

FCC ID : V65E7200

PART0 SAR AND POWER DENSITY
CHAR REPORT

Mar.23th, 2023

KYOCERA CORPORATION

TABLE OF CONTENTS

1. DEVICE UNDER TEST

- 1.1. Device Overview
- 1.2. Time-Averaging for SAR and Power Density
- 1.3. Nomenclature for Part0 Report

2. SAR CHARACTERIZATION

- 2.1. DSI and SAR Determination
- 2.2. SAR Design Target
- 2.3. SAR Char

3. POWER DENSITY CHARACTERIZATION

- 3.1. Exposure Scenarios in Power Density Evaluation
- 3.2. Power Density Characterization Method
- 3.3. Codebook for all supported beams
- 3.4. Simulation and modeling validation
- 3.5. PD_design_target
- 3.6. Worst-case Housing Influence Determination : Δ_{min}
- 3.7. PD Char
 - 3.7.1. Scaling Factor for Single Beams
 - 3.7.2. Scaling Factor for Beam Pairs
 - 3.7.3. Input.Power.Limit Calculations

APPENDIX A: SAR TEST RESULTS FOR PLimit CALCULATIONS

1. DEVICE UNDER TEST

1.1. Device Overview

Band & Mode	Operating Modes	Tx Frequency
UMTS 850	Voice/Data	826.4 - 846.6 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 2	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 4	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 5	Voice/Data	824.7 - 848.3 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 25	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
LTE Band 66	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
NR Band n2	Voice/Data	1852.5 - 1907.5 MHz
NR Band n5	Voice/Data	826.5 - 846.5 MHz
NR Band n25	Voice/Data	1852.5 - 1912.5 MHz
NR Band n30	Voice/Data	2307.5 - 2312.5 MHz
NR Band n41	Voice/Data	2506 - 2680 MHz
NR Band n48	Voice/Data	3560 - 3690 MHz
NR Band n66	Voice/Data	1712.5 - 1777.5 MHz
NR Band n71	Voice/Data	665.5 - 695.5 MHz
NR Band n77	Voice/Data	3710 - 3970 MHz
NR Band n77 DoD	Voice/Data	3460 - 3540 MHz
2.4GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5250 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
U-NII-5	Voice/Data	5955 - 6415 MHz
U-NII-6	Voice/Data	6435 - 6515 MHz
U-NII-7	Voice/Data	6535 - 6855 MHz
U-NII-8	Voice/Data	6875 - 7115 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
NR Band n258	Data	24250 - 24450 MHz; 24750 - 25250 MHz
NR Band n260	Data	37000 - 40000 MHz
NR Band n261	Data	27500 - 28350 MHz

This device uses the Qualcomm® Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure is in compliance with the FCC requirement at all times for 3G/4G/5G WWAN operations. Additionally, this device supports WLAN/BT/NEC technologies, but the output power of these modems is not controlled by the Smart Transmit algorithm.

1.2. Time-Averaging for SAR and Power Density

This device is enabled with Qualcomm® Smart Transmit algorithm to control and manage transmitting power in real time to ensure that the time-averaged RF exposure from 3G/4G/5G NR Sub6/5G NR mmW WWAN is in compliance with FCC requirements. This Part 0 report shows SAR and Power Density characterization of WWAN radios for 3G/4G/5G NR Sub6/5G NR mmW respectively. Characterization is achieved by determining P_{limit} for 3G/4G/5G NR Sub6 and input.power.limit for 5G NR mmW that correspond to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR_{design_target} (< FCC SAR limit) for sub-6 radio and PD_{design_target} (< FCC PD limit) for mmW radio. The SAR characterization and PD characterization are denoted as SAR Char and PD Char in this report. Section 2.3 includes a nomenclature of the specific terms used in this report.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time-varying) transmission scenario for WWAN technologies are reported in Part2 report.

1.3. Nomenclature for Part0 Report

Technology	Term	Description
3G/4G/ 5G NR Sub6	P _{limit}	Power level that corresponds to the exposure design target (SAR _{design_target}) after accounting for all device design related uncertainties.
	P _{max}	Maximum tune up output power
	SAR _{design_target}	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties
	SAR Char	Table containing P _{limit} for all technologies and bands
5G NR mmW	input.power.limit	Power level at antenna element for each beam corresponding to the exposure design target (PD _{design_target})
	PD _{design_target}	Target PD level < FCC PD limit after accounting for all device design related uncertainties
	Δ _{min}	Housing material influence
	PD Char	Table containing input.power.limit for all beams and bands

2. SAR CHARACTERIZATION

2.1. DSI and SAR Determination

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the smartphone, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description.

When 1g SAR and 10g SAR exposure comparison is needed, the worst-case was determined from SAR normalized to 1g or 10g SAR limit.

The device state index (DSI) conditions used in Table 2-1 represent different exposure scenarios.

Table 2-1 DSI and Corresponding Exposure Scenarios

Scenario	Description	SAR Test Cases
Head (DSI = 0)	<ul style="list-style-type: none"> ■ Device positioned next to head ■ Receiver Active 	Head SAR per KDB Publication 648474 D04
Body-worn (DSI = 0)	<ul style="list-style-type: none"> ■ Device being used with a body-worn accessory 	Body-worn SAR per KDB Publication 648474 D04
Phablet (DSI = 1)	<ul style="list-style-type: none"> ■ Device transmits near body and proximity sensor ANT0 is triggered ■ Proximity sensor ANT0 triggered 	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04
Phablet (DSI = 2)	<ul style="list-style-type: none"> ■ Device transmits near body and proximity sensor ANT1 is triggered ■ Proximity sensor ANT1 triggered 	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04
Phablet (DSI = 3)	<ul style="list-style-type: none"> ■ Device transmits near body and proximity sensor is ANT0/ANT1 triggered ■ Proximity sensor ANT0/ANT1 triggered 	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04
Hotspot mode (DSI = 4)	<ul style="list-style-type: none"> ■ Device transmits in hotspot mode near body ■ Hotspot Mode Active 	Hotspot SAR per KDB Publication 941225 D06

2.2. SAR Design Target

SAR_design_target is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer (see Table 2-2).

Table 2-2 SAR_design_target Calculations

SAR_design_target			
SAR_design_target < SAR_regulatory_limit × 10 ^{-Total Uncertainty/10}			
1g SAR (W/kg)		10g SAR (W/kg)	
Total Uncertainty	1.7 dB	Total Uncertainty	1.7 dB
SAR_regulatory_limit	1.6 W/kg	SAR_regulatory_limit	4.0 W/kg
SAR_design_target	1.0 W/kg	SAR_design_target	2.5W/kg

2.3. SAR Char

SAR test results corresponding to Pmax for each antenna/technology/band/DSI can be found in Appendix A. Plimit is calculated by linearly scaling with the measured SAR at the Pmax to correspond to the SAR_design_target. Plimit determination for each exposure scenario corresponding to SAR_design_target are shown in Table 2-3.

Table 2-3 PLimit Determination

Device State Index (DSI)	Plimit Determination Scenarios
0	The worst-case SAR exposure is determined as maximum SAR normalized to the limit among: 1. 1g Head SAR and 2. Body Worn SAR and 3. Phablet SAR measured at 3mm for back. 4. Phablet SAR measured at 1mm for right 5. Phablet SAR measured at 0mm for front, top, bottom, left surfaces.
1	Plimit of ANT0 is calculated based on 10g Phablet SAR at 0mm for back surface
2	Plimit of ANT1 is calculated based on 10g Phablet SAR at 0mm for back surface
3	Plimit of ANT0 and ANT1 are calculated based on 10g Phablet SAR at 0mm for back surfaces
4	Plimit is calculated based on 1g Hotspot SAR at 10mm

Note:

For DSI = 0, Plimit is calculated by:

Plimit = min{ Plimit corresponding to 1g Head SAR at 0mm spacing,
 Plimit corresponding to 1g Body Worn SAR evaluation at 15mm spacing,
 Plimit corresponding to 10g Phablet SAR evaluation at 3mm spacing for back surface,
 Plimit corresponding to 10g Phablet SAR evaluation at 1mm spacing for right surface,
 Plimit corresponding to 10g Phablet SAR evaluation at 0mm for front, bottom, top, left surfaces }

Table 2-4 SAR Characterizations

Mode/Band	ANT	DSI=0	DSI=1	DSI=2	DSI=3	DSI=4	Pmax* (dBm)
		Head Body-worn Phablet for top, front,left	Phablet proximity sensor ANT0 active	Phablet proximity sensor ANT1 active	Phablet proximity sensor ANT0/1 active	Hotspot Mode	
		PLimit (dBm)	PLimit (dBm)	PLimit (dBm)	PLimit (dBm)	PLimit (dBm)	
UMTS 850	ANT0	27.7	27.7	27.7	27.7	28.7	23.0
UMTS 1750	ANT0	25.4	25.4	25.4	25.4	26.1	23.0
UMTS 1900	ANT0	23.8	23.8	23.8	23.8	24.3	23.0
LTE Band 2	ANT0	23.6	23.6	23.6	23.6	23.7	23.0
	ANT1	26.0	26.0	26.0	26.0	27.1	23.0
LTE Band 4	ANT0	24.7	24.7	24.7	24.7	25.7	23.0
	ANT1	26.7	26.7	26.7	26.7	26.3	23.0
LTE Band 5	ANT0	28.7	28.7	28.7	28.7	29.4	23.0
LTE Band 7	ANT0	24.6	20.4	20.4	20.4	21.0	22.5
LTE Band 12	ANT0	28.4	28.4	28.4	28.4	29.1	23.0
LTE Band 13	ANT0	28.6	28.6	28.6	28.6	28.5	23.0
LTE Band 14	ANT0	28.6	28.6	28.6	28.6	28.8	23.0
LTE Band 17	ANT0	28.2	28.2	28.2	28.2	29.3	23.0
LTE Band 25	ANT0	24.0	24.0	24.0	24.0	23.6	23.0
	ANT1	26.1	26.1	26.1	26.1	27.3	23.0
LTE Band 30	ANT0	23.8	23.8	23.8	23.8	22.4	20.8
LTE Band 41	ANT0	24.8	24.8	24.8	24.8	24.0	20.5
	ANT1	22.6	22.6	22.6	22.6	22.8	20.5
LTE Band 48	ANT1	28.5	28.5	28.5	28.5	27.3	21.0
LTE Band 66	ANT0	25.5	25.5	25.5	25.5	25.8	23.0
	ANT1	26.1	26.1	26.1	26.1	25.8	23.0
LTE Band 71	ANT0	30.3	30.3	30.3	30.3	30.0	22.5
NR Band n2	ANT0	26.5	23.4	23.4	23.4	23.8	23.0
	ANT1	25.8	25.8	25.8	25.8	27.0	23.0
NR Band n5	ANT0	27.6	27.6	27.6	27.6	28.7	23.0
NR Band n25	ANT0	24.2	24.2	24.2	24.2	24.2	23.0
	ANT1	25.9	25.9	25.9	25.9	27.0	23.0
NR Band n30	ANT0	24.0	24.0	24.0	24.0	22.6	22.5
NR Band n41	ANT1	26.3	26.3	26.3	26.3	25.9	22.0
NR Band n48	ANT1	25.4	25.4	25.4	25.4	24.5	23.0
NR Band n66	ANT0	25.4	25.4	25.4	25.4	25.6	23.0
	ANT1	26.2	26.2	26.2	26.2	25.8	23.0
NR Band n71	ANT0	28.7	28.7	28.7	28.7	30.7	22.5
NR Band n77(PC3)	ANT1	27.0	25.2	25.2	25.2	24.1	23.0
NR Band n77(PC2)	ANT1	27.3	25.2	25.2	25.2	24.1	26.0
NR Band n77 DoD(PC3)	ANT1	26.7	26.7	26.7	26.7	27.5	23.0
NR Band n77 DoD(PC2)	ANT1	26.7	26.7	26.7	26.7	27.5	26.0

Notes:

1. DSI=0 is corresponding to head SAR, body-worn SAR and Phablet SAR.
2. When Pmax < PLimit, the DUT will operate at a power level up to Pmax.

*Pmax is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + device uncertainty.

**All PLimit power levels entered in Table 2-4 correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., LTE TDD & NR TDD).

3. POWER DENSITY CHARACTERIZATION

3.1. Exposure Scenarios in Power Density Evaluation

For a Portable handset at frequencies > 6GHz, the total peak spatial power density (psPD) is required to be assessed for all antenna configurations (beams) from all mmW antenna modules installed inside the device. This device has 2 patch antenna arrays (QTM#0, QTM#1).

As showed in Figure 3-1, the surfaces near-by each mmW antenna module for PD characterization are identified and listed in Table 3-1.

Table 3-1 Evaluation Surface for PD Characterizations

Band/Mode	Module	Front	Back	Right	Left	Top	Bottom
NR n258	QTM#0	O	O	O	O	O	O
NR n258	QTM#1	O	O	O	O	O	X
NR n260	QTM#0	O	O	O	O	O	O
NR n260	QTM#1	O	O	O	O	O	X
NR n261	QTM#0	O	O	O	O	O	O
NR n261	QTM#1	O	O	O	O	O	X

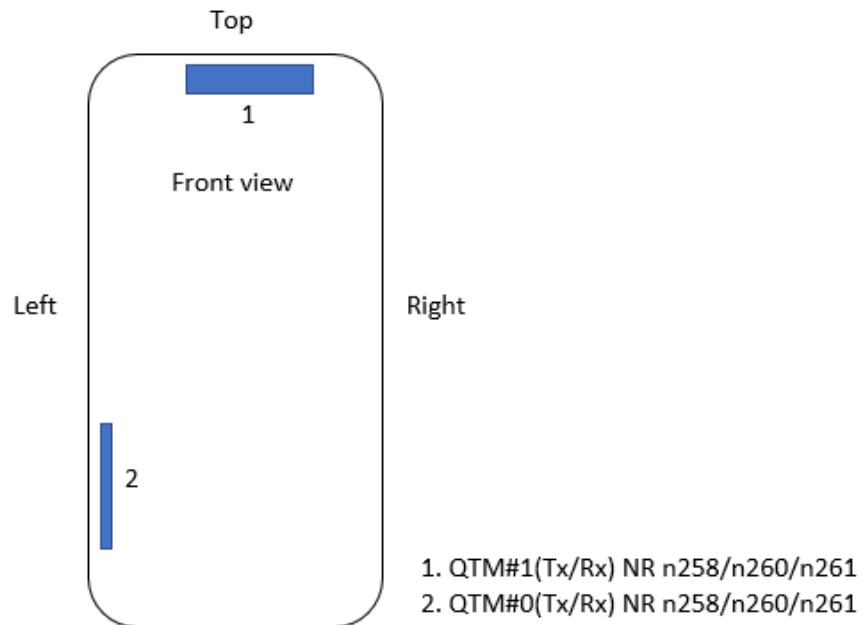


Figure 3-1 Location of mmW antenna modules looking from front of the DUT

3.2. Power Density Characterization Method

An overview of power density characterization method could be found in Figure 3-2 below.

