Part 0: SAR Characterization
EUT RF Exposure Compliance Test Report

For
SMARTPHONE

FCC ID: BCG-E8440A
Model Name: A3105

Report Number: 14523772-S4V1
Issue Date: 8/9/2023

Prepared for
APPLE INC.
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CUPERTINO, CA 95014-2084

Prepared by
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Revision History

Rev.	Date	Revisions	Revised By
V1	8/9/2023	Initial Issue	--

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1. Attestation of Test Results

Applicant Name		APPLE INC.						
FCC ID		BCG-E8440A						
Model Name		A3105						
Reference SAR Report		14523772-S1						
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)						
		TNE	PCE	CBE	DTS	NII	DSS	DXX
Head		0.775	0.940	0.927	1.092	0.776	0.712	N/A
Body-worn (Dist.= 5 mm)		0.938	0.947	0.949	0.924	1.107	0.890	N/A
Hotspot (Dist.= 5 mm)		0.938	0.947	0.949	1.132	1.107	0.917	N/A
Extremities (Dist.= 0 mm)		N/A	N/A	N/A	N/A	N/A	N/A	0.006
Simultaneous TX	Head	1.231	1.393	1.383	1.393	1.393	1.375	N/A
	Body-worn	1.451	1.460	1.462	1.423	1.462	1.462	N/A
	Hotspot	1.451	1.460	1.462	1.423	1.462	1.462	N/A
Date Tested		6/21/2023 to 7/31/2023						

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.
This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.
The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.
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 A2LA, NIST, or any agency of the U.S. Government, or any agency of the U.S. government.

Approved & Released By:	Prepared By:
	
Dave Weaver Operations Leader UL Verification Services Inc.	Nathan Sousa Senior Laboratory Engineer UL Verification Services Inc.

2. Facilities and Accreditation

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

47173 Benicia Street	47266 Benicia Street
SAR Labs A to H	SAR Labs 1 to 19

UL Verification Services Inc. is accredited by A2LA, Certificate Number 0751.05

3. Introduction

The equipment under test (EUT) is a smart phone. It contains the Qualcomm modem supporting 2G/3G/4G/5G WWAN technologies and millimeter wave 5G NR bands. These WWAN modems enable Qualcomm's Smart Transmit feature to control and manage transmitting power, in real time, and to ensure the time-averaged RF exposure is always in compliance with the FCC requirement.

In this report, Part 0, the EUT SAR and power density (PD) are characterized for WWAN radios (2G/3G/4G/5G/ millimeter wave 5G NR) to determine the power limit that corresponds to the exposure design target after accounting for all device design related uncertainties, i.e., $SAR_{Design\ Target}$ (< FCC SAR limit) for Sub-6 GHz radio and $PD_{Design\ Target}$ (< FCC PD limit) for millimeter wave radio. The SAR Characterization and PD Characterization are denoted as *SAR Char* and *PD Char*.

SAR Char and *PD Char* will be used as input for Qualcomm Smart Transmit to operate. Both *SAR Char* and *PD Char* will be loaded and stored in the EUT via the *Embedded File System* (EFS).

The EUT supports WLAN/BT/MSS radio(s) as well, but the WLAN/BT/MSS modem is not enabled with Qualcomm's Smart Transmit feature.

4. SAR Characterization

SAR Char is generated to cover all radio configurations and usage scenarios that are reported in the initial FCC submission.

4.1. Worst-case SAR Determination

Based on FCC KDBs, in general, for a smartphone, the SAR evaluation is required for the exposure scenarios shown in Figure 4-1.

