



**TAS Part 1: Test Under Static Transmission Scenario**

*For*  
**SMARTPHONE**

**FCC ID: BCG-E8692A**  
**Model Name: A3082**

**Report Number: 14982489-S5V1**  
**Issue Date: 8/6/2024**

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**Revision History**

Rev.	Date	Revisions	Revised By
V1	8/6/2024	Initial Issue	--

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### 1. Attestation of Test Results

Applicant Name	APPLE INC.
FCC ID	BCG-E8692A
Model Name	A3082
Reference SAR Report	14982489-S1
Exposure Category	PD Limit (W/m <sup>2</sup> )
General Population (Uncontrolled Exposure)	10
RF Exposure Conditions	Highest Reported PD (W/m <sup>2</sup> )
	4.750
Date Tested	7/15/2024 to 7/17/2024

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the U.S. Government, or any agency of the U.S. government.

Approved & Released By:  	Prepared By:  
Michael Heckrotte Principal Engineer UL Verification Services Inc.	Nathan Sousa Senior Laboratory Engineer UL Verification Services Inc.

## 2. Test Specifications, Methods/Procedures, Facilities, and Accreditation

The tests documented in this report were performed in accordance with FCC 47 CFR §2.1093 and IEC/IEEE 63195-1:2022.

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

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

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

The Test Lab Conformity Assessment Body Identifier (CABID)

Location	CABID	Company Number
47173 Benicia Street, Fremont, CA, 94538 UNITED STATES	US0104	2324A
47266 Benicia Street, Fremont, CA, 94538 UNITED STATES		

## 3. Introduction

The equipment under test (EUT) contains the Qualcomm modem supporting 2G/3G/4G/5G technologies and millimeter wave 5G NR bands. Both WWAN modems are enabled with Qualcomm's Smart Transmit GEN2 feature with algorithms to control and manage transmitting power in real time and to ensure the time-averaged RF exposure from the WWAN modems are always in compliance with FCC requirements.

In addition to these WWAN modems, the EUT supports WLAN/BT/MSS radio(s) as well, but the WLAN/BT/MSS modem is not enabled with Qualcomm's Smart Transmit feature.

The purpose of this TAS Part 1 report is to demonstrate that this EUT complies with FCC RF exposure limits at maximum time-averaged transmit power limits for WWAN technologies, and at maximum transmit power limits for WLAN technologies. The specifics of this report are, as listed:

- SAR and power density (PD) compliance for all WWAN radios (Sub-6 GHz + 5G millimeter wave NR) is assessed based on maximum time-averaged transmit power (static transmission condition). Relevant FCC KDBs and exclusion criteria are applied on a time-average power basis for WWAN technologies. The maximum time-averaged transmit power limits for supported WWAN technologies, bands, and antennas in this report are derived in the TAS Part 0 report. The validation of the Qualcomm's Smart Transmit time-averaging algorithm and compliance under the Tx varying transmission scenario for WWAN technologies are reported in the TAS Part 2 report.
- SAR compliance for WLAN radios is assessed based on maximum transmit power as per relevant FCC KDBs.
- Demonstrated compliance in simultaneous transmission scenarios involving both WWAN and WLAN transmissions, where WWAN exposure is assessed based on time-averaged transmit power limits, and WLAN exposure is assessed based on maximum transmit power limits.

$P_{limit}$  used in this report is determined and listed in the TAS Part 0 report.

## 4. Measurement Setup and General Information

This section provides the details of the test setup used for PD measurement.

### 4.1. Test Environment

Test Location	UL Verification Services
Ambient Temperature	22±2°C
Tissue Simulating Liquid	22±2°C
Humidity Range	30% ~ 49%

### 4.2. Power Density Measurement System

The power density measurement system is constructed based on the DASY6 platform by SPEAG. The DASY6/8 with EUmmWV and 5G software module can measure the electromagnetic exposure (electromagnetic and power density) up to 110GHz as close as 2mm from any transmitter.

#### 4.2.1. Power Density Probe

The novel EUmmWV probe is used in the power density measurement. It is designed for precise near-field measurements in the mm-wave range by Schmid & Partner Engineering AG of Zurich, Switzerland. The specifications are:

- Frequency range: 0.75 ~ 110 GHz
- Dynamic range: <50 – 3000 V/m (up to 10000 V/m with additional PRE-10 voltage divider)
- Linearity: < ± 0.2 dB
- Supports sensor model calibration (SMC)
- ISO17025 accredited calibration

#### 4.2.2. Power Density Measurement System Verification

The power density system verification is performed using the SPEAG verification device. It consists of a ka-band horn antenna with a corresponding gun oscillator packaged within a cube-shaped housing.

The specification of the verification device is:

- Calibrated frequency: 30 GHz at 10 mm from the case surface
- Frequency accuracy: ± 100 MHz
- E-field polarization: linear
- Harmonics: -20 dBc (typ)
- Total radiated power: 14 dBm (typ)
- Power stability: 0.05 dB
- Power consumption: 5 W (max)
- Size: 100 × 100 × 100 mm
- Weight: 1 kg

Tables 4-1 and 4-2 shows the verification test results. The measured power density (PD) value is within ±1.2 dB of the target level; for the 5G verification source's uncertainty, please refer to Appendix B.

**Table 4-1: System validation results for SAR C**

SAR Lab	Test Date	5G Probe SN	Probe Cal. Due Date	DAESN	DAE Cal. Due Date	Frequency (GHz)	5G Verification Source SN	Source Cal. Due Date	Averaging Type	Measured psPDn (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Target psPDn (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Deviation (dB)	Delta	Measured psPDtot (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Target psPDtot (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Deviation (dB)	Delta	Measured psPDmod (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Target psPDmod (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Deviation (dB)	Delta
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	76.9	80.1	-0.18	-4%	78.1	80.1	-0.11	-2%	79.0	80.1	-0.08	-1%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	76.5	80.1	-0.20	-4%	77.7	80.1	-0.13	-3%	78.7	80.1	-0.08	-2%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	76.2	80.1	-0.22	-5%	77.3	80.1	-0.15	-3%	78.3	80.1	-0.10	-2%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	76.0	80.1	-0.23	-5%	77.1	80.1	-0.17	-4%	78.0	80.1	-0.12	-3%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	77.4	80.1	-0.15	-3%	78.6	80.1	-0.08	-2%	79.5	80.1	-0.03	-1%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	76.2	80.1	-0.22	-5%	77.3	80.1	-0.15	-3%	78.3	80.1	-0.10	-2%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	75.5	80.1	-0.26	-6%	76.7	80.1	-0.19	-4%	77.7	80.1	-0.13	-3%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	75.4	80.1	-0.26	-6%	76.7	80.1	-0.19	-4%	77.7	80.1	-0.13	-3%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	79.0	80.1	-0.06	-1%	80.4	80.1	0.02	0%	81.4	80.1	0.07	2%
C	5/20/2024	9589	9/5/2024	1621	4/12/2025	30	1117	9/20/2024	Square	77.8	80.1	-0.13	-3%	79.1	80.1	-0.05	-1%	80.0	80.1	-0.01	0%
<b>Average</b>										<b>76.7</b>	<b>80.1</b>	<b>-0.19</b>	<b>-4%</b>	<b>77.9</b>	<b>80.1</b>	<b>-0.12</b>	<b>-3%</b>	<b>78.9</b>	<b>80.1</b>	<b>-0.07</b>	<b>-2%</b>

**Table 4-2: System Check Results for SAR C**

SAR Lab	Date	Frequency (GHz)	5G Verification Source SN	Source Cal. Due Date	Measured psPDn (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Target psPDn (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Deviation (dB)	Delta ±16 %	Measured psPDtot (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Target psPDtot (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Deviation (dB)	Delta ±16 %	Measured psPDmod (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Target psPDmod (W/m <sup>2</sup> ) over 4cm <sup>2</sup>	Deviation (dB)	Delta ±16 %
C	7/15/2024	30	1117	9/20/2024	76.4	76.7	-0.02	0%	77.9	77.9	0.00	0%	78.1	78.9	-0.04	-1%

### Validation band: CW, FRONT

#### Exposure Conditions

Band	Validation band	Phantom Section	5G
Frequency [MHz]   Channel Number	30000.0   --	Conversion Factor	1.0
Group   UID	CW, 0--	Position   Test Distance [mm]	FRONT   5.55

#### Hardware Setup

Probe   Calibration Date	EUmmWV4 - SN9589_F1-55GHz   2023-09-05	Phantom	mmWave   xxxx
DAE   Calibration Date	DAE4ip Sn1621   2024-04-12	Medium	Air   -
Software Version	3.2.0.1840		

#### Scan Setup

Scan Type	5G Scan	Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25	Sensor Surface [mm]	5.55

#### Measurement Results

Avg. Area [cm <sup>2</sup> ]	4.00
psPDn+ [W/m <sup>2</sup> ]	76.4
psPDtot+ [W/m <sup>2</sup> ]	77.9
psPDmod+ [W/m <sup>2</sup> ]	78.1
E <sub>max</sub> [V/m]	198
H <sub>max</sub> [A/m]	0.520
Power Drift [dB]	-0.17

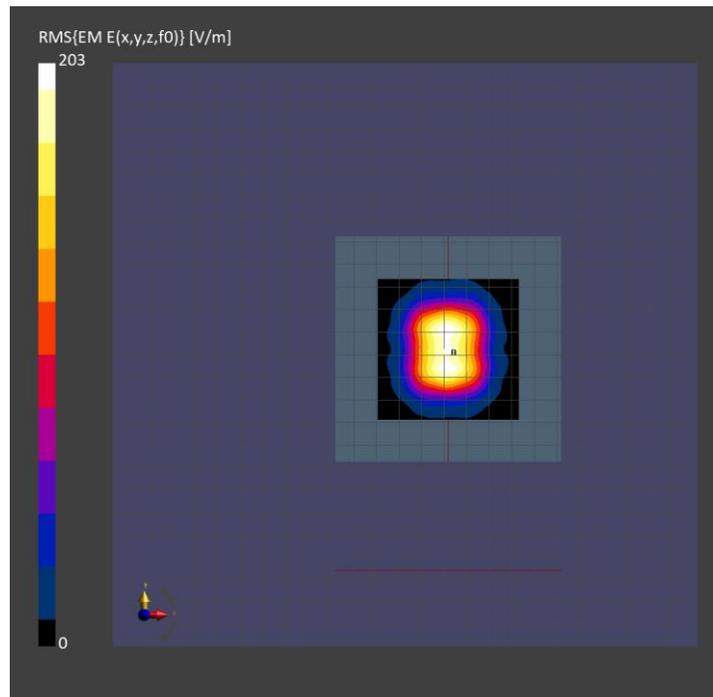


Figure 4-1: 4cm<sup>2</sup> PD for source validation (worst-case Δ) SAR C

## 5. Test Condition, Configuration, and Assessment

### 5.1. Qualcomm Smart Transmit Parameters

These parameters are entered through the *Embedded File System* (EFS) and cannot be accessed by the end-user.

The TAS Part 0 report documents the determination of  $P_{limit}$  for Sub-6 GHz WWAN bands and the  $P_{limit}$  for 5G millimeter wave NR bands using the design targets and limits listed below:

SAR <sub>Design Target</sub> (1-g W/kg)	SAR <sub>Design Target</sub> (10-g W/kg)	SAR <sub>Design Limit</sub> (1-g W/kg)	SAR <sub>Design Limit</sub> (10-g W/kg)
0.8	2.0	1.0	2.5
	PD <sub>Design Target</sub> (W/m <sup>2</sup> )	PD <sub>Design Limit</sub> (W/m <sup>2</sup> )	
	3.9	6.3	

- Tx\_power\_at\_SAR\_design\_target ( $P_{limit}$  in dBm) for Tx transmitting frequency < 6 GHz
  - The maximum time-average transmit power, in dBm, at which this radio configuration (i.e., band and technology) reaches the *SAR\_design\_target*. This *SAR\_design\_target* is pre-determined for the specific device, and it shall be less than regulatory SAR limit after accounting for all design related tolerances. The time-averaged SAR is assessed against this *SAR\_design\_target* in real time to determine the compliance. The  $P_{limit}$  could vary with technology, band and DSI (device state index), therefore it has the unique value for each technology, band and DSI.
- Reserve\_power\_margin (dB)
  - With Smart Transmit EFS version 17 or lower:
    - The margin, in dB, below the  $P_{limit}$  to reserve for future transmission with a minimum transmit power ( $P_{reserve}$ ):

$$P_{reserve} \text{ (dBm)} = P_{limit} \text{ (dBm)} - Reserve_{power\ margin} \text{ (dB)}$$

- The *Reserve\_power\_margin* is a global parameter, meaning it applies to all the technologies and bands. When the *Reserve\_power\_margin* is set to zero dB, Smart Transmit effectively limits the upper bound of EUT transmit power to  $P_{limit}$ , in other words, the EUT transmits continuously at  $P_{limit}$ .
  - With Smart Transmit EFS version 18 or higher:
    - For 2G and 3G WWAN technologies, the parameter of *Reserve\_power\_margin* has been re-named to *Reserve\_power\_margin\_db\_2g\_3g\_wwan*.
    - For 4G/5G WWAN technologies, the equivalent reserve of *Reserve\_power\_margin* is denoted as *total\_min\_exp\_budget\_linear\_4g\_5g\_wwan*. Furthermore, the parameter of *secondary\_split\_ratio* is introduced in EFS version 18 and higher so the OEM can determine the minimum reserve margin out of total minimum reserve (i.e.,  $secondary\_split\_ratio * total\_min\_exp\_budget\_linear\_4g\_5g\_wwan$ ) that is used for the secondary WWAN radio in a two-WWAN-radio transmission scenario. Here, primary WWAN radio in a two-WWAN-radio transmission scenario can get minimum reserve margin of  $(1 - secondary\_split\_ratio) * total\_min\_exp\_budget\_linear\_4g\_5g\_wwan$ .
- $P_{limit}$  (dBm) for Tx transmitting frequency  $\geq$  6 GHz
  - The maximum time-average power at the input of antenna element port, in dBm, at which each beam meets the *PD\_design\_target* that is less than the regulatory power density limit after accounting for all design related tolerances.

