



Engineering Test Report No. 2600005-08

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Manufacturer Name	Caterpillar Incorporated
Manufacturer Address	100 NE Adams St Peoria, IL 61629
Product Name Brand/Model No.	5G Telematics Radio – PL645
Date Received	July 14, 2026
Assessment Dates	July 14, 2026 – August 22, 2026
Specifications	FCC "Code of Federal Regulations" Title 47 Part 1, Subpart I FCC 447498 D04 Interim General RF Exposure Guidance v01 RSS-102 Issue 6 EN 62311 EN 62479 RPS S-1
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The data presented in this test report pertains to the EUT on the test dates specified. Additionally, the assessment results presented in this test report are only valid at the separation distance stated in section 8. The results in this test report shall not be used to claim product exemption or conformity at separation distances not covered in this report. Any electrical or mechanical modifications made to the EUT subsequent to the specified test date will serve to invalidate the data and void this certification. This report must not be used to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

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1. Report Revision History

Revision	Date	Description
–	30 SEP 2026	Initial Release of Engineering Test Report No. 2600005-08

2. Introduction

The FCC, Innovation, Science and Economic Development Canada, European Union and Australia/New Zealand publish standards regarding the evaluation of the RF Exposure hazard of radio communications devices. An evaluation has been performed on the Caterpillar Incorporated 5G Telematics Radio, Model No. PL645 pursuant to the relevant requirements.

3. Subject of Investigation

This document presents the demonstration of RF Exposure compliance on a 5G Telematics Radio, (hereinafter referred to as the Equipment under Test (EUT)). The EUT was identified as follows:

EUT Identification	
Description	5G Telematics Radio
Model/Part No.	PL645
S/N	260623016003008D

The EUT is capable of operating in the following bands of the radio spectrum:

Radio Spectrum Bands of Operation	
LTE (E-UTRA)	Band 8, 12
WCDMA (UTRA)	Band V
GSM	GSM850, E-GSM900
LTE CA	CA_13A_10MHz-66A, C-8B
NA SA	n28, n71
NR NSA	NSA_DC_12A_n66A, B20-n78
NR CA	CA_n71A-n78A
BT LE	2400 – 2482.5MHz
2GHz Wi-Fi	2412 – 2462MHz
5GHz Wi-Fi	U-NII-2C, U_NII-2C+3

4. Standards and Requirements

The tests were performed to selected portions of, and in accordance with the following specifications.

- Federal Communications Commission "Code of Federal Regulations", Title 47, Chapter I, Subchapter A, Part 1, Subpart I, Section 1.1307
- Federal Communications Commission "Code of Federal Regulations", Title 47, Chapter I, Subchapter A, Part 1, Subpart I, Section 1.1310
- KDB 447498 D04 – "RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices"
- RSS-102, Issue 6 Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
- EN 62311:2020 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
- EN 62479:2010 Assessment of the Compliance of Low Power Electronic and Electrical Equipment with the Basic Restrictions Related to Human Exposure to Electromagnetic Fields (10MHz-300GHz)
- IEEE C95.1:2005 IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz
- 1999/519/EC Council Recommendation on the Limitation of Exposure of The General Public to Electromagnetic fields (0Hz-300GHz)
- AS/NZS 2772.2: 2016 Principles and methods of measurement and computation-3 kHz to 300 GHz

- RSP S-1 Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz

5. Sample Calculations

The far field power density can be calculated using the following formula:

$$S = \frac{PG}{4\pi R^2} \quad (1)$$

where P is the transmit output power (mW), G is the maximum antenna gain relative to an isotropic antenna (linear) and R is the evaluation distance (cm).

In cases where multiple antennas are utilized for a single signal, the following formula is applied to calculate the maximum antenna gain:

$$Gain (dBi) = G + 10 \log N \quad (2)$$

where N is the number of antennas, G is the gain of a single antenna.

A minimum separation distance can be calculated using the following formulas

$$Minimum Separation Distance = \sqrt{\frac{PG}{4\pi(Power Density Limit)}} \quad (3)$$

where P is the transmit output power (mW) and G is the maximum antenna gain relative to an isotropic antenna (linear).

6. Photographs of EUT





7. Limits and Requirements

7.1. Requirements mandated by the FCC

Equipment pursuing compliance to the requirements with respect to the limits of human exposure to RF provided in FCC 1.1310, need follow the criteria in FCC 1.1307(b)(1).

Equipment exemption qualification must be demonstrated pursuant to FCC 1.1307(b)(3).

For single RF sources (i.e., any single portable device, mobile device or fixed RF source), the EUT is exempt if:

- FCC 1.1307(b)(3)(i)(A) - The available maximum time-averaged power is no more than 1 mW, regardless of separation distance.
- FCC 1.1307(b)(3)(i)(B) - The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW). This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive).
- FCC 1.1307(b)(3)(i)(C) – The available maximum ERP (watts) shall not exceed the calculated ERP_{th} (watts) in this section. For the exemption to apply, the separation distance, R (meters), must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

For multiple RF sources (i.e., any single portable device, mobile device or fixed RF source), the EUT is exempt if:

- FCC 1.1307(b)(3)(ii)(A) The available maximum time-averaged power of each source is no more than 1 mW and there is a separation distance of two centimeters between any portion of a radiating structure operating and the nearest portion of any other radiating structure in the same device, except if the sum of multiple sources is less than 1 mW during the time-averaging period, in which case they may be treated as a single source (separation is not required).
- FCC 1.1307(b)(3)(ii)(B) in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

If it is determined that the equipment under investigation is not exempt from routine evaluation an assessment must be performed to determine compliance in regards to the RF exposure limits by means of measurement or calculation of the electric field, magnetic field, power density or SAR.

It may be the case that a minimum separation distance will need to be calculated or measured and maintained from the source of RF to meet radiofrequency radiation exposure restrictions.

Per 1.1310(e)(1), the power density shall not exceed the levels below:

Specific Absorption Rate (SAR) - SAR Limits for Occupational/Controlled Exposure
--

Frequency Range (MHz)	Whole Body SAR Limit (W/kg)	Peak Spatial AVG SAR Limit (W/kg)	Peak Spatial Extremities SAR Limit 10g (W/kg)
0.1 - 6000	0.4	8	20

Limits for Maximum Permissible Exposure (MPE) - Limits for Occupational/Controlled Exposure			
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)
0.3 - 3.0	614	1.63	*100
3.0 - 30	1842 / f	4.89 / f	*900 / f ²
30 - 300	61.4	0.163	1.0
300 - 1,500	—	—	f / 300
1,500 - 100,000	—	—	5
f – Frequency in MHz * – Plane wave Equivalent Power Density			

7.2. Requirements mandated by Innovation, Science and Economic Development Canada

Equipment exemption qualification must be demonstrated pursuant to RSS-102 Issue 6 section 6. If it is determined that the equipment under investigation is not exempt, it must be demonstrated that the equipment does not exceed the exposure limits in section 5 of RSS-102 Issue 6 or a minimum separation distance must be calculated to ensure that the exposure limits are met.

Per RSS 102 Section 5, the equipment shall not exceed the levels below:

Specific Absorption Rate (SAR) - SAR Limits for Occupational/Controlled Exposure			
Frequency Range (MHz)	Whole Body SAR Limit (W/kg)	Peak Spatial AVG SAR Limit (W/kg)	Peak Spatial Extremities SAR Limit 10g (W/kg)
0.1 - 6000	0.4	8	20

Limits for Occupational/Controlled Exposure			
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (W/m ²)
0.003 – 10*	170	180	—
0.1 – 10*	—	1.6 / f	—
1.29 – 10*	193 / f ^{0.5}	—	—
10 – 20	61.4	0.163	10
20 – 48	129.8 / f ^{0.25}	0.3444 / f ^{0.25}	44.72 / f ^{0.5}
48 – 100	49.33	0.1309	6.455
100 – 6000	15.60 f ^{0.25}	0.04138 f ^{0.25}	0.6455 f ^{0.5}
6000 – 15000	137	0.364	50
15000 – 150000	137	0.364	50
150000 – 300000	0.354 f ^{0.5}	9.40x10 ⁻⁴ f ^{0.5}	3.33x10 ⁻⁴ f
f – Frequency in MHz			
*Limits only apply to Specific Absorption Rate and Nerve Stimulation requirements.			

7.3. Requirements mandated by the European Union and outlined in EN 62311

Equipment exemption qualification must be demonstrated pursuant to EN 62479. If it is determined that the equipment under investigation is not exempt, it must be demonstrated that the equipment does not exceed the basic restrictions listed in the IEEE C95.1:2005 following the methods in EN 62311.

Per the IEEE C95.1:2005, the measured field strength shall not exceed the levels below:

Specific Absorption Rate (SAR) - SAR Limits for Occupational/Controlled Exposure			
Frequency Range (MHz)	Whole Body SAR Limit (W/kg)	Localized SAR (head and trunk) Limit (W/kg)	Localized SAR (limbs) Limit (W/kg)
0.1 - 6000	0.08	2	4

Reference Levels for Maximum Exposure			
Frequency Range	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (W/m ²)
0 – 1Hz	—	3.2×10^4	—
1 – 8Hz	10000	$3.2 \times 10^4 / f^2$	—
8 – 25Hz	10000	$4000 / f$	—
0.025 – 0.8kHz	$250 / f$	$4 / f$	—
0.8 – 3kHz	$250 / f$	5	—
3 – 150kHz	87	5	—
0.15 – 1MHz	87	$0.73 / f$	—
1 – 10MHz	$87 / f^{1/2}$	$0.73 / f$	—
10 – 400MHz	28	0.073	2
400 – 2000MHz	$1.375 f^{0.5}$	$0.0037 / f^{0.5}$	$f / 200$
2 – 300GHz	61	0.16	10

f as indicated in the frequency range column

7.4. Requirements mandated by Australia/New Zealand and outlined in RPS S-1

As stated in the RPS S-1 advisory note, the evaluation of transmitting equipment for compliance with RPS S-1 is not required where the nominal mean power output averaged over 6 minutes does not exceed the levels listed in the table below. For devices exceeding the power levels below, evaluation of transmitting equipment for compliance with this standard is not required where it can be demonstrated that in normal use the mean radiated power output does not exceed the alternative low-power exclusion levels as defined in IEC 62479 (2010).