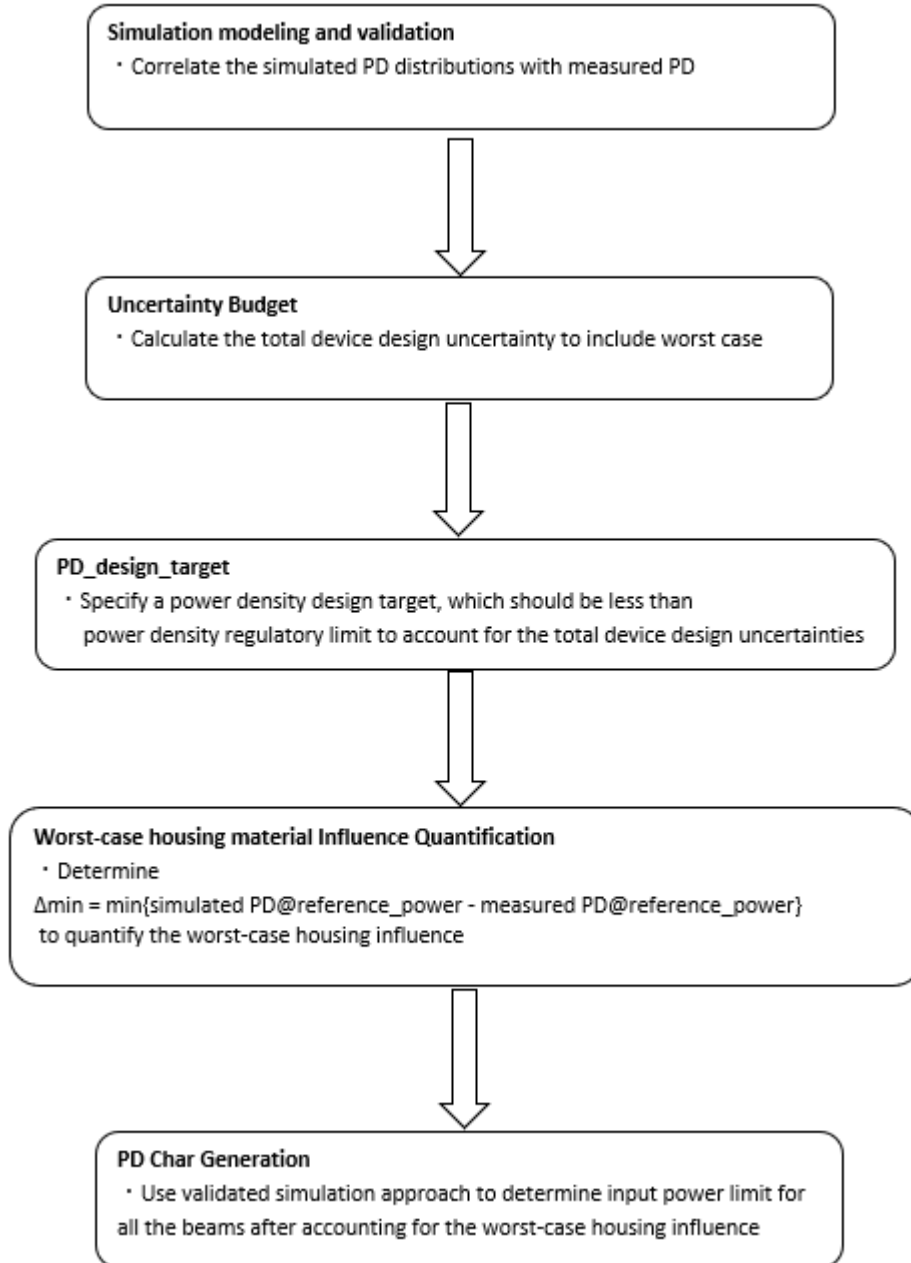


Figure 3-2 High level flow Chart for Power Density Characterization

3.3. Codebook for all supported beams

All the beams that the DUT supports are specified in the codebook. The codebook for this device is specified as below.

Table 3-2 5G mmW NR Band n258 QTM#0 Codebook

Band	Beam_ID	Module	Ant_Type	Ant_Feed	Paired_With
258	1	0	PATCH	9	129
258	3	0	PATCH	10	131
258	5	0	PATCH	11	133
258	7	0	PATCH	12	135
258	9	0	PATCH	13	137
258	14	0	PATCH	11;12	142
258	15	0	PATCH	9;10	143
258	16	0	PATCH	10;11	144
258	17	0	PATCH	9;10	145
258	21	0	PATCH	12;13	149
258	22	0	PATCH	9;10	150
258	23	0	PATCH	9;10	151
258	29	0	PATCH	9;10;11;12;13	157
258	30	0	PATCH	9;10;11;12;13	158
258	31	0	PATCH	9;10;11;12;13	159
258	32	0	PATCH	9;10;11;12;13	160
258	33	0	PATCH	9;10;11;12;13	161
258	38	0	PATCH	9;10;11;12;13	166
258	39	0	PATCH	9;10;11;12;13	167
258	40	0	PATCH	9;10;11;12;13	168
258	41	0	PATCH	9;10;11;12;13	169
258	129	0	PATCH	1	1
258	131	0	PATCH	2	3
258	133	0	PATCH	3	5
258	135	0	PATCH	4	7
258	137	0	PATCH	5	9
258	142	0	PATCH	4;5	14
258	143	0	PATCH	3;4	15
258	144	0	PATCH	3;4	16
258	145	0	PATCH	1;2	17
258	149	0	PATCH	4;5	21
258	150	0	PATCH	1;2	22
258	151	0	PATCH	2;3	23
258	157	0	PATCH	1;2;3;4;5	29
258	158	0	PATCH	1;2;3;4;5	30
258	159	0	PATCH	1;2;3;4;5	31
258	160	0	PATCH	1;2;3;4;5	32
258	161	0	PATCH	1;2;3;4;5	33
258	166	0	PATCH	1;2;3;4;5	38
258	167	0	PATCH	1;2;3;4;5	39
258	168	0	PATCH	1;2;3;4;5	40
258	169	0	PATCH	1;2;3;4;5	41

Table 3-3 5G mmW NR Band n260 QTM#0 Codebook

Band	Beam_ID	Module	Ant_Type	Ant_Feed	Paired_With
260	1	0	PATCH	13	129
260	3	0	PATCH	12	131
260	5	0	PATCH	11	133
260	7	0	PATCH	10	135
260	9	0	PATCH	9	137
260	14	0	PATCH	10;9	142
260	15	0	PATCH	10;9	143
260	16	0	PATCH	11;10	144
260	17	0	PATCH	13;12	145
260	21	0	PATCH	13;12	149
260	22	0	PATCH	13;12	150
260	23	0	PATCH	12;11	151
260	29	0	PATCH	13;12;11;10;9	157
260	30	0	PATCH	13;12;11;10;9	158
260	31	0	PATCH	13;12;11;10;9	159
260	32	0	PATCH	13;12;11;10;9	160
260	33	0	PATCH	13;12;11;10;9	161
260	38	0	PATCH	13;12;11;10;9	166
260	39	0	PATCH	13;12;11;10;9	167
260	40	0	PATCH	13;12;11;10;9	168
260	41	0	PATCH	13;12;11;10;9	169
260	129	0	PATCH	4	1
260	131	0	PATCH	5	3
260	133	0	PATCH	3	5
260	135	0	PATCH	2	7
260	137	0	PATCH	1	9
260	142	0	PATCH	2;1	14
260	143	0	PATCH	3;2	15
260	144	0	PATCH	4;5	16
260	145	0	PATCH	5;3	17
260	149	0	PATCH	4;5	21
260	150	0	PATCH	3;2	22
260	151	0	PATCH	3;2	23
260	157	0	PATCH	4;5;3;2;1	29
260	158	0	PATCH	4;5;3;2;1	30
260	159	0	PATCH	4;5;3;2;1	31
260	160	0	PATCH	4;5;3;2;1	32
260	161	0	PATCH	4;5;3;2;1	33
260	166	0	PATCH	4;5;3;2;1	38
260	167	0	PATCH	4;5;3;2;1	39
260	168	0	PATCH	4;5;3;2;1	40
260	169	0	PATCH	4;5;3;2;1	41

Table 3-4 5G mmW NR Band n261 QTM#0 Codebook

Band	Beam_ID	Module	Ant_Type	Ant_Feed	Paired_With
261	1	0	PATCH	9	129
261	3	0	PATCH	10	131
261	5	0	PATCH	11	133
261	7	0	PATCH	12	135
261	9	0	PATCH	13	137
261	14	0	PATCH	12;13	142
261	15	0	PATCH	11;12	143
261	16	0	PATCH	10;11	144
261	17	0	PATCH	9;10	145
261	21	0	PATCH	12;13	149
261	22	0	PATCH	10;11	150
261	23	0	PATCH	10;11	151
261	29	0	PATCH	9;10;11;12;13	157
261	30	0	PATCH	9;10;11;12;13	158
261	31	0	PATCH	9;10;11;12;13	159
261	32	0	PATCH	9;10;11;12;13	160
261	33	0	PATCH	9;10;11;12;13	161
261	38	0	PATCH	9;10;11;12;13	166
261	39	0	PATCH	9;10;11;12;13	167
261	40	0	PATCH	9;10;11;12;13	168
261	41	0	PATCH	9;10;11;12;13	169
261	129	0	PATCH	1	1
261	131	0	PATCH	2	3
261	133	0	PATCH	3	5
261	135	0	PATCH	4	7
261	137	0	PATCH	5	9
261	142	0	PATCH	4;5	14
261	143	0	PATCH	1;2	15
261	144	0	PATCH	3;4	16
261	145	0	PATCH	2;3	17
261	149	0	PATCH	3;4	21
261	150	0	PATCH	4;5	22
261	151	0	PATCH	1;2	23
261	157	0	PATCH	1;2;3;4;5	29
261	158	0	PATCH	1;2;3;4;5	30
261	159	0	PATCH	1;2;3;4;5	31
261	160	0	PATCH	1;2;3;4;5	32
261	161	0	PATCH	1;2;3;4;5	33
261	166	0	PATCH	1;2;3;4;5	38
261	167	0	PATCH	1;2;3;4;5	39
261	168	0	PATCH	1;2;3;4;5	40
261	169	0	PATCH	1;2;3;4;5	41

Table 3-5 5G mmW NR Band n258 QTM#1 Codebook

Band	Beam_ID	Module	Ant_Type	Ant_Feed	Paired_With
258	0	1	PATCH	9	128
258	2	1	PATCH	10	130
258	4	1	PATCH	11	132
258	6	1	PATCH	12	134
258	8	1	PATCH	13	136
258	10	1	PATCH	9;10	138
258	11	1	PATCH	10;11	139
258	12	1	PATCH	9;10	140
258	13	1	PATCH	10;11	141
258	18	1	PATCH	12;13	146
258	19	1	PATCH	11;12	147
258	20	1	PATCH	9;10	148
258	24	1	PATCH	9;10;11;12;13	152
258	25	1	PATCH	9;10;11;12;13	153
258	26	1	PATCH	9;10;11;12;13	154
258	27	1	PATCH	9;10;11;12;13	155
258	28	1	PATCH	9;10;11;12;13	156
258	34	1	PATCH	9;10;11;12;13	162
258	35	1	PATCH	9;10;11;12;13	163
258	36	1	PATCH	9;10;11;12;13	164
258	37	1	PATCH	9;10;11;12;13	165
258	128	1	PATCH	1	0
258	130	1	PATCH	2	2
258	132	1	PATCH	3	4
258	134	1	PATCH	4	6
258	136	1	PATCH	5	8
258	138	1	PATCH	1;2	10
258	139	1	PATCH	2;3	11
258	140	1	PATCH	1;2	12
258	141	1	PATCH	1;2	13
258	146	1	PATCH	1;2	18
258	147	1	PATCH	1;2	19
258	148	1	PATCH	1;2	20
258	152	1	PATCH	1;2;3;4;5	24
258	153	1	PATCH	1;2;3;4;5	25
258	154	1	PATCH	1;2;3;4;5	26
258	155	1	PATCH	1;2;3;4;5	27
258	156	1	PATCH	1;2;3;4;5	28
258	162	1	PATCH	1;2;3;4;5	34
258	163	1	PATCH	1;2;3;4;5	35
258	164	1	PATCH	1;2;3;4;5	36
258	165	1	PATCH	1;2;3;4;5	37

Table 3-6 5G mmW NR Band n260 QTM#1 Codebook

Band	Beam_ID	Module	Ant_Type	Ant_Feed	Paired_With
260	0	1	PATCH	13	128
260	2	1	PATCH	12	130
260	4	1	PATCH	11	132
260	6	1	PATCH	10	134
260	8	1	PATCH	9	136
260	10	1	PATCH	10;9	138
260	11	1	PATCH	12;11	139
260	12	1	PATCH	13;12	140
260	13	1	PATCH	13;12	141
260	18	1	PATCH	12;11	146
260	19	1	PATCH	11;10	147
260	20	1	PATCH	13;12	148
260	24	1	PATCH	13;12;11;10;9	152
260	25	1	PATCH	13;12;11;10;9	153
260	26	1	PATCH	13;12;11;10;9	154
260	27	1	PATCH	13;12;11;10;9	155
260	28	1	PATCH	13;12;11;10;9	156
260	34	1	PATCH	13;12;11;10;9	162
260	35	1	PATCH	13;12;11;10;9	163
260	36	1	PATCH	13;12;11;10;9	164
260	37	1	PATCH	13;12;11;10;9	165
260	128	1	PATCH	4	0
260	130	1	PATCH	5	2
260	132	1	PATCH	3	4
260	134	1	PATCH	2	6
260	136	1	PATCH	1	8
260	138	1	PATCH	3;2	10
260	139	1	PATCH	4;5	11
260	140	1	PATCH	2;1	12
260	141	1	PATCH	4;5	13
260	146	1	PATCH	4;5	18
260	147	1	PATCH	5;3	19
260	148	1	PATCH	2;1	20
260	152	1	PATCH	4;5;3;2;1	24
260	153	1	PATCH	4;5;3;2;1	25
260	154	1	PATCH	4;5;3;2;1	26
260	155	1	PATCH	4;5;3;2;1	27
260	156	1	PATCH	4;5;3;2;1	28
260	162	1	PATCH	4;5;3;2;1	34
260	163	1	PATCH	4;5;3;2;1	35
260	164	1	PATCH	4;5;3;2;1	36
260	165	1	PATCH	4;5;3;2;1	37

Table 3-7 5G mmW NR Band n261 QTM#1 Codebook

Band	Beam_ID	Module	Ant_Type	Ant_Feed	Paired_With
261	0	1	PATCH	9	128
261	2	1	PATCH	10	130
261	4	1	PATCH	11	132
261	6	1	PATCH	12	134
261	8	1	PATCH	13	136
261	10	1	PATCH	9;10	138
261	11	1	PATCH	10;11	139
261	12	1	PATCH	9;10	140
261	13	1	PATCH	9;10	141
261	18	1	PATCH	12;13	146
261	19	1	PATCH	9;10	147
261	20	1	PATCH	9;10	148
261	24	1	PATCH	9;10;11;12;13	152
261	25	1	PATCH	9;10;11;12;13	153
261	26	1	PATCH	9;10;11;12;13	154
261	27	1	PATCH	9;10;11;12;13	155
261	28	1	PATCH	9;10;11;12;13	156
261	34	1	PATCH	9;10;11;12;13	162
261	35	1	PATCH	9;10;11;12;13	163
261	36	1	PATCH	9;10;11;12;13	164
261	37	1	PATCH	9;10;11;12;13	165
261	128	1	PATCH	1	0
261	130	1	PATCH	2	2
261	132	1	PATCH	3	4
261	134	1	PATCH	4	6
261	136	1	PATCH	5	8
261	138	1	PATCH	4;5	10
261	139	1	PATCH	3;4	11
261	140	1	PATCH	1;2	12
261	141	1	PATCH	1;2	13
261	146	1	PATCH	2;3	18
261	147	1	PATCH	1;2	19
261	148	1	PATCH	1;2	20
261	152	1	PATCH	1;2;3;4;5	24
261	153	1	PATCH	1;2;3;4;5	25
261	154	1	PATCH	1;2;3;4;5	26
261	155	1	PATCH	1;2;3;4;5	27
261	156	1	PATCH	1;2;3;4;5	28
261	162	1	PATCH	1;2;3;4;5	34
261	163	1	PATCH	1;2;3;4;5	35
261	164	1	PATCH	1;2;3;4;5	36
261	165	1	PATCH	1;2;3;4;5	37

3.4. Simulation and modeling validation

Power density simulations of all beams and surfaces were performed by the manufacturer. Details of these simulations and modeling validation can be found in the Power Density Simulation Report. Table 3-8 includes a summary of the validation results to support worst-case housing influence quantification in power density characterization for this model.

With an input power of 6dBm for n258, n260 and n261 band, PD measurements are conducted for at least one single beam per antenna type and per antenna module (QTM#0, QTM#1) on worst-surface(s) listed in Section 3.6. PD measurements are performed at mid channel of each mmW band and with CW modulation. All measured PD values are listed in Table 3-8 along with corresponding simulated PD values for the same configuration.

PD value will be used to determine worst-case housing influence for conservative assessment.

Table 3-8 Measured and Simulated 4cm² avg. PD for Selected Beams
with 6 dBm Input Power for both n258, n260 and n261

Band	Channel	Ant Type	Module	Ant Group (Ant Polarization)	beam ID	Surface	Channel	4cm ² avg.PD(W/m ²)		Δ (dB)	Amin (dB)
								Measured	Simulated		
n258	Mid Ch.2025833 (24800.04MHz)	Patch	QTM#0	AG0(V)	31	Left	Mid	17.20	16.64	-0.14	-3.10
					39	Left	Mid	17.80	8.71	-3.10	
				AG1(H)	159	Left	Mid	9.60	17.35	2.57	
					166	Left	Mid	9.78	8.27	-0.73	
			QTM#1	AG0(V)	24	Back	Mid	20.30	16.02	-1.03	-3.37
					26	Back	Mid	10.80	4.98	-3.37	
				AG1(H)	36	Back	Mid	12.50	7.10	-2.46	
					152	Back	Mid	8.31	14.91	2.54	
n260	Mid Ch.2253331 (38449.9MHz)	Patch	QTM#0	AG0(H)	31	Left	Mid	3.97	13.48	5.31	0.54
					41	Left	Mid	8.78	9.93	0.54	
				AG1(V)	167	Left	Mid	5.08	12.95	4.06	
			QTM#1	AG0(H)	36	Back	Mid	7.36	12.72	2.38	0.43
					AG1(V)	148	Back	Mid	4.21	4.65	
				155	Back	Mid	5.30	13.31	4.00		
n261	Mid Ch.2077891 (27923.5MHz)	Patch	QTM#0	AG0(V)	23	Left	Mid	4.33	6.17	1.53	-2.12
					39	Left	Mid	10.30	6.32	-2.12	
				AG1(H)	40	Left	Mid	8.26	16.92	3.11	
					160	Left	Mid	8.46	18.48	3.39	
			QTM#1	AG0(V)	24	Back	Mch	9.77	17.30	2.48	-2.23
					34	Back	Mch	11.33	8.51	-1.24	
				AG1(H)	35	Back	Mch	10.80	7.36	-1.67	
					153	Back	Mch	8.84	16.42	2.69	
164	Back	Mch	9.72	5.82	-2.23						

3.5. PD_design_target

PD_design_target is determined by ensuring that it is less than FCC PD limit after accounting for total device design uncertainties including Tx AGC and device-to-device variation, specified by the manufacturer (see Table 3-9).