- **Smart Tx Gen:** **ONLY** applicable for Smart Transmit EFS version 16 or higher
  - The EFS version 16 (or higher) supports 2<sup>nd</sup> generation of Smart Transmit (GEN2). The EUT with Smart Transmit EFS version 16 (or higher) has an option to select GEN1 or GEN2. The procedure to determine PD char (i.e.,  $P_{limit}$ ) is different. Therefore, in the case of EUT with Smart Transmit EFS version 16 (or higher), additional millimeter wave module switch test is needed to confirm if Smart Transmit EFS used in EUT is configured for GEN1 or GEN2. The EFS configuration (GEN1 or GEN2) should correspond to the PD char performed in TAS Part 0 report, otherwise, EFS configuration should be changed to match GEN1/GEN2 PD char of TAS Part 0 report.
  - Qualcomm 2<sup>nd</sup> generation of Smart Transmit (GEN2) supports Sub-6 GHz and millimeter wave favor modes. The Smart Transmit EFS provides below options to configure for a given MCC (country/region):
    - GEN1
    - GEN2\_MILLIMETER WAVE
    - GEN2\_SUB-6 GHZ
    - GEN2\_SUB-6 GHZ\_MILLIMETER WAVE
- **force peak** for Tx transmitting frequency < 6 GHz
  - The Smart Transmit feature applies time-averaging windows when the device detects an MCC that matches Time-Averaged Exposure MCCs list. For each of the MCCs under Time-Averaged Exposure MCCs list, the Smart Transmit feature can limit either maximum instantaneous Tx power or maximum time-average power to  $P_{limit}$  per tech/band/antenna/DSI. If force peak is set to '1' for a given tech/band/antenna/DSI in the EFS, then the Smart Transmit feature limits the maximum instantaneous Tx power to  $P_{limit}$  for the selected tech/band/antenna/DSI. In other words, with force peak set to '1', under static condition (i.e., fixed tech/band/antenna/DSI) and in single active Tx scenario, Smart Transmit can guarantee Tx power level of  $P_{limit}$  at all times.
- **WWAN Backoff (dB) for WiFi/BT:** **ONLY** applicable for Smart Transmit EFS version 16 (or higher) in GEN1 or GEN2\_MILLIMETER WAVE configurations<sup>1</sup>
  - The EFS version 16 (or higher) provides the entry to backoff WWAN radio when WLAN is transmitting. This backoff when WiFi/BT is transmitting can be configured per tech/band/DSI/antenna (Sub-6 GHz antenna and millimeter wave module) in GEN1 or GEN2\_MILLIMETER WAVE configuration only. Therefore, in the case of EUT with Smart Transmit EFS version 16 (or higher), perform additional tests (one for Sub-6 GHz WWAN radio, and one for millimeter wave WWAN radio) to verify whether backoff configured in EFS is properly applied by Smart Transmit for GEN1 or GEN2\_MILLIMETER WAVE configurations when WiFi/BT is transmitting.

### 5.1.1. Qualcomm Smart Transmit Parameters for the Sub-6 Modem

For this EUT, the input parameters listed in §5.3 of the TAS Part 0 report are populated via the EFS entry.

### 5.1.2. Qualcomm Smart Transmit parameters for the 5G modem

For this EUT, the  $P_{limit}$  parameters for the 5G millimeter wave NR radio(s) are listed in §5.7.3 of the TAS Part 0 report and are populated via EFS entry into the EUT.

## 5.2. Device Test Configuration for SAR Measurements

In summary, SAR is evaluated on this EUT in test configurations and test conditions listed below:

- **Test configurations:** Body-worn & Hotspot SAR exposure (1-g SAR) from all device surfaces/edges (front, back, left, right, top, bottom) having a transmitting antenna located  $\leq 25\text{mm}$  from that device surface/edge when in direct contact with flat section of SAM phantom.
- **Test condition:** The SAR measurements on all supported Sub-6 WWAN technologies and bands are conducted with the EUT transmitting at maximum time-average transmit power ( $P_{limit}$ ) or maximum RF tune-up power ( $P_{max}$ ) if  $P_{max} \leq P_{limit}$ .

<sup>1</sup> This is not a compliance test, the compliance in WWAN + WLAN/BT scenario should be demonstrated in Part 1 simultaneous transmission analysis section; **WWAN Backoff (dB) for WiFi/BT** is applicable **ONLY** when EUT is configured as GEN1 and/or GEN2\_MMW.

### 5.3. Device Test Configuration for PD Measurements

As can be seen in §5 of the TAS Part 0 report, the PD exposure for this EUT has been assessed against the  $PD_{Design\ Target}$  listed in §5.1 of this report using a validated simulation approach for the worst cases for all its beams. To further confirm the compliance, a subset of beams and test cases were selected for PD verification, see §6.2.

The below beam selection criteria for the PD verification test are followed:

- Select one single beam (antenna array config) per antenna type (dipole or patch) and per millimeter wave antenna module
  - The single beam containing highest number of active antenna ports. For example, the single beam with 4 active patch ports should be selected over the beam with a single active patch port
- Select one beam pair (if applicable) per antenna type (dipole or patch) and per millimeter wave antenna module
  - The beam pair containing the highest number of active antenna ports.

Additionally, since the worst-case surface dictates the compliance, the PD measurement is made on the worst channel and worst surface determined through the validated simulation approach, see Appendix B of the TAS Part 0 report.

Based on the aforementioned criteria and the EUT codebook in §5.3 of the TAS Part 0 report, Tables 5-1 to 5-3 list the selected beams and test cases for PD verification measurement(s). The definition of the EUT surface is illustrated in Figure 5-1.

**Table 5-1: PD verification test cases for n258**

Module/Antenna	Ch.	Beam ID1	Beam ID2	BW	RB	DUT
		V	H	MHz	#	Surface
ANT M1	2032499	19		100	1	Back
	2032499		141	100	1	Back
	2032499	18	146	100	1	Back
	2025833	19	147	100	66	Back
	2025833	19	147	50	66	Left

**Table 5-2: PD verification test cases for n260**

Module/Antenna	Ch.	Beam ID1	Beam ID2	BW	RB	DUT
		V	H	MHz	#	Surface
ANT M1	2277500	15		100	1	Back
	2253330		140	100	1	Back
	2253330	12	140	100	1	Back
	2277500	14		100	33	Back
	2277500	14		100	33	Left

**Table 5-3: PD verification test cases for n261**

Module/Antenna	Ch.	Beam ID1	Beam ID2	BW	RB	DUT
		V	H	MHz	#	Surface
ANT M1	2070833	15		100	1	Back
	2070833		145	100	1	Back
	2070833	15	143	100	1	Back
	2070833	13	141	100	1	Back
	2070833	15	143	100	1	Left

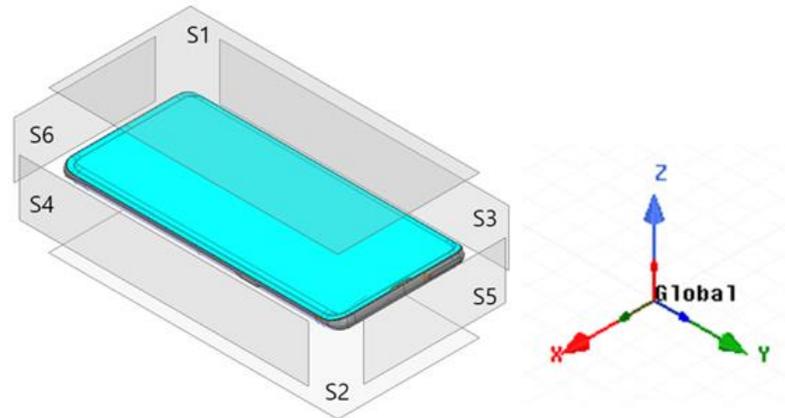


Figure 5-1: EUT surface definition (S1=Front, S2=Back, S3=Edge Left, S4=Edge Right, S5=Edge Top, S6=Edge Bottom)

## 6. Summary of Results

### 6.1. SAR Measurement and Conducted Power Results at $P_{limit}$

The transmit power limit,  $P_{limit}$ , that corresponds to the  $SAR_{Design\ Target}$ , stated in §5.1 for all technologies and bands, was determined through the TAS Part 0 report and are listed in EFS entries in §5.3 of the TAS Part 0 report. For this EUT, the  $P_{max}$  (maximum RF tune-up power) for select Sub-6 GHz technologies is less than, or equal to, the corresponding  $P_{limit}$ , as summarized and shown in Table 6-1.