Exposure Scenario	Low Power Exclusion Level at Frequency, f		
	$100 \text{ kHz} \leq f \leq 6 \text{ GHz}$	$6 \text{ GHz} \leq f \leq 30 \text{ GHz}$	$30 \text{ GHz} \leq f \leq 300 \text{ GHz}$
Occupational	100 mW	40 mW	20 mW
General Public	20 mW	8 mW	4 mW

The RF exposure levels shall be assessed either by measurement or by calculating the exposure levels. If it is determined that the measured or calculated exposure levels do not meet the basic restrictions or reference levels of section 2.3 and 2.4, a minimum separation distance must be measured or calculated such that the basic restrictions are met.

Per RPS S-1, the exposure levels shall not exceed the levels below:

Specific Absorption Rate (SAR) - SAR Limits for Occupational/Controlled Exposure			
Frequency Range (MHz)	Whole Body SAR Limit (W/kg)	Localized SAR (head and trunk) Limit (W/kg)	Localized SAR (limbs) Limit (W/kg)
0.1 - 6000	0.4	10	20
6000 - 300000	0.4	NA	NA

Limits for Occupational Exposure			
Frequency Range	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (W/m ²)
100kHz – 1MHz	614	$1.63 / f$	-
1MHz – 10MHz	$614 / f$	$1.63 / f$	$1000 / f^2$
10MHz – 400MHz	61.4	0.163	10
400MHz – 2GHz	$3.07 \times f^{0.5}$	$0.00814 / f^{0.5}$	$f / 40$
2GHz – 300GHz	137	0.364	50

f – Frequency in MHz

8. Assessment Results

The following evaluation was performed at a separation distance of 20cm. The separation distance was provided by Caterpillar Incorporated personnel and determined to be the minimum use case separation between the radiating element of the RF source and the end user.

8.1. RF Exposure Evaluation Pertinent to the Requirements of the FCC of Multiple Standalone Sources – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.05
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	26.35
GSM	GSM850	1 Tx Slot	848.8	33.27	34.77
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.40
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	29.85
NR NSA	NSA_DC_12A_n66A	QPSK	707.5	24.40	24.75
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	22.70
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	8.30
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	22.00
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	15.16

The output power levels listed above were used to complete an exemption assessment. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (dBm)	ERP (W)	ERPth (W)	Exemption
LTE (E-UTRA)	12	707.5	27.05	0.3090	0.3622	FCC 1.1307(b)(3)(i)(C)
WCDMA (UTRA)	Band V	836.6	26.35	0.2630	0.4283	FCC 1.1307(b)(3)(i)(C)
GSM	GSM850	848.8	34.77	0.5370	0.4346	See Table Below
LTE CA	CA_13A_10MHz-66A	782	24.40	0.1679	0.4004	FCC 1.1307(b)(3)(i)(C)
NA SA	n71	680.5	29.85	0.5888	0.3484	See Table Below
NR NSA	NSA_DC_12A_n66A	707.5	24.75	0.1820	0.3622	FCC 1.1307(b)(3)(i)(C)
NR CA	CA_n71A-n78A	680.5	22.70	0.1135	0.3484	FCC 1.1307(b)(3)(i)(C)
BT LE	2.4GHz ISM	2440	8.30	0.0041	0.7680	FCC 1.1307(b)(3)(i)(C)
2GHz Wi-Fi	2.4GHz ISM	2437	22.00	0.0966	0.7680	FCC 1.1307(b)(3)(i)(C)
5GHz Wi-Fi	U_NII-2C+3	5720	15.16	0.0200	0.7680	FCC 1.1307(b)(3)(i)(C)

Technology	Band	Frequency (MHz)	Conducted Power (dBm)	P (mW)	Pth (mW)	Exemption
GSM	GSM850	848.8	33.27	2123.24	3060	FCC 1.1307(b)(3)(i)(B)
NA SA	n71	680.5	29.05	803.53	3060	FCC 1.1307(b)(3)(i)(B)

It was determined that the EUT is exempt from routine evaluation per FCC 1.1307(b)(3)(i)(B) or FCC 1.1307(b)(3)(i)(C).

8.2. RF Exposure Evaluation Pertinent to the Requirements of the FCC of Multiple Standalone Sources – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.45
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	28.85
GSM	GSM850	1 Tx Slot	848.8	33.27	36.25
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.33
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	30.34
NR NSA	NSA_DC_12A_n66A	QPSK	707.5	24.40	25.74
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	23.19
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	9.60
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	21.22
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	9.71

The output power levels listed above were used to complete an exemption assessment. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (dBm)	ERP (W)	ERPth (W)	Exemption
LTE (E-UTRA)	12	707.5	27.45	0.3388	0.3622	FCC 1.1307(b)(3)(i)(C)
WCDMA (UTRA)	Band V	836.6	28.85	0.4677	0.4283	See Table Below
GSM	GSM850	848.8	36.25	0.6761	0.4346	See Table Below
LTE CA	CA_13A_10MHz-66A	782	24.33	0.1652	0.4004	FCC 1.1307(b)(3)(i)(C)
NA SA	n71	680.5	30.34	0.6592	0.3484	See Table Below
NR NSA	NSA_DC_12A_n66A	707.5	25.74	0.1413	0.3622	FCC 1.1307(b)(3)(i)(C)
NR CA	CA_n71A-n78A	680.5	23.19	0.1271	0.3484	FCC 1.1307(b)(3)(i)(C)
BT LE	2.4GHz ISM	2440	9.60	0.0056	0.7680	FCC 1.1307(b)(3)(i)(C)
2GHz Wi-Fi	2.4GHz ISM	2437	21.22	0.0807	0.7680	FCC 1.1307(b)(3)(i)(C)
5GHz Wi-Fi	U_NII-2C+3	5720	9.71	0.0057	0.7680	FCC 1.1307(b)(3)(i)(C)

Technology	Band	Frequency (MHz)	Conducted Power (dBm)	P (mW)	Pth (mW)	Exemption
WCDMA (UTRA)	Band V	836.6	22.46	176.20	3060	FCC 1.1307(b)(3)(i)(B)
GSM	GSM850	848.8	33.27	2123.24	3060	FCC 1.1307(b)(3)(i)(B)
NA SA	n71	680.5	29.05	803.53	3060	FCC 1.1307(b)(3)(i)(B)

It was determined that the EUT is exempt from routine evaluation per FCC 1.1307(b)(3)(i)(B) or FCC 1.1307(b)(3)(i)(C).

8.3. RF Exposure Evaluation Pertinent to the Requirements of the FCC of Multiple RF Sources with Simultaneous Transmission – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.05
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	26.35
GSM	GSM850	1 Tx Slot	848.8	33.27	34.77
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.40
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	29.85
NR NSA	NSA_DC_12A_n66A	QPSK	707.5	24.40	24.75
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	22.70
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	8.30
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	22.00
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	15.16

The output power levels listed above were used to complete an exemption assessment. The results are as follows:

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.9843	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
LTE (E-UTRA)	12	707.5	0.31	0.3622	0.8531		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.7452	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
WCDMA (UTRA)	Band V	836.6	0.26	0.4283	0.6141		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	1.3669	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
GSM	GSM850	848.8	0.54	0.4346	1.2357		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0013	5.0000	0.0003	0.2175	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0315	5.0000	0.0063		
GSM	GSM850	848.8	0.5967	2.8293	0.2109		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.5505	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
LTE CA	CA_13A_10MHz-66A	782	0.17	0.4004	0.4193		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	1.8212	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
NA SA	n71	680.5	0.59	0.3484	1.6901		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	SL Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0013	5.0000	0.0003	0.0913	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0315	5.0000	0.0063		
NA SA	n71	680.5	0.1922	2.2683	0.0847		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.6335	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
NR NSA	NSA_DC_12A_n66A	707.5	0.18	0.3622	0.5023		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.4569	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.10	0.7680	0.1258		
NR CA	CA_n71A-n78A	680.5	0.11	0.3484	0.3258		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.8845	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
LTE (E-UTRA)	12	707.5	0.31	0.3622	0.8531		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.6455	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
WCDMA (UTRA)	Band V	836.6	0.26	0.4283	0.6141		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	1.2671	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
GSM	GSM850	848.8	0.54	0.4346	1.2357		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0013	5.0000	0.0003	0.2125	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0065	5.0000	0.0013		
GSM	GSM850	848.8	0.5967	2.8293	0.2109		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.4507	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
LTE CA	CA_13A_10MHz-66A	782	0.17	0.4004	0.4193		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	1.7215	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
NA SA	n71	680.5	0.59	0.3484	1.6901		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0013	5.0000	0.0003	0.0863	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0065	5.0000	0.0013		
NA SA	n71	680.5	0.1922	2.2683	0.0847		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.5337	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
NR NSA	NSA_DC_12A_n66A	707.5	0.18	0.3622	0.5023		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.00	0.7680	0.0054	0.3572	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.02	0.7680	0.0260		
NR CA	CA_n71A-n78A	680.5	0.11	0.3484	0.3258		

It was determined that the EUT is exempt from routine evaluation per FCC 1.1307(b)(3)(ii)(B).

