SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

The model FCC ID: PY7-TM0061 shares the same enclosure and circuit board as model FCC ID: PY7-TM0063. The WLAN/Bluetooth circuitry and layout, including antenna, are identical between the two units. The WLAN/Bluetooth antenna and surrounding circuitry are the same between these two units, and tune up power targets are identical for WLAN and Bluetooth operations. For this reason the SAR data for the WLAN and Bluetooth operations for FCC ID: PY7-TM0061 is considered representative for FCC ID: PY7-TM0063.

For
GSM/WCDMA/LTE + BLUETOOTH, DTS/UNII a/b/g/n/ac & ANT+

FCC ID: PY7-TM0063

Report Number: 15J20368-S1B
Issue Date: 5/18/2015

Prepared for
SONY MOBILE COMMUNICATIONS INC.
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SWEDEN

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Date	Revisions	Revised By
--	5/8/2015	Initial Issue	--
A	5/12/2015	Updated section 9.1. notes	Devin Chang
B	5/18/2015	Updated WLAN Data	Coltyce Sanders

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1. Attestation of Test Results

Applicant Name	SONY MOBILE COMMUNICATIONS, INC.			
FCC ID	PY7-TM0063			
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013			
SAR Limits (W/Kg)				
Exposure Category	Peak spatial-average(1g of tissue)			
General population / Uncontrolled exposure	1.6			
The Highest Reported SAR (W/kg)				
RF Exposure Conditions	**Equipment Class**			
	Licensed	**DTS***	**U-NII***	**DSS (BT)**
Standalone	1.025	0.789	0.820	0.354
Simultaneous TX	1.547	1.500	1.547	1.065
Date Tested	4/15/2015 to 4/27/2015			
Test Results	Pass			

***Note:** The Wi-Fi (DTS/U-NII) and Bluetooth SAR measurement results from the original filling can be found in SAR test report 15U20030-S1E, FCC ID: PY7-TM0061. The Wi-Fi and Bluetooth results from the original filling were used for Simultaneous Transmission Analysis purposes. Both models contain identical Wi-Fi/BT modules and antennas. Spot checks for 802.11b/n/ac were performed to ensure that the SAR measurements for both devices are the same.

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:
	
Devin Chang Senior Engineer UL Verification Services Inc.	Nathan Sousa Laboratory Engineer UL Verification Services Inc.

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with FCC 47 CFR § 2.1093, IEEE STD 1528-2013, the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02
- 447498 D01 General RF Exposure Guidance v05r02
- 616217 D04 SAR for laptop and tablets v01r01
- 690783 D01 SAR Listings on Grants v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03
- 865664 D02 RF Exposure Reporting v01r01
- 941225 D01 3G SAR Procedures v03
- 941225 D05 SAR for LTE Devices v02r03
- 941225 D06 Hotspot Mode v02

3. Facilities and Accreditation

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

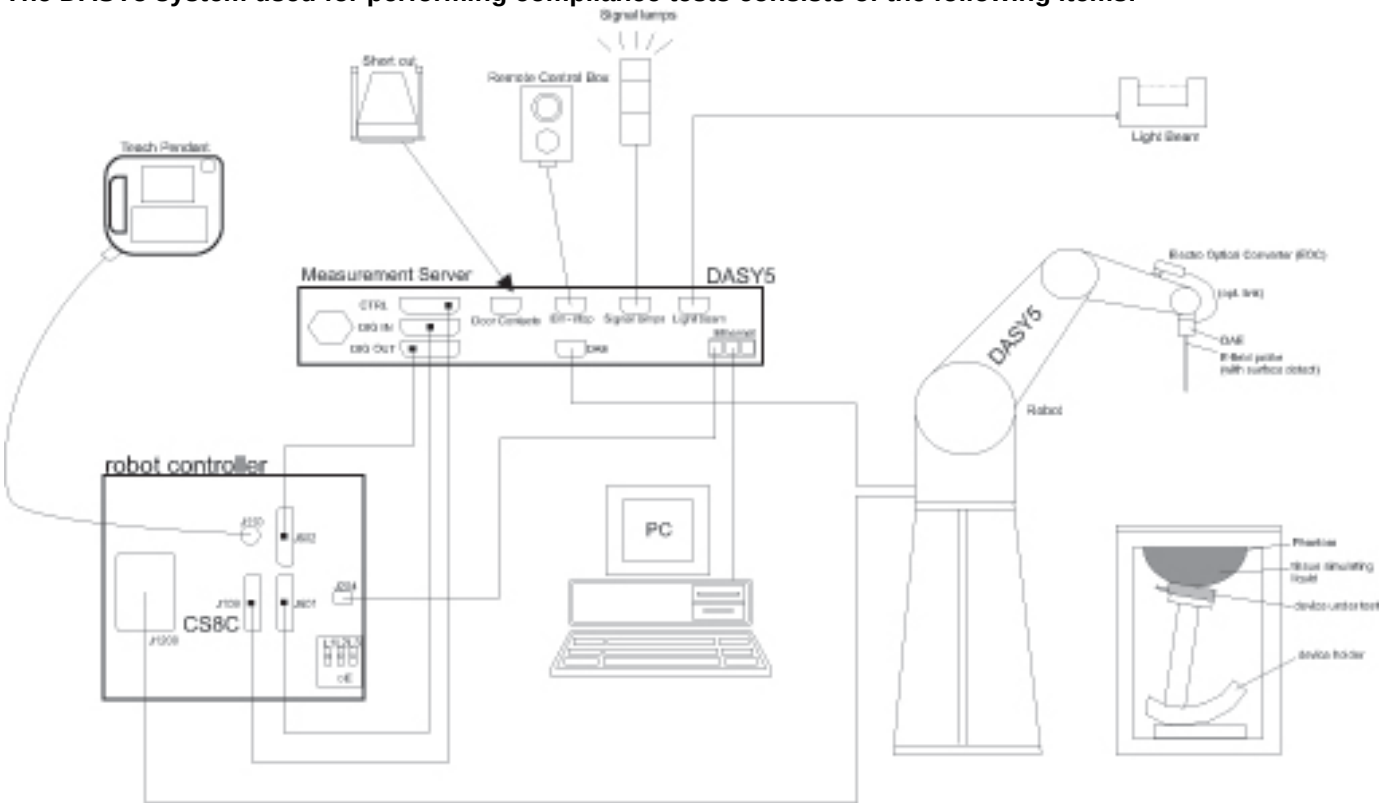
47173 Benicia Street	47266 Benicia Street
SAR Lab A	SAR Lab 1
SAR Lab B	SAR Lab 2
SAR Lab C	SAR Lab 3
SAR Lab D	SAR Lab 4
SAR Lab E	SAR Lab 5
SAR Lab F	
SAR Lab G	
SAR Lab H	

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

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.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

<table>
<tr><td></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td>Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td>Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
</table>

Step 3: Zoom Scan

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

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the area scan based *1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

Step 4: Power drift measurement

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

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

4.3. 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	8753ES	MY40001647	7/17/2015
Dielectronic Probe kit	SPEAG	DAK-3.5	1087	11/11/2015
Dielectronic Probe kit	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	Traceable Calibration Control Co.	4242	122529162	10/8/2015

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
HP Signal Generator	HP	8665B	3546A00784	6/23/2015
Power Meter	HP	437B	3125U09516	10/6/2015
Power Meter	Agilent	N1911A	MY53060016	8/7/2015
Power Sensor	Agilent	E9323A	MY53070003	5/1/2015
Power Sensor	Agilent	8481A	3318A95392	10/6/2015
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1622052	N/A
Bi-directional coupler	Werlatone, Inc.	C8060-102	2711	N/A
DC Power Supply	Sorensen Ametek	XT20-3	1318A00530	N/A
Synthesized Signal Generator	Agilent	8665B	3438A00633	7/10/2015
Power Meter	HP	437B	3125U11347	8/27/2015
Power Meter	HP	437B	3125U16345	6/16/2015
Power Sensor	HP	8481A	2702A60780	6/16/2015
Power Sensor	HP	8481A	1926A16917	10/10/2015
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1808938	N/A
Bi-directional coupler	Werlatone, Inc.	C8060-102	2710	N/A
DC Power Supply	HP	6296A	2841A-05955	N/A
E-Field Probe (SAR Lab 1)	SPEAG	EX3DV4	3902	5/19/2015
E-Field Probe (SAR Lab 5)	SPEAG	EX3DV4	3991	5/16/2015
Data Acquisition Electronics (SAR Lab 1)	SPEAG	DAE4	1352	11/7/2015
Data Acquisition Electronics (SAR Lab 5)	SPEAG	DAE4	1439	5/14/2015
System Validation Dipole	SPEAG	D750V3	1024	5/16/2015
System Validation Dipole	SPEAG	D835V2	4d142	9/92015
System Validation Dipole	SPEAG	D1900V2	5d163	9/11/2015
Thermometer (SAR Lab 1)	EXTECH	445703	CCS-205	3/20/2016
Thermometer (SAR Lab 5)	EXTECH	445703	CCS-239	6/3/2015

Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	132910	10/16/2015

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.

6. Device Under Test (DUT) Information

6.1. DUT Description

Back Cover	☒ The rechargeable battery is not user accessible.
Battery Options	☒ The rechargeable battery is not user accessible.
Wireless Router (Hotspot)	Wi-Fi Hotspot mode permits the device to share its cellular data connection with other Wi-Fi-enabled devices. ☒ Mobile Hotspot (Wi-Fi 2.4 GHz) ☒ Mobile Hotspot (Wi-Fi 5 GHz UNII 1 and UNII 3 only)
Wi-Fi Direct	Wi-Fi Direct enabled devices transfer data directly between each other ☒ Wi-Fi Direct (Wi-Fi 2.4 GHz) ☒ Wi-Fi Direct (Wi-Fi 5 GHz UNII 1 and UNII 3 only)
Accessory/ies	FCC ID: PY7-RD0101

6.2. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: ☐ Class 8 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☐ Class 12 - 4 Up, 4 Down ☒ Class 33 - 4 Up, 5 Down	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	☒ Class A = both simultaneously. ☐ Class B = GPRS connection interrupted during a GSM call, automatically resumed at end of call. ☐ Class C = manual GSM / GPRS mode switching. Does this device support DTM (Dual Transfer Mode)? ☒ Yes ☐ No			
W-CDMA (UMTS)	Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Rel. 5) HSUPA (Rel. 6)		100%
LTE	FDD Band 17	QPSK 16QAM ☐ Rel. 10 Does not support Carrier Aggregation (CA) ☒ Rel. 10 Carrier Aggregation (Downlink Only) (Non-US operations supported for CA) ☐ Rel. 11 Carrier Aggregation (2 Uplink and 2 Downlinks)		100% (FDD)
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
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 (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)		100%
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	Version 4.1 LE		77.5% (DH5)

6.3. Nominal and Maximum Output Power

KDB 447498 sec.4.1.(3) at the maximum rated output power and within the tune-up tolerance range specified for the product, but not more than 2 dB lower than the maximum tune-up tolerance limit

