ON | OFF” key
- Operating Band: Select Band 41 and TDD
- Go to “Config….”



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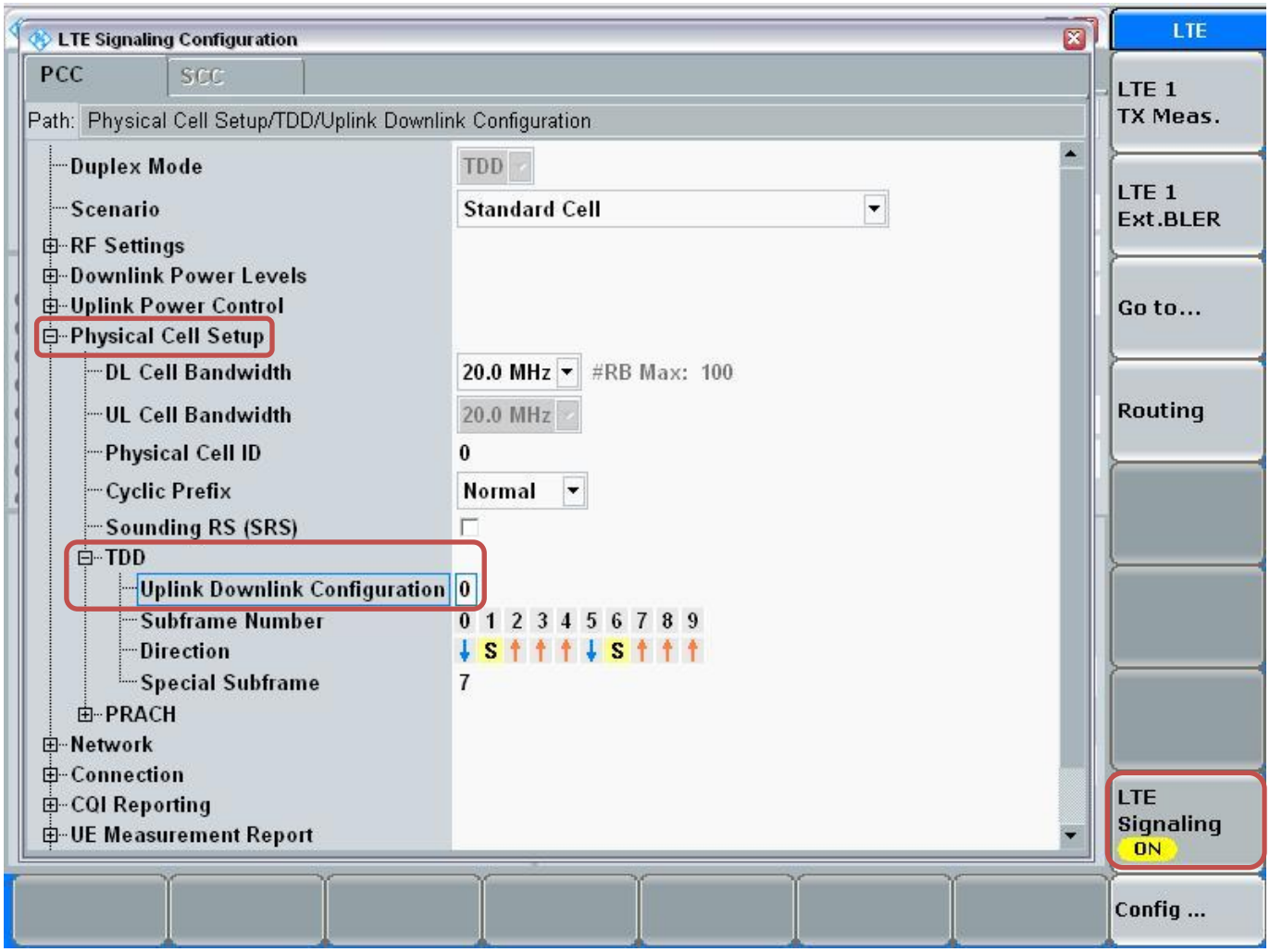
- Go to “Physical Cell Setup”
- Select “TDD” and Set “Uplink Downlink Configuration” to “0”
- Turn the cell on using “ON | OFF” key



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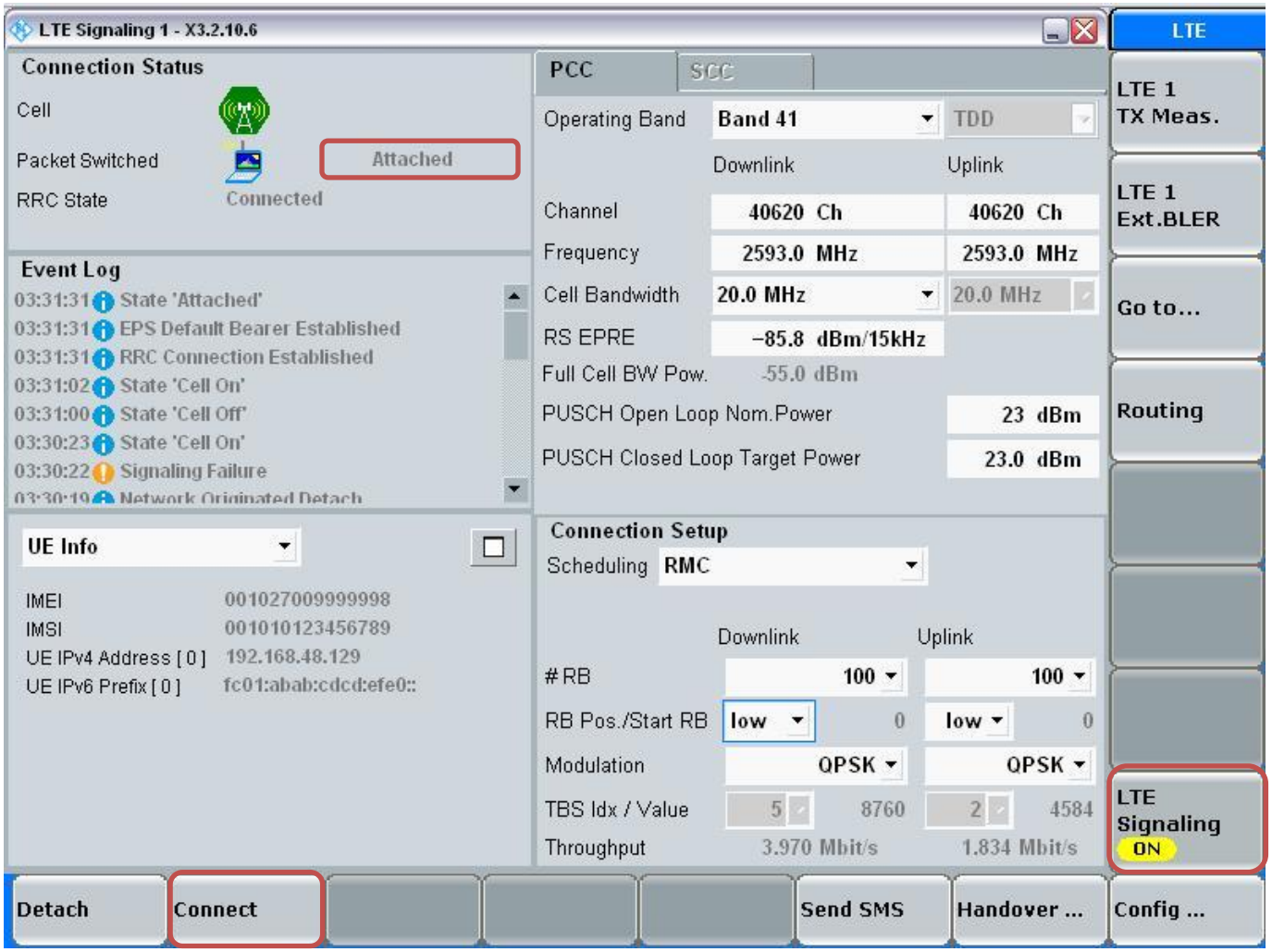
Connect to EUT

- Turn the cell on using “ON | OFF” key
- After EUT is Attached
- Select “Connect”



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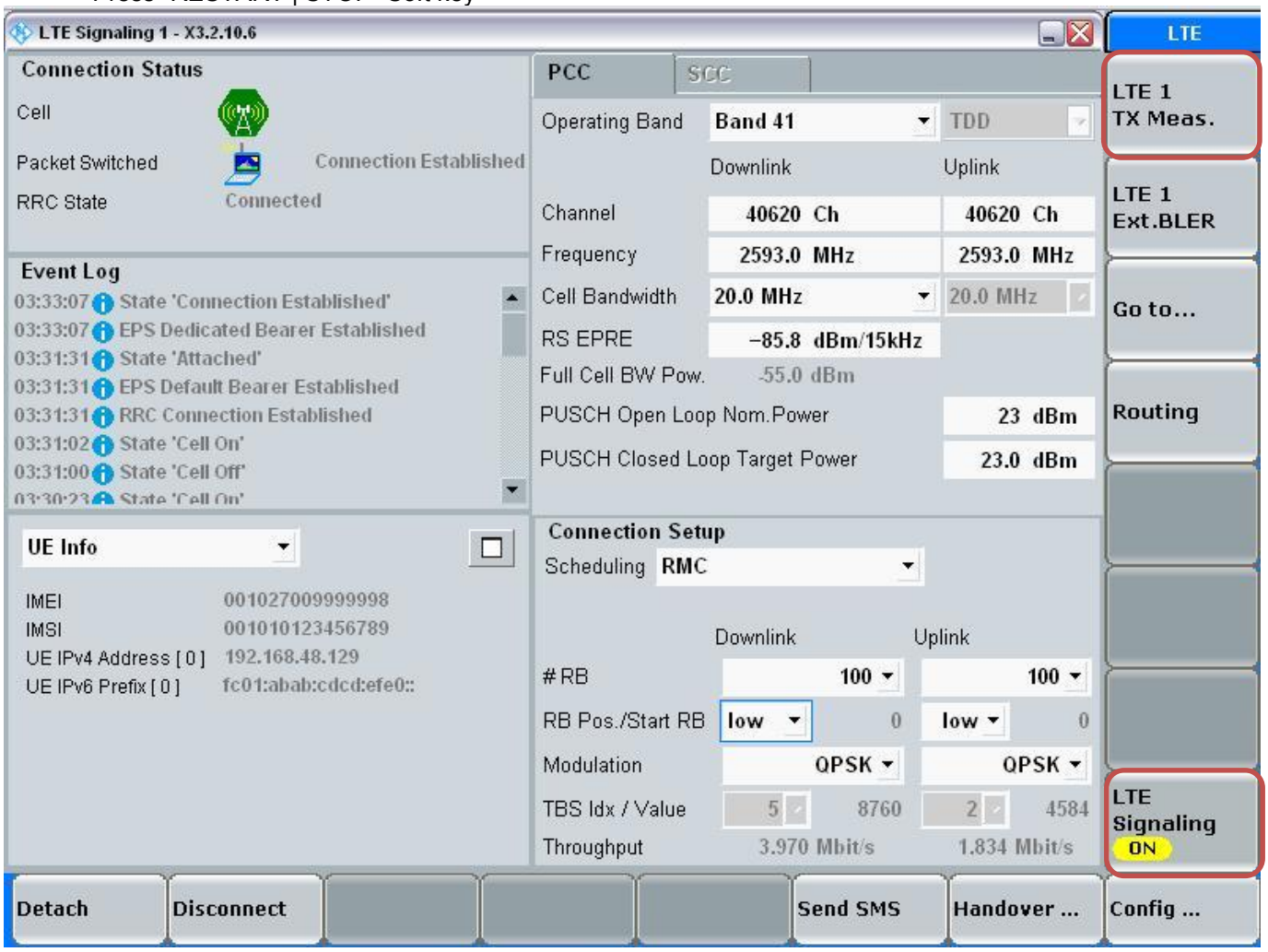
Max Power Setting

- Select “LTE 1 TX Meas.”
- Press “RESTART | STOP” Soft key



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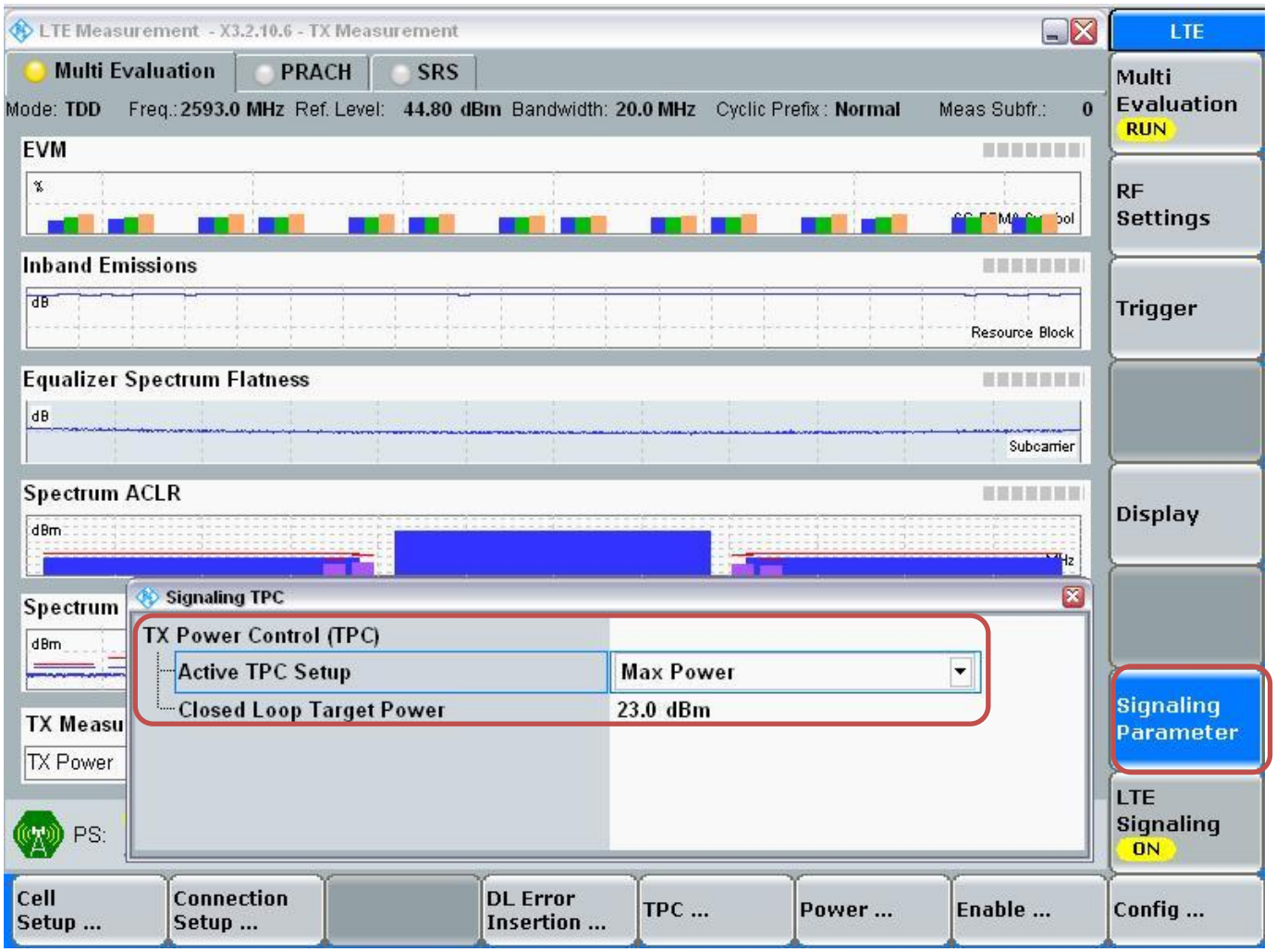
- Select “Signaling Parameter”
- Select “TX Power Control (TPC)” > Select “Active TPC Setup” to “Max Power” > Set “Closed Loop Target Power” to “23 dBm”



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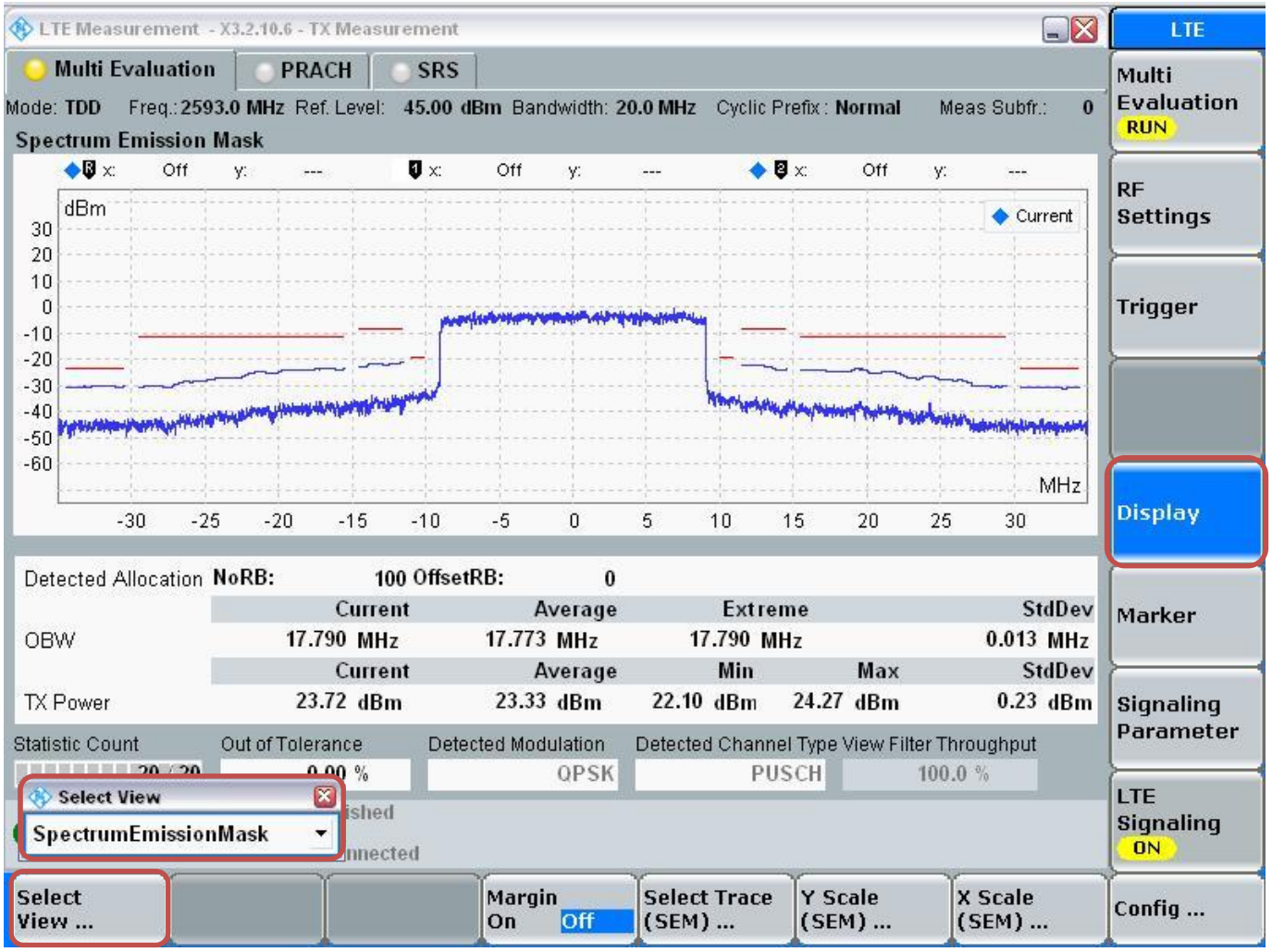
View TX Power

- Go to “Display”
- Select “Select View…”
- Select “Spectrum Emission Mask”



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LTE Band 41 Measured Results

LTE Band 41		Emission Power						Body Power					
20 MHz BW QPSK		Target MPR	39750	40185	40620	41055	41490	Target MPR	39750	40185	40620	41055	41490
No. of RB	RB Offset		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
1	0	0	22.5	22.5	22.5	22.4	22.4	0	13.1	13.1	12.9	12.9	13.0
1	49	0	22.5	22.4	22.5	22.3	22.3	0	13.1	13.1	13.4	12.9	13.2
1	99	0	22.5	22.5	22.5	22.3	22.4	0	13.1	13.0	13.0	12.9	12.9
50	0	1	21.6	21.5	21.6	21.4	21.4	0	13.0	13.0	13.0	13.0	13.0
50	24	1	21.6	21.4	21.6	21.4	21.4	0	13.0	13.0	13.0	13.0	13.0
50	50	1	21.5	21.4	21.6	21.4	21.5	0	13.0	13.0	13.0	13.0	13.0
100	0	1	21.5	21.6	21.6	21.5	21.4	0	13.0	13.0	13.0	13.0	13.0
20 MHz BW 16QAM		Target MPR	39750	40185	40620	41055	41490	Target MPR	39750	40185	40620	41055	41490
No. of RB	RB Offset		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz		2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
1	0	1	21.6	21.6	21.6	21.5	21.4	0	12.9	12.9	13.0	12.9	12.9
1	49	1	21.4	21.5	21.6	21.5	21.4	0	12.9	13.0	13.0	12.9	12.9
1	99	1	21.6	21.4	21.6	21.5	21.6	0	13.1	12.9	13.0	12.9	12.9
50	0	2	20.6	20.6	20.6	20.4	20.4	0	12.9	12.9	12.9	12.9	12.9
50	24	2	20.6	20.4	20.6	20.3	20.4	0	12.9	12.9	12.9	12.9	12.9
50	50	2	20.6	20.5	20.6	20.5	20.4	0	12.9	12.9	12.9	12.9	12.9
100	0	2	20.6	20.5	20.5	20.4	20.5	0	12.9	12.9	12.9	12.9	12.9
LTE Band 41		Emission Power						Body Power					
15 MHz BW QPSK		Target MPR	39725	40173	40620	41068	41515	Target MPR	39725	40173	40620	41068	41515
No. of RB	RB Offset		2503.5 MHz	2548.3 MHz	2593 MHz	2637.8 MHz	2682.5 MHz		2503.5 MHz	2548.3 MHz	2593 MHz	2637.8 MHz	2682.5 MHz
1	0	0	22.5	22.5	22.5	22.4	22.3	0	12.9	13.0	12.9	13.0	12.9
1	36	0	22.5	22.6	22.5	22.3	22.3	0	13.0	13.0	13.0	13.0	12.9
1	74	0	22.5	22.5	22.5	22.3	22.3	0	13.0	13.0	12.9	13.0	12.9
36	0	1	21.6	21.6	21.6	21.3	21.5	0	12.9	13.0	12.9	13.0	12.9
36	18	1	21.6	21.6	21.6	21.4	21.4	0	12.9	13.0	12.9	13.1	13.1
36	37	1	21.6	21.6	21.6	21.4	21.4	0	12.9	12.9	12.9	13.1	13.1
75	0	1	21.6	21.5	21.6	21.4	21.5	0	13.0	12.9	12.9	13.1	13.1
15 MHz BW 16QAM		Target MPR	39725	40173	40620	41068	41515	Target MPR	39725	40173	40620	41068	41515
No. of RB	RB Offset		2503.5 MHz	2548.3 MHz	2593 MHz	2637.8 MHz	2682.5 MHz		2503.5 MHz	2548.3 MHz	2593 MHz	2637.8 MHz	2682.5 MHz
1	0	1	21.3	21.5	21.6	21.5	21.6	0	12.9	13.1	13.1	13.0	12.9
1	36	1	21.3	21.5	21.6	21.6	21.5	0	12.9	13.1	13.1	12.9	12.9
1	74	1	21.3	21.4	21.5	21.5	21.5	0	12.9	13.1	13.1	12.9	12.9
36	0	2	20.6	20.4	20.6	20.4	20.5	0	12.9	13.0	12.9	12.9	12.9
36	18	2	20.6	20.5	20.6	20.5	20.5	0	12.9	12.9	12.9	12.9	13.1
36	37	2	20.6	20.5	20.5	20.4	20.4	0	13.0	12.9	12.9	12.9	13.1
75	0	2	20.6	20.5	20.6	20.4	20.5	0	12.9	12.9	12.9	13.0	13.1
LTE Band 41		Emission Power						Body Power					
10 MHz BW QPSK		Target MPR	39700	40160	40620	41080	41540	Target MPR	39700	40160	40620	41080	41540
No. of RB	RB Offset		2501 MHz	2547 MHz	2593 MHz	2639 MHz	2685 MHz		2501 MHz	2547 MHz	2593 MHz	2639 MHz	2685 MHz
1	0	0	22.5	22.5	22.5	22.4	22.3	0	13.1	13.2	13.0	13.0	13.0
1	24	0	22.5	22.4	22.4	22.5	22.3	0	13.1	13.1	12.9	12.9	13.2
1	49	0	22.5	22.6	22.4	22.5	22.3	0	13.1	13.2	13.0	13.0	12.9
25	0	1	21.6	21.4	21.6	21.4	21.4	0	13.0	13.3	13.0	13.0	13.2
25	12	1	21.6	21.6	21.6	21.5	21.4	0	13.0	13.3	13.0	13.0	13.2
25	24	1	21.6	21.6	21.6	21.4	21.4	0	13.0	13.3	13.0	13.0	13.1
50	0	1	21.6	21.5	21.6	21.5	21.4	0	13.0	12.9	13.0	13.0	13.1
10 MHz BW 16QAM		Target MPR	39700	40160	40620	41080	41540	Target MPR	39700	40160	40620	41080	41540
No. of RB	RB Offset		2501 MHz	2547 MHz	2593 MHz	2639 MHz	2685 MHz		2501 MHz	2547 MHz	2593 MHz	2639 MHz	2685 MHz
1	0	1	21.4	21.5	21.6	21.4	21.3	0	12.9	13.1	13.0	12.9	12.9
1	24	1	21.4	21.4	21.5	21.3	21.3	0	12.9	12.9	13.0	12.9	12.9
1	49	1	21.4	21.4	21.6	21.3	21.3	0	12.9	12.9	13.0	12.9	13.3
25	0	2	20.6	20.5	20.6	20.4	20.5	0	13.0	12.9	12.9	12.9	12.9
25	12	2	20.6	20.5	20.6	20.5	20.5	0	12.9	12.9	12.9	12.9	13.1
25	24	2	20.6	20.4	20.6	20.5	20.4	0	12.9	12.9	12.9	12.9	12.9
50	0	2	20.5	20.5	20.6	20.4	20.4	0	13.0	12.9	12.9	12.9	12.9

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8.5. LTE Rel. 10 Carrier Aggregation

Carrier Aggregation is implemented for downlink only. Only Uplink output power was measured. Uplink output power is independent with downlink Carrier Aggregation active or inactive.

Refer to standalone output power.

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8.6. Wi-Fi (2.4 GHz Band)

For 2.4 GHz band, there are two use cases:

- P_{Cell_ON}: This will be used when both Cellular and Wi-Fi radios are ON.
- P_{Cell_OFF}: This will be used when only Wi-Fi radio is ON

Required Test Channels per KDB 248227 D01

Mode	Band	**GHz**	Channel	"Default Test Channels"	
				802.11b	802.11g
802.11b/g	2.4 GHz	**2.412**	1#	√	∇
		2.437	6	√	∇
		2.462	11#	√	∇

Notes:
√ = "default test channels"
∇ = possible 802.11g channels with maximum average output ¼ dB ≥ the "default test channels"
= when output power is reduced for channel 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels should be tested.

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8.6.1. Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max})

Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)			SAR Test (Yes/No)
					Antenna A	Antenna B	Antenna C	
2.4	802.11b	1 Tx	1	2412	13.0			Yes
			6	2437	13.0			
			11	2462	13.0			
			12	2467	13.0			
			13	2472	13.0			
			1	2412		17.9		
			6	2437		17.9		
			11	2462		17.9		
			12	2467		15.0		
			13	2472		12.5		
			1	2412			16.0	
			6	2437			16.0	
			11	2462			16.0	
			12	2467			15.0	
			13	2472			12.5	
	802.11g	1 Tx	1	2412	13.0			No
			2	2417	13.0			
			6	2437	13.0			
			10	2457	13.0			
			11	2462	13.0			
			12	2467	9.5			
			13	2472	3.0			
			1	2412		18.0		
			2	2417		18.0		
			6	2437		18.0		
			10	2457		18.0		
			11	2462		14.0		
			12	2467		9.5		
			13	2472		3.0		
			1	2412			16.0	
			2	2417			16.0	
			6	2437			16.0	
			10	2457			16.0	
			11	2462			14.0	
			12	2467			9.5	
			13	2472			3.0	

Note(s):

1. Per KDB 248227 D01, SAR is not required for 802.11g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.
2. Additionally, SAR is not required for Channels 12 and 13 because the tune-up limit and the measured output power for these two channels are no greater than those for the default test channels.

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Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)			SAR Test (Yes/No)
					Antenna A	Antenna B	Antenna C	
2.4	802.11g	2 Tx CDD (Antenna A + B)	1	2412	12.9	18.0		Yes
			2	2417	12.9	18.0		
			6	2437	12.9	18.0		
			10	2457	12.9	18.0		
			11	2462	12.9	13.0		
			12	2467	9.5	9.5		
			13	2472	3.0	3.0		
		2 Tx CDD (Antenna A + C)	1	2412	12.9		15.9	Yes
			2	2417	12.9		16.0	
			6	2437	12.9		16.0	
			10	2457	12.9		16.0	
			11	2462	12.9		12.9	
			12	2467	9.5		9.5	
			13	2472	3.0		3.0	
	802.11n	1 Tx HT20	1	2412	13.0			No
			2	2417	13.0			
			6	2437	13.0			
			10	2457	13.0			
			11	2462	13.0			
			12	2467	9.5			
			13	2472	3.0			
			1	2412		18.0		
			2	2417		18.0		
			6	2437		18.0		
			10	2457		18.0		
			11	2462		14.0		
			12	2467		9.5		
			13	2472		3.0		
			1	2412			16.0	
			2	2417			16.0	
			6	2437			16.0	
			10	2457			16.0	
			11	2462			14.0	
			12	2467			9.5	
			13	2472			3.0	

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Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)			SAR Test (Yes/No)
					Antenna A	Antenna B	Antenna C	
2.4	802.11n	2 Tx HT20 CDD (Antenna A + B)	1	2412	13.0	18.0		No
			2	2417	13.0	18.0		
			6	2437	13.0	18.0		
			10	2457	13.0	18.0		
			11	2462	13.0	13.0		
			12	2467	9.5	9.5		
			13	2472	3.0	3.0		
		2 Tx HT20 CDD (Antenna A + C)	1	2412	13.0		16.0	No
			2	2417	13.0		16.0	
			6	2437	13.0		16.0	
			10	2457	13.0		16.0	
			11	2462	13.0		13.0	
			12	2467	9.5		9.5	
			13	2472	3.0		3.0	
		2 Tx HT20 STBC (Antenna A + B)	1	2412	13.0	18.0		No
			2	2417	13.0	18.0		
			6	2437	13.0	18.0		
			10	2457	13.0	18.0		
			11	2462	13.0	13.0		
			12	2467	9.5	9.5		
			13	2472	3.0	3.0		
		2 Tx HT20 STBC (Antenna A + C)	1	2412	13.0		16.0	No
			2	2417	13.0		16.0	
			6	2437	13.0		16.0	
			10	2457	13.0		16.0	
			11	2462	13.0		13.0	
			12	2467	9.5		9.5	
			13	2472	3.0		3.0	
		2 Tx HT20 SDM (Antenna A + B)	1	2412	13.0	18.0		No
			2	2417	13.0	18.0		
			6	2437	13.0	18.0		
			10	2457	13.0	18.0		
			11	2462	13.0	13.0		
			12	2467	9.5	9.5		
			13	2472	3.0	3.0		
		2 Tx HT20 SDM (Antenna A + C)	1	2412	13.0		16.0	No
			2	2417	13.0		16.0	
			6	2437	13.0		16.0	
			10	2457	13.0		16.0	
			11	2462	13.0		13.0	
			12	2467	9.5		9.5	
			13	2472	3.0		3.0	

Power measurements to determine worst-case data rates

Mode	Ch #	Freq. (MHz)	Data Rate	Average Power (dBm)			SAR test (Yes/No)
				Antenna A	Antenna C	Antenna C	
802.11b	6	2437	1 Mbps	13.0	18.0	16.0	Yes
			2 Mbps	13.0	17.9	15.9	No
			5.5 Mbps	12.9	17.9	15.8	No
			11 Mbps	12.8	17.8	15.8	No

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8.6.2. Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low})

Considerations for output power measurement for Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low})

- All 2.4 GHz activity is disabled on Antenna B under state P_{Cell_ON} (P_{low}).
- Output power measurement for Wi-Fi 2.4 GHz under state P_{Cell_ON} (P_{low}) was repeated only on the configurations that yielded the highest SAR results- per transmit diversity and test position- under state P_{Cell_OFF} (P_{max}).
- Output power levels for Antenna C remains the same regardless of cellular activity.

Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)			SAR Test (Yes/No)
					Antenna A	Antenna B	Antenna C	
2.4	802.11b	1 Tx	1	2412	10.0	Disabled under P_{Cell_ON}(P_{low})		Yes
			6	2437				
			11	2462	10.0			
			12	2467				
			13	2472				
			1	2412				
			6	2437				
			11	2462				
			12	2467				
			13	2472				
	802.11g	2 Tx CDD	1	2412				Yes
			2	2417				
			6	2437	9.8		15.9	
			10	2457				
			11	2462				
			12	2467				
			13	2472				

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8.7. Wi-Fi (5 GHz Bands)

Antenna A is incapable of 5 GHz transmissions.

For each of the 5 GHz bands, there are two use cases:

- P_{Cell_ON}: This will be used when both Cellular and Wi-Fi radios are ON.
- P_{Cell_OFF}: This will be used when only Wi-Fi radio is ON

8.7.1. Wi-Fi 5 GHz P_{Cell_OFF} (P_{max})

Wi-Fi 5.2 GHz P_{Cell_OFF} (P_{max}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.2	802.11a	1 Tx	36	5180	17.0		Yes
			40	5200	17.0		
			44	5220	17.0		
			48	5240	17.0		
			36	5180		16.9	
			40	5200		18.0	
			44	5220		17.9	
			48	5240		18.0	
		2 Tx CDD	36	5180	15.5	15.5	Yes
			40	5200	17.0	17.0	
			44	5220	17.0	17.0	
			48	5240	17.0	17.0	
	802.11n	1 Tx HT20	36	5180	15.5		No
			40	5200	17.0		
			44	5220	17.0		
			48	5240	17.0		
			36	5180		15.5	
			40	5200		17.0	
			44	5220		17.0	
			48	5240		17.0	
		1 Tx HT40	38	5180	13.5		No
			46	5230	17.0		
			38	5180		13.5	
			46	5230		18.0	
		2 Tx HT20 CDD	36	5180	15.5	15.5	No
			40	5200	17.0	17.0	
			48	5240	17.0	17.0	
		2 Tx HT20 STBC	36	5180	15.5	15.5	No
			40	5200	17.0	17.0	
			48	5240	17.0	17.0	
		2 Tx HT20 SDM	36	5180	15.5	15.5	No
			40	5200	17.0	17.0	
			48	5240	17.0	17.0	
		2 Tx HT40 CDD	38	5190	12.5	12.5	Yes
			46	5230	17.0	18.0	
		2 Tx HT40 STBC	38	5190	12.5	12.5	No
			46	5230	17.0	18.0	
		2 Tx HT40 SDM	38	5190	12.5	12.5	No
			46	5230	17.0	18.0	

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Wi-Fi 5.2 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.2	802.11ac	1 Tx HT20	36	5180	17.0		Yes
			40	5200	17.0		
			48	5240	17.0		
			36	5180		17.0	
			40	5200		18.0	
			48	5240		18.0	
		1 Tx HT40	38	5180	13.5		No
			46	5230	17.0		
			38	5180		13.5	
			46	5230		18.0	
		1 Tx VHT80	42	5210	13.0		No
			42	5210		13.0	
		2 Tx HT20 CDD	36	5180	15.5	15.5	No
			40	5200	17.0	17.0	
			48	5240	17.0	17.0	
		2 Tx HT20 STBC	36	5180	15.5	15.5	No
			40	5200	17.0	17.0	
			48	5240	17.0	17.0	
		2 Tx HT20 SDM	36	5180	15.5	15.5	No
			40	5200	17.0	17.0	
			48	5240	17.0	17.0	
		2 Tx HT40 CDD	38	5190	12.5	12.5	No
			46	5230	17.0	18.0	
		2 Tx HT40 STBC	38	5190	12.5	12.5	No
			46	5230	17.0	18.0	
		2 Tx HT40 SDM	38	5190	12.5	12.5	No
			46	5230	17.0	18.0	
		2 Tx VHT80 CDD	38	5190	12.0	12.0	No
		2 Tx VHT80 STBC	38	5190	12.0	12.0	No
		2 Tx VHT80 SDM	38	5190	12.0	12.0	No

Note(s):

1. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is < ¼ dB higher than those measured at the lowest data rate.
2. SAR evaluation for 802.11ac is required based on the highest 802.11a configuration per April 2013 TCB Workshop.

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Wi-Fi 5.3 GHz P_{Cell_OFF} (P_{max}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.3	802.11a	1 Tx	52	5260	16.0		Yes
			56	5280	16.0		
			60	5300	16.0		
			64	5320	16.0		
			52	5260		18.0	
			56	5280		18.0	
			60	5300		18.0	
			64	5320		17.0	
		2 Tx CDD	52	5260	15.8	17.0	Yes
			56	5280	15.8	16.9	
			60	5300	15.8	17.0	
			64	5320	15.8	16.0	
	802.11n	1 Tx HT20	52	5260	16.0		No
			56	5280	16.0		
			60	5300	16.0		
			64	5320	16.0		
			52	5260		18.0	
			56	5280		18.0	
			60	5300		18.0	
			64	5320		17.0	
		1 Tx HT40	54	5270	16.0		No
			62	5310	15.0		
			54	5270		18.0	
			62	5310		15.0	
		2 Tx HT20 CDD	52	5260	16.0	17.0	No
			56	5280	16.0	17.0	
			60	5300	16.0	17.0	
			64	5320	16.0	16.0	
		2 Tx HT20 STBC	52	5260	16.0	17.0	No
			56	5280	16.0	17.0	
			60	5300	16.0	17.0	
			64	5320	16.0	16.0	
		2 Tx HT20 SDM	52	5260	16.0	17.0	No
			56	5280	16.0	17.0	
			60	5300	16.0	17.0	
			64	5320	16.0	16.0	
		2 Tx HT40 CDD	54	5270	16.0	18.0	Yes
			62	5310	14.5	14.5	
		2 Tx HT40 STBC	54	5270	16.0	18.0	No
			62	5310	14.5	14.5	
		2 Tx HT40 SDM	54	5270	16.0	18.0	No
			62	5310	14.5	14.5	

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Wi-Fi 5.3 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.3	802.11ac	1 Tx HT20	52	5260	16.0		Yes
			60	5300	16.0		
			64	5320	16.0		
			52	5260		18.0	
			60	5300		18.0	
			64	5320		17.0	
		1 Tx HT40	54	5270	16.0		No
			62	5310	15.0		
			54	5270		18.0	
			62	5310		15.0	
		1 Tx VHT80	58	5290	15.0		No
			58	5290		15.0	
		2 Tx HT20 CDD	52	5260	16.0	17.0	No
			56	5280	16.0	17.0	
			60	5300	16.0	17.0	
			64	5320	16.0	16.0	
		2 Tx HT20 STBC	52	5260	16.0	17.0	No
			56	5280	16.0	17.0	
			60	5300	16.0	17.0	
			64	5320	16.0	16.0	
		2 Tx HT20 SDM	52	5260	16.0	17.0	No
			56	5280	16.0	17.0	
			60	5300	16.0	17.0	
			64	5320	16.0	16.0	
		2 Tx HT40 CDD	54	5270	16.0	18.0	No
			62	5310	14.5	14.5	
		2 Tx HT40 STBC	54	5270	16.0	18.0	No
			62	5310	14.5	14.5	
		2 Tx HT40 SDM	54	5270	16.0	18.0	No
			62	5310	14.5	14.5	
		2 Tx VHT80 CDD	54	5270	14.5	14.5	No
		2 Tx VHT80 STBC	54	5270	14.5	14.5	No
		2 Tx VHT80 SDM	54	5270	14.5	14.5	No

Note(s):

1. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is < ¼ dB higher than those measured at the lowest data rate.
2. SAR evaluation for 802.11ac is required based on the highest 802.11a configuration per April 2013 TCB Workshop.

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Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.5	802.11a	1 Tx	100	5500	16.4		Yes
			104	5520	16.4		
			108	5540	16.4		
			112	5560	16.4		
			116	5580	16.4		
			120	5600	16.4		
			124	5620	16.4		
			128	5640	16.4		
			132	5660	16.4		
			136	5680	16.4		
			140	5700	15.0		
			100	5500		17.0	
			104	5520		18.0	
			108	5540		18.0	
			112	5560		18.0	
			116	5580		18.0	
			120	5600		18.0	
			124	5620		18.0	
			128	5640		18.0	
			132	5660		18.0	
			136	5680		18.0	
			140	5700		15.0	
		2 Tx CDD	100	5500	16.0	16.0	Yes
			104	5520	16.5	17.0	
			108	5540	16.5	17.0	
			112	5560	16.5	17.0	
			116	5580	16.5	17.0	
			120	5600	16.5	17.0	
			124	5620	16.5	17.0	
			128	5640	16.5	17.0	
			132	5660	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	

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Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.5	802.11n	1 Tx HT20	100	5500	16.5		No
			104	5520	16.5		
			120	5600	16.5		
			136	5680	16.5		
			140	5700	15.0		
			100	5500		17.0	
			104	5520		18.0	
			120	5600		18.0	
			136	5680		18.0	
			140	5700		15.0	
		1 Tx HT40	102	5510	15.0		No
			110	5550	16.5		
			118	5590	16.5		
			126	5630	16.5		
			134	5670	14.0		
			102	5510		15.0	
			110	5550		18.0	
			118	5590		18.0	
			126	5630		18.0	
			134	5670		14.0	
		2 Tx HT20 CDD	100	5500	16.0	16.0	No
			104	5520	16.5	17.0	
			120	5600	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	
		2 Tx HT20 STBC	100	5500	16.0	16.0	No
			104	5520	16.5	17.0	
			120	5600	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	
		2 Tx HT20 SDM	100	5500	16.0	16.0	No
			104	5520	16.5	17.0	
			120	5600	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	
		2 Tx HT40 CDD	102	5510	13.5	13.5	Yes
			110	5550	16.3	18.0	
			118	5590	16.3	18.0	
			126	5630	16.3	18.0	
			134	5670	13.0	13.0	
		2 Tx HT40 STBC	102	5510	13.5	13.5	No
			110	5550	16.5	18.0	
			118	5590	16.4	18.0	
			126	5630	16.5	17.9	
			134	5670	13.0	13.0	
		2 Tx HT40 SDM	102	5510	13.5	13.5	No
			110	5550	16.5	18.0	
			118	5590	16.4	18.0	
			126	5630	16.4	18.0	
			134	5670	13.0	13.0	

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Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.5	802.11ac	1 Tx HT20	100	5500	16.5		No
			104	5520	16.5		
			120	5600	16.5		
			136	5680	16.5		
			140	5700	15.0		
			100	5500		17.0	
			104	5520		18.0	
			120	5600		18.0	
			136	5680		18.0	
			140	5700		15.0	
		1 Tx HT40	102	5510	15.0		No
			110	5550	16.5		
			118	5590	16.4		
			126	5630	16.4		
			134	5670	14.0		
			102	5510		15.0	
			110	5550		18.0	
			118	5590		18.0	
			126	5630		18.0	
			134	5670		14.0	
		1 Tx VHT80	106	5530	16.0		No
			122	5610	16.5		
			138	5690	16.5		
			106	5530		16.0	
			122	5610		18.0	
			138	5690		18.0	
		2 Tx HT20 CDD	100	5500	16.0	16.0	Yes
			104	5520	16.5	17.0	
			120	5600	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	
		2 Tx HT20 STBC	100	5500	16.0	16.0	No
			104	5520	16.5	17.0	
			120	5600	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	
		2 Tx HT20 SDM	100	5500	16.0	16.0	No
			104	5520	16.5	17.0	
			120	5600	16.5	17.0	
			136	5680	16.5	17.0	
			140	5700	14.0	14.0	

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Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.5	802.11ac	2 Tx HT40 CDD	102	5510	13.5	13.5	No
			110	5550	16.5	18.0	
			118	5590	16.3	18.0	
			126	5630	16.3	18.0	
			134	5670	13.0	13.0	
		2 Tx HT40 STBC	102	5510	13.5	13.5	No
			110	5550	16.5	18.0	
			118	5590	16.2	17.8	
			126	5630	16.2	17.8	
			134	5670	13.0	13.0	
		2 Tx HT40 SDM	102	5510	13.5	13.5	No
			110	5550	16.5	18.0	
			118	5590	16.3	17.9	
			126	5630	16.3	17.9	
			134	5670	13.0	13.0	
		2 Tx VHT80 CDD	106	5530	14.0	14.0	No
			122	5610	16.5	18.0	
			138	5690	16.5	18.0	
		2 Tx VHT80 STBC	106	5530	14.0	14.0	No
			122	5610	16.5	18.0	
			138	5690	16.5	18.0	
		2 Tx VHT80 SDM	106	5530	14.0	14.0	No
			122	5610	16.5	18.0	
			138	5690	16.5	18.0	

Note(s):

1. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is < ¼ dB higher than those measured at the lowest data rate.
2. SAR evaluation for 802.11ac is required based on the highest 802.11a configuration per April 2013 TCB Workshop.