8.4. RF Exposure Evaluation Pertinent to the Requirements of the FCC of Multiple RF Sources with Simultaneous Transmission – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.45
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	28.85
GSM	GSM850	1 Tx Slot	848.8	33.27	36.25
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.33
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	30.34
NR NSA	NSA_DC_12A_n66A	QPSK	707.5	24.40	25.74
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	23.19
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	9.60
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	21.22
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	9.71

The output power levels listed above were used to complete an exemption assessment. The results are as follows:

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	1.0478	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
LTE (E-UTRA)	12	707.5	0.34	0.3622	0.9354		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.0525	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0263	5.0000	0.0053		
LTE (E-UTRA)	12	707.5	0.1106	2.3583	0.0469		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	1.2043	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
WCDMA (UTRA)	Band V	836.6	0.47	0.4283	1.0920		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.0604	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0263	5.0000	0.0053		
WCDMA (UTRA)	Band V	836.6	0.1527	2.7887	0.0547		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	1.6680	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
GSM	GSM850	848.8	0.68	0.4346	1.5557		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.3021	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0263	5.0000	0.0053		
GSM	GSM850	848.8	0.8389	2.8293	0.2965		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.5249	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
LTE CA	CA_13A_10MHz-66A	782	0.17	0.4004	0.4126		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	2.0043	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
NA SA	n71	680.5	0.66	0.3484	1.8919		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.1005	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0263	5.0000	0.0053		
NA SA	n71	680.5	0.2151	2.2683	0.0948		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.5023	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
NR NSA	NSA_DC_12A_n66A	707.5	0.14	0.3622	0.3899		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.4770	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.08	0.7680	0.1051		
NR CA	CA_n71A-n78A	680.5	0.13	0.3484	0.3647		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.9501	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
LTE (E-UTRA)	12	707.5	0.34	0.3622	0.9354		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	1.1066	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
WCDMA (UTRA)	Band V	836.6	0.47	0.4283	1.0920		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.0555	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0019	5.0000	0.0004		
WCDMA (UTRA)	Band V	836.6	0.1527	2.7887	0.0547		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	1.5704	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
GSM	GSM850	848.8	0.68	0.4346	1.5557		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.2972	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0019	5.0000	0.0004		
GSM	GSM850	848.8	0.8389	2.8293	0.2965		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.4273	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
LTE CA	CA_13A_10MHz-66A	782	0.17	0.4004	0.4126		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	1.9066	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
NA SA	n71	680.5	0.66	0.3484	1.8919		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	SL Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0018	5.0000	0.0004	0.0956	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0019	5.0000	0.0004		
NA SA	n71	680.5	0.2151	2.2683	0.0948		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.4046	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
NR NSA	NSA_DC_12A_n66A	707.5	0.14	0.3622	0.3899		

Technology	Band	Frequency (MHz)	ERP (W)	ERPth (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.01	0.7680	0.0072	0.3793	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.01	0.7680	0.0074		
NR CA	CA_n71A-n78A	680.5	0.13	0.3484	0.3647		

It was determined that the EUT is exempt from routine evaluation per FCC 1.1307(b)(3)(ii)(B).

8.5. RF Exposure Evaluation Relevant to the Requirements of the ISED of Multiple Standalone Sources – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.05
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	26.35
GSM	GSM850	1 Tx Slot	848.8	33.27	34.77
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.40
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	29.85
NR NSA	NSA_DC_12A_n66A	Default	707.5	24.40	24.75
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	22.70
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	8.30
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	22.00
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	15.16

The output power levels listed above were used to complete an exemption assessment. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (dBm)	EIRP (W)	FRL Exemption (W)	Exemption
LTE (E-UTRA)	12	707.5	27.05	0.5070	1.1608	FRL Exemption
WCDMA (UTRA)	Band V	836.6	26.35	0.4315	1.3017	FRL Exemption
GSM	GSM850	848.8	34.77	2.9992	1.3147	See Table Below
LTE CA	CA_13A_10MHz-66A	782	24.4	0.2754	1.2431	FRL Exemption
NA SA	n71	680.5	29.85	0.9661	1.1304	FRL Exemption
NR NSA	NSA_DC_12A_n66A	707.5	24.75	0.2985	1.1608	FRL Exemption
NR CA	CA_n71A-n78A	680.5	22.7	0.1862	1.1304	FRL Exemption
BT LE	2.4GHz ISM	2440	8.3	0.0068	2.7053	FRL Exemption
2GHz Wi-Fi	2.4GHz ISM	2437	22	0.1585	2.7030	FRL Exemption
5GHz Wi-Fi	U_NII-2C+3	5720	15.158	0.0328	4.8426	FRL Exemption

Technology	Band	Frequency (MHz)	EIRP (dBm)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Exemption
GSM	GSM850	848.8	34.77	5.9666	18.8061	Power Density

The EUT is in conformance with the applicable exposure limits.

8.6. RF Exposure Evaluation Relevant to the Requirements of the ISED of Multiple Standalone Sources – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.45
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	28.85
GSM	GSM850	1 Tx Slot	848.8	33.27	36.25
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.33
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	30.34
NR NSA	NSA_DC_12A_n66A	Default	707.5	24.40	25.74
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	23.19
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	9.60
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	21.22
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	9.71

The output power levels listed above were used to complete an exemption assessment. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (dBm)	EIRP (W)	FRL Exemption (W)	Exemption
LTE (E-UTRA)	12	707.5	27.45	0.5559	1.1608	FRL Exemption
WCDMA (UTRA)	Band V	836.6	28.85	0.7674	1.3017	FRL Exemption
GSM	GSM850	848.8	36.25	4.2170	1.3147	See Table Below
LTE CA	CA_13A_10MHz-66A	782	24.33	0.2710	1.2431	FRL Exemption
NA SA	n71	680.5	30.34	1.0814	1.1304	FRL Exemption
NR NSA	NSA_DC_12A_n66A	707.5	25.74	0.3749	1.1608	FRL Exemption
NR CA	CA_n71A-n78A	680.5	23.19	0.2084	1.1304	FRL Exemption
BT LE	2.4GHz ISM	2440	9.60	0.0091	2.7053	FRL Exemption
2GHz Wi-Fi	2.4GHz ISM	2437	21.22	0.1324	2.7030	FRL Exemption
5GHz Wi-Fi	U_NII-2C+3	5720	9.71	0.0093	4.8426	FRL Exemption

Technology	Band	Frequency (MHz)	EIRP (dBm)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Exemption
GSM	GSM850	848.8	36.25	8.3894	18.8061	Power Density

The EUT is in conformance with the applicable exposure limits.

8.7. RF Exposure Evaluation Relevant to the Requirements of the ISED of Multiple Sources with Simultaneous Transmission – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.05
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	26.35
GSM	GSM850	1 Tx Slot	848.8	33.27	34.77
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.40
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	29.85
NR NSA	NSA_DC_12A_n66A	Default	707.5	24.40	24.75
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	22.70
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	8.30
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	22.00
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	15.16

The output power levels listed above were used to complete an evaluation against the exemption limits. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.4979	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
LTE (E-UTRA)	12	707.5	0.5070	1.1608	0.4367		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.3926	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
WCDMA (UTRA)	Band V	836.6	0.4315	1.3017	0.3315		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	2.3424	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
GSM	GSM850	848.8	2.9992	1.3147	2.2813		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0135	31.8853	0.0004	0.3276	Exempt

2GHz Wi-Fi	2.4GHz ISM	2437	0.3153	31.8657	0.0099		
GSM	GSM850	848.8	5.9666	18.8061	0.3173		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.2827	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
LTE CA	CA_13A_10MHz-66A	782	0.2754	1.2431	0.2216		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.9158	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
NA SA	n71	680.5	0.9661	1.1304	0.8546		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.3183	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
NR NSA	NSA_DC_12A_n66A	707.5	0.2985	1.1608	0.2572		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.2259	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1585	2.7030	0.0586		
NR CA	CA_n71A-n78A	680.5	0.1862	1.1304	0.1647		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.4460	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
LTE (E-UTRA)	12	707.5	0.5070	1.1608	0.4367		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.3408	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
WCDMA (UTRA)	Band V	836.6	0.4315	1.3017	0.3315		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	2.2906	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
GSM	GSM850	848.8	2.9992	1.3147	2.2813		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0135	31.8853	0.0004	0.3190	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0652	48.8196	0.0013		
GSM	GSM850	848.8	5.9666	18.8061	0.3173		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.2308	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
LTE CA	CA_13A_10MHz-66A	782	0.2754	1.2431	0.2216		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.8639	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
NA SA	n71	680.5	0.9661	1.1304	0.8546		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.2664	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
NR NSA	NSA_DC_12A_n66A	707.5	0.2985	1.1608	0.2572		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0068	2.7053	0.0025	0.1740	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0328	4.8426	0.0068		
NR CA	CA_n71A-n78A	680.5	0.1862	1.1304	0.1647		

For all possible transmitter combinations, the sum of fractional contributions in relation to the exemption limits was less than one(1). A declaration of conformity with the requirements of RSS-102 can be justifiably made.

8.8. RF Exposure Evaluation Relevant to the Requirements of the ISED of Multiple Sources with Simultaneous Transmission – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
LTE (E-UTRA)	12	QPSK	707.5	23.73	27.45
WCDMA (UTRA)	Band V	12.2kbps RMC	836.6	22.46	28.85
GSM	GSM850	1 Tx Slot	848.8	33.27	36.25
LTE CA	CA_13A_10MHz-66A	16QAM	782	23.20	24.33
NA SA	n71	DFT-s-OFDM PI/2 BPSK	680.5	29.05	30.34
NR NSA	NSA_DC_12A_n66A	Default	707.5	24.40	25.74
NR CA	CA_n71A-n78A	QPSK	680.5	21.90	23.19
BT LE	2.4GHz ISM	1 Mbit/s	2440	6.60	9.60
2GHz Wi-Fi	2.4GHz ISM	802.11n, 40MHz, MCS0	2437	19.00	21.22
5GHz Wi-Fi	U_NII-2C+3	WLAN n-Mode, 20MHz, MCS0, SISO	5720	10.26	9.71

The output power levels listed above were used to complete an evaluation against the exemption limits. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.5312	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
LTE (E-UTRA)	12	707.5	0.5559	1.1608	0.4789		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.6419	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
WCDMA (UTRA)	Band V	836.6	0.7674	1.3017	0.5895		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	3.2600	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
GSM	GSM850	848.8	4.2170	1.3147	3.2076		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0181	31.8853	0.0006	0.4549	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.2635	31.8657	0.0083		
GSM	GSM850	848.8	8.3894	18.8061	0.4461		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.2704	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
LTE CA	CA_13A_10MHz-66A	782	0.2710	1.2431	0.2180		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	1.0091	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
NA SA	n71	680.5	1.0814	1.1304	0.9567		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0181	31.8853	0.0006	0.1366	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.2635	31.8657	0.0083		
NA SA	n71	680.5	2.1514	16.8388	0.1278		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.3753	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
NR NSA	NSA_DC_12A_n66A	707.5	0.3749	1.1608	0.3229		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.2368	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.1324	2.7030	0.0490		
NR CA	CA_n71A-n78A	680.5	0.2084	1.1304	0.1844		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.4842	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
LTE (E-UTRA)	12	707.5	0.5559	1.1608	0.4789		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.5948	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
WCDMA (UTRA)	Band V	836.6	0.7674	1.3017	0.5895		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	3.2129	Not Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
GSM	GSM850	848.8	4.2170	1.3147	3.2076		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0181	31.8853	0.0006	0.4470	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0186	48.8196	0.0004		
GSM	GSM850	848.8	8.3894	18.8061	0.4461		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.2233	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
LTE CA	CA_13A_10MHz-66A	782	0.2710	1.2431	0.2180		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.9620	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
NA SA	n71	680.5	1.0814	1.1304	0.9567		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.3282	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
NR NSA	NSA_DC_12A_n66A	707.5	0.3749	1.1608	0.3229		

Technology	Band	Frequency (MHz)	EIRP (W)	FRL Exemption (W)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0091	2.7053	0.0034	0.1897	Exempt
5GHz Wi-Fi	U_NII-2C+3	5720	0.0093	4.8426	0.0019		
NR CA	CA_n71A-n78A	680.5	0.2084	1.1304	0.1844		

For all possible transmitter combinations, the sum of fractional contributions in relation to the exemption limits was less than one(1). A declaration of conformity with the requirements of RSS-102 can be justifiably made.