RF Air interface	Mode	Max. RF Output Power (dBm)				Reduce RF Output Power (dBm)			
		Target	Tolerance	Max. tune-up tolerance limit		Target	Tolerance	Max. tune-up tolerance limit	
				Burst	Frame			Burst	Frame
GSM850	Voice (1 slot)	33.0	-1.0 ~ 0.7	**33.7**	**24.7**	26.0	-2.0 ~ 1.7	**27.7**	**18.7**
	GPRS 1 slot	33.0	-1.0 ~ 0.7	**33.7**	**24.7**	26.0	-2.0 ~ 1.7	**27.7**	**18.7**
	GPRS 2 slots	31.5	-1.3 ~ 0.7	**32.2**	**26.2**	24.5	-2.3 ~ 1.7	**26.2**	**20.2**
	GPRS 3 slots Low	29.5	-1.3 ~ 0.7	**30.2**	**25.9**	22.5	-2.3 ~ 1.7	**24.2**	**19.9**
	GPRS 3 slots Mid								
	GPRS 3 slots High					22.5	-2.5 ~ 1.7	**24.2**	**19.9**
	GPRS 4 slots	28.5	-1.3 ~ 0.7	**29.2**	**26.2**	21.5	-2.3 ~ 1.7	**23.2**	**20.2**
	EGPRS 1 slot	27.0	-1.5 ~ 1.0	**28.0**	**19.0**	27.0	-1.5 ~ 1.0	**28.0**	**19.0**
	EGPRS 2 slots	25.0	-1.5 ~ 1.0	**26.0**	**20.0**	25.0	-1.5 ~ 1.0	**26.0**	**20.0**
	EGPRS 3 slots	23.0	-1.5 ~ 1.0	**24.0**	**19.7**	23.0	-1.5 ~ 1.0	**24.0**	**19.7**
	EGPRS 4 slots	21.5	-1.5 ~ 1.0	**22.5**	**19.5**	21.5	-1.5 ~ 1.0	**22.5**	**19.5**
GSM1900	Voice (1 slot)	30.0	-1.0 ~ 0.7	**30.7**	**21.7**	16.5	-2.0 ~ 1.7	**18.2**	**9.2**
	GPRS 1 slot	30.0	-1.0 ~ 0.7	**30.7**	**21.7**	16.5	-2.0 ~ 1.7	**18.2**	**9.2**
	GPRS 2 slots	28.5	-1.3 ~ 0.7	**29.2**	**23.2**	15.0	-2.3 ~ 1.7	**16.7**	**10.7**
	GPRS 3 slots	26.5	-1.3 ~ 0.7	**27.2**	**22.9**	14.0	-2.3 ~ 1.7	**15.7**	**11.4**
	GPRS 4 slots	25.5	-1.3 ~ 0.7	**26.2**	**23.2**	12.0	-2.3 ~ 1.7	**13.7**	**10.7**
	EGPRS 1 slot	26.0	-1.5 ~ 1.0	**27.0**	**18.0**	16.2	-2.5 ~ 2.0	**18.2**	**9.2**
	EGPRS 2 slots	24.0	-1.5 ~ 1.0	**25.0**	**19.0**	14.7	-2.5 ~ 2.0	**16.7**	**10.7**
	EGPRS 3 slots	22.0	-1.5 ~ 1.0	**23.0**	**18.7**	13.7	-2.5 ~ 2.0	**15.7**	**11.4**
	EGPRS 4 slots	21.0	-1.5 ~ 1.0	**22.0**	**19.0**	11.7	-2.5 ~ 2.0	**13.7**	**10.7**

RF Air interface	Mode	Max. RF Output Power (dBm)								Reduce RF Output Power (dBm)							
		CS				PS				CS				PS			
		Target	Tolerance	Max. tune-up tolerance limit		Target	Tolerance	Max. tune-up tolerance limit		Target	Tolerance	Max. tune-up tolerance limit		Target	Tolerance	Max. tune-up tolerance limit	
				Burst	Frame			Burst	Frame			Burst	Frame			Burst	Frame
DTM GSM850	GPRS 1 slot	33.0	-1.0 ~ 0.7	**33.7**	**24.7**					26.0	-2.0 ~ 1.7	**27.7**	**18.7**				
	GPRS 2 slots	31.5	-1.3 ~ 0.7	**32.2**	**26.2**	31.5	-1.3 ~ 0.7	**32.2**	**26.2**	24.5	-2.3 ~ 1.7	**26.2**	**20.2**	24.5	-2.3 ~ 1.7	**26.2**	**20.2**
	GPRS 3 slots Low	29.5	-1.3 ~ 0.7	**30.2**	**25.9**	29.5	-1.3 ~ 0.7	**30.2**	**25.9**	22.5	-2.3 ~ 1.7	**24.2**	**19.9**	22.5	-2.3 ~ 1.7	**24.2**	**19.9**
	GPRS 3 slots Mid																
	GPRS 3 slots High									22.5	-2.5 ~ 1.7	**24.2**	**19.9**	22.5	-2.5 ~ 1.7	**24.2**	**19.9**
	EGPRS 1 slot	33.0	-1.0 ~ 0.7	**33.7**	**24.7**					26.0	-2.0 ~ 1.7	**27.7**	**18.7**				
	EGPRS 2 slots	31.5	-1.3 ~ 0.7	**32.2**	**26.2**	25.0	-1.5 ~ 1.0	**26.0**	**20.0**	24.5	-2.3 ~ 1.7	**26.2**	**20.2**	25.0	-1.5 ~ 1.0	**26.0**	**20.0**
	EGPRS 3 slots	29.5	-1.3 ~ 0.7	**30.2**	**25.9**	23.0	-1.5 ~ 1.0	**24.0**	**19.7**	22.5	-2.3 ~ 1.7	**24.2**	**19.9**	23.0	-1.5 ~ 1.0	**24.0**	**19.7**
						23.0	-1.5 ~ 1.0	**24.0**	**19.7**								
						23.0	-1.5 ~ 1.0	**24.0**	**19.7**	22.5	-2.5 ~ 1.7	**24.2**	**19.9**	23.0	-1.5 ~ 1.0	**24.0**	**19.7**
DTM GSM1900	GPRS 1 slot	30.0	-1.0 ~ 0.7	**30.7**	**21.7**					16.5	-2.0 ~ 1.7	**18.2**	**9.2**				
	GPRS 2 slots	28.5	-1.3 ~ 0.7	**29.2**	**23.2**	28.5	-1.3 ~ 0.7	**29.2**	**23.2**	15.0	-2.3 ~ 1.7	**16.7**	**10.7**	15.0	-2.3 ~ 1.7	**16.7**	**10.7**
	GPRS 3 slots	26.5	-1.3 ~ 0.7	**27.2**	**22.9**	26.5	-1.3 ~ 0.7	**27.2**	**22.9**	14.0	-2.3 ~ 1.7	**15.7**	**11.4**	14.0	-2.3 ~ 1.7	**15.7**	**11.4**
	EGPRS 1 slot	30.0	-1.0 ~ 0.7	**30.7**	**21.7**					16.5	-2.0 ~ 1.7	**18.2**	**9.2**				
	EGPRS 2 slots	28.5	-1.3 ~ 0.7	**29.2**	**23.2**	24.0	-1.5 ~ 1.0	**25.0**	**19.0**	15.0	-2.3 ~ 1.7	**16.7**	**10.7**	14.7	-2.5 ~ 2.0	**16.7**	**10.7**
	EGPRS 3 slots	26.5	-1.3 ~ 0.7	**27.2**	**22.9**	22.0	-1.5 ~ 1.0	**23.0**	**18.7**	14.0	-2.3 ~ 1.7	**15.7**	**11.4**	13.7	-2.5 ~ 2.0	**15.7**	**11.4**

RF Air interface	Mode	Max. RF Output Power (dBm)			RF Air interface	Mode	Reduce RF Output Power (dBm)		
		Target	Tolerance	Max. tune-up tolerance limit			Target	Tolerance	Max. tune-up tolerance limit
W-CDMA Band V	R99	23.8	-1.0 ~ 1.0	**24.8**	W-CDMA Band V	R99	20.0	-1.0 ~ 1.0	**21.0**
	HSDPA Sub 1	22.9	-2.0 ~ 1.5	**24.4**		HSDPA Sub 1	18.7	-2.0 ~ 2.0	**20.7**
	HSDPA Sub 2	22.9	-2.0 ~ 1.5	**24.4**		HSDPA Sub 2	18.7	-2.0 ~ 2.0	**20.7**
	HSDPA Sub 3	22.3	-2.0 ~ 1.5	**23.8**		HSDPA Sub 3	18.2	-2.0 ~ 2.0	**20.2**
	HSDPA Sub 4	22.3	-2.0 ~ 1.5	**23.8**		HSDPA Sub 4	18.2	-2.0 ~ 2.0	**20.2**
	HSUPA Sub 1	22.9	-2.0 ~ 1.5	**24.4**		HSUPA Sub 1	18.6	-2.0 ~ 2.0	**20.6**
	HSUPA Sub 2	21.3	-2.0 ~ 1.5	**22.8**		HSUPA Sub 2	17.7	-2.0 ~ 2.0	**19.7**
	HSUPA Sub 3	21.5	-2.0 ~ 1.5	**23.0**		HSUPA Sub 3	17.0	-2.0 ~ 2.0	**19.0**
	HSUPA Sub 4	21.3	-2.0 ~ 1.5	**22.8**		HSUPA Sub 4	17.7	-2.0 ~ 2.0	**19.7**
	HSUPA Sub 5	22.9	-2.0 ~ 1.5	**24.4**		HSUPA Sub 5	18.6	-2.0 ~ 2.0	**20.6**

RF Air interface	Mode	Max. RF Output Power (dBm)			RF Air interface	Mode	Reduce RF Output Power (dBm)		
		Target	Tolerance	Max. tune-up tolerance limit			Target	Tolerance	Max. tune-up tolerance limit
LTE Band 17	QPSK	23.0	-2.0 ~ 1.1	**24.1**	LTE Band 17	QPSK	19.0	-1.0 ~ 1.0	**20.0**

RF Air interface	Mode	Channel	Main Ant	Sub Ant
			Max. Tune-up Limit (dBm)	
Bluetooth	BDR	Low	**8.0**	**N/A**
		Mid	**10.0**	**N/A**
		High	**7.8**	**N/A**
	EDR	Low	**5.6**	**N/A**
		Mid	**7.3**	**N/A**
		High	**4.8**	**N/A**
	BLE	Low	**3.5**	**N/A**
		Mid	**5.9**	**N/A**
		High	**4.5**	**N/A**