Table 6-1: Comparison of P<sub>limit</sub> and P<sub>max</sub>

Antenna	Exposure Scenario	Duty Cycle	Head				Body & Hotspot				Hotspot				Extremity				P <sub>max</sub> (dBm)	
			Spatial Average		1g															
			9 mm																	
			DS: 0		DS: 1															
Power Mode (DS)	Test Distance	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	P <sub>avg</sub> (dBm)	P <sub>avg</sub> + Uncertainty (dBm)	Burst Average	Frame Average	
																				Burst Average
ANT 1	OSM 800 slots	25.0%	38.85	32.40	32.83	26.38	33.88	32.50	27.86	26.48	33.88	32.50	27.86	26.48	NA	NA	NA	NA	32.50	26.48
	OSM 1900 slots	25.0%	36.74	30.00	30.72	23.98	29.52	27.78	23.90	21.68	28.78	27.78	22.77	21.68	NA	NA	NA	NA	31.00	24.98
	W-CDMA B2	100.0%	30.09	24.00	30.09	24.00	30.11	21.70	23.11	21.70	22.28	21.70	22.28	21.70	NA	NA	NA	NA	25.70	25.70
	W-CDMA B4	100.0%	31.99	25.00	31.99	25.00	34.07	20.80	24.07	20.80	21.70	20.80	21.70	20.80	NA	NA	NA	NA	25.70	25.70
	W-CDMA B5	100.0%	32.02	25.70	32.02	25.70	26.09	25.70	26.09	25.70	26.09	25.70	26.09	25.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 5	100.0%	31.47	25.70	31.67	25.70	27.41	25.70	27.41	25.70	27.41	25.70	27.41	25.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 7	100.0%	30.89	22.00	30.89	22.00	23.75	20.80	22.75	20.80	21.75	20.80	21.75	20.80	NA	NA	NA	NA	25.70	25.70
	LTE Band 12/17	100.0%	32.66	25.70	32.66	25.70	27.96	25.70	27.96	25.70	26.30	25.70	26.30	25.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 13	100.0%	32.30	25.70	32.30	25.70	27.98	25.70	27.98	25.70	26.36	25.70	26.36	25.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 14	100.0%	32.10	25.70	32.10	25.70	28.16	25.70	28.16	25.70	25.68	25.70	25.68	25.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 25/2	100.0%	29.58	24.00	29.58	24.00	22.87	21.70	22.87	21.70	21.96	21.70	21.96	21.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 26	100.0%	32.35	25.70	32.35	25.70	27.15	25.70	27.15	25.70	27.15	25.70	27.15	25.70	NA	NA	NA	NA	25.70	25.70
	LTE Band 30	100.0%	30.93	22.10	30.93	22.10	23.78	20.80	23.78	20.80	20.49	20.80	20.49	20.80	NA	NA	NA	NA	25.70	25.70
	LTE Band 41	63.3%	34.63	29.40	32.65	21.41	24.77	20.90	22.79	18.91	20.74	20.90	18.75	18.91	NA	NA	NA	NA	25.70	23.71
	LTE Band 43	63.3%	32.76	20.70	30.77	18.71	25.55	20.70	23.56	18.71	23.81	20.70	21.82	18.71	NA	NA	NA	NA	25.70	23.71
	LTE Band 64/4	100.0%	31.68	25.00	31.68	25.00	22.68	20.80	22.68	20.80	21.68	20.80	21.68	20.80	NA	NA	NA	NA	25.70	25.70
	LTE Band 71	100.0%	32.12	25.70	32.12	25.70	25.93	25.70	25.93	25.70	25.71	25.70	25.71	25.70	NA	NA	NA	NA	25.70	25.70
	MSS	100.0%	N/A	N/A	N/A	N/A	27.45	20.20	27.45	20.20	25.81	20.20	25.81	20.20	26.13	24.50	26.13	24.50	26.00	26.00
	NR n1	100.0%	31.83	25.70	31.83	25.70	27.31	25.70	27.31	25.70	27.31	25.70	27.31	25.70	NA	NA	NA	NA	25.70	25.70
	NR n7	100.0%	30.57	22.00	30.57	22.00	23.09	20.80	23.09	20.80	21.81	20.80	21.81	20.80	NA	NA	NA	NA	25.70	25.70
	NR n12	100.0%	32.87	25.70	32.87	25.70	28.67	25.70	28.67	25.70	27.73	25.70	27.73	25.70	NA	NA	NA	NA	25.70	25.70
	NR n14	100.0%	31.86	25.70	31.86	25.70	28.06	25.70	28.06	25.70	27.68	25.70	27.68	25.70	NA	NA	NA	NA	25.70	25.70
	NR n25/2	100.0%	29.99	24.00	29.99	24.00	23.05	21.70	23.05	21.70	22.60	21.70	22.60	21.70	NA	NA	NA	NA	25.70	25.70
	NR n26	100.0%	32.57	25.70	32.57	25.70	27.53	25.70	27.53	25.70	27.53	25.70	27.53	25.70	NA	NA	NA	NA	25.70	25.70
	NR n30	100.0%	31.54	22.10	31.54	22.10	23.43	20.80	23.43	20.80	20.94	20.80	20.94	20.80	NA	NA	NA	NA	25.70	25.70
	NR n41	100.0%	31.68	21.40	31.68	21.40	23.28	18.90	23.28	18.90	21.82	18.90	21.82	18.90	NA	NA	NA	NA	25.70	25.70
	NR n53	100.0%	30.40	20.70	30.40	20.70	23.41	20.70	23.41	20.70	21.00	20.70	21.00	20.70	NA	NA	NA	NA	25.70	25.70
	NR n66	100.0%	31.25	25.00	31.25	25.00	23.40	20.80	23.40	20.80	22.07	20.80	22.07	20.80	NA	NA	NA	NA	25.70	25.70
NR n70	100.0%	32.58	25.00	32.58	25.00	23.22	20.80	23.22	20.80	22.46	20.80	22.46	20.80	NA	NA	NA	NA	25.70	25.70	
NR n71	100.0%	31.95	25.70	31.95	25.70	28.80	25.70	28.80	25.70	26.02	25.70	26.02	25.70	NA	NA	NA	NA	25.70	25.70	
ANT 2	OSM 800 slots	25.0%	32.66	26.40	26.64	23.88	36.83	31.50	30.61	25.46	36.13	31.50	30.11	25.46	NA	NA	NA	NA	31.50	25.46
	OSM 1900 slots	25.0%	27.36	20.50	21.32	19.48	27.36	21.33	19.88	17.36	21.33	19.88	17.36	19.88	NA	NA	NA	NA	28.50	22.48
	W-CDMA B2	100.0%	21.38	18.50	21.38	18.50	19.88	18.70	19.88	18.70	19.88	18.70	19.88	18.70	NA	NA	NA	NA	23.40	23.40
	W-CDMA B4	100.0%	19.62	18.70	19.62	18.70	19.47	17.80	19.47	17.80	18.03	17.80	18.03	17.80	NA	NA	NA	NA	23.40	23.40
	W-CDMA B5	100.0%	23.03	23.40	23.03	23.40	27.09	25.20	27.09	25.20	27.09	25.20	27.09	25.20	NA	NA	NA	NA	25.20	25.20
	LTE Band 5	100.0%	24.43	23.40	24.43	23.40	27.25	25.20	27.25	25.20	27.25	25.20	27.25	25.20	NA	NA	NA	NA	25.20	25.20
	LTE Band 7	100.0%	19.20	17.70	19.20	17.70	19.84	18.30	19.84	18.30	18.36	18.30	18.36	18.30	NA	NA	NA	NA	23.70	23.70
	LTE Band 12/17	100.0%	25.84	25.20	25.84	25.20	27.98	25.20	27.98	25.20	27.98	25.20	27.98	25.20	NA	NA	NA	NA	25.20	25.20
	LTE Band 13	100.0%	24.94	23.40	24.94	23.40	27.92	25.20	27.92	25.20	27.15	25.20	27.15	25.20	NA	NA	NA	NA	25.20	25.20
	LTE Band 14	100.0%	25.50	25.20	25.50	25.20	27.45	25.20	27.45	25.20	27.45	25.20	27.45	25.20	NA	NA	NA	NA	25.20	25.20
	LTE Band 25/2	100.0%	20.17	19.50	20.17	19.50	19.69	19.70	19.69	19.70	19.69	19.70	19.69	19.70	NA	NA	NA	NA	23.40	23.40
	LTE Band 26	100.0%	24.27	23.40	24.27	23.40	26.66	25.20	26.66	25.20	26.66	25.20	26.66	25.20	NA	NA	NA	NA	25.20	25.20
	LTE Band 30	100.0%	18.45	18.60	18.45	18.60	18.64	18.70	18.64	18.70	18.64	18.70	18.64	18.70	NA	NA	NA	NA	23.70	23.70
	LTE Band 41	63.3%	21.47	19.90	19.49	17.91	22.31	20.30	20.33	18.31	20.64	20.30	18.66	18.31	NA	NA	NA	NA	25.70	23.71
	LTE Band 53	63.3%	20.97	19.90	18.98	17.91	21.61	20.70	19.62	18.71	21.61	20.70	19.62	18.71	NA	NA	NA	NA	23.70	21.71
	LTE Band 64/4	100.0%	19.00	18.70	19.00	18.70	20.07	17.80	20.07	17.80	18.00	17.80	18.00	17.80	NA	NA	NA	NA	25.70	25.70
	LTE Band 71	100.0%	25.08	25.20	25.08	25.20	28.79	25.20	28.79	25.20	27.81	25.20	27.81	25.20	NA	NA	NA	NA	25.20	25.20
	NR n1	100.0%	23.52	23.40	23.52	23.40	26.73	25.20	26.73	25.20	26.73	25.20	26.73	25.20	NA	NA	NA	NA	25.20	25.20
	NR n7	100.0%	18.27	17.70	18.27	17.70	19.45	18.30	19.45	18.30	19.10	18.30	19.10	18.30	NA	NA	NA	NA	23.70	23.70
	NR n12	100.0%	25.90	25.20	25.90	25.20	28.01	25.20	28.01	25.20	26.37	25.20	26.37	25.20	NA	NA	NA	NA	25.20	25.20
	NR n14	100.0%	25.26	25.20	25.26	25.20	27.86	25.20	27.86	25.20	27.61	25.20	27.61	25.20	NA	NA	NA	NA	25.20	25.20
	NR n25/2	100.0%	20.43	19.50	20.43	19.50	19.83	19.70	19.83	19.70	19.83	19.70	19.83	19.70	NA	NA	NA	NA	23.40	23.40
	NR n26	100.0%	23.88	23.40	23.88	23.40	28.44	25.20	28.44	25.20	28.44	25.20	28.44	25.20	NA	NA	NA	NA	25.20	25.20
	NR n30	100.0%	18.58	18.60	18.58	18.60	19.04	18.70	19.04	18.70</										

Therefore, for this EUT, SAR and conducted power measurements at  $P_{limit}$  will be the same as those performed at  $P_{max}$ . SAR measured at  $P_{max}$  can be leveraged in this section to avoid re-testing. The worst-case reported SAR values for Sub-6 GHz are listed in §4.4 of the TAS Part 0 report and the worst-case reported WLAN SAR results are listed in Table 6-2 and Table 6-3.

**Table 6-2: Worst-case reported WLAN SAR (Power State 4)**

Technology	Freq (GHz)	ANT			Reported 1-g SAR (W/kg)			P <sub>max</sub>		
		Head	Body & Hotspot	Hotspot	Head	Body & Hotspot	Hotspot	Head	Body & Hotspot	Hotspot
WLAN	2.4	ANT 4	ANT 4	ANT 4	0.348	0.441	0.469	19.25	20.50	20.50
	5.2	N/A	ANT 6	ANT 5	N/A	0.424	0.274	N/A	15.50	18.00
	5.3	ANT 5	N/A	N/A	0.009	N/A	N/A	20.50	N/A	N/A
	5.5	ANT 5	ANT 6	ANT 5	0.004	0.473	0.243	20.50	13.25	19.50
	5.8	ANT 5	ANT 5	ANT 5	0.010	0.468	0.208	20.50	18.25	18.25
Technology	Freq (GHz)	ANT			Reported 1-g SAR (W/kg)			P <sub>max</sub>		
		Head	Body-worn & Extremity	Hotspot	Head	Body-worn & Extremity	Hotspot	Head	Body-worn & Extremity	Hotspot
WLAN	6.2	ANT 6	ANT 6	N/A	0.008	0.252	N/A	9.50	9.50	N/A
	6.5	ANT 6	ANT 6	N/A	0.023	0.293	N/A	9.25	9.25	N/A
	6.7	ANT 6	ANT 6	N/A	0.018	0.290	N/A	9.25	9.25	N/A
	7.0	ANT 6	ANT 6	N/A	0.011	0.259	N/A	8.50	8.50	N/A

**Table 6-3: Worst-case reported WLAN SAR (Power State 6)**

Technology	Freq (GHz)	ANT			Reported 1-g SAR (W/kg)			P <sub>max</sub>		
		Head	Body & Hotspot	Hotspot	Head	Body & Hotspot	Hotspot	Head	Body & Hotspot	Hotspot
WLAN	2.4	ANT 4	ANT 4	ANT 4	0.276	0.350	0.372	19.25	20.50	20.50
	5.2	N/A	ANT 6	ANT 5	N/A	0.395	0.218	N/A	15.50	18.00
	5.3	ANT 5	N/A	N/A	0.007	N/A	N/A	20.50	N/A	N/A
	5.5	ANT 5	ANT 6	ANT 5	0.003	0.376	0.193	20.50	13.25	19.50
	5.8	ANT 5	ANT 5	ANT 6	0.008	0.397	0.061	20.50	18.25	14.50
Technology	Freq (GHz)	ANT			Reported 1-g SAR (W/kg)			P <sub>max</sub>		
		Head	Body-worn & Extremity	Hotspot	Head	Body-worn & Extremity	Hotspot	Head	Body-worn & Extremity	Hotspot
WLAN	6.2	ANT 6	ANT 6	N/A	0.008	0.252	N/A	9.50	9.50	N/A
	6.5	ANT 6	ANT 6	N/A	0.023	0.293	N/A	9.25	9.25	N/A
	6.7	ANT 6	ANT 6	N/A	0.018	0.290	N/A	9.25	9.25	N/A
	7.0	ANT 6	ANT 6	N/A	0.011	0.259	N/A	8.50	8.50	N/A

Note that WLAN SAR for each of the bands in the above table lists the worst-case SAR out of both WLAN antennas and WLAN MIMO.

## 6.2. PD Measurement Results at $P_{limit}$

Tables 5-1 to 5-3 list the beams selected for PD verification test for this EUT and Tables 6-4 to 6-6 list the corresponding PD measurement results at 2 mm spacing. Qualcomm’s Smart Transmit algorithm operates based on time-averaged transmit power reported on a per symbol basis, which is independent of modulation, channel, and bandwidth (RBs). Therefore, PD measurements in Table 6-4 to 6-6 were conducted with the EUT in *Factory Test Mode* (FTM), with CW modulation and on the worst-case channel determined through simulations (See Appendix B of the TAS Part 0 report), with the EUT transmitting at  $P_{limit}$  (listed in Table 5-7 of the TAS Part 0 report) corresponding to the tested beams.

All 4cm<sup>2</sup> PD values for the selected beams are listed in Tables 5-1 to 5-3. In addition to these selected beams, 4cm<sup>2</sup> PD for a few more beams were used in the TAS Part 2 report.