Table 3-9 PD_design_target Calculations

PD_design_target	
PD_design_target < PD_regulatory_limit × 10 ^{-Total Uncertainty/10}	
PD over 4 cm ² Averaging Area (W/m ²)	
Total Uncertainty	2.0dB
PD_regulatory_limit	10 W/m ²
PD_design_target	6.0 W/m ²

3.6. Worst-case Housing Influence Determination : Δ_{min}

For non-metal material, the material property cannot be accurately characterized at mmW frequencies to data. The estimated material property for the device housing is used in the simulation model, which could influence the accuracy in simulation for PD amplitude quantification. Since the housing influence on PD could vary from surface to surface where the EM field propagates through, the most underestimated surface is used to quantify the worst-case housing influence for conservative assessment.

Since the mmW antenna modules are placed at different location as shown in Figure 3-1, only surrounding material/housing has impact on EM field propagation, and in turn power density.

Furthermore, depending on the type of antenna array, i.e., dipole antenna array or patch antenna array, the nature of EM field propagation in the near field is different. Therefore, the worst-case housing influence is determined per antenna module.

For this DUT, the below procedure was used to determine worst-case housing influence, Δ_{min} :

1. Based on PD simulation, for each module and antenna type, determine one worst-surface(s) that has highest 4cm² PD for all the single beams per antenna module and per antenna type in the mid channel of each band.
2. For identified worst surface(s) per antenna module and per antenna type group,
 - a. First determine Δ_{min} based on identified worst surface(s), and derive input.power.limit
 - b. Then prove all other near-by surface(s), i.e., non-selected surface(s), is not required for housing material loss quantification (in other words, these non-evaluated surfaces have no influence on the determined input.power.limit) by :
 - I. re-scale all simulated 4cm² PD values to input.power.limit to identify the worst-PD beam per each non-evaluated surface.
 - II. Measure 4cm² PD at input.power.limit on identified worst-PD beam per each non-evaluated surface
 - III. Demonstrate all measured 4cm² PD values are below PD_design_target.

3. If any of the above surface(s) in Step (2.b.iii) have measured $4\text{cm}^2 \text{ PD} \geq \text{PD_design_target}$, then those surfaces must be included in the Δ_{min} determination in Step (2.a), and re-evaluate input.power.limit with these added surfaces.

Following above procedure, based on Table 5 ~ Table 9 in PD simulation report, the worst-surface(s) having highest $4\text{cm}^2 \text{ PD}$ for all the single beams per each antenna type and each antenna module group in the mid channel of n258, n260 and n261 bands are identified in the following table:

Table 3-10 Worst-surface(s) for QTM#0, QTM#1

Module	Ant Type	Front	Back	Right	Left	Top	Bottom
QTM#0	Patch	No	No	No	Yes	No	No
QTM#1	Patch	No	Yes	No	No	No	No

Thus, when comparing a simulated 4cm^2 -averaged PD and measured 4cm^2 -averaged PD for the identified worst surface(s), the worst error introduced for each antenna module when using the estimated material property in the simulation is highlighted in bold numbers in Table 3-11. Thus, the worst-case housing influence, denoted as $\Delta_{\text{min}} = \text{Sim. PD} - \text{Meas. PD}$, is determined as

Table 3-11 Δ_{min} for QTM#0, QTM#1

6dBm input measurement / simulation					Δ (dB)	Δ_{min} (dB)
Band	Ant Type	Module	beam ID	Surface		
n258	Patch	QTM#0	31	Left	-0.14	-3.10
			39	Left	-3.10	
			159	Left	2.57	
			166	Left	-0.73	
		QTM#1	24	Back	-1.03	-3.37
			26	Back	-3.37	
			36	Back	-2.46	
			152	Back	2.54	
n260	Patch	QTM#0	31	Left	5.31	0.54
			41	Left	0.54	
			167	Left	4.06	
		QTM#1	36	Back	2.38	0.43
			148	Back	0.43	
			155	Back	4.00	
n261	Patch	QTM#0	23	Left	1.53	-2.12
			39	Left	-2.12	
			40	Left	3.11	
			160	Left	3.39	
			167	Left	-1.99	
		QTM#1	24	Back	2.48	-2.23
			34	Back	-1.24	
			35	Back	-1.67	
			153	Back	2.69	
			164	Back	-2.23	

Δ_{min} represents the worst case where RF exposure is underestimated the most in simulation when using the estimated material property of the housing. For conservative assessment, the Δ_{min} is used as the worst-case factor and applied to all the beams in the corresponding antenna type and antenna module group to determine input power limits in PD char for compliance.

The detail input.power.limit derivation is described in Section 3.7.

Simulated 4cm² PD values in the Power Density Simulation Report are scaled to input.power.limit and are listed in the tables below for all single beams for all identified surfaces, when assuming the simulation is performed with correct housing influence.

Determine the worst beam for each of non-selected surface(s), identified in the table below:

Table 3-12 Non-Selected Surface(s) for QTM#0, QTM#1

Module	Ant Type	Band	Front	Back	Right	Left	Top	Bottom
QTM#0	Patch	n258	Yes	Yes	Yes	No	Yes	Yes
QTM#0	Patch	n260	Yes	Yes	Yes	No	Yes	Yes
QTM#0	Patch	n261	Yes	Yes	Yes	No	Yes	Yes
QTM#1	Patch	n258	Yes	No	Yes	Yes	Yes	No
QTM#1	Patch	n260	Yes	No	Yes	Yes	Yes	No
QTM#1	Patch	n261	Yes	No	Yes	Yes	Yes	No

Then perform PD measurement for all determined worst-case beams, highlighted in red in the table below, on the corresponding surface. Measurement is performed in the mid channel of each band with CW modulation. The evaluation distance is at 2mm.

Table 3-13: n258/mid channel, QTM#0 simulated 4cm² ave.PD (W/m²) at PD_Design_Target (if simulation performed with correct housing material properties) (Δ_{min})

Band	Beam ID	ANT Module	ANT Type	Num of Feed	Left	Right	Top	Bottom	Front	Back
n258	1	QTM#0	Patch	1	2.883	0.023	0.099	0.012	0.490	1.235
n258	3	QTM#0	Patch	1	3.271	0.027	0.058	0.009	1.058	0.979
n258	5	QTM#0	Patch	1	2.865	0.033	0.101	0.023	0.547	1.019
n258	7	QTM#0	Patch	1	3.444	0.020	0.065	0.030	1.032	0.820
n258	9	QTM#0	Patch	1	2.950	0.021	0.061	0.015	0.481	1.270
n258	14	QTM#0	Patch	2	5.889	0.067	0.264	0.055	1.803	1.730
n258	15	QTM#0	Patch	2	5.346	0.051	0.175	0.025	1.425	2.266
n258	16	QTM#0	Patch	2	6.000	0.069	0.193	0.017	1.627	2.117
n258	17	QTM#0	Patch	2	5.346	0.051	0.175	0.025	1.393	2.266
n258	21	QTM#0	Patch	2	5.217	0.048	0.159	0.028	1.567	1.845
n258	22	QTM#0	Patch	2	5.011	0.049	0.141	0.021	1.206	2.176
n258	23	QTM#0	Patch	2	4.609	0.046	0.119	0.015	1.193	2.015
n258	29	QTM#0	Patch	5	6.000	0.063	0.171	0.035	1.408	2.486
n258	30	QTM#0	Patch	5	6.000	0.131	0.563	0.048	1.806	1.593
n258	31	QTM#0	Patch	5	6.000	0.050	0.106	0.030	1.620	2.512
n258	32	QTM#0	Patch	5	6.000	0.041	0.156	0.047	1.614	2.939
n258	33	QTM#0	Patch	5	6.000	0.044	0.116	0.073	1.721	2.364
n258	38	QTM#0	Patch	5	6.000	0.072	0.238	0.035	1.562	2.359
n258	39	QTM#0	Patch	5	6.000	0.148	0.670	0.123	1.953	2.018
n258	40	QTM#0	Patch	5	6.000	0.047	0.158	0.042	1.543	2.713
n258	41	QTM#0	Patch	5	6.000	0.053	0.190	0.081	1.828	2.842
n258	129	QTM#0	Patch	1	2.995	0.026	0.028	0.023	0.618	1.301
n258	131	QTM#0	Patch	1	3.408	0.034	0.060	0.005	0.991	1.027
n258	133	QTM#0	Patch	1	3.198	0.033	0.047	0.027	0.553	1.135
n258	135	QTM#0	Patch	1	3.096	0.042	0.075	0.005	0.899	0.767
n258	137	QTM#0	Patch	1	3.123	0.033	0.046	0.020	0.992	0.929
n258	142	QTM#0	Patch	2	5.532	0.119	0.172	0.014	1.823	2.149
n258	143	QTM#0	Patch	2	4.037	0.089	0.161	0.043	1.447	1.359
n258	144	QTM#0	Patch	2	5.618	0.055	0.134	0.035	1.545	2.061
n258	145	QTM#0	Patch	2	4.984	0.056	0.034	0.044	1.416	2.094
n258	149	QTM#0	Patch	2	4.556	0.091	0.218	0.013	1.679	1.958
n258	150	QTM#0	Patch	2	5.206	0.047	0.040	0.039	1.461	2.179
n258	151	QTM#0	Patch	2	6.000	0.100	0.110	0.034	1.504	2.414
n258	157	QTM#0	Patch	5	6.000	0.082	0.088	0.038	2.086	2.384
n258	158	QTM#0	Patch	5	6.000	0.245	0.765	0.075	1.991	1.443
n258	159	QTM#0	Patch	5	6.000	0.038	0.037	0.013	1.922	3.168
n258	160	QTM#0	Patch	5	6.000	0.041	0.043	0.017	2.138	2.708
n258	161	QTM#0	Patch	5	6.000	0.105	0.114	0.119	1.862	2.341
n258	166	QTM#0	Patch	5	6.000	0.221	0.436	0.086	1.753	1.977
n258	167	QTM#0	Patch	5	6.000	0.068	0.173	0.030	1.610	2.773
n258	168	QTM#0	Patch	5	6.000	0.041	0.066	0.008	2.174	2.915
n258	169	QTM#0	Patch	5	6.000	0.053	0.036	0.029	1.870	2.585

Please note the above scaled simulation values correspond to PD_design_target if the simulation was performed with correct housing material properties

Table 3-14: n260/mid channel, QTM#0 simulated 4cm² ave.PD (W/m²) at PD_Design_Target (if simulation performed with correct housing material properties) (Δmin)

n260 Mid ch					Power Density [W/m ²]					
Band	Beam ID	ANT Module	ANT Type	Num of Feed	spacing 2mm / Area 4cm ² Averaging					
					Left	Right	Top	Bottom	Front	Back
n260	1	QTM#0	Patch	1	1.164	0.013	0.039	0.631	0.756	0.368
n260	3	QTM#0	Patch	1	1.808	0.021	0.071	0.060	0.809	0.231
n260	5	QTM#0	Patch	1	1.911	0.014	0.059	0.121	1.425	0.275
n260	7	QTM#0	Patch	1	2.009	0.044	0.069	0.363	1.266	0.551
n260	9	QTM#0	Patch	1	1.906	0.017	0.038	0.477	1.289	0.509
n260	14	QTM#0	Patch	2	2.340	0.053	0.132	0.148	1.390	0.440
n260	15	QTM#0	Patch	2	2.452	0.056	0.130	0.990	1.739	0.879
n260	16	QTM#0	Patch	2	3.198	0.058	0.151	0.181	2.337	0.791
n260	17	QTM#0	Patch	2	2.237	0.033	0.119	0.108	1.037	0.430
n260	21	QTM#0	Patch	2	1.997	0.038	0.161	0.275	1.194	0.757
n260	22	QTM#0	Patch	2	1.924	0.036	0.132	0.307	1.151	0.589
n260	23	QTM#0	Patch	2	3.804	0.052	0.180	0.334	1.722	0.366
n260	29	QTM#0	Patch	5	6.000	0.055	0.066	0.127	4.017	0.333
n260	30	QTM#0	Patch	5	6.000	0.053	0.134	0.196	4.759	0.471
n260	31	QTM#0	Patch	5	6.000	0.040	0.121	0.047	4.612	1.207
n260	32	QTM#0	Patch	5	6.000	0.095	0.025	0.078	3.573	2.078
n260	33	QTM#0	Patch	5	6.000	0.085	0.274	0.067	2.535	1.586
n260	38	QTM#0	Patch	5	6.000	0.042	0.112	0.124	4.590	0.843
n260	39	QTM#0	Patch	5	6.000	0.054	0.220	0.071	4.721	0.844
n260	40	QTM#0	Patch	5	6.000	0.085	0.055	0.403	4.123	0.418
n260	41	QTM#0	Patch	5	6.000	0.069	0.189	0.194	3.156	1.282
n260	129	QTM#0	Patch	1	1.435	0.017	0.019	0.098	0.883	0.155
n260	131	QTM#0	Patch	1	1.552	0.031	0.047	0.356	1.064	0.614
n260	133	QTM#0	Patch	1	2.497	0.026	0.056	0.236	1.461	0.298
n260	135	QTM#0	Patch	1	1.736	0.028	0.026	0.136	1.177	0.261
n260	137	QTM#0	Patch	1	1.852	0.041	0.042	0.071	0.908	0.313
n260	142	QTM#0	Patch	2	2.081	0.065	0.111	0.244	1.428	0.434
n260	143	QTM#0	Patch	2	3.064	0.052	0.109	0.152	2.076	0.459
n260	144	QTM#0	Patch	2	2.358	0.061	0.041	0.291	1.514	0.596
n260	145	QTM#0	Patch	2	2.524	0.054	0.090	0.176	1.631	1.374
n260	149	QTM#0	Patch	2	2.561	0.039	0.060	0.456	2.099	0.582
n260	150	QTM#0	Patch	2	3.126	0.049	0.128	0.180	2.066	0.441
n260	151	QTM#0	Patch	2	3.434	0.044	0.089	0.606	2.688	0.683
n260	157	QTM#0	Patch	5	6.000	0.070	0.130	0.067	3.952	0.995
n260	158	QTM#0	Patch	5	6.000	0.063	0.132	0.286	3.502	0.620
n260	159	QTM#0	Patch	5	6.000	0.051	0.071	0.175	4.211	0.699
n260	160	QTM#0	Patch	5	6.000	0.051	0.068	0.322	4.683	0.760
n260	161	QTM#0	Patch	5	6.000	0.077	0.111	0.163	3.279	1.108
n260	166	QTM#0	Patch	5	6.000	0.053	0.156	0.056	3.673	0.722
n260	167	QTM#0	Patch	5	6.000	0.056	0.070	0.429	3.759	0.425
n260	168	QTM#0	Patch	5	6.000	0.080	0.049	0.373	4.717	0.588
n260	169	QTM#0	Patch	5	6.000	0.072	0.120	0.178	3.509	1.170

Please note the above scaled simulation values correspond to PD_design_target if the simulation was performed with correct ch housing material properties

Table 3-15: n261/mid channel, QTM#0 simulated 4cm² ave.PD (W/m²) at PD_Design_Target
(if simulation performed with correct housing material properties) (Δ_{min})

