SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

For
GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac & NFC

FCC ID: PY7-89807R

Report Number: 16J23633M-S1V2
Issue Date: 8/29/2016

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Date	Revisions	Revised By
V1	8/22/2016	Initial Issue	--
V2	8/29/2016	Section 2: Updated KDB List Section 6.6.3: Added Spot Check Data Section 6.6.4: Added Reference Data Section 7: Added Extremity Section 9.1: Updated GSM power tables Section 10: Removed Note	Coltyce Sanders

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1. Attestation of Test Results

Applicant Name	SONY MOBILE COMMUNICATIONS INC.			
FCC ID	PY7-89807R			
Applicable Standards	FCC 47 CFR § 2.1093 Published RF exposure KDB procedures IEEE Std 1528-2013			
Exposure Category	SAR Limits (W/Kg)			
	Peak spatial-average(1g of tissue)		Extremities (hands, wrists, ankles, etc.) (10g of tissue)	
General population / Uncontrolled exposure	1.6		4	
RF Exposure Conditions	Equipment Class - Highest Reported SAR (W/kg)			
	PCE	DTS	NII	DSS
Head	0.459	0.529	0.810	N/A
Body-worn	0.523	0.055	0.039	
Hotspot/Wi-Fi Direct	0.587	0.125	N/A	
Extremity	N/A	N/A	0.251	
Simultaneous Tx	1.591	1.578	1.591	0.898
Date Tested	8/5/2016 to 8/18/2016			
Test Results	Pass			

Note: According to the manufacturer attestation letter, FCC ID: PY7-29752M and FCC ID: PY7-89807R unlicensed radios (WLAN/BT/BLE/NFC) are electronically identical. They share the same chipset, same power and same antenna performance including antenna gain. Therefore, FCC ID: PY7-89807R is able to leverage test data from FCC ID: PY7-29752M.

The applicant takes full responsibility that the test data, as referenced in this section; represents compliance for this FCC ID: PY7-89807R.

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.	Vanessa Moestopo Laboratory Technician UL Verification Services Inc.

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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:

- 447498 D01 General RF Exposure Guidance v06
- 447498 D03 Supplement C Cross-Reference v01
- 648474 D04 Handset SAR v01r03
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- 865664 D02 RF Exposure Reporting v01r02
- 941225 D01 3G SAR Procedures v03r01
- 941225 D05 SAR for LTE Devices v02r05
- 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
- 941225 D06 Hotspot Mode v02r01
- 941225 D07 UMPC Mini Tablet v01r02

In addition to the above, the following information was used:

- TCB workshop October, 2014; Page 36, RF Exposure Procedures Update (Overlapping LTE Bands)
- TCB workshop October, 2014; Page 37, LTE Considerations (LTE Band 41 Test Channels)
- TEST DATA RE-USE GUIDANCE, FCC OET Laboratory Division, May 23, 2016 r04

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	

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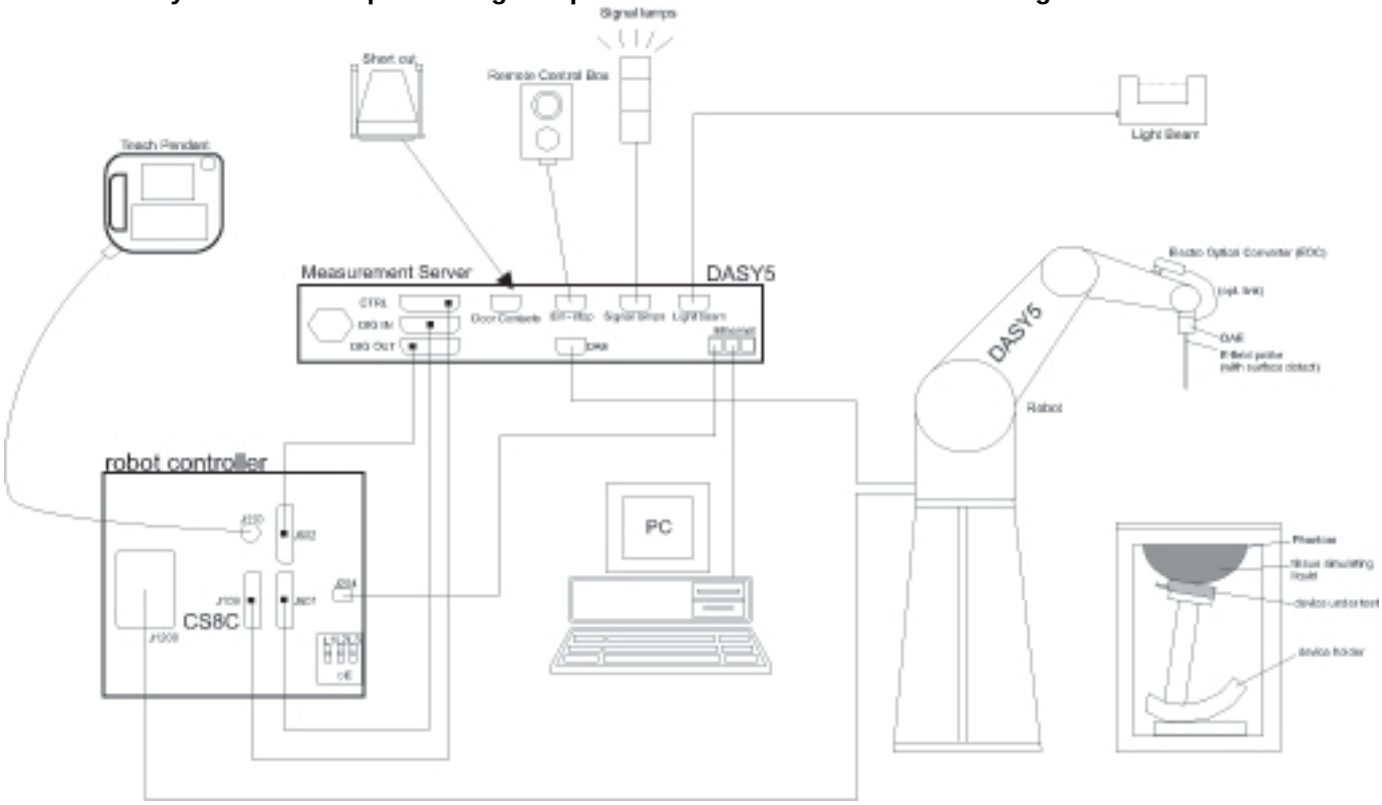
4. SAR Measurement System & Test Equipment

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. 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

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

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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.

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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	MY40000980	4/27/2017
Dielectric Probe kit	SPEAG	DAK-3.5	1082	9/15/2016
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	Traceable Calibration Control Co.	4242	140562250	8/24/2016
PNA Network Analyzer	Keysight	N5227A	US51270480	7/22/2017
Dielectric Probe kit	SPEAG	DAK-3.5	1087	11/10/2016
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	11/10/2016
Thermometer	Fisher Scientific	Traceable	140493798	5/13/2017

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Synthesized Signal Generator	Agilent	N5181A	MY50140610	5/9/2017
Power Meter	Agilent	N1912A	MY55196008	5/3/2017
Power Sensor	Agilent	N1921A	MY52270022	12/17/2016
Power Sensor	Agilent	N1921A	MY52200012	10/10/2016
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1795093	N/A
Directional coupler	Werlatone	C8060-102	2149	N/A
DC Power Supply	BK PRECISION	1611	215-02292	N/A
Synthesized Signal Generator	Angilent	N5181A	MY50140630	5/9/2017
Power Meter	HP	437B	3125U09248	9/3/2016
Power Sensor	HP	8481A	3318A92374	9/16/2016
Amplifier	MITEQ	AMF-4D-00400600-50-30P	1795092	N/A
Bi-directional coupler	Werlatone, Inc.	C8060-102	2141	N/A
DC Power Supply	HP	6296A	2841A-05955	N/A

Lab Equipment

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
E-Field Probe (SAR Lab A)	SPEAG	EX3DV4	3751	11/18/2016
E-Field Probe (SAR Lab B)	SPEAG	EX3DV4	3991	5/12/2017
E-Field Probe (SAR Lab C)	SPEAG	EX3DV4	3902	5/17/2017
E-Field Probe (SAR Lab 2)	SPEAG	EX3DV4	3772	2/23/2017
E-Field Probe (SAR Lab 4)	SPEAG	EX3DV4	3773	4/19/2017
Data Acquisition Electronics (SAR Lab A)	SPEAG	DAE4	1377	9/14/2016
Data Acquisition Electronics (SAR Lab B)	SPEAG	DAE4	1259	1/21/2017
Data Acquisition Electronics (SAR Lab C)	SPEAG	DAE3	500	5/19/2017
Data Acquisition Electronics (SAR Lab 2)	SPEAG	DAE4	1257	9/16/2016
Data Acquisition Electronics (SAR Lab 4)	SPEAG	DAE3	1239	4/14/2017
System Validation Dipole	SPEAG	D750V3	1019	3/16/2017
System Validation Dipole	SPEAG	D835V2	4d002	11/12/2016
System Validation Dipole	SPEAG	D1750V2	1050	4/13/2017
System Validation Dipole	SPEAG	D1750V2	1077	9/22/2016
System Validation Dipole	SPEAG	D1900V2	5d140	4/12/2017
System Validation Dipole	SPEAG	D2600V2	1006	9/21/2016
Thermometer (SAR Lab A)	EXTECH	445703	CCS-179	6/18/2017
Thermometer (SAR Lab B)	EXTECH	445703	CCS-206	3/17/2017
Thermometer (SAR Lab C)	EXTECH	445703	CCS-202	3/17/2017
Thermometer (SAR Lab 2)	EXTECH	445703	CCS-203	3/24/2017
Thermometer (SAR Lab 4)	EXTECH	445703	CCS-238	6/6/2017

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Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Power Meter	Agilent	N1912A	MY50001018	10/19/2017
Power Sensor	Agilent	N1921A	MY52260009	12/17/2016
Base Station Simulator	R & S	CMW500	135393	3/21/2017
Base Station Simulator	R & S	CMW500	134852	5/26/2017
Base Station Simulator	R & S	CMW500	104245	1/28/2017
Base Station Simulator	R & S	CMW500	125236	2/11/2017
Base Station Simulator	R & S	CMW500	134855	5/26/2017
Base Station Simulator	Agilent	8960	MY53211024	9/16/2017

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 and the measured 10-g SAR within a frequency band is < 3.75 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