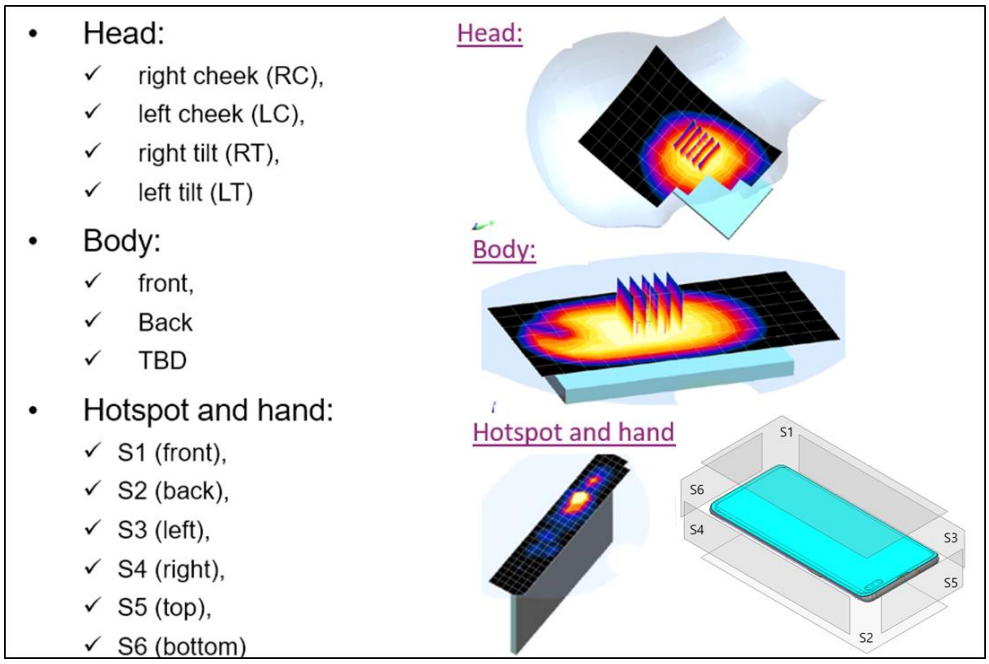
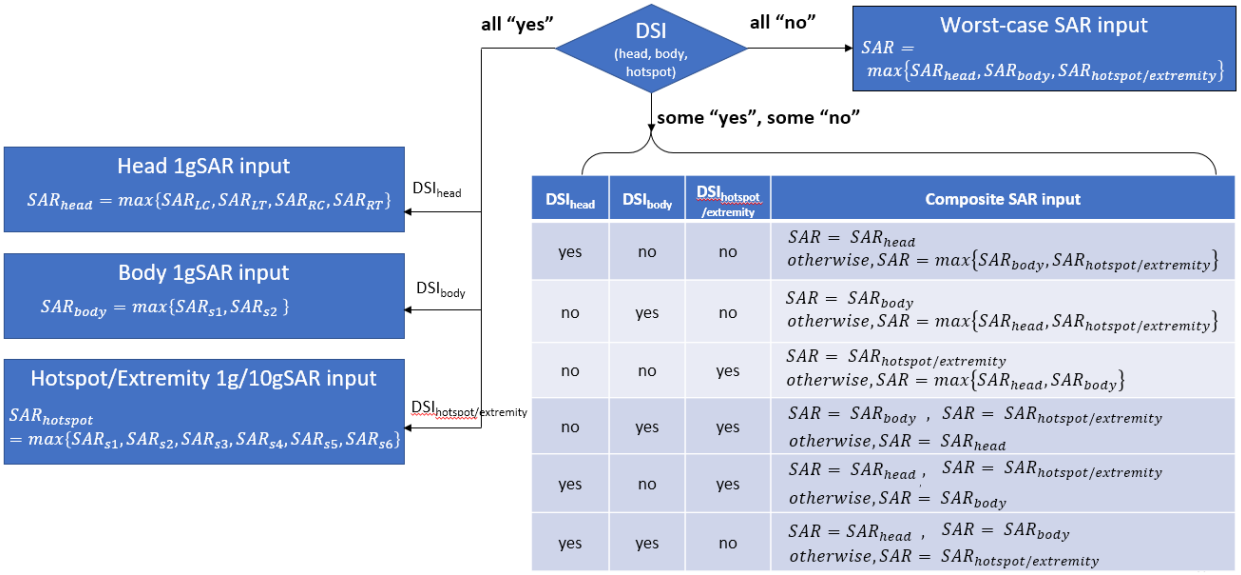


Figure 4-1: SAR evaluation for smartphone application

The *Device State Index* (DSI) used in Figure 4-2 represents each exposure scenario. Depending on the detection scheme implemented in the smartphone, the worst-case SAR is further grouped and determined for each or combined exposure scenario(s). Note, for the 1-g SAR versus 10-g SAR exposure scenario, the worst-case is determined in term of exposure ratio (i.e., exposure level relative to the corresponding 1-g or 10-g SAR limit).

- If the device does not have any detection mechanism (**all "no"** in Figure 4-2), then the worst-case SAR is determined by taking the maximum SAR value among all exposure scenarios, i.e., worst-case SAR = *max* {SAR_{head}, SAR_{body}, $SAR_{hotspot/extremity}$}
- If the device can distinguish each of the above scenarios (**all "yes"** in Figure 4-2), then the worst-case SAR for each individual exposure scenario is given by corresponding SAR_{head}, SAR_{body}, and $SAR_{hotspot/extremity}$
- If the device can only distinguish a subset of the scenarios (**some "yes", some "no"** in Figure 4-2), then the worst-case SAR is given by:
  - Corresponding SAR for each exposure scenario that can be distinguished (DSI=yes)
  - Worst-case SAR among all other exposure scenario(s) that cannot be distinguished (DSI=no)