Band	Beam ID	ANT Module	ANT Type	Num of Feed	Left	Right	Top	Bottom	Front	Back
n261	1	QTM#0	Patch	1	3.198	0.018	0.081	0.168	0.644	1.191
n261	3	QTM#0	Patch	1	3.516	0.021	0.073	0.117	1.317	0.833
n261	5	QTM#0	Patch	1	2.933	0.031	0.124	0.240	0.642	1.035
n261	7	QTM#0	Patch	1	3.299	0.015	0.060	0.148	0.928	0.802
n261	9	QTM#0	Patch	1	2.749	0.017	0.068	0.329	0.553	0.938
n261	14	QTM#0	Patch	2	4.711	0.040	0.102	0.239	1.196	1.651
n261	15	QTM#0	Patch	2	4.758	0.055	0.245	0.497	1.155	1.708
n261	16	QTM#0	Patch	2	6.000	0.049	0.200	0.325	2.047	1.818
n261	17	QTM#0	Patch	2	5.269	0.047	0.136	0.304	1.572	2.021
n261	21	QTM#0	Patch	2	4.731	0.041	0.095	0.415	1.250	1.719
n261	22	QTM#0	Patch	2	5.507	0.049	0.254	0.288	2.282	2.035
n261	23	QTM#0	Patch	2	6.000	0.051	0.156	0.342	1.747	1.638
n261	29	QTM#0	Patch	5	6.000	0.037	0.087	0.175	1.922	2.376
n261	30	QTM#0	Patch	5	6.000	0.117	0.786	1.727	2.174	1.818
n261	31	QTM#0	Patch	5	6.000	0.055	0.139	0.426	1.791	2.692
n261	32	QTM#0	Patch	5	6.000	0.046	0.119	0.421	2.066	2.523
n261	33	QTM#0	Patch	5	6.000	0.051	0.035	0.346	2.170	2.126
n261	38	QTM#0	Patch	5	6.000	0.061	0.139	0.116	1.381	2.714
n261	39	QTM#0	Patch	5	6.000	0.099	0.751	2.622	1.752	2.622
n261	40	QTM#0	Patch	5	6.000	0.052	0.090	0.226	1.892	2.418
n261	41	QTM#0	Patch	5	6.000	0.044	0.054	0.482	2.159	2.519
n261	129	QTM#0	Patch	1	3.309	0.014	0.060	0.197	0.769	1.198
n261	131	QTM#0	Patch	1	3.411	0.025	0.049	0.048	1.080	0.959
n261	133	QTM#0	Patch	1	3.240	0.033	0.043	0.166	0.721	1.086
n261	135	QTM#0	Patch	1	3.217	0.025	0.066	0.059	0.809	0.843
n261	137	QTM#0	Patch	1	3.196	0.018	0.060	0.104	0.842	0.967
n261	142	QTM#0	Patch	2	6.000	0.054	0.061	0.190	1.545	1.781
n261	143	QTM#0	Patch	2	4.545	0.032	0.200	0.296	1.587	1.610
n261	144	QTM#0	Patch	2	6.000	0.028	0.095	0.188	1.676	2.130
n261	145	QTM#0	Patch	2	6.000	0.066	0.096	0.196	1.523	2.000
n261	149	QTM#0	Patch	2	5.122	0.091	0.146	0.311	1.125	1.943
n261	150	QTM#0	Patch	2	4.884	0.043	0.207	0.110	1.704	2.098
n261	151	QTM#0	Patch	2	5.449	0.038	0.064	0.199	1.605	2.088
n261	157	QTM#0	Patch	5	6.000	0.028	0.041	0.066	1.547	2.311
n261	158	QTM#0	Patch	5	6.000	0.152	0.646	1.224	2.544	2.134
n261	159	QTM#0	Patch	5	6.000	0.046	0.127	0.187	1.636	2.440
n261	160	QTM#0	Patch	5	6.000	0.033	0.077	0.038	2.132	2.698
n261	161	QTM#0	Patch	5	6.000	0.061	0.151	0.142	1.626	2.253
n261	166	QTM#0	Patch	5	6.000	0.072	0.094	0.326	2.062	2.170
n261	167	QTM#0	Patch	5	6.000	0.094	0.693	0.808	2.079	2.039
n261	168	QTM#0	Patch	5	6.000	0.030	0.027	0.060	2.039	2.757
n261	169	QTM#0	Patch	5	6.000	0.046	0.158	0.109	1.829	2.216

Please note the above scaled simulation values correspond to PD_design_target if the simulation was performed with correct housing material properties.

Table 3-16: n258/mid channel, QTM#1 simulated 4cm² ave.PD (W/m²) at PD_Design_Target
(if simulation performed with correct housing material properties) (Δ_{min})

Band	Beam ID	ANT Module	ANT Type	Num of Feed	Left	Right	Top	Bottom	Front	Back
n258	0	QTM#1	Patch	1	0.043	0.179	0.647	0.039	0.066	2.302
n258	2	QTM#1	Patch	1	0.055	0.140	0.446	0.088	0.080	0.504
n258	4	QTM#1	Patch	1	0.047	0.080	0.703	0.045	0.058	2.148
n258	6	QTM#1	Patch	1	0.031	0.139	0.460	0.074	0.084	1.012
n258	8	QTM#1	Patch	1	0.028	0.354	0.559	0.098	0.074	1.915
n258	10	QTM#1	Patch	2	0.076	0.279	0.907	0.195	0.128	2.918
n258	11	QTM#1	Patch	2	0.084	0.194	1.529	0.160	0.157	2.908
n258	12	QTM#1	Patch	2	0.085	0.251	0.938	0.191	0.129	2.598
n258	13	QTM#1	Patch	2	0.078	0.243	1.513	0.123	0.136	3.144
n258	18	QTM#1	Patch	2	0.051	0.537	0.929	0.318	0.141	2.880
n258	19	QTM#1	Patch	2	0.111	0.346	0.808	0.112	0.150	2.371
n258	20	QTM#1	Patch	2	0.078	0.267	0.909	0.198	0.127	2.859
n258	24	QTM#1	Patch	5	0.017	0.169	1.578	0.179	0.217	6.000
n258	25	QTM#1	Patch	5	0.078	0.261	1.730	0.289	0.205	6.000
n258	26	QTM#1	Patch	5	0.353	1.333	1.379	0.255	0.491	4.975
n258	27	QTM#1	Patch	5	0.057	0.339	1.604	0.275	0.225	6.000
n258	28	QTM#1	Patch	5	0.231	0.739	1.595	0.085	0.322	6.000
n258	34	QTM#1	Patch	5	0.093	0.517	1.741	0.215	0.265	6.000
n258	35	QTM#1	Patch	5	0.042	0.219	1.570	0.116	0.198	6.000
n258	36	QTM#1	Patch	5	0.143	0.862	1.762	0.469	0.269	6.000
n258	37	QTM#1	Patch	5	0.072	0.413	1.606	0.273	0.228	6.000
n258	128	QTM#1	Patch	1	0.045	0.176	0.672	0.018	0.096	2.048
n258	130	QTM#1	Patch	1	0.032	0.288	0.559	0.065	0.081	1.027
n258	132	QTM#1	Patch	1	0.033	0.265	0.657	0.034	0.094	2.134
n258	134	QTM#1	Patch	1	0.054	0.175	0.516	0.073	0.144	0.764
n258	136	QTM#1	Patch	1	0.023	0.446	0.236	0.169	0.057	0.683
n258	138	QTM#1	Patch	2	0.042	0.356	1.185	0.083	0.191	3.367
n258	139	QTM#1	Patch	2	0.069	0.514	1.309	0.084	0.137	3.625
n258	140	QTM#1	Patch	2	0.056	0.304	1.162	0.116	0.201	3.253
n258	141	QTM#1	Patch	2	0.076	0.311	1.127	0.140	0.198	3.122
n258	146	QTM#1	Patch	2	0.056	0.304	1.162	0.116	0.201	3.253
n258	147	QTM#1	Patch	2	0.069	0.309	1.139	0.134	0.200	3.163
n258	148	QTM#1	Patch	2	0.056	0.304	1.162	0.116	0.201	3.253
n258	152	QTM#1	Patch	5	0.032	0.518	1.529	0.264	0.179	6.000
n258	153	QTM#1	Patch	5	0.077	1.146	2.125	0.420	0.244	6.000
n258	154	QTM#1	Patch	5	0.314	1.758	1.341	0.362	0.769	6.000
n258	155	QTM#1	Patch	5	0.269	1.066	1.416	0.842	0.586	2.169
n258	156	QTM#1	Patch	5	0.275	1.656	1.619	0.415	0.802	5.568
n258	162	QTM#1	Patch	5	0.053	0.869	2.065	0.381	0.242	6.000
n258	163	QTM#1	Patch	5	0.084	1.062	2.353	0.641	0.314	6.000
n258	164	QTM#1	Patch	5	0.410	1.495	1.468	0.555	0.672	3.719
n258	165	QTM#1	Patch	5	0.082	0.428	2.090	0.437	0.331	6.000

Please note the above scaled simulation values correspond to PD_design_target if the simulation was performed with correct housing material properties.

Table 3-17: n260/mid channel, QTM#1 simulated 4cm² ave.PD (W/m²) at PD_Design_Target
(if simulation performed with correct housing material properties) (Δ_{min})

Band	Beam ID	ANT Module	ANT Type	Num of Feed	Left	Right	Top	Bottom	Front	Back
n260	0	QTM#1	Patch	1	0.015	0.252	0.271	0.004	0.049	2.178
n260	2	QTM#1	Patch	1	0.045	0.077	0.347	0.004	0.046	2.505
n260	4	QTM#1	Patch	1	0.025	0.192	0.450	0.003	0.058	3.177
n260	6	QTM#1	Patch	1	0.045	0.079	0.334	0.006	0.063	3.127
n260	8	QTM#1	Patch	1	0.021	0.312	0.393	0.004	0.058	3.015
n260	10	QTM#1	Patch	2	0.069	0.608	0.605	0.012	0.095	4.452
n260	11	QTM#1	Patch	2	0.034	0.185	1.130	0.008	0.126	6.000
n260	12	QTM#1	Patch	2	0.069	0.389	0.600	0.010	0.115	3.523
n260	13	QTM#1	Patch	2	0.069	0.389	0.600	0.010	0.115	3.523
n260	18	QTM#1	Patch	2	0.118	0.379	0.719	0.008	0.082	4.885
n260	19	QTM#1	Patch	2	0.048	0.163	0.626	0.007	0.082	4.931
n260	20	QTM#1	Patch	2	0.073	0.401	0.506	0.008	0.085	3.433
n260	24	QTM#1	Patch	5	0.173	1.554	0.997	0.019	0.121	6.000
n260	25	QTM#1	Patch	5	0.111	0.702	1.022	0.014	0.253	6.000
n260	26	QTM#1	Patch	5	0.107	0.389	1.284	0.009	0.148	6.000
n260	27	QTM#1	Patch	5	0.122	0.664	0.844	0.013	0.149	6.000
n260	28	QTM#1	Patch	5	0.069	0.198	1.283	0.009	0.123	6.000
n260	34	QTM#1	Patch	5	0.113	1.022	1.204	0.015	0.254	6.000
n260	35	QTM#1	Patch	5	0.028	0.171	1.141	0.011	0.108	6.000
n260	36	QTM#1	Patch	5	0.075	0.182	1.445	0.010	0.172	6.000
n260	37	QTM#1	Patch	5	0.091	0.357	1.198	0.009	0.171	6.000
n260	128	QTM#1	Patch	1	0.015	0.137	0.323	0.006	0.046	2.256
n260	130	QTM#1	Patch	1	0.023	0.289	0.347	0.008	0.051	2.742
n260	132	QTM#1	Patch	1	0.053	0.080	0.362	0.004	0.060	3.230
n260	134	QTM#1	Patch	1	0.021	0.282	0.369	0.005	0.055	3.041
n260	136	QTM#1	Patch	1	0.043	0.070	0.420	0.003	0.052	3.285
n260	138	QTM#1	Patch	2	0.095	0.427	0.833	0.011	0.084	5.376
n260	139	QTM#1	Patch	2	0.040	0.609	0.682	0.017	0.092	4.644
n260	140	QTM#1	Patch	2	0.083	0.484	0.746	0.011	0.065	4.707
n260	141	QTM#1	Patch	2	0.043	0.512	0.678	0.019	0.112	4.526
n260	146	QTM#1	Patch	2	0.041	0.435	0.681	0.021	0.115	4.392
n260	147	QTM#1	Patch	2	0.069	0.391	0.649	0.013	0.162	4.536
n260	148	QTM#1	Patch	2	0.040	0.306	0.663	0.008	0.078	4.648
n260	152	QTM#1	Patch	5	0.118	0.452	0.990	0.028	0.143	6.000
n260	153	QTM#1	Patch	5	0.027	0.636	1.212	0.012	0.203	6.000
n260	154	QTM#1	Patch	5	0.063	0.992	0.841	0.011	0.224	6.000
n260	155	QTM#1	Patch	5	0.022	0.268	1.116	0.023	0.111	6.000
n260	156	QTM#1	Patch	5	0.049	0.278	0.936	0.028	0.140	6.000
n260	162	QTM#1	Patch	5	0.219	0.565	1.205	0.023	0.215	6.000
n260	163	QTM#1	Patch	5	0.056	0.663	1.310	0.016	0.106	6.000
n260	164	QTM#1	Patch	5	0.034	0.340	0.933	0.014	0.082	6.000
n260	165	QTM#1	Patch	5	0.070	0.302	1.130	0.020	0.081	6.000

Please note the above scaled simulation values correspond to PD_design_target if the simulation was performed with correct housing material properties.

Table 3-18: n261/mid channel, QTM#1 simulated 4cm² ave.PD (W/m²) at PD_Design_Target
(if simulation performed with correct housing material properties) (Δ_{min})

Band	Beam ID	ANT Module	ANT Type	Num of Feed	Left	Right	Top	Bottom	Front	Back
n261	0	QTM#1	Patch	1	0.095	0.227	0.619	0.024	0.095	2.233
n261	2	QTM#1	Patch	1	0.061	0.095	0.419	0.036	0.070	0.585
n261	4	QTM#1	Patch	1	0.091	0.119	0.656	0.040	0.069	2.881
n261	6	QTM#1	Patch	1	0.039	0.116	0.367	0.075	0.073	0.561
n261	8	QTM#1	Patch	1	0.062	0.299	0.519	0.063	0.075	2.515
n261	10	QTM#1	Patch	2	0.062	0.252	1.077	0.073	0.172	2.681
n261	11	QTM#1	Patch	2	0.112	0.230	1.354	0.138	0.163	4.565
n261	12	QTM#1	Patch	2	0.061	0.250	1.081	0.079	0.174	2.623
n261	13	QTM#1	Patch	2	0.101	0.272	1.050	0.052	0.165	2.888
n261	18	QTM#1	Patch	2	0.086	0.529	0.835	0.208	0.127	2.723
n261	19	QTM#1	Patch	2	0.064	0.263	1.071	0.066	0.168	2.746
n261	20	QTM#1	Patch	2	0.061	0.250	1.081	0.079	0.174	2.623
n261	24	QTM#1	Patch	5	0.020	0.163	1.396	0.048	0.195	6.000
n261	25	QTM#1	Patch	5	0.047	0.254	2.090	0.099	0.185	6.000
n261	26	QTM#1	Patch	5	0.422	1.292	1.628	0.350	0.410	5.242
n261	27	QTM#1	Patch	5	0.155	0.778	1.935	0.097	0.248	6.000
n261	28	QTM#1	Patch	5	0.060	0.282	1.185	0.071	0.172	6.000
n261	34	QTM#1	Patch	5	0.466	1.101	1.402	0.257	0.407	6.000
n261	35	QTM#1	Patch	5	0.524	0.974	1.196	0.318	0.290	6.000
n261	36	QTM#1	Patch	5	0.091	0.481	1.123	0.110	0.182	6.000
n261	37	QTM#1	Patch	5	0.175	0.557	2.234	0.135	0.232	6.000
n261	128	QTM#1	Patch	1	0.048	0.153	0.572	0.029	0.089	2.015
n261	130	QTM#1	Patch	1	0.032	0.227	0.437	0.089	0.059	0.744
n261	132	QTM#1	Patch	1	0.034	0.236	0.685	0.018	0.101	2.759
n261	134	QTM#1	Patch	1	0.057	0.215	0.453	0.049	0.104	0.893
n261	136	QTM#1	Patch	1	0.024	0.438	0.265	0.122	0.039	0.544
n261	138	QTM#1	Patch	2	0.099	0.489	0.882	0.309	0.130	1.217
n261	139	QTM#1	Patch	2	0.136	0.781	0.716	0.078	0.295	2.964
n261	140	QTM#1	Patch	2	0.089	0.199	0.841	0.112	0.171	2.921
n261	141	QTM#1	Patch	2	0.089	0.199	0.841	0.112	0.171	2.921
n261	146	QTM#1	Patch	2	0.091	0.363	1.433	0.120	0.151	3.748
n261	147	QTM#1	Patch	2	0.080	0.228	0.847	0.096	0.176	2.908
n261	148	QTM#1	Patch	2	0.080	0.228	0.847	0.096	0.176	2.908
n261	152	QTM#1	Patch	5	0.040	0.802	1.555	0.135	0.210	6.000
n261	153	QTM#1	Patch	5	0.024	0.412	1.470	0.171	0.178	6.000
n261	154	QTM#1	Patch	5	0.272	1.297	1.336	0.378	0.343	6.000
n261	155	QTM#1	Patch	5	0.334	1.681	0.949	0.386	0.422	5.145
n261	156	QTM#1	Patch	5	0.055	0.154	1.884	0.305	0.241	6.000
n261	162	QTM#1	Patch	5	0.039	1.118	1.495	0.145	0.202	6.000
n261	163	QTM#1	Patch	5	0.477	0.507	2.096	0.441	0.476	2.324
n261	164	QTM#1	Patch	5	0.395	1.735	0.932	0.291	0.482	5.819
n261	165	QTM#1	Patch	5	0.030	0.287	1.713	0.249	0.198	6.000

Please note the above scaled simulation values correspond to PD_design_target if the simulation was performed with correct housing material properties

The test results in the table below shows that the all measured 4cm² PD values are less than PD_design_target of 6.0 W/m², thus, the non-selected surfaces have no influence on the determined Δ_{min} and input.power.limit in Section 3.7.