**Table 6-4: PD Measurement results n258**

Module/Antenna	Frequency		Beam ID1	Beam ID2	P <sub>limit</sub>	CC	BW	RB	Signal Type	DUT Surface	Normal psPD	Total psPD
	MHz	Ch.									V	H
ANT M1	25200	2032499	19		-1.2	1	100	1	CW	Back	3.050	3.480
	25200	2032499		141	-1.2	1	100	1	CW	Back	2.530	3.080
	25200	2032499	18	146	-4.5	1	100	1	CW	Back	3.260	3.630
	24800	2025833	19	147	-4.2	1	100	66	CW	Back	3.820	<b>4.750</b>
	24800	2025833	19	147	-4.2	1	50	66	CW	Left	0.060	0.070

**Table 6-5: PD Measurement results n260**

Module/Antenna	Frequency		Beam ID1	Beam ID2	P <sub>limit</sub>	CC	BW	RB	Signal Type	DUT Surface	Normal psPD	Total psPD
	MHz	Ch.									V	H
ANT M1	39950	2277500	15		-0.6	1	100	1	CW	Back	2.260	2.780
	38500	2253330		140	-0.5	1	100	1	CW	Back	2.060	2.520
	38500	2253330	12	140	-4	1	100	1	CW	Back	1.460	1.900
	39950	2277500	14		-0.4	1	100	33	CW	Back	2.840	<b>3.100</b>
	39950	2277500	14		-0.4	1	100	33	CW	Left	0.094	0.103

**Table 6-6: PD Measurement results n261**

Module/Antenna	Frequency		Beam ID1	Beam ID2	P <sub>limit</sub>	CC	BW	RB	Signal Type	DUT Surface	Normal psPD	Total psPD
	MHz	Ch.									V	H
ANT M1	27550	2070833	15		-1.3	1	100	1	CW	Back	2.380	2.870
	27550	2070833		145	-1.8	1	100	1	CW	Back	1.760	2.340
	27550	2070833	15	143	-4.8	1	100	1	CW	Back	2.420	<b>3.080</b>
	27550	2070833	13	141	-4.7	1	100	1	CW	Back	2.280	2.770
	27550	2070833	15	143	-4.8	1	100	1	CW	Left	0.092	0.094

The PD distribution plots for both point PD and 4cm<sup>2</sup> avg PD for the highest PD configuration in Tables 6-4 to 6-6 are given below.

UL Verification Services Inc. SAR Lab C

Date/Time: 2024-07-15, 15:07

### Custom Band: CW, BACK

#### Exposure Conditions

Band	Custom Band	Phantom Section	5G
Frequency [MHz]   Channel Number	24800.0   2025833	Conversion Factor	1.0
Group   UID	CW, 0--	Position   Test Distance [mm]	BACK   2.00

#### Hardware Setup

Probe   Calibration Date	EUmmWV4 - SN9589_F1-55GHz   2023-09-05	Phantom	mmWave   xxxx
DAE   Calibration Date	DAE4ip Sn1621   2024-04-12	Medium	Air   -
Software Version	3.2.0.1840		

#### Scan Setup

Scan Type	5G Scan	Grid Extents [mm]	25.0 x 25.0
Grid Steps [lambda]	0.16885944481471585 x 0.16885944481471585	Sensor Surface [mm]	2.0

#### Measurement Results

Avg. Area [cm <sup>2</sup> ]	4.00
psPDn+ [W/m <sup>2</sup> ]	3.82
psPDtot+ [W/m <sup>2</sup> ]	4.75
psPDmod+ [W/m <sup>2</sup> ]	4.97
E <sub>max</sub> [V/m]	75.3
H <sub>max</sub> [A/m]	0.201
Power Drift [dB]	0.03

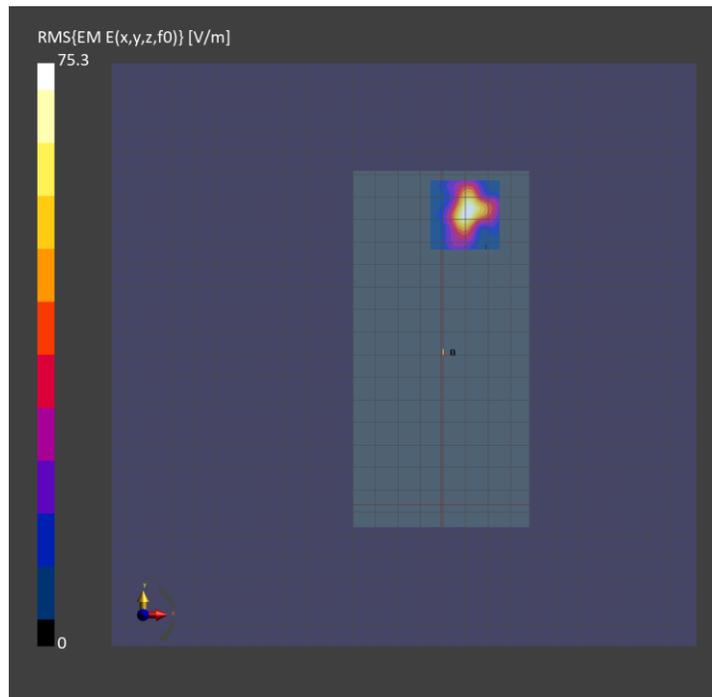


Figure 6-1: Band n258, Beam ID 19/147, point PD and 4cm<sup>2</sup> PD, Back

UL Verification Services Inc. SAR Lab C

Date/Time: 2024-07-16, 09:23

### Custom Band: CW, BACK

#### Exposure Conditions

Band	Custom Band	Phantom Section	5G
Frequency [MHz]   Channel Number	39950.0   2277500	Conversion Factor	1.0
Group   UID	CW, 0--	Position   Test Distance [mm]	BACK   2.00

#### Hardware Setup

Probe   Calibration Date	EUmmWV4 - SN9589_F1-55GHz   2023-09-05	Phantom	mmWave   xxxx
DAE   Calibration Date	DAE4ip Sn1621   2024-04-12	Medium	Air   -
Software Version	3.2.0.1840		

#### Scan Setup

Scan Type	5G Scan	Grid Extents [mm]	25.0 x 25.0
Grid Steps [lambda]	0.25 x 0.25	Sensor Surface [mm]	2.0

#### Measurement Results

Avg. Area [cm <sup>2</sup> ]	4.00
psPDn+ [W/m <sup>2</sup> ]	2.84
psPDtot+ [W/m <sup>2</sup> ]	3.10
psPDmod+ [W/m <sup>2</sup> ]	3.19
E <sub>max</sub> [V/m]	67.7
H <sub>max</sub> [A/m]	0.157
Power Drift [dB]	0.03

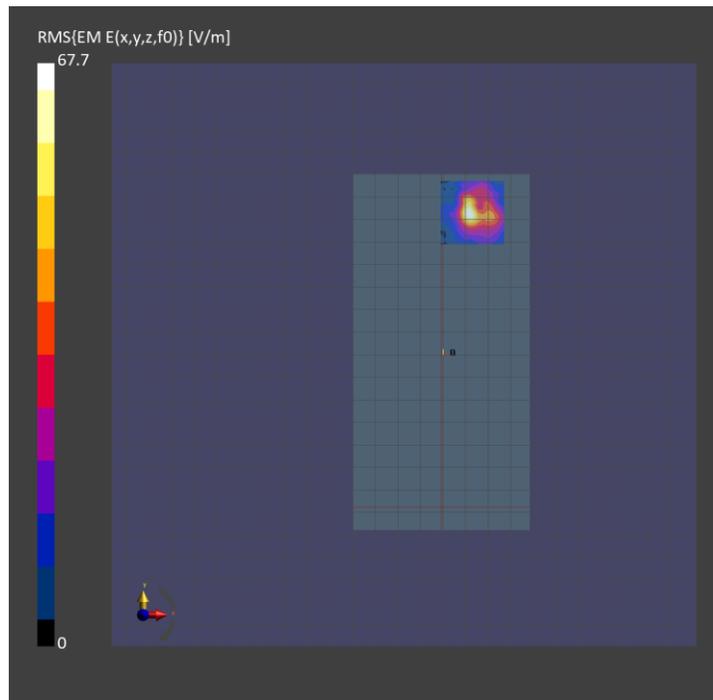


Figure 6-2: Band n260, Beam ID 14, point PD and 4cm<sup>2</sup> PD, Back

UL Verification Services Inc. SAR Lab C

Date/Time: 2024-07-16, 16:09

### Custom Band: CW, BACK

#### Exposure Conditions

Band	Custom Band	Phantom Section	5G
Frequency [MHz]   Channel Number	27550.0   2070833	Conversion Factor	1.0
Group   UID	CW, 0--	Position   Test Distance [mm]	BACK   2.00

#### Hardware Setup

Probe   Calibration Date	EUmmWV4 - SN9589_F1-55GHz   2023-09-05	Phantom	mmWave   xxxx
DAE   Calibration Date	DAE4ip Sn1621   2024-04-12	Medium	Air   -
Software Version	3.2.0.1840		

#### Scan Setup

Scan Type	5G Scan	Grid Extents [mm]	25.0 x 25.0
Grid Steps [lambda]	0.18758377841312185 x 0.18758377841312185	Sensor Surface [mm]	2.0

#### Measurement Results

Avg. Area [cm <sup>2</sup> ]	4.00
psPDn+ [W/m <sup>2</sup> ]	2.42
psPDtot+ [W/m <sup>2</sup> ]	3.08
psPDmod+ [W/m <sup>2</sup> ]	3.15
E <sub>max</sub> [V/m]	58.1
H <sub>max</sub> [A/m]	0.160
Power Drift [dB]	-0.12

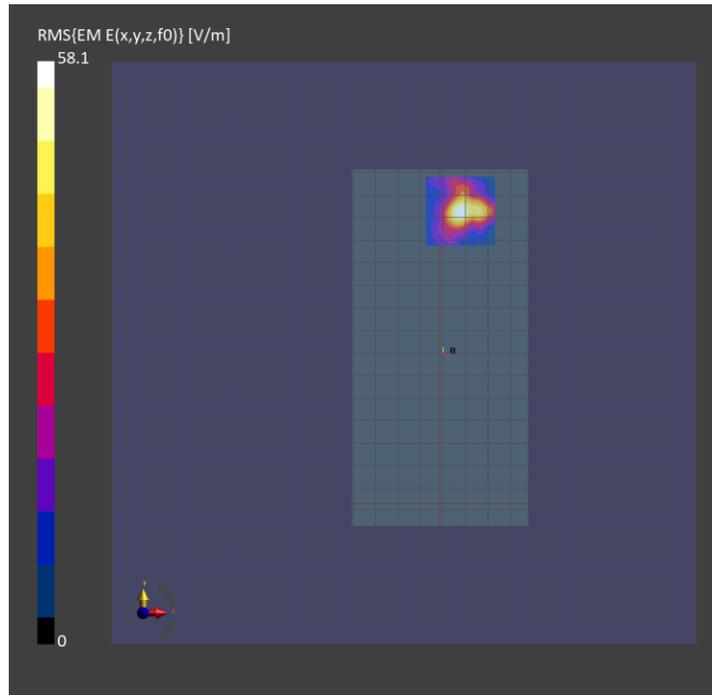


Figure 6-3: Band n261, Beam ID 15/143, point PD and 4cm<sup>2</sup> PD, Back

### 6.3. Simultaneous Transmission Analysis

The EUT supports simultaneous transmission of multiple radios. RF exposure compliance in simultaneous transmission scenarios is evaluated in this section.

It must be noted here that Qualcomm’s Smart Transmit time-averaging algorithm was applied to only WWAN (Sub-6GHz/5G millimeter wave NR) on this device, where the time-averaged power level is controlled so that the RF exposure is  $\leq SAR_{Design\ Target}$  (corresponding to  $P_{limit}$ ) for Sub-6 GHz WWAN and  $\leq PD_{Design\ Target}$  (corresponding to  $P_{limit}$ ) for 5G millimeter wave NR. Since there is total design-related uncertainty arising from TxAGC and device-to-device variation, the worst-case RF exposure should be determined by accounting for this uncertainty in the corresponding design target, listed in Table 6-7.

**Table 6-7: Worst-case time-averaged RF exposure for WWAN**

Scenario	WWAN	
	Sub-6 GHz WWAN	5G mmW NR
Maximum time-averaged power level	$P_{limit}$	
Maximum time-averaged exposure (Design Targets)	0.8 W/kg (1-g SAR)	3.9 W/m <sup>2</sup>
Worst-case time-averaged RF exposure	Reported SAR† = 0.986 W/kg (1-g SAR)	Reported PD = 4.75 W/m <sup>2</sup>

†: For this EUT, ( $P_{limit} + 1\text{dB uncertainty}$ )  $\geq P_{max}$  (maximum RF tune-up output power). Therefore, time-averaged SAR exposure from Smart Transmit enabled EUT (at  $P_{limit}$ ) cannot exceed the reported SAR corresponding to  $P_{max}$  listed in the referenced SAR report found in §1.

WLAN does not employ Qualcomm’s Smart Transmit time-averaging feature in this device, reported 1-g SAR at the maximum RF tune-up output power is listed in Table 6-2 and Table 6-3.