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Wi-Fi 5.8 GHz P_{Cell_OFF} (P_{max}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.8	802.11a	1 Tx	149	5745	16.0		Yes
			153	5765	17.0		
			157	5785	17.0		
			161	5805	17.0		
			165	5825	17.0		
			149	5745		16.0	
			153	5765		18.0	
			157	5785		18.0	
			161	5805		18.0	
			165	5825		17.0	
		2 Tx CDD	149	5745	15.0	15.0	Yes
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
	802.11n	1 Tx HT20	149	5745	16.0		No
			153	5765	17.0		
			157	5785	17.0		
			161	5805	17.0		
			165	5825	17.0		
			149	5745		16.0	
			153	5765		18.0	
			157	5785		18.0	
			161	5805		18.0	
			165	5825		17.0	
		1 Tx HT40	151	5755	14.5		No
			159	5795	17		
			151	5755		14.5	
			159	5795		17.0	
		2 Tx HT20 CDD	149	5745	15.0	15.0	No
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
		2 Tx HT20 STBC	149	5745	15.0	15.0	No
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
		2 Tx HT20 SDM	149	5745	15.0	15.0	No
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
		2 Tx HT40 CDD	151	5755	14.0	14.0	No
			159	5795	16.0	16.0	
		2 Tx HT40 STBC	151	5755	14.0	14.0	No
			159	5795	16.0	16.0	
		2 Tx HT40 SDM	151	5755	14.0	14.0	No
			159	5795	16.0	16.0	

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Wi-Fi 5.8 GHz P_{Cell_OFF} (P_{max}) Measured Results (continued)

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.8	802.11ac	1 Tx HT20	149	5745	16.0		No
			153	5765	17.0		
			157	5785	17.0		
			161	5805	17.0		
			165	5825	17.0		
			149	5745		16.0	
			153	5765		18.0	
			157	5785		18.0	
			161	5805		18.0	
			165	5825		17.0	
		1 Tx HT40	151	5755	14.5		No
			159	5795	17		
			151	5755		14.5	
			159	5795		17.0	
		1 Tx VHT80	155	5775	13.5		No
			155	5775		13.5	
		2 Tx HT20 CDD	149	5745	15.0	15.0	Yes
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
		2 Tx HT20 STBC	149	5745	15.0	15.0	No
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
		2 Tx HT20 SDM	149	5745	15.0	15.0	No
			153	5765	17.0	18.0	
			157	5785	17.0	18.0	
			161	5805	17.0	18.0	
			165	5825	16.0	16.0	
		2 Tx HT40 CDD	151	5755	14.0	14.0	No
			159	5795	16.0	16.0	
		2 Tx HT40 STBC	151	5755	14.0	14.0	No
			159	5795	16.0	16.0	
		2 Tx HT40 SDM	151	5755	14.0	14.0	No
			159	5795	16.0	16.0	
		2 Tx VHT80 CDD	155	5775	13.0	13.0	No
		2 Tx VHT80 STBC	155	5775	13.0	13.0	No
		2 Tx VHT80 SDM	155	5775	13.0	13.0	No

Note(s):

1. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is < ¼ dB higher than those measured at the lowest data rate.
2. SAR evaluation for 802.11ac is required based on the highest 802.11a configuration per April 2013 TCB Workshop.

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Wi-Fi 5 GHz P_{Cell_OFF} (P_{max}) Measured Results continued

Power measurements to determine worst-case data rates

Band	No. of Transmitters	Mode	Ch #	Freq. (MHz)	Data Rate	Average Power (dBm)		SAR test (Yes/No)
						Antenna B	Antenna C	
5.2 GHz	1 Tx	802.11a	36	5180	6 Mbps	17.0	17.0	Yes
					9 Mbps	17.0	17.0	No
					12 Mbps	16.9	16.9	No
					18 Mbps	16.9	16.9	No
					24 Mbps	16.9	16.9	No
					36 Mbps	16.8	16.8	No
					48 Mbps	16.7	16.7	No
					54 Mbps	16.7	16.7	No
5.3 GHz	1 Tx	802.11a	52	5260	6 Mbps	16.0	18.0	Yes
					9 Mbps	16.0	18.0	No
					12 Mbps	15.9	17.9	No
					18 Mbps	15.9	17.9	No
					24 Mbps	15.9	17.8	No
					36 Mbps	15.9	17.8	No
					48 Mbps	15.8	17.7	No
					54 Mbps	15.8	17.7	No
5.5 GHz	1 Tx	802.11a	104	5520	6 Mbps	16.5	18.0	Yes
					9 Mbps	16.5	18.0	No
					12 Mbps	16.5	17.9	No
					18 Mbps	16.4	17.9	No
					24 Mbps	16.4	17.9	No
					36 Mbps	16.4	17.8	No
					48 Mbps	16.4	17.8	No
					54 Mbps	16.3	17.7	No
5.8 GHz	1 Tx	802.11a	165	5825	6 Mbps	17.0	18.0	Yes
					9 Mbps	17.0	18.0	No
					12 Mbps	16.9	17.9	No
					18 Mbps	16.9	17.9	No
					24 Mbps	16.9	17.9	No
					36 Mbps	16.8	17.8	No
					48 Mbps	16.8	17.8	No
					54 Mbps	16.8	17.7	No

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8.7.2. Wi-Fi 5 GHz P_{Cell_ON} (P_{low})

Considerations for output power measurement for Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low})

- Output power measurement for all Wi-Fi 5 GHz bands under state P_{Cell_ON} (P_{low}) was repeated only on the configurations that yielded the highest SAR results- per transmit diversity and test position- under state P_{Cell_OFF} (P_{max}).
- Output power levels for Antenna C remains the same regardless of cellular activity.

Wi-Fi 5.2 GHz P_{Cell_ON} (P_{low}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.2	802.11a	1 Tx	36	5180	11.5		Yes
			40	5200			
			44	5220			
			48	5240	11.5		
			36	5180			
			40	5200			
			44	5220			
			48	5240			
		2 Tx CDD	36	5180			Yes
			40	5200	11.5	17.0	
			44	5220			
			48	5240	11.5	17.0	

Wi-Fi 5.3 GHz P_{Cell_ON} (P_{low}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.3	802.11a	1 Tx	52	5260	10.6		Yes
			56	5280			
			60	5300			
			64	5320	11.0		
			52	5260			
			56	5280			
			60	5300			
			64	5320			
		2 Tx CDD	52	5260	11.0	17.0	Yes
			56	5280			
			60	5300	11.0	17.0	
			64	5320			

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Wi-Fi 5.5 GHz P_{Cell_ON} (P_{low}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.5	802.11a	1 Tx	100	5500			Yes
			104	5520	11.5		
			108	5540			
			112	5560			
			116	5580			
			120	5600			
			124	5620			
			128	5640			
			132	5660			
			136	5680			
			140	5700			
			100	5500			
			104	5520			
			108	5540			
			112	5560			
			116	5580			
			120	5600			
			124	5620			
			128	5640			
			132	5660			
			136	5680			
			140	5700			
		2 Tx CDD	100	5500			Yes
			104	5520	11.5	17.0	
			108	5540			
			112	5560			
			116	5580			
			120	5600			
			124	5620			
			128	5640			
			132	5660			
			136	5680			
			140	5700			

Wi-Fi 5.8 GHz P_{Cell_ON} (P_{low}) Measured Results

Band (GHz)	Mode	No. of Transmitters	Ch #	Freq. (MHz)	Average Power (dBm)		SAR Test (Yes/No)
					Antenna B	Antenna C	
5.8	802.11a	1 Tx	149	5745			Yes
			153	5765	11.7		
			157	5785	11.0		
			161	5805			
			165	5825			
			149	5745			
			153	5765			
			157	5785			
			161	5805			
			165	5825			
		2 Tx CDD	149	5745			Yes
			153	5765			
			157	5785	12.0	18.0	
			161	5805	12.0	18.0	
			165	5825			

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8.8. Bluetooth

All 2.4 GHz activity is disabled on Antenna B under state P_{Cell_ON} (P_{low}).

Band (GHz)	Mode	Ch #	Freq. (MHz)	Avg Pwr (dBm)	
				Antenna B	Antenna C
2.4	V3.0 + EDR, GFSK	0	2402	9.20	9.70
		39	2441	10.50	9.90
		78	2480	10.00	9.90
	V3.0 + EDR, 8-DPSK	0	2402	7.40	7.70
		39	2441	7.60	7.70
		78	2480	7.80	7.30
	V4.0 LE, GFSK	0	2402	8.70	8.80
		19	2440	8.70	8.80
		39	2480	8.70	8.70

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9. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.

The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

9.1. Tissue Dielectric Parameters

FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Std 1528-2013

Refer to Table 3

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9.2. Dielectric Property Measurements Results

SAR Lab A

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7/28/2014	Body 750	e'	54.4300	Relative Permittivity (ε_r):	54.43	55.55	-2.01	5
		e''	23.4000	Conductivity (σ):	0.98	0.96	1.32	5
	Body 700	e'	54.9100	Relative Permittivity (ε_r):	54.91	55.74	-1.49	5
		e''	23.8000	Conductivity (σ):	0.93	0.96	-3.43	5
	Body 790	e'	53.9400	Relative Permittivity (ε_r):	53.94	55.39	-2.62	5
		e''	23.0100	Conductivity (σ):	1.01	0.97	4.62	5
7/28/2014	Body 835	e'	53.0400	Relative Permittivity (ε_r):	53.04	55.20	-3.91	5
		e''	21.6100	Conductivity (σ):	1.00	0.97	3.44	5
	Body 820	e'	53.1500	Relative Permittivity (ε_r):	53.15	55.28	-3.85	5
		e''	21.6600	Conductivity (σ):	0.99	0.97	1.97	5
	Body 850	e'	52.9200	Relative Permittivity (ε_r):	52.92	55.16	-4.06	5
		e''	21.6200	Conductivity (σ):	1.02	0.99	3.51	5
7/31/2014	Body 835	e'	53.2600	Relative Permittivity (ε_r):	53.26	55.20	-3.51	5
		e''	21.4300	Conductivity (σ):	0.99	0.97	2.57	5
	Body 820	e'	53.3300	Relative Permittivity (ε_r):	53.33	55.28	-3.52	5
		e''	21.4800	Conductivity (σ):	0.98	0.97	1.13	5
	Body 850	e'	53.1400	Relative Permittivity (ε_r):	53.14	55.16	-3.66	5
		e''	21.4700	Conductivity (σ):	1.01	0.99	2.79	5
7/31/2014	Body 750	e'	54.0500	Relative Permittivity (ε_r):	54.05	55.55	-2.69	5
		e''	23.4200	Conductivity (σ):	0.98	0.96	1.41	5
	Body 700	e'	54.5300	Relative Permittivity (ε_r):	54.53	55.74	-2.17	5
		e''	23.8300	Conductivity (σ):	0.93	0.96	-3.31	5
	Body 790	e'	53.6000	Relative Permittivity (ε_r):	53.60	55.39	-3.24	5
		e''	23.0300	Conductivity (σ):	1.01	0.97	4.71	5
8/6/2014	Body 835	e'	53.0900	Relative Permittivity (ε_r):	53.09	55.20	-3.82	5
		e''	21.6200	Conductivity (σ):	1.00	0.97	3.48	5
	Body 820	e'	53.2600	Relative Permittivity (ε_r):	53.26	55.28	-3.65	5
		e''	21.7100	Conductivity (σ):	0.99	0.97	2.21	5
	Body 850	e'	52.9200	Relative Permittivity (ε_r):	52.92	55.16	-4.06	5
		e''	21.5900	Conductivity (σ):	1.02	0.99	3.37	5
8/15/2014	Body 2450	e'	52.6300	Relative Permittivity (ε_r):	52.63	52.70	-0.13	5
		e''	14.6800	Conductivity (σ):	2.00	1.95	2.55	5
	Body 2410	e'	52.7600	Relative Permittivity (ε_r):	52.76	52.76	0.00	5
		e''	14.5900	Conductivity (σ):	1.96	1.91	2.50	5
	Body 2475	e'	52.5900	Relative Permittivity (ε_r):	52.59	52.67	-0.15	5
		e''	14.7700	Conductivity (σ):	2.03	1.99	2.39	5

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SAR Lab B

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7/30/2014	Body 2600	e'	50.2528	Relative Permittivity (ε_r):	50.25	52.51	-4.30	5
		e''	15.2800	Conductivity (σ):	2.21	2.16	2.23	5
	Body 2500	e'	50.5479	Relative Permittivity (ε_r):	50.55	52.64	-3.97	5
		e''	14.9831	Conductivity (σ):	2.08	2.02	3.09	5
	Body 2700	e'	49.9138	Relative Permittivity (ε_r):	49.91	52.38	-4.72	5
		e''	15.5232	Conductivity (σ):	2.33	2.30	1.27	5
8/4/2014	Body 2450	e'	50.8300	Relative Permittivity (ε_r):	50.83	52.70	-3.55	5
		e''	14.9800	Conductivity (σ):	2.04	1.95	4.65	5
	Body 2410	e'	50.9000	Relative Permittivity (ε_r):	50.90	52.76	-3.52	5
		e''	14.9200	Conductivity (σ):	2.00	1.91	4.82	5
	Body 2475	e'	50.7600	Relative Permittivity (ε_r):	50.76	52.67	-3.62	5
		e''	15.0100	Conductivity (σ):	2.07	1.99	4.06	5
8/7/2014	Body 2450	e'	51.7100	Relative Permittivity (ε_r):	51.71	52.70	-1.88	5
		e''	13.7400	Conductivity (σ):	1.87	1.95	-4.01	5
	Body 2410	e'	51.8400	Relative Permittivity (ε_r):	51.84	52.76	-1.74	5
		e''	13.5600	Conductivity (σ):	1.82	1.91	-4.74	5
	Body 2475	e'	51.6400	Relative Permittivity (ε_r):	51.64	52.67	-1.95	5
		e''	13.7700	Conductivity (σ):	1.89	1.99	-4.54	5
8/11/2014	Body 2450	e'	51.7500	Relative Permittivity (ε_r):	51.75	52.70	-1.80	5
		e''	13.6600	Conductivity (σ):	1.86	1.95	-4.57	5
	Body 2410	e'	51.8100	Relative Permittivity (ε_r):	51.81	52.76	-1.80	5
		e''	13.6500	Conductivity (σ):	1.83	1.91	-4.11	5
	Body 2475	e'	51.6500	Relative Permittivity (ε_r):	51.65	52.67	-1.93	5
		e''	13.7100	Conductivity (σ):	1.89	1.99	-4.96	5
8/14/2014	Body 2450	e'	51.3400	Relative Permittivity (ε_r):	51.34	52.70	-2.58	5
		e''	14.4700	Conductivity (σ):	1.97	1.95	1.09	5
	Body 2410	e'	51.4300	Relative Permittivity (ε_r):	51.43	52.76	-2.52	5
		e''	14.3800	Conductivity (σ):	1.93	1.91	1.02	5
	Body 2475	e'	51.2600	Relative Permittivity (ε_r):	51.26	52.67	-2.67	5
		e''	14.5100	Conductivity (σ):	2.00	1.99	0.59	5
8/18/2014	Body 2450	e'	51.4500	Relative Permittivity (ε_r):	51.45	52.70	-2.37	5
		e''	13.7800	Conductivity (σ):	1.88	1.95	-3.73	5
	Body 2410	e'	51.5300	Relative Permittivity (ε_r):	51.53	52.76	-2.33	5
		e''	13.9500	Conductivity (σ):	1.87	1.91	-2.00	5
	Body 2475	e'	51.2700	Relative Permittivity (ε_r):	51.27	52.67	-2.66	5
		e''	13.7800	Conductivity (σ):	1.90	1.99	-4.47	5
8/21/2014	Body 2450	e'	52.8600	Relative Permittivity (ε_r):	52.86	52.70	0.30	5
		e''	14.7100	Conductivity (σ):	2.00	1.95	2.76	5
	Body 2410	e'	53.0000	Relative Permittivity (ε_r):	53.00	52.76	0.46	5
		e''	14.5900	Conductivity (σ):	1.96	1.91	2.50	5
	Body 2475	e'	52.7900	Relative Permittivity (ε_r):	52.79	52.67	0.23	5
		e''	14.7400	Conductivity (σ):	2.03	1.99	2.18	5

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SAR Lab C

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
8/11/2014	Body 5180	e'	48.2400	Relative Permittivity (ε_r):	48.24	49.05	-1.64	5
		e''	18.5400	Conductivity (σ):	5.34	5.27	1.30	5
	Body 5200	e'	48.2200	Relative Permittivity (ε_r):	48.22	49.02	-1.63	5
		e''	18.5900	Conductivity (σ):	5.38	5.29	1.52	5
	Body 5600	e'	47.5600	Relative Permittivity (ε_r):	47.56	48.48	-1.89	5
		e''	19.0200	Conductivity (σ):	5.92	5.76	2.80	5
	Body 5800	e'	47.2200	Relative Permittivity (ε_r):	47.22	48.20	-2.03	5
		e''	19.1100	Conductivity (σ):	6.16	6.00	2.72	5
	Body 5825	e'	47.2000	Relative Permittivity (ε_r):	47.20	48.20	-2.07	5
		e''	19.2100	Conductivity (σ):	6.22	6.00	3.70	5
8/14/2014	Body 5180	e'	49.3500	Relative Permittivity (ε_r):	49.35	49.05	0.62	5
		e''	17.8400	Conductivity (σ):	5.14	5.27	-2.52	5
	Body 5200	e'	49.3500	Relative Permittivity (ε_r):	49.35	49.02	0.67	5
		e''	17.8900	Conductivity (σ):	5.17	5.29	-2.31	5
	Body 5600	e'	48.8400	Relative Permittivity (ε_r):	48.84	48.48	0.75	5
		e''	18.1600	Conductivity (σ):	5.65	5.76	-1.85	5
	Body 5800	e'	48.4900	Relative Permittivity (ε_r):	48.49	48.20	0.60	5
		e''	18.3200	Conductivity (σ):	5.91	6.00	-1.53	5
	Body 5825	e'	48.5100	Relative Permittivity (ε_r):	48.51	48.20	0.64	5
		e''	18.4600	Conductivity (σ):	5.98	6.00	-0.35	5
8/18/2014	Body 5180	e'	48.1900	Relative Permittivity (ε_r):	48.19	49.05	-1.75	5
		e''	18.3800	Conductivity (σ):	5.29	5.27	0.43	5
	Body 5200	e'	48.0400	Relative Permittivity (ε_r):	48.04	49.02	-2.00	5
		e''	18.4000	Conductivity (σ):	5.32	5.29	0.48	5
	Body 5600	e'	47.2500	Relative Permittivity (ε_r):	47.25	48.48	-2.53	5
		e''	19.1200	Conductivity (σ):	5.95	5.76	3.34	5
	Body 5800	e'	47.0200	Relative Permittivity (ε_r):	47.02	48.20	-2.45	5
		e''	18.9900	Conductivity (σ):	6.12	6.00	2.07	5
	Body 5825	e'	46.8600	Relative Permittivity (ε_r):	46.86	48.20	-2.78	5
		e''	19.2900	Conductivity (σ):	6.25	6.00	4.13	5
8/21/2014	Body 5180	e'	49.0700	Relative Permittivity (ε_r):	49.07	49.05	0.05	5
		e''	18.4000	Conductivity (σ):	5.30	5.27	0.54	5
	Body 5200	e'	49.0400	Relative Permittivity (ε_r):	49.04	49.02	0.04	5
		e''	18.4100	Conductivity (σ):	5.32	5.29	0.53	5
	Body 5600	e'	48.4000	Relative Permittivity (ε_r):	48.40	48.48	-0.16	5
		e''	18.9200	Conductivity (σ):	5.89	5.76	2.26	5
	Body 5800	e'	48.0700	Relative Permittivity (ε_r):	48.07	48.20	-0.27	5
		e''	19.0000	Conductivity (σ):	6.13	6.00	2.12	5
	Body 5825	e'	48.0400	Relative Permittivity (ε_r):	48.04	48.20	-0.33	5
		e''	19.1300	Conductivity (σ):	6.20	6.00	3.27	5

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SAR Lab D

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
8/11/2014	Body 5180	e'	47.4100	Relative Permittivity (ε_r):	47.41	49.05	-3.34	5
		e''	18.4200	Conductivity (σ):	5.31	5.27	0.65	5
	Body 5200	e'	47.3500	Relative Permittivity (ε_r):	47.35	49.02	-3.41	5
		e''	18.4200	Conductivity (σ):	5.33	5.29	0.59	5
	Body 5600	e'	46.6600	Relative Permittivity (ε_r):	46.66	48.48	-3.75	5
		e''	18.8100	Conductivity (σ):	5.86	5.76	1.67	5
	Body 5800	e'	46.3500	Relative Permittivity (ε_r):	46.35	48.20	-3.84	5
		e''	19.0000	Conductivity (σ):	6.13	6.00	2.12	5
	Body 5825	e'	46.3400	Relative Permittivity (ε_r):	46.34	48.20	-3.86	5
		e''	19.0000	Conductivity (σ):	6.15	6.00	2.56	5
8/14/2014	Body 5180	e'	48.7400	Relative Permittivity (ε_r):	48.74	49.05	-0.63	5
		e''	17.4500	Conductivity (σ):	5.03	5.27	-4.65	5
	Body 5200	e'	48.7500	Relative Permittivity (ε_r):	48.75	49.02	-0.55	5
		e''	17.5400	Conductivity (σ):	5.07	5.29	-4.22	5
	Body 5600	e'	48.2800	Relative Permittivity (ε_r):	48.28	48.48	-0.41	5
		e''	17.8500	Conductivity (σ):	5.56	5.76	-3.52	5
	Body 5800	e'	47.9800	Relative Permittivity (ε_r):	47.98	48.20	-0.46	5
		e''	17.9700	Conductivity (σ):	5.80	6.00	-3.41	5
	Body 5825	e'	47.9700	Relative Permittivity (ε_r):	47.97	48.20	-0.48	5
		e''	18.1200	Conductivity (σ):	5.87	6.00	-2.19	5
8/18/2014	Body 5180	e'	48.3400	Relative Permittivity (ε_r):	48.34	49.05	-1.44	5
		e''	18.4300	Conductivity (σ):	5.31	5.27	0.70	5
	Body 5200	e'	48.3000	Relative Permittivity (ε_r):	48.30	49.02	-1.47	5
		e''	18.4400	Conductivity (σ):	5.33	5.29	0.70	5
	Body 5600	e'	47.6800	Relative Permittivity (ε_r):	47.68	48.48	-1.65	5
		e''	18.7800	Conductivity (σ):	5.85	5.76	1.50	5
	Body 5800	e'	47.4600	Relative Permittivity (ε_r):	47.46	48.20	-1.54	5
		e''	19.0400	Conductivity (σ):	6.14	6.00	2.34	5
	Body 5825	e'	47.3900	Relative Permittivity (ε_r):	47.39	48.20	-1.68	5
		e''	19.0700	Conductivity (σ):	6.18	6.00	2.94	5
8/21/2014	Body 5180	e'	47.8600	Relative Permittivity (ε_r):	47.86	49.05	-2.42	5
		e''	18.7700	Conductivity (σ):	5.41	5.27	2.56	5
	Body 5200	e'	47.8900	Relative Permittivity (ε_r):	47.89	49.02	-2.30	5
		e''	18.7800	Conductivity (σ):	5.43	5.29	2.55	5
	Body 5600	e'	47.2700	Relative Permittivity (ε_r):	47.27	48.48	-2.49	5
		e''	18.9400	Conductivity (σ):	5.90	5.76	2.37	5
	Body 5800	e'	46.9000	Relative Permittivity (ε_r):	46.90	48.20	-2.70	5
		e''	19.2800	Conductivity (σ):	6.22	6.00	3.63	5
	Body 5825	e'	46.8400	Relative Permittivity (ε_r):	46.84	48.20	-2.82	5
		e''	19.2500	Conductivity (σ):	6.23	6.00	3.91	5
8/25/2014	Body 5180	e'	47.7500	Relative Permittivity (ε_r):	47.75	49.05	-2.64	5
		e''	18.3300	Conductivity (σ):	5.28	5.27	0.15	5
	Body 5200	e'	47.6600	Relative Permittivity (ε_r):	47.66	49.02	-2.77	5
		e''	18.3700	Conductivity (σ):	5.31	5.29	0.32	5
	Body 5600	e'	47.0400	Relative Permittivity (ε_r):	47.04	48.48	-2.97	5
		e''	18.8700	Conductivity (σ):	5.88	5.76	1.99	5
	Body 5800	e'	46.7000	Relative Permittivity (ε_r):	46.70	48.20	-3.11	5
		e''	18.9600	Conductivity (σ):	6.11	6.00	1.91	5
	Body 5825	e'	46.6800	Relative Permittivity (ε_r):	46.68	48.20	-3.15	5
		e''	19.1000	Conductivity (σ):	6.19	6.00	3.10	5

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SAR Lab E

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
8/14/2014	Body 5180	e'	49.3800	Relative Permittivity (ε_r):	49.38	49.05	0.68	5
		e''	17.7900	Conductivity (σ):	5.12	5.27	-2.80	5
	Body 5200	e'	49.4000	Relative Permittivity (ε_r):	49.40	49.02	0.78	5
		e''	17.8300	Conductivity (σ):	5.16	5.29	-2.63	5
	Body 5600	e'	48.9200	Relative Permittivity (ε_r):	48.92	48.48	0.91	5
		e''	18.1800	Conductivity (σ):	5.66	5.76	-1.74	5
	Body 5800	e'	48.5700	Relative Permittivity (ε_r):	48.57	48.20	0.77	5
		e''	18.3200	Conductivity (σ):	5.91	6.00	-1.53	5
	Body 5825	e'	48.5700	Relative Permittivity (ε_r):	48.57	48.20	0.77	5
		e''	18.4500	Conductivity (σ):	5.98	6.00	-0.40	5
8/18/2014	Body 5180	e'	48.1900	Relative Permittivity (ε_r):	48.19	49.05	-1.75	5
		e''	18.3600	Conductivity (σ):	5.29	5.27	0.32	5
	Body 5200	e'	48.1600	Relative Permittivity (ε_r):	48.16	49.02	-1.75	5
		e''	18.3300	Conductivity (σ):	5.30	5.29	0.10	5
	Body 5600	e'	47.5500	Relative Permittivity (ε_r):	47.55	48.48	-1.91	5
		e''	18.6300	Conductivity (σ):	5.80	5.76	0.69	5
	Body 5800	e'	47.3400	Relative Permittivity (ε_r):	47.34	48.20	-1.78	5
		e''	18.8400	Conductivity (σ):	6.08	6.00	1.26	5
	Body 5825	e'	47.2900	Relative Permittivity (ε_r):	47.29	48.20	-1.89	5
		e''	18.8600	Conductivity (σ):	6.11	6.00	1.81	5
8/21/2014	Body 5180	e'	50.3800	Relative Permittivity (ε_r):	50.38	49.05	2.72	5
		e''	17.4500	Conductivity (σ):	5.03	5.27	-4.65	5
	Body 5200	e'	50.4300	Relative Permittivity (ε_r):	50.43	49.02	2.88	5
		e''	17.5200	Conductivity (σ):	5.07	5.29	-4.33	5
	Body 5600	e'	49.9800	Relative Permittivity (ε_r):	49.98	48.48	3.10	5
		e''	17.6200	Conductivity (σ):	5.49	5.76	-4.77	5
	Body 5800	e'	47.7800	Relative Permittivity (ε_r):	47.78	48.20	-0.87	5
		e''	17.8300	Conductivity (σ):	5.75	6.00	-4.16	5
	Body 5825	e'	49.7300	Relative Permittivity (ε_r):	49.73	48.20	3.17	5
		e''	17.8900	Conductivity (σ):	5.79	6.00	-3.43	5
8/25/2014	Body 5180	e'	47.6300	Relative Permittivity (ε_r):	47.63	49.05	-2.89	5
		e''	18.5900	Conductivity (σ):	5.35	5.27	1.57	5
	Body 5200	e'	47.5800	Relative Permittivity (ε_r):	47.58	49.02	-2.94	5
		e''	18.6300	Conductivity (σ):	5.39	5.29	1.74	5
	Body 5600	e'	46.9500	Relative Permittivity (ε_r):	46.95	48.48	-3.15	5
		e''	18.9800	Conductivity (σ):	5.91	5.76	2.59	5
	Body 5800	e'	46.6300	Relative Permittivity (ε_r):	46.63	48.20	-3.26	5
		e''	19.1300	Conductivity (σ):	6.17	6.00	2.82	5
	Body 5825	e'	46.6000	Relative Permittivity (ε_r):	46.60	48.20	-3.32	5
		e''	19.1800	Conductivity (σ):	6.21	6.00	3.54	5

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SAR Lab F

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
8/11/2014	Body 5180	e'	48.6900	Relative Permittivity (ε_r):	48.69	49.05	-0.73	5
		e''	18.5500	Conductivity (σ):	5.34	5.27	1.36	5
	Body 5200	e'	48.6000	Relative Permittivity (ε_r):	48.60	49.02	-0.86	5
		e''	18.6400	Conductivity (σ):	5.39	5.29	1.79	5
	Body 5600	e'	47.7700	Relative Permittivity (ε_r):	47.77	48.48	-1.46	5
		e''	19.1800	Conductivity (σ):	5.97	5.76	3.67	5
	Body 5800	e'	47.4300	Relative Permittivity (ε_r):	47.43	48.20	-1.60	5
		e''	19.1500	Conductivity (σ):	6.18	6.00	2.93	5
	Body 5825	e'	47.3900	Relative Permittivity (ε_r):	47.39	48.20	-1.68	5
		e''	19.3400	Conductivity (σ):	6.26	6.00	4.40	5
8/14/2014	Body 5180	e'	49.2500	Relative Permittivity (ε_r):	49.25	49.05	0.41	5
		e''	17.7100	Conductivity (σ):	5.10	5.27	-3.23	5
	Body 5200	e'	49.2900	Relative Permittivity (ε_r):	49.29	49.02	0.55	5
		e''	17.7600	Conductivity (σ):	5.14	5.29	-3.02	5
	Body 5600	e'	48.7600	Relative Permittivity (ε_r):	48.76	48.48	0.58	5
		e''	18.1000	Conductivity (σ):	5.64	5.76	-2.17	5
	Body 5800	e'	48.4600	Relative Permittivity (ε_r):	48.46	48.20	0.54	5
		e''	18.2000	Conductivity (σ):	5.87	6.00	-2.18	5
	Body 5825	e'	48.4500	Relative Permittivity (ε_r):	48.45	48.20	0.52	5
		e''	18.3500	Conductivity (σ):	5.94	6.00	-0.94	5
8/18/2014	Body 5180	e'	49.2500	Relative Permittivity (ε_r):	49.25	49.05	0.41	5
		e''	17.7000	Conductivity (σ):	5.10	5.27	-3.29	5
	Body 5200	e'	49.1300	Relative Permittivity (ε_r):	49.13	49.02	0.23	5
		e''	17.8100	Conductivity (σ):	5.15	5.29	-2.74	5
	Body 5600	e'	48.5700	Relative Permittivity (ε_r):	48.57	48.48	0.19	5
		e''	18.5500	Conductivity (σ):	5.78	5.76	0.26	5
	Body 5800	e'	48.3000	Relative Permittivity (ε_r):	48.30	48.20	0.21	5
		e''	18.2900	Conductivity (σ):	5.90	6.00	-1.69	5
	Body 5825	e'	48.2000	Relative Permittivity (ε_r):	48.20	48.20	0.00	5
		e''	18.7200	Conductivity (σ):	6.06	6.00	1.05	5
8/21/2014	Body 5180	e'	48.2200	Relative Permittivity (ε_r):	48.22	49.05	-1.69	5
		e''	17.7900	Conductivity (σ):	5.12	5.27	-2.80	5
	Body 5200	e'	48.2500	Relative Permittivity (ε_r):	48.25	49.02	-1.57	5
		e''	17.8500	Conductivity (σ):	5.16	5.29	-2.52	5
	Body 5600	e'	47.7100	Relative Permittivity (ε_r):	47.71	48.48	-1.58	5
		e''	17.9800	Conductivity (σ):	5.60	5.76	-2.82	5
	Body 5800	e'	47.4700	Relative Permittivity (ε_r):	47.47	48.20	-1.51	5
		e''	18.2100	Conductivity (σ):	5.87	6.00	-2.12	5
	Body 5825	e'	47.4400	Relative Permittivity (ε_r):	47.44	48.20	-1.58	5
		e''	18.2400	Conductivity (σ):	5.91	6.00	-1.54	5

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SAR Lab G

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7/28/2014	Body 1750	e'	51.6600	Relative Permittivity (ε_r):	51.66	53.44	-3.33	5
		e''	15.0400	Conductivity (σ):	1.46	1.49	-1.53	5
	Body 1710	e'	51.7600	Relative Permittivity (ε_r):	51.76	53.54	-3.33	5
		e''	14.9300	Conductivity (σ):	1.42	1.46	-2.87	5
	Body 1755	e'	51.6500	Relative Permittivity (ε_r):	51.65	53.43	-3.33	5
		e''	15.0700	Conductivity (σ):	1.47	1.49	-1.25	5
7/30/2014	Body 1750	e'	51.5200	Relative Permittivity (ε_r):	51.52	53.44	-3.59	5
		e''	15.0800	Conductivity (σ):	1.47	1.49	-1.26	5
	Body 1710	e'	51.5800	Relative Permittivity (ε_r):	51.58	53.54	-3.67	5
		e''	15.1300	Conductivity (σ):	1.44	1.46	-1.57	5
	Body 1755	e'	51.4900	Relative Permittivity (ε_r):	51.49	53.43	-3.63	5
		e''	15.1300	Conductivity (σ):	1.48	1.49	-0.86	5
8/1/2014	Body 835	e'	54.5000	Relative Permittivity (ε_r):	54.50	55.20	-1.27	5
		e''	21.8400	Conductivity (σ):	1.01	0.97	4.54	5
	Body 820	e'	54.5900	Relative Permittivity (ε_r):	54.59	55.28	-1.24	5
		e''	21.9400	Conductivity (σ):	1.00	0.97	3.29	5
	Body 850	e'	54.3900	Relative Permittivity (ε_r):	54.39	55.16	-1.39	5
		e''	21.7900	Conductivity (σ):	1.03	0.99	4.33	5
8/4/2014	Body 835	e'	53.8200	Relative Permittivity (ε_r):	53.82	55.20	-2.50	5
		e''	21.8600	Conductivity (σ):	1.01	0.97	4.63	5
	Body 820	e'	53.9800	Relative Permittivity (ε_r):	53.98	55.28	-2.35	5
		e''	21.8600	Conductivity (σ):	1.00	0.97	2.92	5
	Body 850	e'	53.6200	Relative Permittivity (ε_r):	53.62	55.16	-2.79	5
		e''	21.8100	Conductivity (σ):	1.03	0.99	4.42	5
8/7/2014	Body 835	e'	53.8700	Relative Permittivity (ε_r):	53.87	55.20	-2.41	5
		e''	21.7400	Conductivity (σ):	1.01	0.97	4.06	5
	Body 820	e'	53.9500	Relative Permittivity (ε_r):	53.95	55.28	-2.40	5
		e''	21.8100	Conductivity (σ):	0.99	0.97	2.68	5
	Body 850	e'	53.7600	Relative Permittivity (ε_r):	53.76	55.16	-2.53	5
		e''	21.7500	Conductivity (σ):	1.03	0.99	4.14	5
8/22/2014	Body 5180	e'	47.8000	Relative Permittivity (ε_r):	47.80	49.05	-2.54	5
		e''	17.8400	Conductivity (σ):	5.14	5.27	-2.52	5
	Body 5200	e'	47.7900	Relative Permittivity (ε_r):	47.79	49.02	-2.51	5
		e''	17.8500	Conductivity (σ):	5.16	5.29	-2.52	5
	Body 5600	e'	47.1900	Relative Permittivity (ε_r):	47.19	48.48	-2.66	5
		e''	18.1900	Conductivity (σ):	5.66	5.76	-1.68	5
	Body 5800	e'	46.9300	Relative Permittivity (ε_r):	46.93	48.20	-2.63	5
		e''	18.3400	Conductivity (σ):	5.91	6.00	-1.42	5
	Body 5825	e'	46.8800	Relative Permittivity (ε_r):	46.88	48.20	-2.74	5
		e''	18.4100	Conductivity (σ):	5.96	6.00	-0.62	5

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SAR Lab H

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
7/28/2014	Body 1900	e'	52.8100	Relative Permittivity (ε_r):	52.81	53.30	-0.92	5
		e''	14.3600	Conductivity (σ):	1.52	1.52	-0.19	5
	Body 1850	e'	52.9700	Relative Permittivity (ε_r):	52.97	53.30	-0.62	5
		e''	14.1700	Conductivity (σ):	1.46	1.52	-4.10	5
	Body 1910	e'	52.8100	Relative Permittivity (ε_r):	52.81	53.30	-0.92	5
		e''	14.4000	Conductivity (σ):	1.53	1.52	0.61	5
7/31/014	Body 1900	e'	51.2500	Relative Permittivity (ε_r):	51.25	53.30	-3.85	5
		e''	14.8500	Conductivity (σ):	1.57	1.52	3.21	5
	Body 1850	e'	51.4200	Relative Permittivity (ε_r):	51.42	53.30	-3.53	5
		e''	14.6700	Conductivity (σ):	1.51	1.52	-0.72	5
	Body 1910	e'	51.2200	Relative Permittivity (ε_r):	51.22	53.30	-3.90	5
		e''	14.9200	Conductivity (σ):	1.58	1.52	4.25	5
8/11/2014	Body 5180	e'	47.7100	Relative Permittivity (ε_r):	47.71	49.05	-2.73	5
		e''	18.4200	Conductivity (σ):	5.31	5.27	0.65	5
	Body 5200	e'	47.6200	Relative Permittivity (ε_r):	47.62	49.02	-2.86	5
		e''	18.3300	Conductivity (σ):	5.30	5.29	0.10	5
	Body 5600	e'	46.7700	Relative Permittivity (ε_r):	46.77	48.48	-3.52	5
		e''	18.8900	Conductivity (σ):	5.88	5.76	2.10	5
	Body 5800	e'	46.5500	Relative Permittivity (ε_r):	46.55	48.20	-3.42	5
		e''	18.9800	Conductivity (σ):	6.12	6.00	2.02	5
	Body 5825	e'	46.4300	Relative Permittivity (ε_r):	46.43	48.20	-3.67	5
		e''	19.0000	Conductivity (σ):	6.15	6.00	2.56	5
8/14/2014	Body 5180	e'	48.8000	Relative Permittivity (ε_r):	48.80	49.05	-0.50	5
		e''	17.7300	Conductivity (σ):	5.11	5.27	-3.12	5
	Body 5200	e'	48.8200	Relative Permittivity (ε_r):	48.82	49.02	-0.41	5
		e''	17.7400	Conductivity (σ):	5.13	5.29	-3.12	5
	Body 5600	e'	48.2300	Relative Permittivity (ε_r):	48.23	48.48	-0.51	5
		e''	18.0700	Conductivity (σ):	5.63	5.76	-2.33	5
	Body 5800	e'	47.9600	Relative Permittivity (ε_r):	47.96	48.20	-0.50	5
		e''	18.2200	Conductivity (σ):	5.88	6.00	-2.07	5
	Body 5825	e'	47.9300	Relative Permittivity (ε_r):	47.93	48.20	-0.56	5
		e''	18.3100	Conductivity (σ):	5.93	6.00	-1.16	5
8/20/2014	Body 5180	e'	47.5800	Relative Permittivity (ε_r):	47.58	49.05	-2.99	5
		e''	18.5000	Conductivity (σ):	5.33	5.27	1.08	5
	Body 5200	e'	47.5300	Relative Permittivity (ε_r):	47.53	49.02	-3.04	5
		e''	18.5000	Conductivity (σ):	5.35	5.29	1.03	5
	Body 5600	e'	46.8800	Relative Permittivity (ε_r):	46.88	48.48	-3.30	5
		e''	18.8500	Conductivity (σ):	5.87	5.76	1.88	5
	Body 5800	e'	46.5900	Relative Permittivity (ε_r):	46.59	48.20	-3.34	5
		e''	19.0500	Conductivity (σ):	6.14	6.00	2.39	5
	Body 5825	e'	46.4900	Relative Permittivity (ε_r):	46.49	48.20	-3.55	5
		e''	19.0700	Conductivity (σ):	6.18	6.00	2.94	5
8/21/2014	Body 5180	e'	47.9300	Relative Permittivity (ε_r):	47.93	49.05	-2.28	5
		e''	17.5600	Conductivity (σ):	5.06	5.27	-4.05	5
	Body 5200	e'	47.9600	Relative Permittivity (ε_r):	47.96	49.02	-2.16	5
		e''	17.6200	Conductivity (σ):	5.09	5.29	-3.78	5
	Body 5600	e'	47.5200	Relative Permittivity (ε_r):	47.52	48.48	-1.98	5
		e''	17.6800	Conductivity (σ):	5.51	5.76	-4.44	5
	Body 5800	e'	47.3000	Relative Permittivity (ε_r):	47.30	48.20	-1.87	5
		e''	17.8400	Conductivity (σ):	5.75	6.00	-4.11	5
	Body 5825	e'	47.2500	Relative Permittivity (ε_r):	47.25	48.20	-1.97	5
		e''	17.8900	Conductivity (σ):	5.79	6.00	-3.43	5

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10. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are remeasured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

10.1. Reference Target SAR Values

The reference SAR values can be obtained from the calibration certificate of system validation dipoles

System Dipole	Serial No.	Cal. Date	Freq. (MHz)	Target SAR Values (W/kg)		
				1g/10g	Head	Body
D750V3	1019	3/17/2015	750	1g	8.21	8.64
				10g	5.38	5.69
D835V2	4d142	9/17/2013	835	1g	9.44	9.36
				10g	6.12	6.20
D1750V2	1053	8/27/2013	1750	1g	36.7	37.7
				10g	19.5	20.3
D1900V2	5d140	4/23/2014	1900	1g	40.1	40.2
				10g	21.0	21.3
D1900V2	5d163	9/17/2013	1900	1g	40.9	40.1
				10g	21.2	21.2
D2450V2	706	5/20/2014	2450	1g	53.0	50.2
				10g	24.5	23.4
D2600V2	1006	9/11/2014	2600	1g	56.5	55.7
				10g	25.2	24.8
D5GHzV2	1003	2/26/2014	5200	1g	77.7	73.5
				10g	22.2	20.5
			5600	1g	81.8	79.6
				10g	23.2	22.1
			5800	1g	78.3	73.8
				10g	22.1	20.4
D5GHzV2	1168	12/12/2013	5200	1g	79.3	75.2
				10g	22.7	21.0
			5600	1g	85.3	80.6
				10g	24.3	22.3
			5800	1g	81.0	75.7
				10g	22.9	20.9

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10.2. System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

SAR Lab A

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
7/28/2014	D835V2	4d142	Body	1g	1.000	0.966	9.66	9.36	3.21	3.40	
				10g	0.669	0.637	6.37	6.20	2.74		
7/28/2014	D750V3	1019	Body	1g	0.909	0.890	8.90	8.64	3.01	2.09	
				10g	0.614	0.591	5.91	5.69	3.87		
7/31/2014	D835V2	4d142	Body	1g	1.010	0.992	9.92	9.36	5.98	1.78	1,2
				10g	0.678	0.649	6.49	6.20	4.68		
7/31/2014	D750V3	1019	Body	1g	0.929	0.905	9.05	8.64	4.75	2.58	3,4
				10g	0.628	0.601	6.01	5.69	5.62		
8/6/2014	D835V2	4d142	Body	1g	0.979	0.962	9.62	9.36	2.78	1.74	
				10g	0.654	0.635	6.35	6.20	2.42		
8/15/2014	D2600V2	1006	Body	1g	5.680	5.450	54.50	55.7	-2.15	4.05	5,6
				10g	2.460	2.390	23.90	24.8	-3.63		

SAR Lab B

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
7/30/2014	D2450V2	706	Body	1g	4.75	4.79	47.9	50.2	-4.58	-0.84	
				10g	2.05	2.21	22.1	23.4	-5.56		
7/30/2014	D2600V2	1006	Body	1g	5.64	5.50	55.0	55.7	-1.26	2.48	7,8
				10g	2.44	2.41	24.1	24.8	-2.82		
8/4/2014	D2450V2	706	Body	1g	5.15	5.21	52.1	50.2	3.78	-1.17	
				10g	2.22	2.39	23.9	23.4	2.14		
8/7/2014	D2450V2	706	Body	1g	4.79	4.94	49.4	50.2	-1.59	-3.13	
				10g	2.09	2.28	22.8	23.4	-2.56		
8/11/2014	D2450V2	706	Body	1g	5.07	5.01	50.1	50.2	-0.20	1.18	
				10g	2.19	2.30	23.0	23.4	-1.71		
8/14/2014	D2450V2	706	Body	1g	5.42	5.08	50.8	50.2	1.20	6.27	
				10g	2.34	2.35	23.5	23.4	0.43		
8/18/2014	D2450V2	706	Body	1g	5.08	5.03	50.3	50.2	0.20	0.98	
				10g	2.13	2.32	23.2	23.4	-0.85		
8/21/2014	D2450V2	706	Body	1g	5.10	5.34	53.4	50.2	6.37	-4.71	9,10
				10g	2.15	2.46	24.6	23.4	5.13		
8/25/2014	D2450V2	706	Body	1g	4.97	5.14	51.4	50.2	2.39	-3.42	
				10g	2.08	2.38	23.8	23.4	1.71		

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SAR Lab C

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
8/11/2014	D5GHzV2 (5.2GHz)	1168	Body	1g	7.03	7.49	74.9	75.2	-0.40	-6.54	
				10g	1.91	2.11	21.1	21.0	0.48		
8/14/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	7.11	7.81	78.1	73.5	6.26	-9.85	11,12
				10g	1.94	2.19	21.9	20.5	6.83		
8/18/2014	D5GHzV2 (5.2GHz)	1168	Body	1g	7.39	7.77	77.7	75.2	3.32	-5.14	13,14
				10g	2.00	2.18	21.8	21.0	3.81		
8/21/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	6.79	7.12	71.2	73.5	-3.13	-4.86	
				10g	1.85	2.01	20.1	20.5	-1.95		

SAR Lab D

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
8/11/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	6.74	7.15	71.5	73.5	-2.72	-6.08	
				10g	1.87	2.03	20.3	20.5	-0.98		
8/14/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	7.07	7.50	75.0	73.5	2.04	-6.08	
				10g	1.97	2.11	21.1	20.5	2.93		
8/18/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	7.38	7.91	79.1	73.5	7.62	-7.18	15,16
				10g	2.07	2.24	22.4	20.5	9.27		
8/21/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	6.45	7.29	72.9	73.5	-0.82	-13.02	
				10g	1.80	2.06	20.6	20.5	0.49		
8/25/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	6.86	7.29	72.9	73.5	-0.82	-6.27	
				10g	1.89	2.05	20.5	20.5	0.00		

SAR Lab E

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
8/14/2014	D5GHzV2 (5.6GHz)	1168	Body	1g	7.77	8.28	82.8	80.6	2.73	-6.56	
				10g	2.12	2.32	23.2	22.3	4.04		
8/18/2014	D5GHzV2 (5.6GHz)	1168	Body	1g	8.02	8.47	84.7	80.6	5.09	-5.61	17,18
				10g	2.18	2.36	23.6	22.3	5.83		
8/21/2014	D5GHzV2 (5.6GHz)	1168	Body	1g	7.39	7.83	78.3	80.6	-2.85	-5.95	
				10g	2.00	2.20	22.0	22.3	-1.35		
8/25/2014	D5GHzV2 (5.6GHz)	1168	Body	1g	6.93	8.35	83.5	80.6	3.60	-20.49	
				10g	1.88	2.34	23.4	22.3	4.93		

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SAR Lab F

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
8/11/2014	D5GHzV2 (5.8GHz)	1003	Body	1g	7.33	7.84	78.4	73.8	6.23	-6.96	19,20
				10g	2.00	2.21	22.1	20.4	8.33		
8/14/2014	D5GHzV2 (5.8GHz)	1003	Body	1g	6.55	7.64	76.4	73.8	3.52	-16.64	
				10g	1.83	2.15	21.5	20.4	5.39		
8/18/2014	D5GHzV2 (5.8GHz)	1003	Body	1g	6.84	7.74	77.4	73.8	4.88	-13.16	
				10g	1.86	2.18	21.8	20.4	6.86		
8/21/2014	D5GHzV2 (5.8GHz)	1003	Body	1g	6.78	7.17	71.7	73.8	-2.85	-5.75	
				10g	1.84	2.01	20.1	20.4	-1.47		

SAR Lab G

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
7/28/2017	D1750 V2	1053	Body	1g	3.97	3.89	38.9	37.7	3.18	2.02	
				10g	2.06	2.07	20.7	20.3	1.97		
7/30/2014	D1750 V2	1053	Body	1g	4.13	4.04	40.4	37.7	7.16	2.18	21,22
				10g	2.15	2.15	21.5	20.3	5.91		
8/1/2014	D835V2	4d142	Body	1g	1.02	1.00	10.0	9.4	6.73	2.06	
				10g	0.68	0.66	6.6	6.2	6.29		
8/4/2014	D835V2	4d142	Body	1g	1.02	0.99	9.9	9.4	6.20	2.55	
				10g	0.68	0.66	6.6	6.2	5.65		
8/7/2014	D835V2	4d142	Body	1g	0.98	0.96	9.6	9.4	2.46	2.14	
				10g	0.66	0.63	6.3	6.2	1.94		
8/22/2014	D5GHzV2 (5.6GHz)	1168	Body	1g	7.37	7.97	79.7	80.6	-1.12	-8.14	23,24
				10g	2.00	2.23	22.3	22.3	0.00		

SAR Lab H

Date Tested	System Dipole		T.S. Liquid		Measured Results			Target (Ref. Value)	Delta ±10 %	Est./Zoom Ratio	Plot No.
	Type	Serial #			Area Scan	Zoom Scan	Normalize to 1 W				
7/28/2014	D1900V2	5d163	Body	1g	4.11	4.19	41.9	40.1	4.49	-1.95	
				10g	2.04	2.22	22.2	21.2	4.72		
7/31/2014	D1900V2	5d163	Body	1g	4.39	4.34	43.4	40.1	8.23	1.14	25,26
				10g	2.18	2.26	22.6	21.2	6.60		
8/11/2014	D5GHzV2 (5.6GHz)	1003	Body	1g	7.23	7.77	77.7	79.6	-2.39	-7.47	
				10g	1.95	2.19	21.9	22.1	-0.90		
8/14/2014	D5GHzV2 (5.6GHz)	1003	Body	1g	7.47	8.11	81.1	79.6	1.88	-8.57	
				10g	2.04	2.29	22.9	22.1	3.62		
8/20/2014	D5GHzV2 (5.2GHz)	1003	Body	1g	6.85	7.20	72.0	73.5	-2.04	-5.11	
				10g	1.90	2.07	20.7	20.5	0.98		
8/21/2014	D5GHzV2 (5.6GHz)	1168	Body	1g	7.82	8.41	84.1	80.6	4.34	-7.54	27,28
				10g	2.11	2.38	23.8	22.3	6.73		

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11. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows:

KDB 447498 D01 General RF Exposure Guidance:
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

KDB 941225 D01 SAR test for 3G devices:
Body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least ¼ dB higher than that measured without HSPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2.