Table 3-19: 4cm² ave.PD (W/m²) of the selected beams measured on the corresponding surfaces that are not selected for Δ_{min} determination

Band	Module	beam ID	Surface	Tested Power Level (dBm)	input.power.limit (dBm)	Meas.4cm ² PD(W/m ²)
n258	QTM#0	159	Back	1.39	1.39	1.42
		168	Front	2.12	2.12	0.86
	QTM#1	36	Top	5.27	5.27	5.12
		154	Right	5.86	5.86	0.24
n260	QTM#0	32	Back	3.57	3.57	1.48
		30	Front	3.09	3.09	2.71
	QTM#1	36	Top	2.74	2.74	1.68
		24	Right	4.08	4.08	0.73
n261	QTM#0	168	Back	1.30	1.30	1.11
		158	Front	5.51	5.51	2.78
	QTM#1	37	Top	3.69	3.69	1.59
		164	Right	6.00	6.00	0.22

3.7. PD Char

3.7.1. Scaling Factor for Single Beams

To determine the input power limit at each antenna port, simulation was performed at low, mid and high channel for each mmW band supported, with 6dBm input per active port for n258 band, 6dBm input power per active port for n260 band, and 6dBm input power per active port for n261 band :

1. Obtained PD_{surface} value (the worst PD among all identified surfaces of the DUT) at all three channels for all single beams specified in the codebook.
2. Derived a scaling factor at low, mid and high channel, s(i)_{low_or_mid_or_high}, by :

$$s(i)_{\text{low_or_mid_or_high}} = \frac{PD \text{ design target}}{sim.PD_{\text{surface}}(i)}, \quad i \in \text{single beams} \quad (1)$$

3. Determined the worst-case scaling factor, s(i), among low, mid and high channels :

$$s(i) = \min\{ s_{\text{low}}(i), s_{\text{mid}}(i), s_{\text{high}}(i) \}, \quad i \in \text{single beams} \quad (2)$$

and this scaling factor applies to the input power at each antenna port.

3.7.2. Scaling Factor for Beam Pairs

Per the manufacturer, the relative phase between beam pair is not controlled in the chipset design and could vary from run to run. Therefore, for each beam pair, based on the simulation results, the worst-case scaling factor was determined mathematically to ensure the compliance. The worst-case PD for MIMO operations was found by sweeping the relative phase for all possible angles to ensure a conservative assessment. The power density simulation report contains the worst-case power density for each surface after sweeping through all relative phases between beams.

Once the power density was determined for the worst-case Φ , the scaling factor was obtained by the below equation for low, mid and high channels :

$$s(i)_{\text{low_or_mid_or_high}} = \frac{PD \text{ design target}}{total.PD(\Phi(i)_{\text{worstcase}})}, \quad i \in \text{single beams} \quad (3)$$

The total $PD(\Phi_{\text{worstcase}})$ varies with channel and beam pair, the lowest scaling factor among all three channels, $s(i)$, is determined for the beam pair i :

$$s(i) = \min\{s_{\text{low}}(i), s_{\text{mid}}(i), s_{\text{high}}(i)\}, \quad i \in \text{single beams} \quad (4)$$

3.7.3. Input.Power.Limit Calculations

The PD Char specifies the limit of input power at antenna port that corresponds to $PD_{\text{design_target}}$ for all the beams.

Ideally, if there is no uncertainty associated with hardware design, the input power limit, denoted as $input.power.limit(i)$, for beam i can be obtained after accounting for the housing influence (Δ_{min}), given by :

- For n258, n261 and n260

$$Input.power.limit(i) = 6\text{dBm} + 10 * \log(s(i)) + \Delta_{\text{min}}, \quad i \in \text{single beams} \quad (5)$$

Where 6dBm is the input powers used in simulation for n261 and n260 ; $s(i)$ is the scaling factor obtained from Eq.(2) or Eq.(4) for beam i ; Δ_{min} is the worst-case housing influence factor (determined in Table 4-8) for beam i .

If simulation overestimates the housing influence, then Δ_{min} (= simulated PD – measured PD) is negative, which means that the measured PD would be higher than the simulated PD. The input power to antenna elements determined via simulation must be decreased for compliance.

Similarly, if simulation underestimates the loss, then Δ_{min} is positive (measured PD would be lower than the simulated value). Input power to antenna elements determined via simulation can be

increased and still be PD compliant.

In really the hardware design has uncertainty which must be properly considered. The device design related uncertainty is embedded in the process of Δ_{min} determination. Since the device uncertainty is already accounted for in PD_design_target, it needs to be removed to avoid double counting this uncertainty. Thus, Equation 5 is modified to :

If $-\text{TxAGC uncertainty} < \Delta_{min} < \text{TxAGC uncertainty}$

$$\text{Input.power.limit}(i) = 6\text{dBm} + 10 * \log(s(i)), \quad i \in \text{all beams, for n261} \quad (6)$$

else if $\Delta_{min} < -\text{TxAGC uncertainty}$

$$\begin{aligned} \text{Input.power.limit}(i) &= 6\text{dBm} + 10 * \log(s(i)) + (\Delta_{min} + \text{TxAGC uncertainty}), \\ & i \in \text{all beams, for n261} \end{aligned} \quad (7)$$

else if $\Delta_{min} > \text{TxAGC uncertainty}$

$$\begin{aligned} \text{Input.power.limit}(i) &= 6\text{dBm} + 10 * \log(s(i)) + (\Delta_{min} - \text{TxAGC uncertainty}), \\ & i \in \text{all beams, for n261} \end{aligned} \quad (8)$$

Following above logic, the input.power.limit for this DUT can be calculated using Equations (6),(7) and (8), i.e.,

Table 3-18 input.power.limit Calculation

Band	Ant Module	Δ_{min} (dB)	TxAGC Uncertainty (dB)	input.power.limit (dBm)	Notes
n258	QTM#0	-3.10	0.63	$6\text{dBm} + 10 * \log(s(i)) + (\Delta_{min} + \text{TxAGC uncertainty})$	Using Eq. 7
	QTM#1	-3.37	0.63	$6\text{dBm} + 10 * \log(s(i)) + (\Delta_{min} + \text{TxAGC uncertainty})$	Using Eq. 7
n260	QTM#0	0.54	0.63	$6\text{dBm} + 10 * \log(s(i))$	Using Eq. 6
	QTM#1	0.43	0.63	$6\text{dBm} + 10 * \log(s(i))$	Using Eq. 6
n261	QTM#0	-2.12	0.63	$6\text{dBm} + 10 * \log(s(i)) + (\Delta_{min} + \text{TxAGC uncertainty})$	Using Eq. 7
	QTM#1	-2.23	0.63	$6\text{dBm} + 10 * \log(s(i)) + (\Delta_{min} + \text{TxAGC uncertainty})$	Using Eq. 7

Thus, the DUT PD Char for n258, n260 and n261 bands is as shown in the tables 3-19–3-24. The full simulation results used to support this calculation can be found in the Power Density Simulation Report.

Table 3-19 5G NR n258 QTM#0 input.power.limit

Band	Beam ID	Paired with BeamID	Input.Power.Limit (dBm)
n258	1		6.00
	3		5.71
	5		6.00
	7		5.94
	9		6.00
	14		3.61
	15		3.96
	16		3.30
	17		3.96
	21		4.14
	22		4.09
	23		4.28
	29		0.00
	30		1.13
	31		-0.90
	32		-0.47
	33		0.03
	38		-0.31
	39		1.91
	40		-0.60
	41		0.42
	129		5.93
	131		5.71
	133		6.00
	135		6.00
	137		6.00
	142		3.63
	143		4.60
	144		3.10
	145		3.68
	149		4.33
	150		3.68
	151		3.39
	157		0.45
	158		3.22
	159		-1.54
	160		-0.68
	161		1.27
	166		2.02
	167		0.20
	168		-0.57
169		-0.63	
1	129	4.26	
3	131	3.75	
5	133	3.03	
7	135	2.83	
9	137	3.57	
14	142	0.34	
15	143	1.34	
16	144	0.67	
17	145	0.62	
21	149	1.08	
22	150	1.00	
23	151	0.48	
29	157	-3.15	
30	158	-0.95	
31	159	-4.11	
32	160	-3.70	
33	161	-2.29	
38	166	-2.30	
39	167	-2.18	
40	168	-3.63	
41	169	-3.26	

Table 3-20 5G NR n260 QTM#0 input.power.limit

Band	Beam ID	Paired with BeamID	Input.Power.Limit (dBm)
n260	1		6.00
	3		6.00
	5		6.00
	7		6.00
	9		6.00
	14		6.00
	15		6.00
	16		6.00
	17		6.00
	21		6.00
	22		6.00
	23		6.00
	29		3.33
	30		2.94
	31		2.48
	32		3.57
	33		3.66
	38		2.77
	39		2.78
	40		3.06
	41		3.65
	129		6.00
	131		6.00
	133		6.00
	135		6.00
	137		6.00
	142		6.00
	143		6.00
	144		6.00
	145		6.00
	149		6.00
	150		6.00
	151		6.00
	157		3.20
	158		3.07
	159		2.50
	160		2.32
	161		2.90
	166		3.17
	167		2.65
	168		2.46
169		2.88	
1	129	6.00	
3	131	6.00	
5	133	5.26	
7	135	6.00	
9	137	6.00	
14	142	5.71	
15	143	5.25	
16	144	6.00	
17	145	6.00	
21	149	6.00	
22	150	4.65	
23	151	4.46	
29	157	-0.01	
30	158	0.15	
31	159	0.01	
32	160	0.65	
33	161	0.93	
38	166	0.13	
39	167	-0.11	
40	168	0.34	
41	169	1.34	

Table 3-21 5G NR n261 QTM#0 input.power.limit

Band	Beam ID	Paired with BeamID	Input.Power.Limit (dBm)
n261	1		6.00
	3		6.00
	5		6.00
	7		6.00
	9		6.00
	14		5.56
	15		5.49
	16		4.43
	17		5.07
	21		5.54
	22		4.76
	23		4.37
	29		0.75
	30		4.05
	31		0.40
	32		0.47
	33		1.02
	38		0.99
	39		4.06
	40		0.01
	41		0.70
	129		6.00
	131		6.00
	133		6.00
	135		6.00
	137		6.00
	142		4.33
	143		5.63
	144		3.69
	145		4.30
	149		5.09
	150		5.36
	151		4.79
	157		0.57
	158		3.74
	159		1.42
	160		-0.37
	161		1.49
	166		1.72
	167		4.38
	168		-0.19
169		0.84	
	1	129	5.22
	3	131	4.84
	5	133	4.37
	7	135	3.94
	9	137	4.76
	14	142	1.74
	15	143	2.51
	16	144	1.29
	17	145	2.14
	21	149	2.61
	22	150	2.17
	23	151	1.69
	29	157	-2.33
	30	158	0.38
	31	159	-2.08
	32	160	-3.05
	33	161	-1.77
	38	166	-1.97
	39	167	0.96
	40	168	-3.12
	41	169	-2.27

Table 3-22 5G NR n258 QTM#1 input.power.limit

Band	Beam ID	Paired with BeamID	Input.Power.Limit (dBm)
n258	0		6.00
	2		6.00
	4		5.71
	6		6.00
	8		5.97
	10		5.32
	11		4.14
	12		5.76
	13		3.98
	18		5.39
	19		6.00
	20		5.42
	24		-1.11
	25		0.18
	26		3.02
	27		0.10
	28		0.79
	34		0.84
	35		-0.55
	36		2.05
	37		0.30
	128		6.00
	130		6.00
	132		5.63
	134		6.00
	136		6.00
	138		5.29
	139		4.59
	140		5.30
	141		5.42
	146		5.30
	147		5.37
	148		5.30
	152		-1.09
	153		0.39
	154		3.12
	155		6.00
156		2.64	
162		0.05	
163		1.15	
164		5.34	
165		0.51	
	0	128	4.12
	2	130	6.00
	4	132	2.10
	6	134	6.00
	8	136	5.54
	10	138	2.69
	11	139	0.43
	12	140	2.95
	13	141	2.47
	18	146	1.28
	19	147	3.53
	20	148	1.87
	24	152	-4.16
	25	153	-2.05
	26	154	-1.21
	27	155	0.15
	28	156	0.10
	34	162	-2.99
	35	163	-3.05
	36	164	2.00
	37	165	-2.88

Table 3-23 5G NR n260 QTM#1 input.power.limit

Band	Beam ID	Paired with BeamID	Input.Power.Limit (dBm)
n260	0		6.00
	2		6.00
	4		6.00
	6		6.00
	8		6.00
	10		6.00
	11		5.51
	12		6.00
	13		6.00
	18		6.00
	19		6.00
	20		6.00
	24		4.21
	25		3.49
	26		2.94
	27		3.11
	28		2.91
	34		4.02
	35		2.72
	36		2.55
	37		3.22
	128		6.00
	130		6.00
	132		6.00
	134		6.00
	136		6.00
	138		6.00
	139		6.00
	140		6.00
	141		6.00
	146		6.00
	147		6.00
	148		6.00
	152		3.77
	153		3.07
	154		3.60
	155		2.57
156		3.22	
162		4.06	
163		3.39	
164		2.62	
165		2.79	
0	128	6.00	
2	130	6.00	
4	132	5.89	
6	134	6.00	
8	136	6.00	
10	138	4.09	
11	139	3.48	
12	140	5.06	
13	141	4.80	
18	146	4.51	
19	147	3.87	
20	148	4.06	
24	152	1.08	
25	153	0.42	
26	154	0.41	
27	155	0.03	
28	156	-0.20	
34	162	1.30	
35	163	-0.43	
36	164	-0.44	
37	165	0.41	

Table 3-24 5G NR n261 QTM#1 input.power.limit

Band	Beam ID	Paired with BeamID	Input.Power.Limit (dBm)
n261	0		6.00
	2		6.00
	4		6.00
	6		6.00
	8		6.00
	10		6.00
	11		4.77
	12		6.00
	13		6.00
	18		6.00
	19		6.00
	20		6.00
	24		-0.34
	25		0.96
	26		4.39
	27		1.73
	28		-0.17
	34		2.01
	35		3.13
	36		0.93
	37		1.59
	128		6.00
	130		6.00
	132		6.00
	134		6.00
	136		6.00
	138		6.00
	139		6.00
	140		6.00
	141		6.00
	146		6.00
	147		6.00
	148		6.00
	152		0.89
	153		-0.10
	154		3.49
	155		4.40
156		1.46	
162		1.21	
163		6.00	
164		3.74	
165		0.58	
	0	128	5.32
	2	130	6.00
	4	132	2.40
	6	134	6.00
	8	136	6.00
	10	138	6.00
	11	139	2.07
	12	140	4.89
	13	141	4.74
	18	146	4.53
	19	147	4.26
	20	148	4.70
	24	152	-3.58
	25	153	-2.15
	26	154	1.25
	27	155	0.09
	28	156	-0.62
	34	162	-1.06
	35	163	2.42
	36	164	0.55
	37	165	-1.66

APPENDIX A : SAR TEST RESULTS FOR PLIMIT CALCULATIONS

Table A-1 DSI = 0 PLimit Calculations-3G Head SAR

Frequency		Mode	ANT	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.				[dBm]				[W/kg]	[W/kg]		
836.6	4183	UMTS850	ANT0	RMC	23.9	Right	Cheek	1:1	0.297	1.0	29.2	27.8
836.6	4183	UMTS850	ANT0	RMC	23.9	Right	Tilt	1:1	0.162	1.0	31.8	
836.6	4183	UMTS850	ANT0	RMC	23.9	Left	Cheek	1:1	0.404	1.0	27.8	
836.6	4183	UMTS850	ANT0	RMC	23.9	Left	Tilt	1:1	0.228	1.0	30.3	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	Right	Cheek	1:1	0.152	1.0	32.5	29.8
1732.4	1412	UMTS1750	ANT0	RMC	24.3	Right	Tilt	1:1	0.078	1.0	35.4	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	Left	Cheek	1:1	0.280	1.0	29.8	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	Left	Tilt	1:1	0.058	1.0	36.7	
1880	9400	UMTS1900	ANT0	RMC	24.2	Right	Cheek	1:1	0.094	1.0	34.5	32.1
1880	9400	UMTS1900	ANT0	RMC	24.2	Right	Tilt	1:1	0.067	1.0	35.9	
1880	9400	UMTS1900	ANT0	RMC	24.2	Left	Cheek	1:1	0.164	1.0	32.1	
1880	9400	UMTS1900	ANT0	RMC	24.2	Left	Tilt	1:1	0.062	1.0	36.3	