#### 6.3.1. Analysis

RF exposure compliance with WWAN+WLAN simultaneous transmission scenarios is demonstrated for various radio configurations using the equation below:

$$\text{Total norm. RF exposure} = \text{norm. RF exposure from Smart Transmit enabled WWAN (norm. SAR from Sub-6 GHz} + \text{norm. PD from 5G millimeter wave NR)} + \text{norm. SAR from WLAN} \leq 1.0 \text{ normalized limit (1)}$$

Smart Transmit algorithm in WWAN adds directly the time-averaged RF exposure from Sub-6 GHz WWAN and time-averaged RF exposure from 5G millimeter wave NR, i.e.,

$$\text{norm. RF exposure from Smart Transmit enabled WWAN: (normalized SAR exposure from Sub-6 GHz} + \text{(normalized PD exposure from 5G millimeter wave NR)} \leq 1.0 \text{ normalized limit (2)}$$

In other words, Smart Transmit algorithm controls the total RF exposure from both Sub-6 GHz radio and 5G millimeter wave NR to not exceed the FCC limit. Smart transmit algorithm assumes hotspots are collocated (i.e., ignoring spatial distribution of hotspots) and directly adds normalized RF exposures from Sub-6 GHz WWAN and from 5G millimeter wave NR, i.e.,

$$\begin{aligned} \text{If } A &= \text{max normalized time-averaged SAR exposure from 4G,} \\ B &= \text{max normalized time-averaged PD exposure from 5G millimeter wave NR,} \end{aligned}$$

Then, equation (2) can be re-written as below because Smart Transmit assumes Sub-6 GHz WWAN hotspots are collocated with 5G millimeter wave NR hotspot:

$$\text{Smart Transmit enabled WWAN: } x(t) * A + (1-x(t)) * B \leq 1.0 \text{ normalized limit (3)}$$

Here, " $x(t)*A$ " represents percentage of normalized time-averaged RF exposure from Sub-6 GHz WWAN, and  $x(t)$  ranges between  $[0, 1]$ ; " $(1-x(t))*B$ " is remaining percentage of RF exposure contribution from 5G millimeter wave NR. Smart Transmit controls 'x' in real time such that the sum of these exposures never exceeds the 1.0 normalized limit.

Note that mathematically:

$$x(t) * A + (1 - x(t)) * B \leq \max(A, B) \leq 1.0 \text{ normalized limit for } x(t) \in [0, 1] \quad (4)$$

Therefore, if equations (5a) and (5b) are proven:

$$A + \text{norm. SAR from WLAN} \leq 1.0 \text{ norm. limit} \quad (5a),$$

$$B + \text{norm. SAR from WLAN} \leq 1.0 \text{ norm. limit} \quad (5b),$$

Then, based on equation (4), the condition below is also proved:

$$[x(t) * A + (1 - x(t)) * B] + \text{norm. SAR from WLAN} \leq 1.0 \text{ norm. limit} \quad (5c)$$

which is the same as equation (1), as a means to demonstrate compliance for simultaneous transmission.

Additionally, it should be noted that in the absence of 5G millimeter wave NR, Smart Transmit limits the maximum RF exposure contributed from Sub-6 GHz WWAN to 100% normalized exposure (i.e.,  $x=1.0$  in equation 3), while with 5G millimeter wave NR active, Smart Transmit limits the maximum RF exposure contributed from 5G millimeter wave NR to 75% normalized exposure to guarantee at least 25% margin allocated to the Sub-6 GHz WWAN anchor to maintain the link (i.e.,  $x=0.25$  in equation 3). Therefore:

$$\text{Smart Transmit enabled WWAN: } A = \max(\text{normalized SAR exposure from 4G}) \leq 1.0 \text{ normalized limit} \quad (6a)$$

$$\text{Smart Transmit enabled WWAN: } B = \max(\text{normalized PD exposure from 5G millimeter wave NR}) \leq 0.75 \text{ normalized limit} \quad (6b)$$

Thus, for compliance demonstration given by equation (1), equation (7) is obtained by combining equations (5a & 5b) and (6a & 6b) and should be proven to guarantee simultaneous transmission compliance:

$$\text{Total normalized RF exposure} = \text{norm. SAR from 4G WWAN} + \text{norm. SAR from WLAN} < 1.0 \text{ normalized FCC limit} \quad (7a)$$

$$\text{Total normalized RF exposure} = 0.75 * \text{norm. PD from 5G millimeter wave NR WWAN} + \text{norm. SAR from WLAN} < 1.0 \text{ normalized FCC limit} \quad (7b)$$

The compliance for simultaneous transmission scenarios of WWAN (Sub-6 GHz/5G millimeter wave NR) radio enabled with Smart Transmit and WLAN without Smart Transmit is re-evaluated for all transmission scenarios supported by this EUT.

As described in equation (7), simultaneous transmission analysis for WWAN + WLAN is performed in two parts:

1. Sub-6 GHz WWAN + WLAN (i.e., Eq. (7a) with compliance demonstration in §5.3.2)
2. 5G millimeter wave NR WWAN + WLAN (i.e., Eq. (7b) with compliance demonstration in §5.3.3)

By combining equations a and b variants, the FCC requirement expressed in Eq. (1) is re-written below:

$$\text{Total norm. RF exposure} = \text{norm. RF exposure from Smart Transmit enabled WWAN (norm. SAR from Sub-6 GHz WWAN} + \text{norm. PD from 5G millimeter wave NR)} + \text{norm. SAR from WLAN} \leq 1.0 \text{ normalized limit} \quad (1)$$

### 6.3.2. Simultaneous Transmission Compliance Demonstration for Sub-6 GHz WWAN + WLAN

Simultaneous transmission analysis for Sub-6 WWAN + WLAN is shown in the referenced UL FCC SAR Test Report mentioned in §1.

### 6.3.3. Simultaneous Transmission Compliance demonstration for 5G millimeter wave NR WWAN + WLAN

Simultaneous transmission analysis is performed in this section using worst-case PD values listed in Tables 6-4 to 6-6 for compliance demonstration of 5G millimeter wave NR WWAN + WLAN.

Simultaneous transmission analysis on all 5G millimeter wave NR WWAN + WLAN scenarios are listed below:

**Table 6-8: Simultaneous transmission analysis scenarios for 5G millimeter wave NR WWAN + WLAN**

1	5G millimeter wave NR + 2.4 GHz WLAN*
2	5G millimeter wave NR + 2.4 GHz WLAN* + NB U-NII
3	5G millimeter wave NR + 2.4 GHz WLAN* + 802.15.4ab
4	5G millimeter wave NR + 5 GHz WLAN*
5	5G millimeter wave NR + 5 GHz WLAN* + BT
6	5G millimeter wave NR + 5 GHz WLAN* + 802.15.4
7	5G millimeter wave NR + 5 GHz WLAN* + 802.15.4ab
8	5G millimeter wave NR + 5 GHz WLAN* + BT + 802.15.4ab
9	5G millimeter wave NR + 5 GHz WLAN* + 802.15.4 + 802.15.4ab
10	5G millimeter wave NR + 6E WLAN*
11	5G millimeter wave NR + 6E WLAN* + BT
12	5G millimeter wave NR + 6E WLAN* + 802.15.4
13	5G millimeter wave NR + 6E WLAN* + 802.15.4ab
14	5G millimeter wave NR + 6E WLAN* + BT + 802.15.4ab
15	5G millimeter wave NR + 6E WLAN* + 802.15.4 + 802.15.4ab
16	5G millimeter wave NR + BT
17	5G millimeter wave NR + BT + 802.15.4ab
18	5G millimeter wave NR + NB U-NII
19	5G millimeter wave NR + 802.15.4
20	5G millimeter wave NR + 802.15.4 + 802.15.4ab
21	5G millimeter wave NR + 802.15.4ab

\*: For each of the WLAN bands, worst-case SAR out of both WLAN antennas and WLAN MIMO scenarios is used during simultaneous transmission analysis. Additionally, note that WLAN 2.4 GHz, WLAN 5 GHz, and WLAN 6E cannot transmit simultaneously.

The total exposure ratio (TER) is calculated using the equation below, followed by the calculated TER for this EUT:

$$TER = \sum_{n=1}^N \frac{SAR_n}{SAR_{n,limit}} + \sum_{n=1}^N \frac{S_{m,avg}}{S_{m,limit}} < 1$$

**Table 6-9: 5G Millimeter Wave NR Simulation PD Surface Ratio for n258**

n258					
Surface	PD Magnitude Ratio		Head	Body <sup>1</sup>	Meas. Total PD (W/m <sup>2</sup> )
	PD Measurement Plane	SAR Measurement Plane	PD Measurement Plane 0 mm (W/m <sup>2</sup> )	SAR Measurement Plane 5 mm (W/m <sup>2</sup> )	
S1	0.000	-	0.000	0.000	-
S2	1.000	0.870	-	5.438	4.750
S3	0.335	-	-	1.819	0.070
S4	0.000	-	-	0.000	-
S5	0.191	-	-	1.038	-
S6	0.000	-	-	0.000	-

<sup>1</sup> Results for Body were calculated using the most conservative ratio between the PD Magnitudes for 2mm and 5mm with the following multiplier: PD<sub>Design Limit</sub>

**Table 6-10: 5G Millimeter Wave NR Simulation PD Surface Ratio for n260**

n260					
Surface	PD Magnitude Ratio		Head	Body <sup>1</sup>	Meas. Total PD (W/m <sup>2</sup> )
	PD Measurement Plane	SAR Measurement Plane	PD Measurement Plane 0 mm (W/m <sup>2</sup> )	SAR Measurement Plane 5 mm (W/m <sup>2</sup> )	
S1	0.000	-	0.000	0.000	-
S2	1.000	0.899	-	5.619	3.100
S3	0.496	-	-	2.788	0.103
S4	0.000	-	-	0.000	-
S5	0.265	-	-	1.488	-
S6	0.000	-	-	0.000	-

<sup>1</sup> Results for Body were calculated using the most conservative ratio between the PD Magnitudes for 2mm and 5mm with the following multiplier: PD<sub>Design Limit</sub>

**Table 6-11: 5G Millimeter Wave NR Simulation PD Surface Ratio for n261**

n261					
Surface	PD Magnitude Ratio		Head	Body <sup>1</sup>	Meas. Total PD (W/m <sup>2</sup> )
	PD Measurement Plane	SAR Measurement Plane	PD Measurement Plane 0 mm (W/m <sup>2</sup> )	SAR Measurement Plane 5 mm (W/m <sup>2</sup> )	
S1	0.000	-	0.000	0.000	-
S2	1.000	0.892	-	5.575	3.080
S3	0.331	-	-	1.844	0.094
S4	0.000	-	-	0.000	-
S5	0.203	-	-	1.131	-
S6	0.000	-	-	0.000	-

<sup>1</sup> Results for Body were calculated using the most conservative ratio between the PD Magnitudes for 2mm and 5mm with the following multiplier: PD<sub>Design Limit</sub>

**Table 6-12: TER for Worst-case WLAN + 5G Millimeter Wave NR for n258 Head**

n258								
Head TER	psPD	Wi-Fi 2.4 GHz Power State 4 Mode A	Wi-Fi 2.4 GHz Power State 6 Mode A	NB U-NII P <sub>Standalone</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 2.4 GHz Power State 4	psPD + Wi-Fi 2.4 GHz Power State 4 + NB U-NII P <sub>Low</sub>	psPD + Wi-Fi 2.4 GHz Power State 6 + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg		
TER Combinations	1	2	3	4	5	1+2	1+2+4	1+3+5
Applicable limit	10	1.6	1.6	1.6	1.6	1	1	1
Reported Exposure	0.000	0.348	0.276	0.029	0.011	-	-	-
Ratio to Limit	0.000	0.217	0.173	0.018	0.007	0.217	0.235	0.180

n258												
Head TER	psPD	Wi-Fi 5 GHz Power State 4 Mode A	Wi-Fi 5 GHz Power State 6 Mode A	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode A	802.15.4 P <sub>Low</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 5 GHz Power State 4	psPD + Wi-Fi 5 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg
TER Combinations	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
Reported Exposure	0.000	0.010	0.008	0.089	0.038	0.011	-	-	-	-	-	-
Ratio to Limit	0.000	0.006	0.005	0.055	0.024	0.007	0.006	0.061	0.030	0.012	0.067	0.036

n258												
Head TER	psPD	Wi-Fi 6 GHz Power State 4 Mode A	Wi-Fi 6 GHz Power State 6 Mode A	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode A	802.15.4 P <sub>Low</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 6 GHz Power State 4	psPD + Wi-Fi 6 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg	W/kg
TER Combinations	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
Reported Exposure	0.000	0.023	0.018	0.089	0.038	0.011	-	-	-	-	-	-
Ratio to Limit	0.000	0.014	0.011	0.055	0.024	0.007	0.014	0.069	0.038	0.018	0.073	0.042

n258					
Head TER	psPD	Bluetooth (2.4 GHz) P <sub>High</sub> Mode A	802.15.4ab Mode A	psPD + Bluetooth (2.4 GHz) P <sub>High</sub>	psPD + Bluetooth (2.4 GHz) P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg
TER Combinations	1	2	3	1+2	1+2+3
Applicable limit	10	1.6	1.6	1	1
Reported Exposure	0.000	0.306	0.011	-	-
Ratio to Limit	0.000	0.191	0.007	0.191	0.198

n258			
Head TER	psPD	NB U-NII P <sub>Standalone</sub> Mode A	psPD + NB U-NII P <sub>Mid</sub>
	W/m <sup>2</sup>	W/kg	
TER Combinations	1	2	1+2
Applicable limit	10	1.6	1
Reported Exposure	0.000	0.029	-
Ratio to Limit	0.000	0.018	0.018

n258						
Head TER	psPD	802.15.4 P <sub>High</sub> Mode A	802.15.4ab Mode A	psPD + 802.15.4 P <sub>High</sub>	psPD + 802.15.4ab	psPD + 802.15.4 P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg			
TER Combinations	1	2	3	1+2	1+3	1+2+3
Applicable limit	10	1.6	1.6	1	1	1
Reported Exposure	0.000	0.245	0.011	-	-	-
Ratio to Limit	0.000	0.153	0.007	0.153	0.007	0.160

Note(s): NB U-NII P<sub>Standalone</sub> values were used for the TER analysis due to low SAR values for P<sub>Low</sub>, P<sub>Mid</sub>, and P<sub>High</sub>.