KDB 941225 D05 SAR for LTE Devices:
SAR test reduction is applied using the following criteria:

- Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.
- When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.
- Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.
- Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.
- Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

April 2013 TCB Workshop Updates:
Apply usual 802.11 test exclusion considerations, but include 802.11ac SAR for highest 802.11a configuration in each frequency band and each exposure condition.

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11.1. GSM850

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
GPRS 2 Slots	Rear	0	128	824.2	25.0	23.7	0.757	1.021	0.413	0.557	
			190	836.6	25.0	24.3	0.874	1.027	0.474	0.557	
			251	848.8	25.0	24.5	1.010	1.133	0.550	0.617	1
	Edge 1	0	190	836.6	25.0	24.3	0.358	0.421	0.178	0.209	
	Edge 2	0	190	836.6	25.0	24.3	0.115	0.135	0.059	0.070	

11.2. GSM1900

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
GPRS 2 Slots	Rear	0	512	1850.2	20.5	19.3	0.761	1.003	0.413	0.544	
			661	1880.0	20.5	19.8	0.866	1.017	0.474	0.557	
			810	1909.8	20.5	19.8	0.968	1.137	0.440	0.517	2
	Edge 1	0	661	1880.0	20.5	19.8	0.354	0.416	0.185	0.217	
	Edge 2	0	661	1880.0	20.5	19.8	0.038	0.045	0.021	0.025	

11.3. W-CDMA Band V

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Rel 99 RMC 12.2 kbps	Rear	0	4132	826.4	19.8	19.5	1.020	1.080	0.547	0.579	
			4183	836.6	19.8	19.5	1.010	1.070	0.545	0.577	
			4233	846.6	19.8	19.5	1.030	1.091	0.550	0.583	3
	Edge 1	0	4132	826.4	19.8	19.5	0.804	0.852	0.420	0.445	
			4183	836.6	19.8	19.5	0.777	0.823	0.405	0.429	
			4233	846.6	19.8	19.5	0.700	0.741	0.363	0.385	
	Edge 2	0	4183	836.6	19.8	19.5	0.234	0.248	0.120	0.127	

11.4. W-CDMA Band IV

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Rel 99 RMC 12.2 kbps	Rear	0	1312	1712.4	13.8	13.8	1.190	1.190	0.568	0.568	4
			1413	1732.6	13.8	13.2	0.956	1.085	0.455	0.516	
			1513	1752.6	13.8	13.7	1.170	1.184	0.557	0.563	
	Edge 1	0	1413	1732.6	13.8	13.2	0.332	0.377	0.177	0.201	
	Edge 2	0	1413	1732.6	13.8	13.2	0.100	0.114	0.051	0.058	

11.5. W-CDMA Band II

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
Rel 99 RMC 12.2 kbps	Rear	0	9262	1852.4	12.8	12.8	0.948	0.948	0.456	0.456	
			9400	1880.0	12.8	12.5	1.100	1.165	0.506	0.536	
			9538	1907.6	12.8	12.8	1.180	1.180	0.550	0.550	5
	Edge 1	0	9400	1880.0	12.8	12.5	0.292	0.309	0.151	0.160	
	Edge 2	0	9400	1880.0	12.8	12.5	0.064	0.068	0.034	0.036	

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11.6. CDMA BC0

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
1xRTT (RC3 SO32)	Rear	0	1013	824.70	19.8	19.2	0.955	1.084	0.516	0.586	6
			384	836.52	19.8	19.3	0.952	1.056	0.514	0.570	
			777	848.31	19.8	19.3	0.968	1.074	0.523	0.580	
	Edge 1	0	1013	824.70	19.8	19.2	0.782	0.888	0.415	0.471	
			384	836.52	19.8	19.3	0.796	0.883	0.419	0.465	
			777	848.31	19.8	19.3	0.729	0.809	0.384	0.426	
	Edge 2	0	384	836.52	19.8	19.3	0.196	0.217	0.103	0.114	
1xEVDO (Rel. 0)	Rear	0	1013	824.70	19.8	19.2	0.949	1.077	0.514	0.583	
			384	836.52	19.8	19.3	0.947	1.050	0.512	0.568	
			777	848.31	19.8	19.3	0.967	1.073	0.522	0.579	
	Edge 1	0	1013	824.70	19.8	19.2	0.735	0.834	0.391	0.444	
			384	836.52	19.8	19.3	0.712	0.790	0.376	0.417	
			777	848.31	19.8	19.3	0.660	0.732	0.346	0.384	
	Edge 2	0	384	836.52	19.8	19.3	0.192	0.213	0.101	0.112	
1xEVDO Rev. B Two Carrier	Rear	0	1013+31	824.70+825.93	19.8	19.2	0.937	1.064	0.516	0.586	
			384+425	836.52+837.75	19.8	19.3	0.926	1.027	0.510	0.566	
			736+777	847.08+848.31	19.8	19.3	0.934	1.036	0.514	0.570	
	Edge 1	0	384+425	836.52+837.75	19.8	19.3	0.630	0.699	0.333	0.369	
	Edge 2	0	384+425	836.52+837.75	19.8	19.3	0.199	0.221	0.103	0.114	
1xEVDO Rev. B Three Carrier	Rear	0	1013+31+72	824.70+825.93+827.16	19.8	19.2	0.915	1.038	0.506	0.574	
			384+425+466	836.52+837.75+838.98	19.8	19.3	0.933	1.035	0.506	0.561	
			695+736+777	845.85+847.08+848.31	19.8	19.3	0.931	1.033	0.508	0.563	
	Edge 1	0	384+425+466	836.52+837.75+838.98	19.8	19.3	0.615	0.682	0.325	0.360	
	Edge 2	0	384+425+466	836.52+837.75+838.98	19.8	19.3	0.197	0.219	0.103	0.114	

11.7. CDMA BC1

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
1xRTT (RC3 SO32)	Rear	0	25	1851.25	13.0	13.0	0.820	0.820	0.388	0.388	
			600	1880.00	13.0	12.7	1.070	1.147	0.489	0.524	
			1175	1908.75	13.0	12.9	1.130	1.156	0.512	0.524	7
	Edge 1	0	600	1880.00	13.0	12.7	0.292	0.313	0.151	0.162	
	Edge 2	0	600	1880.00	13.0	12.7	0.053	0.057	0.029	0.031	
1xEVDO (Rel. 0)	Rear	0	25	1851.25	13.0	13.0	0.760	0.760	0.358	0.358	
			600	1880.00	13.0	12.7	0.987	1.058	0.454	0.486	
			1175	1908.75	13.0	12.9	1.010	1.034	0.464	0.475	
	Edge 1	0	600	1880.00	13.0	12.7	0.273	0.293	0.141	0.151	
	Edge 2	0	600	1880.00	13.0	12.7	0.049	0.053	0.027	0.029	

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11.8. CDMA BC10

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
1xRTT (RC3 SO32)	Rear	0	476	817.90	19.8	19.3	0.999	1.108	0.536	0.595	8
			580	820.50	19.8	19.3	0.996	1.105	0.534	0.592	
			670	822.75	19.8	19.3	0.998	1.107	0.543	0.602	
	Edge 1	0	580	820.50	19.8	19.3	0.629	0.698	0.335	0.372	
	Edge 2	0	580	820.50	19.8	19.3	0.254	0.282	0.130	0.144	
1xEVDO (Rel. 0)	Rear	0	476	817.90	19.8	19.3	0.990	1.098	0.535	0.593	
			580	820.50	19.8	19.3	0.986	1.094	0.533	0.591	
			670	822.75	19.8	19.3	0.983	1.090	0.538	0.597	
	Edge 1	0	580	820.50	19.8	19.3	0.601	0.667	0.321	0.356	
	Edge 2	0	580	820.50	19.8	19.3	0.243	0.270	0.124	0.138	

11.9. CDMA BC15

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
					Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
1xRTT (RC3 SO32)	Rear	0	25	1711.25	14.0	14.0	1.170	1.170	0.558	0.558	
			450	1732.50	14.0	13.7	0.995	1.066	0.472	0.506	
			875	1753.75	14.0	14.0	1.190	1.190	0.564	0.564	9
	Edge 1	0	450	1732.50	14.0	13.7	0.362	0.388	0.207	0.222	
	Edge 2	0	450	1732.50	14.0	13.7	0.099	0.106	0.052	0.056	
1xEVDO (Rel. 0)	Rear	0	25	1711.25	14.0	14.0	1.060	1.060	0.518	0.518	
			450	1732.50	14.0	13.7	0.971	1.040	0.463	0.496	
			875	1753.75	14.0	14.0	1.110	1.110	0.535	0.535	
	Edge 1	0	450	1732.50	14.0	13.7	0.351	0.376	0.202	0.216	
	Edge 2	0	450	1732.50	14.0	13.7	0.094	0.101	0.050	0.054	

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11.10. LTE Band 2 (20MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	18700	1860.0	1	49	13.3	13.2	0.998	1.010	0.472	0.477	
					50	24	13.3	13.1	1.040	1.077	0.486	0.503	
			18900	1880.0	1	49	13.3	13.2	1.030	1.042	0.478	0.484	
					50	24	13.3	13.1	1.040	1.077	0.481	0.498	
					100	0	13.3	13.1	1.020	1.056	0.474	0.491	
			19100	1900.0	1	49	13.3	13.2	1.060	1.072	0.490	0.496	
					50	24	13.3	13.1	1.080	1.118	0.495	0.512	10
	Edge 1	0	18900	1880.0	1	49	13.3	13.2	0.325	0.329	0.170	0.172	
					50	24	13.3	13.1	0.327	0.338	0.170	0.176	
	Edge 2	0	18900	1880.0	1	49	13.3	13.2	0.055	0.056	0.029	0.030	
					50	24	13.3	13.1	0.053	0.055	0.029	0.030	

11.11. LTE Band 4 (20MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	20050	1720.0	1	49	13.5	13.3	1.040	1.089	0.498	0.521	
					50	24	13.5	13.3	1.070	1.120	0.510	0.534	
			20175	1732.5	1	49	13.5	13.3	1.120	1.173	0.533	0.558	11
					50	24	13.5	13.3	1.100	1.152	0.521	0.546	
					100	0	13.5	13.4	1.060	1.085	0.508	0.520	
			20300	1745.0	1	49	13.5	13.3	1.100	1.152	0.522	0.547	
					50	24	13.5	13.3	1.110	1.162	0.525	0.550	
	Edge 1	0	20175	1732.5	1	49	13.5	13.3	0.308	0.323	0.164	0.172	
					50	24	13.5	13.3	0.301	0.315	0.160	0.168	
	Edge 2	0	20175	1732.5	1	49	13.5	13.3	0.094	0.098	0.049	0.051	
					50	24	13.5	13.3	0.093	0.097	0.048	0.050	

11.12. LTE Band 5 (10MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	20450	829.0	1	24	19.8	19.4	1.010	1.095	0.559	0.606	
					25	12	19.8	19.5	1.000	1.059	0.552	0.585	
			20525	836.5	1	24	19.8	19.4	1.020	1.106	0.553	0.599	12
					25	12	19.8	19.5	1.020	1.080	0.550	0.583	
					50	0	19.8	19.5	0.983	1.041	0.542	0.574	
			20600	844.0	1	24	19.8	19.4	0.987	1.070	0.534	0.579	
					25	12	19.8	19.5	0.989	1.048	0.545	0.577	
	Edge 1	0	20450	829.0	1	24	19.8	19.4	0.725	0.786	0.382	0.414	
					25	12	19.8	19.5	0.727	0.770	0.383	0.406	
			20525	836.5	1	24	19.8	19.4	0.803	0.870	0.420	0.455	
					25	12	19.8	19.5	0.792	0.839	0.414	0.439	
					50	0	19.8	19.5	0.726	0.769	0.381	0.404	
			20600	844.0	1	24	19.8	19.4	0.664	0.720	0.349	0.378	
					25	12	19.8	19.5	0.688	0.729	0.360	0.381	
	Edge 2	0	20525	836.5	1	24	19.8	19.4	0.233	0.253	0.120	0.130	
					25	12	19.8	19.5	0.227	0.240	0.117	0.124	

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11.13. LTE Band 13 (10MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	23230	782.0	1	24	19.5	19.3	1.120	1.173	0.604	0.632	13
					25	12	19.5	19.4	1.130	1.156	0.606	0.620	
					50	0	19.5	19.4	1.100	1.126	0.602	0.616	
	Edge 1	0	23230	782.0	1	24	19.5	19.3	0.888	0.930	0.477	0.499	
					25	12	19.5	19.4	0.880	0.900	0.472	0.483	
					50	0	19.5	19.4	0.889	0.910	0.479	0.490	
	Edge 2	0	23230	782.0	1	24	19.5	19.3	0.330	0.346	0.165	0.173	
					25	12	19.5	19.4	0.320	0.327	0.161	0.165	

11.14. LTE Band 17 (10MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	23790	710.0	1	24	19.0	19.0	1.170	1.170	0.651	0.651	14
					25	12	19.0	19.0	1.170	1.170	0.650	0.650	
					50	0	19.0	19.0	1.160	1.160	0.634	0.634	
	Edge 1	0	23790	710.0	1	24	19.0	19.0	0.558	0.558	0.271	0.271	
					25	12	19.0	19.0	0.536	0.536	0.262	0.262	
	Edge 2	0	23790	710.0	1	24	19.0	19.0	0.101	0.101	0.051	0.051	
					25	12	19.0	19.0	0.108	0.108	0.054	0.054	

11.15. LTE Band 25 (20MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	26140	1860.0	1	49	13.3	13.2	1.040	1.052	0.482	0.488	
					50	24	13.3	13.1	1.050	1.087	0.486	0.503	
			26365	1882.5	1	49	13.3	13.2	1.050	1.062	0.484	0.490	
					50	24	13.3	13.1	1.040	1.077	0.477	0.494	
					100	0	13.3	13.1	1.050	1.087	0.479	0.496	
			26590	1905.0	1	49	13.3	13.2	1.100	1.113	0.499	0.505	
					50	24	13.3	13.1	1.130	1.170	0.512	0.530	15
	Edge 1	0	26365	1882.5	1	49	13.3	13.2	0.333	0.337	0.172	0.174	
					50	24	13.3	13.1	0.338	0.350	0.176	0.182	
	Edge 2	0	26365	1882.5	1	49	13.3	13.2	0.060	0.061	0.032	0.032	
					50	24	13.3	13.1	0.059	0.061	0.031	0.032	

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11.16. LTE Band 26 (10MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	26740	819.0	1	24	19.8	19.4	1.010	1.095	0.545	0.591	16
					25	12	19.8	19.5	1.030	1.091	0.555	0.588	
					25	12	19.8	19.4	1.000	1.084	0.537	0.582	
	Edge 1	0	26740	819.0	1	24	19.8	19.4	0.691	0.749	0.360	0.390	
					25	12	19.8	19.5	0.684	0.725	0.357	0.378	
	Edge 2	0	26740	819.0	1	24	19.8	19.4	0.227	0.246	0.119	0.129	
					25	12	19.8	19.5	0.226	0.239	0.119	0.126	

11.17. LTE Band 41 (20MHz Bandwidth)

Mode	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	UL RB Allocation	UL RB Start	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
							Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	Rear	0	39750	2506.0	1	49	13.5	13.1	0.755	0.828	0.351	0.351	
					50	24	13.5	13.0	0.761	0.854	0.354	0.354	
			40185	2549.5	1	49	13.5	13.1	0.878	0.963	0.376	0.376	
					50	24	13.5	13.0	0.928	1.041	0.396	0.396	
			40620	2593.0	1	49	13.5	13.4	0.822	0.841	0.366	0.366	
					50	24	13.5	13.0	0.812	0.911	0.364	0.364	
					100	0	13.5	13.0	0.814	0.913	0.365	0.365	
			41055	2636.5	1	49	13.5	12.9	0.946	1.086	0.391	0.391	
					50	24	13.5	13.0	0.972	1.091	0.400	0.400	
			41490	2680.0	1	49	13.5	13.2	0.998	1.069	0.419	0.419	
					50	24	13.5	13.0	1.060	1.189	0.435	0.435	17
	Edge 1	0	40620	2593.0	1	49	13.5	13.4	0.678	0.694	0.274	0.274	
					50	24	13.5	13.0	0.685	0.769	0.276	0.276	
	Edge 2	0	40620	2593.0	1	49	13.5	13.4	0.014	0.015	0.006	0.006	
					50	24	13.5	13.0	0.015	0.016	0.006	0.006	

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11.18. Wi-Fi 2.4GHz

11.18.1. Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max})

Variant 1

802.11b 1 Tx																							
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna A						Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
A	Rear	0	1	2412	13.0	13.0	1.120	0.444	1.120	0.444													
			6	2437	13.0	13.0	1.090	0.434	1.090	0.434													
			11	2462	13.0	13.0	1.080	0.429	1.080	0.429													
	Edge 1	0	1	2412	13.0	13.0	0.867	0.361	0.867	0.361													
			6	2437	13.0	13.0	0.816	0.340	0.816	0.340													
			11	2462	13.0	13.0	0.869	0.357	0.869	0.357													
	Edge 4	0	6	2437	13.0	13.0	0.171	0.070	0.171	0.070													
B	Rear	0	6	2437							18.0	17.9	0.461	0.190	0.472	0.194							
	Edge 1	0	6	2437							18.0	17.9	0.157	0.068	0.161	0.070							
C	Rear	0	6	2437													16.0	16.0	0.067	0.023	0.067	0.023	
	Edge 3	0	1	2412													16.0	16.0	0.892	0.284	0.892	0.284	
			6	2437													16.0	16.0	0.870	0.277	0.870	0.277	
			11	2462													16.0	16.0	1.060	0.342	1.060	0.342	
	Edge 4	0	6	2437													16.0	16.0	0.108	0.050	0.108	0.050	

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SAR Test Results for Wi-Fi 2.4 GHz P_{Cell_OFF} (P_{max}) continued

802.11g CDD 2 Tx																								
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna A						Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
A + B	Rear	0	1	2412	13.0	12.9	0.967	0.432	0.990	0.442	18.0	18.0	0.470	0.199	0.470	0.199							
			6	2437	13.0	12.9	1.100	0.483	1.126	0.494	18.0	18.0	0.501	0.212	0.501	0.212							
			11	2462	13.0	12.9	0.905	0.411	0.926	0.421	18.0	18.0	0.592	0.250	0.592	0.250							
	Edge 1	0	1	2412	13.0	12.9	0.746	0.299	0.763	0.306	18.0	18.0	0.492	0.239	0.492	0.239							
			6	2437	13.0	12.9	0.851	0.336	0.871	0.344	18.0	18.0	0.481	0.228	0.481	0.228							
			11	2462	13.0	12.9	0.887	0.353	0.908	0.361	18.0	18.0	0.425	0.203	0.425	0.203							
	Edge 4	0	6	2437	13.0	12.9	0.157	0.064	0.161	0.065	18.0	18.0											
A + C	Rear	0	1	2412	13.0	12.9	1.120	0.444	1.146	0.454							16.0	15.9	0.072	0.032	0.074	0.032	
			6	2437	13.0	12.9	1.130	0.447	1.156	0.457							16.0	16.0	0.076	0.033	0.076	0.033	18
			10	2457	13.0	12.9	1.110	0.443	1.136	0.453							16.0	16.0	0.066	0.029	0.066	0.029	
	Edge 1	0	1	2412	13.0	12.9	0.848	0.353	0.868	0.361													
			6	2437	13.0	12.9	0.832	0.347	0.851	0.355													
			10	2457	13.0	12.9	0.875	0.362	0.895	0.370													
	Edge 3	0	1	2412													16.0	15.9	0.762	0.245	0.780	0.251	
			6	2437													16.0	16.0	0.824	0.265	0.824	0.265	
			10	2457													16.0	16.0	0.959	0.311	0.959	0.311	
	Edge 4	0	6	2437	13.0	12.9	0.165	0.067	0.169	0.068							16.0	16.0	0.119	0.054	0.119	0.054	

Variant 2

802.11g CDD 2 Tx																								
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna A						Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
A + C	Rear	0	6	2437	13.0	13.0	1.060	0.415	1.060	0.415							16.0	16.0	0.071	0.029	0.071	0.029	

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11.18.2. Wi-Fi 2.4 GHz P_{Cell_ON} (P_{low})

Variant 1

802.11b, 1 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna A						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
A	Rear	0	1	2412	10.5	10.0	0.532	0.220	0.597	0.247							
	Edge 1	0	11	2462	10.5	10.0	0.416	0.161	0.467	0.181							

802.11g CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna A						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
A + C	Rear	0	6	2437	10.5	9.8	0.504	0.209	0.592	0.246	16.0	15.9	0.066	0.028	0.068	0.029	
	Edge 1	0	6	2437	10.5	9.8	0.431	0.169	0.506	0.199							

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11.19. Wi-Fi 5GHz

11.19.1. Wi-Fi 5 GHz P_{Cell_OFF} (P_{max})

5.2 GHz Band

Variant 1

802.11a, 1 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Rear	0	36	5180	17.0	17.0	0.720	0.196	0.720	0.196							
			48	5240													
	Edge 1	0	36	5180	17.0	17.0	0.996	0.293	0.996	0.293							
			48	5240	17.0	17.0	1.160	0.345	1.160	0.345							19
C	Rear	0	48	5240							18.0	18.0	0.064	0.023	0.064	0.023	
	Edge 3	0	40	5200							18.0	18.0	1.020	0.375	1.020	0.375	
			48	5240							18.0	18.0	0.852	0.306	0.852	0.306	
	Edge 4	0	48	5240							18.0	18.0	0.077	0.026	0.077	0.026	

802.11a CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	40	5200	17.0	17.0	0.731	0.205	0.731	0.205	17.0	17.0	0.070	0.024	0.070	0.024	
	Edge 1	0	40	5200	17.0	17.0	1.090	0.318	1.090	0.318							
			48	5240	17.0	17.0	1.140	0.338	1.140	0.338							
	Edge 3	0	40	5200							17.0	17.0	0.773	0.281	0.773	0.281	
	Edge 4	0	40	5200							17.0	17.0	0.067	0.022	0.067	0.022	

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SAR Test Results for Wi-Fi 5.2 GHz P_{Cell_OFF} (P_{max}) continued

802.11n HT40 CDD 2 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	46	5230	17.0	17.0	0.717	0.199	0.717	0.199	18.0	18.0	0.072	0.027	0.072	0.027	
	Edge 1	0	38	5190	12.5	12.5	0.409	0.117	0.409	0.117							
			46	5230	17.0	17.0	1.100	0.332	1.100	0.332							
	Edge 3	0	38	5190							12.5	12.5	0.236	0.080	0.236	0.080	
			46	5230							18.0	18.0	0.898	0.324	0.898	0.324	
	Edge 4	0	38	5190													
			46	5230							18.0	18.0	0.081	0.026	0.081	0.026	

802.11ac HT20 1 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Edge 1	0	48	5240	17.0	17.0	1.120	0.335	1.120	0.335							

Variant 2

802.11a CDD 2 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Edge 1	0	48	5240	17.0	17.0	1.160	0.368	1.160	0.368							

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5.3 GHz Band

Variant 1

802.11a, 1 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Rear	0	52	5260	16.0	16.0	0.590	0.175	0.590	0.175							
	Edge 1	0	52	5260	16.0	16.0	0.926	0.268	0.926	0.268							
			64	5320	16.0	16.0	1.140	0.335	1.140	0.335							20
C	Rear	0	52	5260							18.0	18.0	0.110	0.044	0.110	0.044	
	Edge 3	0	52	5260							18.0	18.0	0.931	0.334	0.931	0.334	
			60	5300							18.0	18.0	0.995	0.354	0.995	0.354	
	Edge 4	0	52	5260							18.0	18.0	0.083	0.031	0.083	0.031	

802.11a CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	52	5260	16.0	15.8	0.623	0.186	0.652	0.195	17.0	17.0	0.095	0.037	0.095	0.037	
	Edge 1	0	52	5260	16.0	15.8	1.000	0.293	1.047	0.307							
			60	5300	16.0	15.8	1.070	0.318	1.120	0.333							
	Edge 3	0	52	5260							17.0	17.0	0.847	0.303	0.847	0.303	
			60	5300							17.0	17.0	0.798	0.282	0.798	0.282	
	Edge 4	0	52	5260							17.0	17.0	0.082	0.029	0.082	0.029	

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SAR Test Results for Wi-Fi 5.3 GHz P_{Cell_OFF} (P_{max}) continued

802.11n HT40 CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	54	5270	16.0	16.0	0.593	0.177	0.593	0.177	18.0	18.0	0.125	0.048	0.125	0.048	
			62	5310													
	Edge 1	0	54	5270	16.0	16.0	0.947	0.277	0.947	0.277							
			62	5310	14.5	14.5	0.693	0.201	0.693	0.201							
	Edge 3	0	54	5270							18.0	18.0	0.957	0.339	0.957	0.339	
			62	5310							14.5	14.5	0.450	0.161	0.450	0.161	
	Edge 4	0	54	5270							18.0	18.0	0.105	0.036	0.105	0.036	

802.11ac HT20 1 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Edge 1	0	64	5320	16.0	16.0	1.070	0.313	1.070	0.313							

Variant 2

802.11a 1 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Edge 1	0	64	5320	16.0	15.7	0.977	0.299	1.047	0.320							

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5.5 GHz Band

Variant 1

802.11a, 1 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Rear	0	104	5520	16.5	16.4	0.511	0.133	0.519	0.135							
			116	5580	16.5	16.4	0.387	0.106	0.396	0.108							
			124	5620	16.5	16.4	0.409	0.114	0.419	0.117							
			136	5680	16.5	16.4	0.393	0.095	0.402	0.097							
	Edge 1	0	104	5520	16.5	16.4	1.160	0.335	1.179	0.340							
			116	5580	16.5	16.4	1.150	0.337	1.177	0.345							
			124	5620	16.5	16.4	1.110	0.325	1.136	0.333							
			136	5680	16.5	16.4	1.090	0.314	1.115	0.321							
C	Rear	0	104	5520							18.0	18.0	0.295	0.090	0.295	0.090	
	Edge 3	0	104	5520							18.0	18.0	1.030	0.364	1.030	0.364	
			116	5580							18.0	18.0	1.100	0.394	1.100	0.394	
			124	5620							18.0	18.0	1.130	0.403	1.130	0.403	
			136	5680							18.0	18.0	1.140	0.410	1.140	0.410	
	Edge 4	0	104	5520							18.0	18.0	0.234	0.092	0.234	0.092	

802.11a CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	104	5520	16.5	16.5	0.511	0.160	0.511	0.160	17.0	17.0	0.089	0.051	0.089	0.051	
			116	5580	16.5	16.5	0.400	0.109	0.400	0.109	17.0	17.0	0.163	0.030	0.163	0.030	
			124	5620	16.5	16.5	0.402	0.107	0.402	0.107	17.0	17.0	0.144	0.034	0.144	0.034	
			136	5680	16.5	16.5	0.384	0.104	0.384	0.104	17.0	17.0	0.182	0.032	0.182	0.032	
	Edge 1	0	104	5520	16.5	16.5	1.180	0.347	1.180	0.347							21
			116	5580	16.5	16.5	0.989	0.290	0.989	0.290							
			124	5620	16.5	16.5	0.996	0.288	0.996	0.288							
			136	5680	16.5	16.5	0.915	0.263	0.915	0.263							
	Edge 3	0	104	5520							17.0	17.0	0.574	0.201	0.574	0.201	
			116	5580							17.0	17.0	0.724	0.258	0.724	0.258	
			124	5620							17.0	17.0	0.825	0.293	0.825	0.293	
			136	5680							17.0	17.0	0.802	0.281	0.802	0.281	
	Edge 4	0	104	5520	16.5	16.5	0.033	0.025	0.033	0.025	17.0	17.0	0.119	0.056	0.119	0.056	

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SAR Test Results for Wi-Fi 5.5 GHz P_{Cell_OFF} (P_{max}) continued

802.11n HT40 CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	110	5550	16.5	16.3	0.472	0.130	0.494	0.136	18.0	18.0	0.182	0.036	0.182	0.036	
	Edge 1	0	110	5550	16.5	16.3	1.100	0.322	1.152	0.337							
			118	5590	16.5	16.3	1.010	0.292	1.058	0.306							
			126	5630	16.5	16.3	0.981	0.283	1.027	0.296							
			134	5670	13.0	13.0	0.535	0.153	0.535	0.153							
	Edge 3	0	110	5550							18.0	18.0	0.800	0.273	0.800	0.273	
			118	5590							18.0	18.0	0.890	0.320	0.890	0.320	
			126	5630							18.0	18.0	0.970	0.343	0.970	0.343	
			134	5670							13.0	13.0	0.275	0.090	0.275	0.090	
	Edge 4	0	110	5550							18.0	18.0	0.073	0.023	0.073	0.023	

802.11ac HT20 CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Edge 1	0	104	5520	16.5	16.5	1.120	0.330	1.120	0.330							

Variant 2

802.11a CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Measured SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Edge 1	0	104	5520	16.5	16.5	1.170	0.350	1.170	0.350							

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5.8 GHz Band

Variant 1

802.11a, 1 Tx

Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B Power (dBm) Tune-up limit	Antenna B Power (dBm) Meas.	Antenna B Meas. SAR (W/kg) 1-g	Antenna B Meas. SAR (W/kg) 10-g	Antenna B Scaled SAR (W/kg) 1-g	Antenna B Scaled SAR (W/kg) 10-g	Antenna C Power (dBm) Tune-up limit	Antenna C Power (dBm) Meas.	Antenna C Meas. SAR (W/kg) 1-g	Antenna C Meas. SAR (W/kg) 10-g	Antenna C Scaled SAR (W/kg) 1-g	Antenna C Scaled SAR (W/kg) 10-g	Plot No.
B	Rear	0	157	5785	17.0	17.0	0.561	0.141	0.561	0.141							
	Edge 1	0	153	5765	17.0	17.0	1.140	0.336	1.140	0.336							
			157	5785	17.0	17.0	1.110	0.322	1.110	0.322							
			161	5805	17.0	17.0	1.110	0.324	1.110	0.324							
C	Rear	0	157	5785							18.0	18.0	0.075	0.029	0.075	0.029	
	Edge 3	0	153	5765							18.0	18.0	0.994	0.320	0.994	0.320	
			157	5785							18.0	18.0	0.984	0.333	0.984	0.333	
			161	5805							18.0	18.0	0.989	0.335	0.989	0.335	
	Edge 4	0	157	5785							18.0	18.0	0.158	0.051	0.158	0.051	

802.11a CDD 2 Tx

Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B Power (dBm) Tune-up limit	Antenna B Power (dBm) Meas.	Antenna B Meas. SAR (W/kg) 1-g	Antenna B Meas. SAR (W/kg) 10-g	Antenna B Scaled SAR (W/kg) 1-g	Antenna B Scaled SAR (W/kg) 10-g	Antenna C Power (dBm) Tune-up limit	Antenna C Power (dBm) Meas.	Antenna C Meas. SAR (W/kg) 1-g	Antenna C Meas. SAR (W/kg) 10-g	Antenna C Scaled SAR (W/kg) 1-g	Antenna C Scaled SAR (W/kg) 10-g	Plot No.
B + C	Rear	0	157	5785	17.0	17.0	0.470	0.109	0.470	0.109	18.0	18.0	0.077	0.028	0.077	0.028	
	Edge 1	0	153	5765	17.0	17.0	1.110	0.329	1.110	0.329							
			157	5785	17.0	17.0	1.100	0.326	1.100	0.326							
			161	5805	17.0	17.0	1.140	0.337	1.140	0.337							22
	Edge 3	0	153	5765							18.0	18.0	0.933	0.296	0.933	0.296	
			157	5785							18.0	18.0	0.841	0.289	0.841	0.289	
			161	5805							18.0	18.0	0.868	0.296	0.868	0.296	
	Edge 4	0	157	5785							18.0	18.0	0.146	0.045	0.146	0.045	

802.11ac HT20 CDD 2 Tx

Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B Power (dBm) Tune-up limit	Antenna B Power (dBm) Meas.	Antenna B Meas. SAR (W/kg) 1-g	Antenna B Meas. SAR (W/kg) 10-g	Antenna B Scaled SAR (W/kg) 1-g	Antenna B Scaled SAR (W/kg) 10-g	Antenna C Power (dBm) Tune-up limit	Antenna C Power (dBm) Meas.	Antenna C Meas. SAR (W/kg) 1-g	Antenna C Meas. SAR (W/kg) 10-g	Antenna C Scaled SAR (W/kg) 1-g	Antenna C Scaled SAR (W/kg) 10-g	Plot No.
B + C	Edge 1	0	161	5805	17.0	17.0	1.090	0.328	1.090	0.328							

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SAR Test Results for Wi-Fi 5.8 GHz P_{Cell_OFF} (P_{max}) continued

Variant 2

802.11a CDD 2 Tx																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Edge 1	0	161	5805	17.0	17.0	1.070	0.320	1.070	0.320							

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11.19.2. Wi-Fi 5 GHz P_{Cell_ON} (P_{low})

5.2 GHz Band

Variant 1

802.11a, 1 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Rear	0	36	5180	11.5	11.5	0.204	0.053	0.204	0.053							
	Edge 1	0	48	5240	11.5	11.5	0.343	0.096	0.343	0.096							
802.11a CDD 2 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	40	5200	11.5	11.5	0.202	0.051	0.202	0.051	17.0	17.0	0.070	0.026	0.070	0.026	
	Edge 1	0	48	5240	11.5	11.5	0.332	0.097	0.332	0.097							

5.3 GHz Band

Variant 1

802.11a, 1 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Rear	0	52	5260	11.0	10.6	0.154	0.044	0.169	0.048							
	Edge 1	0	64	5320	11.0	11.0	0.356	0.103	0.356	0.103							
802.11a CDD 2 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B + C	Rear	0	52	5260	11.0	11.0	0.196	0.060	0.196	0.060	17.0	17.0	0.070	0.028	0.070	0.028	
	Edge 1	0	60	5300	11.0	11.0	0.376	0.111	0.376	0.111							

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5.5 GHz Band

Variant 1

802.11a, 1 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C					
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)	
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g
B	Rear	0	104	5520	11.5	11.5	0.153	0.040	0.153	0.040						
	Edge 1	0	104	5520	11.5	11.5	0.389	0.103	0.389	0.103						
802.11a CDD 2 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C					
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)	
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g
B + C	Rear	0	104	5520	11.5	11.5	0.153	0.044	0.153	0.044	17.0	17.0	0.063	0.024	0.063	0.024
	Edge 1	0	104	5520	11.5	11.5	0.400	0.114	0.400	0.114						

5.8 GHz Band

Variant 1

802.11a, 1 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C					
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)	
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g
B	Rear	0	157	5785	12.0	11.0	0.124	0.034	0.156	0.043						
	Edge 1	0	153	5765	12.0	11.7	0.321	0.090	0.344	0.097						
802.11a CDD 2 Tx																	
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C					
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)	
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g
B + C	Rear	0	157	5785	12.0	12.0	0.148	0.038	0.148	0.038	18.0	18.0	0.200	0.044	0.200	0.044
	Edge 1	0	161	5805	12.0	12.0	0.349	0.097	0.349	0.097						

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11.20. Bluetooth

Variant 1

V3 .0 + EDR GFSK																		
Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
B	Rear	0	39	2441	10.5	10.5	0.075	0.028	0.075	0.028							
	Edge 1	0	39	2441	10.5	10.5	0.024	0.010	0.024	0.010							
C	Rear	0	39	2441							10.5	9.9	0.016	0.007	0.018	0.008	
	Edge 3	0	39	2441							10.5	9.9	0.201	0.065	0.231	0.075	23
	Edge 4	0	39	2441							10.5	9.9	0.025	0.011	0.029	0.013	

Variant 2

Active Antenna(s)	Test Position	Dist. (mm)	Ch #.	Freq. (MHz)	Antenna B						Antenna C						Plot No.
					Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		Power (dBm)		Meas. SAR (W/kg)		Scaled SAR (W/kg)		
					Tune-up limit	Meas.	1-g	10-g	1-g	10-g	Tune-up limit	Meas.	1-g	10-g	1-g	10-g	
C	Edge 3	0	39	2441							10.5	9.9	0.199	0.064	0.228	0.073	

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12. SAR Measurement Variability

In accordance with published RF Exposure KDB procedure 865664 D01 SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

12.1. The Highest Measured SAR Configuration in Each Frequency Band

Frequency Band (MHz)	Air Interface	Body (W/kg)
750	LTE Band 13	N/A
	LTE Band 17	1.17
850	GSM 850	N/A
	CDMA BC0	N/A
	CDMA BC10	N/A
	WCDMA Band V	N/A
	LTE Band 5	N/A
	LTE Band 26	1.03
1900	GSM 1900	N/A
	CDMA BC1	N/A
	WCDMA Band II	1.18
	LTE Band 2	N/A
	LTE Band 25	N/A
1750	LTE Band 4	N/A
	WCDMA Band IV	1.19
	CDMA BC15	1.19
2400	Wi-Fi 802.11b/g/n	1.13
2600	LTE Band 41	1.06
5200	Wi-Fi 802.11a/n/ac	1.16
5300	Wi-Fi 802.11a/n/ac	1.14
5500	Wi-Fi 802.11a/n/ac	1.18
5800	Wi-Fi 802.11a/n/ac	1.14

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12.2. Repeated Measurement Results

Cellular Bands

Frequency band	Test Position	Mode	Ch #.	Freq. (MHz)	Meas. SAR (W/kg)		Largest to Smallest SAR Ratio	Note
					Original	Repeated		
LTE Band 17	Rear	QPSK RB 1/24	23790	710.0	1.170	1.170	1.00	1
LTE Band 26	Rear	QPSK RB 25/12	26740	819.0	1.030	1.010	1.02	1
CDMA BC 15	Rear	1xRTT (RC3 SO32)	875	1753.75	1.190	1.170	1.02	1
W-CDMA Band II	Rear	RMC Rel. 99	9538	1907.6	1.180	1.180	1.00	1
LTE Band 41	Rear	QPSK RB 50/24	41490	2680.0	1.060	1.030	1.03	1

Wi-Fi Bands

Band	Test Position	Mode	No. of Transmitters	Ch. #	Freq. (MHz)	1-g SAR (W/kg)		1-g SAR (W/kg)		Largest to Smallest SAR Ratio		Note
						Original		Repeated				
						Ant. A	Ant. C	Ant. A	Ant. C	Ant. A	Ant. C	
2.4GHz	Rear	802.11b	2 Tx	6	2437	1.130	0.076	1.090	0.072	1.04	1.06	1
Band	Test Position	Mode	No. of Transmitters	Ch. #	Freq. (MHz)	1-g SAR (W/kg)		1-g SAR (W/kg)		Largest to Smallest SAR Ratio		Note
						Original		Repeated				
						Ant. B	Ant. C	Ant. B	Ant. C	Ant. B	Ant. C	
5.2GHz	Edge 1	802.11a	1 Tx	48	5240	1.160		1.090		1.06		1
5.3GHz	Edge 1	802.11a	1 Tx	64	5320	1.140		1.140		1.00		1
5.5GHz	Edge 1	802.11a CDD	2 Tx	104	5620	1.180		1.140		1.04		1
5.8GHz	Edge 1	802.11a CDD	2 Tx	161	5805	1.140		1.140		1.00		1

Note(s):

1. Second Repeated Measurement is not required since the ratio of the largest to smallest SAR for the original and first repeated measurement is not > 1.20.