WLAN Maximum Output Power

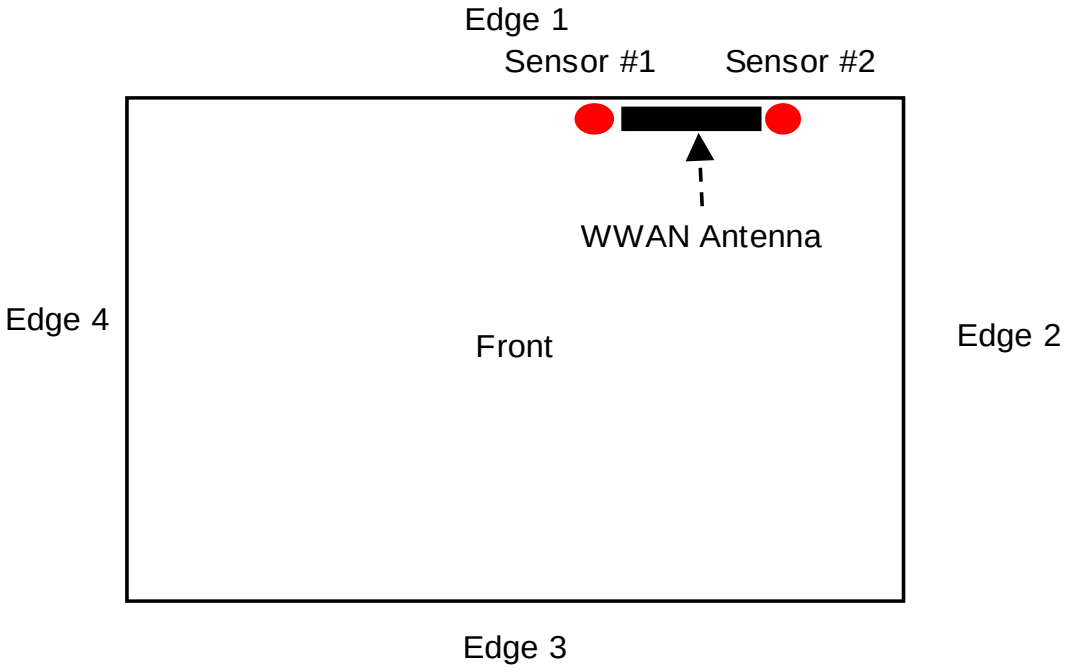
The model FCC ID: PY7-TM0061 shares the same tune up power targets as model FCC ID: PY7-TM0063 for WLAN operations. For this reason the SAR data for the WLAN operations for FCC ID: PY7-TM0061 is considered representative for FCC ID: PY7-TM0063. The Wi-Fi (DTS/U-NII) Maximum Output Power from the original filling can be found in SAR test report 15U20030-S1E, FCC ID: PY7-TM0061.

6.4. General LTE SAR Test and Reporting Considerations

<table>
<tr><td>Item</td><td>Description</td></tr>
<tr><td>Frequency range, Channel Bandwidth, Numbers and Frequencies</td><td>
<table>
<tr><td rowspan="3">Band 17</td><td colspan="6">Frequency range: 704 - 716 MHz</td></tr>
<tr><td colspan="6">Channel Bandwidth</td></tr>
<tr><td>20 MHz</td><td>15 MHz</td><td>10 MHz</td><td>5 MHz</td><td>3 MHz</td><td>1.4 MHz</td></tr>
<tr><td>Low</td><td></td><td></td><td></td><td>23755/ 706.5</td><td></td><td></td></tr>
<tr><td>Mid</td><td></td><td></td><td>23790/ 710</td><td>23790/ 710</td><td></td><td></td></tr>
<tr><td>High</td><td></td><td></td><td></td><td>23825/ 713.5</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>LTE transmitter and antenna implementation</td><td>LTE has one (1) TX/RX antennas and one (1) RX antennas
Refer to Appendix A.</td></tr>
<tr><td>Maximum power reduction (MPR)</td><td>
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><td rowspan="2">Modulation</td><td colspan="6">Channel bandwidth / Transmission bandwidth (RB)</td><td rowspan="2">MPR (dB)</td></tr>
<tr><td>1.4 MHz</td><td>3.0 MHz</td><td>5 MHz</td><td>10 MHz</td><td>15 MHz</td><td>20 MHz</td></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table>
MPR Built-in by design
A-MPR (additional MPR) was disabled during SAR testing
</td></tr>
<tr><td>Power reduction</td><td>Yes</td></tr>
<tr><td>Spectrum plots for RB configurations</td><td>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.</td></tr>
</table>

6.5. Power Reduction by Proximity Sensing

The DUT has two proximity sensors to reduce the output power. The position of the sensors and antenna are as shown in the graphic.



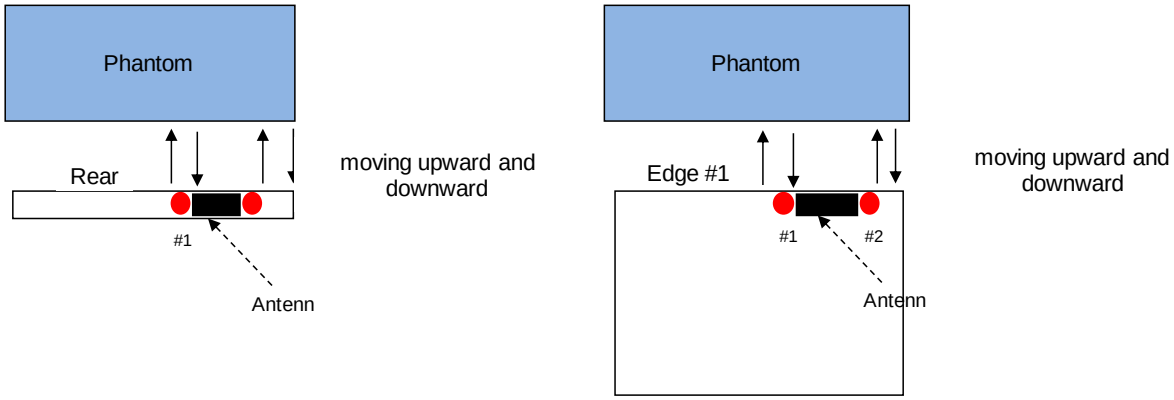
6.5.1. Proximity Sensor Triggering Distance (KDB 616217 §6.2)

Edge 1 of the DUT was placed directly below the flat phantom. The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power.

The measurement was then repeated for the Rear surface.

The DUT featured a visual indicator on its display that showed the status of the proximity sensor (Triggered or not triggered). This was used to determine the status of the sensor during the proximity sensor assessment as monitoring the output power directly was not practical without affecting the measurement.

It was confirmed separately that the output power was altered according to the proximity sensor status indication. This was achieved by observing the proximity sensor status at the same time as monitoring the conducted power. Section 9 contains both the full and reduced conducted power measurements.



Summary of Trigger Distances

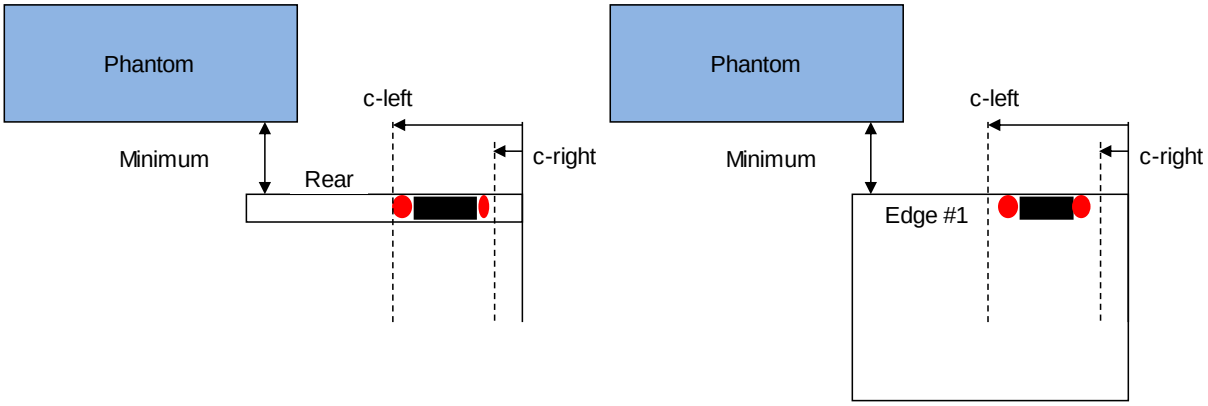
Band		Rear				Edge 1			
		#1		#2		#1		#2	
		upward	downward	upward	downward	upward	downward	upward	downward
LTE	17	23	23	25	25	24	23	26	27
UMTS	V	23	24	24	24	24	24	26	26
GSM	1900	23	23	24	26	23	24	26	26
	850	24	24	25	25	24	24	26	27

6.5.2. Proximity Sensor Coverage (KDB 616217 §6.3)

The rear surface or edge of the tablet is positioned at a test separation distance less than or equal to the distance required for rear surface or edge triggering, with both the antenna and sensor pad located at least 20 mm laterally outside the edge (boundary) of the phantom, along the direction of maximum antenna and sensor offset.

For the rear surface, if the direction of maximum offset is not aligned with the tablet coordinates (physical edges) the tablet test position would not be aligned with the phantom coordinates (orientations).

Each applicable tablet edge should be positioned perpendicularly to the phantom to determine sensor coverage. For antennas and/or sensors located near the corner of a tablet, both adjacent edges must be considered.



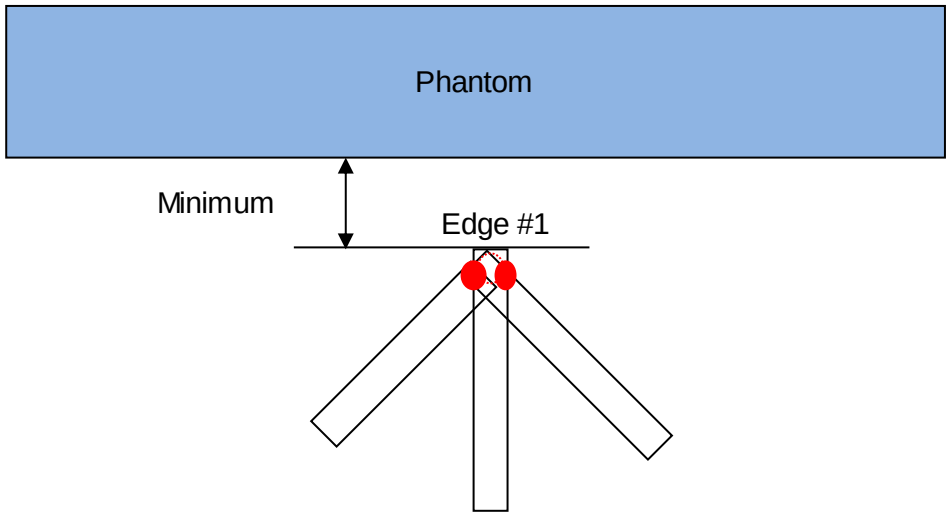
Summary of Tablet Sensor coverage to Proximity Sensor Triggering

Band		Rear (mm)		Minimum Distance (mm)		Edge 1 (mm)		Minimum Distance (mm)	
		#1	#2			#1	#2		
		c-left	c-right	#1	#2	c-left	c-right	#1	#2
LTE	17	154	29	24	23	155	28	23	26
UMTS	V	154	31	23	24	156	25	24	26
GSM	1900	156	30	23	24	158	31	23	26
	850	154	30			155	31		

6.5.3. Proximity Sensor Tilt Angle Assessment (KDB 616217 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Edge 1 and Edge 4 parallel to the base of the flat phantom for each band.