8.9. RF Exposure Evaluation Relevant to the Requirements of the EU of Multiple Standalone RF Sources – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	24.39
UTRA	Band V	12.2kbps RMC	846.6	23.04	24.54
GSM	E-GSM 900	1 Tx Slot	890	32.91	34.41
E-UTRA CA	CA-8B	QPSK	955	23.43	24.23
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.97
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	26.00
BT LE	2.4GHz ISM	2Mbits/s	2440	6.36	9.36
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	15.85
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	14.28

The output power levels listed above were used to complete an exclusion assessment. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (dBm)	EIRP (mW)	EIRP _{th} (mW)	Exemption
E-UTRA	8	897.5	24.39	274.79	59.83	See Table Below
UTRA	Band V	846.6	24.54	284.45	56.44	See Table Below
GSM	E-GSM 900	890	34.41	2760.58	59.33	See Table Below
E-UTRA CA	CA-8B	955	24.23	264.85	63.67	See Table Below
NR-FR1 SA	n28	725.5	28.97	788.86	48.37	See Table Below
NR-FR1 NSA	B20-n78	847	26.00	398.11	56.47	See Table Below
BT LE	2.4GHz ISM	2440	9.36	8.64	162.67	EN 62479, Annex A.3
2GHz Wi-Fi	2.4GHz ISM	2437	15.85	38.44	162.47	EN 62479, Annex A.3
5GHz Wi-Fi	U-NII-2C	5670	14.28	26.77	200.00	EN 62479, Annex A.3

Technology	Band	Frequency (MHz)	EIRP (dBm)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Exemption
E-UTRA	8	897.5	24.39	0.5467	29.92	Power Density
UTRA	Band V	846.6	24.54	0.5659	28.22	Power Density
GSM	E-GSM 900	890	34.41	5.4920	29.67	Power Density
E-UTRA CA	CA-8B	955	24.23	0.5269	31.83	Power Density
NR-FR1 SA	n28	725.5	28.97	1.5694	24.18	Power Density
NR-FR1 NSA	B20-n78	847	26.00	0.7920	28.23	Power Density

It was determined that the EUT is excluded from routine evaluation per EN 62479 Annex A.2 or EN 62479 Annex A.3.

8.10. RF Exposure Evaluation Relevant to the Requirements of the EU of Multiple Standalone RF Sources – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	27.01
UTRA	Band V	12.2kbps RMC	846.6	23.04	26.02
GSM	E-GSM 900	1 Tx Slot	890	32.91	35.89
E-UTRA CA	CA-8B	QPSK	955	23.43	26.85
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.90
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	27.48
BT LE	2.4GHz ISM	2Mbits/s	2440	6.36	8.11
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	14.42
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	8.83

The output power levels listed above were used to complete an exclusion assessment. The results are as follows:

Technology	Band	Frequency (MHz)	EIRP (dBm)	EIRP (mW)	EIRP _{th} (mW)	Exemption
E-UTRA	8	897.5	27.01	502.34	59.83	See Table Below
UTRA	Band V	846.6	26.02	399.94	56.44	See Table Below
GSM	E-GSM 900	890	35.89	3881.50	59.33	See Table Below
E-UTRA CA	CA-8B	955	26.85	484.17	63.67	See Table Below
NR-FR1 SA	n28	725.5	28.90	776.25	48.37	See Table Below
NR-FR1 NSA	B20-n78	847	27.48	559.76	56.47	See Table Below
BT LE	2.4GHz ISM	2440	8.11	6.48	162.67	EN 62479, Annex A.3
2GHz Wi-Fi	2.4GHz ISM	2437	14.42	27.66	162.47	EN 62479, Annex A.3
5GHz Wi-Fi	U-NII-2C	5670	8.83	7.63	200.00	EN 62479, Annex A.3

Technology	Band	Frequency (MHz)	EIRP (dBm)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Exemption
E-UTRA	8	897.5	27.01	0.9994	29.92	Power Density
UTRA	Band V	846.6	26.02	0.7957	28.22	Power Density
GSM	E-GSM 900	890	35.89	7.7220	29.67	Power Density
E-UTRA CA	CA-8B	955	26.85	0.9632	31.83	Power Density
NR-FR1 SA	n28	725.5	28.90	1.5443	24.18	Power Density
NR-FR1 NSA	B20-n78	847	27.48	1.1136	28.23	Power Density

It was determined that the EUT is excluded from routine evaluation per EN 62479 Annex A.2 or EN 62479 Annex A.3.

8.11. RF Exposure Evaluation Relevant to the Requirements of the EU of Multiple RF Sources with Simultaneous Transmission – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	24.39
UTRA	Band V	12.2kbps RMC	846.6	23.04	24.54
GSM	E-GSM 900	1 Tx Slot	890	32.91	34.41
E-UTRA CA	CA-8B	QPSK	955	23.43	24.23
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.97
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	26.00
BT LE	2.4GHz ISM	2Mbps/s	2440	6.36	9.36
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	15.85
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	14.28

The output power levels listed above were used to complete an evaluation against the exclusion limits. The results are as follows:

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	4.8823	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	38.44	162.4667	0.2366		
E-UTRA	8	897.5	228.56	274.79	59.8333	4.5926		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0194	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	81.2333	0.0009		
E-UTRA	8	897.5	0.5467	29.9167	0.0183		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	5.3295	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	38.44	162.4667	0.2366		
UTRA	Band V	846.6	201.37	284.45	56.4400	5.0398		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0212	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	81.2333	0.0009		
UTRA	Band V	846.6	0.5659	28.2200	0.0201		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	46.8163	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	38.44	162.4667	0.2366		
GSM	E-GSM 900	890	1954.34	2760.58	59.3333	46.5266		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.1863	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	81.2333	0.0009		
GSM	E-GSM 900	890	5.4920	29.6667	0.1851		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	4.4497	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	38.44	162.4667	0.2366		
E-UTRA CA	CA-8B	955	220.29	264.85	63.6667	4.1599		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0177	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	81.2333	0.0009		
E-UTRA CA	CA-8B	955	0.5269	31.8333	0.0166		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	16.5997	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	38.44	162.4667	0.2366		
NR-FR1 SA	n28	725.5	598.41	788.86	48.3667	16.3100		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0660	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	81.2333	0.0009		
NR-FR1 SA	n28	725.5	1.5694	24.1833	0.0649		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	7.3400	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	38.44	162.4667	0.2366		
NR-FR1 NSA	B20-n78	847	281.84	398.11	56.4667	7.0503		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0292	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	81.2333	0.0009		
NR-FR1 NSA	B20-n78	847	0.7920	28.2333	0.0281		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	4.7795	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	26.77	200.0000	0.1338		
E-UTRA	8	897.5	228.56	274.79	59.8333	4.5926		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0190	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	100.0000	0.0005		
E-UTRA	8	897.5	0.5467	29.9167	0.0183		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	5.2267	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	26.77	200.0000	0.1338		
UTRA	Band V	846.6	201.37	284.45	56.4400	5.0398		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0208	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	100.0000	0.0005		
UTRA	Band V	846.6	0.5659	28.2200	0.0201		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	46.7135	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	26.77	200.0000	0.1338		
GSM	E-GSM 900	890	1954.34	2760.58	59.3333	46.5266		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.1859	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	100.0000	0.0005		
GSM	E-GSM 900	890	5.4920	29.6667	0.1851		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	4.3469	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	26.77	200.0000	0.1338		
E-UTRA CA	CA-8B	955	220.29	264.85	63.6667	4.1599		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0173	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	100.0000	0.0005		
E-UTRA CA	CA-8B	955	0.5269	31.8333	0.0166		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	16.4969	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	26.77	200.0000	0.1338		
NR-FR1 SA	n28	725.5	598.41	788.86	48.3667	16.3100		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0656	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	100.0000	0.0005		
NR-FR1 SA	n28	725.5	1.5694	24.1833	0.0649		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	8.64	162.6667	0.0531	7.2372	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	26.77	200.0000	0.1338		
NR-FR1 NSA	B20-n78	847	281.84	398.11	56.4667	7.0503		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	81.3333	0.0002	0.0288	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	100.0000	0.0005		
NR-FR1 NSA	B20-n78	847	0.7920	28.2333	0.0281		

For all possible transmitter combinations, the sum of fractional contributions in relation to the exclusion levels was less than one(1). A declaration of conformity with the requirements of EN 62479 can be justifiably made.