Device Dimension	Overall (Length x Width): 146.4 mm x 71.9 mm Overall Diagonal: 162.4 mm Display Diagonal: 131 mm
Back Cover	☒ The rechargeable battery is not user accessible.
Battery Options	☒ The rechargeable battery is not user accessible.
Accessory	Headset
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)
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)
Test sample information	**S/N** / **IMEI** / **Notes** CB512AWNPU / 4402541816124 / SAR_GSM_#1 CB512AWQ6C / 4402541816082 / SAR_GSM_#2 CB512AWNLP / 4402541816041 / SAR_UMTS_#1 CB512AWNNK / 4402541816090 / SAR_UMTS_#2 CB512AWNJK / 4402541816108 / SAR_LTE L Band_#1 CB512AWNK3 / 4402541816132 / SAR_LTE L Band_#2 CB512AW7DR / 4402541816058 / SAR_LTE MH Band #1 CB512AWNQB / 4402541816116 / SAR_LTE MH Band #2 CB512AW7FT / 4402541817924 / SAR_WLAN 2.4G_#1 CB512AWNNG / 4402541817882 / SAR_WLAN 2.4G_#2 CB512AW71L / 4402541817981 / SAR_WLAN 5G_#1 CB512AWNKZ / 4402541816033 / SAR_WLAN 5G_#2 CB512AW74M / 4402541815217 / SAR_GSM/UMTS POWER (COND.)_#1 CB512AW71T / 4402541815068 / SAR_GSM/UMTS POWER (COND.)_#2 CB512AW716 / 4402541815001 / SAR_LTE POWER (COND.)_#1 CB512AW71P / 4402541814954 / SAR_LTE POWER (COND.)_#2
Hardware Version	A
Software Version	0.160

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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%
	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) HSPA+ (Rel. 7)		100%
LTE	FDD Band 4 FDD Band 5 FDD Band 7 FDD Band 12 FDD Band 13 FDD Band 17 TDD Band 41	QPSK 16QAM		100% (FDD) 63.3% (TDD)
	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(s)? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	Version 4.2 LE		77.5% (DH5)

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6.3. Maximum Output Power from Tune-up Procedure

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

6.3.1. GSM

RF Air Interface	GPRS							
	Voice/Tx 1 Slot		Tx 2 Slots		Tx 3 Slots		Tx 4 Slots	
	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]
GSM 850	31.5	-1.3~ +0.7	30.5	-1.3~ +0.7	28.5	-1.3~ +0.7	27.5	-1.3~ +0.7
GSM 1900	28.5	-1.3~ +0.7	27.0	-1.3~ +0.7	25.0	-1.3~ +0.7	24.0	-1.3~ +0.7
RF Air Interface	EGPRS 8PSK Modulation (MCS5-9)							
	Voice/Tx 1 Slot		Tx 2 Slots		Tx 3 Slots		Tx 4 Slots	
	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]
GSM 850	27.0	-2.0~+1.0	25.5	-2.0~+1.0	23.5	-2.0~+1.0	22.5	-2.0~+1.0
GSM 1900	26.0	-2.0~+1.0	24.5	-2.0~+1.0	22.5	-2.0~+1.0	21.5	-2.0~+1.0

RF Air Interface	CS Only		GPRS DTM GMSK							
	Tx 1 Slot		CS + TX 2 Slots				CS + TX 3 Slots			
	CS GMSK		CS GMSK		PS GMSK		CS GMSK		PS GMSK	
	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]
GSM 850	31.5	-1.3~+0.7	30.5	-1.3~+0.7	30.5	-1.3~+0.7	28.5	-1.3~+0.7	28.5	-1.3~+0.7
GSM 1900	28.5	-1.3~+0.7	27.0	-1.3~+0.7	27.0	-1.3~+0.7	25.0	-1.3~+0.7	25.0	-1.3~+0.7
RFAir Interface	CS Only		EGPRS DTM 8PSK Modulation (MCS5-9)							
	Tx 1 Slot		CS + TX 2 Slots				CS + TX 3 Slots			
	CS GMSK		CS GMSK		PS 8PSK		CS GMSK		PS 8PSK	
	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]
GSM 850	31.5	-1.3~+0.7	30.5	-1.3~+0.7	25.5	-2.0~+1.0	28.5	-1.3~+0.7	23.5	-2.0~+1.0
GSM 1900	28.5	-1.3~+0.7	27.0	-1.3~+0.7	24.5	-2.0~+1.0	25.0	-1.3~+0.7	22.5	-2.0~+1.0

6.3.2. W-CDMA

RF Air Interface		CS		HSDPSA				HSUPA					
				Subtest 1/2		Subtest 3/4		Subtest 1/5		Subtest 2/4		Subtest 3	
		Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]	Target [dBm]	Tolerance +- [dB]
FDD 5	Low Mid High	24.2	-1.5~+0.5	23.2	-2~+1.0	22.7	-2~+1.0	22.7	-2~+1.3	21.2	-2~+1.0	22.2	-2~+1.0

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6.3.3. LTE

RF Air Interface	LTE			Data			
				QPSK		16QAM	
Band	BW	CH	RB Config	Target [dBm]	Tolerance +-[dB]	Target [dBm]	Tolerance +-[dB]
LTE B4	1.4MHz	Low	1RB	20.5	-1.5~+1.0	19.5	-1.5~+1.0
		Mid	50% RB	20.5	-1.5~+1.0	19.5	-1.5~+1.0
		High	100% RB	19.5	-1.5~+1.0	18.5	-1.5~+1.0
	3MHz 5MHz, 10MHz 15MHz, 20MHz	Low	1RB	20.5	-1.5~+1.0	19.5	-1.5~+1.0
		Mid	50% RB	19.5	-1.5~+1.0	18.5	-1.5~+1.0
		High	100% RB	19.5	-1.5~+1.0	18.5	-1.5~+1.0
LTE B5	1.4MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
	3MHz 5MHz, 10MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
LTE B7	5MHz, 10MHz 15MHz, 20MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
LTE B12	1.4MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
	3MHz 5MHz, 10MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
LTE B13	5MHz, 10MHz	Low	1RB	23.0	-1.5~+1.0	22.0	-1.5~+1.0
		Mid	50% RB	22.0	-1.5~+1.0	21.0	-1.5~+1.0
		High	100% RB	22.0	-1.5~+1.0	21.0	-1.5~+1.0
LTE B17	5MHz, 10MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
LTE B41	5MHz, 10MHz, 15MHz, 20MHz	Low	1RB	23.5	-1.5~+1.0	22.5	-1.5~+1.0
		Mid	50% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0
		High	100% RB	22.5	-1.5~+1.0	21.5	-1.5~+1.0

6.3.4. WLAN and Bluetooth

The model FCC ID: PY7-29752M shares the same tune up power targets as model FCC ID: PY7-89807R for WLAN and Bluetooth operations. For this reason the SAR data for the WLAN and Bluetooth operations for FCC ID: PY7-29752M is considered representative for FCC ID: PY7-89807R. Refer to §6.6 for Re-use of Test Data.

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6.4. General LTE SAR Test and Reporting Considerations

Item	Description						
Frequency range, Channel Bandwidth, Numbers and Frequencies	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 7	Frequency range: 2500 - 2570 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low	20850 2510	20825 2507.5	20800 2505	20775 2502.5		
	Mid	21100 2535	21100 2535	21100 2535	21100 2535		
	High	21350 2560	21375 2562.5	21400 2565	21425 2567.5		
	Band 12	Frequency range: 699 – 716 MHz					
		Channel Bandwidth					
		20 MHz	15 MHz	10 MHz	5 MHz	3 MHz	1.4 MHz
	Low			23060/ 704	23035/ 701.5	23025/ 700.5	23017/ 699.7
	Mid			23095/ 707.5	23095/ 707.5	23095/ 707.5	23095/ 707.5
	High			23130/ 711	23155/ 713.5	23165/ 714.5	23173/ 715.3
	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		

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General LTE SAR Test and Reporting Considerations (Continued)

<table>
<tr><td rowspan="11">Frequency range, Channel Bandwidth, Numbers and Frequencies</td><td rowspan="2">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>
<tr><td rowspan="2">Band 41</td><td colspan="6">Frequency range: 2496 - 2690 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 colspan="4">39750 / 2506.0</td><td></td><td></td></tr>
<tr><td>Low-Mid</td><td colspan="4">40185 / 2549.5</td><td></td><td></td></tr>
<tr><td>Mid</td><td colspan="4">40620 / 2593.0</td><td></td><td></td></tr>
<tr><td>Mid-High</td><td colspan="4">41055 / 2636.5</td><td></td><td></td></tr>
<tr><td>High</td><td colspan="4">41490 / 2680.0</td><td></td><td></td></tr>
<tr><td>LTE transmitter and antenna implementation</td><td colspan="7">Refer to Appendix A.</td></tr>
<tr><td>Maximum power reduction (MPR)</td><td colspan="7">
Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table>
MPR Built-in by design
A-MPR (additional MPR) was disabled during SAR testing
</td></tr>
<tr><td>Power reduction</td><td colspan="7">No</td></tr>
<tr><td>Spectrum plots for RB configurations</td><td colspan="7">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>

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6.5. 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 Bands support 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	$13168 \cdot T_s$			-	-	-

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

Example for Calculated Duty Cycle for Uplink-Downlink Configuration 0:
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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6.6. Re-use of Test Data

6.6.1. Introduction

According to the manufacturer attestation letter, FCC ID: PY7-29752M and FCC ID: PY7-89807R unlicensed radios (WLAN/BT/BLE/NFC) are electronically identical. They share the same chipset, same power and same antenna performance including antenna gain. Therefore, FCC ID: PY7-89807R is able to leverage test data from FCC ID: PY7-29752M.

The applicant takes full responsibility that the test data, as referenced in this section; represents compliance for this FCC ID: PY7-89807R.

6.6.2. Device Differences

Difference between FCC ID: PY7-29752M and FCC ID: PY7-89807R:

Various components were removed from FCC ID: PY7-29752M to establish FCC ID: PY7-89807R, such components are related only to the cellular part and no change in the non-cellular (WLAN/Bluetooth/NFC) parts, which are electronically identical.

6.6.3. Spot Check Verification

Spot check verification has been done on device FCC ID: PY7-89807R for each wireless mode on the Worst-case position of FCC ID: PY7-29752M . Test results were consistent with FCC ID: PY7-29752M.

Frequency Band	Mode	Antenna	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		Measured 1-g SAR (W/kg)		Delta (%)
								Tune-up limit	Meas.	PY7-29752M	PY7-89807R	
2.4 GHz DTS	802.11b 1 Mbps	Chain 0	Head	0	Left Touch	6	2437	14.2	13.0	0.401	0.394	-2%
			Body	15	Front	6	2437	14.2	13.0	0.042	0.047	12%
			Hotspot	10	Edge 2	6	2437	14.2	13.0	0.095	0.109	15%

Frequency Band	Mode	Antenna	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		Measured 1-g SAR (W/kg)		Delta (%)
								Tune-up limit	Meas.	PY7-29752M	PY7-89807R	
5.2 GHz U-NII 1	802.11ac VHT80	Chain 0	Head	0	Left Touch	42	5210	11.9	11.2	0.370	0.423	14%
			Body	15	Front	42	5210	11.9	11.2	0.023	0.025	8%
5.5 GHz U-NII 2C	802.11n HT40	Chain 0	Head	0	Left Touch	102	5510	10.6	9.8	0.680	0.479	-30%
			Body	15	Front	102	5510	10.6	9.8	0.033	0.034	2%
5.8 Ghz U-NII 3	802.11n HT40	Chain 0	Head	0	Left Touch	151	5755	11.2	10.5	0.386	0.175	-55%
			Body	15	Front	151	5755	11.2	10.5	0.016	0.014	-13%

Frequency Band	Mode	Antenna	RF Exposure Conditions	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		Measured 10-g SAR (W/kg)		Delta (%)
								Tune-up limit	Meas.	PY7-29752M	PY7-89807R	
5.2 GHz U-NII 1	802.11ac VHT80	Chain 0	Extremity	0	Front	42	5210	11.9	11.2	0.158	0.157	-1%
5.5 GHz U-NII 2C	802.11n HT40	Chain 0	Extremity	0	Front	102	5510	10.6	9.8	0.211	0.151	-28%
5.8 Ghz U-NII 3	802.11n HT40	Chain 0	Extremity	0	Front	151	5755	11.2	10.5	0.091	0.060	-34%

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6.6.4. Reference Detail

Equipment Class	Reference FCC ID	Report Title	Report Section(s)
DTS (WLAN)	PY7-29752M	16J23633A-S1V3	§6.3.4, 9.5, 10.16 & 10.18
NII (WLAN)	PY7-29752M	16J23633A-S1V3	§6.3.5, 9.6, 10.17 & 10.18
DSS (BT)	PY7-29752M	16J23633A-S1V3	§6.3.6, 9.7 & 10.18

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7. RF Exposure Conditions (Test Configurations)

Refer to “Setup Photos and Ant. Locations” Appendix for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.