The EUT was rotated about Edge 1 and Edge 4 for angles up to +/- 45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up to +/- 45°.



Proximity sensor tilt angle assessment (Edge 1) KDB 616217 §6.4

Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering

Band		Minimum Distance (mm)			
		Edge 1			
		#1	#2	#1	#2
LTE	17	25	28	26	29
UMTS	V	26	28	24	28
GSM	1900	28	29	26	28
	850	27	28	25	29

6.5.4. Resulting test positions for SAR measurements

Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for SAR
Rear	23	23	23	22
Edge 1	23	23	23	

7. RF Exposure Conditions (Test Configurations)

Refer to "SAR Photos and Ant locations" Appendix for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

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.

SAR Test Exclusion Calculations for WWAN

Antennas < 50mm to adjacent edges

Antenna	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
Full Power, Proximity Sensor Off																
Cellular	GPRS 4 Slots	848.8	29.20	416	5	5.2	26.75	154.6	160.85		76.7 -MEASURE-	76.7 -MEASURE-	14.2 -MEASURE-	> 50 mm	> 50 mm	
Cellular	GPRS 4 Slots	1909.8	26.20	208	5	5.2	26.75	154.6	160.85		57.5 -MEASURE-	57.5 -MEASURE-	10.6 -MEASURE-	> 50 mm	> 50 mm	
Cellular	W-CDMA 5	846.6	24.50	282	5	5.2	26.75	154.6	160.85		51.9 -MEASURE-	51.9 -MEASURE-	9.6 -MEASURE-	> 50 mm	> 50 mm	
Cellular	LTE Band 17	710	23.70	234	5	5.2	26.75	154.6	160.85		39.4 -MEASURE-	39.4 -MEASURE-	7.3 -MEASURE-	> 50 mm	> 50 mm	
Power Back-off, Proximity Sensor On																
Cellular	GPRS 4 Slots	848.8	23.20	104	5	5.2	26.75	154.6	160.85		19.2 -MEASURE-	19.2 -MEASURE-	3.5 -MEASURE-	> 50 mm	> 50 mm	
Cellular	GPRS 3 Slots	1909.8	15.70	14	5	5.2	26.75	154.6	160.85		3.9 -MEASURE-	3.9 -MEASURE-	1 -EXEMPT-	> 50 mm	> 50 mm	
Cellular	W-CDMA 5	846.6	21.00	126	5	5.2	26.75	154.6	160.85		23.2 -MEASURE-	23.2 -MEASURE-	4.3 -MEASURE-	> 50 mm	> 50 mm	
Cellular	LTE Band 17	710	20.00	100	5	5.2	26.75	154.6	160.85		16.9 -MEASURE-	16.9 -MEASURE-	3.1 -MEASURE-	> 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

Antenna	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
Full Power, Proximity Sensor Off																
Cellular	GPRS 4 Slots	848.8	29.20	416	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	754.7 mW -EXEMPT-	790.1mW -EXEMPT-	
Cellular	GPRS 4 Slots	1909.8	26.20	208	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	1154.5 mW -EXEMPT-	1217 mW -EXEMPT-	
Cellular	W-CDMA 5	846.6	24.50	282	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	753.4 mW -EXEMPT-	788.7 mW -EXEMPT-	
Cellular	LTE Band 17	710	23.70	234	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	673.1mW -EXEMPT-	702.7 mW -EXEMPT-	
Power Back-off, Proximity Sensor On																
Cellular	GPRS 4 Slots	848.8	23.20	104	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	754.7 mW -EXEMPT-	790.1mW -EXEMPT-	
Cellular	GPRS 3 Slots	1909.8	15.70	14	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	1154.5 mW -EXEMPT-	1217 mW -EXEMPT-	
Cellular	W-CDMA 5	846.6	21.00	126	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	753.4 mW -EXEMPT-	788.7 mW -EXEMPT-	
Cellular	LTE Band 17	710	20.00	100	5	5.2	26.75	154.6	160.85		< 50 mm	< 50 mm	< 50 mm	673.1mW -EXEMPT-	702.7 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.

SAR Test Exclusion Calculations for WLAN

The model FCC ID: PY7-TM0061 shares the same tune up power targets as model FCC ID: PY7-TM0063 for WLAN and Bluetooth operations. For this reason the SAR data for the WLAN and Bluetooth operations for FCC ID: PY7-TM0061 is considered representative for FCC ID: PY7-TM0063. The Wi-Fi (DTS/U-NII) and Bluetooth Maximum Output Power from the original filling can be found in SAR test report 15U20030-S1E, FCC ID: PY7-TM0061.

7.2. Required Test Configurations

The table below identifies the standalone test configurations required for this device according to the findings in Section 7.1:

Test Configurations	Rear	Edge 1 (Top Edge)	Edge 2 (Right Edge)	Edge 3 (Bottom Edge)	Edge 4 (Left Edge)
GSM850 Full Power	Yes	Yes	Yes	No	No
GSM850 w / Power Reduction	Yes	Yes	Yes	No	No
GSM1900 Full Power	Yes	Yes	Yes	No	No
GSM1900 w / Power Reduction	Yes	Yes	No	No	No
W-CDMA Band 5 Full Power	Yes	Yes	Yes	No	No
W-CDMA Band 5 w / Power Reduction	Yes	Yes	Yes	No	No
LTE Band 17 Full Power	Yes	Yes	Yes	No	No
LTE Band 17 w / Power Reduction	Yes	Yes	Yes	No	No

Note(s):

1. Yes = Testing is required.
2. No = Testing is not required.

8. Dielectric Property Measurements & System Check

8.1. 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.

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 within the IEEE Std 1528-2013

Dielectric Property Measurements Results:

SAR Lab 1

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
4/15/2015	Body 750	e'	55.9200	Relative Permittivity (ϵ_r):	55.92	55.55	0.67	5
		e''	23.3200	Conductivity (σ):	0.97	0.96	0.98	5
	Body 700	e'	56.4900	Relative Permittivity (ϵ_r):	56.49	55.74	1.35	5
		e''	23.7900	Conductivity (σ):	0.93	0.96	-3.47	5
	Body 710	e'	56.3800	Relative Permittivity (ϵ_r):	56.38	55.70	1.22	5
		e''	23.7000	Conductivity (σ):	0.94	0.96	-2.54	5
4/23/2015	Body 1900	e'	50.9100	Relative Permittivity (ϵ_r):	50.91	53.30	-4.48	5
		e''	14.9900	Conductivity (σ):	1.58	1.52	4.19	5
	Body 1850	e'	51.0300	Relative Permittivity (ϵ_r):	51.03	53.30	-4.26	5
		e''	14.8900	Conductivity (σ):	1.53	1.52	0.77	5
	Body 1910	e'	50.9100	Relative Permittivity (ϵ_r):	50.91	53.30	-4.48	5
		e''	15.0200	Conductivity (σ):	1.60	1.52	4.94	5

SAR Lab 5

Date	Freq. (MHz)	Liquid Parameters			Measured	Target	Delta (%)	Limit ±(%)
4/17/2015	Body 835	e'	53.0900	Relative Permittivity (ϵ_r):	53.09	55.20	-3.82	5
		e''	20.9000	Conductivity (σ):	0.97	0.97	0.04	5
	Body 820	e'	53.2600	Relative Permittivity (ϵ_r):	53.26	55.28	-3.65	5
		e''	20.9900	Conductivity (σ):	0.96	0.97	-1.18	5
	Body 850	e'	52.8800	Relative Permittivity (ϵ_r):	52.88	55.16	-4.13	5
		e''	20.8100	Conductivity (σ):	0.98	0.99	-0.37	5

8.2. 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 re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 7x7x7 (below 3 GHz) and/or 8x8x7 (above 3 GHz) fine cube was chosen for the cube.
- Distance between probe sensors and phantom surface was set to 3 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was 100 mW.
- The results are normalized to 1 W input power.

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	1024	5/16/2014	750	1g	8.12	8.77
				10g	5.26	5.79
D835V2	4d142	9/9/2014	835	1g	8.91	9.22
				10g	5.77	6.05
D1900V2	5d163	9/11/2014	1900	1g	40.8	40.6
				10g	21.2	21.4

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 1

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
4/15/2015	D750V3	1024	Body	1g	0.90	9.0	8.77	2.74	1,2
				10g	0.60	6.0	5.79	3.63	
4/23/2015	D1900V2	5d163	Body	1g	3.85	38.5	40.6	-5.17	3,4
				10g	2.00	20.0	21.4	-6.54	

SAR Lab 5

Date Tested	System Dipole		T.S. Liquid		Measured Results		Target (Ref. Value)	Delta ±10 %	Plot No.
	Type	Serial #			Zoom Scan to 100 mW	Normalize to 1 W			
4/17/2015	D835V2	4d142	Body	1g	0.954	9.5	9.22	3.47	5,6
				10g	0.631	6.3	6.05	4.30	

9. Conducted Output Power Measurements

9.1. GSM

Per KDB 941225 D01 3G SAR Procedures:

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

GSM850 Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Max. Pwr		Reduced Pwr	
						Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)
850	GSM (Voice)	CS1	1	128	824.2	33.4	24.4	27.6	18.6
				190	836.6	33.4	24.4	27.6	18.6
				251	848.8	33.1	24.1	27.7	18.7
	GPRS (GMSK)	CS1	1	128	824.2	33.4	24.4	27.6	18.6
				190	836.6	33.4	24.4	27.6	18.6
				251	848.8	33.1	24.1	27.7	18.7
			2	128	824.2	31.5	25.5	26.2	20.2
				190	836.6	31.6	25.6	26.1	20.1
				251	848.8	31.7	25.7	26.2	20.2
			3	128	824.2	29.4	25.1	24.0	19.7
				190	836.6	29.4	25.1	23.9	19.6
				251	848.8	29.5	25.2	24.0	19.7
			4	128	824.2	29.1	26.1	22.5	19.5
				190	836.6	29.1	26.1	22.5	19.5
				251	848.8	29.2	26.2	22.6	19.6
	EGPRS (8PSK)	MCS5	1	128	824.2	27.0	18.0	25.7	16.7
				190	836.6	27.0	18.0	25.7	16.7
				251	848.8	26.9	17.9	25.8	16.8
			2	128	824.2	25.5	19.5	23.9	17.9
				190	836.6	25.5	19.5	23.9	17.9
				251	848.8	25.5	19.5	24.1	18.1
			3	128	824.2	23.4	19.1	21.8	17.5
				190	836.6	23.5	19.2	21.8	17.5
				251	848.8	23.4	19.1	21.9	17.6
			4	128	824.2	22.0	19.0	20.3	17.3
				190	836.6	22.0	19.0	20.3	17.3
				251	848.8	22.0	19.0	20.4	17.4