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13. Simultaneous Transmission SAR Analysis

KDB 447498 D01 General RF Exposure Guidance introduces a new formula for calculating the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR_1 + SAR_2)^{1.5} / Ri$$

Where:

SAR_1 is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR_2 is the highest measured or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$

A new threshold of 0.04 is also introduced in the draft KDB. Thus, in order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR_1 + SAR_2)^{1.5} / Ri < 0.04$$

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13.1. Estimated SAR for Simultaneous Transmission SAR Analysis

Considerations for SAR estimation

1. When standalone SAR test exclusion applies, standalone SAR must also be estimated to determine simultaneous transmission SAR test exclusion.
2. Dedicated Host Approach criteria for SAR test exclusion is likewise applied to SAR estimation, with certain distinctions between test exclusion and SAR estimation:
   - When the separation distance from the antenna to an adjacent edge is ≤ 5 mm, a distance of 5 mm is applied for SAR estimation; this is the same between test exclusion and SAR estimation calculations.
   - When the separation distance from the antenna to an adjacent edge is > 5 mm but ≤ 50 mm, the actual antenna-to-edge separation distance is applied for SAR estimation.
   - When the minimum test separation distance is > 50 mm, the estimated SAR value is 0.4 W/kg

13.1.1. Estimated SAR for WWAN

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna D															
GPRS 2 Slots	848.8	24.50	70	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
GPRS 2 Slots	1909.8	20.30	27	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.293	0.400	0.400	
W-CDMA 5	846.6	19.75	94	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
W-CDMA 2	1752.6	13.75	24	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.249	0.400	0.400	
W-CDMA 2	1907.6	12.75	19	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.206	0.400	0.400	
CDMA BC0	848.31	19.75	94	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
CDMA BC1	1908.75	13.00	20	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.217	0.400	0.400	
CDMA BC10	823.1	19.50	89	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
CDMA BC15	1753.75	14.00	25	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.260	0.400	0.400	
LTE Band 2	1900	13.25	21	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.227	0.400	0.400	
LTE Band 4	1745	13.50	22	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.228	0.400	0.400	
LTE Band 5	844	19.75	94	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
LTE Band 13	782	19.50	89	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
LTE Band 17	711	19.00	79	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
LTE Band 25	1905	13.25	21	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.227	0.400	0.400	
LTE Band 26	844	19.75	94	17	2	17.1	227	914		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
LTE Band 41	2680	13.50	22	17	2	17.1	227	914		-MEASURE-	-MEASURE-	0.282	0.400	0.400	

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13.1.2. Estimated SAR for Wi-Fi and BT

Wi-Fi P_{Cell_OFF} (P_{max}) SISO

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	13.00	20	17	2	109.8	227.1	23.5		-MEASURE-	-MEASURE-	0.400	0.400	0.174	
Antenna B															
Wi-Fi 2.4 GHz	2462	18.00	63	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.2 GHz	5240	17.00	50	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	16.00	40	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5680	16.50	45	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5825	17.00	50	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Bluetooth	2480	10.50	11	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Bluetooth	2480	10.50	11	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	0.257	

Wi-Fi P_{Cell_OFF} (P_{max}) MIMO

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	13.00	20	17	2	109.8	227.1	23.5		-MEASURE-	-MEASURE-	0.400	0.400	0.174	
Antenna B															
Wi-Fi 2.4 GHz	2462	18.00	63	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.2 GHz	5230	17.00	50	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	16.00	40	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5680	16.50	45	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5805	17.00	50	17	2	914	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.2 GHz	5230	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.3 GHz	5270	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.5 GHz	5690	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.8 GHz	5805	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	

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Wi-Fi P_{Cell_ON} (P_{low}) SISO

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	10.50	11	17	2	109.8	227.1	23.5		-MEASURE-	-MEASURE-	0.400	0.400	0.096	
Antenna B															
Wi-Fi 5.2 GHz	5240	11.50	14	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	11.00	13	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5680	11.50	14	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5825	12.00	16	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	

Wi-Fi P_{Cell_ON} (P_{low}) MIMO

Tx Interface	Frequency (MHz)	Output Power		Separation Distances (mm)						Estimated 1-g SAR Value (W/kg)					
		dBm	mW	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front	Rear	Edge 1	Edge 2	Edge 3	Edge 4	Front
Antenna A															
Wi-Fi 2.4 GHz	2462	10.50	11	17	2	109.8	227.1	23.5		-MEASURE-	-MEASURE-	0.400	0.400	0.096	
Antenna B															
Wi-Fi 5.2 GHz	5240	11.50	14	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.3 GHz	5320	11.00	13	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.5 GHz	5680	11.50	14	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Wi-Fi 5.8 GHz	5825	12.00	16	17	2	91.4	227.1	60		-MEASURE-	-MEASURE-	0.400	0.400	0.400	
Antenna C															
Wi-Fi 2.4 GHz	2462	16.00	40	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.2 GHz	5240	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.3 GHz	5300	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.5 GHz	5600	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	
Wi-Fi 5.8 GHz	5825	18.00	63	5.2	228.8	128.3	3.1	9.4		-MEASURE-	0.400	0.400	-MEASURE-	-MEASURE-	

Use of Wi-Fi estimated SAR in simultaneous transmission SAR analysis

- Edge 2 for Bluetooth: The estimated SAR value of **0.400** W/kg was used in Simultaneous Transmission Analysis, and distinguished from measured SAR values with green text.

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13.2. Sum of the SAR for GSM850 + Wi-Fi P_{Cell_ON} (P_{low})+ BT

13.2.1. GSM850 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D GSM850	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.133	0.597			0.016	1.746	**Yes**
	D, C	1.133		0.067		N/A	1.200	No
	D, A + C	1.133			0.592	N/A	1.725	**Yes**
Edge 1	D, A, C	0.421	0.467			0.400	1.288	No
	D, C	0.421		0.400		N/A	0.821	No
	D, A + C	0.421			0.506	N/A	0.927	No
Edge 2	D, A, C	0.135	0.400			0.400	0.935	No
	D, C	0.135		0.400		N/A	0.535	No
	D, A + C	0.135			0.400	N/A	0.535	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D GSM850	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (GSM850) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.133	0.597			0.016	1.746				
		1.133	0.597				1.730	85.1	0.027	No	1
		1.133				0.016	1.149	256.8	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (GSM850) Antenna A + C (Wi-Fi 2.4)	1.133			0.592		1.725	85.1	0.027	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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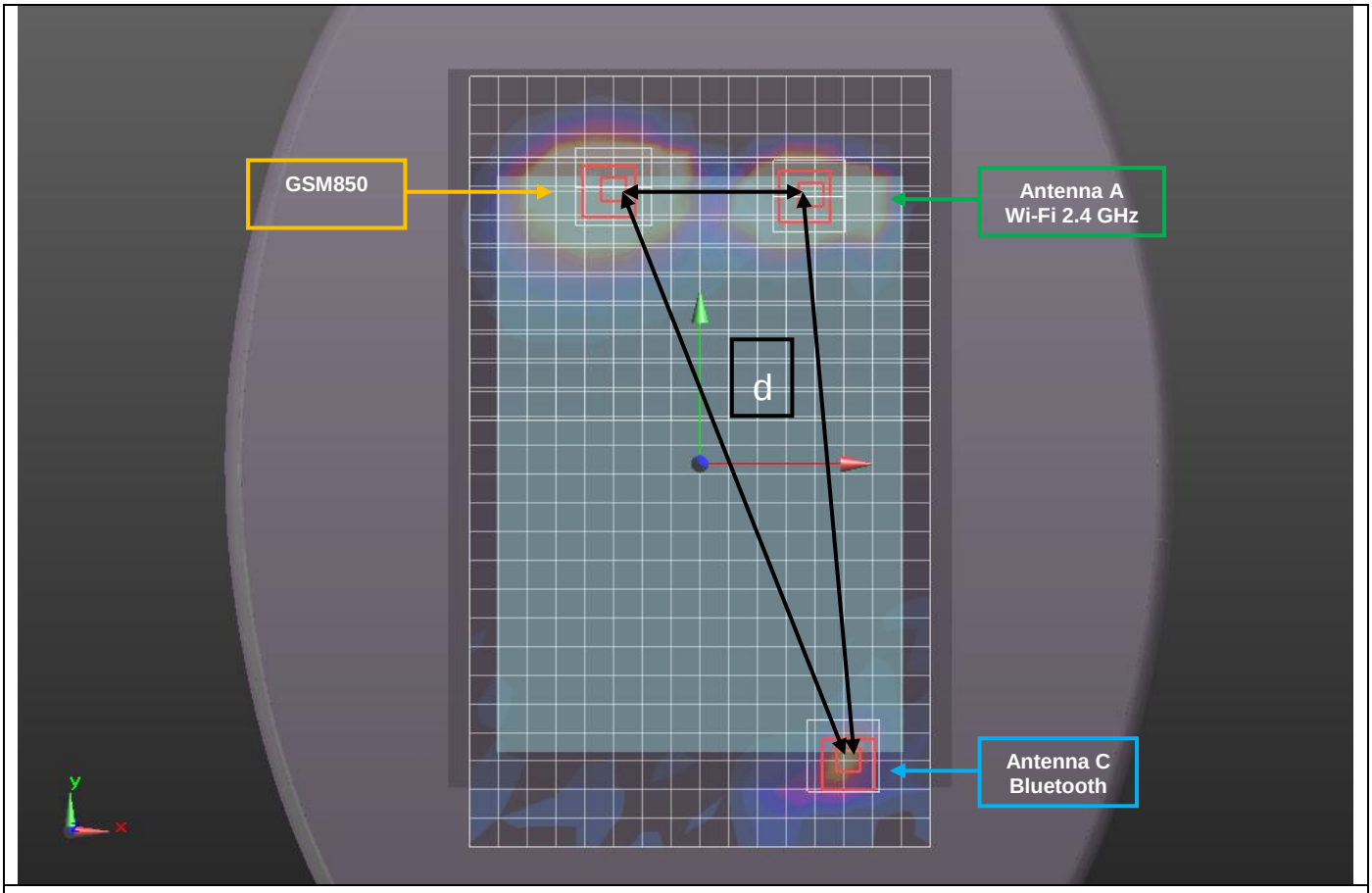
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, GSM850	1.74	-0.0344	0.114	-0.18
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.1
	WWAN to Bluetooth	256.8
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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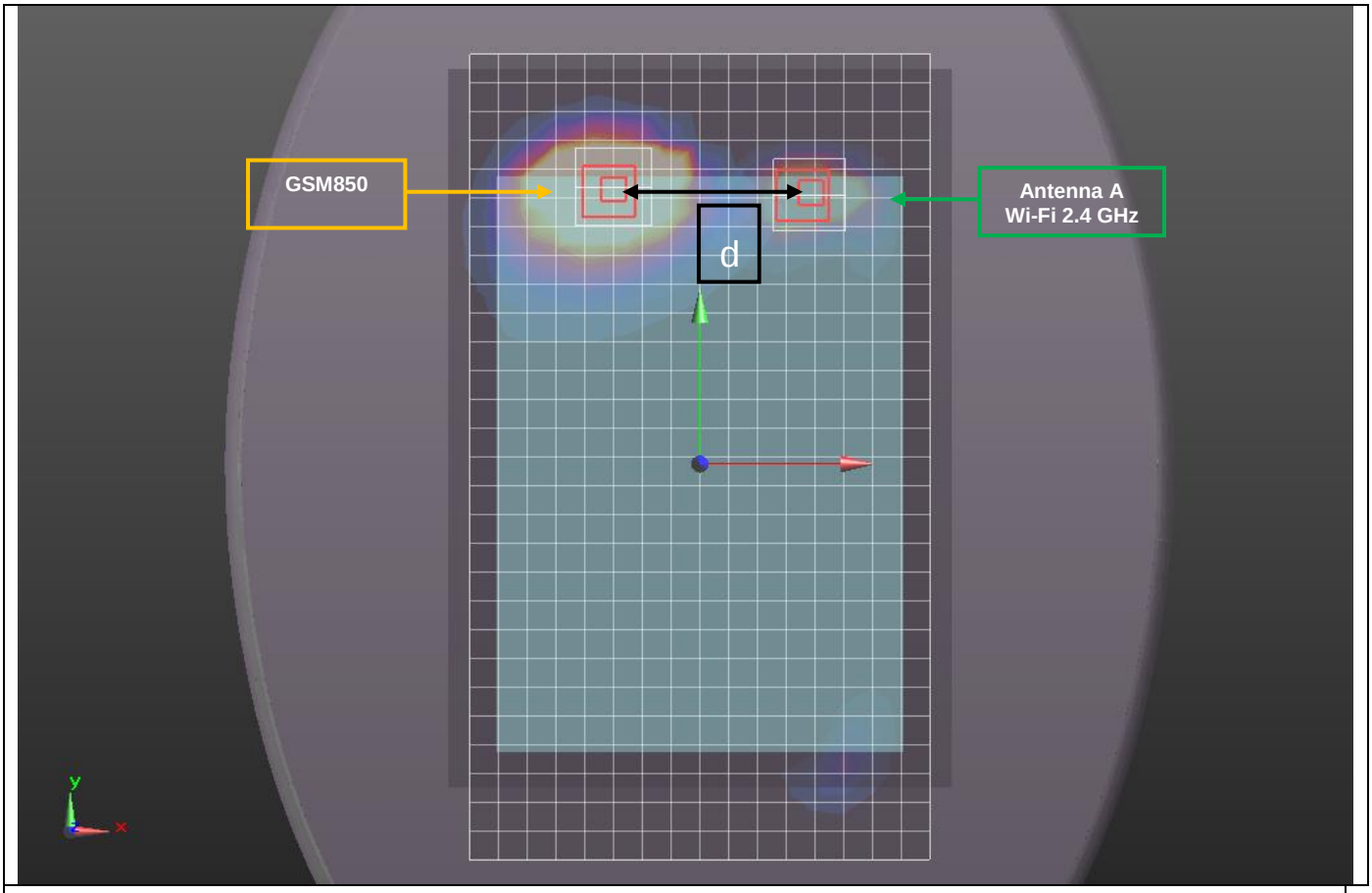
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, GSM850	1.74	-0.0344	0.114	-0.18
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.2.2. GSM850 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D GSM850	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.133	0.204			0.016	1.353	No
	D, C, C	1.133		0.295		N/A	1.428	No
	D, B+C, C	1.133			0.202	N/A	1.335	No
Edge 1	D, B, C	0.421	0.389			0.400	1.210	No
	D+ B + C + C	0.421			0.400	0.400	1.221	No
Edge 2	D, B, C	0.135	0.400			0.400	0.935	No
	D, C, C	0.135		0.400		0.400	0.935	No
	D, B+C, C	0.135			0.400	0.400	0.935	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.3. Sum of the SAR for GSM1900 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.3.1. GSM1900 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D GSM1900	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.137	0.597			0.016	1.750	**Yes**
	D, C	1.137		0.067		N/A	1.204	No
	D, A + C	1.137			0.592	N/A	1.729	**Yes**
Edge 1	D, A, C	0.416	0.467			0.400	1.283	No
	D, C	0.416		0.400		N/A	0.816	No
	D, A + C	0.416			0.506	N/A	0.922	No
Edge 2	D, A, C	0.045	0.400			0.400	0.845	No
	D, C	0.045		0.400		N/A	0.445	No
	D, A + C	0.045			0.400	N/A	0.445	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D GSM1900	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (GSM1900) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.137	0.597			0.016	1.750				
		1.137	0.597				1.734	86.9	0.026	No	1
		1.137				0.016	1.153	259.3	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (GSM1900) Antenna A + C (Wi-Fi 2.4)	1.137			0.592	0.016	1.745	86.9	0.027	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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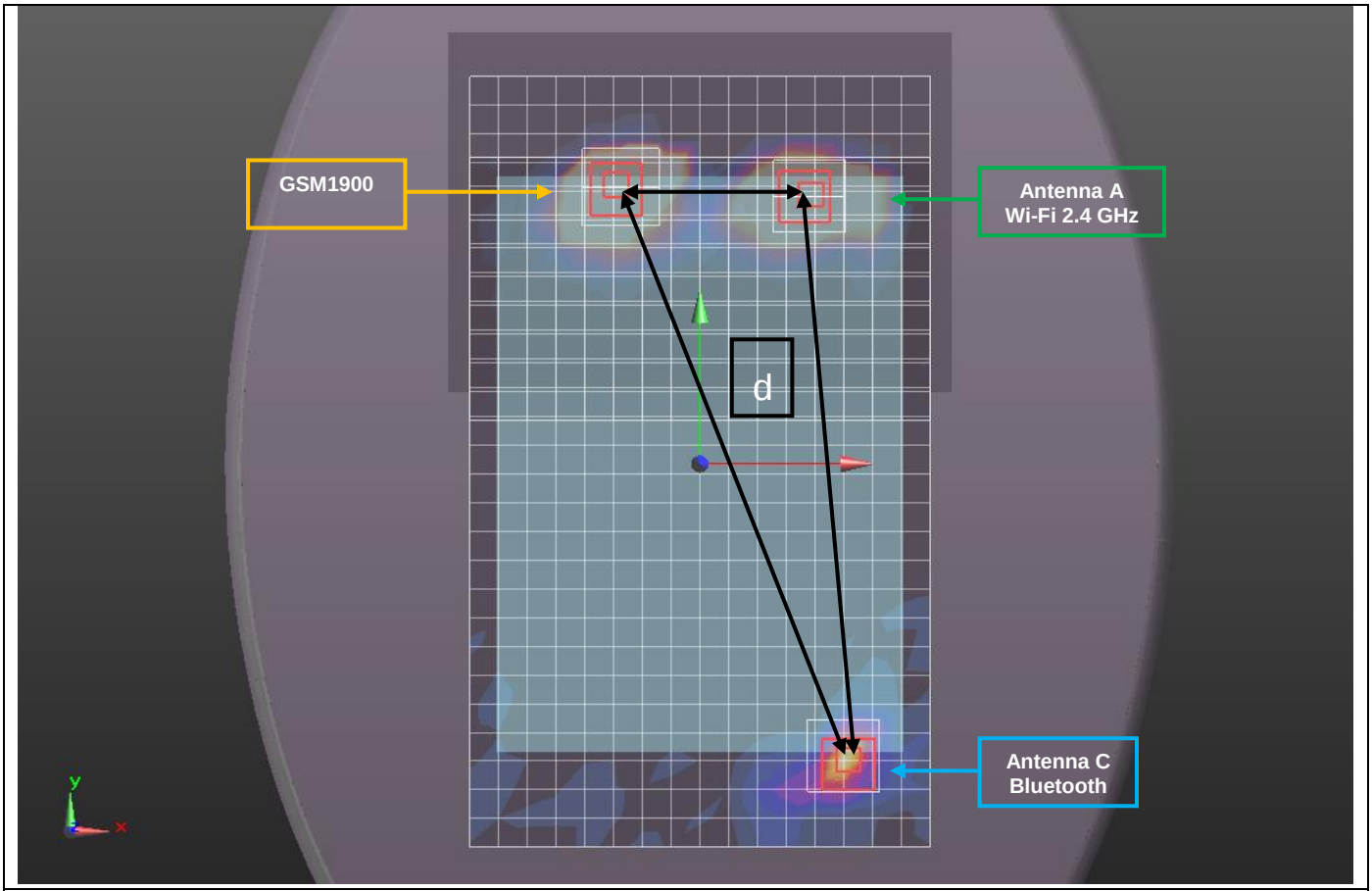
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, GSM1900	1.84	-0.0362	0.116	-0.183
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	86.9
	WWAN to Bluetooth	259.3
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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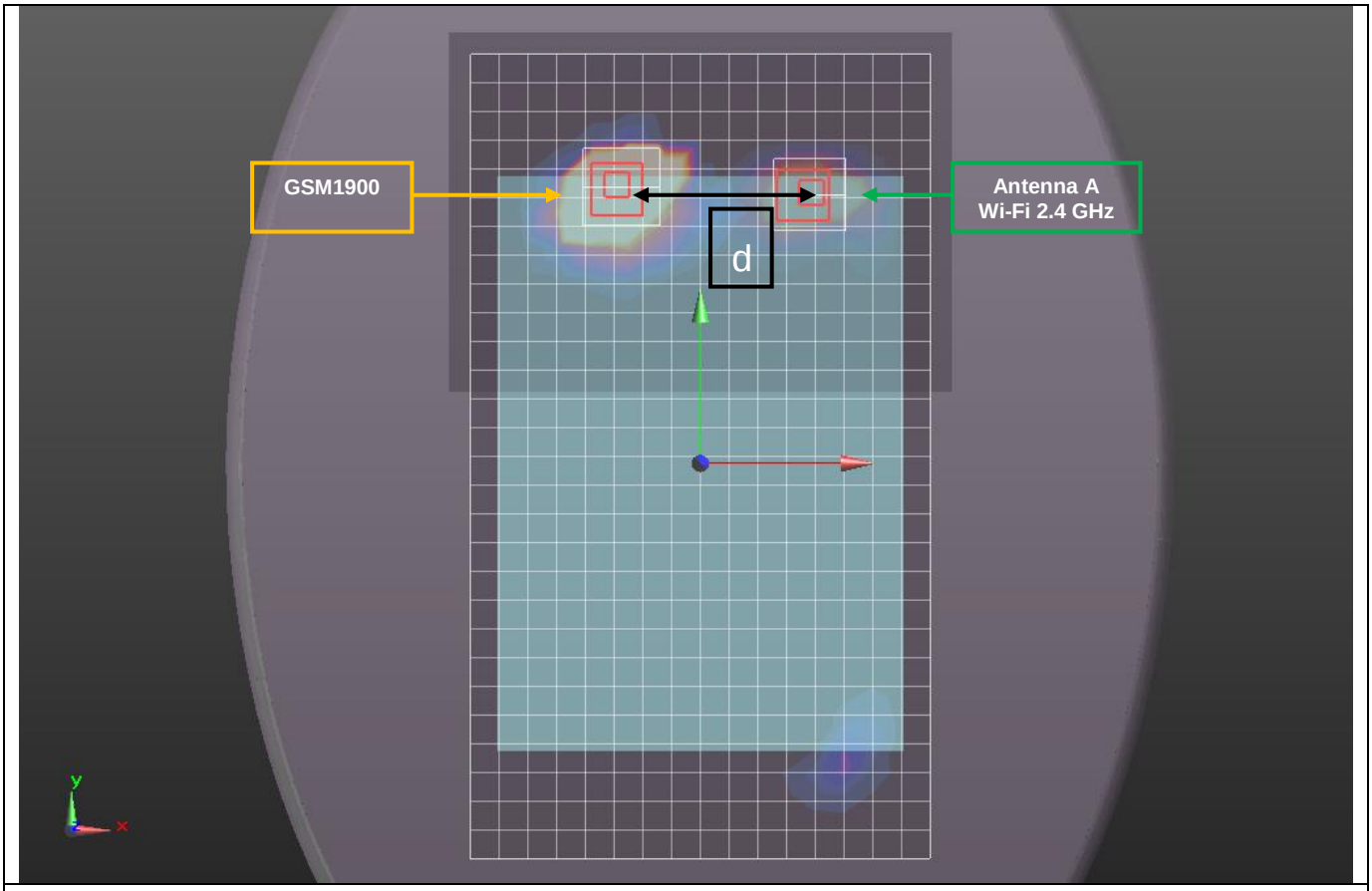
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, GSM1900	1.84	-0.0362	0.116	-0.183
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	86.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.3.2. GSM1900 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D GSM1900	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.137	0.204			0.016	1.357	No
	D, C, C	1.137		0.295		N/A	1.432	No
	D, B+C, C	1.137			0.202	N/A	1.339	No
Edge 1	D, B, C	0.416	0.389			0.400	1.205	No
	D+ B + C + C	0.416			0.400	0.400	1.216	No
Edge 2	D, B, C	0.045	0.400			0.400	0.845	No
	D, C, C	0.045		0.400		0.400	0.845	No
	D, B+C, C	0.045			0.400	0.400	0.845	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.4. Sum of the SAR for W-CDMA Band V + Wi-Fi P_{Cell_ON} (P_{low})+ BT

13.4.1. W-CDMA Band V + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D W-CDMA Band V	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.091	0.597			0.016	1.704	**Yes**
	D, C	1.091		0.067		N/A	1.158	No
	D, A + C	1.091			0.592	N/A	1.683	**Yes**
Edge 1	D, A, C	0.852	0.467			0.400	1.719	**Yes**
	D, C	0.852		0.400		N/A	1.252	No
	D, A + C	0.852			0.506	N/A	1.358	No
Edge 2	D, A, C	0.248	0.400			0.400	1.048	No
	D, C	0.248		0.400		N/A	0.648	No
	D, A + C	0.248			0.400	N/A	0.648	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D W-CDMA Band V	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (W-CDMA Band V) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.091	0.597			0.016	1.704				
		1.091	0.597				1.688	83.6	0.026	No	1
		1.091				0.016	1.107	257.2	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (W-CDMA Band V) Antenna A + C (Wi-Fi 2.4)	1.091			0.592	0.016	1.699	83.6	0.026	No	2
Edge 1	Antenna D (W-CDMA Band V) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	0.852	0.467			0.400	1.719				
		0.852	0.467				1.319	103.5	0.015	No	3
		0.852				0.400	1.252	236.9	0.006	No	3
			0.467			0.400	0.867	228.7	0.004	No	3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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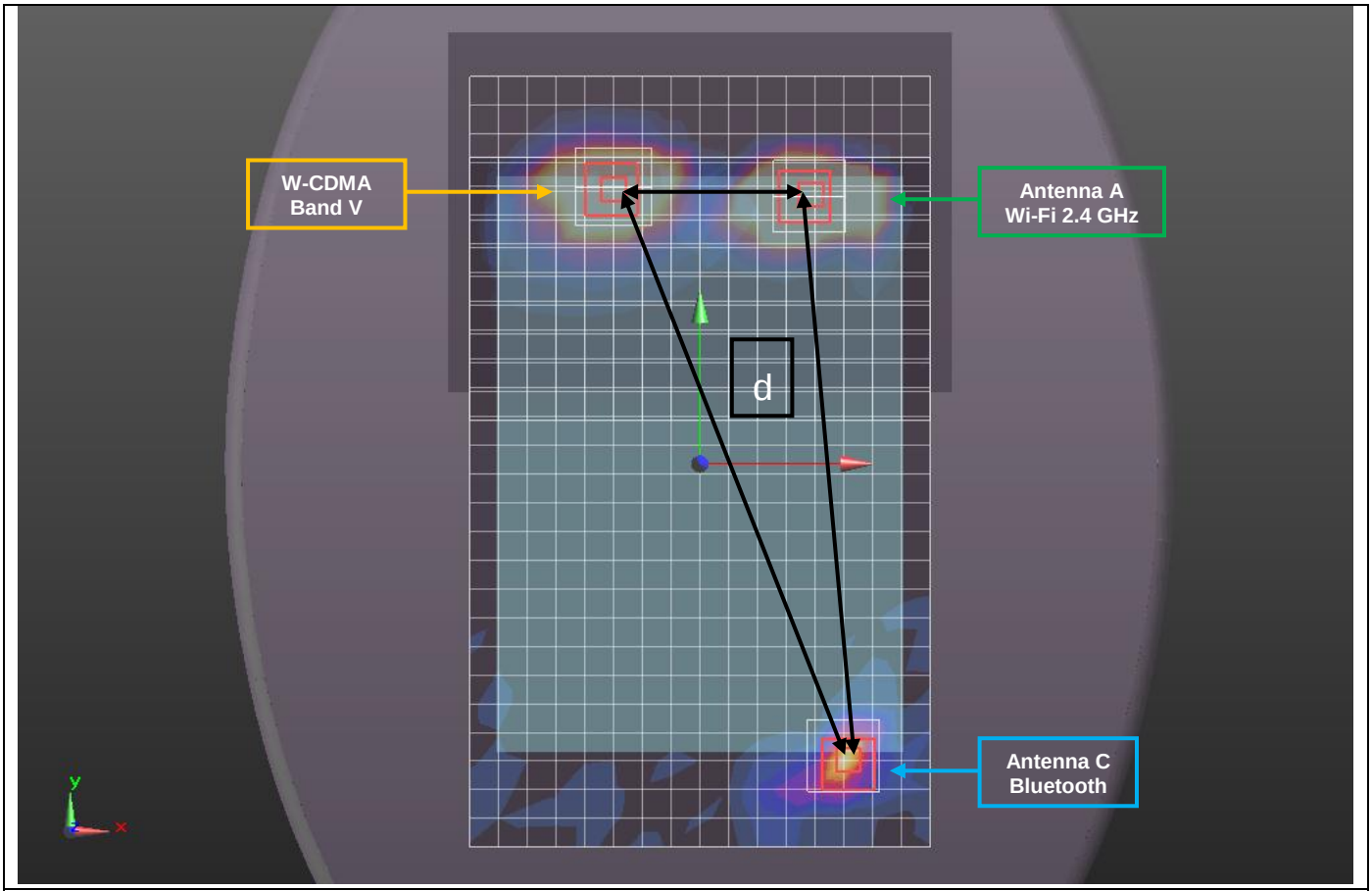
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band V	2.06	-0.0328	0.115	-0.179
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.6
	WWAN to Bluetooth	257.2
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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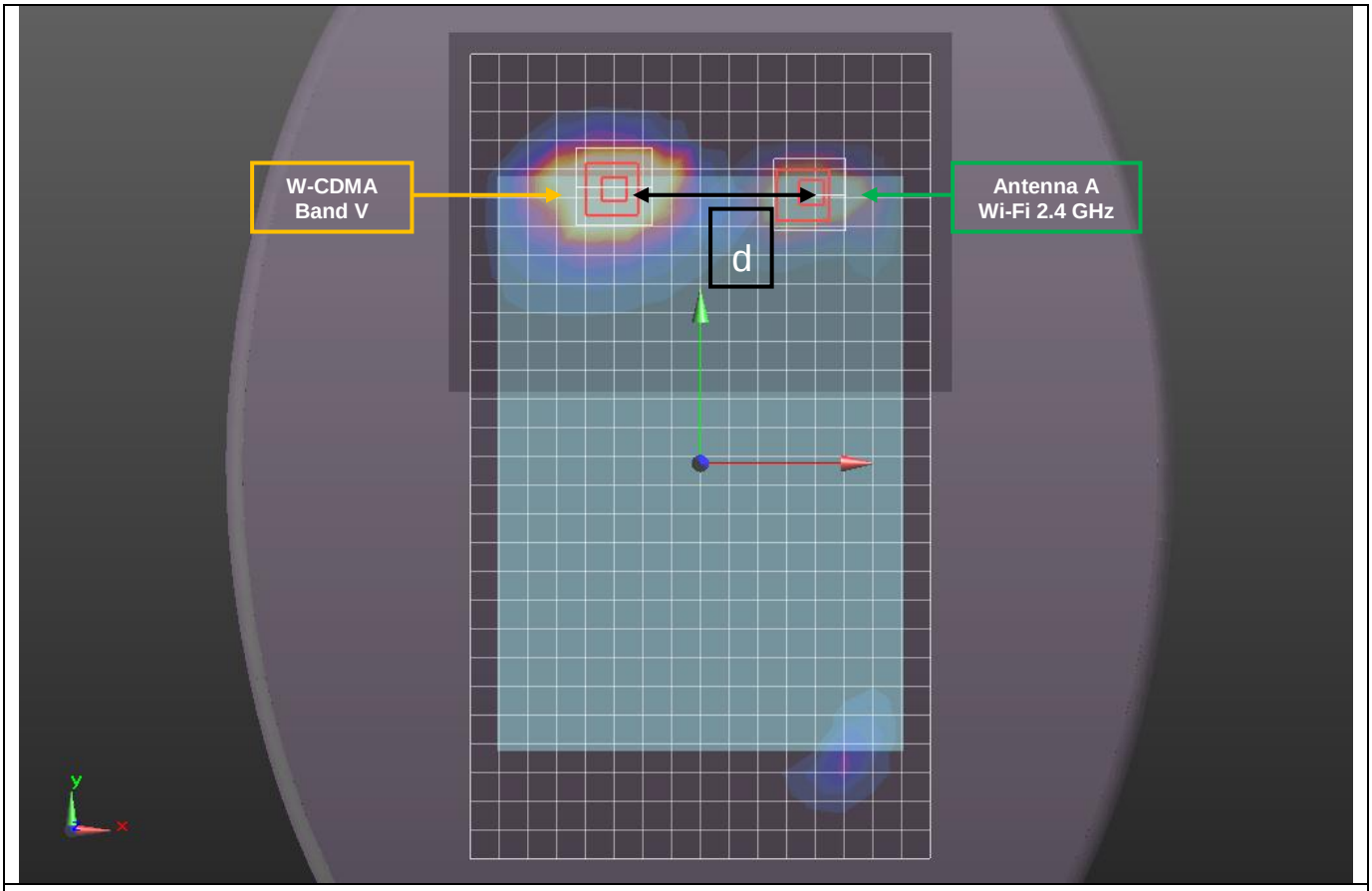
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band V	2.06	-0.0328	0.115	-0.179
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.6

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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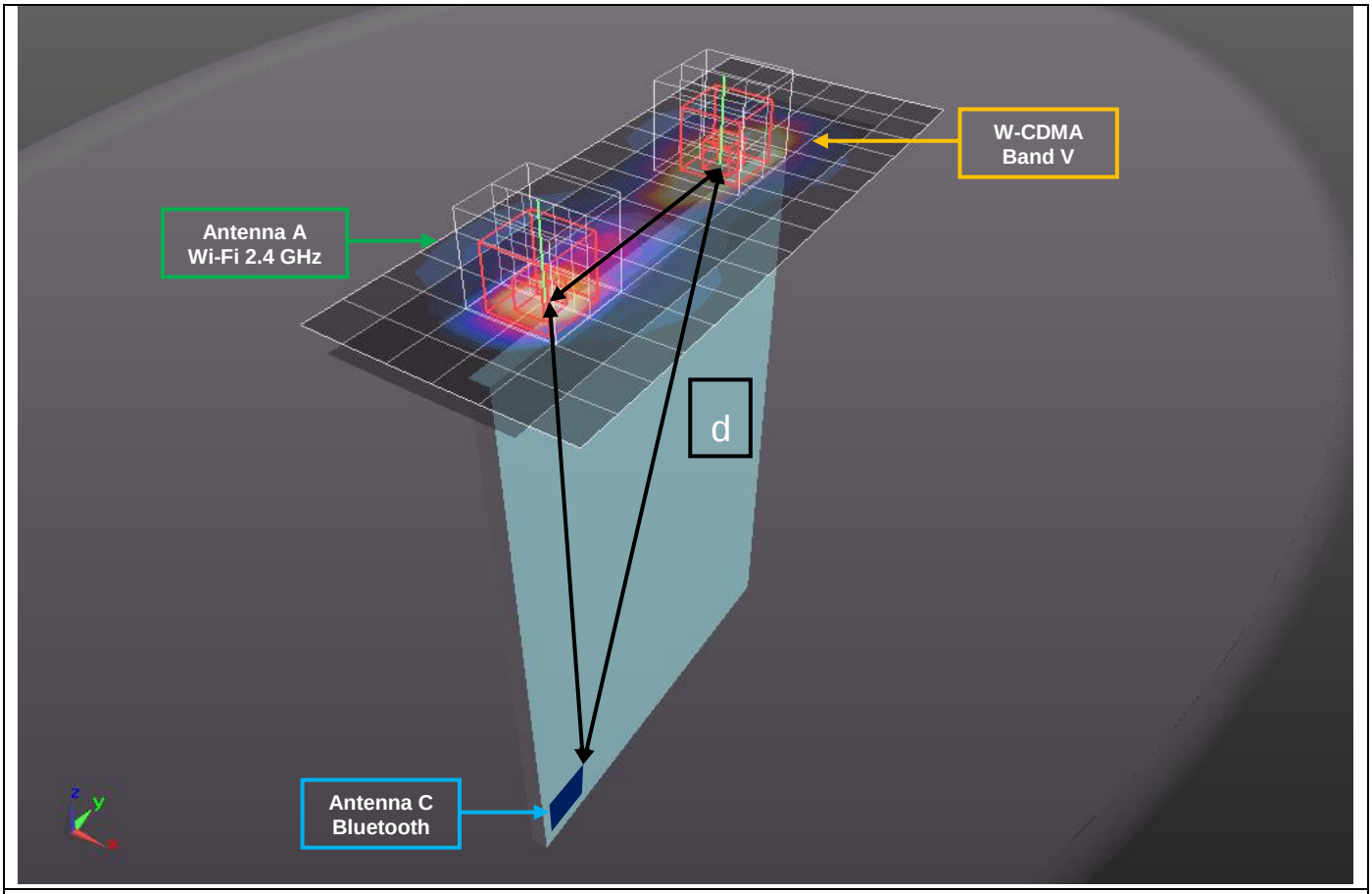
Figure (3)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band V	1.62	-0.0031	0.0406	-0.181
Antenna A, Wi-Fi 2.4 GHz	1.08	-0.0012	-0.0628	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	103.5
	WWAN to Bluetooth	236.9
	Wi-Fi 2.4 GHz to Bluetooth	228.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.4.2. W-CDMA Band V + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D W-CDMA Band V	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.091	0.204			0.016	1.311	No
	D, C, C	1.091		0.295		N/A	1.386	No
	D, B+C, C	1.091			0.202	N/A	1.293	No
Edge 1	D, B, C	0.852	0.389			0.400	1.641	**Yes**
	D+ B + C + C	0.852			0.400	0.400	1.652	**Yes**
Edge 2	D, B, C	0.248	0.400			0.400	1.048	No
	D, C, C	0.248		0.400		0.400	1.048	No
	D, B+C, C	0.248			0.400	0.400	1.048	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D W-CDMA Band V	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B+ C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge 1	Antenna D (W-CDMA Band V) Antenna B (Wi-Fi 5 GHz), Antenna C (Bluetooth)	0.852	0.389			0.400	1.641				
		0.852	0.389				1.241	54.2	0.026	No	1
		0.852				0.400	1.252	236.9	0.006	No	1
			0.389			0.400	0.789	224.9	0.003	No	1
	Antenna D (W-CDMA Band V) Antenna B + C (Wi-Fi 5 GHz), Antenna C (Bluetooth)	0.852			0.400	0.400	1.652				
		0.852			0.400		1.252	54.7	0.026	No	2
		0.852				0.400	1.252	236.9	0.006	No	2
					0.400	0.400	0.800	225.9	0.003	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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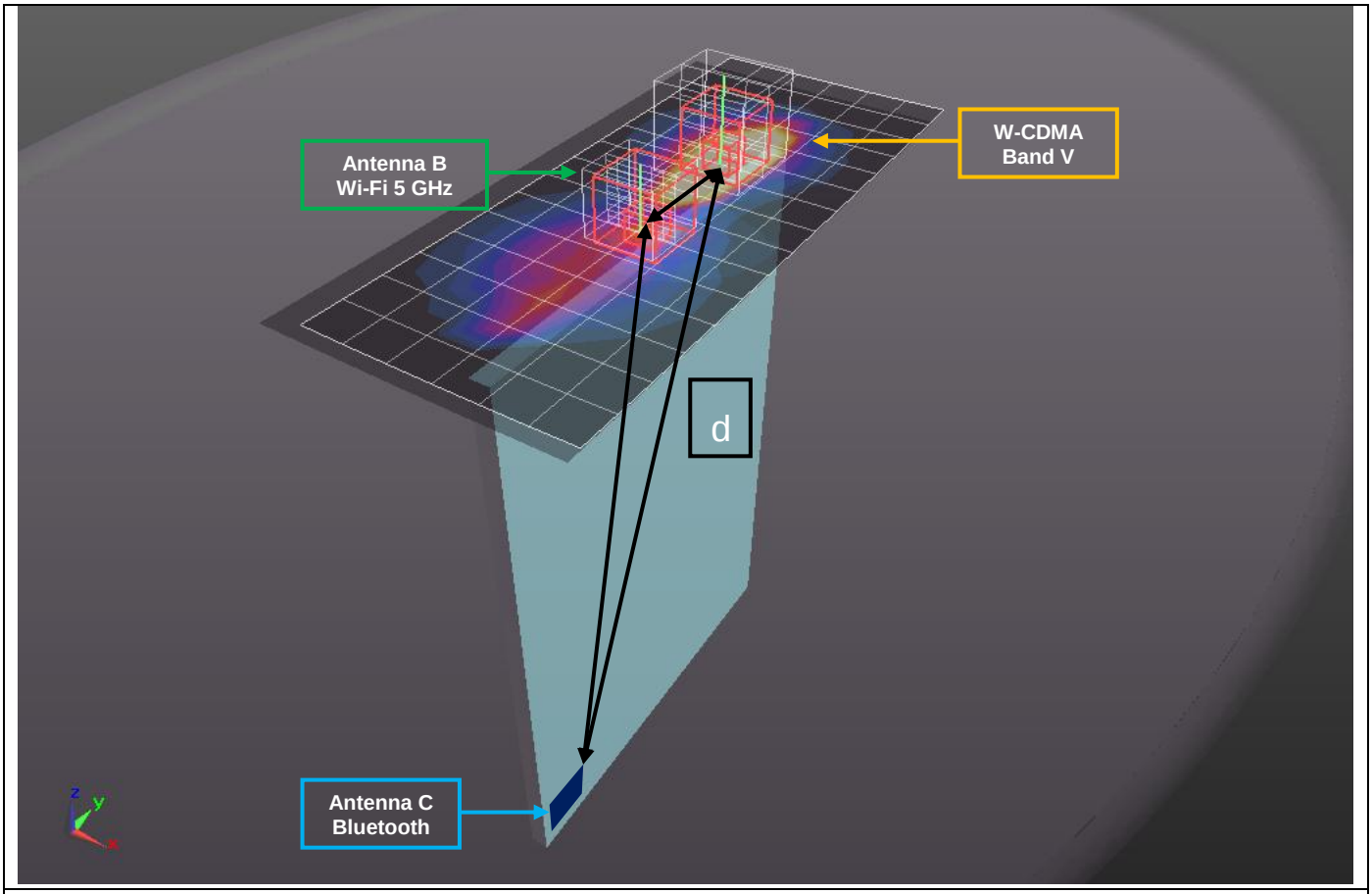
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band V	1.62	-0.0031	0.0406	-0.181
Antenna B, Wi-Fi 5 GHz	1.73	0.0018	-0.0132	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	54.2
	WWAN to Bluetooth	236.9
	Wi-Fi 5 GHz to Bluetooth	224.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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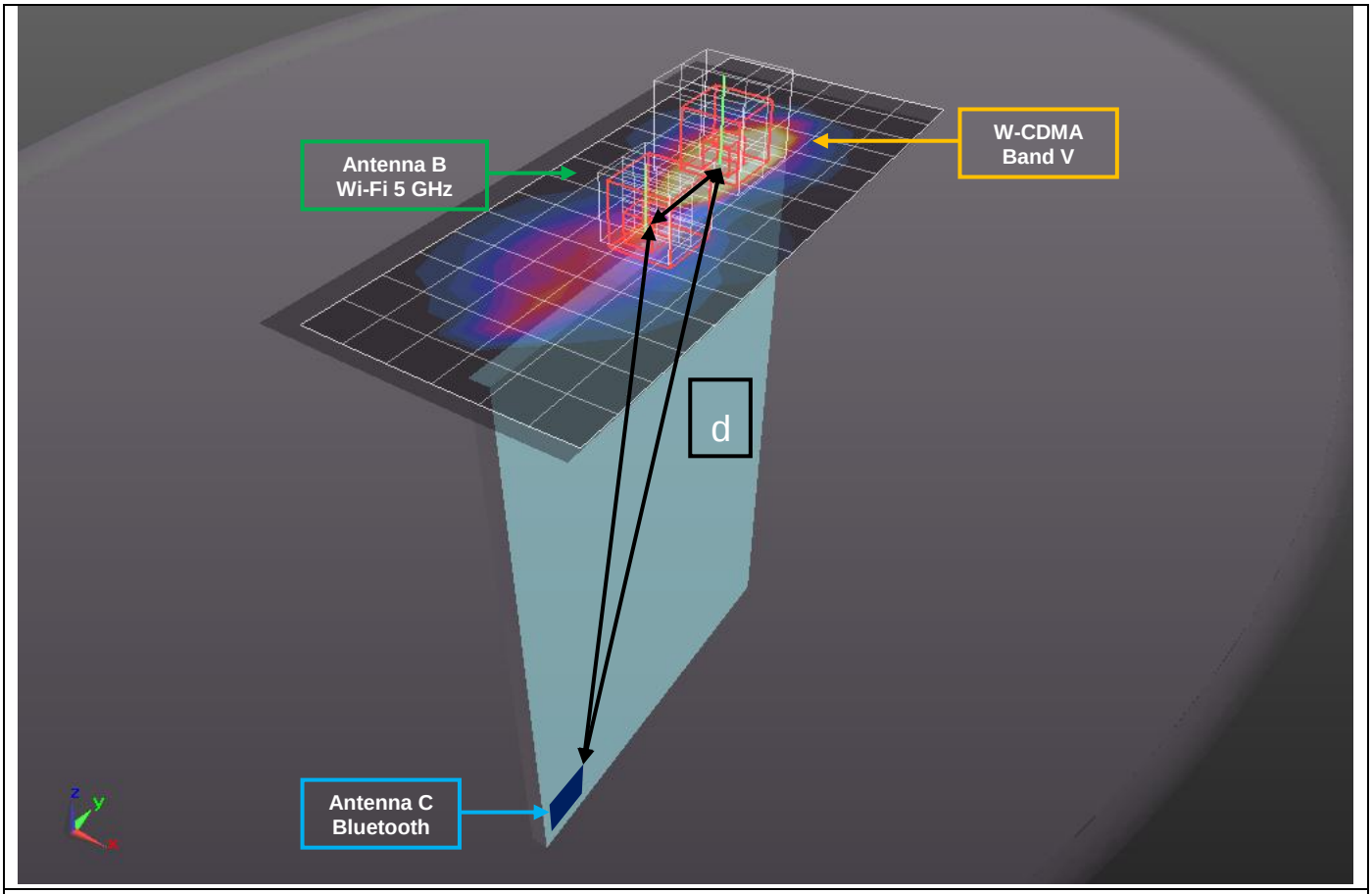
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band V	1.62	-0.0031	0.0406	-0.181
Antenna B + C, Wi-Fi 5 GHz	1.7	0.002	-0.0138	-0.184
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	54.7
	WWAN to Bluetooth	236.9
	Wi-Fi 5 GHz to Bluetooth	225.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.5. Sum of the SAR for W-CDMA Band IV + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.5.1. W-CDMA Band IV + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D W-CDMA Band IV	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.190	0.597			0.016	1.803	**Yes**
	D, C	1.190		0.067		N/A	1.257	No
	D, A + C	1.190			0.592	N/A	1.782	**Yes**
Edge 1	D, A, C	0.377	0.467			0.400	1.244	No
	D, C	0.377		0.400		N/A	0.777	No
	D, A + C	0.377			0.506	N/A	0.883	No
Edge 2	D, A, C	0.114	0.400			0.400	0.914	No
	D, C	0.114		0.400		N/A	0.514	No
	D, A + C	0.114			0.400	N/A	0.514	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D W-CDMA Band IV	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (W-CDMA Band IV) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.190	0.597			0.016	1.803				
		1.190	0.597				1.787	83.8	0.029	No	1
		1.190				0.016	1.206	256.4	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (W-CDMA Band IV) Antenna A + C (Wi-Fi 2.4)	1.190			0.592	0.016	1.798	83.8	0.029	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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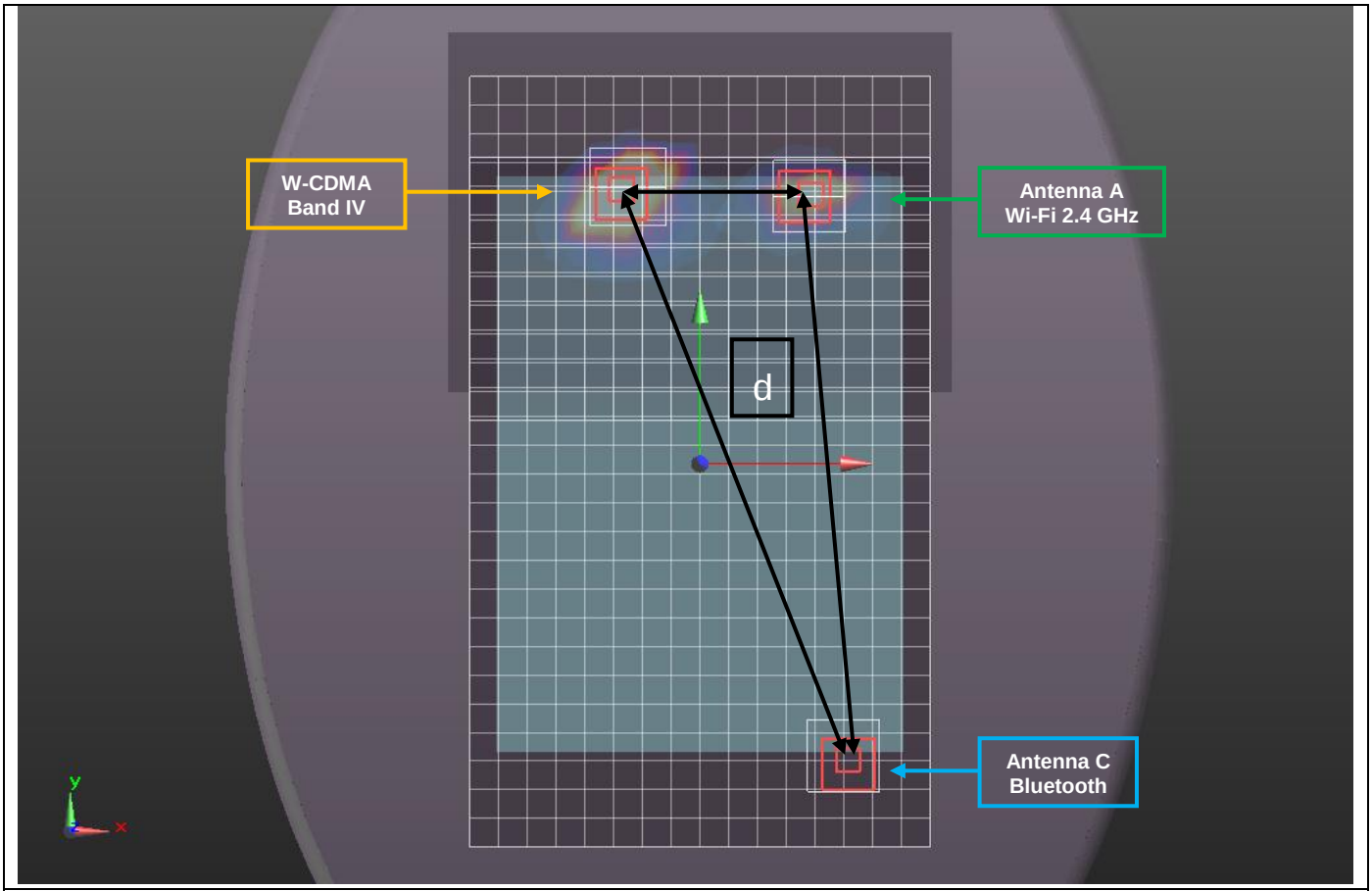
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band IV	2.48	-0.0332	0.114	-0.182
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.8
	WWAN to Bluetooth	256.4
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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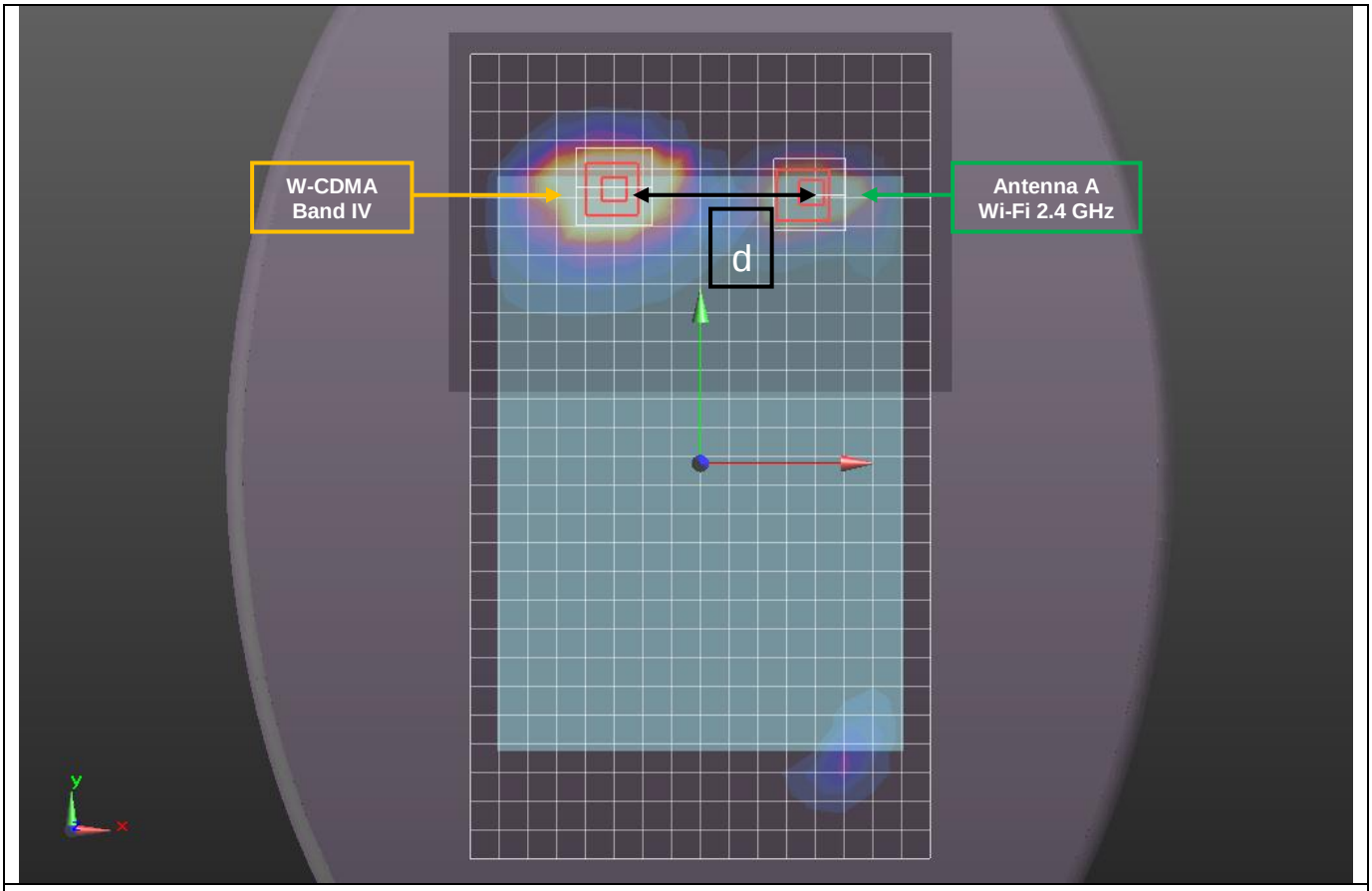
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band IV	2.48	-0.0332	0.114	-0.182
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.8