Wireless technologies	RF Exposure Conditions	DUT-to-User Separation	Test Position	Antenna-to-edge/surface	SAR Required	Note
WWAN	Head	0 mm	Left Touch	N/A	Yes	
			Left Tilt (15°)	N/A	Yes	
			Right Touch	N/A	Yes	
			Right Tilt (15°)	N/A	Yes	
	Body	15 mm	Rear	N/A	Yes	
			Front	N/A	Yes	
	Hotspot	10 mm	Rear	< 25 mm	Yes	
			Front	< 25 mm	Yes	
			Edge 1 (Top)	> 25 mm	No	1
			Edge 2 (Right)	< 25 mm	Yes	
			Edge 3 (Bottom)	< 25 mm	Yes	
			Edge 4 (Left)	< 25 mm	Yes	
	Extremity	0 mm	Rear	< 25 mm	Yes	2
			Front	< 25 mm	No	1
			Edge 1 (Top)	> 25 mm	No	1
			Edge 2 (Right)	< 25 mm	Yes	2
			Edge 3 (Bottom)	< 25 mm	Yes	2
			Edge 4 (Left)	<. 25 mm	Yes	2

Notes:

1. SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hot Spot SAR.
2. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg per KDB 648474 D04 Handset SAR.

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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.

For SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for εr and σ may be relaxed to ± 10%. This is limited to frequencies ≤ 3 GHz.

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

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Dielectric Property Measurements Results:

SAR Room	Date	Tissue Type	Band (MHz)	Frequency (MHz)	Relative Permittivity (εr)			Conductivity (σ)		
					Measured	Target	Delta ±5 %	Measured	Target	Delta ±5 %
A	8/5/2016	Body	750	750	55.75	55.55	0.37	0.97	0.96	0.51
				695	56.31	55.76	0.99	0.92	0.96	-4.43
				790	55.38	55.39	-0.02	1.01	0.97	4.33
A	8/8/2016	Body	750	750	53.68	55.55	-3.36	0.96	0.96	0.17
				695	54.29	55.76	-2.63	0.91	0.96	-4.95
				790	53.22	55.39	-3.92	1.00	0.97	3.92
A	8/8/2016	Head	750	750	40.66	41.96	-3.10	0.90	0.89	0.78
				695	41.42	42.24	-1.95	0.85	0.89	-4.39
				790	40.13	41.76	-3.89	0.94	0.90	4.36
A	8/9/2016	Head	835	835	40.65	41.50	-2.05	0.90	0.90	-0.37
				805	41.07	41.68	-1.46	0.87	0.90	-3.39
				905	39.81	41.50	-4.07	0.96	0.97	-1.24
A	8/9/2016	Body	835	835	53.50	55.20	-3.08	1.00	0.97	2.58
				805	53.84	55.33	-2.70	0.96	0.97	-0.47
				905	52.80	55.00	-4.00	1.07	1.05	1.19
B	8/9/2016	Body	1750	1750	51.93	53.44	-2.83	1.50	1.49	0.86
				1710	52.08	53.54	-2.73	1.46	1.46	-0.17
				1755	51.93	53.43	-2.80	1.50	1.49	0.92
B	8/9/2016	Head	1900	1900	41.26	40.00	3.15	1.38	1.40	-1.79
				1850	41.52	40.00	3.80	1.33	1.40	-4.79
				1920	41.21	40.00	3.03	1.39	1.40	-0.57
B	8/9/2016	Body	1900	1900	50.99	53.30	-4.33	1.57	1.52	2.96
				1850	51.19	53.30	-3.96	1.52	1.52	0.20
				1920	50.95	53.30	-4.41	1.58	1.52	4.08
C	8/9/2016	Head	2600	2600	38.50	39.01	-1.31	2.02	1.96	3.15
				2495	38.86	39.14	-0.72	1.91	1.85	3.21
				2690	38.18	38.90	-1.84	2.12	2.06	3.09
C	8/9/2016	Body	2600	2600	51.58	52.51	-1.77	2.20	2.16	2.00
				2495	51.87	52.64	-1.47	2.08	2.01	3.12
				2690	51.30	52.40	-2.09	2.31	2.29	1.17
2	8/16/2016	Head	2600	2600	38.70	39.01	-0.80	2.04	1.96	3.92
				2495	39.07	39.14	-0.19	1.92	1.85	3.86
				2690	38.36	38.90	-1.38	2.15	2.06	4.40
4	8/15/2016	Head	1750	1750	40.75	40.08	1.66	1.43	1.37	4.53
				1710	40.73	40.15	1.45	1.41	1.35	4.50
				1755	40.72	40.08	1.60	1.43	1.37	4.46
4	8/15/2016	Body	1750	1750	52.61	53.44	-1.56	1.54	1.49	3.62
				1710	52.56	53.54	-1.84	1.52	1.46	4.14
				1755	52.58	53.43	-1.59	1.54	1.49	3.41

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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.

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 Room	Date	Tissue Type	Dipole Type _Serial #	Dipole Cal. Due Data	Measured Results for 1g SAR				Measured Results for 10g SAR				Plot No.
					Zoom Scan to 100 mW	Normalize to 1 W	Target (Ref. Value)	Delta ±10 %	Zoom Scan to 100 mW	Normalize to 1 W	Target (Ref. Value)	Delta ±10 %	
A	8/5/2016	Body	D750V3 SN:1019	3/16/2017	0.877	8.77	8.56	2.45	0.583	5.83	5.68	2.64	
A	8/8/2016	Body	D750V3 SN:1019	3/16/2017	0.847	8.47	8.56	-1.05	0.564	5.64	5.68	-0.70	
A	8/8/2016	Head	D750V3 SN:1019	3/16/2017	0.854	8.54	8.18	4.40	0.562	5.62	5.37	4.66	1,2
A	8/9/2016	Head	D835V2 SN:4d002	11/12/2016	0.877	8.77	9.06	-3.20	0.575	5.75	5.90	-2.54	
A	8/9/2016	Body	D835V2 SN:4d002	11/12/2016	0.896	8.96	9.47	-5.39	0.588	5.88	6.21	-5.31	3,4
B	8/9/2016	Body	D1750V2 SN:1077	9/22/2016	3.790	37.90	35.80	5.87	2.000	20.00	19.00	5.26	5,6
B	8/9/2016	Head	D1900V2 SN:5d140	4/12/2017	3.630	36.30	38.30	-5.22	1.860	18.60	20.00	-7.00	7,8
B	8/9/2016	Body	D1900V2 SN:5d140	4/12/2017	3.940	39.40	39.30	0.25	2.030	20.30	20.80	-2.40	
C	8/9/2016	Head	D2600V2 SN:1006	9/21/2016	5.670	56.70	56.90	-0.35	2.440	24.40	25.50	-4.31	
C	8/9/2016	Body	D2600V2 SN:1006	9/21/2016	5.380	53.80	55.30	-2.71	2.300	23.00	24.80	-7.26	9,10
2	8/16/2016	Head	D2600V2 SN:1006	9/21/2016	5.700	57.00	56.90	0.18	2.460	24.60	25.50	-3.53	11,12
4	8/15/2016	Head	D1750V2 SN:1050	4/13/2017	3.620	36.20	35.90	0.84	1.910	19.10	19.00	0.53	
4	8/15/2016	Body	D1750V2 SN:1050	4/13/2017	3.740	37.40	36.20	3.31	1.990	19.90	19.30	3.11	13,14

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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		Frame Pwr Maximum
						Burst (dBm)	Frame (dBm)	
850	GPRS (GMSK)	CS4	1	128	824.2	31.5	22.5	23.17
				190	836.6	31.5	22.5	
				251	848.8	31.5	22.5	
			2	128	824.2	31.2	25.2	25.18
				190	836.6	30.3	24.3	
				251	848.8	30.8	24.8	
			3	128	824.2	28.9	24.6	24.94
				190	836.6	28.4	24.1	
				251	848.8	28.5	24.2	
			4	128	824.2	27.6	24.6	25.19
				190	836.6	27.6	24.6	
				251	848.8	27.6	24.6	
	EGPRS (8PSK)	MCS9	1	128	824.2	26.5	17.5	18.97
				190	836.6	26.6	17.6	
				251	848.8	26.8	17.8	
			2	128	824.2	25.2	19.2	20.48
				190	836.6	25.2	19.2	
				251	848.8	25.5	19.5	
			3	128	824.2	23.2	18.9	20.24
				190	836.6	23.2	18.9	
				251	848.8	23.4	19.1	
			4	128	824.2	22.1	19.1	20.49
				190	836.6	22.1	19.1	
				251	848.8	22.2	19.2	

Notes:

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

- GMSK (GPRS) mode with 4 time slots, based on the Tune-up Procedure.
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

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GSM1900 Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Max. Pwr		Frame Pwr Maximum
						Burst (dBm)	Frame (dBm)	
1900	GPRS (GMSK)	CS4	1	512	1850.2	28.7	19.7	20.17
				661	1880.0	28.8	19.8	
				810	1909.8	28.7	19.7	
			2	512	1850.2	27.2	21.2	21.68
				661	1880.0	27.3	21.3	
				810	1909.8	27.7	21.7	
			3	512	1850.2	25.1	20.8	21.44
				661	1880.0	25.3	21.0	
				810	1909.8	25.1	20.8	
			4	512	1850.2	24.2	21.2	21.69
				661	1880.0	24.2	21.2	
				810	1909.8	24.1	21.1	
	EGPRS (8PSK)	MCS9	1	512	1850.2	25.5	16.5	17.97
				661	1880.0	25.6	16.6	
				810	1909.8	25.4	16.4	
			2	512	1850.2	23.9	17.9	19.48
				661	1880.0	23.9	17.9	
				810	1909.8	23.7	17.7	
			3	512	1850.2	22.2	17.9	19.24
				661	1880.0	22.4	18.1	
				810	1909.8	22.1	17.8	
			4	512	1850.2	21.0	18.0	19.49
				661	1880.0	21.0	18.0	
				810	1909.8	20.9	17.9	