EGPRS(8PSK) is Rx only

Notes:

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

- Standalone: GMSK (GPRS) mode with 4 time slots for Max power and 4 time slots for Reduced power, based on the output power measurements above.
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

GSM1900 Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Max. Pwr		Reduced Pwr	
						Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)
1900	GSM (Voice)	CS1	1	512	1850.2	29.9	20.9	17.3	8.3
				661	1880.0	29.5	20.5	17.5	8.5
				810	1909.8	29.7	20.7	17.7	8.7
	GPRS (GMSK)	CS1	1	512	1850.2	29.9	20.9	17.3	8.3
				661	1880.0	29.5	20.5	17.5	8.5
				810	1909.8	29.7	20.7	17.7	8.7
			2	512	1850.2	28.6	22.6	15.3	9.3
				661	1880.0	28.7	22.7	15.5	9.5
				810	1909.8	28.8	22.8	15.6	9.6
			3	512	1850.2	26.8	22.5	14.8	10.5
				661	1880.0	27.0	22.7	15.1	10.8
				810	1909.8	27.1	22.8	14.4	10.1
			4	512	1850.2	25.4	22.4	12.5	9.5
				661	1880.0	25.6	22.6	12.8	9.8
				810	1909.8	25.8	22.8	12.9	9.9
	EGPRS (8PSK)	MCS5	1	512	1850.2	25.7	16.7	16.4	7.4
				661	1880.0	25.6	16.6	16.6	7.6
				810	1909.8	25.6	16.6	16.6	7.6
			2	512	1850.2	24.5	18.5	15.0	9.0
				661	1880.0	24.5	18.5	15.1	9.1
				810	1909.8	24.5	18.5	15.2	9.2
			3	512	1850.2	22.6	18.3	14.0	9.7
				661	1880.0	22.6	18.3	14.2	9.9
				810	1909.8	22.6	18.3	14.2	9.9
			4	512	1850.2	21.5	18.5	12.1	9.1
				661	1880.0	21.4	18.4	12.3	9.3
				810	1909.8	21.4	18.4	12.4	9.4

EGPRS(8PSK) is Rx only

Notes:

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

- Standalone: GMSK (GPRS) mode with 4 time slots for Max power and 3 time slots for Reduced power, based on the output power measurements above.
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

GSM850 DTM Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Max. Pwr				Reduced Pwr			
						CS		PS		CS		PS	
						Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)
850	GSM(Voice) + GPRS(GMSK)	CS1	1	128	824.2	33.4	24.4			27.6	18.6		
				190	836.6	33.4	24.4			27.6	18.6		
				251	848.8	33.1	24.1			27.7	18.7		
			2	128	824.2	30.9	24.9	30.9	24.9	25.7	19.7	25.8	19.8
				190	836.6	30.9	24.9	30.9	24.9	25.7	19.7	25.8	19.8
				251	848.8	30.9	24.9	30.9	24.9	25.7	19.7	25.7	19.7
			3	128	824.2	28.8	24.5	28.8	24.5	23.6	19.3	23.6	19.3
				190	836.6	28.9	24.6	28.9	24.6	23.5	19.2	23.6	19.3
				251	848.8	28.8	24.5	28.8	24.5	23.5	19.2	23.5	19.2
	GSM(Voice) + EGPRS(8PSK)	MCS5	1	128	824.2	33.4	24.4			27.6	18.6		
				190	836.6	33.4	24.4			27.6	18.6		
				251	848.8	33.1	24.1			27.7	18.7		
			2	128	824.2	31.0	25.0	24.8	18.8	25.8	19.8	23.5	17.5
				190	836.6	31.0	25.0	24.7	18.7	25.7	19.7	23.5	17.5
				251	848.8	31.0	25.0	24.7	18.7	25.7	19.7	23.5	17.5
			3	128	824.2	28.9	24.6	22.6	18.3	23.7	19.4	21.5	17.2
				190	836.6	28.9	24.6	22.7	18.4	23.6	19.3	21.5	17.2
				251	848.8	29.0	24.7	22.6	18.3	23.6	19.3	21.5	17.2

Notes:

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

- GSM(Voice) + GMSK (GPRS) mode with 2 time slot for both Max and Reduced power, based on the output power measurements above.
- SAR is not required for GSM(Voice) + EGPRS (8PSK) mode because its output power is less than that of GSM(Voice) + GMSK (GPRS) mode.

GSM1900 DTM Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Max. Pwr				Reduced Pwr			
						CS		PS		CS		PS	
						Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)
1900	GSM(Voice) + GPRS(GMSK)	CS1	1	512	1850.2	29.9	20.9			17.3	8.3		
				661	1880.0	29.5	20.5			17.5	8.5		
				810	1909.8	29.7	20.7			17.7	8.7		
			2	512	1850.2	27.9	21.9	27.9	21.9	14.6	8.6	14.6	8.6
				661	1880.0	28.0	22.0	28.0	22.0	14.8	8.8	14.8	8.8
				810	1909.8	28.2	22.2	28.2	22.2	15.0	9.0	15.0	9.0
			3	512	1850.2	26.2	21.9	26.2	21.9	14.1	9.8	14.1	9.8
				661	1880.0	26.3	22.1	26.4	22.1	14.4	10.1	14.4	10.1
				810	1909.8	26.6	22.3	26.6	22.3	13.7	9.4	13.7	9.4
	GSM(Voice) + EGPRS(8PSK)	MCS5	1	512	1850.2	29.9	20.9			17.3	8.3		
				661	1880.0	29.5	20.5			17.5	8.5		
				810	1909.8	29.7	20.7			17.7	8.7		
			2	512	1850.2	27.9	21.9	23.8	17.8	14.7	8.7	14.4	8.4
				661	1880.0	28.1	22.1	23.9	17.9	14.9	8.9	14.6	8.6
				810	1909.8	28.2	22.2	23.9	17.9	15.1	9.1	14.6	8.6
			3	512	1850.2	26.2	21.9	21.8	17.5	14.1	9.8	13.4	9.1
				661	1880.0	26.4	22.1	21.8	17.5	14.4	10.1	13.7	9.4
				810	1909.8	26.6	22.3	21.8	17.5	13.8	9.5	13.6	9.3

Notes:

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

- GSM(Voice) + GMSK (GPRS) mode with 2 time slots and 3 time slots for Max and Reduced power respectively, based on the output power measurements above.
- SAR is not required for GSM(Voice) + EGPRS (8PSK) mode because its output power is less than that of GSM(Voice) + GMSK (GPRS) mode.

9.2. W-CDMA

Release 99 Setup Procedures used to establish the test signals

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 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to Release 5 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-Set 1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	11/15	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	0	0.5	0.5
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			

HSPA (HSDPA & HSUPA) Setup Procedures used to establish the test signals

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				
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2 kbps RMC				
	HSDPA FRC	H-Set 1				
	HSUPA Test	HSPA				
	Power Control Algorithm	Algorithm 2				Algorithm 1
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	15/1
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15	56/75	47/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				0
	DNAK	8				0
	DCQI	8				0
	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	E-DPDCCH	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	5	5	2	5	1
	Reference E-TFCI	11	11	11	11	67
	Reference E-TFCI PO	4	4	4	4	18
	Reference E-TFCI	67	67	92	67	67
	Reference E-TFCI PO	18	18	18	18	18
	Reference E-TFCI	71	71	71	71	71
	Reference E-TFCI PO	23	23	23	23	23
	Reference E-TFCI	75	75	75	75	75
	Reference E-TFCI PO	26	26	26	26	26
	Reference E-TFCI	81	81	81	81	81
	Reference E-TFCI PO	27	27	27	27	27
	Maximum Channelization Codes	2xSF2				SF4

.

W-CDMA Band II Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. Pwr (dBm)	Reduced Pwr (dBm)
W-CDMA Band V	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	24.2	20.1
			4183	836.6	N/A	24.3	20.1
			4233	846.6	N/A	24.2	20.2
	HSDPA	Subtest 1	4132	826.4	0	22.9	18.5
			4183	836.6	0	22.8	18.6
			4233	846.6	0	22.9	18.7
		Subtest 2	4132	826.4	0	22.9	18.5
			4183	836.6	0	22.8	18.6
			4233	846.6	0	22.9	18.7
		Subtest 3	4132	826.4	0.5	22.3	17.9
			4183	836.6	0.5	22.2	18.1
			4233	846.6	0.5	22.3	18.2
		Subtest 4	4132	826.4	0.5	22.3	17.9
			4183	836.6	0.5	22.2	18.1
			4233	846.6	0.5	22.3	18.2
	HSUPA	Subtest 1	4132	826.4	0	22.9	17.8
			4183	836.6	0	22.9	18.0
			4233	846.6	0	22.9	18.0
		Subtest 2	4132	826.4	2	21.3	17.5
			4183	836.6	2	21.2	17.6
			4233	846.6	2	21.2	17.7
		Subtest 3	4132	826.4	1	21.5	16.8
			4183	836.6	1	21.5	16.9
			4233	846.6	1	21.5	17.0
		Subtest 4	4132	826.4	2	21.3	16.8
			4183	836.6	2	21.2	16.9
			4233	846.6	2	21.2	17.0
		Subtest 5	4132	826.4	0	22.9	18.0
			4183	836.6	0	22.9	18.6
			4233	846.6	0	22.9	18.0

9.3. LTE

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 Signaling 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.					

LTE Band 17 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Max. Avg Pwr (dBm)	Target MPR	Reduced Avg Pwr (dBm)
						710 MHz		710 MHz
LTE Band 17	10	QPSK	1	0	0	22.8	0	18.9
			1	25	0	23.0	0	18.8
			1	49	0	22.6	0	18.8
			25	0	1	21.7	0	18.7
			25	12	1	21.6	0	18.7
			25	25	1	21.6	0	18.7
			50	0	1	21.6	0	18.7
		16QAM	1	0	1	22.1	0	18.9
			1	25	1	22.1	0	19.5
			1	49	1	21.9	0	19.0
			25	0	2	20.6	0	18.9
			25	12	2	20.6	0	18.8
			25	25	2	20.6	0	18.9
			50	0	2	20.6	0	18.8
Band	BW (MHz)	Mode	RB Allocation	RB offset	Target MPR	Max. Avg Pwr (dBm)	Target MPR	Reduced Avg Pwr (dBm)
						710 MHz		710 MHz
LTE Band 17	5	QPSK	1	0	0	22.7	0	18.9
			1	12	0	22.7	0	18.9
			1	24	0	22.6	0	18.9
			12	0	1	22.6	0	18.6
			12	6	1	22.6	0	18.6
			12	11	1	22.7	0	18.6
			25	0	1	21.6	0	18.6
		16QAM	1	0	1	21.9	0	18.8
			1	12	1	22.1	0	18.8
			1	24	1	22.1	0	19.0
			12	0	2	21.7	0	18.8
			12	6	2	21.7	0	18.8
			12	11	2	21.7	0	18.8
			25	0	2	20.6	0	18.9

Note(s):

10/5 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 KDB 941225 D05 SAR for LTE Devices

9.4. WLAN and BT

WLAN and Bluetooth Conducted Output Power Measurements

The model FCC ID: PY7-TM0061 shares the same tune up power targets as model FCC ID: PY7-TM0063 for WLAN and Bluetooth operations. For this reason the SAR conducted output power measurements for the WLAN and Bluetooth operations for FCC ID: PY7-TM0061 is considered representative for FCC ID: PY7-TM0063. The Wi-Fi (DTS/U-NII) and Bluetooth conducted output power measurements from the original filling can be found in SAR test report 15U20030-S1E, FCC ID: PY7-TM0061.