DSI_{head}	DSI_{body}	$DSI_{hotspot/extremity}$	Composite SAR input
yes	no	no	$SAR = SAR_{head}$ $otherwise, SAR = max\{SAR_{body}, SAR_{hotspot/extremity}\}$
no	yes	no	$SAR = SAR_{body}$ $otherwise, SAR = max\{SAR_{head}, SAR_{hotspot/extremity}\}$
no	no	yes	$SAR = SAR_{hotspot/extremity}$ $otherwise, SAR = max\{SAR_{head}, SAR_{body}\}$
no	yes	yes	$SAR = SAR_{body}$, $SAR = SAR_{hotspot/extremity}$ $otherwise, SAR = SAR_{head}$
yes	no	yes	$SAR = SAR_{head}$, $SAR = SAR_{hotspot/extremity}$ $otherwise, SAR = SAR_{body}$
yes	yes	no	$SAR = SAR_{head}$, $SAR = SAR_{body}$ $otherwise, SAR = SAR_{hotspot/extremity}$

Figure 4-2: Worst-case SAR determination based on DSI

4.2. Usage Scenarios in SAR Evaluation

The EUT has a detection mechanism to distinguish Head, Body-worn, and Hotspot exposure conditions, which is represented using *DSI 0* and *1*. These *DSI* states were used to determine the power limit for Smart Transmit to operate; where the exposure scenario is managed as the same DSI state, all other exposures which cannot be distinguished, in this particular instance and based on the worst-case SAR determination criteria described in §4.1, the maximum SAR (or the minimum P_{limit}) among all remaining exposure scenarios (i.e., Body-worn 1-g SAR evaluation at a specified test separation distance, phablet extremity 10-g SAR evaluation at a specified test separation distance, and maximum RF tune-up power (P_{max}) supported by the device if SAR measurement is not performed for this tech/band/antenna because of meeting SAR test exclusion criteria) is used to determine the power limit for Smart Transmit to operate.

The corresponding usage scenarios supported by EUT are summarized in Table 4-1:

Table 4-1: Usage/Exposure Scenario

Scenario	DSI State	Description	SAR Definition	Worst-case SAR
Head	0	▪ Device positioned next to head ▪ 1-g SAR evaluated in four positions (left/right touch/tilt)	$SAR_{head} = max\ \{SAR_{LC}, SAR_{LT}, SAR_{RC}, SAR_{RT}\}$	SAR_{head}
Body-worn/Hotspot	1	▪ Device transmits in Hotspot mode and assumed to be located next to human body ▪ 1-g SAR is evaluated for all six surfaces of the EUT (S1-S6 as shown in Figure 3-1) at 10 mm test separation distance relative to the flat phantom	$SAR_{hotspot} = max\ \{SAR_{s1}, SAR_{s2}, SAR_{s3}, SAR_{s4}, SAR_{s5}, SAR_{s6}\}$	SAR_{body}

4.3. $SAR_{Design\ Target}$

The total device design and related uncertainties of the EUT, including TxAGC and device to device variation, are accounted for in the SAR design Target ($SAR_{Design\ Target}$) per the following equation:

$$SAR_{Design\ Target} < SAR_{regulatory_{limit}} \times 10^{\frac{-total\ uncertainty}{10}}$$

For the FCC SAR requirement of 1.6 W/kg and 4.0 W/kg, 1-g and 10-g SAR respectively, the $SAR_{Design\ Target}$ for the EUT is determined as:

$SAR_{Design\ Target}$ (1-g W/kg)	$SAR_{Design\ Target}$ (10-g W/kg)	$SAR_{Design\ Limit}$ (1-g W/kg)	$SAR_{Design\ Limit}$ (10-g W/kg)
0.8	2.0	1.0	2.5

4.4. SAR Characterization

Referring to the initial FCC submission, the worst-case *reported* SAR for each antenna/technology/band/DSI is summarized in Table 4-2:

Table 4-2: Worst-case *reported* SAR

Tech/Band	Antenna			Worst-case SAR (W/kg)			P_{limit} (dBm) + Uncertainty (dBm)		
	Head	Body & Hotspot	Hotspot	Head	Body & Hotspot	Hotspot	Head	Body & Hotspot	Hotspot
	DSI: 0	DSI: 1	DSI: 1	DSI: 0	DSI: 1	DSI: 1	DSI: 0	DSI: 1	DSI: 1
GSM 850 2 slots	ANT 2	ANT 1	ANT 1	0.759	0.870	0.870	29.50	32.50	32.50
GSM 1900 2 slots	ANT 4	ANT 1	ANT 1	0.733	0.885	0.885	25.20	28.00	28.00
W-CDMA B2	ANT 4	ANT 4	ANT 4	0.880	0.941	0.941	19.20	20.20	20.20
W-CDMA B4	ANT 4	ANT 3	ANT 3	0.925	0.929	0.929	20.50	20.70	20.70
W-CDMA B5	ANT 2	ANT 1	ANT 1	0.794	0.608	0.608	23.50	25.70	25.70
LTE Band 5	ANT 2	ANT 3	ANT 3	0.850	0.721	0.721	23.50	25.40	25.40
LTE Band 7	ANT 4	ANT 2	ANT 2	0.904	0.947	0.947	19.20	19.00	19.00
LTE Band 12/17	ANT 2	ANT 2	ANT 1	0.646	0.534	0.750	24.20	24.70	25.70
LTE Band 13	ANT 2	ANT 2	ANT 2	0.846	0.835	0.835	23.70	24.70	24.70
LTE Band 14	ANT 2	ANT 2	ANT 2	0.844	0.861	0.861	23.70	24.70	24.70
LTE Band 25/2	ANT 4	ANT 4	ANT 4	0.940	0.947	0.947	19.20	20.20	20.20
LTE Band 26	ANT 2	ANT 1	ANT 1	0.885	0.571	0.571	23.50	25.70	25.70
LTE Band 30	ANT 4	ANT 3	ANT 3	0.933	0.922	0.922	21.50	20.20	20.20
LTE Band 41	ANT 4	ANT 2	ANT 2	0.900	0.947	0.947	21.50	20.50	20.50
LTE Band 41 (PC2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LTE Band 48	ANT 8	ANT 8	ANT 8	0.768	0.746	0.866	22.80	22.50	22.50
LTE Band 53	ANT 2	ANT 2	ANT 2	0.773	0.938	0.938	18.50	20.50	20.50
LTE Band 66/4	ANT 2	ANT 3	ANT 1	0.937	0.915	0.935	23.00	20.70	19.70
LTE Band 71	ANT 2	ANT 2	ANT 2	0.730	0.605	0.605	24.20	24.70	24.70
MSS	N/A	ANT 1	ANT 4	N/A	0.858	0.922	N/A	22.30	21.50
NR n5	ANT 2	ANT 2	ANT 2	0.818	0.709	0.709	23.50	25.20	25.20
NR n7	ANT 2	ANT 2	ANT 1	0.767	0.901	0.902	17.00	19.00	20.00
NR n12	ANT 2	ANT 2	ANT 1	0.734	0.563	0.621	24.20	24.70	25.70
NR n14	ANT 2	ANT 3	ANT 3	0.617	0.776	0.776	23.70	25.40	25.40
NR n25/2	ANT 4	ANT 2	ANT 2	0.923	0.942	0.942	19.20	19.20	19.20
NR n26	ANT 2	ANT 1	ANT 1	0.618	0.599	0.599	23.50	25.70	25.70
NR n30	ANT 2	ANT 2	ANT 2	0.917	0.916	0.916	19.50	19.70	19.70
NR n41	ANT 4	ANT 2	ANT 2	0.889	0.919	0.919	19.50	18.50	18.50
NR n48	ANT 8	ANT 9	ANT 9	0.927	0.949	0.949	20.80	20.80	20.80
NR n53	ANT 2	ANT 2	ANT 2	0.775	0.914	0.914	16.50	18.50	18.50
NR n66	ANT 4	ANT 3	ANT 1	0.940	0.894	0.903	20.50	20.70	19.70
NR n70	ANT 4	ANT 3	ANT 1	0.903	0.833	0.898	20.50	20.70	19.70
NR n71	ANT 2	ANT 2	ANT 2	0.679	0.674	0.674	24.20	24.70	24.70
NR n77	ANT 8	ANT 4	ANT 4	0.892	0.908	0.908	20.80	19.50	19.50

Using the reported SAR listed in Table 4-2, and following the procedure described in §4.1, the *SAR Char* of this EUT, i.e., P_{limit} corresponding to $SAR_{Design\ Target}$, is determined for each supported antenna/technology/band/DSI as:

1. For DSI = 0, P_{limit} is calculated based on 1-g SAR head evaluation.
2. For DSI = 1, P_{limit} is calculated based on 1-g SAR body-worn/hotspot exposure evaluation at 5 mm spacing.

$$P_{limit} = \min\{ \mathrm{P}_{limit} \text{ corresponding to body worn 1gSAR evaluation at 15mm spacing,}$$
$$P_{limit} \text{ corresponding to 10-g SAR extremity evaluation at 0mm spacing,}$$
$$P_{max} \text{maximum RF tuneup power for the case that the SAR test is excluded}\}$$

The SAR Char is listed in Table 4-3.