Table A-2 DSI = 0 PLimit Calculations-4G Head SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.														
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	Right	Cheek	1:1	0.057	1.0	34.8	32.9
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	Right	Tilt	1:1	0.001	1.0	52.4	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	Left	Cheek	1:1	0.090	1.0	32.9	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	Left	Tilt	1:1	0.001	1.0	52.4	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	Right	Cheek	1:1	0.404	1.0	27.2	27.2
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	Right	Tilt	1:1	0.157	1.0	31.3	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	Left	Cheek	1:1	0.232	1.0	29.6	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	Left	Tilt	1:1	0.148	1.0	31.6	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	Right	Cheek	1:1	0.106	1.0	32.3	29.4
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	Right	Tilt	1:1	0.052	1.0	35.4	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	Left	Cheek	1:1	0.211	1.0	29.4	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	Left	Tilt	1:1	0.001	1.0	52.6	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	Right	Cheek	1:1	0.388	1.0	26.9	26.9
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	Right	Tilt	1:1	0.116	1.0	32.2	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	Left	Cheek	1:1	0.220	1.0	29.4	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	Left	Tilt	1:1	0.105	1.0	32.6	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	Right	Cheek	1:1	0.176	1.0	30.0	29.1
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	Right	Tilt	1:1	0.099	1.0	32.5	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	Left	Cheek	1:1	0.221	1.0	29.1	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	Left	Tilt	1:1	0.131	1.0	31.3	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	Right	Cheek	1:1	0.029	1.0	37.7	35.7
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	Right	Tilt	1:1	0.001	1.0	52.3	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	Left	Cheek	1:1	0.046	1.0	35.7	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	Left	Tilt	1:1	0.001	1.0	52.3	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	Right	Cheek	1:1	0.095	1.0	32.4	31.9
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	Right	Tilt	1:1	0.048	1.0	35.4	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	Left	Cheek	1:1	0.107	1.0	31.9	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	Left	Tilt	1:1	0.069	1.0	33.8	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	Right	Cheek	1:1	0.218	1.0	29.3	28.6
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	Right	Tilt	1:1	0.116	1.0	32.1	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	Left	Cheek	1:1	0.260	1.0	28.6	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	Left	Tilt	1:1	0.164	1.0	30.6	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	Right	Cheek	1:1	0.226	1.0	29.2	28.6
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	Right	Tilt	1:1	0.134	1.0	31.4	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	Left	Cheek	1:1	0.260	1.0	28.6	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	Left	Tilt	1:1	0.171	1.0	30.4	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	Right	Cheek	1:1	0.089	1.0	32.9	28.2
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	Right	Tilt	1:1	0.050	1.0	35.4	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	Left	Cheek	1:1	0.263	1.0	28.2	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	Left	Tilt	1:1	0.074	1.0	33.7	
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	Right	Cheek	1:1	0.060	1.0	34.9	32.9
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	Right	Tilt	1:1	0.044	1.0	36.3	
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	Left	Cheek	1:1	0.095	1.0	32.9	
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	Left	Tilt	1:1	0.001	1.0	52.7	
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	Right	Cheek	1:1	0.366	1.0	27.7	27.7
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	Right	Tilt	1:1	0.145	1.0	31.7	
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	Left	Cheek	1:1	0.200	1.0	30.3	
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	Left	Tilt	1:1	0.092	1.0	33.7	
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	Right	Cheek	1:1	0.170	1.0	30.7	29.3
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	Right	Tilt	1:1	0.147	1.0	31.3	
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	Left	Cheek	1:1	0.233	1.0	29.3	
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	Left	Tilt	1:1	0.088	1.0	33.6	
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	Right	Cheek	1:1	0.001	1.0	48.7	48.7
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	Right	Tilt	1:1	0.001	1.0	48.7	
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	Left	Cheek	1:1	0.001	1.0	48.7	
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	Left	Tilt	1:1	0.001	1.0	48.7	
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	Right	Cheek	1:1	0.284	1.0	24.5	24.5
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	Right	Tilt	1:1	0.086	1.0	29.7	
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	Left	Cheek	1:1	0.122	1.0	28.2	
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	Left	Tilt	1:1	0.096	1.0	29.2	
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	Right	Cheek	1:1	0.084	1.0	30.4	30.4
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	Right	Tilt	1:1	0.038	1.0	33.8	
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	Left	Cheek	1:1	0.064	1.0	31.6	
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	Left	Tilt	1:1	0.043	1.0	33.3	
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	Right	Cheek	1:1	0.086	1.0	33.6	29.9
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	Right	Tilt	1:1	0.046	1.0	36.3	
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	Left	Cheek	1:1	0.198	1.0	29.9	
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	Left	Tilt	1:1	0.051	1.0	35.8	
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	Right	Cheek	1:1	0.393	1.0	26.6	26.6
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	Right	Tilt	1:1	0.138	1.0	31.1	
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	Left	Cheek	1:1	0.198	1.0	29.5	
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	Left	Tilt	1:1	0.134	1.0	31.2	
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	Right	Cheek	1:1	0.068	1.0	34.3	33.2
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	Right	Tilt	1:1	0.001	1.0	52.6	
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	Left	Cheek	1:1	0.087	1.0	33.2	
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	Left	Tilt	1:1	0.048	1.0	35.8	

Table A-3 DSI = 0 PLimit Calculations-5G NR Sub6 Head SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.074	1.0	34.1	31.8
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.045	1.0	36.3	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.125	1.0	31.8	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.043	1.0	36.5	
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.414	1.0	27.1	27.1
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.147	1.0	31.6	
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.232	1.0	29.6	
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.129	1.0	32.2	
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.237	1.0	28.9	28.0
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.125	1.0	31.6	
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.286	1.0	28.0	
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.174	1.0	30.2	
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.069	1.0	34.7	32.5
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.042	1.0	36.9	
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.115	1.0	32.5	
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.001	1.0	53.1	
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.400	1.0	27.3	27.3
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.135	1.0	32.0	
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.218	1.0	29.9	
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.136	1.0	32.0	
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.159	1.0	30.6	29.5
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.127	1.0	31.6	
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.204	1.0	29.5	
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.077	1.0	33.7	
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.428	1.0	26.4	26.4
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.093	1.0	33.0	
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.182	1.0	30.1	
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.126	1.0	31.7	
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.517	1.0	27.3	27.3
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.180	1.0	31.8	
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.275	1.0	30.0	
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.222	1.0	30.9	
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.128	1.0	31.6	29.8
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.057	1.0	35.1	
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.197	1.0	29.8	
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.055	1.0	35.3	
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.198	1.0	30.0	
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.056	1.0	35.5	
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.199	1.0	30.0	
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.065	1.0	34.9	
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.371	1.0	27.4	
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.123	1.0	32.2	
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.241	1.0	29.3	
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.117	1.0	32.4	
1745	349000	NR Band n66	ANT1	30	23.1	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.386	1.0	27.2	
1745	349000	NR Band n66	ANT1	30	23.1	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.134	1.0	31.8	
1745	349000	NR Band n66	ANT1	30	23.1	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.276	1.0	28.7	
1745	349000	NR Band n66	ANT1	30	23.1	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.117	1.0	32.4	
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.073	1.0	33.9	32.9
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.001	1.0	52.5	
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.091	1.0	32.9	
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.050	1.0	35.5	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.510	1.0	27.5	27.5
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.213	1.0	31.3	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.433	1.0	28.2	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.251	1.0	30.6	
3500.01	633334	NR Band n77 DoD	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.166	1.0	32.4	32.4
3500.01	633334	NR Band n77 DoD	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.049	1.0	37.7	
3500.01	633334	NR Band n77 DoD	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.127	1.0	33.6	
3500.01	633334	NR Band n77 DoD	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.074	1.0	35.9	

Table A-4 DSI = 0 PLimit Calculations-3G Body-Worn SAR

Frequency		Mode	ANT	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.											
836.6	4183	UMTS850	ANT0	RMC	23.9	back	15mm	1:1	0.264	1.0	29.7	29.7
1732.4	1412	UMTS1750	ANT0	RMC	24.3	back	15mm	1:1	0.419	1.0	28.1	28.1
1880	9400	UMTS1900	ANT0	RMC	24.2	back	15mm	1:1	0.528	1.0	27.0	27.0

Table A-5 DSI = 0 PLimit Calculations-4G Body-Worn SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.														
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	15mm	1:1	0.396	1.0	26.4	26.4
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	back	15mm	1:1	0.187	1.0	30.6	30.6
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	back	15mm	1:1	0.285	1.0	28.1	28.1
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	back	15mm	1:1	0.179	1.0	30.3	30.3
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	back	15mm	1:1	0.149	1.0	30.8	30.8
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	back	15mm	1:1	0.573	1.0	24.7	24.7
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	back	15mm	1:1	0.170	1.0	29.9	29.9
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	back	15mm	1:1	0.242	1.0	28.9	28.9
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	back	15mm	1:1	0.226	1.0	29.2	29.2
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	back	15mm	1:1	0.179	1.0	29.9	29.9
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	15mm	1:1	0.389	1.0	26.8	26.8
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	back	15mm	1:1	0.195	1.0	30.4	30.4
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	back	15mm	1:1	0.651	1.0	24.9	24.9
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	25	12	back	15mm	1:1	0.488	1.0	26.1	26.1
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	back	15mm	1:1	0.147	1.0	27.1	27.1
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	back	15mm	1:1	0.221	1.0	25.6	25.6
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	back	15mm	1:1	0.078	1.0	30.7	30.7
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	back	15mm	1:1	0.297	1.0	28.2	28.2
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	back	15mm	1:1	0.184	1.0	29.9	29.9
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	back	15mm	1:1	0.135	1.0	31.3	31.3

Table A-6 DSI = 1,2,3 PLimit Calculations-5G NR Sub6 Body-Worn SAR

Frequency		Mode	ANT0	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.														
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.423	1.0	26.5	26.5
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.188	1.0	30.6	30.6
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.201	1.0	29.6	29.6
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.407	1.0	27.0	27.0
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.176	1.0	30.8	30.8
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.542	1.0	25.3	25.3
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.256	1.0	28.6	28.6
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.356	1.0	28.9	28.9
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.282	1.0	28.2	28.2
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.277	1.0	28.6	28.6
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.217	1.0	29.7	29.7
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.216	1.0	29.7	29.7
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.126	1.0	31.5	31.5
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.531	1.0	27.3	27.3
3500.01	633334	NR Band n77 DoD	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	back	15mm	1:1	0.267	1.0	30.3	30.3

Table A-7 DSI = 4 PLimit Calculations-3G Hotspot SAR

Frequency		Mode	ANT	Service	Conducted Power	Test Position	Spacing	# of Time Slots	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.				[dBm]					[W/kg]	[W/kg]		[dBm]
836.6	4183	UMTS850	ANT0	RMC	23.9	back	10mm	N/A	1:1	0.332	1.0	28.7	28.7
836.6	4183	UMTS850	ANT0	RMC	23.9	front	10mm	N/A	1:1	0.330	1.0	28.7	
836.6	4183	UMTS850	ANT0	RMC	23.9	bottom	10mm	N/A	1:1	0.250	1.0	29.9	
836.6	4183	UMTS850	ANT0	RMC	23.9	right	10mm	N/A	1:1	0.158	1.0	31.9	
836.6	4183	UMTS850	ANT0	RMC	23.9	left	10mm	N/A	1:1	0.238	1.0	30.1	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	back	10mm	N/A	1:1	0.660	1.0	26.1	26.1
1732.4	1412	UMTS1750	ANT0	RMC	24.3	front	10mm	N/A	1:1	0.363	1.0	28.7	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	bottom	10mm	N/A	1:1	0.485	1.0	27.4	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	right	10mm	N/A	1:1	0.060	1.0	36.5	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	left	10mm	N/A	1:1	0.384	1.0	28.5	
1880	9400	UMTS1900	ANT0	RMC	24.2	back	10mm	N/A	1:1	0.987	1.0	24.3	24.3
1880	9400	UMTS1900	ANT0	RMC	24.2	front	10mm	N/A	1:1	0.420	1.0	28.0	
1880	9400	UMTS1900	ANT0	RMC	24.2	bottom	10mm	N/A	1:1	0.597	1.0	26.4	
1880	9400	UMTS1900	ANT0	RMC	24.2	right	10mm	N/A	1:1	0.100	1.0	34.2	
1880	9400	UMTS1900	ANT0	RMC	24.2	left	10mm	N/A	1:1	0.524	1.0	27.0	

Table A-8 DSI = 4 PLimit Calculations-4G Hotspot SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	10mm	1:1	0.733	1.0	23.7	23.7
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	50	25	back	10mm	1:1	0.605	1.0	24.6	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	front	10mm	1:1	0.302	1.0	27.6	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	bottom	10mm	1:1	0.428	1.0	26.1	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	right	10mm	1:1	0.061	1.0	34.5	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	left	10mm	1:1	0.364	1.0	26.8	
1860	18700	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	10mm	1:1	0.714	1.0	23.9	
1860	18700	LTE Band2	ANT0	20	22.4	QPSK	50	25	back	10mm	1:1	0.591	1.0	24.7	
1900	19100	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	10mm	1:1	0.709	1.0	23.9	
1900	19100	LTE Band2	ANT0	20	22.4	QPSK	50	25	back	10mm	1:1	0.577	1.0	24.8	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	back	10mm	1:1	0.293	1.0	28.6	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	front	10mm	1:1	0.419	1.0	27.1	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	bottom	10mm	1:1	0.143	1.0	31.7	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	right	10mm	1:1	0.287	1.0	28.7	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	left	10mm	1:1	0.077	1.0	34.4	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	back	10mm	1:1	0.263	1.0	28.4	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	front	10mm	1:1	0.489	1.0	25.7	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	bottom	10mm	1:1	0.348	1.0	27.2	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	right	10mm	1:1	0.045	1.0	36.1	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	left	10mm	1:1	0.280	1.0	28.1	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	back	10mm	1:1	0.321	1.0	27.7	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	front	10mm	1:1	0.449	1.0	26.3	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	bottom	10mm	1:1	0.049	1.0	35.9	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	right	10mm	1:1	0.264	1.0	28.6	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	left	10mm	1:1	0.001	1.0	52.8	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	back	10mm	1:1	0.206	1.0	29.4	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	front	10mm	1:1	0.164	1.0	30.4	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	bottom	10mm	1:1	0.149	1.0	30.8	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	right	10mm	1:1	0.089	1.0	33.0	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	left	10mm	1:1	0.147	1.0	30.8	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	back	10mm	1:1	1.340	1.0	21.0	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	50	25	back	10mm	1:1	0.917	1.0	22.7	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	front	10mm	1:1	0.270	1.0	28.0	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	bottom	10mm	1:1	0.376	1.0	26.5	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	right	10mm	1:1	0.001	1.0	52.3	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	left	10mm	1:1	0.264	1.0	28.1	
2510	20850	LTE Band7	ANT0	20	22.5	QPSK	1	50	back	10mm	1:1	1.050	1.0	22.3	
2510	20850	LTE Band7	ANT0	20	22.5	QPSK	50	25	back	10mm	1:1	0.837	1.0	23.3	
2560	21350	LTE Band7	ANT0	20	22.6	QPSK	1	50	back	10mm	1:1	1.300	1.0	21.5	
2560	21350	LTE Band7	ANT0	20	22.6	QPSK	50	25	back	10mm	1:1	1.020	1.0	22.5	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	back	10mm	1:1	0.193	1.0	29.3	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	front	10mm	1:1	0.138	1.0	30.8	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	bottom	10mm	1:1	0.055	1.0	34.8	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	right	10mm	1:1	0.097	1.0	32.3	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	left	10mm	1:1	0.202	1.0	29.1	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	back	10mm	1:1	0.264	1.0	28.5	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	front	10mm	1:1	0.254	1.0	28.7	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	bottom	10mm	1:1	0.138	1.0	31.3	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	right	10mm	1:1	0.155	1.0	30.8	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	left	10mm	1:1	0.254	1.0	28.7	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	back	10mm	1:1	0.247	1.0	28.8	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	front	10mm	1:1	0.237	1.0	29.0	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	bottom	10mm	1:1	0.140	1.0	31.2	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	right	10mm	1:1	0.138	1.0	31.3	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	left	10mm	1:1	0.238	1.0	28.9	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	back	10mm	1:1	0.203	1.0	29.3	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	front	10mm	1:1	0.141	1.0	30.9	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	bottom	10mm	1:1	0.062	1.0	34.5	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	right	10mm	1:1	0.101	1.0	32.4	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	left	10mm	1:1	0.203	1.0	29.3	