10. 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:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode

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.

10.1. GSM850

Mode	Pwr Back-off	Dist. (mm)	Test Position	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 4 Slots	ON	0	Rear	190	836.6	23.2	22.5	0.605	0.711	0.333	0.391	1
			Edge 1	190	836.6	23.2	22.5	0.175	0.206	0.087	0.103	
			Edge 2	190	836.6	23.2	22.5	0.046	0.054	0.028	0.033	
GPRS 4 Slots	OFF	22	Rear	190	836.6	29.2	29.1	0.196	0.201	0.135	0.138	
			Edge 1	190	836.6	29.2	29.1	0.058	0.060	0.043	0.044	
			Edge 2	190	836.6	29.2	29.1	0.074	0.075	0.054	0.055	

Additional Tests for GSM850 DTM

Mode	Pwr Back-off	Dist. (mm)	Test Position	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	
DTM GPRS 2 Slots	ON	0	Rear	190	836.6	26.2	25.8	0.638	0.700	0.352	0.386	

Additional Tests with Keyboard Accessory

Mode	Pwr Back-off	Dist. (mm)	Test Position	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 4 Slots	ON	0	Rear	190	836.6	23.2	22.5	0.297	0.349	0.177	0.208	
			Edge 1	190	836.6	23.2	22.5	0.033	0.039	0.017	0.020	

10.2. GSM1900

Mode	Pwr Back-off	Dist. (mm)	Test Position	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 3 Slots	ON	0	Rear	661	1880.0	15.7	15.1	0.430	0.494	0.189	0.217	2
			Edge 1	661	1880.0	15.7	15.1	0.293	0.336	0.130	0.149	
			Edge 2	661	1880.0	15.7	15.1	0.010	0.011	0.003	0.003	
GPRS 4 Slots	OFF	22	Rear	661	1880.0	26.2	25.6	0.312	0.358	0.185	0.212	
			Edge 1	661	1880.0	26.2	25.6	0.393	0.451	0.237	0.272	
			Edge 2	661	1880.0	26.2	25.6	0.000	0.000	0.000	0.000	

Additional Tests for GSM1900 DTM

Mode	Pwr Back-off	Dist. (mm)	Test Position	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	
DTM (CS+GPRS 3 Slots)	ON	0	Rear	190	836.6	15.7	14.4	0.302	0.407	0.136	0.183	

Additional Tests with Keyboard Accessory

Mode	Pwr Back-off	Dist. (mm)	Test Position	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 3 Slots	ON	0	Rear	190	836.6	15.7	15.1	0.006	0.007	0.003	0.003	
			Edge 1	190	836.6	15.7	15.1	0.016	0.018	0.007	0.008	

10.3. W-CDMA Band V

Mode	Pwr Back-off	Dist. (mm)	Test Position	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	ON	0	Rear	4183	836.6	21.0	20.1	0.411	0.506	0.222	0.273	3
			Edge 1	4183	836.6	21.0	20.1	0.105	0.129	0.051	0.063	
			Edge 2	4183	836.6	21.0	20.1	0.048	0.059	0.029	0.036	
Rel 99 RMC	OFF	22	Rear	4183	836.6	24.5	24.3	0.141	0.148	0.101	0.106	
			Edge 1	4183	836.6	24.5	24.3	0.044	0.046	0.033	0.035	
			Edge 2	4183	836.6	24.5	24.3	0.037	0.039	0.027	0.028	

Additional Tests with Keyboard Accessory

Mode	Pwr Back-off	Dist. (mm)	Test Position	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	ON	0	Rear	4183	836.6	21.0	20.1	0.224	0.276	0.132	0.162	
			Edge 1	4183	836.6	21.0	20.1	0.021	0.026	0.011	0.014	

10.4. LTE Band 17 (10MHz Bandwidth)

Mode	Pwr Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	ON	0	Rear	23790	710.0	1	0	20.0	18.9	0.792	**1.025**	0.438	0.567	4
						25	0	20.0	18.7	0.711	0.959	0.400	0.540	
						50	0	20.0	18.7	0.699	0.945	0.393	0.531	
			Edge 1	23790	710.0	1	0	20.0	18.9	0.197	0.255	0.086	0.111	
						25	0	20.0	18.7	0.207	0.279	0.090	0.121	
			Edge 2	23790	710.0	1	0	20.0	18.9	0.018	0.023	0.009	0.012	
						25	0	20.0	18.7	0.017	0.023	0.009	0.012	
QPSK	OFF	0	Rear	23790	710.0	1	24	24.1	23.0	0.098	0.127	0.069	0.090	
						25	0	23.1	21.7	0.076	0.106	0.052	0.072	
			Edge 1	23790	710.0	1	24	24.1	23.0	0.038	0.049	0.028	0.036	
						25	0	23.1	21.7	0.031	0.043	0.023	0.032	
			Edge 2	23790	710.0	1	24	24.1	23.0	0.019	0.025	0.014	0.018	
						25	0	23.1	21.7	0.017	0.024	0.012	0.017	

Additional Tests with Keyboard Accessory

Mode	Pwr Back-off	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		10-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	Meas.	Scaled	
QPSK	ON	0	Rear	23790	710.0	1	0	20.0	18.9	0.277	0.358	0.169	0.219	
			Edge 1			25	0	20.0	18.7	0.022	0.030	0.013	0.018	

10.5. WLAN and Bluetooth

The model FCC ID: PY7-TM0061 shares the same enclosure and circuit board as model FCC ID: PY7-TM0063. The WLAN/Bluetooth circuitry and layout, including antenna, are identical between the two units. The WLAN/Bluetooth antenna and surrounding circuitry are the same between these two units, and tune up power targets are identical for WLAN and Bluetooth operations. For this reason the SAR data for the WLAN and Bluetooth operations for FCC ID: PY7-TM0061 is considered representative for FCC ID: PY7-TM0063. The Wi-Fi (DTS/U-NII) and Bluetooth SAR measurement results from the original filling can be found in SAR test report 15U20030-S1E, FCC ID: PY7-TM0061. The Wi-Fi and Bluetooth results (measured or estimated) from the original filling are used for Simultaneous Transmission Analysis purposes.

11. SAR Measurement Variability

In accordance with published RF Exposure KDB 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.

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)	Repeated Measured SAR (W/kg)	Largest to Smallest SAR Ratio
700	LTE Band 17	Standalone	Rear	No	0.792	N/A	N/A
850	GSM 850	Standalone	Rear	No	0.647	N/A	N/A
	WCDMA Band V	Standalone	Rear	No	0.411	N/A	N/A
1900	GSM 1900	Standalone	Rear	No	0.430	N/A	N/A

Note(s):

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.

12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

RF Exposure Condition	Item	Capable Transmit Configurations				
Standalone	1	GSM(GPRS/EDGE)	+	DTS		
	2	GSM(GPRS/EDGE)	+	U-NII		
	3	GSM(GPRS/EDGE)	+	BT		
	4	GSM(GPRS/EDGE)	+	U-NII	+	BT
	5	W-CDMA	+	DTS		
	6	W-CDMA	+	U-NII		
	7	W-CDMA	+	BT		
	8	W-CDMA	+	U-NII	+	BT
	9	LTE	+	DTS		
	10	LTE	+	U-NII		
	11	LTE	+	BT		
	12	LTE	+	U-NII	+	BT
	13			U-NII	+	BT

Notes:

1. DTS, UNII 1, and UNII 3 support Hotspot.
2. GPRS/EDGE, W-CDMA, and LTE support Hotspot.
3. VoIP is supported in GPRS/EDGE, W-CDMA, and LTE.
4. DTS Radio cannot transmit simultaneously with Bluetooth Radio.
5. U-NII Radio can transmit simultaneously with Bluetooth Radio.

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
3. Please refer to Estimated SAR Tables to see which test positions are inherently compliant as they consist of only estimated SAR values for all applicable transmitters and consequently will always have sum of SAR values < 1.2 W/kg. Simultaneous transmission SAR analysis was therefore not performed for these test positions.

Estimated SAR for WWAN

Antenna	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
Full Power, Proximity Sensor Off																
Cellular	GPRS 4 Slots	848.8	29.20	416	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Cellular	GPRS 4 Slots	1909.8	26.20	208	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Cellular	W-CDMA 5	846.6	24.50	282	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Cellular	LTE Band 17	710	23.70	234	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Power Back-off, Proximity Sensor On																
Cellular	GPRS 4 Slots	848.8	23.20	104	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Cellular	GPRS 3 Slots	1909.8	15.70	14	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	0.096	0.400	0.400	
Cellular	W-CDMA 5	846.6	21.00	126	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	
Cellular	LTE Band 17	710	20.00	100	5	5.2	26.75	154.6	160.85		-MEASURE-	-MEASURE-	-MEASURE-	0.400	0.400	

Estimated SAR for WLAN

All Wi-Fi and Bluetooth SAR values (measured or estimated) used in this report were taken from SAR test report 15U20030-S1E, submitted under FCC ID: PY7-TM0061.