8.12. RF Exposure Evaluation Relevant to the Requirements of the EU of Multiple RF Sources with Simultaneous Transmission – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	27.01
UTRA	Band V	12.2kbps RMC	846.6	23.04	26.02
GSM	E-GSM 900	1 Tx Slot	890	32.91	35.89
E-UTRA CA	CA-8B	QPSK	955	23.43	26.85
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.90
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	27.48
BT LE	2.4GHz ISM	2Mbps/s	2440	6.36	8.11
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	14.42
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	8.83

The output power levels listed above were used to complete an evaluation against the exclusion limits. The results are as follows:

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	8.6057	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	27.66	162.4667	0.1702		
E-UTRA	8	897.5	228.56	502.34	59.8333	8.3957		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0342	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	81.2333	0.0007		
E-UTRA	8	897.5	0.9994	29.9167	0.0334		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	7.2962	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	27.66	162.4667	0.1702		
UTRA	Band V	846.6	201.37	399.94	56.4400	7.0862		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0290	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	81.2333	0.0007		
UTRA	Band V	846.6	0.7957	28.2200	0.0282		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	65.6287	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	27.66	162.4667	0.1702		
GSM	E-GSM 900	890	1954.34	3881.50	59.3333	65.4186		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.2611	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	81.2333	0.0007		
GSM	E-GSM 900	890	7.7220	29.6667	0.2603		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	7.8149	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	27.66	162.4667	0.1702		
E-UTRA CA	CA-8B	955	220.29	484.17	63.6667	7.6048		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0311	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	81.2333	0.0007		
E-UTRA CA	CA-8B	955	0.9632	31.8333	0.0303		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	16.2593	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	27.66	162.4667	0.1702		
NR-FR1 SA	n28	725.5	598.41	776.25	48.3667	16.0492		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0647	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	81.2333	0.0007		
NR-FR1 SA	n28	725.5	1.5443	24.1833	0.0639		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	10.1231	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	27.66	162.4667	0.1702		
NR-FR1 NSA	B20-n78	847	281.84	559.76	56.4667	9.9131		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0403	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	81.2333	0.0007		
NR-FR1 NSA	B20-n78	847	1.1136	28.2333	0.0394		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	8.4788	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	7.63	200.0000	0.0433		
E-UTRA	8	897.5	228.56	502.34	59.8333	8.3957		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0337	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	100.0000	0.0002		
E-UTRA	8	897.5	0.9994	29.9167	0.0334		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	7.1693	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	7.63	200.0000	0.0433		
UTRA	Band V	846.6	201.37	399.94	56.4400	7.0862		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0285	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	100.0000	0.0002		
UTRA	Band V	846.6	0.7957	28.2200	0.0282		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	65.5017	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	7.63	200.0000	0.0433		
GSM	E-GSM 900	890	1954.34	3881.50	59.3333	65.4186		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.2606	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	100.0000	0.0002		
GSM	E-GSM 900	890	7.7220	29.6667	0.2603		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	7.6879	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	7.63	200.0000	0.0433		
E-UTRA CA	CA-8B	955	220.29	484.17	63.6667	7.6048		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0306	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	100.0000	0.0002		
E-UTRA CA	CA-8B	955	0.9632	31.8333	0.0303		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	16.1323	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	7.63	200.0000	0.0433		
NR-FR1 SA	n28	725.5	598.41	776.25	48.3667	16.0492		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0642	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	100.0000	0.0002		
NR-FR1 SA	n28	725.5	1.5443	24.1833	0.0639		

Technology	Band	Frequency (MHz)	Conducted Power (mW)	EIRP (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	6.48	162.6667	0.0398	9.9962	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	7.63	200.0000	0.0433		
NR-FR1 NSA	B20-n78	847	281.84	559.76	56.4667	9.9131		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	81.3333	0.0002	0.0398	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	100.0000	0.0002		
NR-FR1 NSA	B20-n78	847	1.1136	28.2333	0.0394		

For all possible transmitter combinations, the sum of fractional contributions in relation to the exclusion levels was less than one(1). A declaration of conformity with the requirements of EN 62479 can be justifiably made.

8.13. RF Exposure Evaluation Relevant to the Requirements of the Australia/New Zealand of Multiple Standalone RF Sources – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	24.39
UTRA	Band V	12.2kbps RMC	846.6	23.04	24.54
GSM	E-GSM 900	1 Tx Slot	890	32.91	34.41
E-UTRA CA	CA-8B	QPSK	955	23.43	24.23
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.97
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	26.00
BT LE	2.4GHz ISM	2Mbps/s	2440	6.36	9.36
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	15.85
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	14.28

The output power levels listed above were used to complete an exclusion assessment. The results are as follows:

Technology	Band	Frequency (MHz)	Conducted Power (dBm)	P (mW)	Low Power Exclusion (mW)	Exemption
E-UTRA	8	897.5	23.59	228.56	100	See Table Below
UTRA	Band V	846.6	23.04	201.37	100	See Table Below
GSM	E-GSM 900	890	32.91	1954.34	100	See Table Below
E-UTRA CA	CA-8B	955	23.43	220.29	100	See Table Below
NR-FR1 SA	n28	725.5	27.77	598.41	100	See Table Below
NR-FR1 NSA	B20-n78	847	24.50	281.84	100	See Table Below
BT LE	2.4GHz ISM	2440	6.36	4.33	100	Low Power Evaluation
2GHz Wi-Fi	2.4GHz ISM	2437	12.85	19.27	100	Low Power Evaluation
5GHz Wi-Fi	U-NII-2C	5670	9.38	8.66	100	Low Power Evaluation

Technology	Band	Frequency (MHz)	EIRP (dBm)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Exemption
E-UTRA	8	897.5	24.39	0.546676172	22.4375	Power Density
UTRA	Band V	846.6	24.54	0.565887557	21.165	Power Density
GSM	E-GSM 900	890	34.41	5.491995145	22.25	Power Density
E-UTRA CA	CA-8B	955	24.23	0.526902361	23.875	Power Density
NR-FR1 SA	n28	725.5	28.97	1.569387339	18.1375	Power Density
NR-FR1 NSA	B20-n78	847	26	0.792009051	21.175	Power Density

It was determined that the EUT is excluded from routine evaluation per RPS S-1.

8.14. RF Exposure Evaluation Relevant to the Requirements of the Australia/New Zealand of Multiple Standalone RF Sources – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	27.01
UTRA	Band V	12.2kbps RMC	846.6	23.04	26.02
GSM	E-GSM 900	1 Tx Slot	890	32.91	35.89
E-UTRA CA	CA-8B	QPSK	955	23.43	26.85
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.90
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	27.48
BT LE	2.4GHz ISM	2Mbps/s	2440	6.36	8.11
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	14.42
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	8.83

The output power levels listed above were used to complete an exclusion assessment. The results are as follows:

Technology	Band	Frequency (MHz)	Conducted Power (dBm)	P (mW)	Low Power Exclusion (mW)	Exemption
E-UTRA	8	897.5	23.59	228.56	100	See Table Below
UTRA	Band V	846.6	23.04	201.37	100	See Table Below
GSM	E-GSM 900	890	32.91	1954.34	100	See Table Below
E-UTRA CA	CA-8B	955	23.43	220.29	100	See Table Below
NR-FR1 SA	n28	725.5	27.77	598.41	100	See Table Below
NR-FR1 NSA	B20-n78	847	24.50	281.84	100	See Table Below
BT LE	2.4GHz ISM	2440	6.36	4.33	100	Low Power Evaluation
2GHz Wi-Fi	2.4GHz ISM	2437	12.85	19.27	100	Low Power Evaluation
5GHz Wi-Fi	U-NII-2C	5670	9.38	8.66	100	Low Power Evaluation

Technology	Band	Frequency (MHz)	EIRP (dBm)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Exemption
E-UTRA	8	897.5	27.01	0.999378828	22.4375	Power Density
UTRA	Band V	846.6	26.02	0.795664799	21.165	Power Density
GSM	E-GSM 900	890	35.89	7.722006176	22.25	Power Density
E-UTRA CA	CA-8B	955	26.85	0.96323032	23.875	Power Density
NR-FR1 SA	n28	725.5	28.9	1.544294571	18.1375	Power Density
NR-FR1 NSA	B20-n78	847	27.48	1.113602365	21.175	Power Density

It was determined that the EUT is excluded from routine evaluation per RPS S-1.

8.15. RF Exposure Evaluation Relevant to the Requirements of the Australia/New Zealand of Multiple RF Sources with Simultaneous Transmission – Internal Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	24.39
UTRA	Band V	12.2kbps RMC	846.6	23.04	24.54
GSM	E-GSM 900	1 Tx Slot	890	32.91	34.41
E-UTRA CA	CA-8B	QPSK	955	23.43	24.23
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.97
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	26.00
BT LE	2.4GHz ISM	2Mbps/s	2440	6.36	9.36
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	15.85
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	14.28

The output power levels listed above were used to complete an evaluation against the exclusion limits. The results are as follows:

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.5216	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
E-UTRA	8	897.5	228.56	100.0000	2.2856		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0262	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	50.0000	0.0015		
E-UTRA	8	897.5	0.5467	22.4375	0.0244		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.2497	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
UTRA	Band V	846.6	201.37	100.0000	2.0137		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0286	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	50.0000	0.0015		
UTRA	Band V	846.6	0.5659	21.1650	0.0267		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	19.7793	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
GSM	E-GSM 900	890	1954.34	100.0000	19.5434		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.2487	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	50.0000	0.0015		
GSM	E-GSM 900	890	5.4920	22.2500	0.2468		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.4389	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
E-UTRA CA	CA-8B	955	220.29	100.0000	2.2029		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0239	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	50.0000	0.0015		
E-UTRA CA	CA-8B	955	0.5269	23.8750	0.0221		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	6.2201	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
NR-FR1 SA	n28	725.5	598.41	100.0000	5.9841		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0884	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	50.0000	0.0015		
NR-FR1 SA	n28	725.5	1.5694	18.1375	0.0865		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	3.0543	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
NR-FR1 NSA	B20-n78	847	281.84	100.0000	2.8184		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0393	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0765	50.0000	0.0015		
NR-FR1 NSA	B20-n78	847	0.7920	21.1750	0.0374		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.4155	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
E-UTRA	8	897.5	228.56	100.0000	2.2856		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0258	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	50.0000	0.0011		
E-UTRA	8	897.5	0.5467	22.4375	0.0244		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.1436	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
UTRA	Band V	846.6	201.37	100.0000	2.0137		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0281	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	50.0000	0.0011		
UTRA	Band V	846.6	0.5659	21.1650	0.0267		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	19.6733	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
GSM	E-GSM 900	890	1954.34	100.0000	19.5434		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.2482	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	50.0000	0.0011		
GSM	E-GSM 900	890	5.4920	22.2500	0.2468		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.3328	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
E-UTRA CA	CA-8B	955	220.29	100.0000	2.2029		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0235	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	50.0000	0.0011		
E-UTRA CA	CA-8B	955	0.5269	23.8750	0.0221		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	6.1140	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
NR-FR1 SA	n28	725.5	598.41	100.0000	5.9841		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0879	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	50.0000	0.0011		
NR-FR1 SA	n28	725.5	1.5694	18.1375	0.0865		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.9483	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
NR-FR1 NSA	B20-n78	847	281.84	100.0000	2.8184		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0172	50.0000	0.0003	0.0388	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0533	50.0000	0.0011		
NR-FR1 NSA	B20-n78	847	0.7920	21.1750	0.0374		

For all possible transmitter combinations, the sum of fractional contributions in relation to the exclusion levels was less than one(1). A declaration of conformity with the requirements of RPS S-1 can be justifiably made.