Notes:

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

- GMSK (GPRS) mode with 4 time slots, based on the Tune-up Procedure.
- SAR is not required for EGPRS (8PSK) mode because its output power is less than that of GPRS Mode

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GSM850 DTM Measured Results

Band	Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Max. Pwr					
						CS		PS		CS	PS
						Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)	Frame Pwr Maximum	Frame Pwr Maximum
850	GSM(Voice) + GPRS(GMSK)	CS4	1	128	824.2	31.5	22.5			23.17	
				190	836.6	31.5	22.5				
				251	848.8	31.5	22.5				
			2	128	824.2	30.4	24.4	30.5	24.5	25.18	25.18
				190	836.6	30.4	24.4	30.5	24.5		
				251	848.8	30.4	24.4	30.5	24.5		
			3	128	824.2	28.0	23.7	28.1	23.8	24.94	24.94
				190	836.6	28.0	23.7	28.1	23.8		
				251	848.8	28.1	23.8	28.2	23.9		
	GSM(Voice) + EGPRS(8PSK)	MCS9	1	128	824.2	31.5	22.5			23.17	
				190	836.6	31.5	22.5				
				251	848.8	31.5	22.5				
			2	128	824.2	30.4	24.4	25.2	19.2	25.18	20.48
				190	836.6	30.5	24.5	25.2	19.2		
				251	848.8	30.5	24.5	25.3	19.3		
			3	128	824.2	28.2	23.9	23.7	19.4	24.94	20.24
				190	836.6	28.1	23.8	23.7	19.4		
				251	848.8	28.2	23.9	23.8	19.5		

Notes:

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

- GSM (Voice) + GMSK (GPRS) mode with 1 time slots, based on the Tune-up Procedure.
- 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					
						CS		PS		CS	PS
						Burst (dBm)	Frame (dBm)	Burst (dBm)	Frame (dBm)	Frame Pwr Maximum	Frame Pwr Maximum
1900	GSM(Voice) + GPRS(GMSK)	CS4	1	512	1850.2	28.7	19.7			20.17	
				661	1880.0	28.8	19.8				
				810	1909.8	28.7	19.7				
			2	512	1850.2	26.8	20.8	26.8	20.8	21.68	21.68
				661	1880.0	26.8	20.8	26.8	20.8		
				810	1909.8	26.7	20.7	26.8	20.8		
			3	512	1850.2	24.8	20.5	24.9	20.6	21.44	21.44
				661	1880.0	24.9	20.6	25.0	20.7		
				810	1909.8	24.7	20.4	24.8	20.5		
	GSM(Voice) + EGPRS(8PSK)	MCS9	1	512	1850.2	28.7	19.7			20.17	
				661	1880.0	28.8	19.8				
				810	1909.8	28.7	19.7				
			2	512	1850.2	26.8	20.8	24.5	18.5	21.68	19.48
				661	1880.0	26.9	20.9	24.7	18.7		
				810	1909.8	26.8	20.8	24.6	18.6		
			3	512	1850.2	25.0	20.7	23.0	18.7	21.44	19.24
				661	1880.0	25.0	20.7	23.0	18.7		
				810	1909.8	24.8	20.5	23.0	18.7		

Notes:

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

- GSM (Voice) + GMSK (GPRS) mode with 1 time slots, based on the Tune-up Procedure.
- SAR is not required for GSM (Voice) + EGPRS (8PSK) mode because its output power is less than that of GSM (Voice) + GMSK (GPRS) mode.

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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	11/15	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			

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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

HSPA+

Since 16QAM is not used for uplink, the uplink Category and release is same as HSUPA, i.e., Rel. 7 Therefore, the RF conducted power is not measured.

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W-CDMA Band V Measured Results

Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Max. Pwr (dBm)
W-CDMA Band V	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	24.4
			4183	836.6	N/A	24.3
			4233	846.6	N/A	24.4
	HSDPA	Subtest 1	4132	826.4	0	23.1
			4183	836.6	0	23.2
			4233	846.6	0	23.3
		Subtest 2	4132	826.4	0	23.0
			4183	836.6	0	22.9
			4233	846.6	0	23.0
		Subtest 3	4132	826.4	0.5	22.5
			4183	836.6	0.5	22.4
			4233	846.6	0.5	22.5
		Subtest 4	4132	826.4	0.5	22.5
			4183	836.6	0.5	22.3
			4233	846.6	0.5	22.5
	HSUPA	Subtest 1	4132	826.4	0	23.5
			4183	836.6	0	23.3
			4233	846.6	0	23.2
		Subtest 2	4132	826.4	2	21.4
			4183	836.6	2	21.3
			4233	846.6	2	21.4
		Subtest 3	4132	826.4	1	22.4
			4183	836.6	1	22.3
			4233	846.6	1	22.3
		Subtest 4	4132	826.4	2	21.4
			4183	836.6	2	21.2
			4233	846.6	2	21.4
		Subtest 5	4132	826.4	0	23.4
			4183	836.6	0	23.3
			4233	846.6	0	23.4

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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.					

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LTE Band 4 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)
						1732.5 MHz
LTE Band 4	20	QPSK	1	0	0	20.6
			1	50	0	20.4
			1	99	0	20.7
			50	0	1	19.5
			50	25	1	19.4
			50	50	1	19.5
			100	0	1	19.5
		16QAM	1	0	1	19.9
			1	50	1	19.7
			1	99	1	20.1
			50	0	2	18.6
			50	25	2	18.5
			50	50	2	18.6
			100	0	2	18.6

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						1717.5 MHz	1732.5 MHz	1747.5 MHz
LTE Band 4	15	QPSK	1	0	0	20.5	20.4	20.4
			1	36	0	20.3	20.3	20.3
			1	74	0	20.4	20.3	20.5
			36	0	1	19.3	19.4	19.3
			36	18	1	19.3	19.3	19.2
			36	37	1	19.3	19.3	19.3
			75	0	1	19.3	19.3	19.3
		16QAM	1	0	1	19.4	19.8	19.7
			1	36	1	19.2	19.5	19.5
			1	74	1	19.3	19.7	19.9
			36	0	2	18.4	18.6	18.3
			36	18	2	18.4	18.5	18.3
			36	37	2	18.4	18.4	18.4
			75	0	2	18.4	18.5	18.4

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						1715 MHz	1732.5 MHz	1750 MHz
LTE Band 4	10	QPSK	1	0	0	20.9	20.6	20.6
			1	25	0	20.6	20.5	20.5
			1	49	0	20.9	20.5	20.7
			25	0	1	19.7	19.5	19.4
			25	12	1	19.7	19.5	19.5
			25	25	1	19.7	19.5	19.6
			50	0	1	19.8	19.4	19.6
		16QAM	1	0	1	19.9	19.9	19.5
			1	25	1	19.6	19.9	19.4
			1	49	1	19.8	19.9	19.7
			25	0	2	18.8	18.6	18.6
			25	12	2	18.8	18.6	18.6
			25	25	2	18.8	18.6	18.7
			50	0	2	18.8	18.5	18.6

Note(s):

20 MHz Bandwidth does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply per KDB 941225 D05 SAR for LTE Devices.

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LTE Band 4 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						1712.5 MHz	1732.5 MHz	1752.5 MHz
LTE Band 4	5	QPSK	1	0	0	20.8	20.5	20.4
			1	12	0	20.7	20.5	20.6
			1	24	0	20.7	20.5	20.5
			12	0	1	19.8	19.5	19.6
			12	6	1	19.8	19.5	19.6
			12	11	1	19.8	19.4	19.5
			25	0	1	19.7	19.4	19.5
		16QAM	1	0	1	20.0	19.9	19.5
			1	12	1	20.0	19.9	19.6
			1	24	1	19.9	20.0	19.7
			12	0	2	18.9	18.7	18.6
			12	6	2	18.9	18.7	18.6
			12	11	2	18.9	18.6	18.6
			25	0	2	18.8	18.6	18.5
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						1711.5 MHz	1732.5 MHz	1753.5 MHz
LTE Band 4	3	QPSK	1	0	0	20.7	20.4	20.5
			1	7	0	20.7	20.6	20.6
			1	14	0	20.6	20.3	20.4
			8	0	1	19.7	19.4	19.5
			8	4	1	19.8	19.4	19.5
			8	7	1	19.7	19.5	19.4
			15	0	1	19.6	19.4	19.4
		16QAM	1	0	1	19.6	19.8	19.5
			1	7	1	19.7	19.9	19.5
			1	14	1	19.5	19.7	19.4
			8	0	2	18.8	18.4	18.6
			8	4	2	18.9	18.4	18.6
			8	7	2	18.8	18.4	18.6
			15	0	2	18.7	18.5	18.4
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						1710.7 MHz	1732.5 MHz	1754.3 MHz
LTE Band 4	1.4	QPSK	1	0	0	20.7	20.4	20.4
			1	2	0	20.8	20.4	20.4
			1	5	0	20.7	20.3	20.3
			3	0	0	20.8	20.4	20.4
			3	1	0	20.8	20.4	20.4
			3	2	0	20.9	20.4	20.4
			6	0	1	19.8	19.4	19.3
		16QAM	1	0	1	19.9	19.8	19.4
			1	2	1	19.9	19.8	19.5
			1	5	1	19.9	19.7	19.4
			3	0	1	19.8	19.6	19.6
			3	1	1	19.9	19.6	19.6
			3	2	1	19.9	19.7	19.7
			6	0	2	18.9	18.4	18.6

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LTE Band 5 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	23.22	23.17	23.56
			1	25	0	23.02	23.20	23.34
			1	49	0	23.29	23.22	23.23
			25	0	1	22.10	22.11	22.40
			25	12	1	22.07	22.24	22.40
			25	25	1	22.12	22.18	22.31
			50	0	1	22.08	22.16	22.32
		16QAM	1	0	1	22.17	22.50	22.58
			1	25	1	21.97	22.56	22.40
			1	49	1	22.18	22.58	22.19
			25	0	2	21.17	21.15	21.53
			25	12	2	21.16	21.30	21.49
			25	25	2	21.21	21.22	21.38
			50	0	2	21.15	21.24	21.33
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	22.77	22.80	23.04
			1	12	0	22.82	22.88	22.89
			1	24	0	22.91	22.91	22.91
			12	0	1	21.84	21.84	22.02
			12	7	1	21.84	21.84	22.01
			12	13	1	21.82	21.90	21.99
			25	0	1	21.82	21.92	21.96
		16QAM	1	0	1	22.01	22.32	22.18
			1	12	1	22.02	22.43	22.02
			1	24	1	22.07	22.42	22.07
			12	0	2	20.91	21.01	21.06
			12	7	2	20.97	21.03	21.03
			12	13	2	20.96	21.11	21.03
			25	0	2	20.89	21.04	20.97
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	22.82	22.88	22.91
			1	8	0	22.87	23.06	22.98
			1	14	0	22.91	22.97	22.90
			8	0	1	21.88	21.84	21.96
			8	4	1	21.89	21.85	21.90
			8	7	1	21.91	21.97	21.84
			15	0	1	21.94	21.95	22.03
		16QAM	1	0	1	21.77	22.20	21.98
			1	8	1	21.85	22.36	22.02
			1	14	1	21.79	22.27	22.07
			8	0	2	21.03	20.75	21.15
			8	4	2	21.03	20.75	21.07
			8	7	2	21.03	20.84	21.08
			15	0	2	20.95	20.92	20.97