1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	10mm	1:1	0.818	1.0	23.6	23.6								
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	50	25	back	10mm	1:1	0.676	1.0	24.4		23.6							
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	front	10mm	1:1	0.301	1.0	27.9			23.6						
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	bottom	10mm	1:1	0.418	1.0	26.5				23.6					
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	right	10mm	1:1	0.061	1.0	34.8					23.6				
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	left	10mm	1:1	0.356	1.0	27.2						23.6			
1860	26140	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	10mm	1:1	0.753	1.0	23.9							23.6		
1860	26140	LTE Band25	ANT0	20	22.7	QPSK	50	25	back	10mm	1:1	0.611	1.0	24.8								23.6	
1905	26590	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	10mm	1:1	0.684	1.0	24.3									23.6
1905	26590	LTE Band25	ANT0	20	22.7	QPSK	50	25	back	10mm	1:1	0.549	1.0	25.3									
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	back	10mm	1:1	0.304	1.0	28.5	27.3								
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	front	10mm	1:1	0.401	1.0	27.3		27.3							
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	bottom	10mm	1:1	0.131	1.0	32.1			27.3						
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	right	10mm	1:1	0.304	1.0	28.5				27.3					
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	left	10mm	1:1	0.091	1.0	33.7	27.3								
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	back	10mm	1:1	1.150	1.0	22.4		22.4							
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	25	12	back	10mm	1:1	0.909	1.0	23.4			22.4						
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	front	10mm	1:1	0.320	1.0	27.9				22.4					
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	bottom	10mm	1:1	0.516	1.0	25.9	22.4								
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	right	10mm	1:1	0.056	1.0	35.5					22.4				
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	left	10mm	1:1	0.570	1.0	25.4						22.4			
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	back	10mm	1:1	0.423	1.0	22.8		22.8							
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	front	10mm	1:1	0.332	1.0	23.8			22.8						
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	bottom	10mm	1:1	0.149	1.0	27.3				22.8					
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	right	10mm	1:1	0.310	1.0	24.1	22.8								
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	left	10mm	1:1	0.001	1.0	49.0					22.8				
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	back	10mm	1:1	0.141	1.0	28.1		27.3							
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	front	10mm	1:1	0.085	1.0	30.3			27.3						
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	bottom	10mm	1:1	0.078	1.0	30.7				27.3					
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	right	10mm	1:1	0.169	1.0	27.3	27.3								
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	left	10mm	1:1	0.001	1.0	49.6					27.3				
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	back	10mm	1:1	0.510	1.0	25.8		25.8							
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	front	10mm	1:1	0.298	1.0	28.2			25.8						
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	bottom	10mm	1:1	0.401	1.0	26.9				25.8					
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	right	10mm	1:1	0.001	1.0	52.9	25.8								
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	left	10mm	1:1	0.292	1.0	28.2		25.8							
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	back	10mm	1:1	0.318	1.0	27.5			25.8						
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	front	10mm	1:1	0.466	1.0	25.8				25.8					
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	bottom	10mm	1:1	0.057	1.0	34.9	25.8								
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	right	10mm	1:1	0.300	1.0	27.7		25.8							
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	left	10mm	1:1	0.001	1.0	52.5			25.8						
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	back	10mm	1:1	0.157	1.0	30.6				30.0					
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	front	10mm	1:1	0.118	1.0	31.9	30.0								
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	bottom	10mm	1:1	0.075	1.0	33.8		30.0							
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	right	10mm	1:1	0.074	1.0	33.9			30.0						
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	left	10mm	1:1	0.180	1.0	30.0					30.0				

Table A-9 DSI = 4 PLimit Calculations-5G NR Sub6 Hotspot SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(1g)	SAR design target	PLimit	Min PLimit																
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]																
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.790	1.0	23.8	23.8																
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	104	back	10mm	1:1	0.779	1.0	23.9		23.8															
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	50	25	back	10mm	1:1	0.782	1.0	23.9			23.8														
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.347	1.0	27.4				23.8													
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.449	1.0	26.3					23.8												
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.073	1.0	34.2						23.8											
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.415	1.0	26.6							23.8										
1860	372000	NR Band n2	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.794	1.0	24.1								23.8									
1860	372000	NR Band n2	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	104	back	10mm	1:1	0.785	1.0	24.2									23.8								
1860	372000	NR Band n2	ANT0	20	23.1	DFT-s-OFDM-QPSK	50	25	back	10mm	1:1	0.770	1.0	24.2										23.8							
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.731	1.0	24.0											23.8						
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	104	back	10mm	1:1	0.674	1.0	24.3												23.8					
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	50	25	back	10mm	1:1	0.732	1.0	24.0													23.8				
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.306	1.0	28.4														23.8			
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.427	1.0	27.0															23.8		
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.129	1.0	32.2																23.8	
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.296	1.0	28.6																	23.8
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.060	1.0	35.5																	
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.248	1.0	28.7	27.0																
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.227	1.0	29.0		27.0															
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.186	1.0	29.9			27.0														
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.122	1.0	31.7				27.0													
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.188	1.0	29.9					27.0												
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.778	1.0	24.2						27.0											
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	214	back	10mm	1:1	0.403	1.0	27.0							27.0										
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	108	54	back	10mm	1:1	0.686	1.0	24.7								27.0									
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.360	1.0	27.5									27.0								
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.457	1.0	26.5										27.0							
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.068	1.0	34.8											27.0						
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.391	1.0	27.2												27.0					
1870	374000	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.704	1.0	24.6													27.0				
1870	374000	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	214	back	10mm	1:1	0.445	1.0	26.6														27.0			
1870	374000	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	108	54	back	10mm	1:1	0.645	1.0	25.0															27.0		
1895	379000	NR Band n25	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.714	1.0	24.3																27.0	
1895	379000	NR Band n25	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	214	back	10mm	1:1	0.397	1.0	26.8																	27.0
1895	379000	NR Band n25	ANT0	20	22.8	DFT-s-OFDM-QPSK	108	54	back	10mm	1:1	0.366	1.0	27.2																	
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.281	1.0	28.8	27.0																
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.425	1.0	27.0		27.0															
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.101	1.0	33.3			27.0														
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.288	1.0	28.7				27.0													
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.058	1.0	35.7					27.0												
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.974	1.0	22.7						22.6											
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	50	back	10mm	1:1	0.953	1.0	22.8							22.6										
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	25	12	back	10mm	1:1	1.000	1.0	22.6								22.6									
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.317	1.0	27.6									22.6								
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.524	1.0	25.4										22.6							
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.062	1.0	34.7											22.6						
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.615	1.0	24.7						22.6											
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.474	1.0	25.9							25.9										
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.381	1.0	26.9								25.9									
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.170	1.0	30.4									25.9								
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.343	1.0	27.3										25.9							
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.001	1.0	52.7											25.9						

3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.701	1.0	25.9	24.5													
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.431	1.0	28.1		24.5												
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.411	1.0	28.3			24.5											
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.923	1.0	24.7				24.5										
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	214	right	10mm	1:1	0.904	1.0	24.8					24.5									
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	108	54	right	10mm	1:1	0.832	1.0	25.2						24.5								
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.009	1.0	44.8							24.5							
3570	638000	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.682	1.0	26.1								24.5						
3570	638000	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	214	right	10mm	1:1	0.777	1.0	25.5									24.5					
3570	638000	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	108	54	right	10mm	1:1	0.696	1.0	26.0										24.5				
3679.98	645332	NR Band n48	ANT1	40	24.3	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.908	1.0	24.7											24.5			
3679.98	645332	NR Band n48	ANT1	40	24.3	DFT-s-OFDM-QPSK	1	214	right	10mm	1:1	0.956	1.0	24.5												24.5		
3679.98	645332	NR Band n48	ANT1	40	24.3	DFT-s-OFDM-QPSK	108	54	right	10mm	1:1	0.833	1.0	25.1													24.5	
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.500	1.0	25.7														25.6
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.295	1.0	28.0														
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.397	1.0	26.7	25.6													
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.001	1.0	52.7		25.6												
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.310	1.0	27.8			25.6											
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.545	1.0	25.6				25.6										
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.276	1.0	28.6					25.6									
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.391	1.0	27.1						25.6								
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.001	1.0	53.0							25.6							
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.209	1.0	29.8								25.6						
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.378	1.0	27.3									25.8					
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.511	1.0	26.0										25.8				
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.049	1.0	36.2											25.8			
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.343	1.0	27.7												25.8		
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.001	1.0	53.1													25.8	
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.331	1.0	27.8														25.8
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.521	1.0	25.8														
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.047	1.0	36.3	25.8													
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.321	1.0	27.9		25.8												
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.001	1.0	53.0			25.8											
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.152	1.0	30.7				30.7										
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.114	1.0	31.9					30.7									
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.054	1.0	35.2						30.7								
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.064	1.0	34.4				30.7										
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.150	1.0	30.7					30.7									
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.765	1.0	25.8						30.7								
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.581	1.0	27.0				30.7										
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.634	1.0	26.6					30.7									
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.893	1.0	25.1						30.7								
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	271	right	10mm	1:1	0.944	1.0	24.9				30.7										
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	135	67	right	10mm	1:1	0.947	1.0	24.8					30.7									
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.086	1.0	35.3						30.7								
3750	650000	NR Band n77	ANT1	100	24.1	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.918	1.0	24.5	30.7													
3750	650000	NR Band n77	ANT1	100	24.1	DFT-s-OFDM-QPSK	1	271	right	10mm	1:1	0.991	1.0	24.1		30.7												
3750	650000	NR Band n77	ANT1	100	24.1	DFT-s-OFDM-QPSK	135	67	right	10mm	1:1	0.983	1.0	24.2			30.7											
3930	662000	NR Band n77	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.997	1.0	24.5	30.7													
3930	662000	NR Band n77	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	271	right	10mm	1:1	0.726	1.0	25.9		30.7												
3930	662000	NR Band n77	ANT1	100	24.5	DFT-s-OFDM-QPSK	135	67	right	10mm	1:1	0.926	1.0	24.8			30.7											
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.503	1.0	27.5	27.5													
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	front	10mm	1:1	0.248	1.0	30.6		27.5												
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:1	0.321	1.0	29.4			27.5											
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	right	10mm	1:1	0.489	1.0	27.6				27.5										
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	left	10mm	1:1	0.061	1.0	36.6					27.5									

Table A-10 DSI = 0 PLimit Calculations-3G Phablet SAR

Frequency		Mode	ANT	Service	Conducted Power	Test Position	Spacing	# of Time Slots	Duty Cycle	SAR(10g)	SAR design target	PLimit	Min PLimit
MHz	Ch.				[dBm]					[W/kg]	[W/kg]	[dBm]	[dBm]
836.6	4183	UMTS850	ANT0	RMC	23.9	back	0mm	N/A	1:1	0.97	2.5	28.0	27.7
836.6	4183	UMTS850	ANT0	RMC	23.9	front	0mm	N/A	1:1	0.67	2.5	29.6	
836.6	4183	UMTS850	ANT0	RMC	23.9	bottom	0mm	N/A	1:1	1.05	2.5	27.7	
836.6	4183	UMTS850	ANT0	RMC	23.9	right	0mm	N/A	1:1	0.19	2.5	35.1	
836.6	4183	UMTS850	ANT0	RMC	23.9	left	0mm	N/A	1:1	0.44	2.5	31.4	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	back	0mm	N/A	1:1	1.78	2.5	25.8	25.4
1732.4	1412	UMTS1750	ANT0	RMC	24.3	front	0mm	N/A	1:1	0.94	2.5	28.6	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	bottom	0mm	N/A	1:1	1.07	2.5	28.0	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	right	0mm	N/A	1:1	0.09	2.5	38.9	
1732.4	1412	UMTS1750	ANT0	RMC	24.3	left	0mm	N/A	1:1	0.75	2.5	29.5	
1712.4	1312	UMTS1750	ANT0	RMC	24.2	back	0mm	N/A	1:1	1.71	2.5	25.8	23.8
1752.6	1513	UMTS1750	ANT0	RMC	24.4	back	0mm	N/A	1:1	1.98	2.5	25.4	
1880	9400	UMTS1900	ANT0	RMC	24.2	back	0mm	N/A	1:1	2.64	2.5	24.0	
1880	9400	UMTS1900	ANT0	RMC	24.2	front	0mm	N/A	1:1	1.18	2.5	27.5	
1880	9400	UMTS1900	ANT0	RMC	24.2	bottom	0mm	N/A	1:1	1.18	2.5	27.5	
1880	9400	UMTS1900	ANT0	RMC	24.2	right	0mm	N/A	1:1	0.14	2.5	36.7	23.8
1880	9400	UMTS1900	ANT0	RMC	24.2	left	0mm	N/A	1:1	1.17	2.5	27.5	
1852.4	9262	UMTS1900	ANT0	RMC	24.1	back	0mm	N/A	1:1	2.69	2.5	23.8	
1907.6	9538	UMTS1900	ANT0	RMC	24.1	back	0mm	N/A	1:1	2.52	2.5	24.1	

Table A-11 DSI = 0 PLimit Calculations-4G Phablet SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(10g)	SAR design target	PLimit	Min PLimit	
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	0mm	1:1	1.880	2.5	23.6	23.6	
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	50	25	back	0mm	1:1	1.550	2.5	24.5		
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	front	0mm	1:1	0.831	2.5	27.2		
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	bottom	0mm	1:1	0.811	2.5	27.3		
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	right	0mm	1:1	0.094	2.5	36.6		
1880	18900	LTE Band2	ANT0	20	22.4	QPSK	1	50	left	0mm	1:1	0.800	2.5	27.3		
1860	18700	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	0mm	1:1	1.900	2.5	23.6		
1860	18700	LTE Band2	ANT0	20	22.4	QPSK	50	25	back	0mm	1:1	1.560	2.5	24.4		
1905	19150	LTE Band2	ANT0	20	22.4	QPSK	1	50	back	0mm	1:1	1.790	2.5	23.9		
1905	19150	LTE Band2	ANT0	20	22.4	QPSK	50	25	back	0mm	1:1	1.490	2.5	24.6		
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	back	0mm	1:1	0.943	2.5	27.5	26.0	
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	front	0mm	1:1	1.330	2.5	26.0		
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	bottom	0mm	1:1	0.512	2.5	30.2		
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	right	0mm	1:1	0.640	2.5	29.2		
1880	18900	LTE Band2	ANT1	20	23.3	QPSK	1	50	left	0mm	1:1	0.089	2.5	37.8		
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	back	0mm	1:1	1.270	2.5	25.5	24.7	
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	front	0mm	1:1	0.670	2.5	28.3		
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	bottom	0mm	1:1	1.540	2.5	24.7		
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	right	0mm	1:1	0.058	2.5	38.9		
1732.5	20175	LTE Band4	ANT0	20	22.6	QPSK	1	50	left	0mm	1:1	0.564	2.5	29.1		
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	back	0mm	1:1	0.791	2.5	27.8	26.7	
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	front	0mm	1:1	1.030	2.5	26.7		
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	bottom	0mm	1:1	0.106	2.5	36.5		
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	right	0mm	1:1	0.543	2.5	29.4		
1732.5	20175	LTE Band4	ANT1	20	22.8	QPSK	1	50	left	0mm	1:1	0.001	2.5	56.8		
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	back	0mm	1:1	0.601	2.5	28.7	28.7	
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	front	0mm	1:1	0.378	2.5	30.7		
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	bottom	0mm	1:1	0.574	2.5	28.9		
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	right	0mm	1:1	0.115	2.5	35.9		
836.5	20525	LTE Band5	ANT0	10	22.5	QPSK	1	12	left	0mm	1:1	0.303	2.5	31.7		
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	back	0mm	1:1	0.601	2.5	28.4	28.4	
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	front	0mm	1:1	0.190	2.5	33.4		
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	bottom	0mm	1:1	0.241	2.5	32.4		
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	right	0mm	1:1	0.081	2.5	37.1		
707.5	23095	LTE Band12	ANT0	10	22.2	QPSK	1	12	left	0mm	1:1	0.256	2.5	32.1		
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	back	0mm	1:1	0.595	2.5	28.9	28.9	
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	front	0mm	1:1	0.379	2.5	30.9		
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	bottom	0mm	1:1	0.540	2.5	29.4		
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	right	0mm	1:1	0.105	2.5	36.5		
782	23230	LTE Band13	ANT0	10	22.7	QPSK	1	12	left	0mm	1:1	0.422	2.5	30.4		
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	back	0mm	1:1	0.539	2.5	29.4	28.8	
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	front	0mm	1:1	0.611	2.5	28.8		
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	bottom	0mm	1:1	0.488	2.5	29.8		
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	right	0mm	1:1	0.108	2.5	36.3		
793	23330	LTE Band14	ANT0	10	22.7	QPSK	1	12	left	0mm	1:1	0.403	2.5	30.6		
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	back	0mm	1:1	0.598	2.5	28.6	28.6	
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	front	0mm	1:1	0.188	2.5	33.6		
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	bottom	0mm	1:1	0.291	2.5	31.7		
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	right	0mm	1:1	0.084	2.5	37.1		
710	23790	LTE Band17	ANT0	10	22.4	QPSK	1	12	left	0mm	1:1	0.293	2.5	31.7		