8.16. RF Exposure Evaluation Relevant to the Requirements of the Australia/New Zealand of Multiple RF Sources with Simultaneous Transmission – External Antenna Sample

The table below contains the highest measured, calculated or reported field strengths and output power for each RF source.

Technology	Band	Modulation/ Subset	Frequency (MHz)	Conducted Power (dBm)	EIRP (dBm)
E-UTRA	8	QPSK	897.5	23.59	27.01
UTRA	Band V	12.2kbps RMC	846.6	23.04	26.02
GSM	E-GSM 900	1 Tx Slot	890	32.91	35.89
E-UTRA CA	CA-8B	QPSK	955	23.43	26.85
NR-FR1 SA	n28	DFT-s-OFDM PI/2 BPSK	725.5	27.77	28.90
NR-FR1 NSA	B20-n78	DFT-s-OFDM PI/2 BPSK	847	24.50	27.48
BT LE	2.4GHz ISM	2Mbps/s	2440	6.36	8.11
2GHz Wi-Fi	2.4GHz ISM	802.11b, 20MHz, 1 Mbit/s	2437	12.85	14.42
5GHz Wi-Fi	U-NII-2C	WLAN ax-Mode, MCS0, SISO	5670	9.38	8.83

The output power levels listed above were used to complete an evaluation against the exclusion limits. The results are as follows:

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.5216	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
E-UTRA	8	897.5	228.56	100.0000	2.2856		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0459	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	50.0000	0.0011		
E-UTRA	8	897.5	0.9994	22.4375	0.0445		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.2497	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
UTRA	Band V	846.6	201.37	100.0000	2.0137		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0390	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	50.0000	0.0011		
UTRA	Band V	846.6	0.7957	21.1650	0.0376		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	19.7793	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
GSM	E-GSM 900	890	1954.34	100.0000	19.5434		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.3484	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	50.0000	0.0011		
GSM	E-GSM 900	890	7.7220	22.2500	0.3471		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.4389	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
E-UTRA CA	CA-8B	955	220.29	100.0000	2.2029		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0417	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	50.0000	0.0011		
E-UTRA CA	CA-8B	955	0.9632	23.8750	0.0403		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	6.2201	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
NR-FR1 SA	n28	725.5	598.41	100.0000	5.9841		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0865	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	50.0000	0.0011		
NR-FR1 SA	n28	725.5	1.5443	18.1375	0.0851		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	3.0543	Not Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	19.27	100.0000	0.1927		
NR-FR1 NSA	B20-n78	847	281.84	100.0000	2.8184		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0539	Exempt
2GHz Wi-Fi	2.4GHz ISM	2437	0.0550	50.0000	0.0011		
NR-FR1 NSA	B20-n78	847	1.1136	21.1750	0.0526		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.4155	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
E-UTRA	8	897.5	228.56	100.0000	2.2856		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0451	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	50.0000	0.0003		
E-UTRA	8	897.5	0.9994	22.4375	0.0445		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.1436	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
UTRA	Band V	846.6	201.37	100.0000	2.0137		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0382	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	50.0000	0.0003		
UTRA	Band V	846.6	0.7957	21.1650	0.0376		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	19.6733	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
GSM	E-GSM 900	890	1954.34	100.0000	19.5434		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.3476	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	50.0000	0.0003		
GSM	E-GSM 900	890	7.7220	22.2500	0.3471		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.3328	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
E-UTRA CA	CA-8B	955	220.29	100.0000	2.2029		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0409	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	50.0000	0.0003		
E-UTRA CA	CA-8B	955	0.9632	23.8750	0.0403		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	6.1140	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
NR-FR1 SA	n28	725.5	598.41	100.0000	5.9841		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0857	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	50.0000	0.0003		
NR-FR1 SA	n28	725.5	1.5443	18.1375	0.0851		

Technology	Band	Frequency (MHz)	P (mW)	Exemption Threshold Level (mW)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	4.33	100.0000	0.0433	2.9483	Not Exempt
5GHz Wi-Fi	U-NII-2C	5670	8.66	100.0000	0.0866		
NR-FR1 NSA	B20-n78	847	281.84	100.0000	2.8184		

The above combination does not meet the exemption threshold. A Power Density calculation was performed:

Technology	Band	Frequency (MHz)	S Power Density (W/m ²)	S _L Power Density Limit (W/m ²)	Fractional Contribution	Sum of Contributions	Exemption
BT LE	2.4GHz ISM	2440	0.0129	50.0000	0.0003	0.0532	Exempt
5GHz Wi-Fi	U-NII-2C	5670	0.0152	50.0000	0.0003		
NR-FR1 NSA	B20-n78	847	1.1136	21.1750	0.0526		

For all possible transmitter combinations, the sum of fractional contributions in relation to the exclusion levels was less than one(1). A declaration of conformity with the requirements of RPS S-1 can be justifiably made.

9. Statement of Compliance

The Caterpillar Incorporated 5G Telematics Radio, Model PL645 is in compliance with the FCC, Innovation, Science and Economic Development Canada, European Union and Australia/New Zealand requirements for RF Exposure at a minimum separation distance of 20cm.

10. Scope of Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELITE ELECTRONIC ENGINEERING, INC.
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Downers Grove, IL 60515
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Email: cfanning@elitetest.com
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Email: blugo@elitetest.com
Richard King (FCC/Commercial Team Leader) Phone: 630 495 9770 ext. 123
Email: reking@elitetest.com
Website: www.elitetest.com

ELECTRICAL

Valid To: June 30, 2027

Certificate Number: 1786.01

In recognition of the successful completion of the A2LA Accreditation Program evaluation process, accreditation is granted to this laboratory at the location listed above, as well as the satellite location listed below, to perform the following automotive electromagnetic compatibility and other electrical tests:

Test Technology:**Test Method(s)¹:**

Transient Immunity
(Max Voltage 1500 V/Max current 1000 A)

ISO 7637-2 (including emissions); ISO 7637-3; ISO 7637-4;
ISO 16750-2, Sections 4.6.3 and 4.6.4;
ISO 21498-1; ISO 21498-2;
CS.00054, Section 5.9; CS.00244 Section 5.2.15 through
5.2.21; CS.00245; CS.00246 Section 5.2.4;
EMC-CS-2009.1 (CI220); FMC1278 (CI220, CI221, CI222);
GMW 3097, Section 3.5; SAE J1113-11; SAE J1113-12;
ECE Regulation 10.06 Annex 10

Electrostatic Discharge (ESD)
(Up to +/-25 kV)

ISO 10605 (2001, 2008); ISO 10605;
CS.00054, Section 5.10; CS.00244 Section 5.5;
EMC-CS-2009.1 (CI 280); FMC1278 (CI280); SAE J1113-13;
GMW 3097 Section 3.6

Conducted Emissions

CISPR 25 (2002, 2008), Sections 6.2 and 6.3;
CISPR 25 (2016), Sections 6.3 and 6.4; CISPR 25;
CS.00054, Sections 5.6.1 and 5.6.2;
CS.00244 Sections 5.4.2 and 5.4.3; GMW 3097, Section 3.3.2;
EMC-CS-2009.1 (CE 420); FMC1278 (CE420, CE421,
CE 430, CE440)

(A2LA Cert. No. 1786.01) 08/14/2025



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5202 Presidents Court, Suite 220 | Frederick, MD 21703-8398 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

Test Technology:
Test Method(s)¹:

Radiated Emissions Anechoic
(Up to 6 GHz)

CISPR 25 (2002, 2008), Section 6.4;
CISPR 25 (2016), Section 6.5; CISPR 25;
CS.00054, Section 5.6.3; CS.00244 Section 5.4.4;
GMW 3097, Section 3.3.1;
EMC-CS-2009.1 (RE 310); FMC1278 (RE310, RE320)

Vehicle Radiated Emissions

CISPR 12; CISPR 36; ICES-002;
ECE Regulation 10.06 Annex 4;
ECE Regulation 10.06 Annex 5

Bulk Current Injection (BCI)
(1 to 400MHz 500mA)

ISO 11452-4; CS.00054, Section 5.8.1;
CS.00244 Section 5.3.2;
GMW 3097, Section 3.4.1; SAE J1113-4;
EMC-CS-2009.1 (RI112); FMC1278 (RI112);
ECE Regulation 10.06 Annex 9

Radiated Immunity Anechoic
(Up to 6GHz and 200V/m)
(Including Radar Pulse 600V/m)

ISO 11452-2;
CS.00054, Section 5.8.2; CS.00244 Section 5.3.3;
GMW 3097, Section 3.4.2;
EMC-CS-2009.1 (RI114); FMC1278 (RI114); SAE J1113-21;
ECE Regulation 10.06 Annex 9

Radiated Immunity Magnetic Field

ISO 11452-8; FMC 1278 (RI140); CS.00244 Section 5.3.4

Radiated Immunity Reverb
(360MHz to 6GHz and 100V/m)

ISO/IEC 61000-4-21; GMW 3097, Section 3.4.3;
EMC-CS-2009.1 (RI114); FMC1278 (RI114);
ISO 11452-11

Radiated Immunity
(Portable Transmitters)
(Up to 6GHz and 20W)