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LTE Band 5 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	22.71	22.72	22.79
			1	3	0	22.73	22.89	22.88
			1	5	0	22.83	22.84	22.80
			3	0	0	22.80	22.72	22.89
			3	1	0	22.63	22.89	22.87
			3	3	0	22.65	22.90	22.92
			6	0	1	21.52	21.82	21.75
		16QAM	1	0	1	21.61	22.09	21.86
			1	3	1	21.74	22.26	21.88
			1	5	1	21.74	22.20	21.85
			3	0	1	21.70	21.92	21.98
			3	1	1	21.74	22.09	22.00
			3	3	1	21.79	22.14	22.02
			6	0	2	20.76	20.83	20.96

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LTE Band 7 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	24.3	24.3	24.0
			1	49	0	23.6	24.0	23.6
			1	99	0	24.0	24.0	23.9
			50	0	1	23.1	23.1	22.9
			50	24	1	22.9	23.0	22.7
			50	50	1	23.0	23.0	22.8
			100	0	1	23.1	23.1	22.8
		16QAM	1	0	1	23.5	23.4	23.1
			1	49	1	23.3	23.0	22.8
			1	99	1	23.0	23.1	23.0
			50	0	2	22.1	22.0	21.9
			50	24	2	21.9	21.9	21.7
			50	50	2	22.0	22.0	21.8
			100	0	2	22.0	22.1	21.8

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	24.2	24.2	24.1
			1	37	0	23.6	23.9	23.6
			1	74	0	24.0	24.1	23.9
			36	0	1	23.1	23.2	22.9
			36	20	1	22.9	23.0	22.7
			36	39	1	22.9	23.0	22.8
			75	0	1	23.1	23.1	22.8
		16QAM	1	0	1	23.5	23.4	23.1
			1	37	1	23.3	22.9	22.9
			1	74	1	23.0	23.1	23.1
			36	0	2	22.1	22.0	21.9
			36	20	2	21.9	22.0	21.8
			36	39	2	21.9	22.0	21.8
			75	0	2	22.1	22.1	22.0

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	24.3	24.4	23.9
			1	25	0	24.1	24.3	23.6
			1	49	0	24.0	24.2	23.9
			25	0	1	23.1	23.1	22.9
			25	12	1	22.9	23.0	22.7
			25	25	1	23.0	23.0	22.8
			50	0	1	23.1	23.1	22.8
		16QAM	1	0	1	23.4	23.0	23.2
			1	25	1	23.2	22.8	22.8
			1	49	1	23.1	23.1	22.9
			25	0	2	22.2	21.8	21.9
			25	12	2	21.7	21.9	21.7
			25	25	2	21.8	21.7	21.8
			50	0	2	21.8	21.9	21.8

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LTE Band 7 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	23.9	23.9	23.8
			1	12	0	23.7	24.0	23.7
			1	24	0	24.0	23.7	23.9
			12	0	1	23.1	23.0	22.9
			12	7	1	22.9	23.0	22.9
			12	13	1	23.0	22.9	22.8
			25	0	1	23.0	23.0	22.8
		16QAM	1	0	1	23.3	23.4	23.1
			1	12	1	23.2	23.0	22.8
			1	24	1	23.0	23.1	23.0
			12	0	2	22.0	21.9	21.9
			12	7	2	21.9	21.9	22.0
			12	13	2	21.9	22.0	21.8
			25	0	2	21.8	21.8	21.9

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LTE Band 12 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						[redacted]	707.5 MHz	[redacted]
LTE Band 12	10	QPSK	1	0	0	[redacted]	23.4	[redacted]
			1	49	0	[redacted]	23.2	[redacted]
			1	99	0	[redacted]	23.3	[redacted]
			50	0	1	[redacted]	22.3	[redacted]
			50	24	1	[redacted]	22.3	[redacted]
			50	50	1	[redacted]	22.2	[redacted]
			100	0	1	[redacted]	22.2	[redacted]
		16QAM	1	0	1	[redacted]	22.6	[redacted]
			1	49	1	[redacted]	22.4	[redacted]
			1	99	1	[redacted]	22.5	[redacted]
			50	0	2	[redacted]	21.2	[redacted]
			50	24	2	[redacted]	21.1	[redacted]
			50	50	2	[redacted]	21.1	[redacted]
			100	0	2	[redacted]	21.1	[redacted]

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						701.5 MHz	707.5 MHz	713.5 MHz
LTE Band 12	5	QPSK	1	0	0	23.0	22.9	22.8
			1	37	0	22.8	22.7	22.9
			1	74	0	22.8	22.8	23.0
			36	0	1	21.8	21.8	21.9
			36	20	1	21.8	21.8	21.7
			36	39	1	21.7	21.8	21.7
			75	0	1	21.8	21.8	21.9
		16QAM	1	0	1	22.1	22.4	21.8
			1	37	1	22.1	22.2	22.0
			1	74	1	22.0	22.2	22.0
			36	0	2	21.1	20.9	21.1
			36	20	2	21.0	20.8	20.5
			36	39	2	20.9	20.8	20.5
			75	0	2	20.9	20.6	20.5

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						700.5 MHz	707.5 MHz	714.5 MHz
LTE Band 12	3	QPSK	1	0	0	22.7	22.9	22.9
			1	25	0	22.7	22.9	22.9
			1	49	0	22.5	22.8	22.8
			25	0	1	21.9	21.5	21.8
			25	12	1	21.9	21.7	21.7
			25	25	1	21.9	21.8	21.8
			50	0	1	21.9	21.8	21.7
		16QAM	1	0	1	21.6	22.2	21.9
			1	25	1	21.8	22.3	21.9
			1	49	1	21.5	22.2	21.8
			25	0	2	21.0	20.7	21.1
			25	12	2	21.0	20.8	21.0
			25	25	2	21.0	20.7	21.1
			50	0	2	21.0	20.9	20.8

Note(s):

10 MHz Bandwidth does not support at least three non-overlapping channels. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply per KDB 941225 D05 SAR for LTE Devices.

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LTE Band 12 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)		
						699.7 MHz	707.5 MHz	715.3 MHz
LTE Band 12	1.4	QPSK	1	0	0	22.6	22.8	22.6
			1	12	0	22.6	22.8	22.5
			1	24	0	22.6	22.7	22.8
			12	0	1	22.7	22.9	22.9
			12	7	1	22.8	22.8	22.9
			12	13	1	22.8	22.9	22.8
			25	0	1	21.7	21.8	21.7
		16QAM	1	0	1	21.6	21.8	22.2
			1	12	1	21.7	21.8	22.2
			1	24	1	21.5	21.8	22.2
			12	0	2	21.9	21.9	22.0
			12	7	2	22.0	21.9	22.0
			12	13	2	22.0	21.9	22.0
			25	0	2	21.0	20.9	20.7

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LTE Band 13 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)
						782 MHz
LTE Band 13	10	QPSK	1	0	0	22.9
			1	25	0	22.9
			1	49	0	23.1
			25	0	1	21.9
			25	12	1	21.9
			25	25	1	21.9
			50	0	1	21.9
		16QAM	1	0	1	21.8
			1	25	1	21.7
			1	49	1	21.9
			25	0	2	20.9
			25	12	2	20.9
			25	25	2	20.9
			50	0	2	20.9
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)
						782 MHz
LTE Band 13	5	QPSK	1	0	0	22.7
			1	12	0	22.5
			1	24	0	22.8
			12	0	1	21.6
			12	6	1	21.7
			12	11	1	21.6
			25	0	1	21.6
		16QAM	1	0	1	21.8
			1	12	1	21.6
			1	24	1	21.8
			12	0	2	20.6
			12	6	2	20.7
			12	11	2	20.6
			25	0	2	20.5

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.

LTE Band 17 Measured Results

SAR for LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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LTE Band 41 Measured Results

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	24.2	23.9	23.9	24.0	23.8
			1	50	0	23.8	23.4	23.4	23.5	23.4
			1	99	0	24.2	23.9	23.8	24.0	23.8
			50	0	1	23.0	22.7	22.7	22.9	22.7
			50	25	1	22.9	22.6	22.6	22.8	22.6
			50	50	1	23.0	22.7	22.6	22.9	22.7
			100	0	1	22.8	22.7	22.7	22.8	22.7
		16QAM	1	0	1	23.2	22.8	22.8	22.9	22.7
			1	50	1	23.3	22.3	22.4	23.5	22.3
			1	99	1	23.1	22.7	22.8	22.9	22.9
			50	0	2	22.0	21.7	21.6	21.9	21.8
			50	25	2	21.9	21.6	21.7	21.8	21.7
			50	50	2	22.0	21.6	21.6	21.8	21.7
			100	0	2	21.8	21.6	21.6	21.6	21.7

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	15	QPSK	1	0	0	24.0	23.7	23.8	24.1	23.6
			1	36	0	23.6	23.3	23.5	23.5	23.4
			1	74	0	24.1	23.9	23.9	24.0	23.5
			36	0	1	23.0	22.7	22.7	23.0	22.7
			36	18	1	22.9	22.6	22.5	22.9	22.6
			36	37	1	23.0	22.6	22.6	22.9	22.7
			75	0	1	22.8	22.8	22.7	22.8	22.7
		16QAM	1	0	1	23.2	21.7	22.9	22.9	22.7
			1	36	1	23.1	22.3	22.3	23.5	22.3
			1	74	1	23.2	22.7	22.8	22.9	22.9
			36	0	2	22.0	21.7	21.6	21.9	21.8
			36	18	2	21.9	21.6	21.7	21.8	21.7
			36	37	2	22.0	21.6	21.6	21.8	21.7
			75	0	2	21.9	21.5	21.7	21.6	21.6

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	10	QPSK	1	0	0	23.8	23.5	23.8	23.7	23.6
			1	25	0	23.8	23.1	23.5	23.5	23.4
			1	49	0	24.0	23.9	23.9	24.0	23.6
			25	0	1	23.0	22.7	22.7	23.0	22.4
			25	12	1	22.9	22.6	22.5	22.9	22.5
			25	25	1	22.9	22.5	22.6	22.9	22.7
			50	0	1	22.8	22.5	22.7	22.8	22.7
		16QAM	1	0	1	23.2	21.7	22.8	22.9	22.7
			1	25	1	23.1	22.3	22.2	23.5	22.3
			1	49	1	23.2	22.6	22.7	22.7	22.8
			25	0	2	22.0	21.7	21.6	21.6	21.8
			25	12	2	21.9	22.4	21.7	21.8	21.7
			25	25	2	22.0	21.6	21.6	21.8	21.7
			50	0	2	22.0	21.6	21.8	21.7	21.8

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LTE Band 41 Measured Results (continued)

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Max. Avg Pwr (dBm)				
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	5	QPSK	1	0	0	23.8	23.5	23.7	23.8	24.1
			1	12	0	23.8	23.1	23.5	23.5	23.5
			1	24	0	24.0	23.9	24.0	23.9	24.0
			12	0	1	23.0	22.7	23.0	22.7	23.0
			12	7	1	22.9	22.6	22.9	22.5	22.9
			12	13	1	22.9	22.5	22.9	22.6	22.9
			25	0	1	22.8	22.5	22.8	22.7	22.8
		16QAM	1	0	1	22.7	22.8	23.2	22.8	22.9
			1	12	1	22.3	22.2	23.1	22.3	23.5
			1	24	1	22.9	22.7	23.2	22.7	22.9
			12	0	2	21.8	21.6	22.0	21.7	21.9
			12	7	2	21.7	21.7	21.9	21.6	21.8
			12	13	2	21.7	21.6	22.0	21.6	21.8
			25	0	2	21.6	21.8	22.0	21.6	21.6

9.4. WLAN and Bluetooth

The model FCC ID: PY7-29752M shares the same tune up power targets as model FCC ID: PY7-89807R for WLAN and Bluetooth operations. For this reason the SAR data for the WLAN and Bluetooth operations for FCC ID: PY7-29752M is considered representative for FCC ID: PY7-89807R. Refer to §6.6 for Re-use of Test Data.