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.5.2. W-CDMA Band IV + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values					∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Position	Antenna Combination	Antenna D W-CDMA Band V	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth		
Rear	D, B, C	1.190	0.204			0.016	1.410	No
	D, C, C	1.190		0.295		N/A	1.485	No
	D, B+C, C	1.190			0.202	N/A	1.392	No
Edge 1	D, B, C	0.377	0.389			0.400	1.166	No
	D+ B + C + C	0.377			0.400	0.400	1.177	No
Edge 2	D, B, C	0.114	0.400			0.400	0.914	No
	D, C, C	0.114		0.400		0.400	0.914	No
	D, B+C, C	0.114			0.400	0.400	0.914	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.6. Sum of the SAR for W-CDMA Band II + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.6.1. W-CDMA Band II + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D W-CDMA Band II	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.180	0.597			0.016	1.793	**Yes**
	D, C	1.180		0.067		N/A	1.247	No
	D, A + C	1.180			0.592	N/A	1.772	**Yes**
Edge 1	D, A, C	0.309	0.467			0.400	1.176	No
	D, C	0.309		0.400		N/A	0.709	No
	D, A + C	0.309			0.506	N/A	0.815	No
Edge 2	D, A, C	0.068	0.400			0.400	0.868	No
	D, C	0.068		0.400		N/A	0.468	No
	D, A + C	0.068			0.400	N/A	0.468	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D W-CDMA Band II	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (W-CDMA Band II) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.180	0.597			0.016	1.793				
		1.180	0.597				1.777	83.7	0.028	No	1
		1.180				0.016	1.196	258.2	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (W-CDMA Band II) Antenna A + C (Wi-Fi 2.4)	1.180			0.592	0.016	1.788	83.7	0.029	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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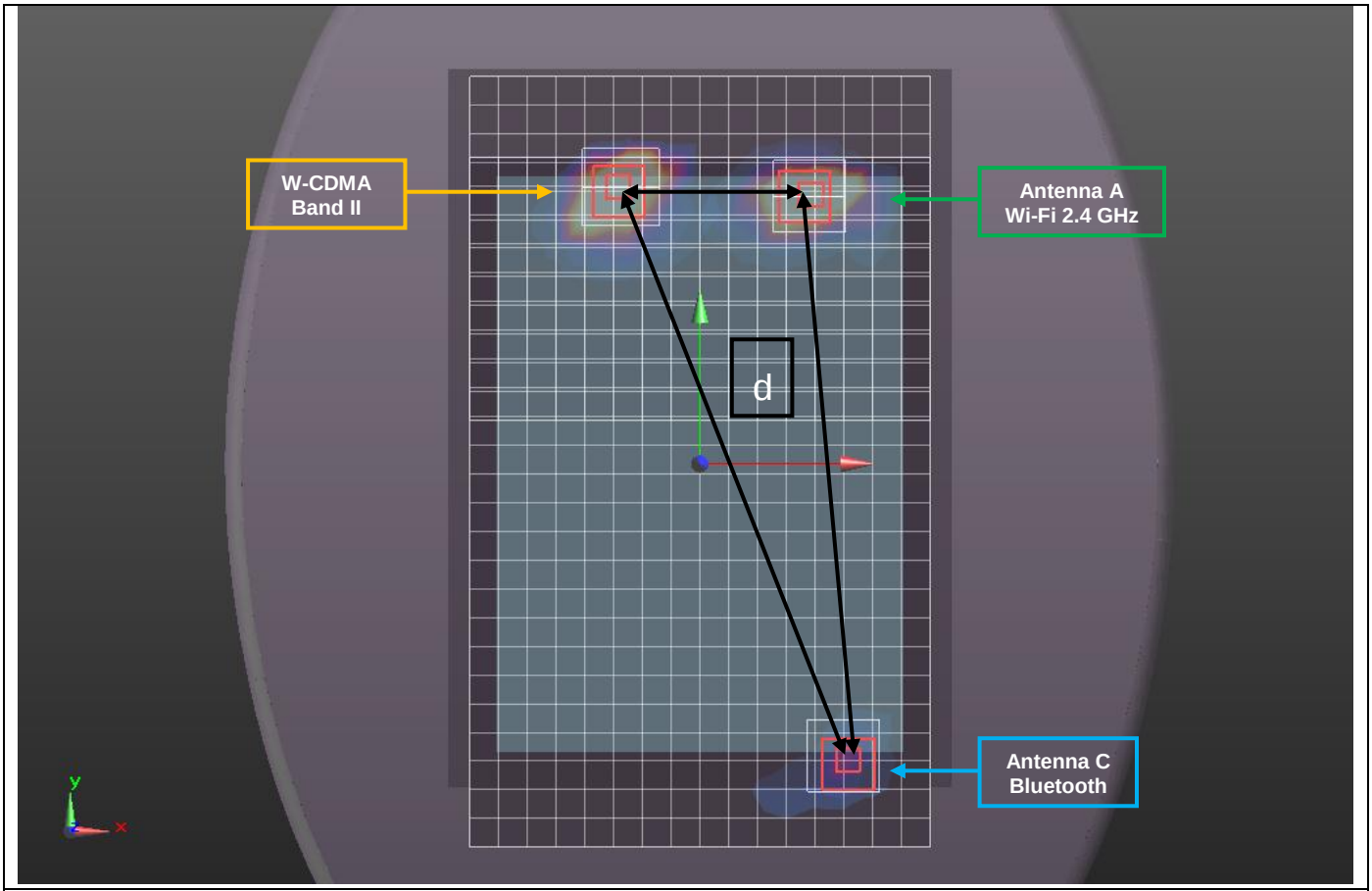
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band II	2.33	-0.033	0.116	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.7
	WWAN to Bluetooth	258.2
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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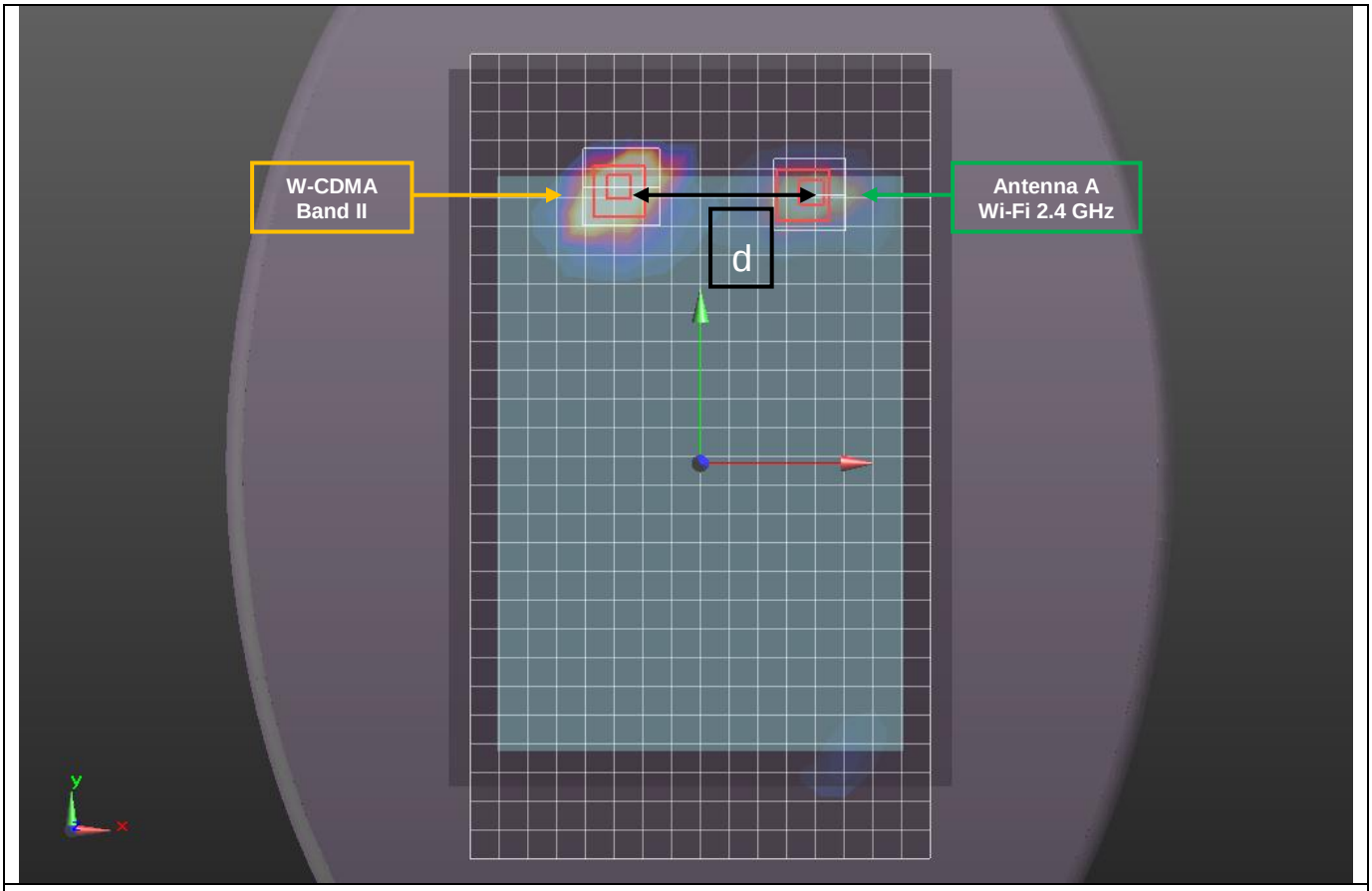
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, W-CDMA Band II	2.33	-0.033	0.116	-0.184
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.6.2. W-CDMA Band II + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D W-CDMA Band II	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.180	0.204			0.016	1.400	No
	D, C, C	1.180		0.295		N/A	1.475	No
	D, B+C, C	1.180			0.202	N/A	1.382	No
Edge 1	D, B, C	0.309	0.389			0.400	1.098	No
	D+ B + C + C	0.309			0.400	0.400	1.109	No
Edge 2	D, B, C	0.068	0.400			0.400	0.868	No
	D, C, C	0.068		0.400		0.400	0.868	No
	D, B+C, C	0.068			0.400	0.400	0.868	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.7. Sum of the SAR for CDMA BC0 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.7.1. CDMA BC0 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC0	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.084	0.597			0.016	1.697	**Yes**
	D, C	1.084		0.067		N/A	1.151	No
	D, A + C	1.084			0.592	N/A	1.676	**Yes**
Edge 1	D, A, C	0.888	0.467			0.400	1.755	**Yes**
	D, C	0.888		0.400		N/A	1.288	No
	D, A + C	0.888			0.506	N/A	1.394	No
Edge 2	D, A, C	0.221	0.400			0.400	1.021	No
	D, C	0.221		0.400		N/A	0.621	No
	D, A + C	0.221			0.400	N/A	0.621	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D CDMA BC0	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (CDMA BC0) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.084	0.597			0.016	1.697				
		1.084	0.597				1.681	87.8	0.025	No	1
		1.084				0.016	1.100	258.8	0.004	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (CDMA BC0) Antenna A + C (Wi-Fi 2.4)	1.084			0.592	0.016	1.692	87.8	0.025	No	2
Edge 1	Antenna D (CDMA BC0) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	0.888	0.467			0.400	1.755				
		0.888	0.467				1.355	110.7	0.014	No	3
		0.888				0.400	1.288	236.0	0.006	No	3
			0.467			0.400	0.867	228.7	0.004	No	3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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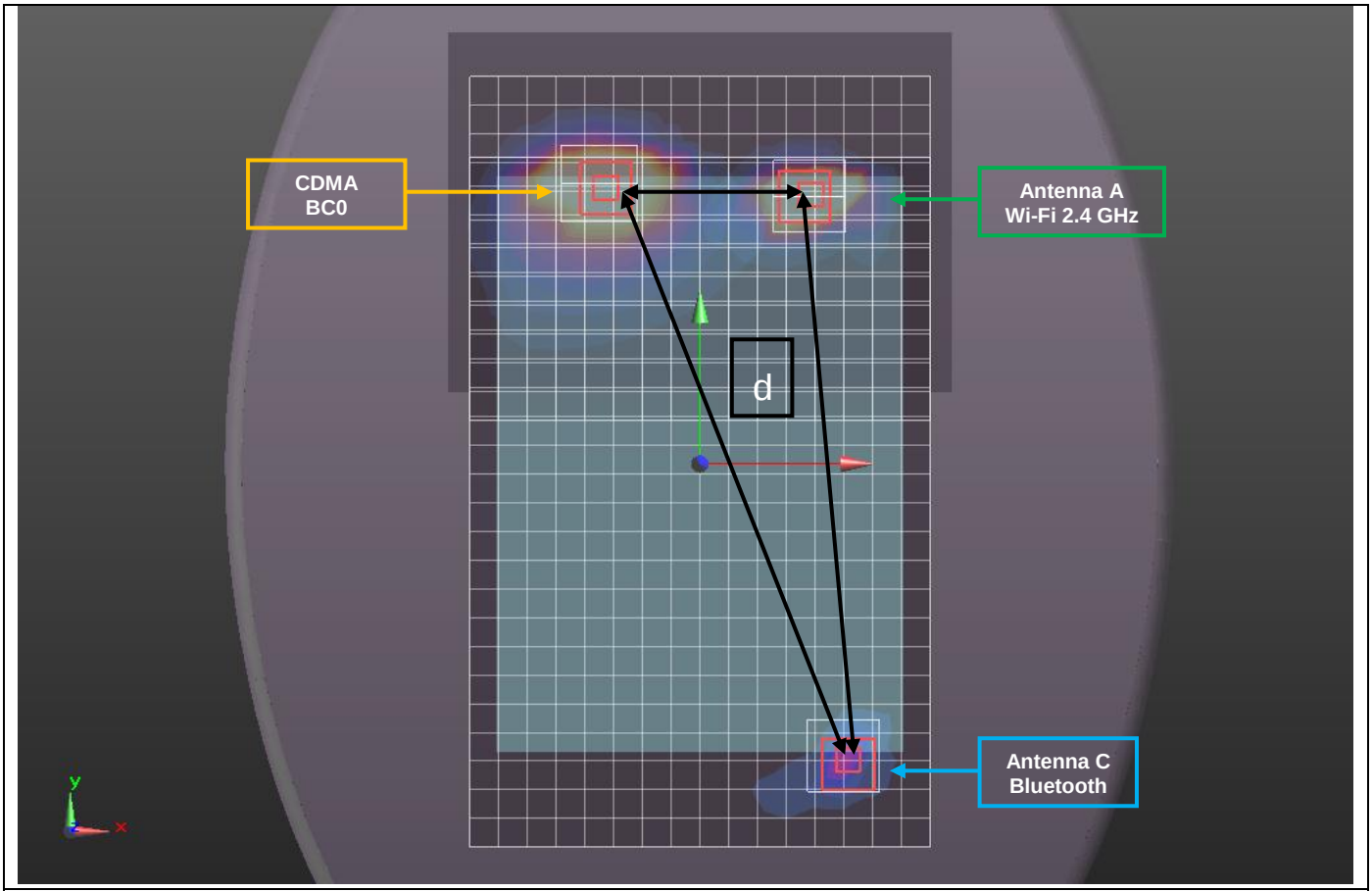
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC0	1.67	-0.0372	0.115	-0.183
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	87.8
	WWAN to Bluetooth	258.8
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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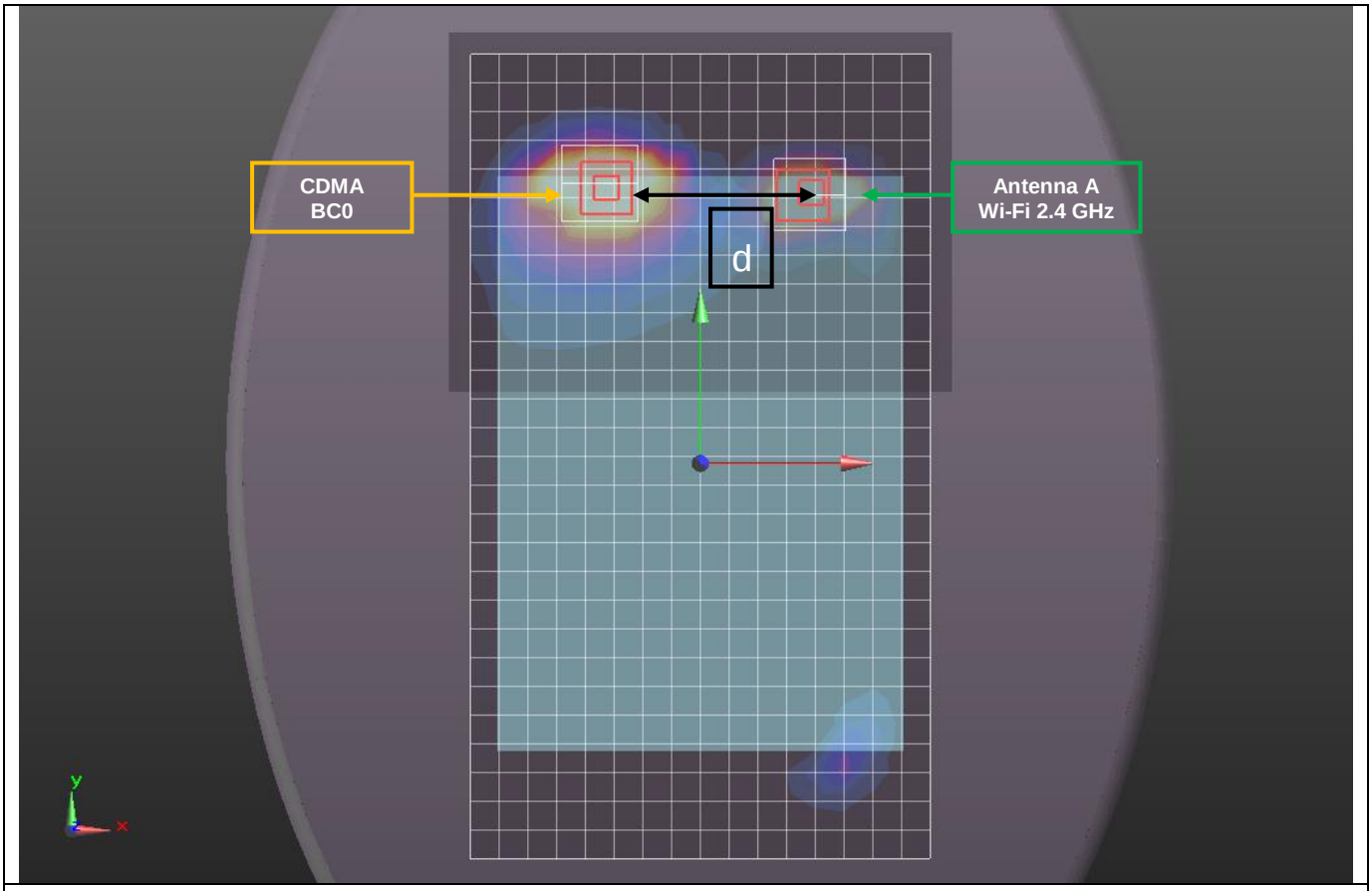
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC0	1.67	-0.0372	0.115	-0.183
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	87.8

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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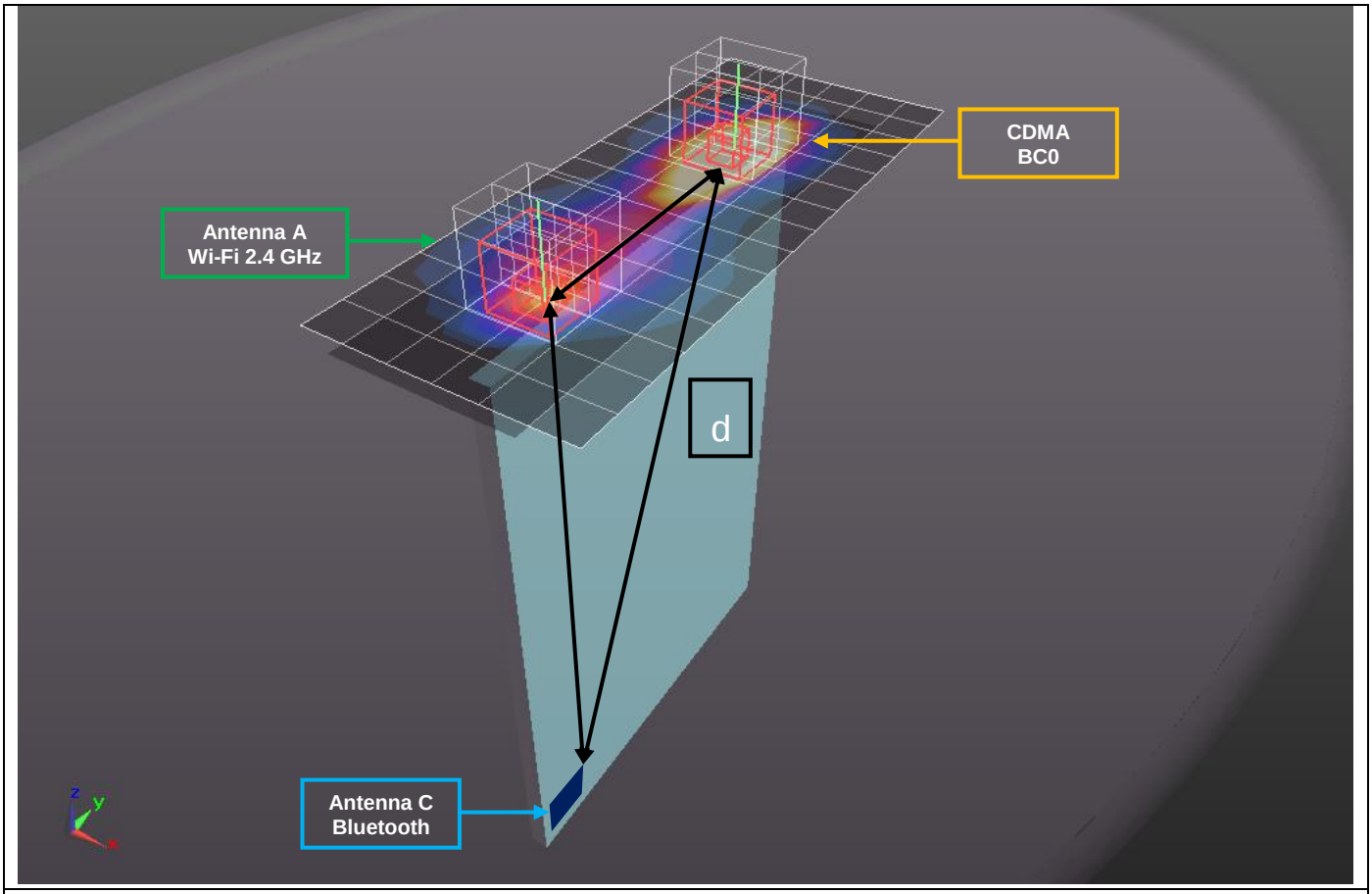
Figure (3)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC0	1.4	-0.003	0.0479	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.08	-0.0012	-0.0628	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	110.7
	WWAN to Bluetooth	236.0
	Wi-Fi 2.4 GHz to Bluetooth	228.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.7.2. CDMA BC0 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC1	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.084	0.204			0.016	1.304	No
	D, C, C	1.084		0.295		N/A	1.379	No
	D, B+C, C	1.084			0.202	N/A	1.286	No
Edge 1	D, B, C	0.888	0.389			0.400	1.677	**Yes**
	D+ B + C + C	0.888			0.400	0.400	1.688	**Yes**
Edge 2	D, B, C	0.221	0.400			0.400	1.021	No
	D, C, C	0.221		0.400		0.400	1.021	No
	D, B+C, C	0.221			0.400	0.400	1.021	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D CDMA BC0	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B+ C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge 1	Antenna D (CDMA BC0)	0.888	0.389			0.400	1.677				
	Antenna B (Wi-Fi 5 GHz)	0.888	0.389				1.277	61.3	0.024	No	1
	Antenna C (Bluetooth)	0.888				0.400	1.288	236.0	0.006	No	1
			0.389			0.400	0.789	224.9	0.003	No	1
	Antenna D (CDMA BC0)	0.888			0.400	0.400	1.688				
	Antenna B + C (Wi-Fi 5 GHz)	0.888			0.400		1.288	61.9	0.024	No	2
	Antenna C (Bluetooth)	0.888				0.400	1.288	236.0	0.006	No	2
					0.400	0.400	0.800	225.9	0.003	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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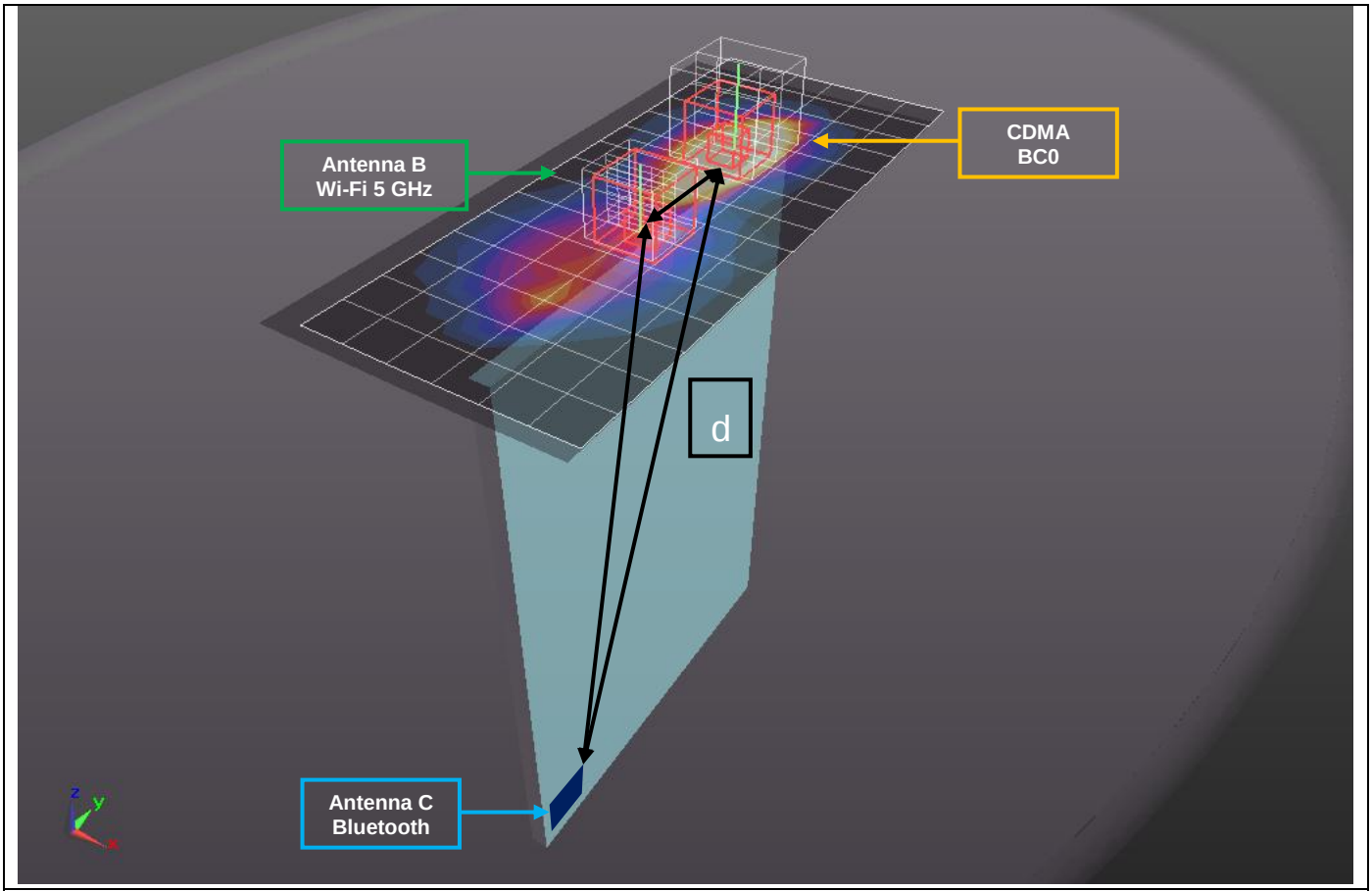
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC0	1.4	-0.003	0.0479	-0.184
Antenna B, Wi-Fi 5 GHz	1.73	0.0018	-0.0132	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	61.3
	WWAN to Bluetooth	236.0
	Wi-Fi 5 GHz to Bluetooth	224.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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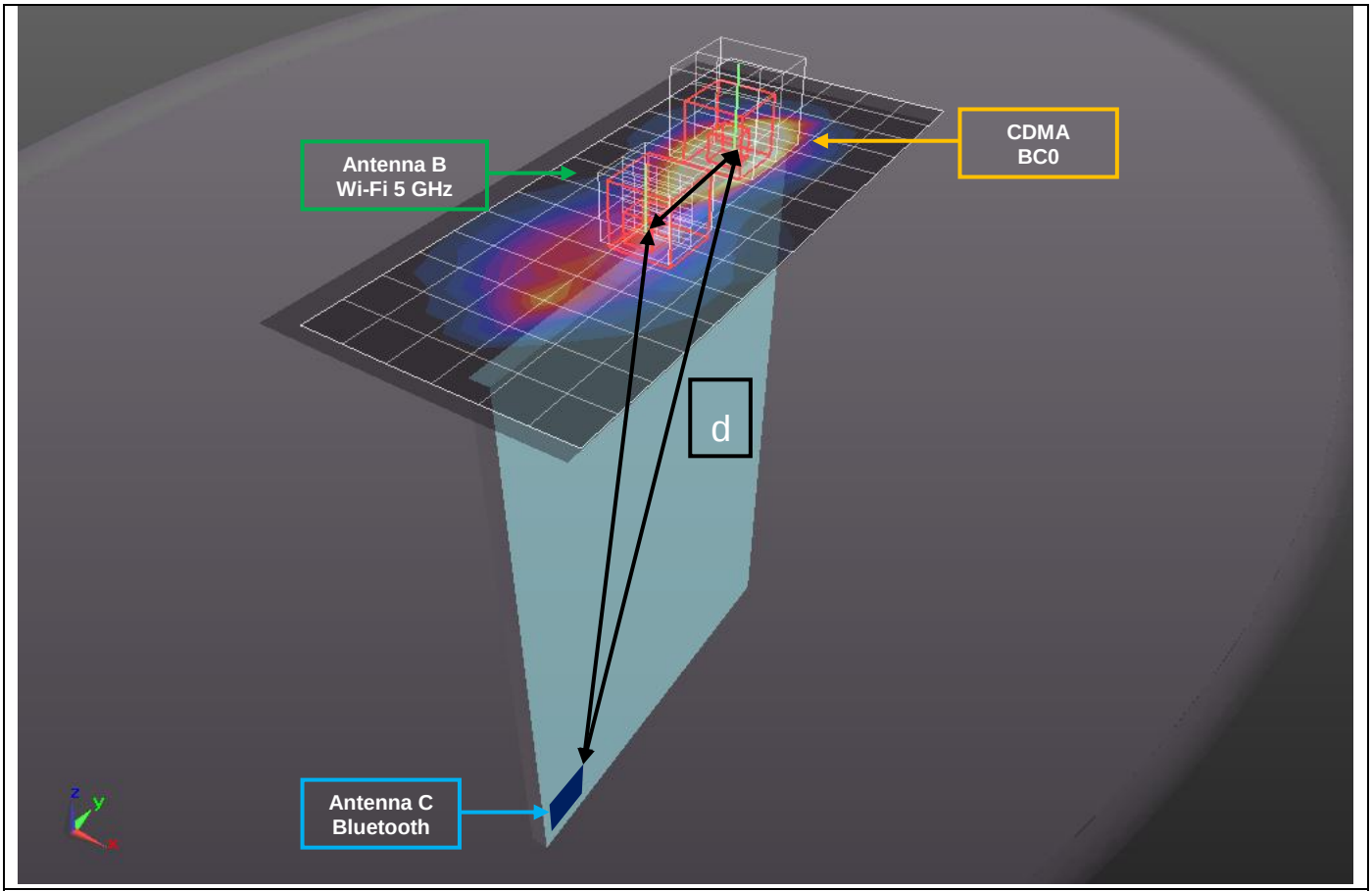
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC0	1.4	-0.003	0.0479	-0.184
Antenna B + C, Wi-Fi 5 GHz	1.7	0.002	-0.0138	-0.184
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	61.9
	WWAN to Bluetooth	236.0
	Wi-Fi 5 GHz to Bluetooth	225.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.8. Sum of the SAR for CDMA BC1 + Wi-Fi P_{Cell_ON} (P_{low})+ BT

13.8.1. CDMA BC1 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC1	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.156	0.597			0.016	1.769	**Yes**
	D, C	1.156		0.067		N/A	1.223	No
	D, A + C	1.156			0.592	N/A	1.748	**Yes**
Edge 1	D, A, C	0.313	0.467			0.400	1.180	No
	D, C	0.313		0.400		N/A	0.713	No
	D, A + C	0.313			0.506	N/A	0.819	No
Edge 2	D, A, C	0.057	0.400			0.400	0.857	No
	D, C	0.057		0.400		N/A	0.457	No
	D, A + C	0.057			0.400	N/A	0.457	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D CDMA BC1	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (CDMA BC1) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.156	0.597			0.016	1.769				
		1.156	0.597				1.753	86.5	0.027	No	1
		1.156				0.016	1.172	256.4	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (CDMA BC1) Antenna A + C (Wi-Fi 2.4)	1.156			0.592	0.016	1.764	86.5	0.027	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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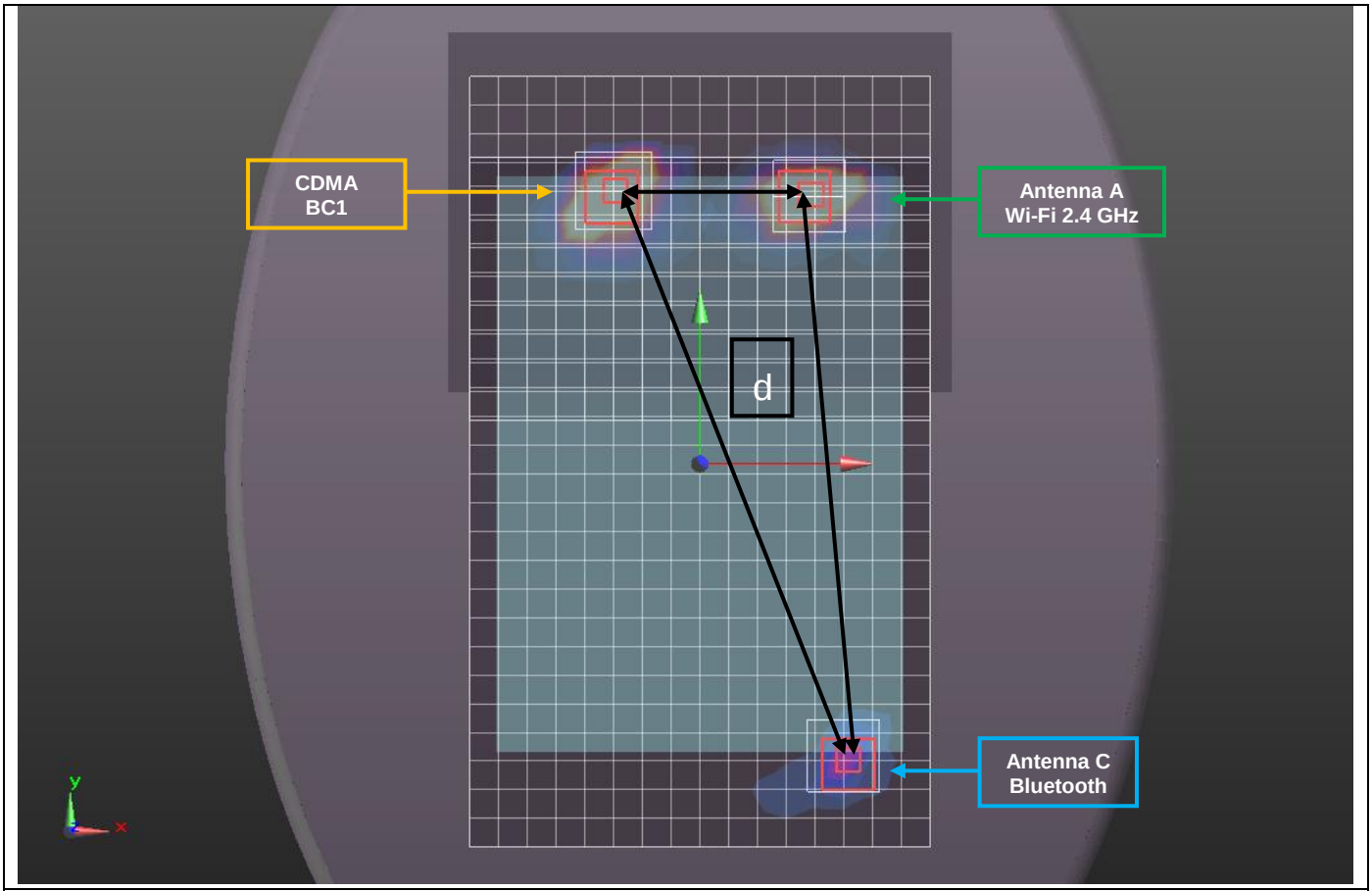
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC1	2.1	-0.0359	0.113	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	86.5
	WWAN to Bluetooth	256.4
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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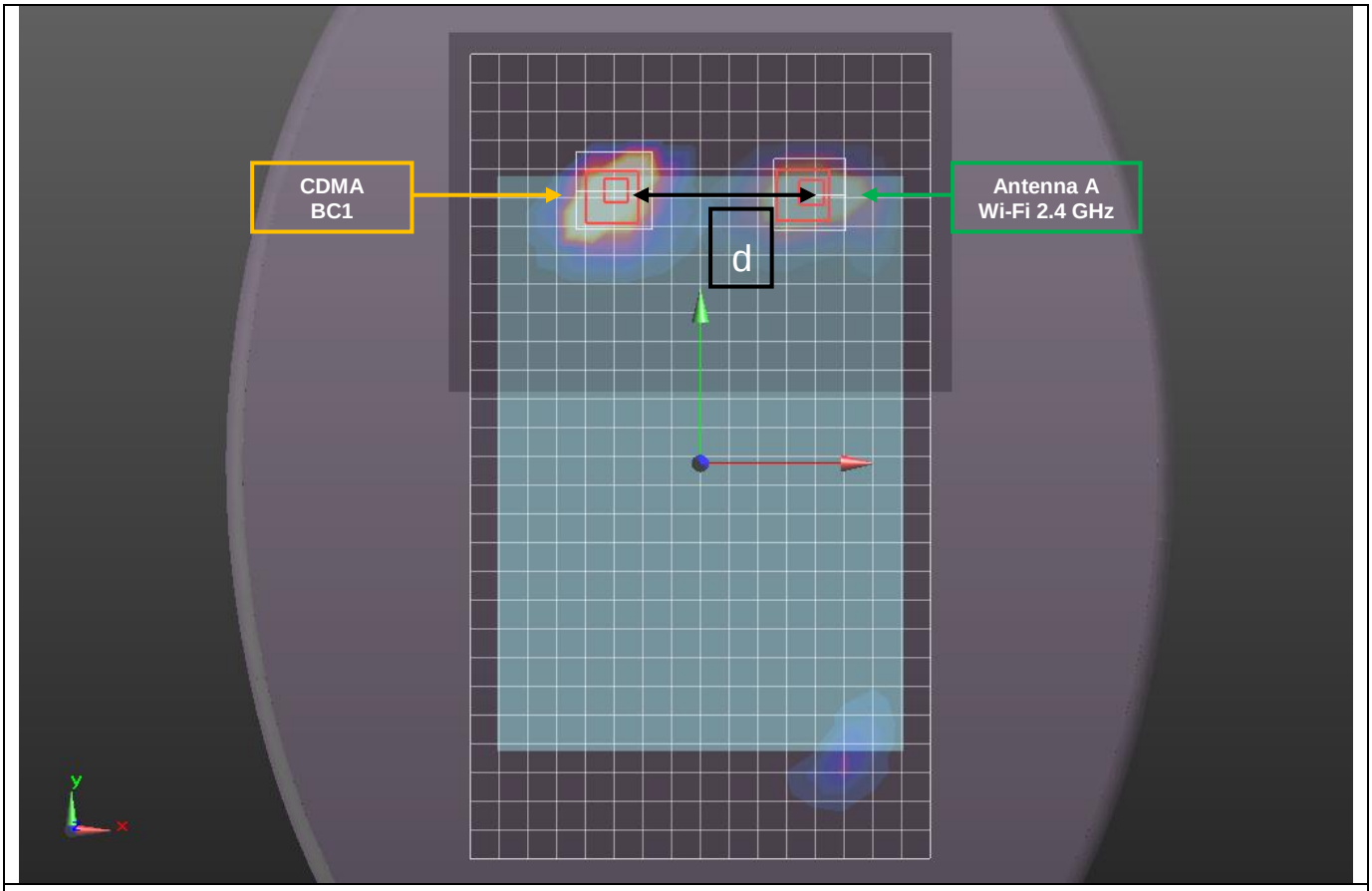
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC1	2.1	-0.0359	0.113	-0.184
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	86.5