ISO 11452-9;
CS.00244 Section 5.3.5;
EMC-CS-2009.1 (RI115); FMC1278 (RI115);
GMW 3097, Sec 3.4.4

Vehicle Radiated Immunity (ALSE)

ISO 11451-2; ECE Regulation 10.06 Annex 6

Vehicle Product Specific EMC Standards

EN 14982; EN ISO 13309; ISO 13766; EN 50498;
EC Regulation No. 2015/208; EN 55012

Electrical Loads

ISO 16750-2

Stripline

ISO 11452-5

Emissions

Radiated and Conducted
(3m Semi-anechoic chamber,
up to 40 GHz)

47 CFR, FCC Part 15 B (using ANSI C63.4:2014);
47 CFR, FCC Part 18 (using FCC MP-5:1986);
ICES-001; ICES-003; ICES-005;
IEC/CISPR 11, Ed. 4.1 (2004-06); AS/NZS CISPR 11 (2004);
IEC/CISPR 11 Ed 5 (2009-05) + A1 (2010);
KN 11 (2008-5) with RRL Notice No. 2008-3 (May 20, 2008);
CISPR 11; EN 55011; KS C 9811; CNS 13803 (1997, 2003);
CISPR 14-1; EN 55014-1; AS/NZS CISPR 14.1;

Test Technology:

Radiated and Conducted (cont'd)
(3m Semi-anechoic chamber,
up to 40 GHz)

Test Method(s)¹:

CISPR 16-2-1 (2008); CISPR 16-2-1; KS C 9814-1; KN 14-1;
IEC/CISPR 22 (1997);
EN 55022 (1998) + A1(2000);
EN 55022 (1998) + A1(2000) + A2(2003); EN 55022 (2006);
IEC/CISPR 22 (2008-09); AS/NZS CISPR 22 (2004);
AS/NZS CISPR 22, 3rd Edition (2006); KN 22 (up to 6 GHz);
CNS 13438 (up to 6 GHz); VCCI V-3 (up to 6 GHz);
CISPR 32; EN 55032; KS C 9832; KN 32;
ECE Regulation 10.06 Annex 7 (Broadband);
ECE Regulation 10.06 Annex 8 (Narrowband);
ECE Regulation 10.06 Annex 13 (Conducted);
ECE Regulation 10.06 Annex 14 (Conducted)

Cellular Radiated Spurious Emissions

ETSI TS 151 010-1 GSM; 3GPP TS 51.010-1, Sec 12;
ETSI TS 134 124 UMTS; 3GPP TS 34.124;
ETSI TS 136 124 LTE; E-UTRA; 3GPP TS 36.124

Current Harmonics

IEC 61000-3-2; IEC 61000-3-12;
EN 61000-3-2; KN 61000-3-2;
KS C 9610-3-2; ECE Regulation 10.06 Annex 11

Flicker and Fluctuations

IEC 61000-3-3; IEC 61000-3-11;
EN 61000-3-3; KN 61000-3-3;
KS C 9610-3-3; ECE Regulation 10.06 Annex 12

Immunity

Electrostatic Discharge

IEC 61000-4-2, Ed. 1.2 (2001);
IEC 61000-4-2 (1995) + A1(1998) + A2(2000);
EN 61000-4-2 (1995); EN 61000-4-2 (2009-05);
KN 61000-4-2 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-2; EN 61000-4-2; KN 61000-4-2;
KS C 9610-4-2; IEEE C37.90.3 2001

Radiated Immunity

IEC 61000-4-3 (1995) + A1(1998) + A2(2000);
IEC 61000-4-3, Ed. 3.0 (2006-02);
IEC 61000-4-3, Ed. 3.2 (2010);
KN 61000-4-3 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-3; EN 61000-4-3; KN 61000-4-3;
KS C 9610-4-3; IEEE C37.90.2 2004

Electrical Fast Transient/Burst

IEC 61000-4-4, Ed. 2.0 (2004-07);
IEC 61000-4-4, Ed. 2.1 (2011);
IEC 61000-4-4 (1995) + A1(2000) + A2(2001);
KN 61000-4-4 (2008-5);
RRL Notice No. 2008-5 (May 20, 2008);
IEC 61000-4-4; EN 61000-4-4; KN 61000-4-4;
KS C 9610-4-4; ECE Regulation 10.06 Annex 15

Test Technology:
Test Method(s)¹:

Surge

IEC 61000-4-5 (1995) + A1(2000);
IEC 61000-4-5, Ed 1.1 (2005-11);
EN 61000-4-5 (1995) + A1(2001);
KN 61000-4-5 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-5; EN 61000-4-5; KN 61000-4-5;
KS C 9610-4-5;
IEEE C37.90.1 2012; IEEE STD C62.41.2 2002;
ECE Regulation 10.06 Annex 16

Conducted Immunity

IEC 61000-4-6 (1996) + A1(2000);
IEC 61000-4-6, Ed 2.0 (2006-05);
IEC 61000-4-6 Ed. 3.0 (2008);
KN 61000-4-6 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
EN 61000-4-6 (1996) + A1(2001); IEC 61000-4-6;
EN 61000-4-6; KN 61000-4-6; KS C 9610-4-6

Power Frequency Magnetic Field
Immunity (*Down to 3 A/m*)

IEC 61000-4-8 (1993) + A1(2000); IEC 61000-4-8 (2009);
EN 61000-4-8 (1994) + A1(2000);
KN 61000-4-8 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-8; EN 61000-4-8; KN 61000-4-8; KS C 9610-4-8

Voltage Dips, Short Interrupts, and Line
Voltage Variations

IEC 61000-4-11, Ed. 2 (2004-03);
KN 61000-4-11 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-11; EN 61000-4-11; KN 61000-4-11;
KS C 9610-4-11

Ring Wave

IEC 61000-4-12, Ed. 2 (2006-09);
EN 61000-4-12:2006;
IEC 61000-4-12; EN 61000-4-12; KN 61000-4-12;
IEEE STD C62.41.2 2002

Generic and Product Specific EMC
Standards

IEC/EN 61000-6-1; AS/NZS 61000-6-1; KN 61000-6-1;
KS C 9610-6-1; IEC/EN 61000-6-2; AS/NZS 61000-6-2;
KN 61000-6-2; KS C 9610-6-2; IEC/EN 61000-6-3;
AS/NZS 61000-6-3; KN 61000-6-3; KS C 9610-6-3;
IEC/EN 61000-6-4; AS/NZS 61000-6-4; KN 61000-6-4;
KS C 9610-6-4; EN 50130-4; EN 61326-1; EN 50121-3-2;
EN 12895; EN 50270; EN 50491-1; EN 50491-2; EN 50491-3;
EN 55015; EN 60730-1; EN 60945; IEC 60533;
EN 61326-2-6; EN 61800-3; IEC/CISPR 14-2; EN 55014-2;
AS/NZS CISPR 14.2; KN 14-2; KS C 9814-2;
IEC/CISPR 24; AS/NZS CISPR 24; EN 55024; KN 24;
IEC/CISPR 35; AS/NZS CISPR 35; EN 55035; KN 35;
KS C 9835; IEC 60601-1-2; JIS T0601-1-2; ANSI C63.27

Test Technology:
Test Method(s)¹:
TxRx EMC Requirements

EN 301 489-1; EN 301 489-3; EN 301 489-9;
EN 301 489-17; EN 301 489-19; EN 301 489-20

European Radio Test Standards

ETSI EN 300 086-1; ETSI EN 300 086-2;
ETSI EN 300 113-1; ETSI EN 300 113-2;
ETSI EN 300 220-1; ETSI EN 300 220-2;
ETSI EN 300 220-3-1; ETSI EN 300 220-3-2;
ETSI EN 300 330-1; ETSI EN 300 330-2;
ETSI EN 300 440-1; ETSI EN 300 440-2;
ETSI EN 300 422-1; ETSI EN 300 422-2;
ETSI EN 300 328; ETSI EN 301 893;
ETSI EN 301 511; ETSI EN 301 908-1;
ETSI EN 908-2; ETSI EN 908-13;
ETSI EN 303 413; ETSI EN 302 502;
EN 303 340; EN 303 345-2; EN 303 345-3; EN 303 345-4

Canadian Radio Tests

RSS-102; RSS-102.NS.MEAS;
SPR-002; RSS-111; RSS-112; RSS-117; RSS-119; RSS-123;
RSS-125; RSS-127; RSS-130; RSS-131; RSS-132; RSS-133;
RSS-134; RSS-135; RSS-137; RSS-139; RSS-140; RSS-141;
RSS-142; RSS-170; RSS-181; RSS-182; RSS-192; RSS-194;
RSS-195; RSS-196; RSS-197; RSS-198; RSS-199;
RSS-210 (up to 40 GHz); RSS-211 (up to 40 GHz);
RSS-213; RSS-215; RSS-216 (up to 40 GHz);
RSS-220 (up to 40 GHz); RSS-222; RSS-236; RSS-238;
RSS-243; RSS-244; RSS-247; RSS-248; RSS-252; RSS-287;
RSS-288; RSS-310; RSS-GEN

Mexico Radio Tests

IFT-008-2015; NOM-208-SCFI-2016

Japan Radio Tests

Radio Law No. 131, Ordinance of MPT No. 37, 1981,
MIC Notification No. 88:2004, Table No. 22-11;
ARIB STD-T66, Regulation 18

Taiwan Radio Tests

LP-0002 (February 6, 2024)

Australia/New Zealand Radio Tests

AS/NZS 4268; Radiocommunications (Short Range Devices)
Standard (2014)

Hong Kong Radio Tests

HKCA 1039 Issue 6; HKCA 1042; HKCA 1033 Issue 7;
HKCA 1061; HKCA 1008; HKCA 1043; HKCA 1057;
HKCA 1073

Korean Radio Test Standards

KN 301 489-1; KN 301 489-3; KN 301 489-9;
KN 301 489-17; KN 301 489-52; KS X 3124; KS X 3125;
KS X 3130; KS X 3126; KS X 3129