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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 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

KDB 648474 D04 Handset SAR (Phablet Only):

When Hotspot Mode is not supported, 10-g Extremity SAR is required for all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge in direct contact with a flat phantom, to address interactive hand use exposure conditions.
When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

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.
- For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. 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; therefore, the requirement for H, M and L channels may not fully apply.

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10.1. GSM850

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	GPRS 4 Slots	0	Left Touch	190	836.6	28.2	27.6	0.261	**0.300**	1
			Left Tilt	190	836.6	28.2	27.6	0.147	0.169	
			Right Touch	190	836.6	28.2	27.6	0.248	0.285	
			Right Tilt	190	836.6	28.2	27.6	0.122	0.140	
Body-worn	GPRS 4 Slots	15	Rear	190	836.6	28.2	27.6	0.331	**0.380**	2
			Front	190	836.6	28.2	27.6	0.236	0.271	
Hotspot	GPRS 4 Slots	10	Rear	190	836.6	28.2	27.6	0.389	0.447	
			Front	190	836.6	28.2	27.6	0.276	0.317	
			Edge 2	190	836.6	28.2	27.6	0.201	0.231	
			Edge 3	190	836.6	28.2	27.6	0.286	0.328	
			Edge 4	190	836.6	28.2	27.6	0.260	0.299	
Hotspot	DTM CS+2 Slots	10	Rear	190	836.6	31.2	30.5	0.396	**0.465**	3

10.2. GSM1900

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	GPRS 4 Slots	0	Left Touch	661	1880.0	24.7	24.2	0.027	0.030	
			Left Tilt	661	1880.0	24.7	24.2	0.010	0.011	
			Right Touch	661	1880.0	24.7	24.2	0.046	**0.052**	4
			Right Tilt	661	1880.0	24.7	24.2	0.010	0.011	
Body-worn	GPRS 4 Slots	15	Rear	661	1880.0	24.7	24.2	0.173	**0.194**	5
			Front	661	1880.0	24.7	24.2	0.124	0.139	
Hotspot	GPRS 4 Slots	10	Rear	661	1880.0	24.7	24.2	0.377	0.423	
			Front	661	1880.0	24.7	24.2	0.277	0.311	
			Edge 2	661	1880.0	24.7	24.2	0.028	0.031	
			Edge 3	661	1880.0	24.7	24.2	0.330	0.370	
			Edge 4	661	1880.0	24.7	24.2	0.079	0.089	
Hotspot	DTM CS+2 Slots	10	Rear	661	1880.0	27.7	26.8	0.415	**0.511**	6

10.3. W-CDMA Band V

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	Power (dBm)		1-g SAR (W/kg)		Plot No.
						Tune-up limit	Meas.	Meas.	Scaled	
Head	Rel 99 RMC	0	Left Touch	4183	836.6	24.7	24.3	0.360	**0.391**	7
			Left Tilt	4183	836.6	24.7	24.3	0.158	0.172	
			Right Touch	4183	836.6	24.7	24.3	0.333	0.362	
			Right Tilt	4183	836.6	24.7	24.3	0.154	0.167	
Body-worn	Rel 99 RMC	15	Rear	4183	836.6	24.7	24.3	0.356	**0.387**	8
			Front	4183	836.6	24.7	24.3	0.260	0.282	
Hotspot	Rel 99 RMC	10	Rear	4183	836.6	24.7	24.3	0.490	**0.532**	9
			Front	4183	836.6	24.7	24.3	0.404	0.439	
			Edge 2	4183	836.6	24.7	24.3	0.224	0.243	
			Edge 3	4183	836.6	24.7	24.3	0.389	0.423	
			Edge 4	4183	836.6	24.7	24.3	0.338	0.367	

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10.4. LTE Band 4 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	20175	1732.5	1	99	21.5	20.7	0.040	**0.048**	10
						50	50	20.5	19.5	0.029	0.037	
			Left Tilt	20175	1732.5	1	99	21.5	20.7	0.013	0.016	
						50	50	20.5	19.5	0.006	0.008	
			Right Touch	20175	1732.5	1	99	21.5	20.7	0.039	0.047	
						50	50	20.5	19.5	0.030	0.038	
			Right Tilt	20175	1732.5	1	99	21.5	20.7	0.006	0.007	
						50	50	20.5	19.5	0.004	0.006	
Body-worn	QPSK	15	Rear	20175	1732.5	1	99	21.5	20.7	0.141	**0.168**	11
						50	50	20.5	19.5	0.106	0.134	
			Front	20175	1732.5	1	99	21.5	20.7	0.108	0.129	
						50	50	20.5	19.5	0.082	0.103	
Hotspot	QPSK	10	Rear	20175	1732.5	1	99	21.5	20.7	0.377	**0.450**	12
						50	50	20.5	19.5	0.284	0.358	
			Front	20175	1732.5	1	99	21.5	20.7	0.248	0.296	
						50	50	20.5	19.5	0.187	0.236	
			Edge 2	20175	1732.5	1	99	21.5	20.7	0.015	0.018	
						50	50	20.5	19.5	0.010	0.013	
			Edge 3	20175	1732.5	1	99	21.5	20.7	0.314	0.375	
						50	50	20.5	19.5	0.236	0.298	
			Edge 4	20175	1732.5	1	99	21.5	20.7	0.067	0.080	
						50	50	20.5	19.5	0.050	0.063	

10.5. LTE Band 5 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	20525	836.5	1	49	24.5	23.2	0.342	**0.459**	13
						25	12	23.5	22.2	0.260	0.348	
			Left Tilt	20525	836.5	1	49	24.5	23.2	0.181	0.243	
						25	12	23.5	22.2	0.139	0.186	
			Right Touch	20525	836.5	1	49	24.5	23.2	0.318	0.427	
						25	12	23.5	22.2	0.244	0.327	
			Right Tilt	20525	836.5	1	49	24.5	23.2	0.183	0.245	
						25	12	23.5	22.2	0.143	0.191	
Body-worn	QPSK	15	Rear	20525	836.5	1	49	24.5	23.2	0.390	**0.523**	14
						25	12	23.5	22.2	0.303	0.405	
			Front	20525	836.5	1	49	24.5	23.2	0.312	0.418	
						25	12	23.5	22.2	0.239	0.320	
Hotspot	QPSK	10	Rear	20525	836.5	1	49	24.5	23.2	0.438	**0.587**	15
						25	12	23.5	22.2	0.341	0.456	
			Front	20525	836.5	1	49	24.5	23.2	0.351	0.471	
						25	12	23.5	22.2	0.271	0.363	
			Edge 2	20525	836.5	1	49	24.5	23.2	0.230	0.308	
						25	12	23.5	22.2	0.177	0.237	
			Edge 3	20525	836.5	1	49	24.5	23.2	0.369	0.495	
						25	12	23.5	22.2	0.288	0.385	
			Edge 4	20525	836.5	1	49	24.5	23.2	0.363	0.487	
						25	12	23.5	22.2	0.279	0.373	

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10.6. LTE Band 7 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	21100	2535.0	1	0	24.5	24.3	0.177	0.185	
						50	0	23.5	23.1	0.121	0.133	
			Left Tilt	21100	2535.0	1	0	24.5	24.3	0.082	0.086	
						50	0	23.5	23.1	0.049	0.053	
			Right Touch	21100	2535.0	1	0	24.5	24.3	0.302	**0.316**	16
						50	0	23.5	23.1	0.229	0.251	
			Right Tilt	21100	2535.0	1	0	24.5	24.3	0.047	0.049	
						50	0	23.5	23.1	0.035	0.038	
Body-worn	QPSK	15	Rear	21100	2535.0	1	0	24.5	24.3	0.214	**0.224**	17
						50	0	23.5	23.1	0.157	0.172	
			Front	21100	2535.0	1	0	24.5	24.3	0.188	0.197	
						50	0	23.5	23.1	0.144	0.158	
Hotspot	QPSK	10	Rear	21100	2535.0	1	0	24.5	24.3	0.455	**0.476**	18
						50	0	23.5	23.1	0.323	0.354	
			Front	21100	2535.0	1	0	24.5	24.3	0.416	0.436	
						50	0	23.5	23.1	0.317	0.348	
			Edge 2	21100	2535.0	1	0	24.5	24.3	0.199	0.208	
						50	0	23.5	23.1	0.164	0.180	
			Edge 3	21100	2535.0	1	0	24.5	24.3	0.273	0.286	
						50	0	23.5	23.1	0.206	0.226	
			Edge 4	21100	2535.0	1	0	24.5	24.3	0.049	0.051	
						50	0	23.5	23.1	0.033	0.036	

10.7. LTE Band 12 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	23095	707.5	1	0	24.5	23.4	0.127	**0.164**	19
						25	0	23.5	22.3	0.101	0.133	
			Left Tilt	23095	707.5	1	0	24.5	23.4	0.072	0.093	
						25	0	23.5	22.3	0.058	0.076	
			Right Touch	23095	707.5	1	0	24.5	23.4	0.106	0.137	
						25	0	23.5	22.3	0.083	0.109	
			Right Tilt	23095	707.5	1	0	24.5	23.4	0.065	0.084	
						25	0	23.5	22.3	0.051	0.067	
Body-worn	QPSK	15	Rear	23095	707.5	1	0	24.5	23.4	0.157	**0.202**	20
						25	0	23.5	22.3	0.115	0.152	
			Front	23095	707.5	1	0	24.5	23.4	0.136	0.175	
						25	0	23.5	22.3	0.101	0.133	
Hotspot	QPSK	10	Rear	23095	707.5	1	0	24.5	23.4	0.182	0.234	
						25	0	23.5	22.3	0.133	0.175	
			Front	23095	707.5	1	0	24.5	23.4	0.150	0.193	
						25	0	23.5	22.3	0.112	0.148	
			Edge 2	23095	707.5	1	0	24.5	23.4	0.134	0.173	
						25	0	23.5	22.3	0.103	0.136	
			Edge 3	23095	707.5	1	0	24.5	23.4	0.064	0.082	
						25	0	23.5	22.3	0.048	0.063	
			Edge 4	23095	707.5	1	0	24.5	23.4	0.266	**0.343**	21
						25	0	23.5	22.3	0.199	0.262	