Table 4-3: SAR Characterization

Exposure Scenario		Duty Cycle	Head				Body & Hotspot				Hotspot				P_{max} (dBm)	
Spatial-average			1-g				1-g				1-g					
Test Distance			0 mm				5 mm				5 mm					
Power Mode (DSI)			DSI: 0				DSI: 1				DSI: 1					
Antenna	Tech/Band		P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)		
			Burst Average		Frame Average		Burst Average		Frame Average		Burst Average		Frame Average		Burst Average	Frame Average
ANT 1	GSM 850 2 slots	25.0%	38.91	32.50	32.89	26.48	32.88	32.50	26.86	26.48	32.88	32.50	26.86	26.48	32.50	26.48
	GSM 1900 2 slots	25.0%	40.25	30.50	34.23	24.48	28.31	28.00	22.29	21.98	28.31	28.00	22.29	21.98	31.00	24.98
	W-CDMA B2	100.0%	34.30	24.50	34.30	24.50	22.15	22.00	22.15	22.00	22.15	22.00	22.15	22.00	25.70	25.70
	W-CDMA B4	100.0%	33.67	25.00	33.67	25.00	23.38	19.70	23.38	19.70	19.82	19.70	19.82	19.70	25.70	25.70
	W-CDMA B5	100.0%	32.35	25.70	32.35	25.70	27.64	25.70	27.64	25.70	27.64	25.70	27.64	25.70	25.70	25.70
	LTE Band 5	100.0%	33.08	25.70	33.08	25.70	27.34	25.70	27.34	25.70	27.34	25.70	27.34	25.70	25.70	25.70
	LTE Band 7	100.0%	29.31	23.00	29.31	23.00	21.82	20.00	21.82	20.00	20.11	20.00	20.11	20.00	25.70	25.70
	LTE Band 12/17	100.0%	33.69	25.70	33.69	25.70	29.06	25.70	29.06	25.70	26.73	25.70	26.73	25.70	25.70	25.70
	LTE Band 13	100.0%	33.34	25.70	33.34	25.70	28.44	25.70	28.44	25.70	27.53	25.70	27.53	25.70	25.70	25.70
	LTE Band 14	100.0%	33.35	25.70	33.35	25.70	28.63	25.70	28.63	25.70	27.80	25.70	27.80	25.70	25.70	25.70
	LTE Band 25/2	100.0%	32.97	24.50	32.97	24.50	22.02	22.00	22.02	22.00	22.02	22.00	22.02	22.00	25.70	25.70
	LTE Band 26	100.0%	33.52	25.70	33.52	25.70	27.91	25.70	27.91	25.70	27.91	25.70	27.91	25.70	25.70	25.70
	LTE Band 30	100.0%	30.49	22.20	30.49	22.20	21.91	20.00	21.91	20.00	20.21	20.00	20.21	20.00	25.70	25.70
	LTE Band 41	63.3%	35.43	25.20	33.45	23.21	24.17	22.00	22.18	20.01	23.51	22.00	21.53	20.01	25.70	23.71
	LTE Band 41 (PC2)	43.3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	28.70	25.06
	LTE Band 53	63.3%	32.22	20.70	30.23	18.71	24.26	20.70	22.27	18.71	23.13	20.70	21.14	18.71	20.70	18.71
	LTE Band 66/4	100.0%	34.95	25.00	34.95	25.00	22.61	19.70	22.61	19.70	19.77	19.70	19.77	19.70	25.70	25.70
	LTE Band 71	100.0%	34.45	25.70	34.45	25.70	30.12	25.70	30.12	25.70	28.31	25.70	28.31	25.70	25.70	25.70
	MSS	100.0%	N/A	N/A	N/A	N/A	22.74	22.30	22.74	22.30	22.74	22.30	22.74	22.30	28.00	28.00
	NR n5	100.0%	33.17	25.70	33.17	25.70	27.63	25.70	27.63	25.70	27.63	25.70	27.63	25.70	25.70	25.70
	NR n7	100.0%	29.48	23.00	29.48	23.00	23.19	20.00	23.19	20.00	20.22	20.00	20.22	20.00	25.70	25.70
	NR n12	100.0%	33.97	25.70	33.97	25.70	29.59	25.70	29.59	25.70	27.55	25.70	27.55	25.70	25.70	25.70
	NR n14	100.0%	33.68	25.70	33.68	25.70	29.22	25.70	29.22	25.70	28.05	25.70	28.05	25.70	25.70	25.70
	NR n25/2	100.0%	32.11	24.50	32.11	24.50	22.27	22.00	22.27	22.00	22.27	22.00	22.27	22.00	25.70	25.70
	NR n26	100.0%	32.55	25.70	32.55	25.70	27.70	25.70	27.70	25.70	27.70	25.70	27.70	25.70	25.70	25.70
	NR n30	100.0%	30.23	22.20	30.23	22.20	22.21	20.00	22.21	20.00	20.20	20.00	20.20	20.00	25.20	25.20
	NR n41	100.0%	31.57	23.20	31.57	23.20	22.89	20.00	22.89	20.00	20.53	20.00	20.53	20.00	25.70	25.70
	NR n53	100.0%	28.20	20.70	28.20	20.70	21.72	20.00	21.72	20.00	20.88	20.00	20.88	20.00	20.70	20.70