**Table 6-13: TER for Worst-case WLAN + 5G Millimeter Wave NR for n260 Head**

n260								
Head TER	psPD	Wi-Fi 2.4 GHz Power State 4 Mode A	Wi-Fi 2.4 GHz Power State 6 Mode A	NB U-NII P <sub>Standalone</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 2.4 GHz Power State 4	psPD + Wi-Fi 2.4 GHz Power State 4 + NB U-NII P <sub>Low</sub>	psPD + Wi-Fi 2.4 GHz Power State 6 + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg			
TER Combinations	1	2	3	4	5	1+2	1+2+4	1+3+5
Applicable limit	10	1.6	1.6	1.6	1.6	1	1	1
Reported Exposure	0.000	0.348	0.276	0.029	0.011	-	-	-
Ratio to Limit	0.000	0.217	0.173	0.018	0.007	0.217	0.235	0.180

n260												
Head TER	psPD	Wi-Fi 5 GHz Power State 4 Mode A	Wi-Fi 5 GHz Power State 6 Mode A	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode A	802.15.4 P <sub>Low</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 5 GHz Power State 4	psPD + Wi-Fi 5 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
TER Combinations	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
Reported Exposure	0.000	0.010	0.008	0.089	0.038	0.011	-	-	-	-	-	-
Ratio to Limit	0.000	0.006	0.005	0.055	0.024	0.007	0.006	0.061	0.030	0.012	0.067	0.036

n260												
Head TER	psPD	Wi-Fi 6 GHz Power State 4 Mode A	Wi-Fi 6 GHz Power State 6 Mode A	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode A	802.15.4 P <sub>Low</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 6 GHz Power State 4	psPD + Wi-Fi 6 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
TER Combinations	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
Reported Exposure	0.000	0.023	0.018	0.089	0.038	0.011	-	-	-	-	-	-
Ratio to Limit	0.000	0.014	0.011	0.055	0.024	0.007	0.014	0.069	0.038	0.018	0.073	0.042

n260					
Head TER	psPD	Bluetooth (2.4 GHz) P <sub>High</sub> Mode A	802.15.4ab Mode A	psPD + Bluetooth (2.4 GHz) P <sub>High</sub>	psPD + Bluetooth (2.4 GHz) P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg		
TER Combinations	1	2	3	1+2	1+2+3
Applicable limit	10	1.6	1.6	1	1
Reported Exposure	0.000	0.306	0.011	-	-
Ratio to Limit	0.000	0.191	0.007	0.191	0.198

n260			
Head TER	psPD	NB U-NII P <sub>Standalone</sub> Mode A	psPD + NB U-NII P <sub>Mid</sub>
	W/m <sup>2</sup>	W/kg	
TER Combinations	1	2	1+2
Applicable limit	10	1.6	1
Reported Exposure	0.000	0.029	-
Ratio to Limit	0.000	0.018	0.018

n260						
Head TER	psPD	802.15.4 P <sub>High</sub> Mode A	802.15.4ab Mode A	psPD + 802.15.4 P <sub>High</sub>	psPD + 802.15.4ab	psPD + 802.15.4 P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg			
TER Combinations	1	2	3	1+2	1+3	1+2+3
Applicable limit	10	1.6	1.6	1	1	1
Reported Exposure	0.000	0.245	0.011	-	-	-
Ratio to Limit	0.000	0.153	0.007	0.153	0.007	0.160

Note(s): NB U-NII P<sub>Standalone</sub> values were used for the TER analysis due to low SAR values for P<sub>Low</sub>, P<sub>Mid</sub>, and P<sub>High</sub>.

**Table 6-14: TER for Worst-case WLAN + 5G Millimeter Wave NR for n261 Head**

n261								
Head TER	psPD	Wi-Fi 2.4 GHz Power State 4 Mode A	Wi-Fi 2.4 GHz Power State 6 Mode A	NB U-NII P <sub>Standalone</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 2.4 GHz Power State 4	psPD + Wi-Fi 2.4 GHz Power State 4 + NB U-NII P <sub>Low</sub>	psPD + Wi-Fi 2.4 GHz Power State 6 + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg			
TER Combinations	1	2	3	4	5	1+2	1+2+4	1+3+5
Applicable limit	10	1.6	1.6	1.6	1.6	1	1	1
Reported Exposure	0.000	0.348	0.276	0.029	0.011	-	-	-
Ratio to Limit	0.000	0.217	0.173	0.018	0.007	0.217	0.235	0.180

n261												
Head TER	psPD	Wi-Fi 5 GHz Power State 4 Mode A	Wi-Fi 5 GHz Power State 6 Mode A	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode A	802.15.4 P <sub>Low</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 5 GHz Power State 4	psPD + Wi-Fi 5 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
TER Combinations	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
Reported Exposure	0.000	0.010	0.008	0.089	0.038	0.011	-	-	-	-	-	-
Ratio to Limit	0.000	0.006	0.005	0.055	0.024	0.007	0.006	0.061	0.030	0.012	0.067	0.036

n261												
Head TER	psPD	Wi-Fi 6 GHz Power State 4 Mode A	Wi-Fi 6 GHz Power State 6 Mode A	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode A	802.15.4 P <sub>Low</sub> Mode A	802.15.4ab Mode A	psPD + Wi-Fi 6 GHz Power State 4	psPD + Wi-Fi 6 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
TER Combinations	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
Reported Exposure	0.000	0.023	0.018	0.089	0.038	0.011	-	-	-	-	-	-
Ratio to Limit	0.000	0.014	0.011	0.055	0.024	0.007	0.014	0.069	0.038	0.018	0.073	0.042

n261					
Head TER	psPD	Bluetooth (2.4 GHz) P <sub>High</sub> Mode A	802.15.4ab Mode A	psPD + Bluetooth (2.4 GHz) P <sub>High</sub>	psPD + Bluetooth (2.4 GHz) P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg		
TER Combinations	1	2	3	1+2	1+2+3
Applicable limit	10	1.6	1.6	1	1
Reported Exposure	0.000	0.306	0.011	-	-
Ratio to Limit	0.000	0.191	0.007	0.191	0.198

n261			
Head TER	psPD	NB U-NII P <sub>Standalone</sub> Mode A	psPD + NB U-NII P <sub>Mid</sub>
	W/m <sup>2</sup>	W/kg	
TER Combinations	1	2	1+2
Applicable limit	10	1.6	1
Reported Exposure	0.000	0.029	-
Ratio to Limit	0.000	0.018	0.018

n261						
Head TER	psPD	802.15.4 P <sub>High</sub> Mode A	802.15.4ab Mode A	psPD + 802.15.4 P <sub>High</sub>	psPD + 802.15.4ab	psPD + 802.15.4 P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg			
TER Combinations	1	2	3	1+2	1+3	1+2+3
Applicable limit	10	1.6	1.6	1	1	1
Reported Exposure	0.000	0.245	0.011	-	-	-
Ratio to Limit	0.000	0.153	0.007	0.153	0.007	0.160

Note(s): NB U-NII P<sub>Standalone</sub> values were used for the TER analysis due to low SAR values for P<sub>Low</sub>, P<sub>Mid</sub>, and P<sub>High</sub>.

**Table 6-15: TER for Worst-case WLAN + 5G Millimeter Wave NR for n258 Body/Hotspot**

n258									
Body/Hotspot TER	psPD	Wi-Fi 2.4 GHz Power State 4 Mode B	Wi-Fi 2.4 GHz Power State 6 Mode B	NB U-NII P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 2.4 GHz Power State 4	psPD + Wi-Fi 2.4 GHz Power State 4 + NB U-NII P <sub>Low</sub>	psPD + Wi-Fi 2.4 GHz Power State 6 + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg				
Scenario	1	2	3	4	5	1+2	1+2+4	1+3+5	
Applicable limit	10	1.6	1.6	1.6	1.6	1	1	1	
S1 @ 5 mm	Reported Exposure	0.000	0.367	0.291	0.099	0.006	-	-	-
	Ratio to Limit	0.000	0.229	0.182	0.062	0.004	0.229	0.244	0.186
S2 @ 5 mm	Reported Exposure	5.438	0.441	0.350	0.099	0.098	-	-	-
	Ratio to Limit	0.544	0.276	0.219	0.062	0.061	0.819	0.824	0.824
S3 @ 5 mm	Reported Exposure	1.819	0.414	0.329	0.099	0.033	-	-	-
	Ratio to Limit	0.182	0.259	0.206	0.062	0.020	0.441	0.449	0.408
S4 @ 5 mm	Reported Exposure	0.000	0.469	0.372	0.099	0.000	-	-	-
	Ratio to Limit	0.000	0.293	0.233	0.062	0.000	0.293	0.294	0.233
S5 @ 5 mm	Reported Exposure	1.038	0.367	0.291	0.099	0.000	-	-	-
	Ratio to Limit	0.104	0.229	0.182	0.062	0.000	0.333	0.348	0.286
S6 @ 5 mm	Reported Exposure	0.000	0.367	0.291	0.099	0.017	-	-	-
	Ratio to Limit	0.000	0.229	0.182	0.062	0.011	0.229	0.244	0.193

n258												
Body/Hotspot TER	psPD	Wi-Fi 5 GHz Power State 4 Mode B	Wi-Fi 5 GHz Power State 6 Mode B	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode B	802.15.4 P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 5 GHz Power State 4	psPD + Wi-Fi 5 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
Scenario	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
S1 @ 5 mm	Reported Exposure	0.000	0.241	0.191	0.067	0.067	0.006	-	-	-	-	-
	Ratio to Limit	0.000	0.151	0.120	0.042	0.042	0.004	0.151	0.193	0.192	0.123	0.165
S2 @ 5 mm	Reported Exposure	5.438	0.473	0.397	0.072	0.034	0.098	-	-	-	-	-
	Ratio to Limit	0.544	0.296	0.248	0.045	0.021	0.061	0.839	0.884	0.861	0.853	0.898
S3 @ 5 mm	Reported Exposure	1.819	0.274	0.218	0.083	0.081	0.033	-	-	-	-	-
	Ratio to Limit	0.182	0.171	0.136	0.052	0.051	0.020	0.353	0.405	0.404	0.338	0.390
S4 @ 5 mm	Reported Exposure	0.000	0.034	0.191	0.074	0.064	0.000	0.191	-	-	-	-
	Ratio to Limit	0.000	0.021	0.120	0.047	0.040	0.000	0.021	0.068	0.061	0.120	0.166
S5 @ 5 mm	Reported Exposure	1.038	0.034	0.191	0.067	0.034	0.000	-	-	-	-	-
	Ratio to Limit	0.104	0.021	0.120	0.042	0.021	0.000	0.125	0.167	0.146	0.223	0.265
S6 @ 5 mm	Reported Exposure	0.000	0.208	0.191	0.067	0.034	0.017	-	-	-	-	-
	Ratio to Limit	0.000	0.130	0.120	0.042	0.021	0.011	0.130	0.172	0.151	0.130	0.172

n258												
Body/Hotspot TER	psPD	Wi-Fi 6 GHz Power State 4 Mode B	Wi-Fi 6 GHz Power State 6 Mode B	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode B	802.15.4 P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 6 GHz Power State 4	psPD + Wi-Fi 6 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
Scenario	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	-	-
S1 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.067	0.067	0.006	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.042	0.042	0.004	0.104	0.146	0.145	0.086	0.128
S2 @ 5 mm	Reported Exposure	5.438	0.293	0.233	0.072	0.034	0.098	-	-	-	-	-
	Ratio to Limit	0.544	0.183	0.146	0.045	0.021	0.061	0.727	0.772	0.748	0.750	0.772
S3 @ 5 mm	Reported Exposure	1.819	0.166	0.132	0.083	0.081	0.033	-	-	-	-	-
	Ratio to Limit	0.182	0.104	0.082	0.052	0.051	0.020	0.286	0.337	0.336	0.285	0.336
S4 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.074	0.064	0.000	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.047	0.040	0.000	0.104	0.150	0.144	0.082	0.129
S5 @ 5 mm	Reported Exposure	1.038	0.166	0.132	0.067	0.034	0.000	-	-	-	-	-
	Ratio to Limit	0.104	0.104	0.082	0.042	0.021	0.000	0.207	0.249	0.229	0.186	0.228
S6 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.067	0.034	0.017	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.042	0.021	0.011	0.104	0.146	0.125	0.093	0.135