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10.8. LTE Band 13 (10MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	23230	782.0	1	49	24.0	23.1	0.217	**0.266**	22
						25	25	23.0	21.9	0.164	0.210	
			Left Tilt	23230	782.0	1	49	24.0	23.1	0.097	0.119	
						25	25	23.0	21.9	0.078	0.100	
			Right Touch	23230	782.0	1	49	24.0	23.1	0.184	0.225	
						25	25	23.0	21.9	0.140	0.179	
			Right Tilt	23230	782.0	1	49	24.0	23.1	0.087	0.107	
						25	25	23.0	21.9	0.070	0.090	
Body-worn	QPSK	15	Rear	23230	782.0	1	49	24.0	23.1	0.286	**0.350**	23
						25	25	23.0	21.9	0.222	0.284	
			Front	23230	782.0	1	49	24.0	23.1	0.213	0.261	
						25	25	23.0	21.9	0.166	0.212	
Hotspot	QPSK	10	Rear	23230	782.0	1	49	24.0	23.1	0.333	**0.408**	24
						25	25	23.0	21.9	0.251	0.321	
			Front	23230	782.0	1	49	24.0	23.1	0.249	0.305	
						25	25	23.0	21.9	0.170	0.217	
			Edge 2	23230	782.0	1	49	24.0	23.1	0.167	0.205	
						25	25	23.0	21.9	0.127	0.162	
			Edge 3	23230	782.0	1	49	24.0	23.1	0.219	0.268	
						25	25	23.0	21.9	0.163	0.208	
			Edge 4	23230	782.0	1	49	24.0	23.1	0.253	0.310	
						25	25	23.0	21.9	0.192	0.245	

10.9. LTE Band 17 (10MHz Bandwidth)

SAR for LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

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10.10. LTE Band 41 (20MHz Bandwidth)

RF Exposure Conditions	Mode	Dist. (mm)	Test Position	Ch #.	Freq. (MHz)	RB Allocation	RB offset	Power (dBm)		1-g SAR (W/kg)		Plot No.
								Tune-up limit	Meas.	Meas.	Scaled	
Head	QPSK	0	Left Touch	40620	2593.0	1	0	24.5	23.9	0.022	0.025	
						50	0	23.5	22.7	0.012	0.014	
			Left Tilt	40620	2593.0	1	0	24.5	23.9	0.006	0.006	
						50	0	23.5	22.7	0.000	0.000	
			Right Touch	40620	2593.0	1	0	24.5	23.9	0.056	**0.064**	25
						50	0	23.5	22.7	0.035	0.042	
			Right Tilt	40620	2593.0	1	0	24.5	23.9	0.003	0.003	
						50	0	23.5	22.7	< 0.001	< 0.001	
Body-worn	QPSK	15	Rear	40620	2593.0	1	0	24.5	23.9	0.033	**0.038**	26
						50	0	23.5	22.7	0.023	0.028	
			Front	40620	2593.0	1	0	24.5	23.9	0.023	0.026	
						50	0	23.5	22.7	0.018	0.022	
Hotspot	QPSK	10	Rear	40620	2593.0	1	0	24.5	23.9	0.073	**0.084**	27
						50	0	23.5	22.7	0.050	0.060	
			Front	26865	831.5	1	0	24.5	23.9	0.048	0.055	
						36	0	23.5	22.7	0.034	0.041	
			Edge 2	40620	2593.0	1	0	24.5	23.9	0.030	0.034	
						50	0	23.5	22.7	0.019	0.023	
			Edge 3	40620	2593.0	1	0	24.5	23.9	0.053	0.061	
						50	0	23.5	22.7	0.037	0.044	
			Edge 4	40620	2593.0	1	0	24.5	23.9	0.003	0.004	
						50	0	23.5	22.7	<0.001	< 0.001	

10.11. WLAN and Bluetooth

According to the manufacturer attestation letter, FCC ID: PY7-29752M and FCC ID: PY7-89807R unlicensed radios (WLAN/BT/BLE/NFC) are electronically identical. They share the same chipset, same power and same antenna performance including antenna gain. Therefore, FCC ID: PY7-89807R is able to leverage test data from FCC ID: PY7-29752M. Refer to §6.6 for Re-use of Test Data.

The Wi-Fi and Bluetooth results (measured or estimated) from the original filling are used for Simultaneous Transmission Analysis purposes.

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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 <0.8 or 2 W/kg (1-g or 10-g respectively); steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.8 or 2 W/kg (1-g or 10-g respectively), 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 3 (1-g or 10-g respectively) or when the original or repeated measurement is ≥ 1.45 or 3.6 W/kg (~ 10% from the 1-g or 10-g respective SAR limit).
4) Perform a third repeated measurement only if the original, first, or second repeated measurement is ≥ 1.5 or 3.75 W/kg (1-g or 10-g respectively) and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 or 3 (1-g or 10-g respectively).

Frequency Band (MHz)	Air Interface	RF Exposure Conditions	Test Position	Repeated SAR (Yes/No)	Highest Measured SAR (W/kg)
700	LTE Band 12	Hotspot	Edge 4	No	0.266
	LTE Band 13	Hotspot	Rear	No	0.333
850	GSM 850	Hotspot	Rear	No	0.396
	WCDMA Band V	Hotspot	Rear	No	0.490
	LTE Band 5	Hotspot	Rear	No	0.438
1900	GSM 1900	Hotspot	Rear	No	0.415
1700	LTE Band 4	Hotspot	Rear	No	0.377
2600	LTE Band 7	Hotspot	Rear	No	0.455
	LTE Band 41	Hotspot	Rear	No	0.073

Note(s):
Repeated measurement is not required when the original highest measured SAR is <0.8 (1-g).

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12. Simultaneous Transmission SAR Analysis

Simultaneous Transmission Condition

Case	Cellular	WLAN/BT Main	WLAN/BT Sub	Note
1	GSM/GPRS/EDGE	BT/BLE	(None)	
2		WLAN 2.4G	WLAN 2.4G	
3		WLAN 5G	WLAN 5G	
4	UMTS/HSPA	BT/BLE	(None)	
5		WLAN 2.4G	WLAN 2.4G	
6		WLAN 5G	WLAN 5G	
7	LTE	BT/BLE	(None)	
8		WLAN 2.4G	WLAN 2.4G	
9		WLAN 5G	WLAN 5G	
10	(None)	BT/BLE WLAN 5G	 WLAN 5G	
11	GSM/GPRS/EDGE	BT/BLE WLAN 5G	 WLAN 5G	
12	UMTS/HSPA	BT/BLE WLAN 5G	 WLAN 5G	
13	LTE	BT/BLE WLAN 5G	 WLAN 5G	
14	GSM/GPRS/EDGE	WLAN 2.4G	WLAN 5G	
15		WLAN 5G	WLAN 2.4G	
16	UMTS/HSPA	WLAN 2.4G	WLAN 5G	
17		WLAN 5G	WLAN 2.4G	
18	LTE	WLAN 2.4G	WLAN 5G	
19		WLAN 5G	WLAN 2.4G	

All Wi-Fi and Bluetooth SAR values (measured or estimated) used in this report were taken from SAR test report 16J23633A-S1V3, submitted under FCC ID: PY7-29752M. Refer to §6.6.4 for Reference Details.

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

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.300	0.629	0.377	0.810	0.322		1.306	1.432	1.251	1.487		
	Left Tilt	0.169	0.629	0.377	0.810	0.322		1.175	1.301	1.120	1.356		
	Right Touch	0.285	0.196	0.377	0.166	0.322		0.858	0.773	0.803	0.828		
	Right Tilt	0.140	0.196	0.377	0.166	0.322		0.713	0.628	0.658	0.683		
Body-worn	Rear	0.380	0.055	0.126	0.039	0.107	0.210	0.561	0.526	0.542	0.545	0.736	0.755
	Front	0.271	0.055	0.126	0.039	0.107	0.210	0.452	0.417	0.433	0.436	0.627	0.646
Hotspot	Rear	0.447	0.125	0.189				0.761	0.447	0.572	0.636		
	Front	0.317	0.125	0.189				0.631	0.317	0.442	0.506		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.231	0.125	0.189				0.545	0.231	0.356	0.420		
	Edge 3	0.328						0.328	0.328	0.328	0.328		
	Edge 4	0.299						0.299	0.299	0.299	0.299		

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

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.030	0.629	0.377	0.810	0.322		1.036	1.162	0.981	1.217		
	Left Tilt	0.011	0.629	0.377	0.810	0.322		1.017	1.143	0.962	1.198		
	Right Touch	0.052	0.196	0.377	0.166	0.322		0.625	0.540	0.570	0.595		
	Right Tilt	0.011	0.196	0.377	0.166	0.322		0.584	0.499	0.529	0.554		
Body-worn	Rear	0.194	0.055	0.126	0.039	0.107	0.210	0.375	0.340	0.356	0.359	0.550	0.569
	Front	0.139	0.055	0.126	0.039	0.107	0.210	0.320	0.285	0.301	0.304	0.495	0.514
Hotspot	Rear	0.423	0.125	0.189				0.737	0.423	0.548	0.612		
	Front	0.311	0.125	0.189				0.625	0.311	0.436	0.500		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.031	0.125	0.189				0.345	0.031	0.156	0.220		
	Edge 3	0.370						0.370	0.370	0.370	0.370		
	Edge 4	0.089						0.089	0.089	0.089	0.089		

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

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.391	0.629	0.377	0.810	0.322		1.397	1.523	1.342	1.578		
	Left Tilt	0.172	0.629	0.377	0.810	0.322		1.178	1.304	1.123	1.359		
	Right Touch	0.362	0.196	0.377	0.166	0.322		0.935	0.850	0.880	0.905		
	Right Tilt	0.167	0.196	0.377	0.166	0.322		0.740	0.655	0.685	0.710		
Body-worn	Rear	0.387	0.055	0.126	0.039	0.107	0.210	0.568	0.533	0.549	0.552	0.743	0.762
	Front	0.282	0.055	0.126	0.039	0.107	0.210	0.463	0.428	0.444	0.447	0.638	0.657
Hotspot	Rear	0.532	0.125	0.189				0.846	0.532	0.657	0.721		
	Front	0.439	0.125	0.189				0.753	0.439	0.564	0.628		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.243	0.125	0.189				0.557	0.243	0.368	0.432		
	Edge 3	0.423						0.423	0.423	0.423	0.423		
	Edge 4	0.367						0.367	0.367	0.367	0.367		