12.1. Sum of the SAR for GSM850 & Wi-Fi & BT

Test Position	① WWAN	② DTS (Main Ant)	③ U-NII (Main Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT		
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	
Rear	0.711	0.789	0.522	0.354	**1500**	No	1233	No	**1065**	No	
Edge 1	0.206	0.115	0.635	0.053	0.321	No	0.841	No	0.259	No	
Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII				①+③+④ WWAN +U-NII +BT
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)			∑1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	0.711	0.360	0.820	0.354	1071	No	1531	No			1885	Yes
Edge 1	0.206	0.155	0.381	0.053	0.361	No	0.587	No			0.640	No

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	∑1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	0.711		0.820	0.354	①+③+④	1885				1
	0.711		0.820		①+③	1531	97.0	0.020	No	
	0.711			0.354	①+④	1065	155.0	0.007	No	
			0.820	0.354	③+④	1174	58.1	0.022	No	

12.2. Sum of the SAR for GSM1900 & Wi-Fi & BT

Test Position	① WWAN	② DTS (Main Ant)	③ U-NII (Main Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT		
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	
Rear	0.494	0.789	0.522	0.354	1283	No	1016	No	0.848	No	
Edge 1	0.451	0.115	0.635	0.053	0.566	No	1086	No	0.504	No	
Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII				①+③+④ WWAN +U-NII +BT
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)			∑1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	0.494	0.360	0.820	0.354	0.854	No	1314	No			1668	Yes
Edge 1	0.451	0.155	0.381	0.053	0.606	No	0.832	No			0.885	No

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	∑1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	0.494		0.820	0.354	①+③+④	1668				2
	0.494		0.820		①+③	1314	99.6	0.015	No	
	0.494			0.354	①+④	0.848	157.7	0.005	No	
			0.820	0.354	③+④	1174	58.1	0.022	No	

12.3. Sum of the SAR for WCDMA Band V & Wi-Fi & BT

Test Position	① WWAN	② DTS (Main Ant)	③ U-NII (Main Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT		
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	
Rear	0.506	0.789	0.522	0.354	1.295	No	1.028	No	0.860	No	
Edge 1	0.129	0.115	0.635	0.053	0.244	No	0.764	No	0.182	No	
Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII				①+③+④ WWAN +U-NII +BT	
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)			∑1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	0.506	0.360	0.820	0.354	0.866	No	1.326	No			1.680	Yes
Edge 1	0.129	0.155	0.381	0.053	0.284	No	0.510	No			0.563	No

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	∑1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	0.506		0.820	0.354	①+③+④	1.680				3
	0.506		0.820		①+③	1.326	93.6	0.016	No	
	0.506			0.354	①+④	0.860	151.5	0.005	No	
			0.820	0.354	③+④	1.174	58.1	0.022	No	

12.4. Sum of the SAR for LTE Band 17 & Wi-Fi & BT

Test Position	① WWAN	② DTS (Main Ant)	③ U-NII (Main Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII		①+④ WWAN +BT		
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)	
Rear	1025	0.789	0.522	0.354	1.814	Yes	**1.547**	No	1.379	No	
Edge 1	0.279	0.115	0.635	0.053	0.394	No	0.914	No	0.332	No	
Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	①+② WWAN +DTS		①+③ WWAN + U-NII				①+③+④ WWAN +U-NII +BT	
					∑1-g SAR (mW/g)	SPLSR (Yes/ No)	∑1-g SAR (mW/g)	SPLSR (Yes/ No)			∑1-g SAR (mW/g)	SPLSR (Yes/ No)
Rear	1025	0.360	0.820	0.354	1.385	No	1.845	Yes			2.199	Yes
Edge 1	0.279	0.155	0.381	0.053	0.434	No	0.660	No			0.713	No

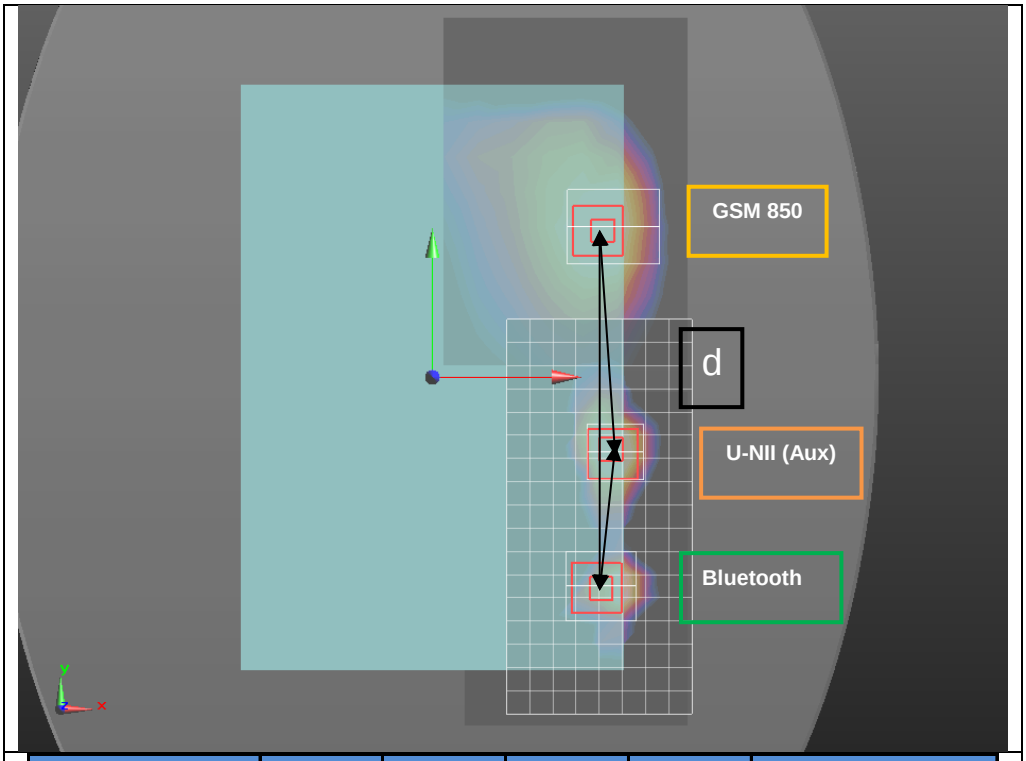
SAR to Peak Location Separation Ratio (SPLSR)

Test Position	① WWAN	② DTS (Main Ant)	③ U-NII (Main Ant)	④ BT (Main Ant)	∑1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	1025	0.789			①+②	1.814	154.5	0.016	No	4
Test Position	① WWAN	② DTS (Aux Ant)	③ U-NII (Aux Ant)	④ BT (Main Ant)	∑1-g SAR (mW/g)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
Rear	1025		0.820		①+③	1.845	96.6	0.026	No	5
Rear	1025		0.820	0.354	①+③+④	2.199				6
	1025		0.820		①+③	1.845	96.6	0.026	No	
	1025			0.354	①+④	1.379	154.5	0.010	No	
			0.820	0.354	③+④	1.174	58.1	0.022	No	

Conclusion:

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

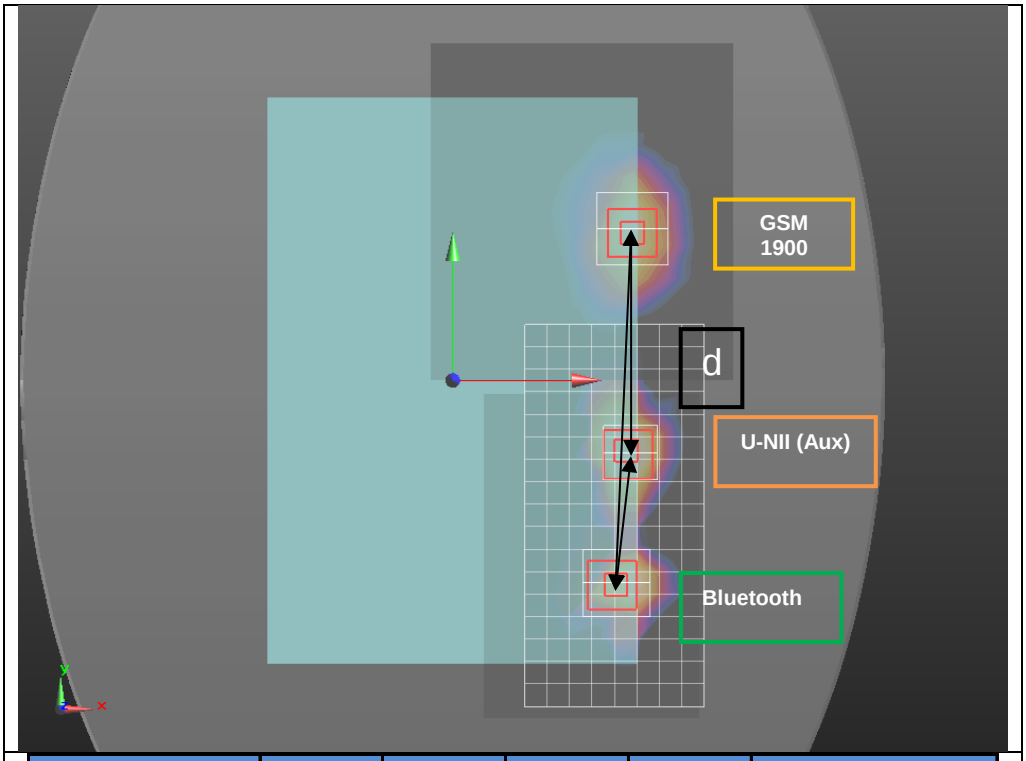
Figure (1)



Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
		mW/g	m	m	m		
GSM 850	①	0.811	0.074	0.065	-0.181	① + ②	97.0
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182		
GSM 850	①	0.811	0.074	0.065	-0.181	① + ③	155.0
Bluetooth	③	0.471	0.0728	-0.09	-0.181		
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182	② + ③	58.1
Bluetooth	③	0.471	0.0728	-0.09	-0.181		

The Peak Location Separation Distance is computed by using the
SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

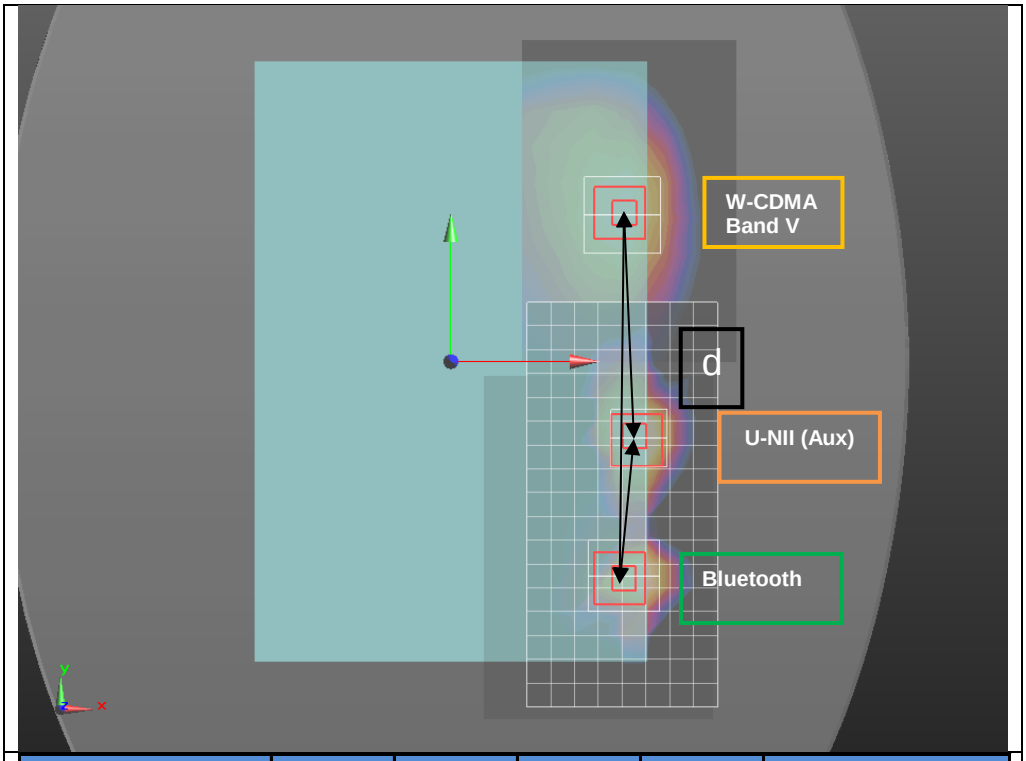
Figure (2)



Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
		mW/g	m	m	m		
GSM 1900	①	0.619	0.08	0.0675	-0.181	① + ②	99.6
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182		
GSM 1900	①	0.619	0.08	0.0675	-0.181	① + ③	157.7
Bluetooth	③	0.471	0.0728	-0.09	-0.181		
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182	② + ③	58.1
Bluetooth	③	0.471	0.0728	-0.09	-0.181		

The Peak Location Separation Distance is computed by using the
SQRT((X1-X2)^2+(Y1-Y2)^2+(Z1-Z2)^2)

Figure (3)

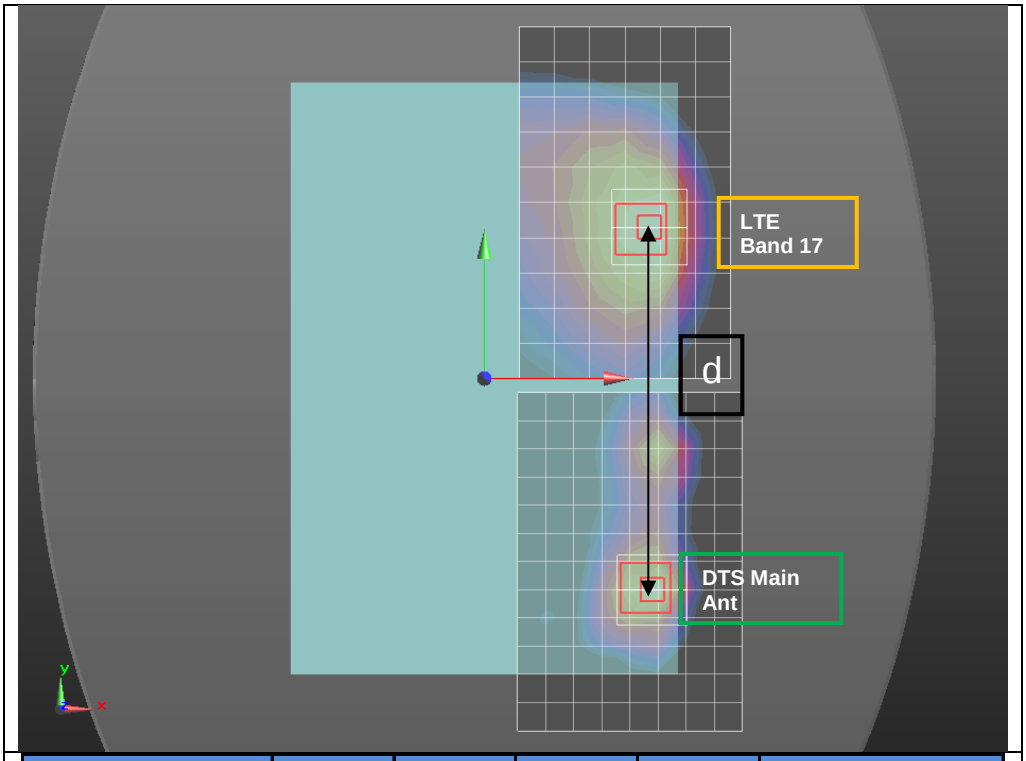


Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
		mW/g	m	m	m		
W-CDMA Band V	①	0.554	0.072	0.0615	-0.181	① + ②	93.6
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182		
W-CDMA Band V	①	0.554	0.072	0.0615	-0.181	① + ③	151.5
Bluetooth	③	0.471	0.0728	-0.09	-0.181		
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182	② + ③	58.1
Bluetooth	③	0.471	0.0728	-0.09	-0.181		

The Peak Location Separation Distance is computed by using the for

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

Figure (4)

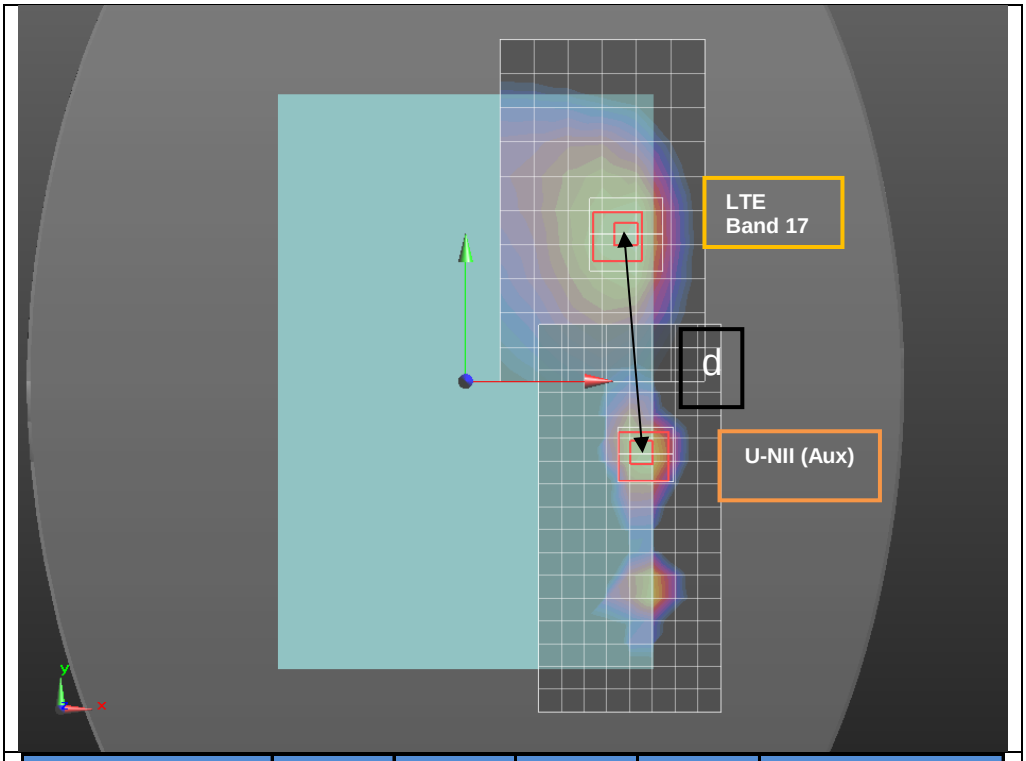


Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
		mW/g	m	m	m		
LTE Band 17	①	1.07	0.0705	0.0645	-0.183	① + ②	154.5
DTS Main Ant	②	1.1	0.0716	-0.09	-0.181		

The Peak Location Separation Distance is computed by using the fo

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

Figure (5)

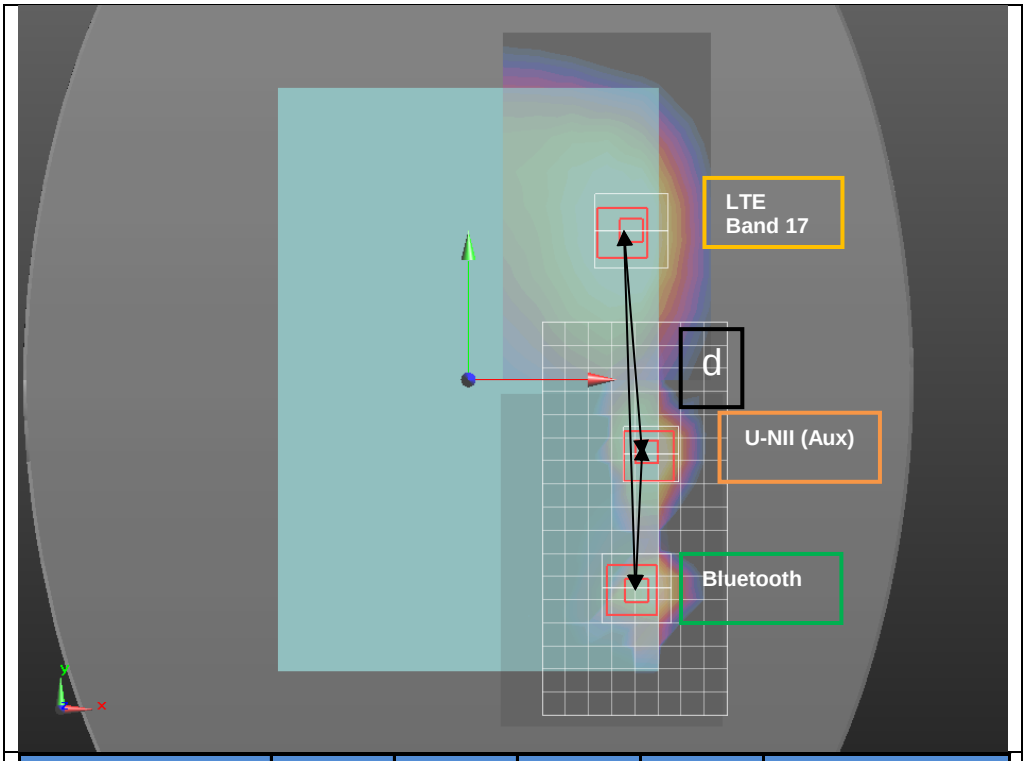


Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
		mW/g	m	m	m		
LTE Band 17	①	1.07	0.0705	0.0645	-0.183	① + ②	96.6
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182		

The Peak Location Separation Distance is computed by using the fo

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

Figure (6)



Mode		Peak SAR	X	Y	Z	d: Calculated distance (mm)	
		mW/g	m	m	m		
LTE Band 17	①	1.07	0.0705	0.0645	-0.183	① + ②	96.6
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182		
LTE Band 17	①	1.07	0.0705	0.0645	-0.183	① + ③	154.5
Bluetooth	③	0.471	0.0728	-0.09	-0.181		
U-NII (Aux)	②	1.57	0.075	-0.032	-0.182	② + ③	58.1
Bluetooth	③	0.471	0.0728	-0.09	-0.181		

The Peak Location Separation Distance is computed by using the for

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

Appendixes

Refer to separated files for the following appendixes.

A_15J20368v0 SAR Photos & Ant. Locations

B_15J20368v0 SAR System Check Plots

C_15J20368v0 SAR Highest Test Plots

D_15J20368v0 SAR Tissue Ingredients

E_15J20368v0 SAR Probe Cal. Certificates

F_15J20368v0 SAR Dipole Cal. Certificates

END OF REPORT