n258						
Body/Hotspot TER	psPD	Bluetooth (2.4 GHz) P <sub>High</sub> Mode B	802.15.4ab Mode B	psPD + Bluetooth (2.4 GHz) P <sub>High</sub>	psPD + Bluetooth (2.4 GHz) P <sub>High</sub> + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg			
Scenario	1	2	3	1+2	1+2+3	
Applicable limit	10	1.6	1.6	1	1	
S1 @ 5 mm	Reported Exposure	0.000	0.197	0.006	-	-
	Ratio to Limit	0.000	0.123	0.004	0.123	0.127
S2 @ 5 mm	Reported Exposure	5.438	0.297	0.098	-	-
	Ratio to Limit	0.544	0.185	0.061	0.729	0.790
S3 @ 5 mm	Reported Exposure	1.819	0.250	0.033	-	-
	Ratio to Limit	0.182	0.156	0.020	0.338	0.359
S4 @ 5 mm	Reported Exposure	0.000	0.345	0.000	-	-
	Ratio to Limit	0.000	0.215	0.000	0.215	0.215
S5 @ 5 mm	Reported Exposure	1.038	0.197	0.000	-	-
	Ratio to Limit	0.104	0.123	0.000	0.227	0.227
S6 @ 5 mm	Reported Exposure	0.000	0.197	0.017	-	-
	Ratio to Limit	0.000	0.123	0.011	0.123	0.134

n258				
Body/Hotspot TER		psPD	NB U-NII P <sub>High</sub> Mode B	psPD + NB U-NII P <sub>High</sub>
		W/m <sup>2</sup>	W/kg	
Scenario		1	2	1+2
Applicable limit		10	1.6	1
S1 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230
S2 @ 5 mm	Reported Exposure	5.438	0.368	-
	Ratio to Limit	0.544	0.230	0.774
S3 @ 5 mm	Reported Exposure	1.819	0.368	-
	Ratio to Limit	0.182	0.230	0.412
S4 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230
S5 @ 5 mm	Reported Exposure	1.038	0.368	-
	Ratio to Limit	0.104	0.230	0.334
S6 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230

n258							
Body/Hotspot TER	psPD	802.15.4 P <sub>High</sub> Mode B	802.15.4ab Mode B	psPD + 802.15.4 P <sub>High</sub>	psPD + 802.15.4ab	psPD + 802.15.4 P <sub>High</sub> + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg				
Scenario	1	2	3	1+2	1+3	1+2+3	
Applicable limit	10	1.6	1.6	1	1		
S1 @ 5 mm	Reported Exposure	0.000	0.245	0.006	-	-	-
	Ratio to Limit	0.000	0.153	0.004	0.153	0.004	0.156
S2 @ 5 mm	Reported Exposure	5.438	0.249	0.098	-	-	-
	Ratio to Limit	0.544	0.156	0.061	0.700	0.605	0.761
S3 @ 5 mm	Reported Exposure	1.819	0.296	0.033	-	-	-
	Ratio to Limit	0.182	0.185	0.020	0.367	0.202	0.387
S4 @ 5 mm	Reported Exposure	0.000	0.346	0.000	-	-	-
	Ratio to Limit	0.000	0.216	0.000	0.216	0.000	0.217
S5 @ 5 mm	Reported Exposure	1.038	0.245	0.000	-	-	-
	Ratio to Limit	0.104	0.153	0.000	0.257	0.104	0.257
S6 @ 5 mm	Reported Exposure	0.000	0.245	0.017	-	-	-
	Ratio to Limit	0.000	0.153	0.011	0.153	0.011	0.163

**Table 6-16: TER for Worst-case WLAN + 5G Millimeter Wave NR for n260 Body/Hotspot**

n260									
Body/Hotspot TER	psPD	Wi-Fi 2.4 GHz Power State 4 Mode B	Wi-Fi 2.4 GHz Power State 6 Mode B	NB U-NII P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 2.4 GHz Power State 4	psPD + Wi-Fi 2.4 GHz Power State 4 + NB U-NII P <sub>Low</sub>	psPD + Wi-Fi 2.4 GHz Power State 6 + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg				
Scenario	1	2	3	4	5	1+2	1+2+4	1+3+5	
Applicable limit	10	1.6	1.6	1.6	1.6	1	1	1	
S1 @ 5 mm	Reported Exposure	0.000	0.367	0.291	0.099	0.006	-	-	-
	Ratio to Limit	0.000	0.229	0.182	0.062	0.004	0.229	0.244	0.186
S2 @ 5 mm	Reported Exposure	5.619	0.441	0.350	0.099	0.098	-	-	-
	Ratio to Limit	0.562	0.276	0.219	0.062	0.061	0.838	0.843	0.842
S3 @ 5 mm	Reported Exposure	2.788	0.414	0.329	0.099	0.033	-	-	-
	Ratio to Limit	0.279	0.259	0.206	0.062	0.020	0.538	0.546	0.505
S4 @ 5 mm	Reported Exposure	0.000	0.469	0.372	0.099	0.000	-	-	-
	Ratio to Limit	0.000	0.293	0.233	0.062	0.000	0.293	0.294	0.233
S5 @ 5 mm	Reported Exposure	1.488	0.367	0.291	0.099	0.000	-	-	-
	Ratio to Limit	0.149	0.229	0.182	0.062	0.000	0.378	0.393	0.331
S6 @ 5 mm	Reported Exposure	0.000	0.367	0.291	0.099	0.017	-	-	-
	Ratio to Limit	0.000	0.229	0.182	0.062	0.011	0.229	0.244	0.193

n260												
Body/Hotspot TER	psPD	Wi-Fi 5 GHz Power State 4 Mode B	Wi-Fi 5 GHz Power State 6 Mode B	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode B	802.15.4 P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 5 GHz Power State 4	psPD + Wi-Fi 5 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
Scenario	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
S1 @ 5 mm	Reported Exposure	0.000	0.241	0.191	0.067	0.067	0.006	-	-	-	-	-
	Ratio to Limit	0.000	0.151	0.120	0.042	0.042	0.004	0.151	0.193	0.192	0.123	0.165
S2 @ 5 mm	Reported Exposure	5.619	0.473	0.397	0.072	0.034	0.098	-	-	-	-	-
	Ratio to Limit	0.562	0.296	0.248	0.045	0.021	0.061	0.858	0.903	0.879	0.871	0.916
S3 @ 5 mm	Reported Exposure	2.788	0.274	0.218	0.083	0.081	0.033	-	-	-	-	-
	Ratio to Limit	0.279	0.171	0.136	0.052	0.051	0.020	0.450	0.502	0.501	0.435	0.487
S4 @ 5 mm	Reported Exposure	0.000	0.034	0.191	0.074	0.064	0.000	0.191	-	-	-	-
	Ratio to Limit	0.000	0.021	0.120	0.047	0.040	0.000	0.021	0.068	0.061	0.120	0.166
S5 @ 5 mm	Reported Exposure	1.488	0.034	0.191	0.067	0.034	0.000	-	-	-	-	-
	Ratio to Limit	0.149	0.021	0.120	0.042	0.021	0.000	0.170	0.212	0.191	0.268	0.310
S6 @ 5 mm	Reported Exposure	0.000	0.208	0.191	0.067	0.034	0.017	-	-	-	-	-
	Ratio to Limit	0.000	0.130	0.120	0.042	0.021	0.011	0.130	0.172	0.151	0.130	0.172

n260												
Body/Hotspot TER	psPD	Wi-Fi 6 GHz Power State 4 Mode B	Wi-Fi 6 GHz Power State 6 Mode B	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode B	802.15.4 P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 6 GHz Power State 4	psPD + Wi-Fi 6 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
Scenario	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1		
S1 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.067	0.067	-	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.042	0.042	0.104	0.146	0.145	0.086	0.128	0.127
S2 @ 5 mm	Reported Exposure	5.619	0.293	0.233	0.072	0.034	0.098	-	-	-	-	-
	Ratio to Limit	0.562	0.183	0.146	0.045	0.021	0.745	0.790	0.766	0.768	0.813	0.790
S3 @ 5 mm	Reported Exposure	2.788	0.166	0.132	0.083	0.081	0.033	-	-	-	-	-
	Ratio to Limit	0.279	0.104	0.082	0.052	0.051	0.020	0.382	0.434	0.433	0.381	0.433
S4 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.074	0.064	0.000	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.047	0.040	0.104	0.150	0.144	0.082	0.129	0.122
S5 @ 5 mm	Reported Exposure	1.488	0.166	0.132	0.067	0.034	0.000	-	-	-	-	-
	Ratio to Limit	0.149	0.104	0.082	0.042	0.021	0.000	0.252	0.294	0.274	0.231	0.273
S6 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.067	0.034	0.017	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.042	0.021	0.011	0.104	0.146	0.125	0.093	0.114

n260						
Body/Hotspot TER	psPD	Bluetooth (2.4 GHz) P <sub>High</sub> Mode B	802.15.4ab Mode B	psPD + Bluetooth (2.4 GHz) P <sub>High</sub>	psPD + Bluetooth (2.4 GHz) P <sub>High</sub> + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg			
Scenario	1	2	3	1+2	1+2+3	
Applicable limit	10	1.6	1.6	1	1	
S1 @ 5 mm	Reported Exposure	0.000	0.197	0.006	-	-
	Ratio to Limit	0.000	0.123	0.004	0.123	0.127
S2 @ 5 mm	Reported Exposure	5.619	0.297	0.098	-	-
	Ratio to Limit	0.562	0.185	0.061	0.747	0.808
S3 @ 5 mm	Reported Exposure	2.788	0.250	0.033	-	-
	Ratio to Limit	0.279	0.156	0.020	0.435	0.456
S4 @ 5 mm	Reported Exposure	0.000	0.345	0.000	-	-
	Ratio to Limit	0.000	0.215	0.000	0.215	0.215
S5 @ 5 mm	Reported Exposure	1.488	0.197	0.000	-	-
	Ratio to Limit	0.149	0.123	0.000	0.272	0.272
S6 @ 5 mm	Reported Exposure	0.000	0.197	0.017	-	-
	Ratio to Limit	0.000	0.123	0.011	0.123	0.134

n260				
Body/Hotspot TER		psPD	NB U-NII P <sub>High</sub> Mode B	psPD + NB U-NII P <sub>High</sub>
		W/m <sup>2</sup>	W/kg	
Scenario		1	2	1+2
Applicable limit		10	1.6	1
S1 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230
S2 @ 5 mm	Reported Exposure	5.619	0.368	-
	Ratio to Limit	0.562	0.230	0.792
S3 @ 5 mm	Reported Exposure	2.788	0.368	-
	Ratio to Limit	0.279	0.230	0.509
S4 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230
S5 @ 5 mm	Reported Exposure	1.488	0.368	-
	Ratio to Limit	0.149	0.230	0.379
S6 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230

n260							
Body/Hotspot TER	psPD	802.15.4 P <sub>High</sub> Mode B	802.15.4ab Mode B	psPD + 802.15.4 P <sub>High</sub>	psPD + 802.15.4ab	psPD + 802.15.4 P <sub>High</sub> + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg				
Scenario	1	2	3	1+2	1+3	1+2+3	
Applicable limit	10	1.6	1.6	1	1		
S1 @ 5 mm	Reported Exposure	0.000	0.245	0.006	-	-	-
	Ratio to Limit	0.000	0.153	0.004	0.153	0.004	0.156
S2 @ 5 mm	Reported Exposure	5.619	0.249	0.098	-	-	-
	Ratio to Limit	0.562	0.156	0.061	0.718	0.623	0.779
S3 @ 5 mm	Reported Exposure	2.788	0.296	0.033	-	-	-
	Ratio to Limit	0.279	0.185	0.020	0.464	0.299	0.484
S4 @ 5 mm	Reported Exposure	0.000	0.346	0.000	-	-	-
	Ratio to Limit	0.000	0.216	0.000	0.216	0.000	0.217
S5 @ 5 mm	Reported Exposure	1.488	0.245	0.000	-	-	-
	Ratio to Limit	0.149	0.153	0.000	0.302	0.149	0.302
S6 @ 5 mm	Reported Exposure	0.000	0.245	0.017	-	-	-
	Ratio to Limit	0.000	0.153	0.011	0.153	0.011	0.163