12.4. Sum of the SAR for LTE Band 4 & Wi-Fi & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.048	0.629	0.377	0.810	0.322		1.054	1.180	0.999	1.235		
	Left Tilt	0.016	0.629	0.377	0.810	0.322		1.022	1.148	0.967	1.203		
	Right Touch	0.047	0.196	0.377	0.166	0.322		0.620	0.535	0.565	0.590		
	Right Tilt	0.007	0.196	0.377	0.166	0.322		0.580	0.495	0.525	0.550		
Body-worn	Rear	0.168	0.055	0.126	0.039	0.107	0.210	0.349	0.314	0.330	0.333	0.524	0.543
	Front	0.129	0.055	0.126	0.039	0.107	0.210	0.310	0.275	0.291	0.294	0.485	0.504
Hotspot	Rear	0.450	0.125	0.189				0.764	0.450	0.575	0.639		
	Front	0.296	0.125	0.189				0.610	0.296	0.421	0.485		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.018	0.125	0.189				0.332	0.018	0.143	0.207		
	Edge 3	0.375						0.375	0.375	0.375	0.375		
	Edge 4	0.080						0.080	0.080	0.080	0.080		

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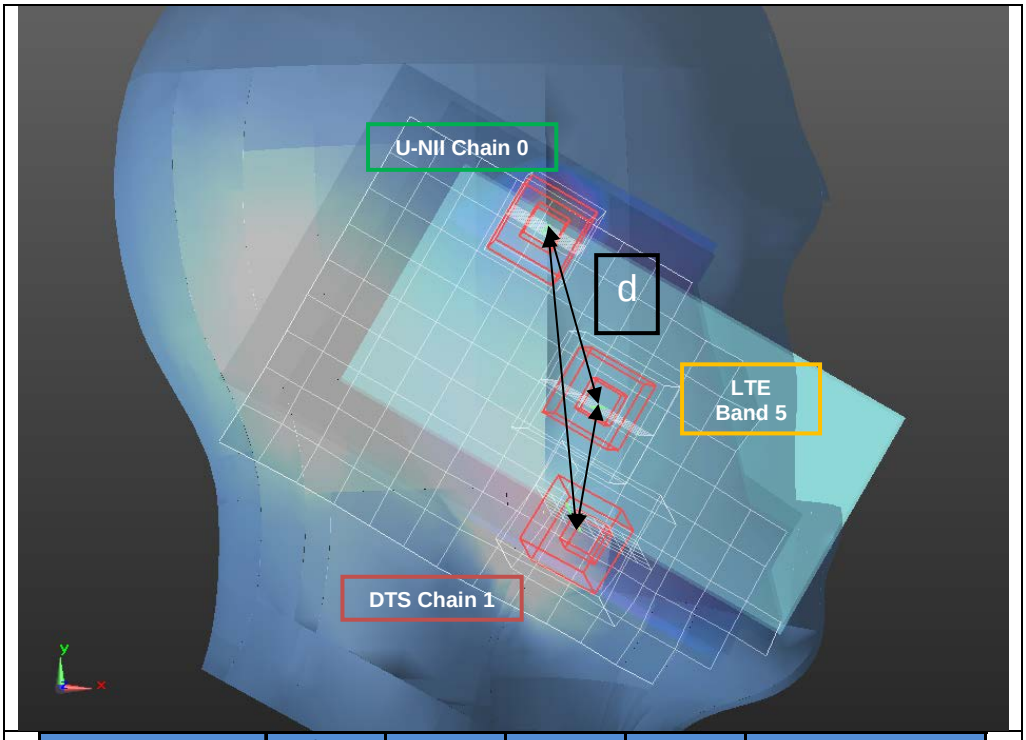
12.5. Sum of the SAR for LTE Band 5 & Wi-Fi & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.459	0.629	0.377	0.810	0.322		1.465	1.591	1.410	1.646		
	Left Tilt	0.243	0.629	0.377	0.810	0.322		1.249	1.375	1.194	1.430		
	Right Touch	0.427	0.196	0.377	0.166	0.322		1.000	0.915	0.945	0.970		
	Right Tilt	0.245	0.196	0.377	0.166	0.322		0.818	0.733	0.763	0.788		
Body-worn	Rear	0.523	0.055	0.126	0.039	0.107	0.210	0.704	0.669	0.685	0.688	0.879	0.898
	Front	0.418	0.055	0.126	0.039	0.107	0.210	0.599	0.564	0.580	0.583	0.774	0.793
Hotspot	Rear	0.587	0.125	0.189				0.901	0.587	0.712	0.776		
	Front	0.471	0.125	0.189				0.785	0.471	0.596	0.660		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.308	0.125	0.189				0.622	0.308	0.433	0.497		
	Edge 3	0.495						0.495	0.495	0.495	0.495		
	Edge 4	0.487						0.487	0.487	0.487	0.487		

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	Standalone SAR (W/kg)			∑ 1-g SAR (W/kg)		Calculated distance (mm)	SPLSR (≤ 0.04)	Volume Scan (Yes/ No)	Figure
	① WWAN	② DTS	③ U-NII						
Left Touch	0.459	0.377	0.810	①+②+③	1.646				1
	0.459	0.377		①+②	0.836	42.9	0.02	No	
	0.459		0.810	①+③	1.269	55.8	0.03	No	
		0.377	0.810	②+③	1.187	95.3	0.01	No	

Figure (1)



Mode		Peak SAR W/kg	X m	Y m	Z m	d: Calculated distance (mm)	
LTE Band 5	①	0.383	0.0675	0.273	-0.174	①+②	42.9
DTS Chain 1	②	0.0173	0.0619	0.231	-0.167	①+③	55.8
U-NII Chain 0	③	1.23	0.0473	0.325	-0.173	②+③	95.3

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

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12.6. Sum of the SAR for LTE Band 7 & Wi-Fi & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.185	0.629	0.377	0.810	0.322		1.191	1.317	1.136	1.372		
	Left Tilt	0.086	0.629	0.377	0.810	0.322		1.092	1.218	1.037	1.273		
	Right Touch	0.316	0.196	0.377	0.166	0.322		0.889	0.804	0.834	0.859		
	Right Tilt	0.049	0.196	0.377	0.166	0.322		0.622	0.537	0.567	0.592		
Body-worn	Rear	0.224	0.055	0.126	0.039	0.107	0.210	0.405	0.370	0.386	0.389	0.580	0.599
	Front	0.197	0.055	0.126	0.039	0.107	0.210	0.378	0.343	0.359	0.362	0.553	0.572
Hotspot	Rear	0.476	0.125	0.189				0.790	0.476	0.601	0.665		
	Front	0.436	0.125	0.189				0.750	0.436	0.561	0.625		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.208	0.125	0.189				0.522	0.208	0.333	0.397		
	Edge 3	0.286						0.286	0.286	0.286	0.286		
	Edge 4	0.051						0.051	0.051	0.051	0.051		

12.7. Sum of the SAR for LTE Band 12 & Wi-Fi & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.164	0.629	0.377	0.810	0.322		1.170	1.296	1.115	1.351		
	Left Tilt	0.093	0.629	0.377	0.810	0.322		1.099	1.225	1.044	1.280		
	Right Touch	0.137	0.196	0.377	0.166	0.322		0.710	0.625	0.655	0.680		
	Right Tilt	0.084	0.196	0.377	0.166	0.322		0.657	0.572	0.602	0.627		
Body-worn	Rear	0.202	0.055	0.126	0.039	0.107	0.210	0.383	0.348	0.364	0.367	0.558	0.577
	Front	0.175	0.055	0.126	0.039	0.107	0.210	0.356	0.321	0.337	0.340	0.531	0.550
Hotspot	Rear	0.234	0.125	0.189				0.548	0.234	0.359	0.423		
	Front	0.193	0.125	0.189				0.507	0.193	0.318	0.382		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.173	0.125	0.189				0.487	0.173	0.298	0.362		
	Edge 3	0.082						0.082	0.082	0.082	0.082		
	Edge 4	0.343						0.343	0.343	0.343	0.343		

12.8. Sum of the SAR for LTE Band 13 & Wi-Fi & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.266	0.629	0.377	0.810	0.322		1.272	1.398	1.217	1.453		
	Left Tilt	0.119	0.629	0.377	0.810	0.322		1.125	1.251	1.070	1.306		
	Right Touch	0.225	0.196	0.377	0.166	0.322		0.798	0.713	0.743	0.768		
	Right Tilt	0.107	0.196	0.377	0.166	0.322		0.680	0.595	0.625	0.650		
Body-worn	Rear	0.350	0.055	0.126	0.039	0.107	0.210	0.531	0.496	0.512	0.515	0.706	0.725
	Front	0.261	0.055	0.126	0.039	0.107	0.210	0.442	0.407	0.423	0.426	0.617	0.636
Hotspot	Rear	0.408	0.125	0.189				0.722	0.408	0.533	0.597		
	Front	0.305	0.125	0.189				0.619	0.305	0.430	0.494		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.205	0.125	0.189				0.519	0.205	0.330	0.394		
	Edge 3	0.268						0.268	0.268	0.268	0.268		
	Edge 4	0.310						0.310	0.310	0.310	0.310		

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

SAR for LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

12.10. Sum of the SAR for LTE Band 41 & Wi-Fi & BT

RF Exposure conditions	Test Position	Standalone SAR (W/kg)						∑ 1-g SAR (W/kg)					
		WWAN	DTS		U-NII		BT	WWAN + DTS	WWAN + U-NII	WWAN+DTS+U-NII	WWAN+DTS+U-NII	WWAN+U-NII+BT	WWAN+DTS+U-NII+BT
		①	Chain 0 ②	Chain 1 ③	Chain 0 ④	Chain 1 ⑤	⑥	①+②+③	①+④+⑤	①+②+⑤	①+③+④	①+④+⑤+⑥	①+③+④+⑥
Head	Left Touch	0.025	0.629	0.377	0.810	0.322		1.031	1.157	0.976	1.212		
	Left Tilt	0.006	0.629	0.377	0.810	0.322		1.012	1.138	0.957	1.193		
	Right Touch	0.064	0.196	0.377	0.166	0.322		0.637	0.552	0.582	0.607		
	Right Tilt	0.003	0.196	0.377	0.166	0.322		0.576	0.491	0.521	0.546		
Body-worn	Rear	0.038	0.055	0.126	0.039	0.107	0.210	0.219	0.184	0.200	0.203	0.394	0.413
	Front	0.026	0.055	0.126	0.039	0.107	0.210	0.207	0.172	0.188	0.191	0.382	0.401
Hotspot	Rear	0.084	0.125	0.189				0.398	0.084	0.209	0.273		
	Front	0.055	0.125	0.189				0.369	0.055	0.180	0.244		
	Edge 1		0.125	0.189				0.314		0.125	0.189		
	Edge 2	0.034	0.125	0.189				0.348	0.034	0.159	0.223		
	Edge 3	0.061						0.061	0.061	0.061	0.061		
	Edge 4	0.004						0.004	0.004	0.004	0.004		

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.

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Appendixes

Refer to separated files for the following appendixes.

16J23633M-S1V1 SAR_App A Setup Photos and Ant. Locations

16J23633M-S1V1 SAR_App B System Check Plots

16J23633M-S1V1 SAR_App C Highest Test Plots

16J23633M-S1V1 SAR_App D Tissue Ingredients

16J23633M-S1V1 SAR_App E Probe Cal. Certificates

16J23633M-S1V1 SAR_App F Dipole Cal. Certificates

END OF REPORT

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