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.8.2. CDMA BC1 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC1	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.156	0.204			0.016	1.376	No
	D, C, C	1.156		0.295		N/A	1.451	No
	D, B+C, C	1.156			0.202	N/A	1.358	No
Edge 1	D, B, C	0.313	0.389			0.400	1.102	No
	D+ B + C + C	0.313			0.400	0.400	1.113	No
Edge 2	D, B, C	0.057	0.400			0.400	0.857	No
	D, C, C	0.057		0.400		0.400	0.857	No
	D, B+C, C	0.057			0.400	0.400	0.857	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.9. Sum of the SAR for CDMA BC10 + Wi-Fi P_{Cell_ON} (P_{low})+ BT

13.9.1. CDMA BC10 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC10	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.108	0.597			0.016	1.721	**Yes**
	D, C	1.108		0.067		N/A	1.175	No
	D, A + C	1.108			0.592	N/A	1.700	**Yes**
Edge 1	D, A, C	0.698	0.467			0.400	1.565	No
	D, C	0.698		0.400		N/A	1.098	No
	D, A + C	0.698			0.506	N/A	1.204	No
Edge 2	D, A, C	0.282	0.400			0.400	1.082	No
	D, C	0.282		0.400		N/A	0.682	No
	D, A + C	0.282			0.400	N/A	0.682	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D CDMA BC10	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (CDMA BC10) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.108	0.597			0.016	1.721				
		1.108	0.597				1.705	86.5	0.026	No	1
		1.108				0.016	1.124	255.5	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (CDMA BC10) Antenna A + C (Wi-Fi 2.4)	1.108			0.592	0.016	1.716	86.5	0.026	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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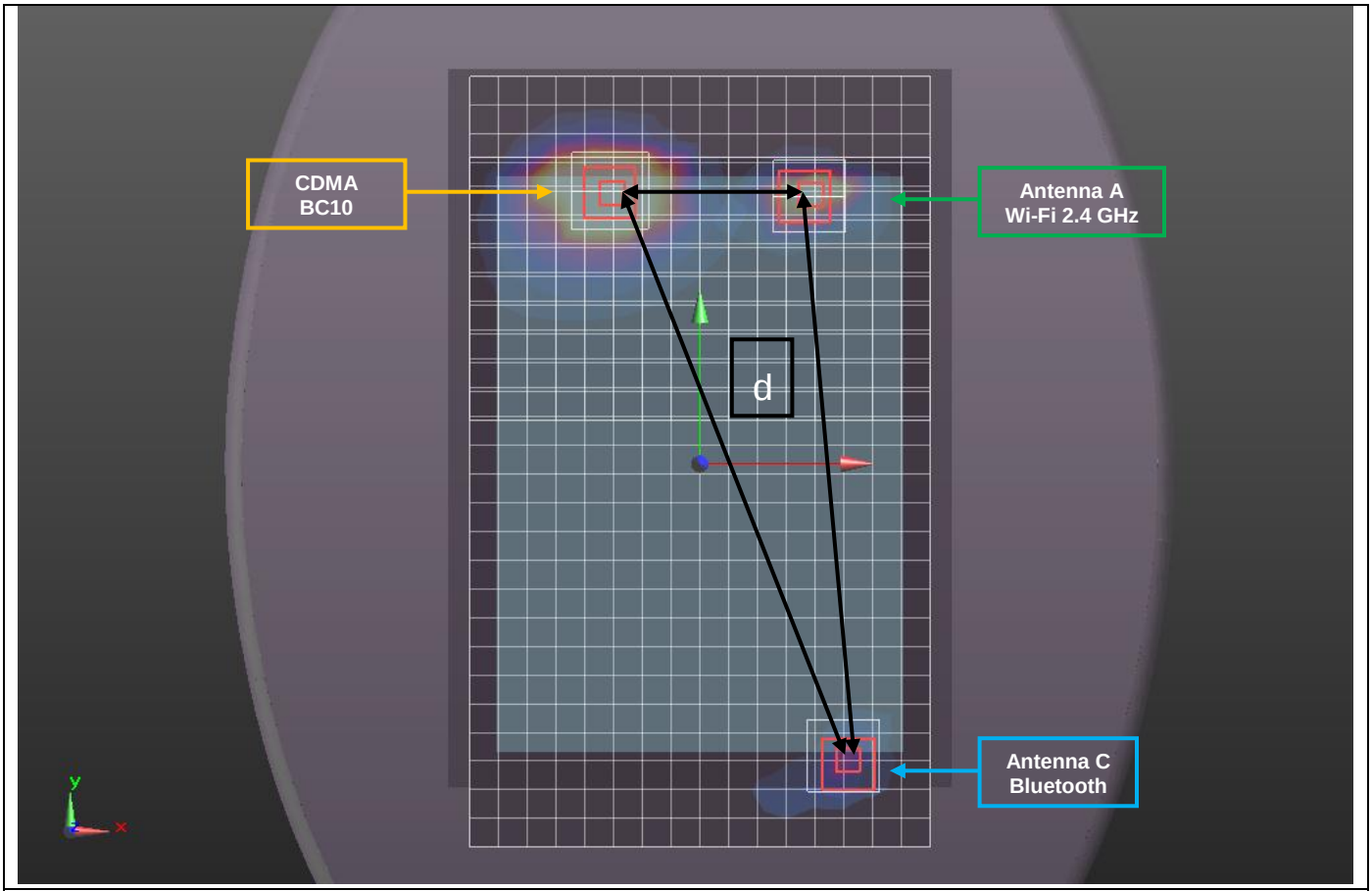
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC10	1.98	-0.0359	0.112	-0.183
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	86.5
	WWAN to Bluetooth	255.5
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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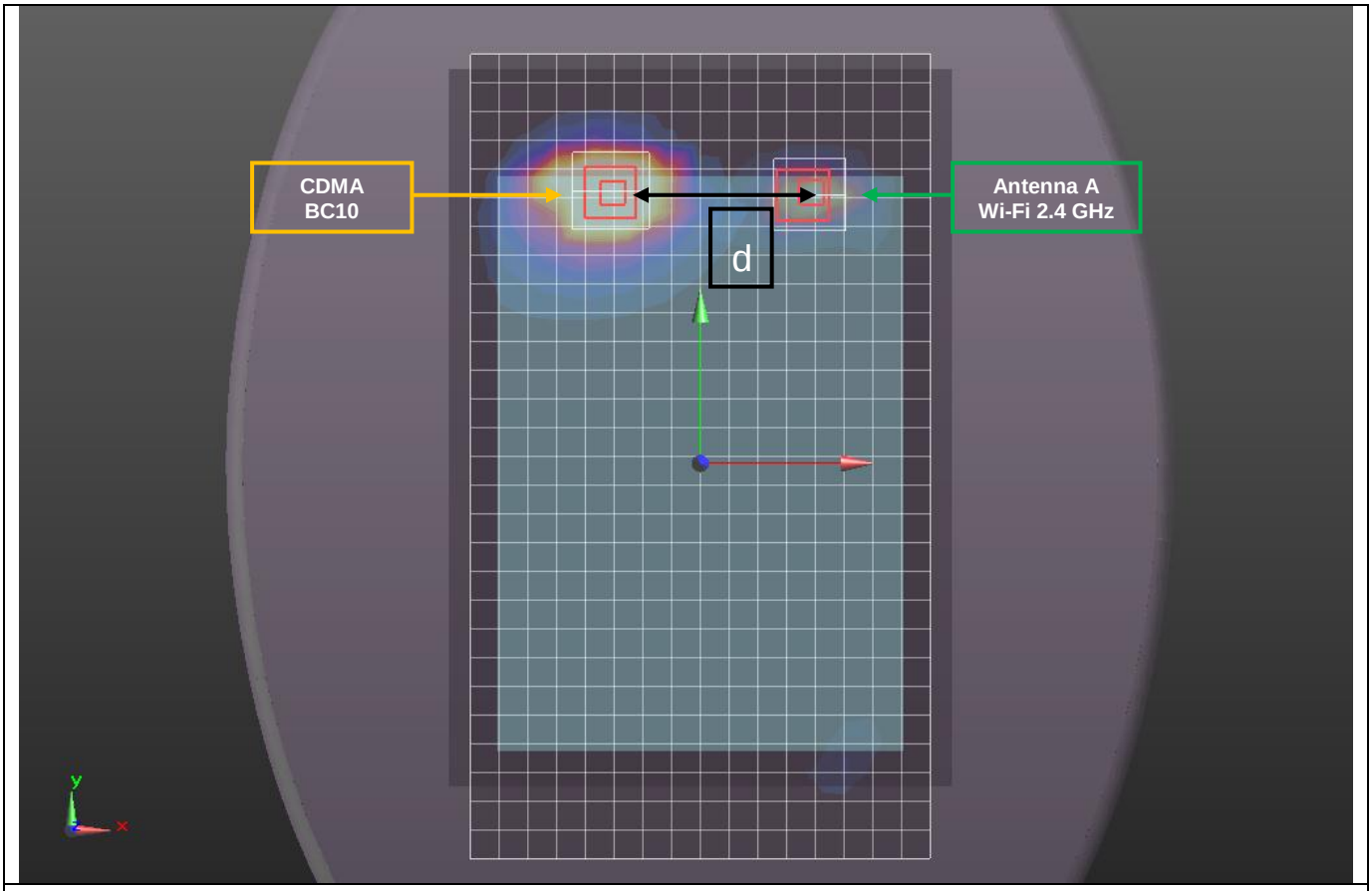
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC10	1.98	-0.0359	0.112	-0.183
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	86.5

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.9.2. CDMA BC10 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC10	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.108	0.204			0.016	1.328	No
	D, C, C	1.108		0.295		N/A	1.403	No
	D, B+C, C	1.108			0.202	N/A	1.310	No
Edge 1	D, B, C	0.698	0.389			0.400	1.487	No
	D+ B + C + C	0.698			0.400	0.400	1.498	No
Edge 2	D, B, C	0.282	0.400			0.400	1.082	No
	D, C, C	0.282		0.400		0.400	1.082	No
	D, B+C, C	0.282			0.400	0.400	1.082	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.10. Sum of the SAR for CDMA BC15 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.10.1. CDMA BC15 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC15	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.190	0.597			0.016	1.803	**Yes**
	D, C	1.190		0.067		N/A	1.257	No
	D, A + C	1.190			0.592	N/A	1.782	**Yes**
Edge 1	D, A, C	0.388	0.467			0.400	1.255	No
	D, C	0.388		0.400		N/A	0.788	No
	D, A + C	0.388			0.506	N/A	0.894	No
Edge 2	D, A, C	0.106	0.400			0.400	0.906	No
	D, C	0.106		0.400		N/A	0.506	No
	D, A + C	0.106			0.400	N/A	0.506	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D CDMA BC15	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (CDMA BC15) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.190	0.597			0.016	1.803				
		1.190	0.597				1.787	85.4	0.028	No	1
		1.190				0.016	1.206	258.8	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (CDMA BC15) Antenna A + C (Wi-Fi 2.4)	1.190			0.592	0.016	1.798	85.4	0.028	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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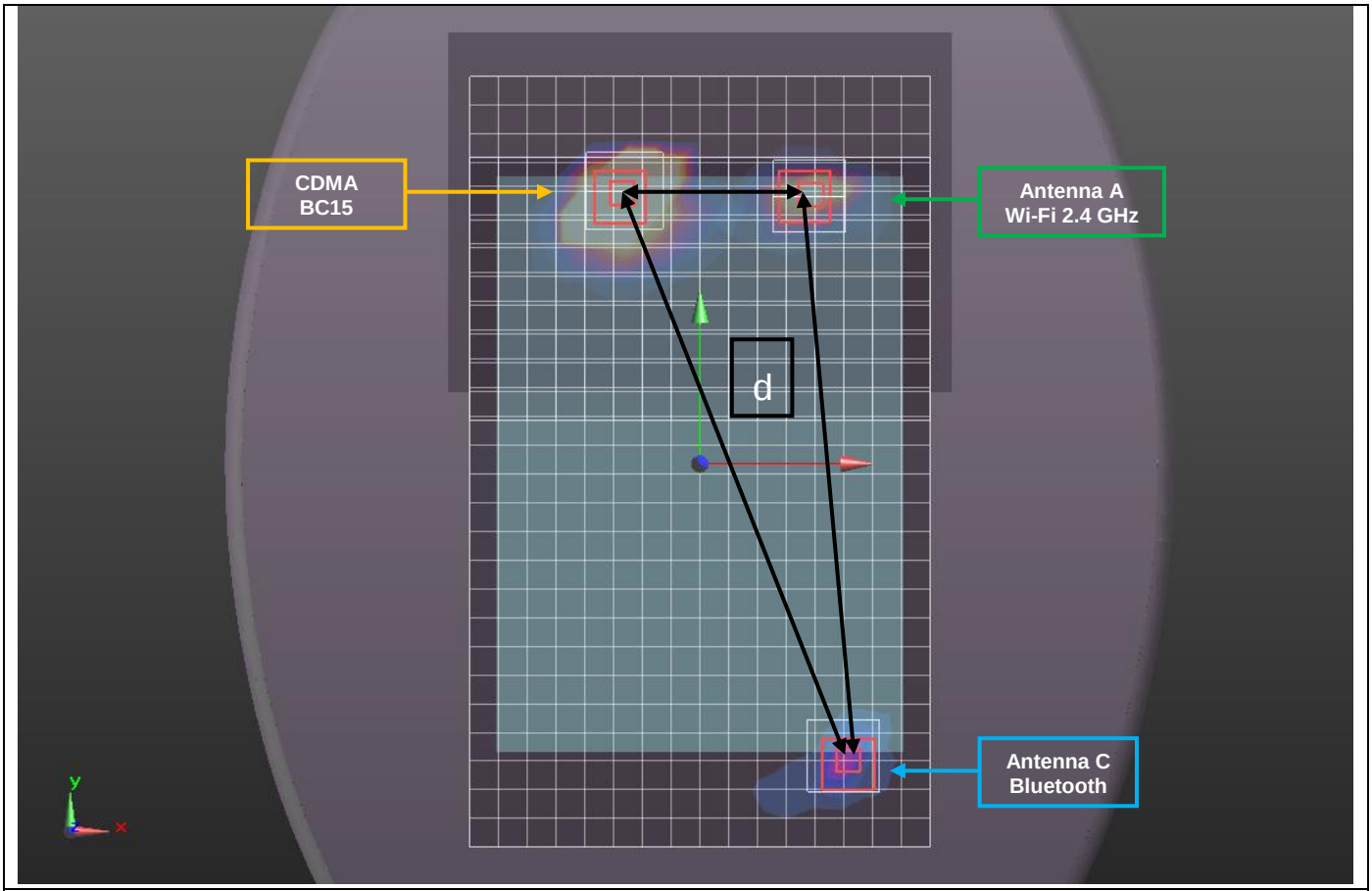
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC15	2.18	-0.0347	0.116	-0.183
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.4
	WWAN to Bluetooth	258.8
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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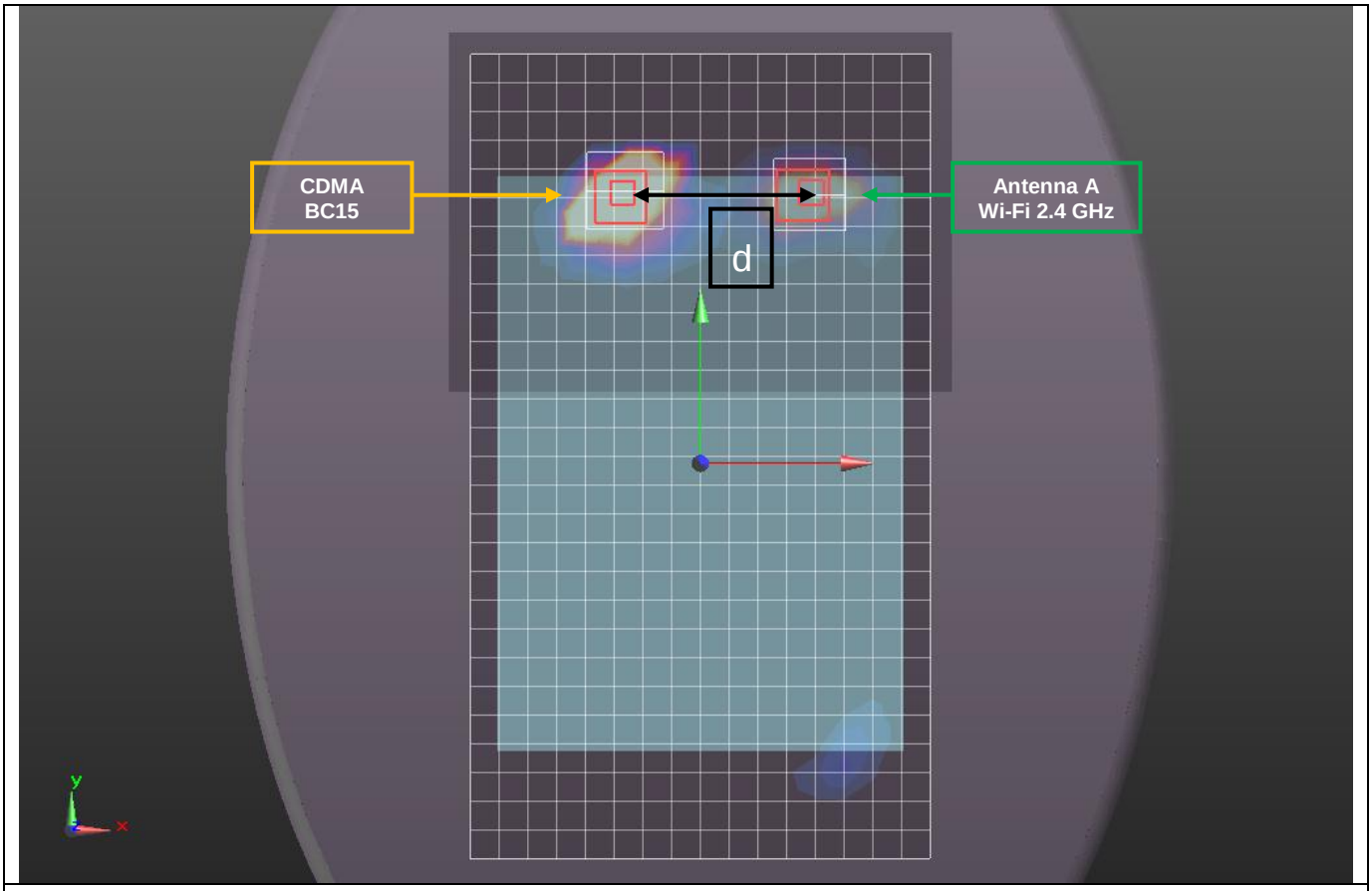
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, CDMA BC15	2.18	-0.0347	0.116	-0.183
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.4

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.10.2. CDMA BC15 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D CDMA BC15	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.190	0.204			0.016	1.410	No
	D, C, C	1.190		0.295		N/A	1.485	No
	D, B+C, C	1.190			0.202	N/A	1.392	No
Edge 1	D, B, C	0.388	0.389			0.400	1.177	No
	D+ B + C + C	0.388			0.400	0.400	1.188	No
Edge 2	D, B, C	0.106	0.400			0.400	0.906	No
	D, C, C	0.106		0.400		0.400	0.906	No
	D, B+C, C	0.106			0.400	0.400	0.906	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.11. Sum of the SAR for LTE Band 2 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.11.1. LTE Band 2 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 2	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.180	0.597			0.016	1.793	**Yes**
	D, C	1.180		0.067		N/A	1.247	No
	D, A + C	1.180			0.592	N/A	1.772	**Yes**
Edge 1	D, A, C	0.329	0.467			0.400	1.196	No
	D, C	0.329		0.400		N/A	0.729	No
	D, A + C	0.329			0.506	N/A	0.835	No
Edge 2	D, A, C	0.056	0.400			0.400	0.856	No
	D, C	0.056		0.400		N/A	0.456	No
	D, A + C	0.056			0.400	N/A	0.456	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 2	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 2) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.180	0.597			0.016	1.793				
		1.180	0.597				1.777	85.2	0.028	No	1
		1.180				0.016	1.196	256.9	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 2) Antenna A + C (Wi-Fi 2.4)	1.180			0.592	0.016	1.788	85.2	0.028	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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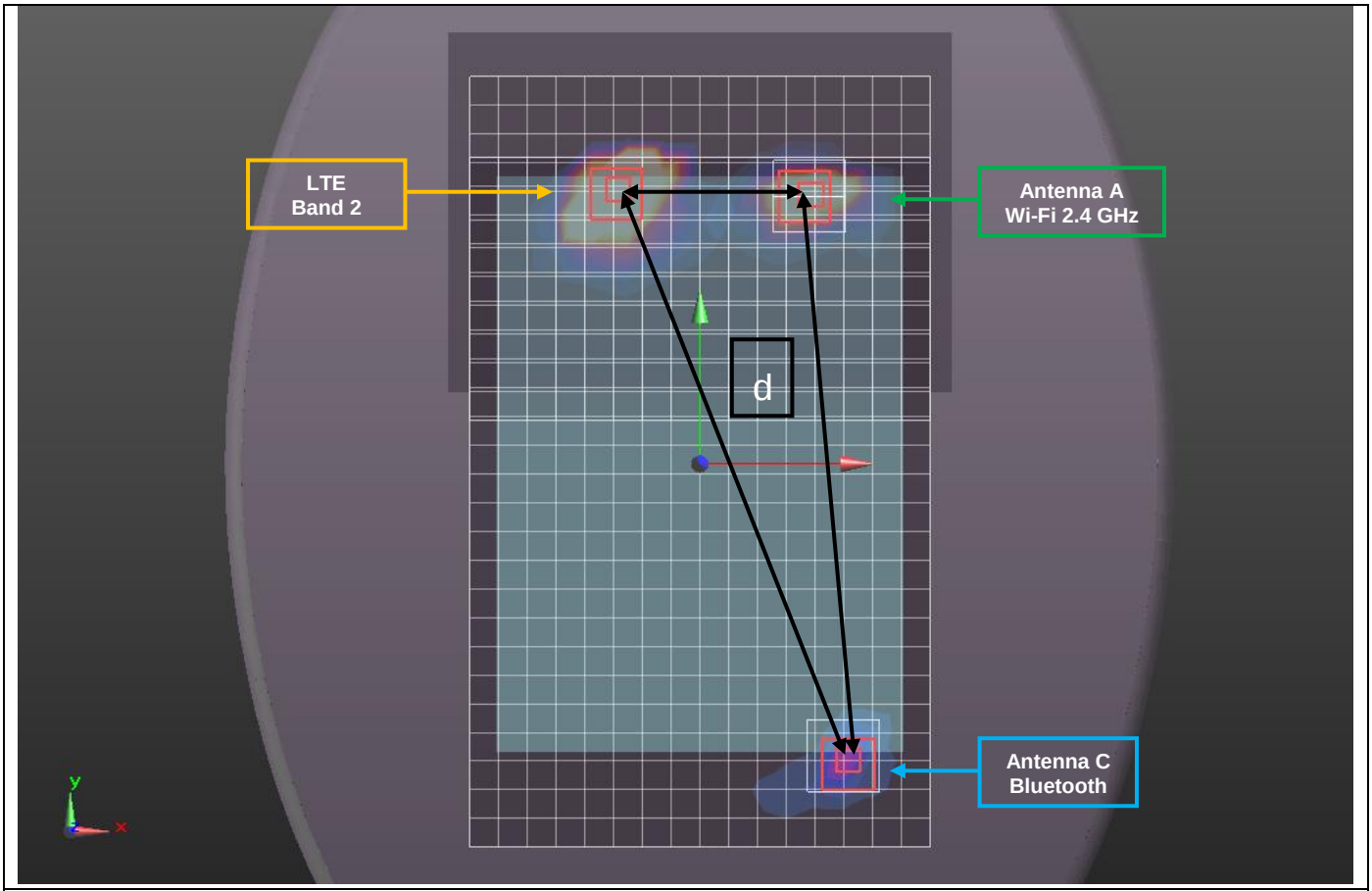
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 2	2.28	-0.0346	0.114	-0.183
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.2
	WWAN to Bluetooth	256.9
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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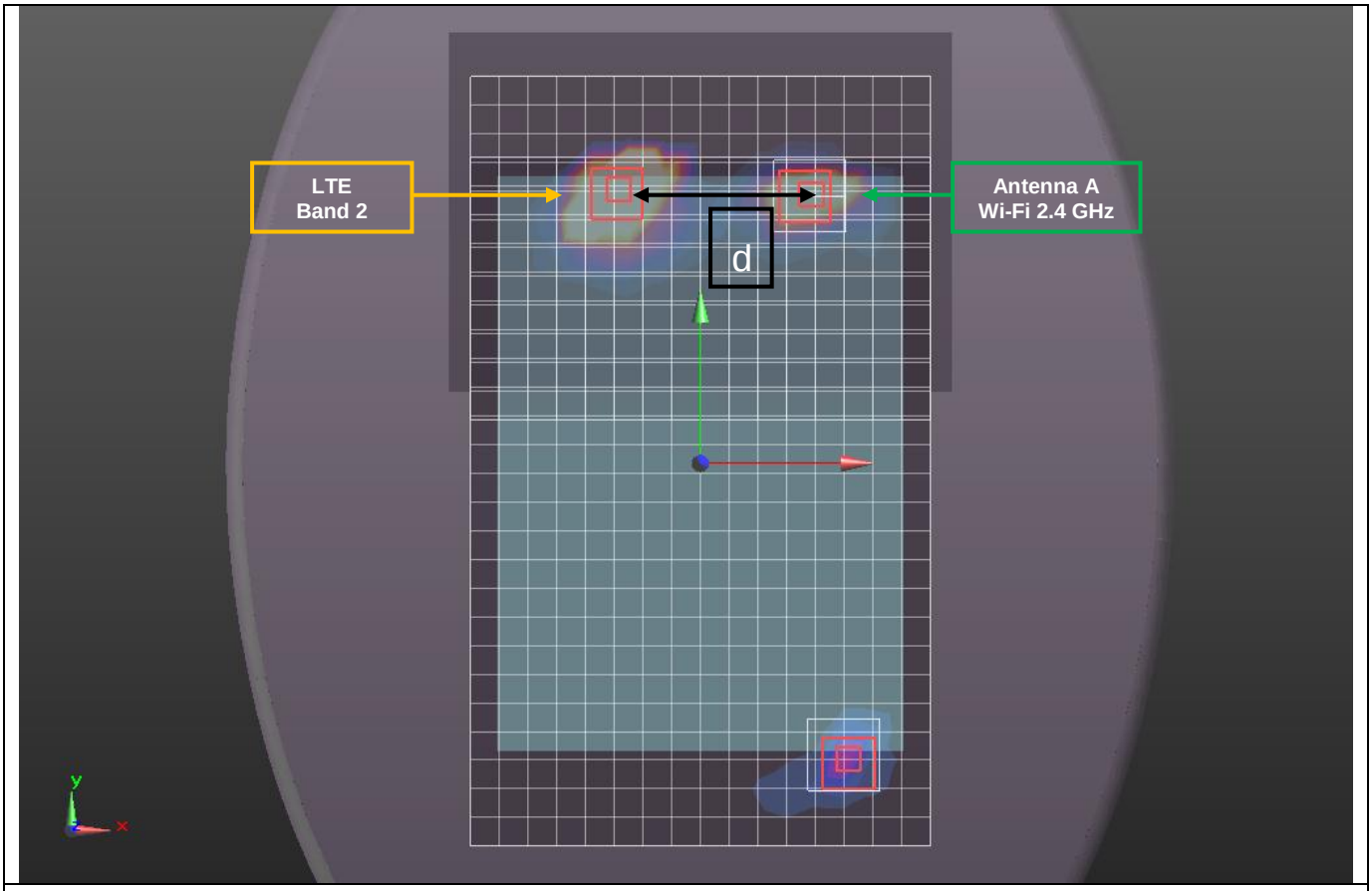
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 2	2.28	-0.0346	0.114	-0.183
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.2

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.11.2. LTE Band 2 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 2	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.180	0.204			0.016	1.400	No
	D, C, C	1.180		0.295		N/A	1.475	No
	D, B+C, C	1.180			0.202	N/A	1.382	No
Edge 1	D, B, C	0.329	0.389			0.400	1.118	No
	D+ B + C + C	0.329			0.400	0.400	1.129	No
Edge 2	D, B, C	0.056	0.400			0.400	0.856	No
	D, C, C	0.056		0.400		0.400	0.856	No
	D, B+C, C	0.056			0.400	0.400	0.856	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.12. Sum of the SAR for LTE Band 4 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.12.1. LTE Band 4 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 4	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.173	0.597			0.016	1.786	**Yes**
	D, C	1.173		0.067		N/A	1.240	No
	D, A + C	1.173			0.592	N/A	1.765	**Yes**
Edge 1	D, A, C	0.323	0.467			0.400	1.190	No
	D, C	0.323		0.400		N/A	0.723	No
	D, A + C	0.323			0.506	N/A	0.829	No
Edge 2	D, A, C	0.098	0.400			0.400	0.898	No
	D, C	0.098		0.400		N/A	0.498	No
	D, A + C	0.098			0.400	N/A	0.498	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 4	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 4) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.173	0.597			0.016	1.786				
		1.173	0.597				1.770	83.9	0.028	No	1
		1.173				0.016	1.189	256.4	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 4) Antenna A + C (Wi-Fi 2.4)	1.173			0.592	0.016	1.781	83.9	0.028	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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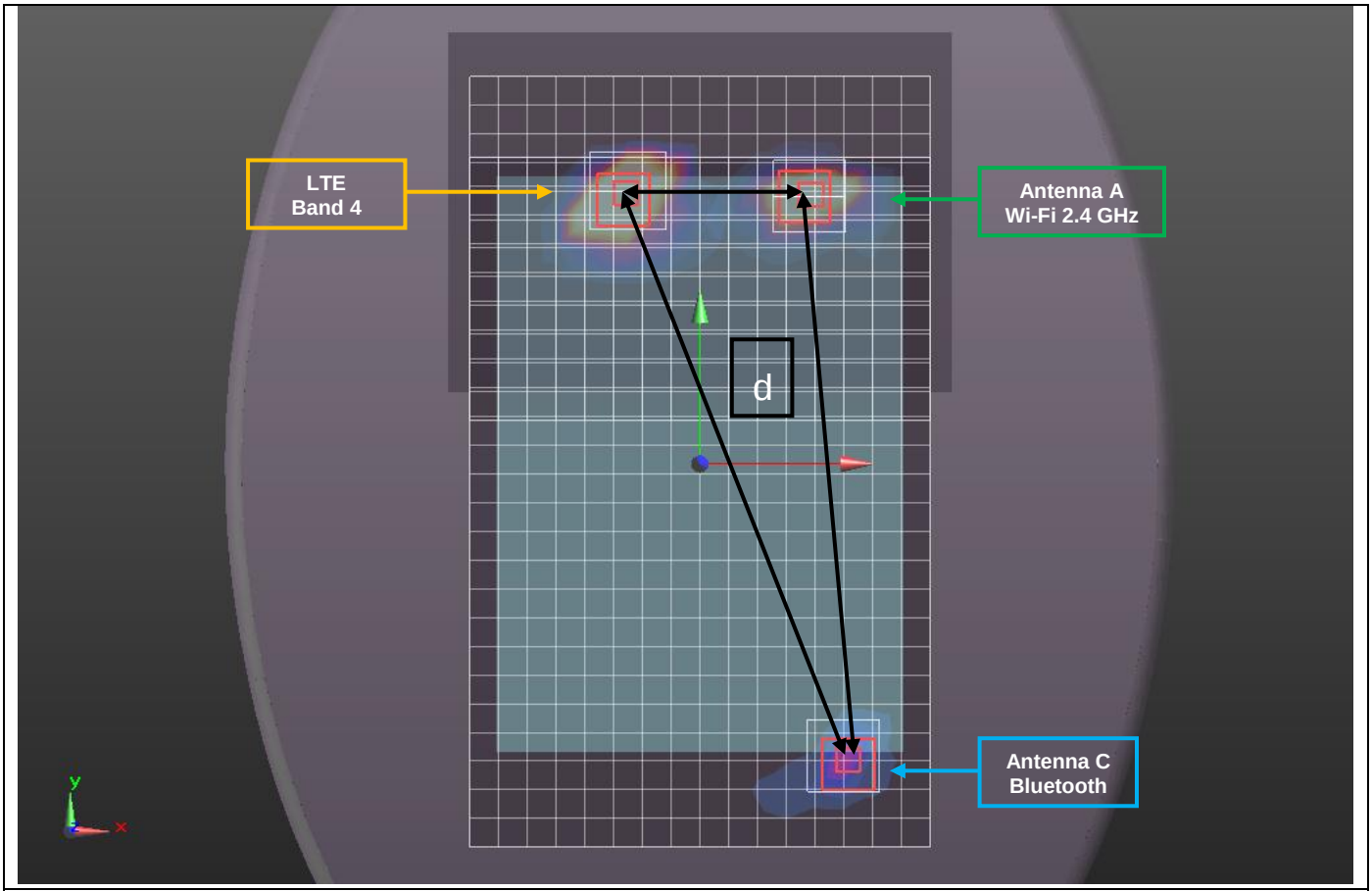
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 4	2.22	-0.0333	0.114	-0.182
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.9
	WWAN to Bluetooth	256.4
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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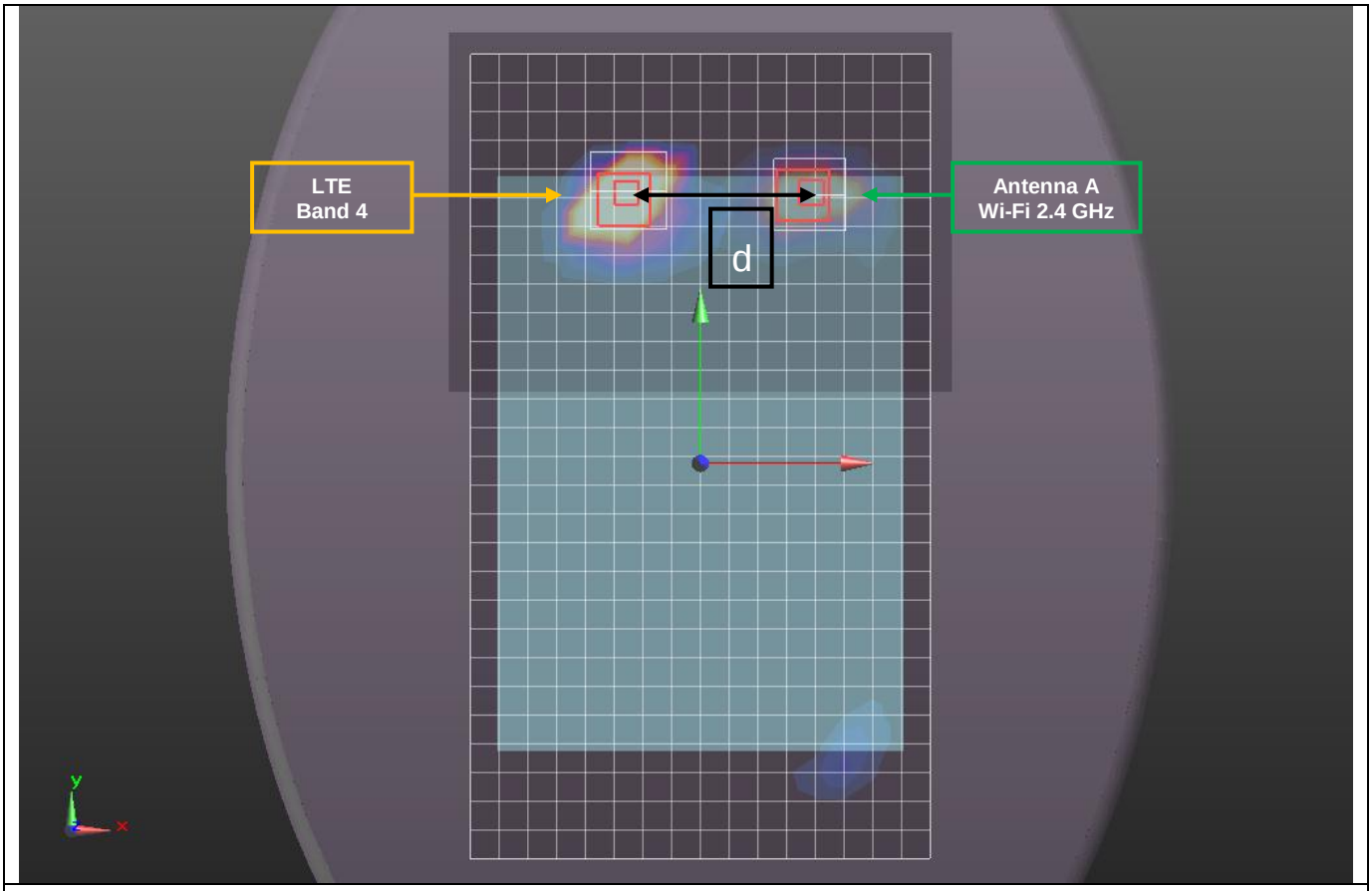
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 4	2.22	-0.0333	0.114	-0.182
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.12.2. LTE Band 4 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 4	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.173	0.204			0.016	1.393	No
	D, C, C	1.173		0.295		N/A	1.468	No
	D, B+C, C	1.173			0.202	N/A	1.375	No
Edge 1	D, B, C	0.323	0.389			0.400	1.112	No
	D+ B + C + C	0.323			0.400	0.400	1.123	No
Edge 2	D, B, C	0.098	0.400			0.400	0.898	No
	D, C, C	0.098		0.400		0.400	0.898	No
	D, B+C, C	0.098			0.400	0.400	0.898	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.13. Sum of the SAR for LTE Band 5 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.13.1. LTE Band 5 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 5	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.106	0.597			0.016	1.719	**Yes**
	D, C	1.106		0.067		N/A	1.173	No
	D, A + C	1.106			0.592	N/A	1.698	**Yes**
Edge 1	D, A, C	0.870	0.467			0.400	1.737	**Yes**
	D, C	0.870		0.400		N/A	1.270	No
	D, A + C	0.870			0.506	N/A	1.376	No
Edge 2	D, A, C	0.253	0.400			0.400	1.053	No
	D, C	0.253		0.400		N/A	0.653	No
	D, A + C	0.253			0.400	N/A	0.653	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 5	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 5) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.106	0.597			0.016	1.719				
		1.106	0.597				1.703	82.2	0.027	No	1
		1.106				0.016	1.122	258.6	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 5) Antenna A + C (Wi-Fi 2.4)	1.106			0.592	0.016	1.714	82.2	0.027	No	2
Edge 1	Antenna D (LTE Band 5) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	0.870	0.467			0.400	1.737				
		0.870	0.467				1.337	106.4	0.015	No	3
		0.870				0.400	1.270	237.6	0.006	No	3
			0.467			0.400	0.867	228.7	0.004	No	3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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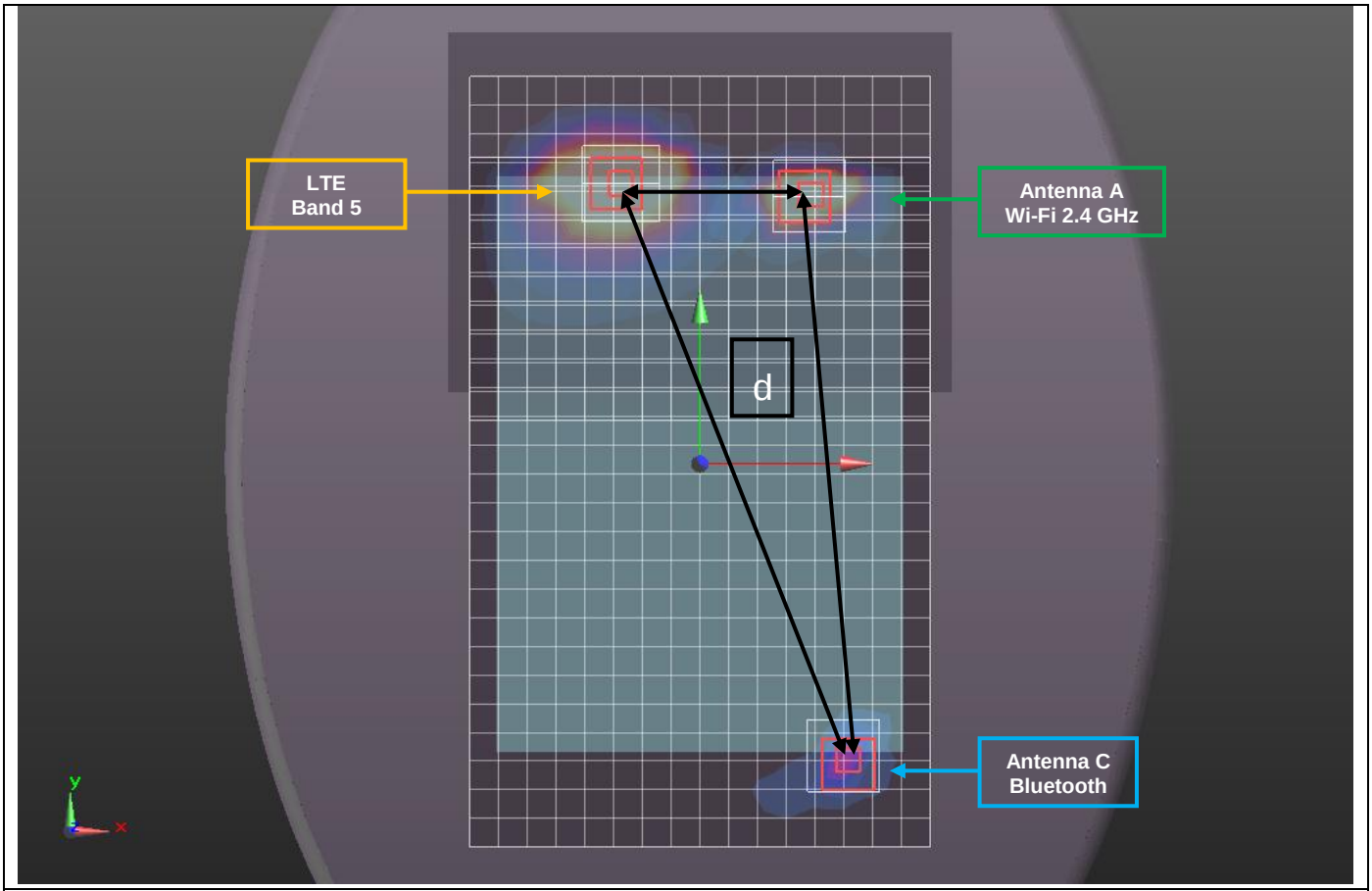
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 5	1.93	-0.0314	0.117	-0.181
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	82.2
	WWAN to Bluetooth	258.6
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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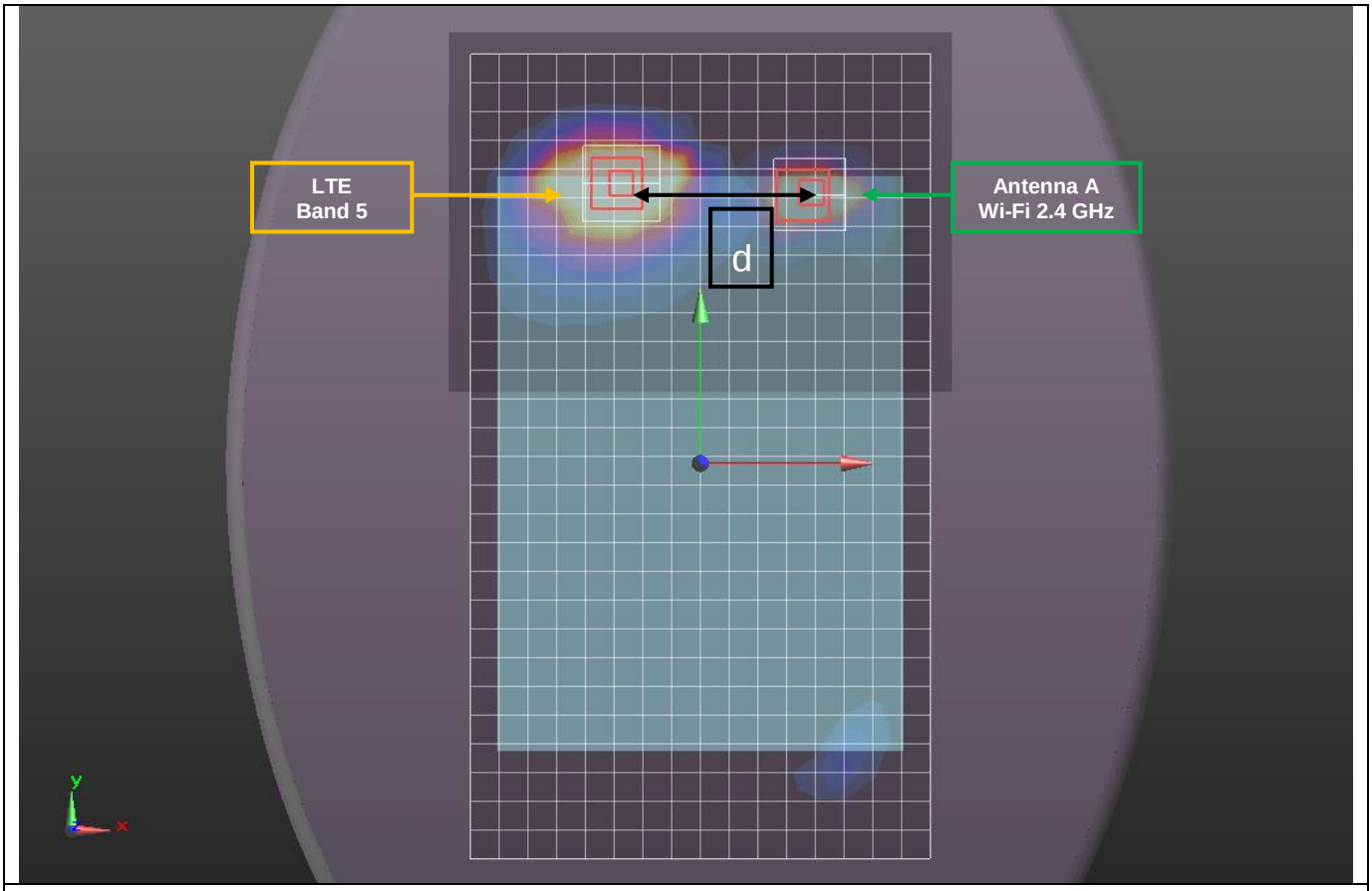
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 5	1.93	-0.0314	0.117	-0.181
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	82.2