Vietnam Radio Test Standards

QCVN 47:2015/BTTTT; QCVN 54:2020/BTTTT;
QCVN 55:2011/BTTTT; QCVN 65:2013/BTTTT;
QCVN 73:2013/BTTTT; QCVN 74:2020/BTTTT;
QCVN 112:2017/BTTTT; QCVN 117:2020/BTTTT

Test Technology:
Test Method(s)¹:
Vietnam EMC Test Standards

QCVN 18:2014/BTTTT; QCVN 86:2019/BTTTT;
QCVN 96:2015/BTTTT; QCVN 118:2018/BTTTT

Unlicensed Radio Frequency Devices
(3 Meter Semi-Anechoic Room)

47 CFR FCC Part 15C, 15D, 15E, 15F, 15G, 15H
(using ANSI C63.10:2020, ANSI C63.17:2013 and
FCC KDB 905462 D02 (v02))

Licensed Radio Service Equipment

47 CFR FCC Parts 20, 22, 24, 25, 27, 30, 73, 74, 80, 87,
90, 95, 96, 97, 101 (using ANSI/TIA-603-E,
TIA-102.CAAA-E, ANSI C63.26:2015); ANSI/TIA-603-F

OTA (Over the Air) Performance

GSM, GPRS, EGPRS
UMTS (W-CDMA)
LTE Cat 0+, M1, NB1
A-GNSS for UMTS/GSM, LTE
Large Device/Laptop/Tablet Testing
Integrated Device Testing
WiFi 802.11 a/b/g/n/ac

CTIA Test Plan for Wireless Device Over-the-Air
Performance (Method for Measurement for Radiated Power
and Receiver Performance) V6.0²;
CTIA Test Plan for RF Performance Evaluation of WiFi
Mobile Converged Devices V4.0²
***Electrical Measurements and
Simulation***

AC Voltage / Current
(1mV to 5kV) 60 Hz
(0.1V to 250V) up to 500 MHz
(1μA to 150A) 60 Hz

FAA AC 150/5345-10;
FAA AC 150/5345-43;
FAA AC 150/5345-44;
FAA AC 150/5345-46;
FAA AC 150/5345-47;
FAA EB 67

DC Voltage / Current
(1mV to 15 kV) / (1μA to 10A)

Power Factor / Efficiency / Crest Factor
(Power to 30kW)

Resistance
(1mΩ to 4000MΩ)

Surge
(Up to 10 kV / 5 kA) (Combination
Wave and Ring Wave)

West Annex
1524 Centre Circle
Downers Grove, IL 60515

Test Technology:

Test Method(s)²:

Transient Immunity

ISO 7637-2 (including emissions); ISO 7637-3; ISO 7637-4;
ISO 16750-2, Sections 4.6.3 and 4.6.4;
ISO 21498-1; ISO 21498-2;
CS.00054, Section 5.9; CS.00244 Section 5.2.15 through
5.2.21; CS.00245; CS.00246 Section 5.2.4; EMC-CS-2009.1
(CI220); FMC1278 (CI220, CI221, CI222); GMW 3097,
Section 3.5; SAE J1113-11; SAE J1113-12;
ECE Regulation 10.06 Annex 10

Transverse Electromagnetic (TEM) Cell

ISO 11452-3

Emissions

Current Harmonics

IEC 61000-3-2; IEC 61000-3-12;
EN 61000-3-2; KN 61000-3-2;
KS C 9610-3-2; ECE Regulation 10.06 Annex 11

Flicker and Fluctuations

IEC 61000-3-3; IEC 61000-3-11;
EN 61000-3-3; KN 61000-3-3;
KS C 9610-3-3; ECE Regulation 10.06 Annex 12

Immunity

Electrical Fast Transient/Burst

IEC 61000-4-4, Ed. 2.0 (2004-07);
IEC 61000-4-4, Ed. 2.1 (2011);
IEC 61000-4-4 (1995) + A1(2000) + A2(2001);
KN 61000-4-4 (2008-5);
RRL Notice No. 2008-5 (May 20, 2008);
IEC 61000-4-4; EN 61000-4-4; KN 61000-4-4;
KS C 9610-4-4; ECE Regulation 10.06 Annex 15

Surge

IEC 61000-4-5 (1995) + A1(2000);
IEC 61000-4-5, Ed 1.1 (2005-11);
EN 61000-4-5 (1995) + A1(2001);
KN 61000-4-5 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-5; EN 61000-4-5; KN 61000-4-5;
KS C 9610-4-5; IEEE C37.90.1 2012;
IEEE STD C62.41.2 2002; ECE Regulation 10.06 Annex 16

Conducted Immunity

IEC 61000-4-6 (1996) + A1(2000);
IEC 61000-4-6, Ed 2.0 (2006-05);
IEC 61000-4-6 Ed. 3.0 (2008);
KN 61000-4-6 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
EN 61000-4-6 (1996) + A1(2001); IEC 61000-4-6;

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Test Technology:
Test Method(s)²:

Power Frequency Magnetic Field Immunity (*Down to 3 A/m*)

EN 61000-4-6; KN 61000-4-6; KS C 9610-4-6
IEC 61000-4-8 (1993) + A1(2000); IEC 61000-4-8 (2009);
EN 61000-4-8 (1994) + A1(2000);
KN 61000-4-8 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-8; EN 61000-4-8; KN 61000-4-8; KS C 9610-4-8

Voltage Dips, Short Interrupts, and Line Voltage Variations

IEC 61000-4-11, Ed. 2 (2004-03);
KN 61000-4-11 (2008-5);
RRL Notice No. 2008-4 (May 20, 2008);
IEC 61000-4-11; EN 61000-4-11; KN 61000-4-11;
KS C 9610-4-11

Ring Wave

IEC 61000-4-12, Ed. 2 (2006-09);
EN 61000-4-12:2006;
IEC 61000-4-12; EN 61000-4-12; KN 61000-4-12;
IEEE STD C62.41.2 2002

Electrical Measurements and Simulation
AC Voltage / Current

(1mV to 5kV) 60 Hz
(0.1V to 250V) up to 500 MHz
(1μA to 150A) 60 Hz

FAA AC 150/5345-10;
FAA AC 150/5345-43;
FAA AC 150/5345-44;
FAA AC 150/5345-46;
FAA AC 150/5345-47;
FAA EB 67

DC Voltage / Current

(1mV to 15 kV) / (1μA to 10A)

Power Factor / Efficiency / Crest Factor

(Power to 30kW)

Resistance

(1mΩ to 4000MΩ)

Surge

(Up to 10 kV / 5 kA) (Combination
Wave and Ring Wave)

On the following products and materials:

Telecommunications Terminal Equipment (TTE), Radio Equipment, Network Equipment, Information Technology Equipment (ITE), Automotive Electronic Equipment, Automotive Hybrid Electronic Devices, Maritime Navigation and Radio Communication Equipment and Systems, Vehicles, Boats and Internal Combustion Engine Driven Devices, Automotive, Aviation, and General Lighting Products, Medical Electrical Equipment, Motors, Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment, Household Appliances, Electric Tools, Low-voltage Switchgear and Control gear, Programmable Controllers, Electrical Equipment for Measurement, Control and Laboratory Use, Base Materials, Power and Data Transmission Cables and Connectors

¹ When the date, edition, version, etc. is not identified in the scope of accreditation, laboratories may use the version that immediately precedes the current version for a period of one year from the date of publication of the standard measurement method, per part C., Section 1 of A2LA R101 - General Requirements- Accreditation of Conformity Assessment Bodies.

² Accreditation to the requirements of the CTIA Certification Test Plan does not imply authorization by the CTIA Certification program. Please see the CTIA website <https://ctiacertification.org/test-labs/> for a listing of Authorized Test Labs (ATLs).

Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
<u>Unintentional Radiators</u> Part 15B	ANSI C63.4:2014	40000
<u>Industrial, Scientific, and Medical Equipment</u> Part 18	FCC MP-5 (February 1986)	40000
<u>Intentional Radiators</u> Part 15C	ANSI C63.10:2013	40000
<u>Unlicensed Personal Communication Systems Devices</u> Part 15D	ANSI C63.17:2013	40000
<u>U-NII without DFS Intentional Radiators</u> Part 15E	ANSI C63.10:2013	40000
<u>U-NII with DFS Intentional Radiators</u> Part 15E	FCC KDB 905462 D02 (v02)	40000
<u>UWB Intentional Radiators</u> Part 15F	ANSI C63.10:2013	40000
<u>BPL Intentional Radiators</u> Part 15G	ANSI C63.10:2013	40000
<u>White Space Device Intentional Radiators</u> Part 15H	ANSI C63.10:2013	40000
<u>Commercial Mobile Services (FCC Licensed Radio Service Equipment)</u> Parts 22 (cellular), 24, 25 (below 3 GHz), and 27	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000

General Mobile Radio Services (FCC Licensed Radio Service Equipment)

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Testing Activities Performed in Support of FCC Certification in Accordance with 47 Code of Federal Regulations and FCC KDB 974614, Appendix A, Table A.1

Rule Subpart/Technology	Test Method	Maximum Frequency (MHz)
Parts 22 (non-cellular), 90 (below 3 GHz), 95, 97, and 101 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Citizens Broadband Radio Services (FCC Licensed Radio Service Equipment)</u> Part 96	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Maritime and Aviation Radio Services</u> Parts 80 and 87	ANSI/TIA-603-E; ANSI C63.26:2015	40000
<u>Microwave and Millimeter Bands Radio Services</u> Parts 25, 30, 74, 90 (above 3 GHz), 97 (above 3 GHz), and 101	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Broadcast Radio Services</u> Parts 73 and 74 (below 3 GHz)	ANSI/TIA-603-E; TIA-102.CAAA-E; ANSI C63.26:2015	40000
<u>Signal Boosters</u> Part 20 (Wideband Consumer Signal Boosters, Provider-specific signal boosters, and Industrial Signal Boosters) Section 90.219	ANSI C63.26:2015	40000

Accreditation does not imply acceptance to the FCC equipment authorization program. Please see the FCC website (<https://apps.fcc.gov/oetcf/eas/>) for a listing of FCC approved laboratories.



Accredited Laboratory

A2LA has accredited

ELITE ELECTRONIC ENGINEERING INC.

Downers Grove, IL

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 14th day of August 2025.



Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1786.01
Valid to June 30, 2027

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.