	NR n66	100.0%	34.40	25.00	34.40	25.00	23.35	19.70	23.35	19.70	19.92	19.70	19.92	19.70	25.70	25.70
	NR n70	100.0%	33.25	25.00	33.25	25.00	23.22	19.70	23.22	19.70	19.94	19.70	19.94	19.70	25.70	25.70
	NR n71	100.0%	34.37	25.70	34.37	25.70	29.75	25.70	29.75	25.70	28.27	25.70	28.27	25.70	25.70	25.70
ANT 2	GSM 850 2 slots	25.0%	30.48	29.50	24.46	23.48	33.68	31.50	27.66	25.48	33.68	31.50	27.66	25.48	31.50	25.48
	GSM 1900 2 slots	25.0%	27.08	25.50	21.06	19.48	25.85	25.20	19.83	19.18	25.85	25.20	19.83	19.18	28.50	22.48
	W-CDMA B2	100.0%	19.93	19.50	19.93	19.50	19.64	19.20	19.64	19.20	19.64	19.20	19.64	19.20	23.40	23.40
	W-CDMA B4	100.0%	23.34	23.00	23.34	23.00	22.11	22.00	22.11	22.00	22.11	22.00	22.11	22.00	23.40	23.40
	W-CDMA B5	100.0%	24.28	23.50	24.28	23.50	27.64	24.70	27.64	24.70	27.64	24.70	27.64	24.70	24.70	24.70
	LTE Band 5	100.0%	23.98	23.50	23.98	23.50	26.61	25.20	26.61	25.20	26.61	25.20	26.61	25.20	25.20	25.20
	LTE Band 7	100.0%	18.20	17.00	18.20	17.00	19.01	19.00	19.01	19.00	19.01	19.00	19.01	19.00	23.70	23.70
	LTE Band 12/17	100.0%	25.87	24.20	25.87	24.20	27.20	24.70	27.20	24.70	27.20	24.70	27.20	24.70	24.70	24.70
	LTE Band 13	100.0%	24.20	23.70	24.20	23.70	25.26	24.70	25.26	24.70	25.26	24.70	25.26	24.70	24.70	24.70
	LTE Band 14	100.0%	24.21	23.70	24.21	23.70	25.13	24.70	25.13	24.70	25.13	24.70	25.13	24.70	24.70	24.70
	LTE Band 25/2	100.0%	20.81	19.50	20.81	19.50	20.13	19.20	20.13	19.20	20.13	19.20	20.13	19.20	23.40	23.40
	LTE Band 26	100.0%	23.81	23.50	23.81	23.50	27.00	24.70	27.00	24.70	27.00	24.70	27.00	24.70	24.70	24.70
	LTE Band 30	100.0%	19.85	19.50	19.85	19.50	19.87	19.70	19.87	19.70	19.87	19.70	19.87	19.70	23.70	23.70
	LTE Band 41	63.3%	19.79	18.50	17.80	16.51	20.51	20.50	18.53	18.51	20.51	20.50	18.53	18.51	25.70	23.71
	LTE Band 53	63.3%	19.40	18.50	17.41	16.51	20.56	20.50	18.57	18.51	20.56	20.50	18.57	18.51	20.70	18.71
	LTE Band 66/4	100.0%	23.06	23.00	23.06	23.00	22.96	22.00	22.96	22.00	22.96	22.00	22.96	22.00	25.70	25.70
	LTE Band 71	100.0%	25.34	24.20	25.34	24.20	26.66	24.70	26.66	24.70	26.66	24.70	26.66	24.70	24.70	24.70
	NR n5	100.0%	24.15	23.50	24.15	23.50	26.47	25.20	26.47	25.20	26.47	25.20	26.47	25.20	25.20	25.20
	NR n7	100.0%	17.93	17.00	17.93	17.00	19.23	19.00	19.23	19.00	19.23	19.00	19.23	19.00	23.70	23.70
	NR n12	100.0%	25.32	24.20	25.32	24.20	26.97	24.70	26.97	24.70	26.97	24.70	26.97	24.70	24.70	24.70
	NR n14	100.0%	25.57	23.70	25.57	23.70	25.81	24.70	25.81	24.70	25.81	24.70	25.81	24.70	24.70	24.70
	NR n25/2	100.0%	20.78	19.50	20.78	19.50	19.24	19.20	19.24	19.20	19.24	19.20	19.24	19.20	23.40	23.40
	NR n26	100.0%	25.37	23.50	25.37	23.50	26.89	24.70	26.89	24.70	26.89	24.70	26.89	24.70	24.70	24.70
	NR n30	100.0%	19.65	19.50	19.65	19.50	19.86	19.70	19.86	19.70	19.86	19.70	19.86	19.70	23.20	23.20
	NR n41	100.0%	16.90	16.50	16.90	16.50	18.64	18.50	18.64	18.50	18.64	18.50	18.64	18.50	25.70	25.70
	NR n53	100.0%	17.38	16.50	17.38	16.50	18.67	18.50	18.67	18.50	18.67	18.50	18.67	18.50	20.70	20.70
	NR n66	100.0%	23.71	23.00	23.71	23.00	22.72	22.00	22.72	22.00	22.72	22.00	22.72	22.00	25.70	25.70
	NR n70	100.0%	23.40	23.00	23.40	23.00	23.73	22.00	23.73	22.00	23.73	22.00	23.73	22.00	25.70	25.70
	NR n71	100.0%	25.66	24.20	25.66	24.20	26.19	24.70	26.19	24.70	26.19	24.70	26.19	24.70	24.70	24.70