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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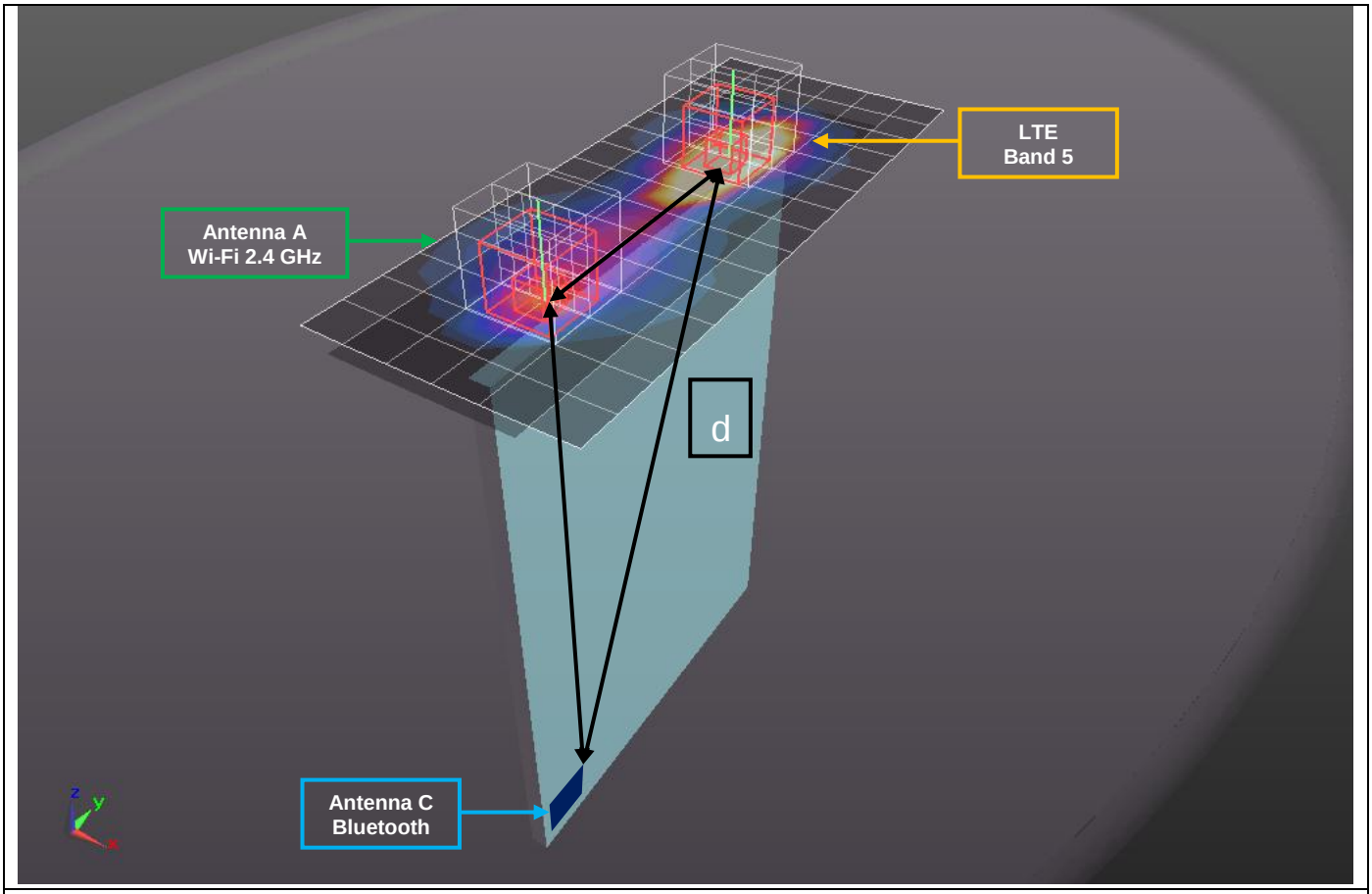
Figure (3)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 5	1.6	-0.0015	0.0435	-0.181
Antenna A, Wi-Fi 2.4 GHz	1.08	-0.0012	-0.0628	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	106.4
	WWAN to Bluetooth	237.6
	Wi-Fi 2.4 GHz to Bluetooth	228.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.13.2. LTE Band 5 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 5	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.106	0.204			0.016	1.326	No
	D, C, C	1.106		0.295		N/A	1.401	No
	D, B+C, C	1.106			0.202	N/A	1.308	No
Edge 1	D, B, C	0.870	0.389			0.400	1.659	**Yes**
	D+ B + C + C	0.870			0.400	0.400	1.670	**Yes**
Edge 2	D, B, C	0.253	0.400			0.400	1.053	No
	D, C, C	0.253		0.400		0.400	1.053	No
	D, B+C, C	0.253			0.400	0.400	1.053	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 5	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B+ C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge 1	Antenna D (LTE Band 5)	0.870	0.389			0.400	1.659				
	Antenna B (Wi-Fi 5 GHz)	0.870	0.389				1.259	56.9	0.025	No	1
	Antenna C (Bluetooth)	0.870				0.400	1.270	237.6	0.006	No	1
			0.389			0.400	0.789	224.9	0.003	No	1
	Antenna D (LTE Band 5)	0.870			0.400	0.400	1.670				
	Antenna B + C (Wi-Fi 5 GHz)	0.870			0.400		1.270	57.5	0.025	No	2
	Antenna C (Bluetooth)	0.870				0.400	1.270	237.6	0.006	No	2
					0.400	0.400	0.800	225.9	0.003	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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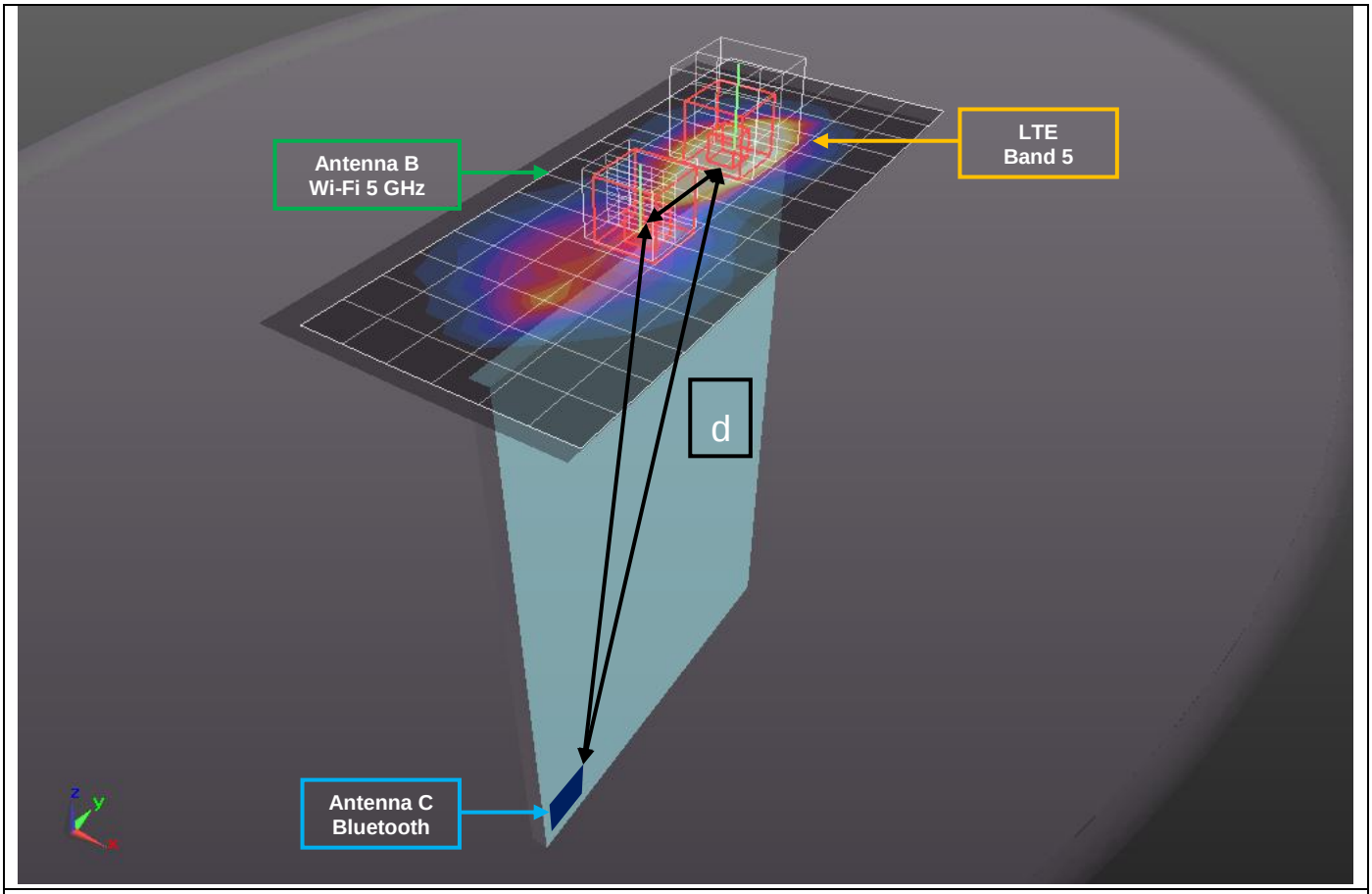
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 5	1.6	-0.0015	0.0435	-0.181
Antenna B, Wi-Fi 5 GHz	1.73	0.0018	-0.0132	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	56.9
	WWAN to Bluetooth	237.6
	Wi-Fi 5 GHz to Bluetooth	224.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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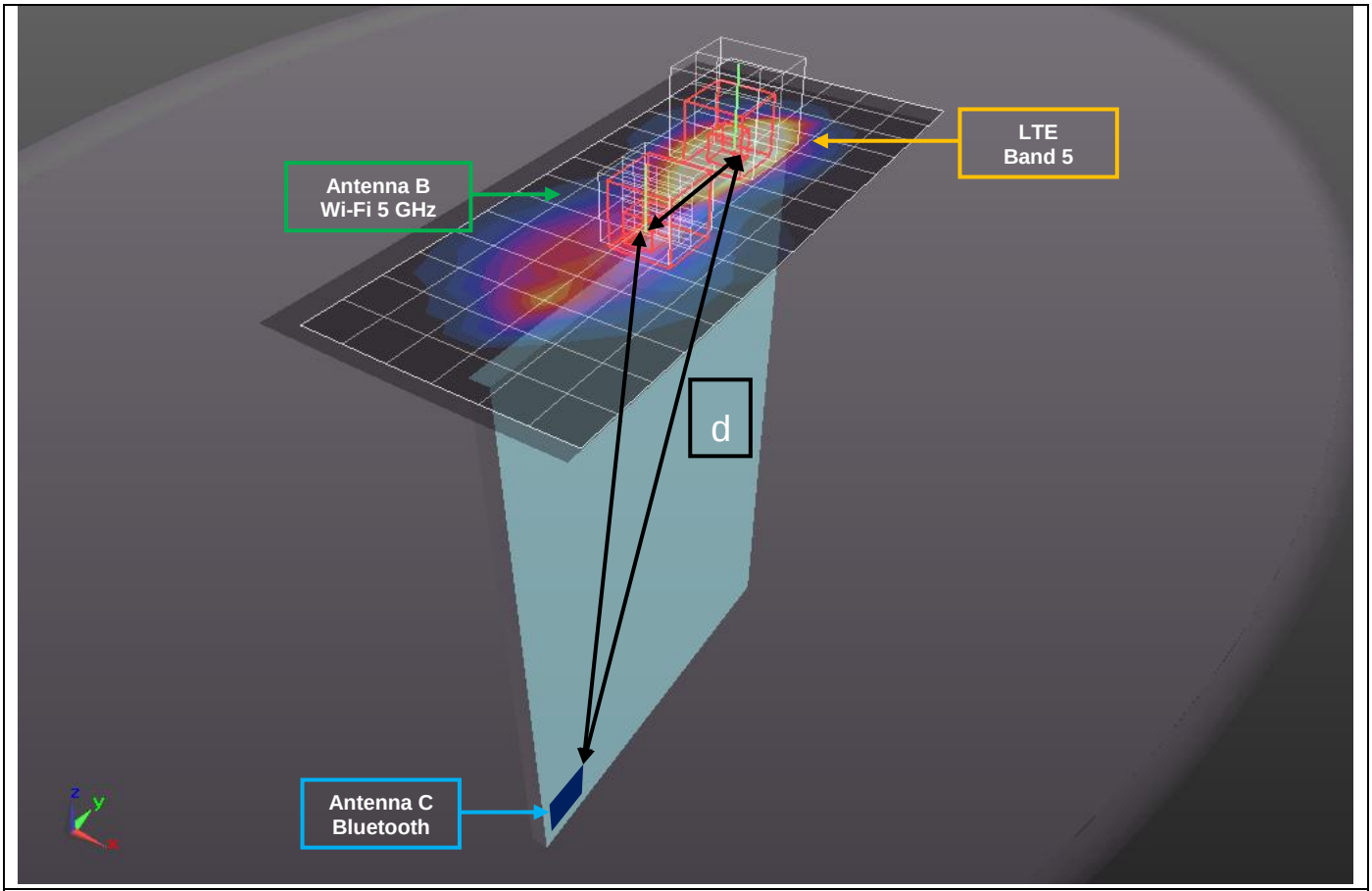
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 5	1.6	-0.0015	0.0435	-0.181
Antenna B + C, Wi-Fi 5 GHz	1.7	0.002	-0.0138	-0.184
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	57.5
	WWAN to Bluetooth	237.6
	Wi-Fi 5 GHz to Bluetooth	225.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.14. Sum of the SAR for LTE Band 13 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.14.1. LTE Band 13 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 13	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.173	0.597			0.016	1.786	**Yes**
	D, C	1.173		0.067		N/A	1.240	No
	D, A + C	1.173			0.592	N/A	1.765	**Yes**
Edge 1	D, A, C	0.930	0.467			0.400	1.797	**Yes**
	D, C	0.930		0.400		N/A	1.330	No
	D, A + C	0.930			0.506	N/A	1.436	No
Edge 2	D, A, C	0.346	0.400			0.400	1.146	No
	D, C	0.346		0.400		N/A	0.746	No
	D, A + C	0.346			0.400	N/A	0.746	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 13	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 13) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.173	0.597			0.016	1.786				
		1.173	0.597				1.770	85.2	0.028	No	1
		1.173				0.016	1.189	251.3	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 13) Antenna A + C (Wi-Fi 2.4)	1.173			0.592	0.016	1.781	85.2	0.028	No	2
Edge 1	Antenna D (LTE Band 13) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	0.930	0.467			0.400	1.797				
		0.930	0.467				1.397	102.0	0.016	No	3
		0.930				0.400	1.330	232.6	0.007	No	3
			0.467			0.400	0.867	228.7	0.004	No	3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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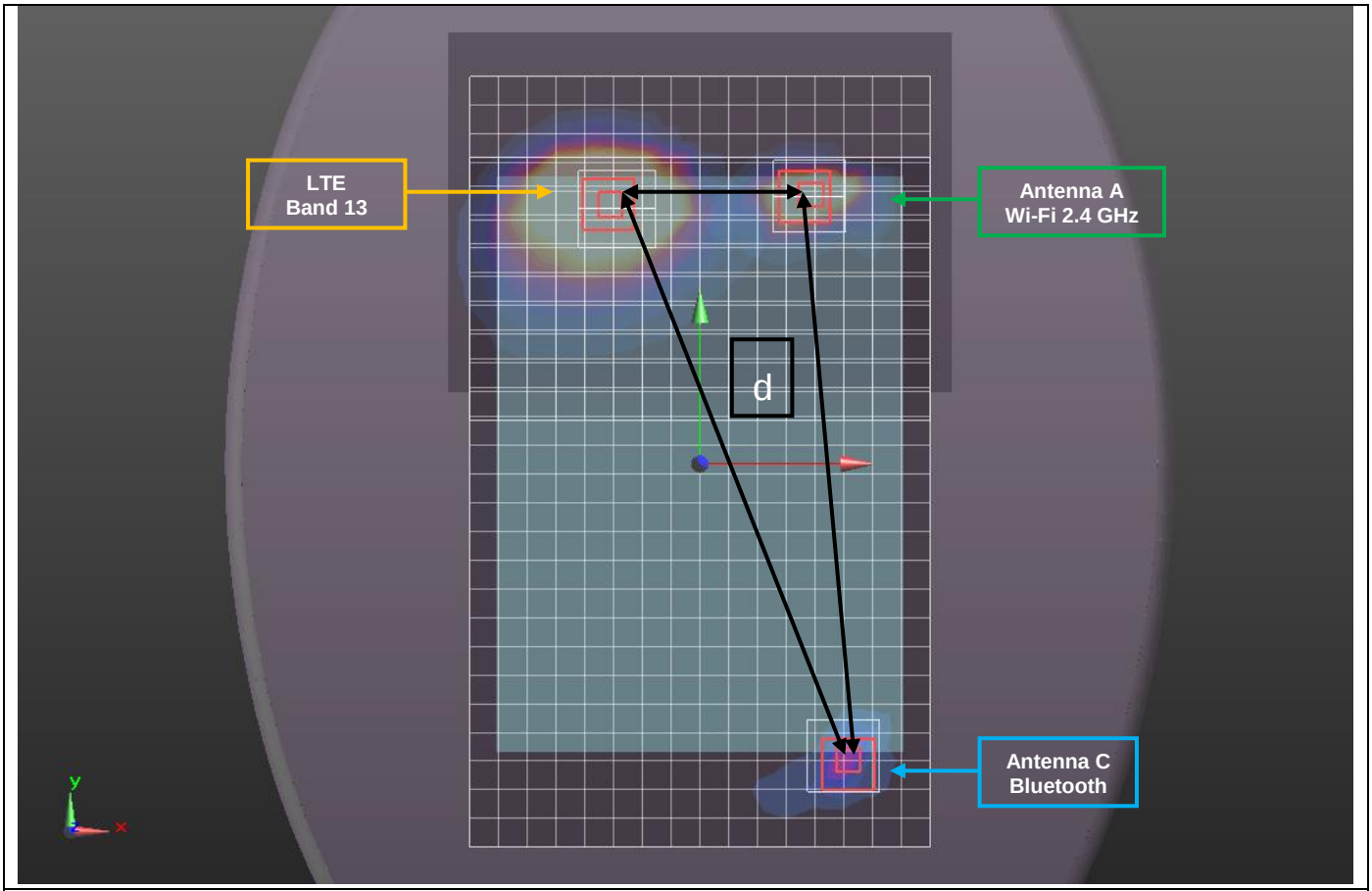
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 13	2.18	-0.0345	0.108	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.2
	WWAN to Bluetooth	251.3
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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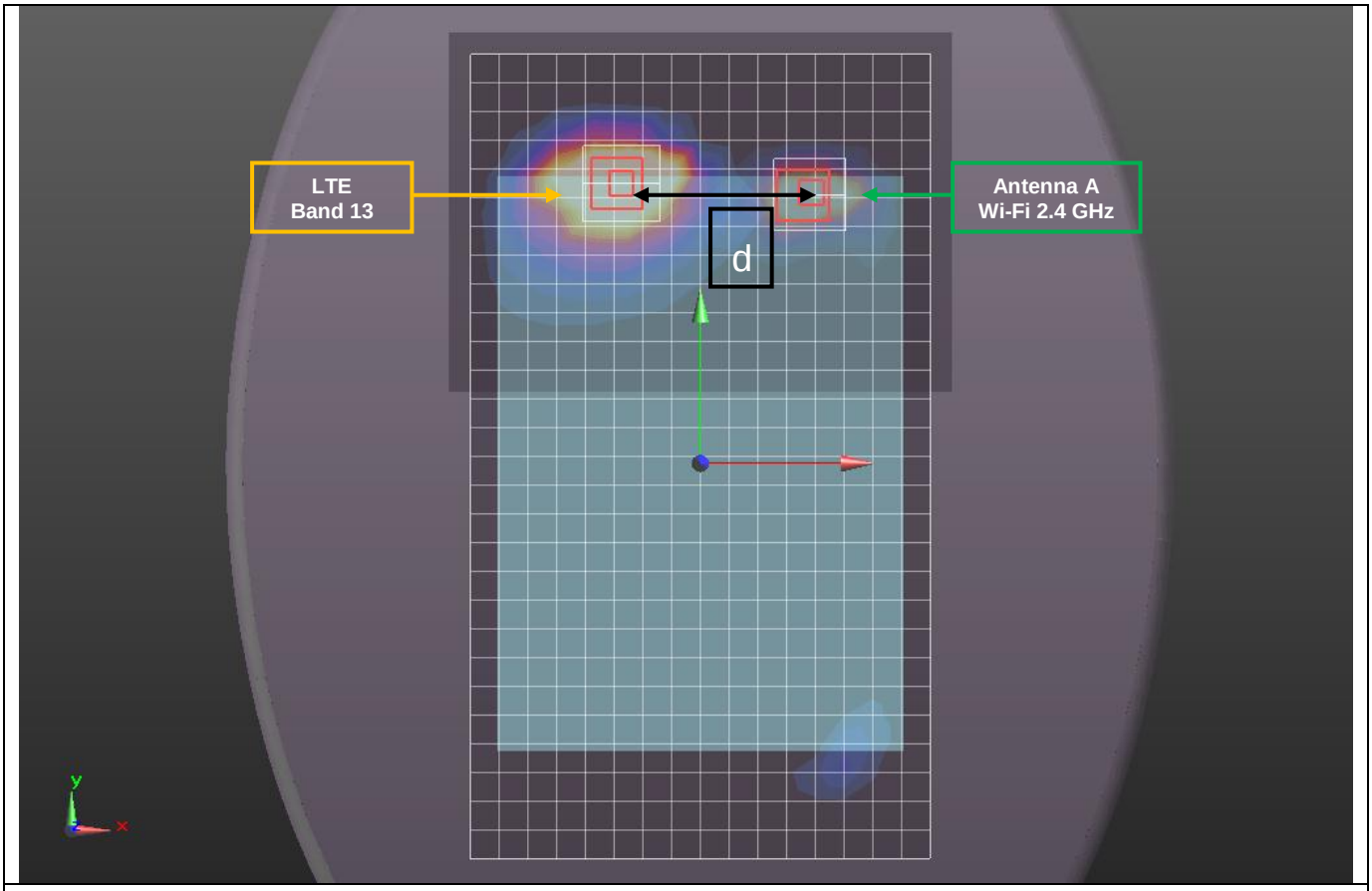
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 13	2.18	-0.0345	0.108	-0.184
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.2

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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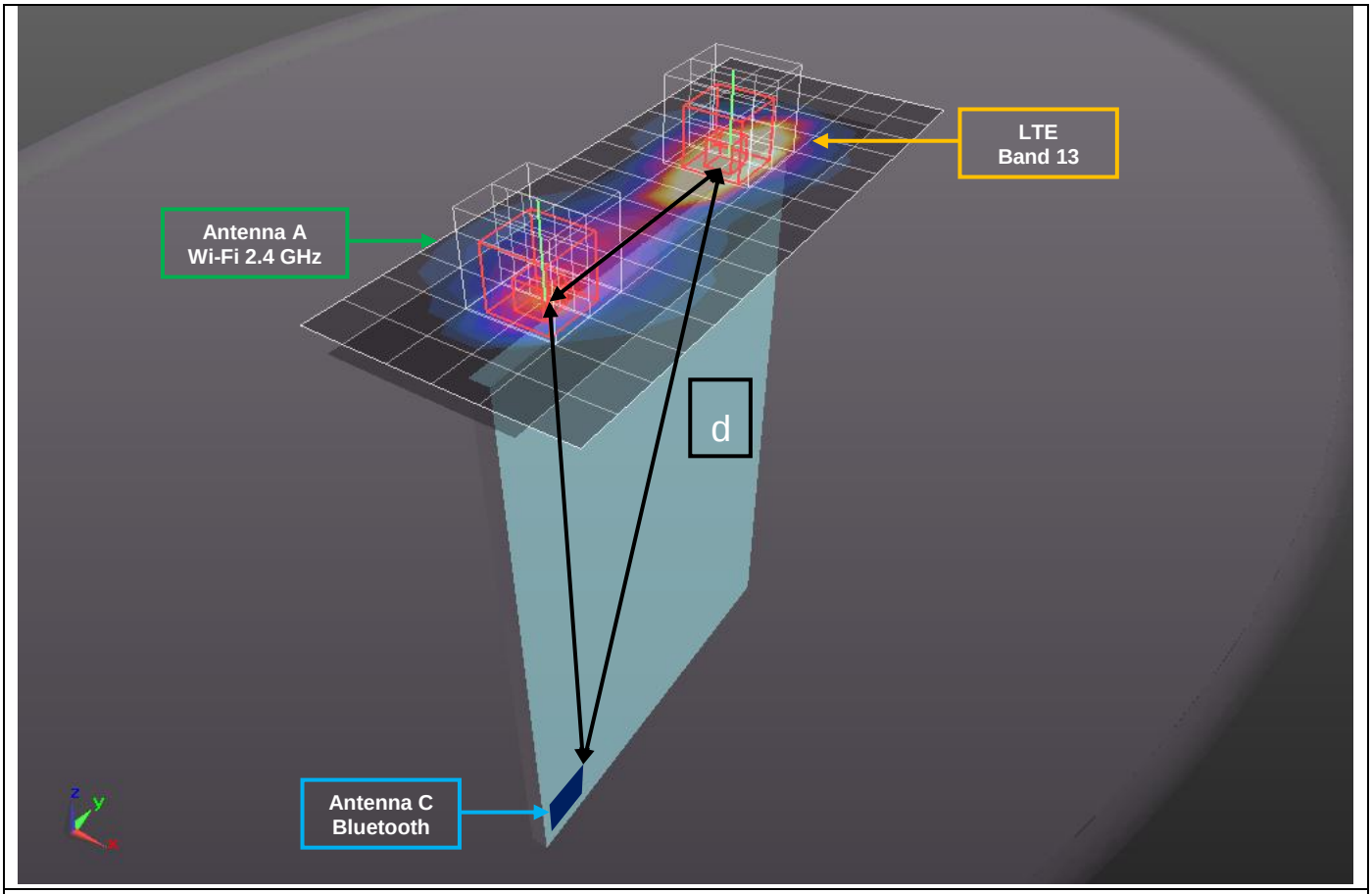
Figure (3)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 13	1.73	-0.0046	0.0391	-0.185
Antenna A, Wi-Fi 2.4 GHz	1.08	-0.0012	-0.0628	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	102.0
	WWAN to Bluetooth	232.6
	Wi-Fi 2.4 GHz to Bluetooth	228.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.14.2. LTE Band 13 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 13	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.173	0.204			0.016	1.393	No
	D, C, C	1.173		0.295		N/A	1.468	No
	D, B+C, C	1.173			0.202	N/A	1.375	No
Edge 1	D, B, C	0.930	0.389			0.400	1.719	**Yes**
	D+ B + C + C	0.930			0.400	0.400	1.730	**Yes**
Edge 2	D, B, C	0.346	0.400			0.400	1.146	No
	D, C, C	0.346		0.400		0.400	1.146	No
	D, B+C, C	0.346			0.400	0.400	1.146	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 13	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B+ C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Edge 1	Antenna D (LTE Band 13)	0.930	0.389			0.400	1.719				
	Antenna B (Wi-Fi 5 GHz)	0.930	0.389				1.319	52.7	0.029	No	1
	Antenna C (Bluetooth)	0.930				0.400	1.330	232.6	0.007	No	1
			0.389			0.400	0.789	224.9	0.003	No	1
	Antenna D (LTE Band 13)	0.930			0.400	0.400	1.730				
	Antenna B + C (Wi-Fi 5 GHz)	0.930			0.400		1.330	53.3	0.029	No	2
	Antenna C (Bluetooth)	0.930				0.400	1.330	232.6	0.007	No	2
					0.400	0.400	0.800	225.9	0.003	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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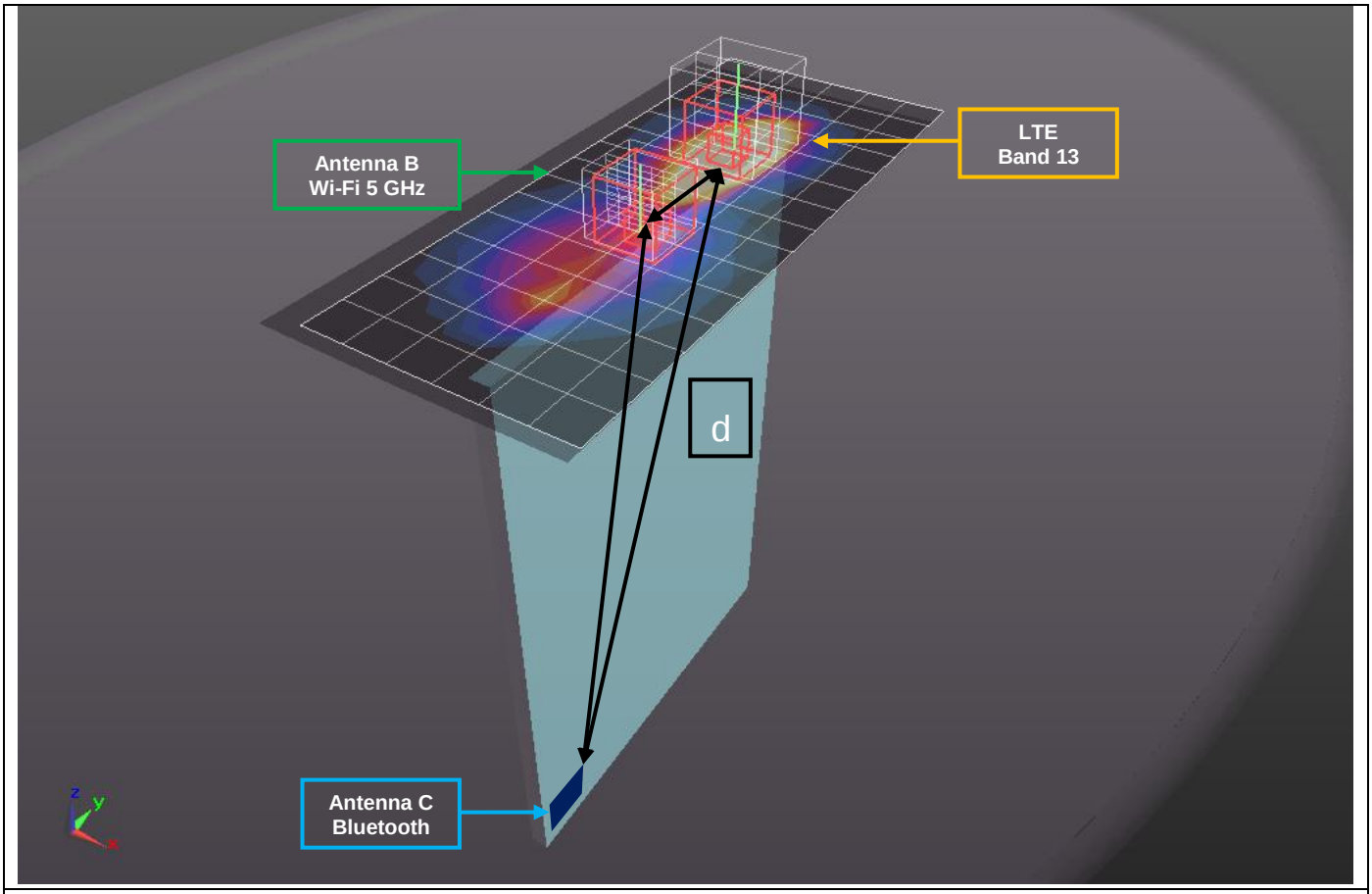
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 13	1.73	-0.0046	0.0391	-0.185
Antenna B, Wi-Fi 5 GHz	1.73	0.0018	-0.0132	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	52.7
	WWAN to Bluetooth	232.6
	Wi-Fi 5 GHz to Bluetooth	224.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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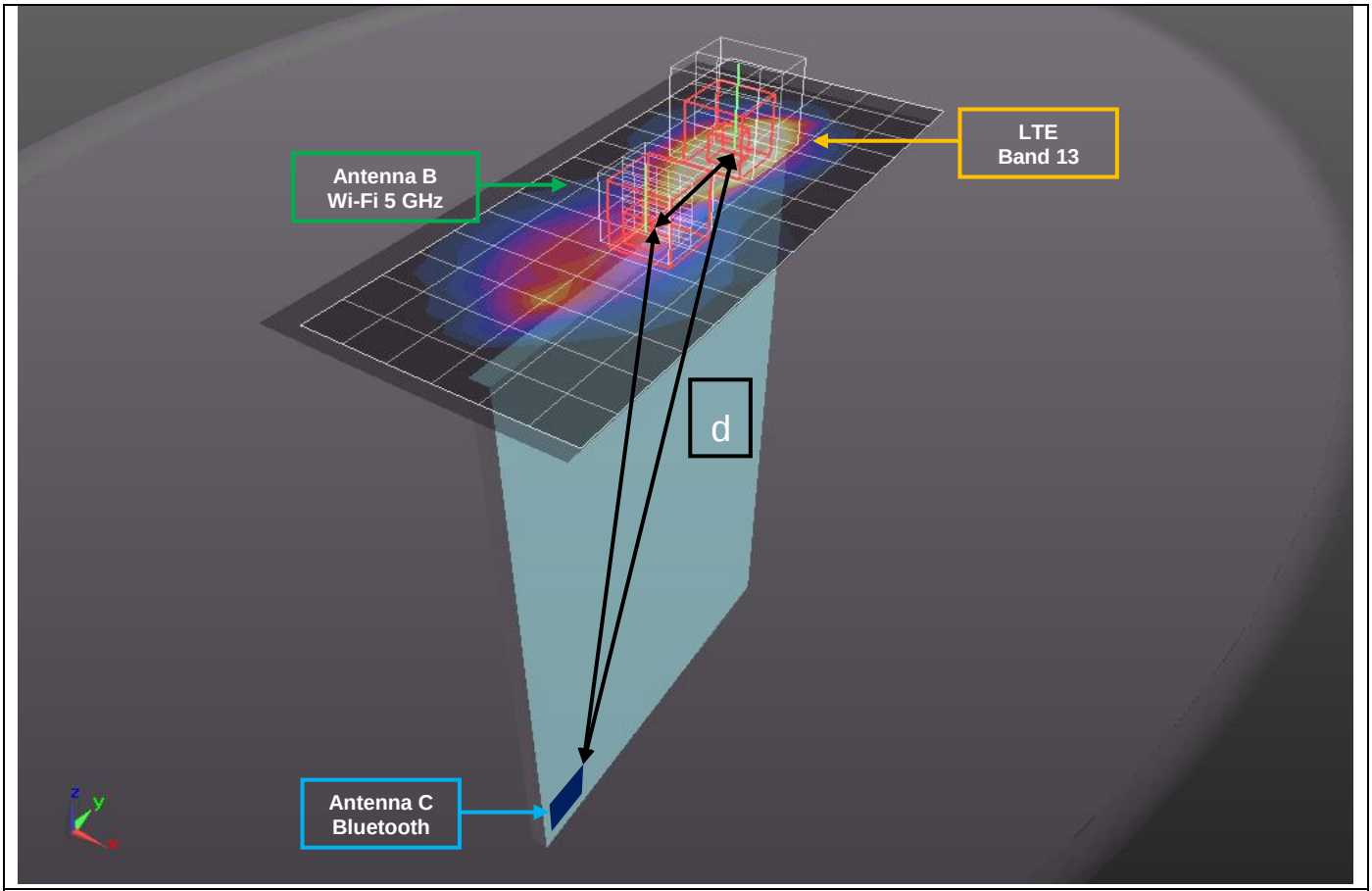
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 13	1.73	-0.0046	0.0391	-0.185
Antenna B + C, Wi-Fi 5 GHz	1.7	0.002	-0.0138	-0.184
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 5 GHz	53.3
	WWAN to Bluetooth	232.6
	Wi-Fi 5 GHz to Bluetooth	225.9

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.15. Sum of the SAR for LTE Band 17 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.15.1. LTE Band 17 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 17	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.170	0.597			0.016	1.783	**Yes**
	D, C	1.170		0.067		N/A	1.237	No
	D, A + C	1.170			0.592	N/A	1.762	**Yes**
Edge 1	D, A, C	0.558	0.467			0.400	1.425	No
	D, C	0.558		0.400		N/A	0.958	No
	D, A + C	0.558			0.506	N/A	1.064	No
Edge 2	D, A, C	0.108	0.400			0.400	0.908	No
	D, C	0.108		0.400		N/A	0.508	No
	D, A + C	0.108			0.400	N/A	0.508	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 17	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 17) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.170	0.597			0.016	1.783				
		1.170	0.597				1.767	94.6	0.025	No	1
		1.170				0.016	1.186	259.5	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 17) Antenna A + C (Wi-Fi 2.4)	1.170			0.592	0.016	1.778	94.6	0.025	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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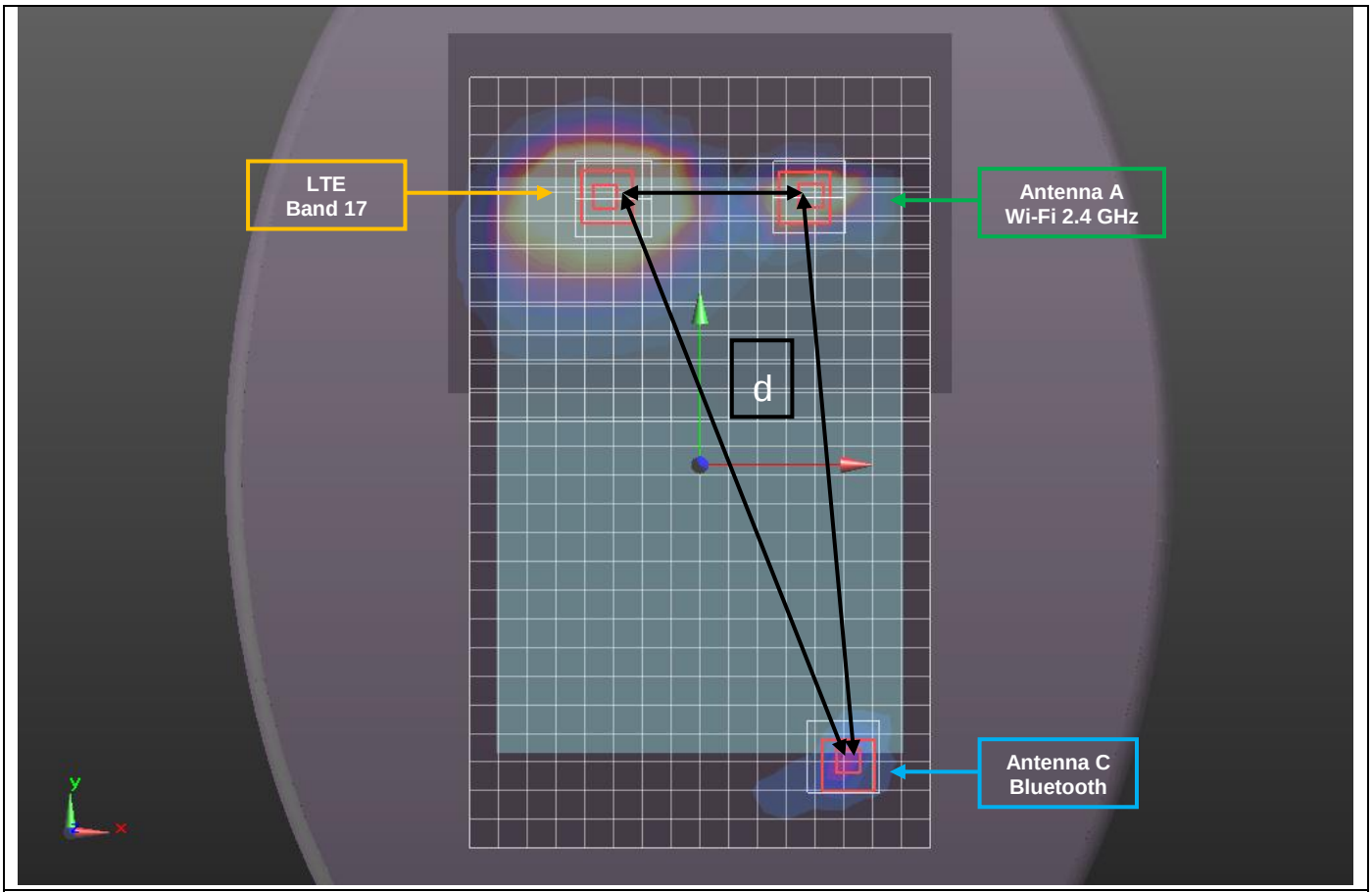
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 17	2.23	-0.044	0.113	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	94.6
	WWAN to Bluetooth	259.5
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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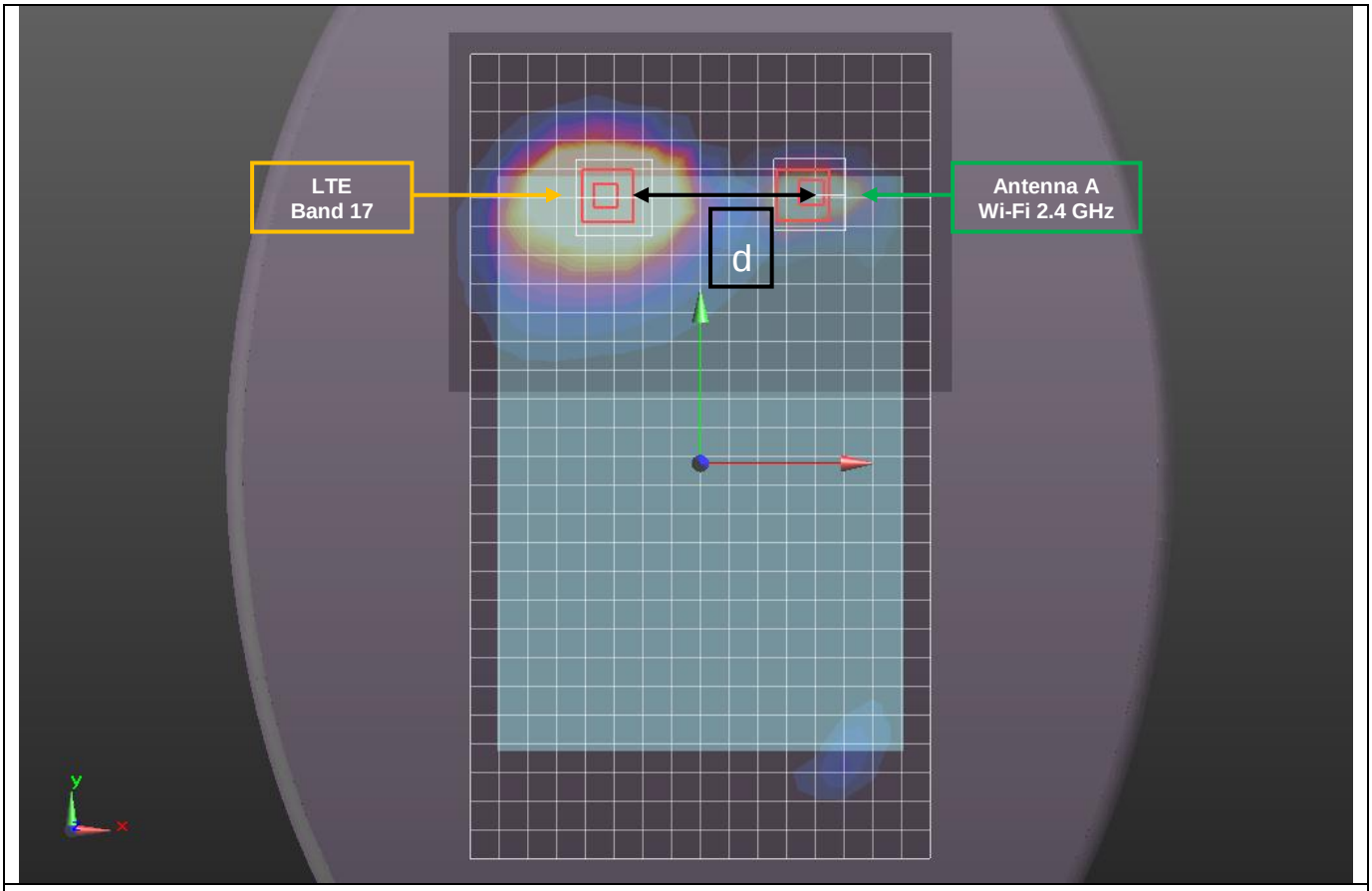
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 17	2.23	-0.044	0.113	-0.184
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	94.6