**Table 6-17: TER for Worst-case WLAN + 5G Millimeter Wave NR for n261 Body/Hotspot**

n261									
Body/Hotspot TER	psPD	Wi-Fi 2.4 GHz Power State 4 Mode B	Wi-Fi 2.4 GHz Power State 6 Mode B	NB U-NII P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 2.4 GHz Power State 4	psPD + Wi-Fi 2.4 GHz Power State 4 + NB U-NII P <sub>Low</sub>	psPD + Wi-Fi 2.4 GHz Power State 6 + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg				
Scenario	1	2	3	4	5	1+2	1+2+4	1+3+5	
Applicable limit	10	1.6	1.6	1.6	1.6	1	1	1	
S1 @ 5 mm	Reported Exposure	0.000	0.367	0.291	0.099	0.006	-	-	-
	Ratio to Limit	0.000	0.229	0.182	0.062	0.004	0.229	0.244	0.186
S2 @ 5 mm	Reported Exposure	5.575	0.441	0.350	0.099	0.098	-	-	-
	Ratio to Limit	0.558	0.276	0.219	0.062	0.061	0.833	0.838	0.837
S3 @ 5 mm	Reported Exposure	1.844	0.414	0.329	0.099	0.033	-	-	-
	Ratio to Limit	0.184	0.259	0.206	0.062	0.020	0.443	0.452	0.410
S4 @ 5 mm	Reported Exposure	0.000	0.469	0.372	0.099	0.000	-	-	-
	Ratio to Limit	0.000	0.293	0.233	0.062	0.000	0.293	0.294	0.233
S5 @ 5 mm	Reported Exposure	1.131	0.367	0.291	0.099	0.000	-	-	-
	Ratio to Limit	0.113	0.229	0.182	0.062	0.000	0.342	0.357	0.295
S6 @ 5 mm	Reported Exposure	0.000	0.367	0.291	0.099	0.017	-	-	-
	Ratio to Limit	0.000	0.229	0.182	0.062	0.011	0.229	0.244	0.193

n261												
Body/Hotspot TER	psPD	Wi-Fi 5 GHz Power State 4 Mode B	Wi-Fi 5 GHz Power State 6 Mode B	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode B	802.15.4 P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 5 GHz Power State 4	psPD + Wi-Fi 5 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 5 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
Scenario	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	1	1
S1 @ 5 mm	Reported Exposure	0.000	0.241	0.191	0.067	0.067	0.006	-	-	-	-	-
	Ratio to Limit	0.000	0.151	0.120	0.042	0.042	0.004	0.151	0.193	0.192	0.123	0.165
S2 @ 5 mm	Reported Exposure	5.575	0.473	0.397	0.072	0.034	0.098	-	-	-	-	-
	Ratio to Limit	0.558	0.296	0.248	0.045	0.021	0.061	0.853	0.898	0.875	0.867	0.912
S3 @ 5 mm	Reported Exposure	1.844	0.274	0.218	0.083	0.081	0.033	-	-	-	-	-
	Ratio to Limit	0.184	0.171	0.136	0.052	0.051	0.020	0.356	0.408	0.406	0.341	0.393
S4 @ 5 mm	Reported Exposure	0.000	0.034	0.191	0.074	0.064	0.000	0.191	-	-	-	-
	Ratio to Limit	0.000	0.021	0.120	0.047	0.040	0.000	0.021	0.068	0.061	0.120	0.166
S5 @ 5 mm	Reported Exposure	1.131	0.034	0.191	0.067	0.034	0.000	-	-	-	-	-
	Ratio to Limit	0.113	0.021	0.120	0.042	0.021	0.000	0.134	0.176	0.156	0.233	0.275
S6 @ 5 mm	Reported Exposure	0.000	0.208	0.191	0.067	0.034	0.017	-	-	-	-	-
	Ratio to Limit	0.000	0.130	0.120	0.042	0.021	0.011	0.130	0.172	0.151	0.130	0.172

n261												
Body/Hotspot TER	psPD	Wi-Fi 6 GHz Power State 4 Mode B	Wi-Fi 6 GHz Power State 6 Mode B	Bluetooth (2.4 GHz) P <sub>Low</sub> Mode B	802.15.4 P <sub>Low</sub> Mode B	802.15.4ab Mode B	psPD + Wi-Fi 6 GHz Power State 4	psPD + Wi-Fi 6 GHz Power State 4 + Bluetooth (2.4 GHz) P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 4 + 802.15.4 P <sub>Low</sub>	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + Bluetooth (2.4 GHz) P <sub>Low</sub> + 802.15.4ab	psPD + Wi-Fi 6 GHz Power State 6 + 802.15.4 P <sub>Low</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg	W/kg	W/kg	W/kg						
Scenario	1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+3+6	1+3+4+6	1+3+5+6
Applicable limit	10	1.6	1.6	1.6	1.6	1.6	1	1	1	1	-	-
S1 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.067	0.067	-	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.042	0.042	0.104	0.146	0.145	0.086	0.128	0.127
S2 @ 5 mm	Reported Exposure	5.575	0.293	0.233	0.072	0.034	0.098	-	-	-	-	-
	Ratio to Limit	0.558	0.183	0.146	0.045	0.021	0.741	0.786	0.762	0.764	0.809	0.785
S3 @ 5 mm	Reported Exposure	1.844	0.166	0.132	0.083	0.081	0.033	-	-	-	-	-
	Ratio to Limit	0.184	0.104	0.082	0.052	0.051	0.020	0.288	0.340	0.339	0.287	0.339
S4 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.074	0.064	0.000	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.047	0.040	0.104	0.150	0.144	0.082	0.129	0.122
S5 @ 5 mm	Reported Exposure	1.131	0.166	0.132	0.067	0.034	0.000	-	-	-	-	-
	Ratio to Limit	0.113	0.104	0.082	0.042	0.021	0.000	0.217	0.259	0.238	0.196	0.238
S6 @ 5 mm	Reported Exposure	0.000	0.166	0.132	0.067	0.034	0.017	-	-	-	-	-
	Ratio to Limit	0.000	0.104	0.082	0.042	0.021	0.011	0.104	0.146	0.125	0.093	0.135

n261					
Body/Hotspot TER	psPD	Bluetooth (2.4 GHz) P <sub>High</sub> Mode B	802.15.4ab Mode B	psPD + Bluetooth (2.4 GHz) P <sub>High</sub>	psPD + Bluetooth (2.4 GHz) P <sub>High</sub> + 802.15.4ab
	W/m <sup>2</sup>	W/kg	W/kg		
Scenario	1	2	3	1+2	1+2+3
Applicable limit	10	1.6	1.6	1	1
S1 @ 5 mm	Reported Exposure	0.000	0.197	0.006	-
	Ratio to Limit	0.000	0.123	0.004	0.123
S2 @ 5 mm	Reported Exposure	5.575	0.297	0.098	-
	Ratio to Limit	0.558	0.185	0.061	0.743
S3 @ 5 mm	Reported Exposure	1.844	0.250	0.033	-
	Ratio to Limit	0.184	0.156	0.020	0.341
S4 @ 5 mm	Reported Exposure	0.000	0.345	0.000	-
	Ratio to Limit	0.000	0.215	0.000	0.215
S5 @ 5 mm	Reported Exposure	1.131	0.197	0.000	-
	Ratio to Limit	0.113	0.123	0.000	0.236
S6 @ 5 mm	Reported Exposure	0.000	0.197	0.017	-
	Ratio to Limit	0.000	0.123	0.011	0.123

n261				
Body/Hotspot TER		psPD	NB U-NII P <sub>High</sub> Mode B	psPD + NB U-NII P <sub>High</sub>
		W/m <sup>2</sup>	W/kg	
Scenario		1	2	1+2
Applicable limit		10	1.6	1
S1 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230
S2 @ 5 mm	Reported Exposure	5.575	0.368	-
	Ratio to Limit	0.558	0.230	0.787
S3 @ 5 mm	Reported Exposure	1.844	0.368	-
	Ratio to Limit	0.184	0.230	0.414
S4 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230
S5 @ 5 mm	Reported Exposure	1.131	0.368	-
	Ratio to Limit	0.113	0.230	0.343
S6 @ 5 mm	Reported Exposure	0.000	0.368	-
	Ratio to Limit	0.000	0.230	0.230

n261							
Body/Hotspot TER	psPD	802.15.4 P <sub>High</sub> Mode B	802.15.4ab Mode B	psPD + 802.15.4 P <sub>High</sub>	psPD + 802.15.4ab	psPD + 802.15.4 P <sub>High</sub> + 802.15.4ab	
	W/m <sup>2</sup>	W/kg	W/kg				
Scenario	1	2	3	1+2	1+3	1+2+3	
Applicable limit	10	1.6	1.6	1	1		
S1 @ 5 mm	Reported Exposure	0.000	0.245	0.006	-	-	-
	Ratio to Limit	0.000	0.153	0.004	0.153	0.004	0.156
S2 @ 5 mm	Reported Exposure	5.575	0.249	0.098	-	-	-
	Ratio to Limit	0.558	0.156	0.061	0.713	0.619	0.774
S3 @ 5 mm	Reported Exposure	1.844	0.296	0.033	-	-	-
	Ratio to Limit	0.184	0.185	0.020	0.369	0.205	0.390
S4 @ 5 mm	Reported Exposure	0.000	0.346	0.000	-	-	-
	Ratio to Limit	0.000	0.216	0.000	0.216	0.000	0.217
S5 @ 5 mm	Reported Exposure	1.131	0.245	0.000	-	-	-
	Ratio to Limit	0.113	0.153	0.000	0.266	0.113	0.266
S6 @ 5 mm	Reported Exposure	0.000	0.245	0.017	-	-	-
	Ratio to Limit	0.000	0.153	0.011	0.153	0.011	0.163

## 7. Conclusions

Table 7-1 shows the worst-case 1-g SAR and worst-case 4cm<sup>2</sup>-avg PD at  $P_{limit}$ .

**Table 7-1: Reported RF Exposure Level**

Reported RF Exposure Level		Notes
Highest 1-g SAR at $P_{limit}$ (W/kg)	0.986	Refer to §1 for the reference SAR Report
Highest 4cm <sup>2</sup> -avg PD at <i>input.power.limit</i> (W/m <sup>2</sup> )	4.750	§6.2
Highest 1-g SAR (W/kg) for simultaneous Tx (Sub-6 WWAN + WLAN)	1.550	Refer to §1 for the reference SAR Report
Highest Total Exposure Ratio for simultaneous Tx (5G mmW NR + WLAN)	0.916	§6.3

Qualcomm's Smart Transmit feature employed in the EUT meets the  $SAR_{Design Target}$  and  $PD_{Design Target}$  (within the design uncertainties) when operating in the static transmission condition at  $P_{limit}$  and is compliant with the FCC RF exposure limits.

## Appendices

- A. Millimeter Wave Probe Certificate**
- B. Verification Source Certificate**
- C. Setup Photo**
- D. Measurement Equipment**

### Lab Equipment

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
E-Field Probe (SAR Lab C)	SPEAG	EumMW4	9589	9/5/2024
Data Acquisition Electronics (SAR Lab C)	SPEAG	DAE4	1621	4/12/2025
Thermometer	TRACEABLE	6530CC	181163673	1/31/2025
5G Verification Source	SPEAG	30 GHz	1117	9/20/2024

### E. Measurement Uncertainty

#### DASY 6/8 PD Measurement Uncertainty

a		b	c	d	e	f =	g
Error Description		Unc. Value (±dB)	Probab. Distri.	Div.	ci	Std. Unc. (±dB)	vi
<b>Uncertainty terms dependent on the measurement system</b>							
CAL	Calibration Repeatability	0.49	Normal	1	1	0.49	∞
COR	Probe correction	0	Rectangular	1.732	1	0.00	∞
FRS	Frequency response (BW 1 GHz)	0.20	Rectangular	1.732	1	0.12	∞
SCC	Sensor cross coupling	0	Rectangular	1.732	1	0.00	∞
ISO	Isotropy	0.50	Rectangular	1.732	1	0.29	∞
LIN	Linearity	0.20	Rectangular	1.732	1	0.12	∞
PSC	Probe scattering	0	Rectangular	1.732	1	0.00	∞
PPO	Probe positioning o set	0.30	Rectangular	1.732	1	0.17	∞
PPR	Probe positioning repeatability	0.04	Rectangular	1.732	1	0.02	∞
SMO	Sensor mechanical o set	0	Rectangular	1.732	1	0.00	∞
PSR	Probe spatial resolution	0	Rectangular	1.732	1	0.00	∞
FLD	Field impedance dependance	0	Rectangular	1.732	1	0.00	∞
APD	Amplitude and phase drift	0	Rectangular	1.732	1	0.00	∞
APN	Amplitude and phase noise	0.04	Rectangular	1.732	1	0.02	∞
TR	Measurement area truncation	0	Rectangular	1.732	1	0.00	∞
DAQ	Data acquisition	0.03	Normal	1	1	0.03	∞
SMP	Sampling	0	Rectangular	1.732	1	0.00	∞
REC	Field reconstruction	0.60	Rectangular	1.732	1	0.35	∞
TRA	Forw arid transformation	0	Rectangular	1.732	1	0.00	∞
SCA	Pow er density scaling	-	Rectangular	1.732	1	-	∞
SAV	Spatial averaging	0.10	Rectangular	1.732	1	0.06	∞
SDL	System detection limit	0.04	Rectangular	1.732	1	0.02	∞
<b>Uncertainty terms dependent on the DUT and environmental factors</b>							
PC	Probe coupling w ith DUT	0	Rectangular	1.732	1	0	∞
MOD	Modulation response	0.40	Rectangular	1.732	1	0.23	∞
IT	Integration time	0	Rectangular	1.732	1	0	∞
RT	Response time	0	Rectangular	1.732	1	0	∞
DH	Device holder influence	0.10	Rectangular	1.732	1	0.06	∞
DAQ	DUT alignment	0	Rectangular	1.732	1	0	∞
AC	RF ambient conditions	0.04	Rectangular	1.732	1	0.02	∞
AR	Ambient reflections	0.04	Rectangular	1.732	1	0.02	∞
MSI	Immunity / secondary reception	0	Rectangular	1.732	1	0	∞
DRI	Drift of the DUT	0.21	Rectangular	1.732	1	0.12	∞
Combined Standard Uncertainty Uc(f) =			RSS			0.76	∞
Expanded Uncertainty U, Coverage Factor = 2, > 95 % Confidence =						1.52	