Exposure Scenario		Duty Cycle	Head				Body & Hotspot				Hotspot				P_{max} (dBm)	
Spatial-average			1-g				1-g				1-g					
Test Distance			0 mm				5 mm				5 mm					
Power Mode (DSI)			DSI: 0				DSI: 1				DSI: 1					
Antenna	Tech/Band		P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)	P_{design} (dBm)	P_{limit} + Uncertainty (dBm)		
			Burst Average		Frame Average		Burst Average		Frame Average		Burst Average		Frame Average		Burst Average	Frame Average
ANT 3	GSM 1900 2 slots	25.0%	36.73	27.20	30.71	21.18	28.04	26.50	22.02	20.48	28.04	26.50	22.02	20.48	30.50	24.48
	W-CDMA B2	100.0%	29.74	21.20	29.74	21.20	20.68	20.50	20.68	20.50	20.68	20.50	20.68	20.50	25.50	25.50
	W-CDMA B4	100.0%	31.95	21.00	31.95	21.00	20.80	20.70	20.80	20.70	20.80	20.70	20.80	20.70	25.50	25.50
	LTE Band 5	100.0%	35.15	25.40	35.15	25.40	26.60	25.40	26.60	25.40	26.60	25.40	26.60	25.40	25.40	25.40
	LTE Band 7	100.0%	27.42	20.20	27.42	20.20	20.00	19.20	20.00	19.20	19.35	19.20	19.35	19.20	25.00	25.00
	LTE Band 12/17	100.0%	38.08	25.40	38.08	25.40	28.44	25.40	28.44	25.40	28.44	25.40	28.44	25.40	25.40	25.40
	LTE Band 13	100.0%	35.09	25.40	35.09	25.40	26.74	25.40	26.74	25.40	26.74	25.40	26.74	25.40	25.40	25.40
	LTE Band 14	100.0%	35.05	25.40	35.05	25.40	26.96	25.40	26.96	25.40	26.96	25.40	26.96	25.40	25.40	25.40
	LTE Band 25/2	100.0%	29.39	21.20	29.39	21.20	20.58	20.50	20.58	20.50	20.58	20.50	20.58	20.50	25.50	25.50
	LTE Band 26	100.0%	34.81	25.40	34.81	25.40	28.91	25.40	28.91	25.40	28.91	25.40	28.91	25.40	25.40	25.40
	LTE Band 30	100.0%	29.44	21.00	29.44	21.00	20.33	20.20	20.33	20.20	20.33	20.20	20.33	20.20	25.00	25.00
	LTE Band 41	63.3%	29.35	22.70	27.36	20.71	22.79	21.80	20.80	19.81	22.68	21.80	20.69	19.81	25.70	23.71
	LTE Band 66/4	100.0%	31.59	21.00	31.59	21.00	20.86	20.70	20.86	20.70	20.86	20.70	20.86	20.70	25.50	25.50
	LTE Band 71	100.0%	37.88	25.40	37.88	25.40	30.48	25.40	30.48	25.40	30.48	25.40	30.48	25.40	25.40	25.40
	NR n5	100.0%	34.95	25.40	34.95	25.40	27.20	25.40	27.20	25.40	27.20	25.40	27.20	25.40	25.40	25.40
	NR n7	100.0%	26.78	20.20	26.78	20.20	19.63	19.20	19.63	19.20	19.45	19.20	19.45	19.20	25.00	25.00
	NR n12	100.0%	37.95	25.40	37.95	25.40	27.99	25.40	27.99	25.40	27.99	25.40	27.99	25.40	25.40	25.40
	NR n14	100.0%	34.85	25.40	34.85	25.40	26.28	25.40	26.28	25.40	26.28	25.40	26.28	25.40	25.40	25.40
	NR n25/2	100.0%	29.57	21.20	29.57	21.20	20.75	20.50	20.75	20.50	20.75	20.50	20.75	20.50	25.50	25.50
	NR n26	100.0%	34.70	25.40	34.70	25.40	27.87	25.40	27.87	25.40	27.87	25.40	27.87	25.40	25.40	25.40
	NR n30	100.0%	29.41	21.00	29.41	21.00	20.42	20.20	20.42	20.20	20.42	20.20	20.42	20.20	24.50	24.50
	NR n41	100.0%	35.91	20.70	35.91	20.70	27.52	19.80	27.52	19.80	26.40	19.80	26.40	19.80	25.70	25.70
	NR n66	100.0%	31.23	21.00	31.23	21.00	20.96	20.70	20.96	20.70	20.96	20.70	20.96	20.70	25.50	25.50
	NR n70	100.0%	32.45	21.00	32.45	21.00	21.27	20.70	21.27	20.70	21.27	20.70	21.27	20.70	25.50	25.50