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.15.2. LTE Band 17 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 17	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.170	0.204			0.016	1.390	No
	D, C, C	1.170		0.295		N/A	1.465	No
	D, B+C, C	1.170			0.202	N/A	1.372	No
Edge 1	D, B, C	0.558	0.389			0.400	1.347	No
	D+ B + C + C	0.558			0.400	0.400	1.358	No
Edge 2	D, B, C	0.108	0.400			0.400	0.908	No
	D, C, C	0.108		0.400		0.400	0.908	No
	D, B+C, C	0.108			0.400	0.400	0.908	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.16. Sum of the SAR for LTE Band 25 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.16.1. LTE Band 25 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 25	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.170	0.597			0.016	1.783	**Yes**
	D, C	1.170		0.067		N/A	1.237	No
	D, A + C	1.170			0.592	N/A	1.762	**Yes**
Edge 1	D, A, C	0.350	0.467			0.400	1.217	No
	D, C	0.350		0.400		N/A	0.750	No
	D, A + C	0.350			0.506	N/A	0.856	No
Edge 2	D, A, C	0.061	0.400			0.400	0.861	No
	D, C	0.061		0.400		N/A	0.461	No
	D, A + C	0.061			0.400	N/A	0.461	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 25	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 25) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.170	0.597			0.016	1.783				
		1.170	0.597				1.767	85.3	0.028	No	1
		1.170				0.016	1.186	258.8	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 25) Antenna A + C (Wi-Fi 2.4)	1.170			0.592	0.016	1.778	85.3	0.028	No	2

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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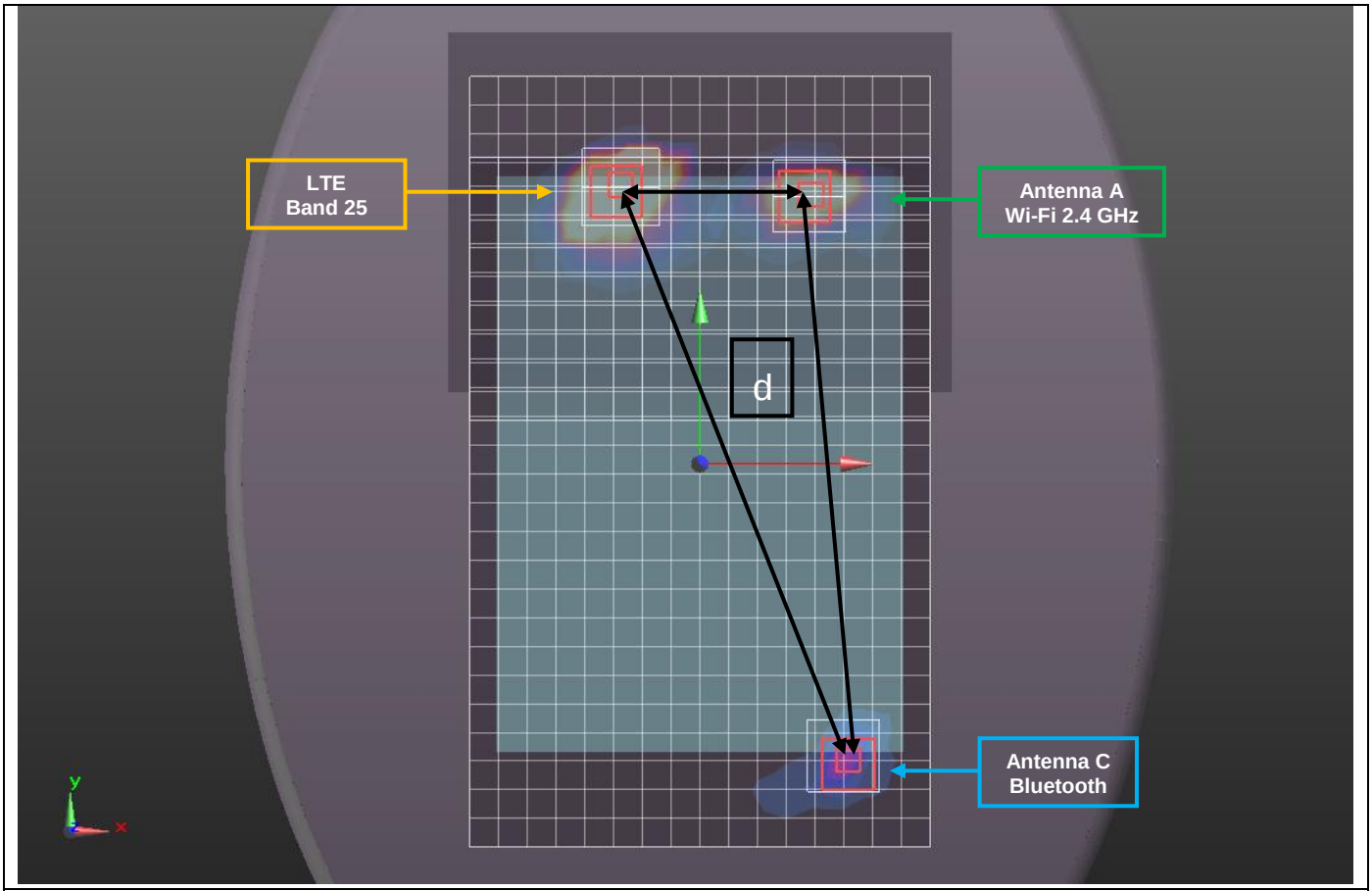
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 25	2.46	-0.0346	0.116	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.3
	WWAN to Bluetooth	258.8
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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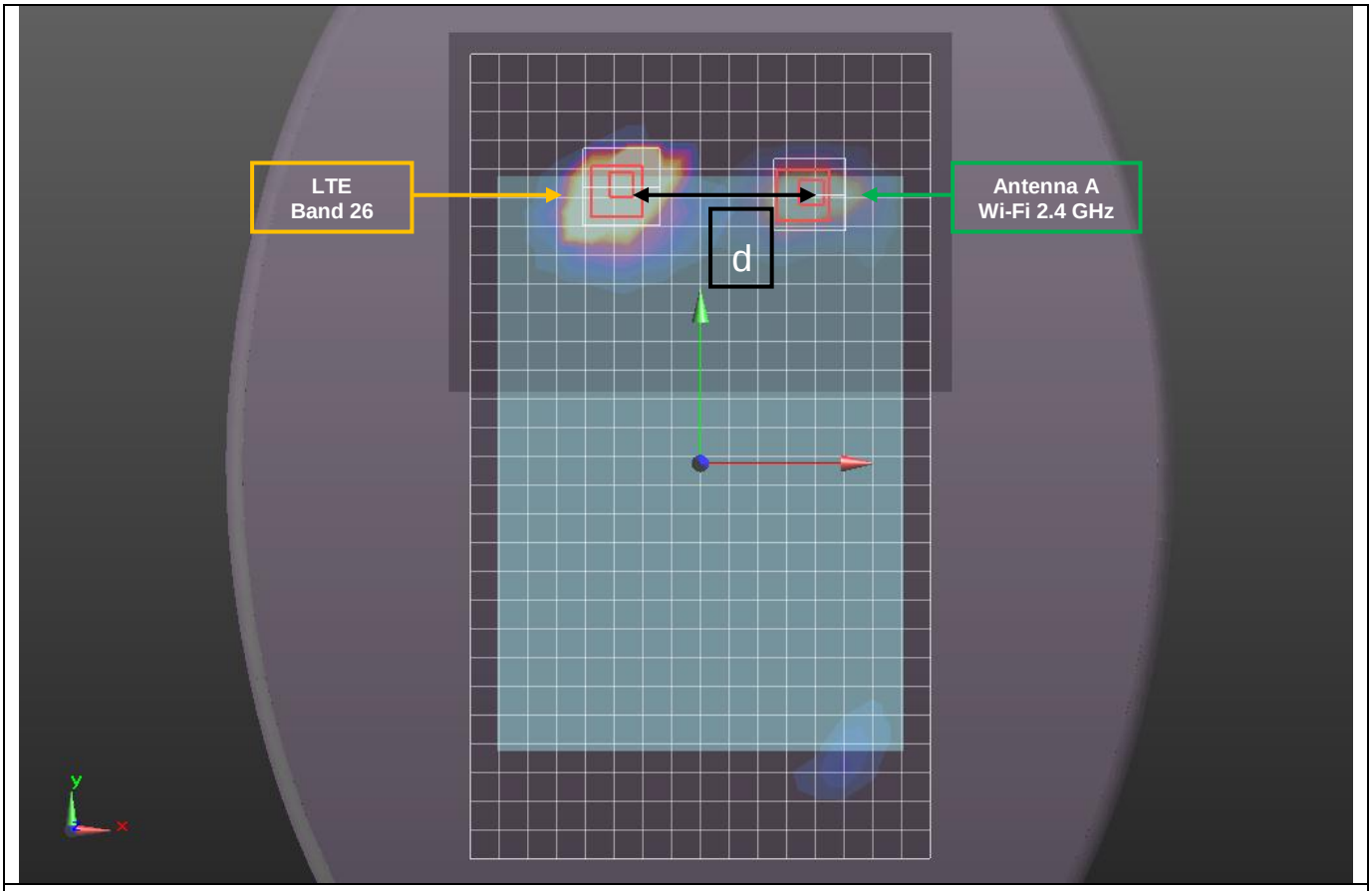
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 25	2.46	-0.0346	0.116	-0.184
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	85.3

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.16.2. LTE Band 25 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values					∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Position	Antenna Combination	Antenna D LTE Band 25	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth		
Rear	D, B, C	1.170	0.204			0.016	1.390	No
	D, C, C	1.170		0.295		N/A	1.465	No
	D, B+C, C	1.170			0.202	N/A	1.372	No
Edge 1	D, B, C	0.350	0.389			0.400	1.139	No
	D+ B + C + C	0.350			0.400	0.400	1.150	No
Edge 2	D, B, C	0.061	0.400			0.400	0.861	No
	D, C, C	0.061		0.400		0.400	0.861	No
	D, B+C, C	0.061			0.400	0.400	0.861	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.17. Sum of the SAR for LTE Band 26 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.17.1. LTE Band 26 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 26	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.095	0.597			0.016	1.708	**Yes**
	D, C	1.095		0.067		N/A	1.162	No
	D, A + C	1.095			0.592	N/A	1.687	**Yes**
Edge 1	D, A, C	0.749	0.467			0.400	1.616	**Yes**
	D, C	0.749		0.400		N/A	1.149	No
	D, A + C	0.749			0.506	N/A	1.255	No
Edge 2	D, A, C	0.246	0.400			0.400	1.046	No
	D, C	0.246		0.400		N/A	0.646	No
	D, A + C	0.246			0.400	N/A	0.646	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 26	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 26) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.095	0.597			0.016	1.708				
		1.095	0.597				1.692	83.6	0.026	No	1
		1.095				0.016	1.111	256.3	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 26) Antenna A + C (Wi-Fi 2.4)	1.095			0.592	0.016	1.703	83.6	0.027	No	2
Edge 1	Antenna D (LTE Band 26) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	0.749	0.467			0.400	1.616				
		0.749	0.467				1.216	103.5	0.013	No	3
		0.749				0.400	1.149	235.9	0.005	No	3
			0.467			0.400	0.867	228.7	0.004	No	3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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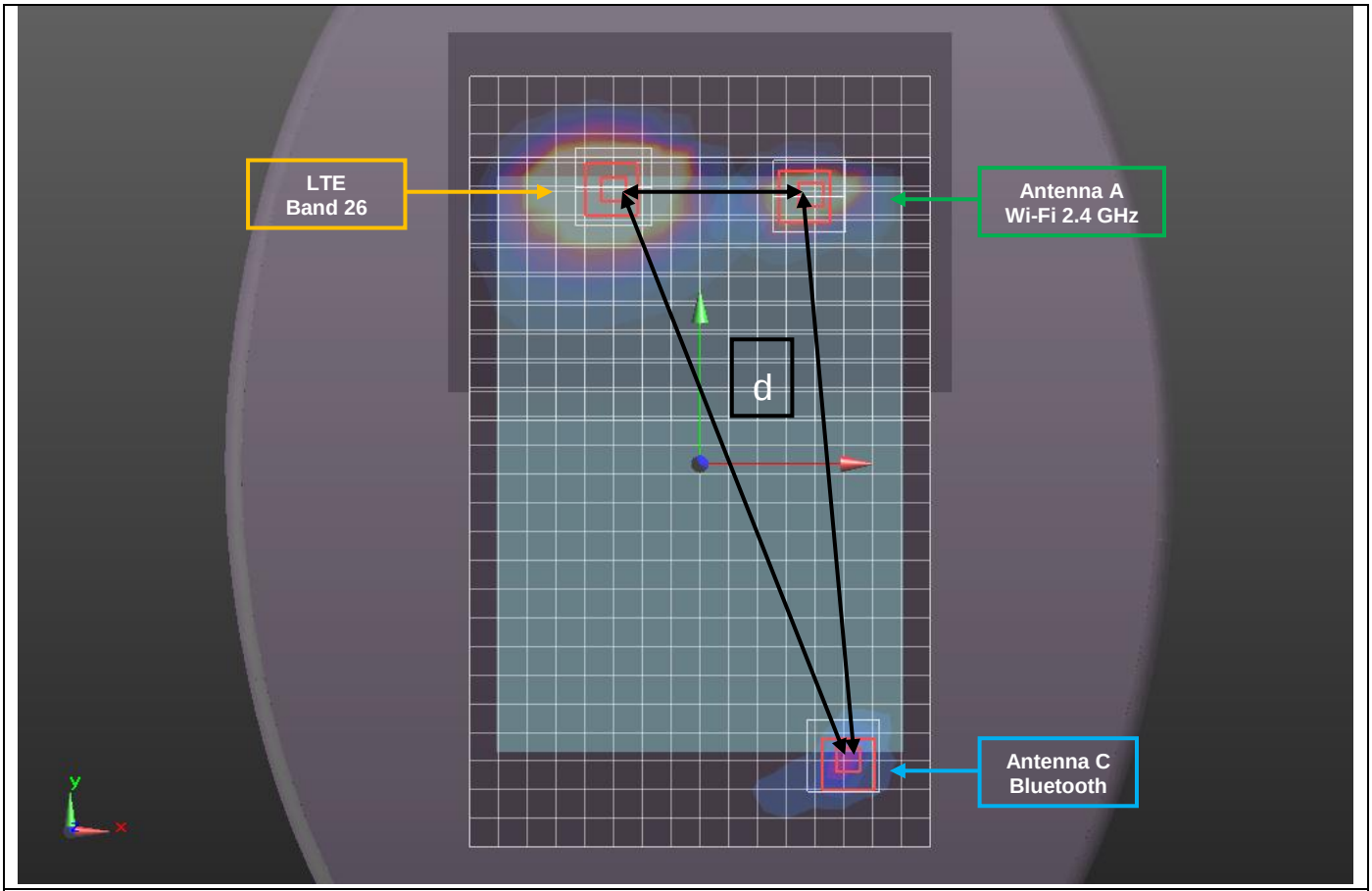
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 26	2.11	-0.0328	0.114	-0.179
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.6
	WWAN to Bluetooth	256.3
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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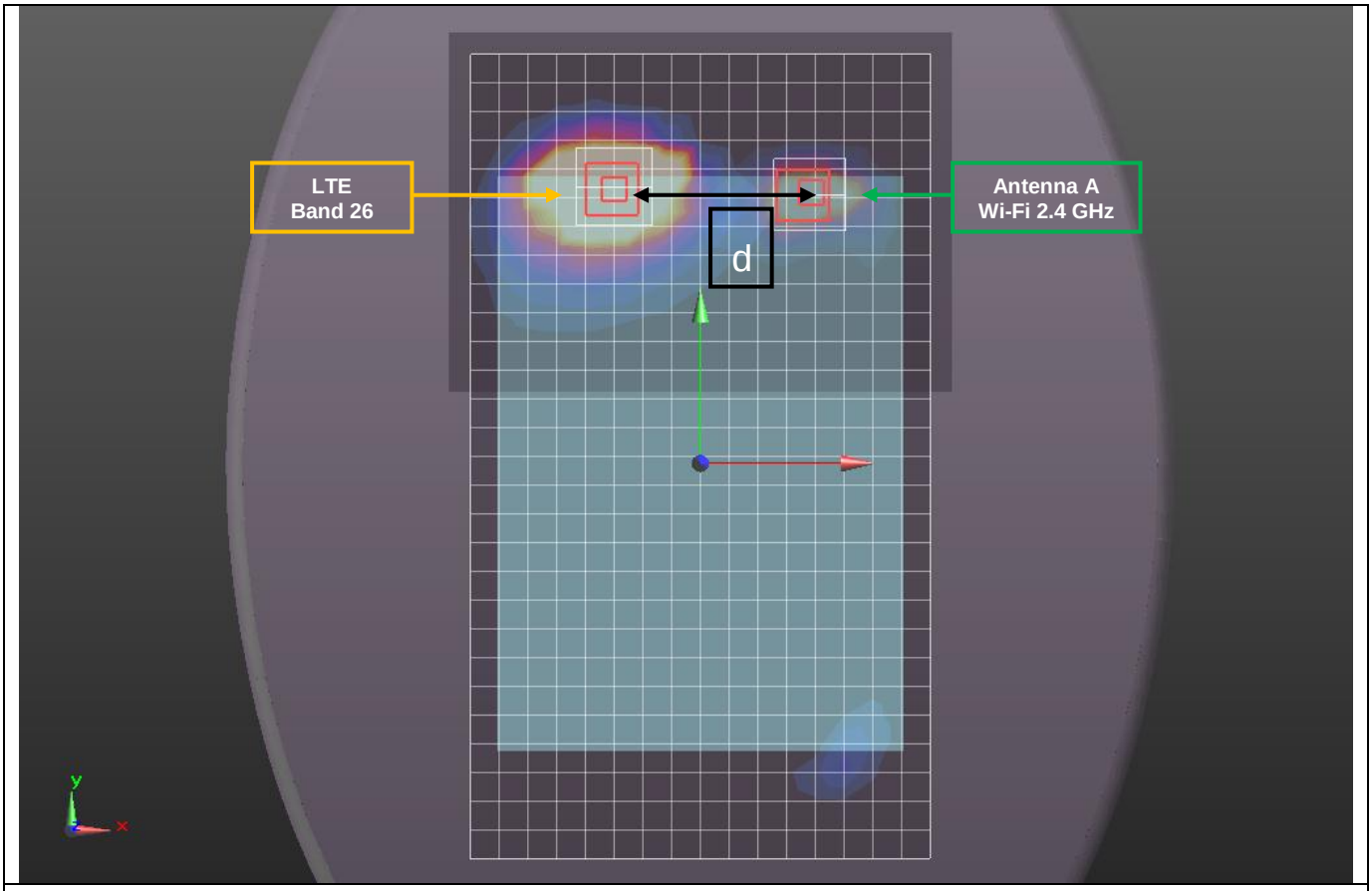
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 26	2.11	-0.0328	0.114	-0.179
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	83.6

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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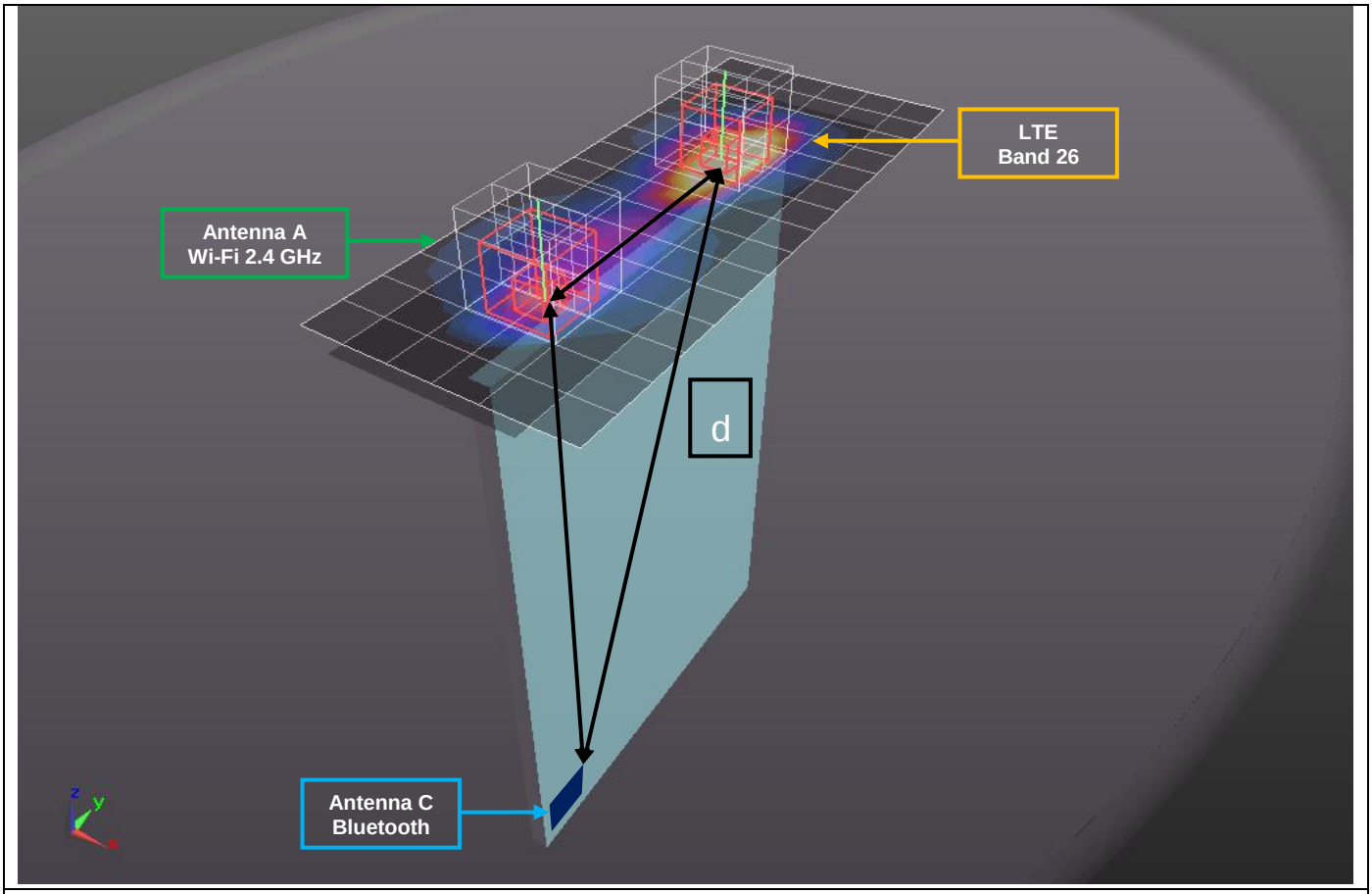
Figure (3)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 26	1.38	-0.003	0.0406	-0.182
Antenna A, Wi-Fi 2.4 GHz	1.08	-0.0012	-0.0628	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	103.5
	WWAN to Bluetooth	235.9
	Wi-Fi 2.4 GHz to Bluetooth	228.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.17.2. LTE Band 26 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 26	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.095	0.204			0.016	1.315	No
	D, C, C	1.095		0.295		N/A	1.390	No
	D, B+C, C	1.095			0.202	N/A	1.297	No
Edge 1	D, B, C	0.749	0.389			0.400	1.538	No
	D+ B + C + C	0.749			0.400	0.400	1.549	No
Edge 2	D, B, C	0.246	0.400			0.400	1.046	No
	D, C, C	0.246		0.400		0.400	1.046	No
	D, B+C, C	0.246			0.400	0.400	1.046	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.18. Sum of the SAR for LTE Band 41 + Wi-Fi P_{Cell_ON} (P_{low}) + BT

13.18.1. LTE Band 41 + Wi-Fi 2.4GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 41	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, A, C	1.189	0.597			0.016	1.802	**Yes**
	D, C	1.189		0.067		N/A	1.256	No
	D, A + C	1.189			0.592	N/A	1.781	**Yes**
Edge 1	D, A, C	0.769	0.467			0.400	1.636	**Yes**
	D, C	0.769		0.400		N/A	1.169	No
	D, A + C	0.769			0.506	N/A	1.275	No
Edge 2	D, A, C	0.016	0.400			0.400	0.816	No
	D, C	0.016		0.400		N/A	0.416	No
	D, A + C	0.016			0.400	N/A	0.416	No
Edge 4	D, A, C	0.400	0.171			0.025	0.596	No
	D, C	0.400		0.108		N/A	0.508	No
	D, A + C	0.400			0.108	N/A	0.508	No

SAR to Peak Location Separation Ratio (SPLSR)

Simutlaneous Transmission Scenario		Standalone SAR Values									
Position	Antenna Combination	Antenna D LTE Band 41	Antenna A Wi-Fi 2.4 GHz	Antenna C Wi-Fi 2.4 GHz	Antenna A + C Wi-Fi 2.4 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	Antenna D (LTE Band 41) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	1.189	0.597			0.016	1.802				
		1.189	0.597				1.786	95.7	0.025	No	1
		1.189				0.016	1.205	255.3	0.005	No	1
			0.597			0.016	0.613	239.1	0.002	No	1
	Antenna D (LTE Band 41) Antenna A + C (Wi-Fi 2.4)	1.189			0.592	0.016	1.797	95.7	0.025	No	2
Edge 1	Antenna D (LTE Band 41) Antenna A (Wi-Fi 2.4) Antenna C (Bluetooth)	0.769	0.467			0.400	1.636				
		0.769	0.467				1.236	91.3	0.015	No	3
		0.769				0.400	1.169	230.1	0.005	No	3
			0.467			0.400	0.867	228.7	0.004	No	3

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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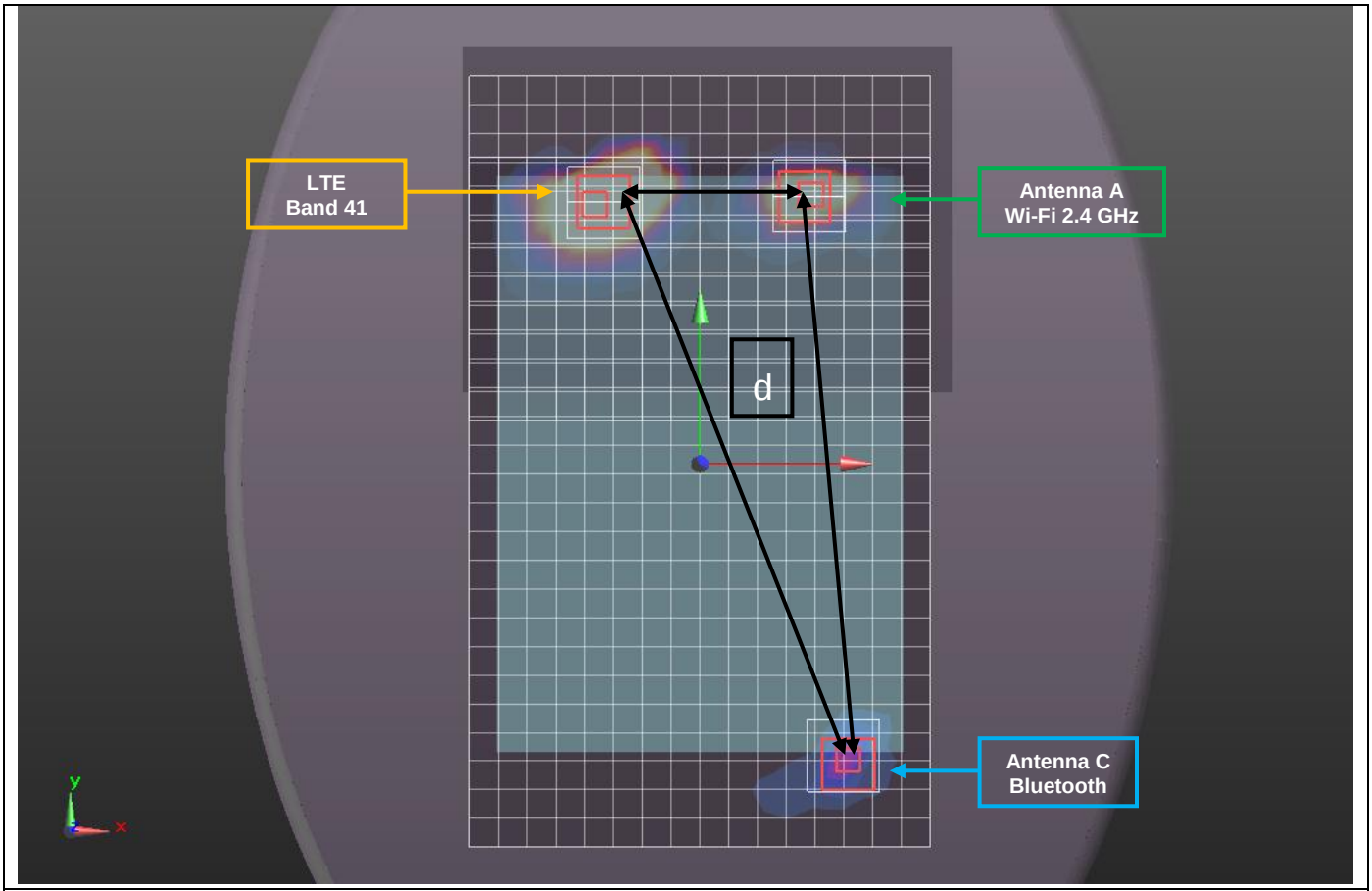
Figure (1)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 41	2.91	-0.045	0.108	-0.184
Antenna A, Wi-Fi 2.4 GHz	1.3	0.0506	0.113	-0.184
Antenna C, Bluetooth	0.0406	0.057	-0.126	-0.183

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	95.7
	WWAN to Bluetooth	255.3
	Wi-Fi 2.4 GHz to Bluetooth	239.1

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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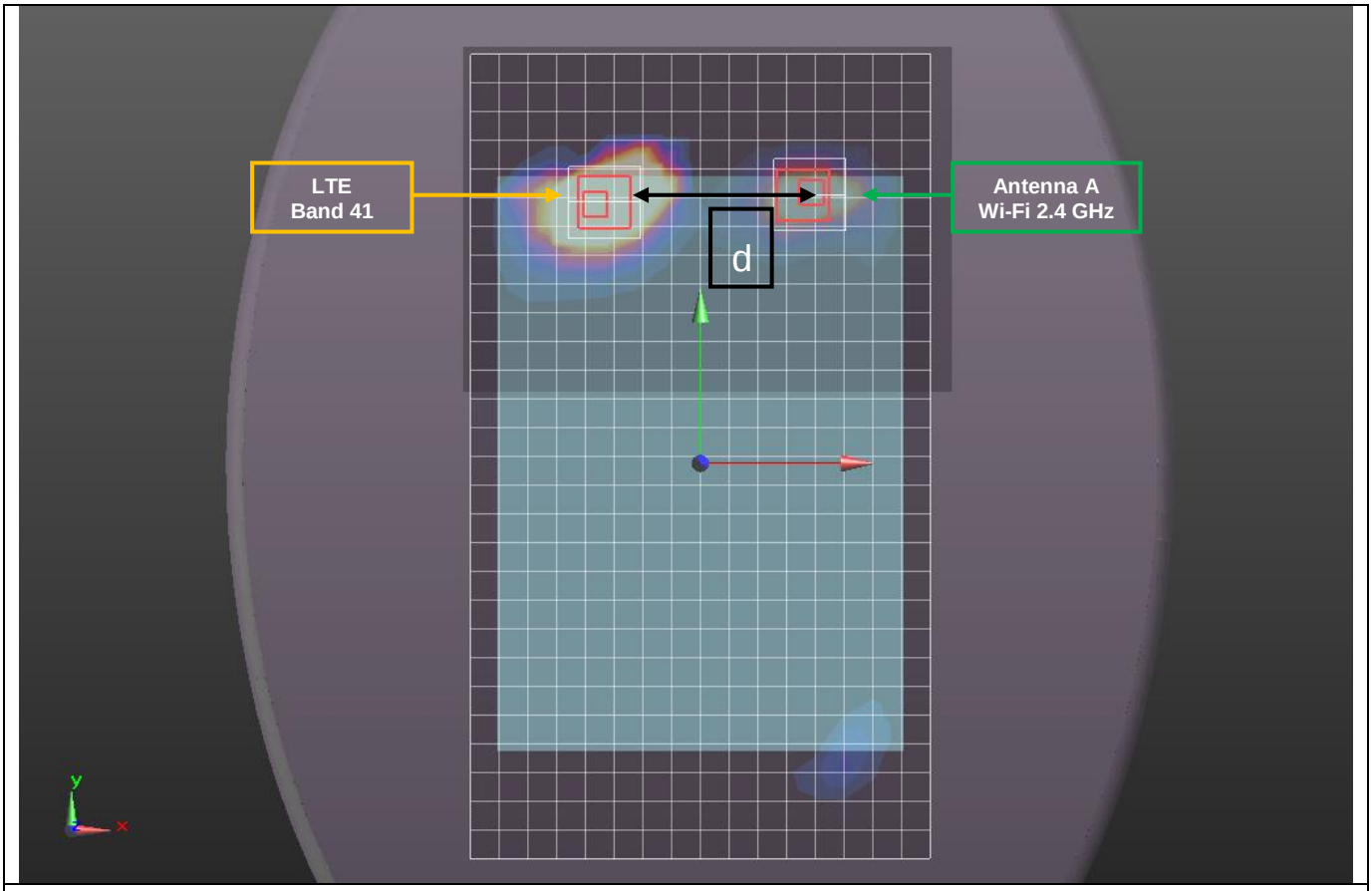
Figure (2)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 41	2.91	-0.045	0.108	-0.184
Antenna A + C, Wi-Fi 2.4 GHz	1.22	0.0506	0.113	-0.184

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	95.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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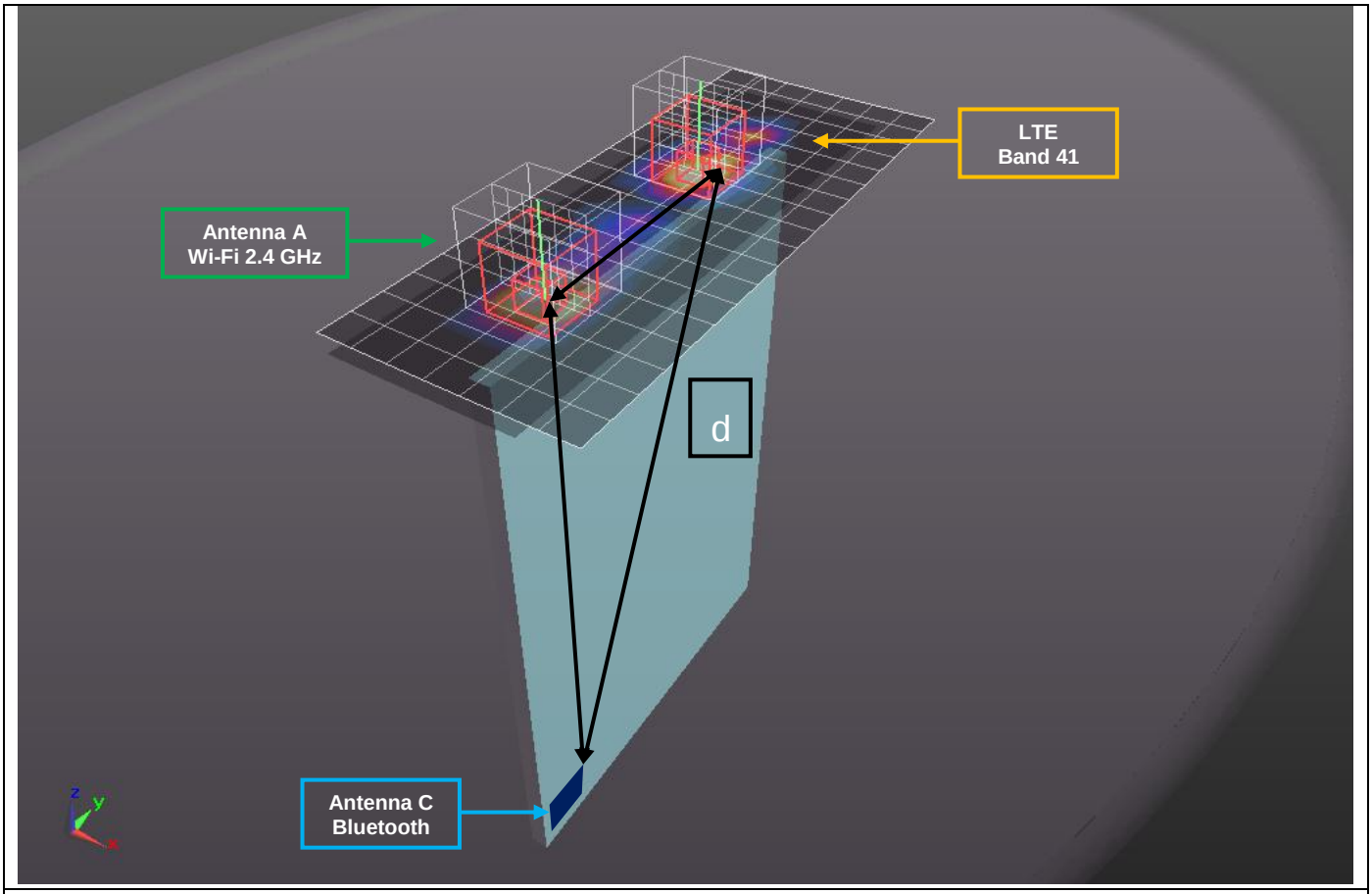
Figure (3)



Mode	Peak SAR	X	Y	Z
	mW/g	m	m	m
Antenna D, LTE Band 41	1.71	-0.0054	0.0284	-0.185
Antenna A, Wi-Fi 2.4 GHz	1.08	-0.0012	-0.0628	-0.185
Antenna C, Bluetooth		0	-0.021	-0.410

d: Calculated distance (mm)	WWAN to Wi-Fi 2.4 GHz	91.3
	WWAN to Bluetooth	230.1
	Wi-Fi 2.4 GHz to Bluetooth	228.7

The Peak Location Separation Distance is computed by using the formula below:

SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

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13.18.2. LTE Band 41 + Wi-Fi 5 GHz + BT

Simultaneous Transmission Scenario		Standalone SAR Values						
Position	Antenna Combination	Antenna D LTE Band 41	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	D, B, C	1.189	0.204			0.016	1.409	No
	D, C, C	1.189		0.295		N/A	1.484	No
	D, B+C, C	1.189			0.202	N/A	1.391	No
Edge 1	D, B, C	0.769	0.389			0.400	1.558	No
	D+ B + C + C	0.769			0.400	0.400	1.569	No
Edge 2	D, B, C	0.016	0.400			0.400	0.816	No
	D, C, C	0.016		0.400		0.400	0.816	No
	D, B+C, C	0.016			0.400	0.400	0.816	No
Edge 4	D, B, C	0.400	0.400			0.025	0.825	No
	D, C, C	0.400		0.234		0.025	0.659	No
	D, B+C, C	0.400			0.146	0.025	0.571	No

Conclusion:

Simultaneous transmission SAR measurement (Volume Scan) is not required because the either sum of the 1-g SAR is < 1.6 W/kg or the SPLSR is < 0.04 for all circumstances that require SPLSR calculation.

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13.19. Sum of the SAR for Wi-Fi $P_{Cell\ OFF}$ (P_{max}) + BT

Simultaneous Transmission Scenario		Standalone SAR Values							
Position	Antenna Combination	Antenna A Wi-Fi 2.4 GHz	Antenna B Wi-Fi 5 GHz	Antenna C Wi-Fi 5 GHz	Antenna B + C Wi-Fi 5 GHz	Antenna B Bluetooth	Antenna C Bluetooth	∑ 1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	A, B	1.120				0.075		1.195	No
	A, C	1.120					0.016	1.136	No
	B, B		0.720			0.075		0.795	No
	B, C		0.720				0.016	0.736	No
	C, B			0.295		0.075		0.370	No
	C, C			0.295			0.016	0.311	No
	B + C, B				0.731	0.075		0.806	No
	B + C, C				0.731		0.016	0.747	No
Edge 1	A, B	0.869				0.024		0.893	No
	A, C	0.869					0.400	1.269	No
	B, B		1.179			0.024		1.203	No
	B, C		1.179				0.400	1.579	No
	C, B			0.400		0.024		0.424	No
	C, C			0.400			0.400	0.800	No
	B + C, B				1.180	0.024		1.204	No
	B + C, C				1.180		0.400	1.580	No
Edge 3	A, B	0.400				0.400		0.800	No
	A, C	0.400					0.231	0.631	No
	B, B		0.400			0.400		0.800	No
	B, C		0.400				0.231	0.631	No
	C, B			1.140		0.400		1.540	No
	C, C			1.140			0.231	1.371	No
	B + C, B				0.970	0.400		1.370	No
	B + C, C				0.970		0.231	1.201	No
Edge 4	A, B	0.108				0.400		0.508	No
	A, C	0.108					0.025	0.133	No
	B, B		0.400			0.400		0.800	No
	B, C		0.400				0.025	0.425	No
	C, B			0.234		0.400		0.634	No
	C, C			0.234			0.025	0.259	No
	B + C, B				0.146	0.400		0.546	No
	B + C, C				0.146		0.025	0.171	No

SAR to Peak Location Separation Ratio (SPLSR)

As the Sum of the SAR is not greater than 1.6 W/kg SPLSR assessment is not required.

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14. Appendixes

Refer to separated files for the following appendixes.

14.1. Photos

14.2. System Check Plots

14.3. Highest SAR Test Plots

14.4. Calibration Certificate for E-Field Probe EX3DV4 - SN 3772

14.5. Calibration Certificate for E-Field Probe EX3DV4 - SN 3749

14.6. Calibration Certificate for E-Field Probe EX3DV4 - SN 3751

14.7. Calibration Certificate for E-Field Probe EX3DV4 - SN 3989

14.8. Calibration Certificate for E-Field Probe EX3DV4 - SN 3901

14.9. Calibration Certificate for E-Field Probe EX3DV4 - SN 3885

14.10. Calibration Certificate for E-Field Probe EX3DV4 - SN 3990

14.11. Calibration Certificate for E-Field Probe EX3DV4 - SN 3686

14.12. Calibration Certificate for D750V3 - SN 1019

14.13. Calibration Certificate for D835V2 - SN 4d142

14.14. Calibration Certificate for D1750V2 - SN 1053

14.15. Calibration Certificate for D1900V2 - SN 5d140

14.16. Calibration Certificate for D1900V2 - SN 5d163

14.17. Calibration Certificate for D2450V2 - SN 706

14.18. Calibration Certificate for D2600V2 - SN 1006

14.19. Calibration Certificate for D5GHzV2 - SN 1003

14.20. Calibration Certificate for D5GHzV2 - SN 1168

14.21. Tissue Material Ingredients

END OF REPORT

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