1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	0mm	1:1	1.870	2.5	24.0	24.0								
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	50	25	back	0mm	1:1	1.540	2.5	24.8		24.0							
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	front	0mm	1:1	0.858	2.5	27.3			24.0						
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	bottom	0mm	1:1	0.764	2.5	27.8				24.0					
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	right	0mm	1:1	0.094	2.5	36.9					24.0				
1882.5	26365	LTE Band25	ANT0	20	22.7	QPSK	1	50	left	0mm	1:1	0.767	2.5	27.8						24.0			
1860	26140	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	0mm	1:1	1.850	2.5	24.0							24.0		
1860	26140	LTE Band25	ANT0	20	22.7	QPSK	50	25	back	0mm	1:1	1.580	2.5	24.7								24.0	
1905	26590	LTE Band25	ANT0	20	22.7	QPSK	1	50	back	0mm	1:1	1.740	2.5	24.3									24.0
1905	26590	LTE Band25	ANT0	20	22.7	QPSK	50	25	back	0mm	1:1	1.400	2.5	25.2									
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	back	0mm	1:1	1.080	2.5	26.9	26.1								
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	front	0mm	1:1	1.310	2.5	26.1		26.1							
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	bottom	0mm	1:1	0.471	2.5	30.5			26.1						
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	right	0mm	1:1	0.572	2.5	29.7				26.1					
1882.5	26365	LTE Band25	ANT1	20	23.3	QPSK	1	50	left	0mm	1:1	0.112	2.5	36.8					26.1				
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	back	0mm	1:1	2.060	2.5	23.8	23.8								
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	25	12	back	0mm	1:1	1.650	2.5	24.8		23.8							
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	front	0mm	1:1	1.110	2.5	26.5			23.8						
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	bottom	0mm	1:1	0.898	2.5	27.4				23.8					
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	right	0mm	1:1	0.073	2.5	38.3					23.8				
2310	27710	LTE Band30	ANT0	10	23.0	QPSK	1	12	left	0mm	1:1	1.420	2.5	25.5						23.8			
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	back	0mm	1:1	0.624	2.5	24.8							24.8		
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	front	0mm	1:1	0.158	2.5	30.7	24.8								
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	bottom	0mm	1:1	0.144	2.5	31.1		24.8							
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	right	0mm	1:1	0.001	2.5	52.7			24.8						
2593	40620	LTE Band41	ANT0	20	20.7	QPSK	1	50	left	0mm	1:1	0.133	2.5	31.5				24.8					
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	back	0mm	1:1	1.090	2.5	22.6					22.6				
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	front	0mm	1:1	0.646	2.5	24.9	22.6								
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	bottom	0mm	1:1	0.345	2.5	27.6		22.6							
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	right	0mm	1:1	0.486	2.5	26.1			22.6						
2593	40620	LTE Band41	ANT1	20	21.0	QPSK	1	50	left	0mm	1:1	0.043	2.5	36.7				22.6					
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	back	0mm	1:1	0.297	2.5	28.9						28.5			
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	front	0mm	1:1	0.212	2.5	30.3					28.5				
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	bottom	0mm	1:1	0.133	2.5	32.4	28.5								
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	right	0mm	1:1	0.326	2.5	28.5		28.5							
3603.3	55773	LTE Band48	ANT1	20	21.6	QPSK	1	50	left	0mm	1:1	0.023	2.5	40.0			28.5						
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	back	0mm	1:1	1.370	2.5	25.5				25.5					
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	front	0mm	1:1	0.740	2.5	28.2					25.5				
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	bottom	0mm	1:1	0.838	2.5	27.6	25.5								
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	right	0mm	1:1	0.053	2.5	39.6		25.5							
1745	132322	LTE Band66	ANT0	20	22.9	QPSK	1	50	left	0mm	1:1	0.590	2.5	29.2			25.5						
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	back	0mm	1:1	0.726	2.5	27.9				26.1					
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	front	0mm	1:1	1.090	2.5	26.1					26.1				
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	bottom	0mm	1:1	0.135	2.5	35.2	26.1								
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	right	0mm	1:1	0.583	2.5	28.8		26.1							
1745	132322	LTE Band66	ANT1	20	22.5	QPSK	1	50	left	0mm	1:1	0.029	2.5	41.9			26.1						
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	back	0mm	1:1	0.422	2.5	30.3						30.3			
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	front	0mm	1:1	0.157	2.5	34.6				30.3					
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	bottom	0mm	1:1	0.274	2.5	32.2					30.3				
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	right	0mm	1:1	0.065	2.5	38.5	30.3								
680.5	133297	LTE Band71	ANT0	20	22.6	QPSK	1	50	left	0mm	1:1	0.261	2.5	32.4		30.3							

Table A-12 DSI = 0 PLimit Calculations-4G LTE Band7 Phablet SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(10g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]		
2535	21100	LTE Band7	ANT0	20	22.2	QPSK	1	50	back	3mm	1:1	1.36	2.5	24.8	24.6
2535	21100	LTE Band7	ANT0	20	22.2	QPSK	50	25	back	3mm	1:1	1.09	2.5	25.8	
2510	20850	LTE Band7	ANT0	20	22.1	QPSK	1	50	back	3mm	1:1	1.20	2.5	25.3	
2510	20850	LTE Band7	ANT0	20	22.1	QPSK	50	25	back	3mm	1:1	0.97	2.5	26.2	
2560	21350	LTE Band7	ANT0	20	22.2	QPSK	1	50	back	3mm	1:1	1.45	2.5	24.6	
2560	21350	LTE Band7	ANT0	20	22.2	QPSK	50	25	back	3mm	1:1	1.17	2.5	25.5	

Table A-13 DSI = 1,2,3 PLimit Calculations-4G LTE Band7 Phablet SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(10g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]		
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	back	0mm	1:1	2.950	2.5	21.6	20.4
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	50	25	back	0mm	1:1	2.410	2.5	22.5	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	front	0mm	1:1	0.750	2.5	27.5	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	bottom	0mm	1:1	0.686	2.5	27.9	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	right	0mm	1:1	0.023	2.5	42.7	
2535	21100	LTE Band7	ANT0	20	22.3	QPSK	1	50	left	0mm	1:1	0.564	2.5	28.8	
2510	20850	LTE Band7	ANT0	20	22.5	QPSK	1	50	back	0mm	1:1	2.830	2.5	22.0	
2510	20850	LTE Band7	ANT0	20	22.5	QPSK	50	25	back	0mm	1:1	2.320	2.5	22.8	
2560	21350	LTE Band7	ANT0	20	22.6	QPSK	1	50	back	0mm	1:1	3.170	2.5	21.6	
2560	21350	LTE Band7	ANT0	20	22.6	QPSK	50	25	back	0mm	1:1	2.540	2.5	22.5	
2560	21350	LTE Band7	ANT0	20	23.1	QPSK	1	0	back	0mm	1:1	3.180	2.5	20.4	
2560	21350	LTE Band7	ANT0	20	23.1	QPSK	1	0	back	0mm	1:1	3.090	2.5	20.5	

Table A-14 DSI = 0 PLimit Calculations-5G NR Phablet SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(10g)	SAR design target	Plimit	Min Plimit	
MHz	Ch.											[MHz]	[dBm]			[W/kg]
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.070	2.5	27.0	25.8	
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.390	2.5	25.8		
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.431	2.5	30.9		
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.591	2.5	29.6		
1880	376000	NR Band n2	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.082	2.5	38.1	27.6	
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	0.792	2.5	27.6		
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.489	2.5	29.7		
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.778	2.5	27.7		
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.141	2.5	35.1	24.2	
836.5	167300	NR Band n5	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.303	2.5	31.8		
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.950	2.5	24.2		
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	214	back	0mm	1:1	0.965	2.5	27.2		
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	108	54	back	0mm	1:1	1.820	2.5	24.5	24.2	
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.000	2.5	27.1		
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.942	2.5	27.3		
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.172	2.5	34.7		
1882.5	376500	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.889	2.5	27.6	25.9	
1870	374000	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.750	2.5	24.6		
1870	374000	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	214	back	0mm	1:1	1.060	2.5	26.8		
1870	374000	NR Band n25	ANT0	20	23.1	DFT-s-OFDM-QPSK	108	54	back	0mm	1:1	1.610	2.5	25.0		
1895	379000	NR Band n25	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.800	2.5	24.2	24.0	
1895	379000	NR Band n25	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	214	back	0mm	1:1	0.936	2.5	27.1		
1895	379000	NR Band n25	ANT0	20	22.8	DFT-s-OFDM-QPSK	108	54	back	0mm	1:1	0.903	2.5	27.2		
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.010	2.5	27.2		
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.380	2.5	25.9	25.9	
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.615	2.5	29.4		
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.592	2.5	29.6		
1882.5	376500	NR Band n25	ANT1	20	23.3	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.083	2.5	38.1		
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.820	2.5	24.0	24.0	
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	50	back	0mm	1:1	1.820	2.5	24.0		
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	25	12	back	0mm	1:1	1.800	2.5	24.0		
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.100	2.5	26.2		
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.884	2.5	27.1	25.4	
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.087	2.5	37.2		
2310	462000	NR Band n30	ANT0	10	22.6	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	1.420	2.5	25.1		
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.100	2.5	26.3		26.3
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.787	2.5	27.7		
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.341	2.5	31.4		
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.663	2.5	28.5		
2592.99	518598	NR Band n41	ANT1	100	22.7	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.056	2.5	39.2	25.4	
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.470	2.5	26.7		
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.120	2.5	27.9		
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.706	2.5	29.9		
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	1.820	2.5	25.8	25.4	
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	214	right	0mm	1:1	1.810	2.5	25.8		
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	108	54	right	0mm	1:1	1.600	2.5	26.3		
3624.99	641666	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.114	2.5	37.8		
3570	638000	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	1.510	2.5	26.6	25.4	
3570	638000	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	1	214	right	0mm	1:1	1.530	2.5	26.5		
3570	638000	NR Band n48	ANT1	40	24.4	DFT-s-OFDM-QPSK	108	54	right	0mm	1:1	1.400	2.5	26.9		
3679.98	645332	NR Band n48	ANT1	40	24.3	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	1.860	2.5	25.6		
3679.98	645332	NR Band n48	ANT1	40	24.3	DFT-s-OFDM-QPSK	1	214	right	0mm	1:1	1.940	2.5	25.4	25.4	
3679.98	645332	NR Band n48	ANT1	40	24.3	DFT-s-OFDM-QPSK	108	54	right	0mm	1:1	1.650	2.5	26.1		
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.300	2.5	25.5		25.4
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.717	2.5	28.1		
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.850	2.5	27.4		
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.057	2.5	39.1		
1745	349000	NR Band n66	ANT0	20	22.7	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.611	2.5	28.8	25.4	
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.441	2.5	25.4		
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.731	2.5	28.3		
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.876	2.5	27.6		
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.056	2.5	39.5	26.2	
1745	349000	NR Band n66	ANT0	30	23.0	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.601	2.5	29.2		
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	0.958	2.5	27.3		
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.170	2.5	26.4		
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.282	2.5	32.6	26.2	
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.648	2.5	29.0		
1745	349000	NR Band n66	ANT1	20	23.1	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.001	2.5	57.1		
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	0.947	2.5	27.2		
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.210	2.5	26.2	28.7	
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.321	2.5	31.9		
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.675	2.5	28.7		
1745	349000	NR Band n66	ANT1	30	23.0	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.001	2.5	57.0		
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	0.423	2.5	30.2	28.7	
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.279	2.5	32.0		
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.311	2.5	31.6		
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.108	2.5	36.1		
680.5	136100	NR Band n71	ANT0	20	22.5	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.598	2.5	28.7	28.0	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.130	2.5	28.0		
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.110	2.5	28.1		
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.779	2.5	29.7		
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.059	2.5	40.9	26.7	
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.510	2.5	26.7		
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.688	2.5	30.1		
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.547	2.5	31.1		
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.992	2.5	28.5	26.7	
3500.01	633334	NR Band n77 DoD	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.09				

Table A-15 DSI = 0 PLimit Calculations-5G NR n2/n41/n77 Phablet SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(10g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]		
1880	376000	NR Band n2	ANT0	20	23.2	DFT-s-OFDM-QPSK	1	1	back	3mm	1:1	0.997	2.5	27.2	26.5
1880	376000	NR Band n2	ANT0	20	23.2	DFT-s-OFDM-QPSK	1	104	back	3mm	1:1	1.110	2.5	26.7	
1880	376000	NR Band n2	ANT0	20	23.2	DFT-s-OFDM-QPSK	50	25	back	3mm	1:1	0.999	2.5	27.2	
1860	372000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	back	3mm	1:1	0.996	2.5	26.8	
1860	372000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	104	back	3mm	1:1	1.030	2.5	26.7	
1860	372000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	50	25	back	3mm	1:1	0.989	2.5	26.8	
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	back	3mm	1:1	1.010	2.5	26.5	
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	104	back	3mm	1:1	0.925	2.5	26.9	
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	50	25	back	3mm	1:1	0.914	2.5	27.0	
3750	650000	NR Band n77	ANT1	100	23.7	DFT-s-OFDM-QPSK	1	1	right	1mm	1:1	1.070	2.5	27.4	
3750	650000	NR Band n77	ANT1	100	23.7	DFT-s-OFDM-QPSK	1	271	right	1mm	1:1	1.030	2.5	27.6	
3750	650000	NR Band n77	ANT1	100	23.7	DFT-s-OFDM-QPSK	135	67	right	1mm	1:1	1.180	2.5	27.0	
3930	662000	NR Band n77	ANT1	100	23.1	DFT-s-OFDM-QPSK	1	1	right	1mm	1:1	0.960	2.5	27.3	
3930	662000	NR Band n77	ANT1	100	23.1	DFT-s-OFDM-QPSK	1	271	right	1mm	1:1	0.785	2.5	28.1	
3930	662000	NR Band n77	ANT1	100	23.1	DFT-s-OFDM-QPSK	135	67	right	1mm	1:1	0.953	2.5	27.3	

Table A-16 DSI = 1,2,3 PLimit Calculations-5G NR n2/n41/n77 Phablet SAR

Frequency		Mode	ANT	Bandwidth	Conducted Power	Modulation	RB Size	RB Offset	Test Position	Spacing	Duty Cycle	SAR(10g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[MHz]	[dBm]							[W/kg]	[W/kg]		
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	2.170	2.5	23.4	23.4
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	104	back	0mm	1:1	2.020	2.5	23.7	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	50	25	back	0mm	1:1	1.960	2.5	23.9	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.950	2.5	27.0	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.940	2.5	27.0	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.102	2.5	36.7	
1880	376000	NR Band n2	ANT0	20	22.8	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.929	2.5	27.1	
1860	372000	NR Band n2	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	2.040	2.5	24.0	
1860	372000	NR Band n2	ANT0	20	23.1	DFT-s-OFDM-QPSK	1	104	back	0mm	1:1	2.040	2.5	24.0	
1860	372000	NR Band n2	ANT0	20	23.1	DFT-s-OFDM-QPSK	50	25	back	0mm	1:1	2.080	2.5	23.9	
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.900	2.5	23.8	
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	1	104	back	0mm	1:1	1.880	2.5	23.8	
1900	380000	NR Band n2	ANT0	20	22.6	DFT-s-OFDM-QPSK	50	25	back	0mm	1:1	1.930	2.5	23.7	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	1.130	2.5	28.0	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	1.110	2.5	28.1	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.779	2.5	29.7	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	1.790	2.5	26.1	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	271	right	0mm	1:1	1.740	2.5	26.2	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	135	67	right	0mm	1:1	0.170	2.5	36.3	
3840	656000	NR Band n77	ANT1	100	24.6	DFT-s-OFDM-QPSK	1	1	left	0mm	1:1	0.059	2.5	40.9	
3750	650000	NR Band n77	ANT1	100	24.1	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	1.810	2.5	25.5	
3750	650000	NR Band n77	ANT1	100	24.1	DFT-s-OFDM-QPSK	1	271	right	0mm	1:1	1.940	2.5	25.2	
3750	650000	NR Band n77	ANT1	100	24.1	DFT-s-OFDM-QPSK	135	67	right	0mm	1:1	1.940	2.5	25.2	
3930	662000	NR Band n77	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	1.820	2.5	25.9	
3930	662000	NR Band n77	ANT1	100	24.5	DFT-s-OFDM-QPSK	1	271	right	0mm	1:1	1.320	2.5	27.3	
3930	662000	NR Band n77	ANT1	100	24.5	DFT-s-OFDM-QPSK	135	67	right	0mm	1:1	1.580	2.5	26.5	