	NR n71	100.0%	38.10	25.40	38.10	25.40	29.52	25.40	29.52	25.40	29.52	25.40	29.52	25.40	25.40	25.40
ANT 4	GSM 1900 2 slots	25.0%	26.32	25.20	20.30	19.18	26.59	26.20	20.57	20.18	26.59	26.20	20.57	20.18	28.00	21.98
	W-CDMA B2	100.0%	19.53	19.20	19.53	19.20	20.24	20.20	20.24	20.20	20.24	20.20	20.24	20.20	22.90	22.90
	W-CDMA B4	100.0%	20.62	20.50	20.62	20.50	21.23	19.50	21.23	19.50	21.23	19.50	21.23	19.50	22.90	22.90
	LTE Band 7	100.0%	19.41	19.20	19.41	19.20	20.91	18.20	20.91	18.20	18.47	18.20	18.47	18.20	22.70	22.70
	LTE Band 25/2	100.0%	19.24	19.20	19.24	19.20	20.21	20.20	20.21	20.20	20.21	20.20	20.21	20.20	22.90	22.90
	LTE Band 30	100.0%	21.58	21.50	21.58	21.50	19.41	19.00	19.41	19.00	19.41	19.00	19.41	19.00	22.70	22.70
	LTE Band 41	63.3%	21.73	21.50	19.75	19.51	22.82	20.20	20.84	18.21	20.40	20.20	18.41	18.21	25.70	23.71
	LTE Band 48	63.3%	24.98	23.80	23.00	21.81	23.51	21.50	21.53	19.51	23.51	21.50	21.53	19.51	24.20	22.21
	LTE Band 66/4	100.0%	20.64	20.50	20.64	20.50	21.24	19.50	21.24	19.50	21.24	19.50	21.24	19.50	25.20	25.20
	MSS	100.0%	N/A	N/A	N/A	N/A	23.87	21.50	23.87	21.50	21.63	21.50	21.63	21.50	25.80	25.80
	NR n7	100.0%	20.21	19.20	20.21	19.20	20.74	18.20	20.74	18.20	19.19	18.20	19.19	18.20	22.70	22.70
	NR n25/2	100.0%	19.33	19.20	19.33	19.20	20.36	20.20	20.36	20.20	20.36	20.20	20.36	20.20	22.90	22.90
	NR n30	100.0%	21.74	21.50	21.74	21.50	19.57	19.00	19.57	19.00	19.57	19.00	19.57	19.00	22.20	22.20
	NR n41	100.0%	19.79	19.50	19.79	19.50	20.26	18.20	20.26	18.20	18.36	18.20	18.36	18.20	25.70	25.70
	NR n48	100.0%	23.26	21.80	23.26	21.80	21.17	19.50	21.17	19.50	21.17	19.50	21.17	19.50	24.20	24.20
	NR n66	100.0%	20.55	20.50	20.55	20.50	21.47	19.50	21.47	19.50	21.47	19.50	21.47	19.50	25.20	25.20
	NR n70	100.0%	20.72	20.50	20.72	20.50	20.87	19.50	20.87	19.50	20.87	19.50	20.87	19.50	25.20	25.20
	NR n77	100.0%	25.32	20.80	25.32	20.80	19.70	19.50	19.70	19.50	19.70	19.50	19.70	19.50	24.20	24.20
ANT 7	LTE Band 48	63.3%	32.83	23.50	30.85	21.51	25.42	22.50	23.44	20.51	24.11	22.50	22.12	20.51	26.00	24.01
	NR n48	100.0%	31.60	21.50	31.60	21.50	21.38	20.50	21.38	20.50	20.74	20.50	20.74	20.50	26.00	26.00
	NR n77	100.0%	32.09	21.50	32.09	21.50	24.16	19.30	24.16	19.30	21.70	19.30	21.70	19.30	25.70	25.70
ANT 8	LTE Band 48	63.3%	23.72	22.80	21.74	20.81	23.55	22.50	21.56	20.51	22.90	22.50	20.92	20.51	26.00	24.01
	NR n48	100.0%	20.91	20.80	20.91	20.80	22.11	20.50	22.11	20.50	20.83	20.50	20.83	20.50	26.00	26.00
	NR n77	100.0%	21.07	20.80	21.07	20.80	22.32	19.30	22.32	19.30	19.63	19.30	19.63	19.30	25.70	25.70
ANT 9	LTE Band 48	63.3%	40.01	25.30	38.02	23.31	24.17	22.80	22.19	20.81	24.17	22.80	22.19	20.81	26.00	24.01
	NR n48	100.0%	37.59	23.30	37.59	23.30	20.80	20.80	20.80	20.80	20.80	20.80	20.80	20.80	26.00	26.00
	NR n77	100.0%	35.10	21.30	35.10	21.30	20.66	18.80	20.66	18.80	20.66	18.80	20.66	18.80	25.70	25.70