



FCC RF Test Report

APPLICANT : Inseego Corp.
EQUIPMENT : wireless device
BRAND NAME : Inseego
MODEL NAME : FX20003
FCC ID : PKRISGFX20003
STANDARD : 47 CFR Part 2, 22, 24
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on Aug. 28, 2020 and completely tested on Nov. 20, 2020. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

This product installed a RF module (Brand Name: Inseego, Model Name: MD2000, FCC ID: PKRISGMD2000) during the test, only ERP/EIRP and RSE test items are tested in this report, all the other test results are quoted on module RF report.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

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Approved by: James Huang / Manager



Sporton International (Kunshan) Inc.

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(5)	Effective Radiated Power (5G NR n5)	ERP < 7 Watt		
	§24.232(c)	Equivalent Isotropic Radiated Power (5G NR n2) (5G NR n25)	EIRP < 2Watt		
-	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	1
-	§2.1049	Occupied Bandwidth	Reporting Only	PASS	1
-	§2.1051 §22.917(a) §24.238(a)	Conducted Band Edge Measurement (5G NR n2) (5G NR n5) (5G NR n25)	< 43+10log ₁₀ (P[Watts])	PASS	1
-	§2.1051 §22.917(a) §24.238(a)	Conducted Spurious Emission (5G NR n2) (5G NR n5) (5G NR n25)	< 43+10log ₁₀ (P[Watts])	PASS	1
-	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	1
	§2.1055 §24.235		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a)	Radiated Spurious Emission (5G NR n2) (5G NR n5) (5G NR n25)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 27.74 dB at 5613.00 MHz

Remark 1:

- All conducted test items were leveraged from module RF report which can refer to Report No. "FG090125C"(for n2&n25.) & "FG090125-01B"(for n5).
- The maximum power of host is lower than and very close to the module, therefore, we chose higher power of the module to calculate the ERP/EIRP and show in the report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Applicant

Inseego Corp.
9710 Scranton Road, Suite 200 San Diego, CA 92121

1.2 Manufacturer

MeiG Smart Technology Co., Ltd
Floor 2, Office Building No.5, Lingxia Road, Fenghuang Community, Fuyong Street, Bao 'an District, Shenzhen

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	wireless device
Brand Name	Inseego
Model Name	FX20003
FCC ID	PKRISGFX20003
EUT supports Radios application	WCDMA/LTE/5G NR/GNSS WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 WLAN 5GHz 802.11ax HE20/HE40/HE80
IMEI Code	Radiation : 990016670003415
HW Version	Rev1
SW Version	1
EUT Stage	Identical Prototype

Remark:

1. Only 5G NR bands are tested in this report, all the other RF bands are tested in the other reports separately.
2. 5G NR bands support NSA mode only.
3. 5G NR supports CP-OFDM and DFT-s-OFDM modulation, DFT-s-OFDM power is higher than CP-OFDM, thus only DFT-s-OFDM modulation is reported.
4. The maximum ERP/EIRP is calculated from max output power, only the maximum ERP/EIRP is shown on the report.



1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n2: 1852.5 MHz ~ 1907.5 MHz 5G NR n5: 826.5 MHz ~ 846.5 MHz 5G NR n25: 1852.5 MHz ~ 1912.5 MHz
Rx Frequency	5G NR n2: 1932.5 MHz ~ 1987.5 MHz 5G NR n5: 871.5 MHz ~ 891.5 MHz 5G NR n25: 1932.5 MHz ~ 1992.5 MHz
Bandwidth	n2, n5, n25: 5MHz / 10MHz / 15MHz / 20MHz
SCS	n2, n5, n25: 15kHz
Antenna Gain	5G NR n2: 3.4 dBi 5G NR n5: 1.7 dBi 5G NR n25: 3.4 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

1.5 Modification of EUT

No modifications are made to the EUT during all test items.



1.6 Maximum ERP/EIRP Power

5G NR n2		PI/2 BPSK	QPSK	16QAM
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)	Maximum EIRP(W)
5	1852.5 ~ 1907.5	0.5001	0.5129	0.4798
10	1855.0 ~ 1905.0	0.5082	0.4831	0.4646
15	1857.5 ~ 1902.5	0.4978	0.5153	0.5036
20	1860.0 ~ 1900.0	0.5059	0.4831	0.5036
5G NR n2		64QAM	256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)	
5	1852.5 ~ 1907.5	0.4217	0.2450	
10	1855.0 ~ 1905.0	0.4306	0.2444	
15	1857.5 ~ 1902.5	0.4356	0.2589	
20	1860.0 ~ 1900.0	0.4188	0.2489	

5G NR n5		PI/2 BPSK	QPSK	16QAM
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Maximum ERP(W)	Maximum ERP(W)
5	826.5 ~ 846.5	0.2143	0.2143	0.2095
10	829.0 ~ 844.0	0.2143	0.2143	0.1955
15	831.5 ~ 841.5	0.2143	0.2143	0.2047
20	834.0 ~ 839.0	0.2153	0.2143	0.1955
5G NR n5		64QAM	256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Maximum ERP(W)	
5	826.5 ~ 846.5	0.1483	0.1003	
10	829.0 ~ 844.0	0.1483	0.1026	
15	831.5 ~ 841.5	0.1449	0.1026	
20	834.0 ~ 839.0	0.1416	0.1026	



5G NR n25		PI/2 BPSK	QPSK	16QAM
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)	Maximum EIRP(W)
5	1852.5 ~ 1912.5	0.5177	0.5059	0.4944
10	1855.0 ~ 1910.0	0.5059	0.5059	0.5059
15	1857.5 ~ 1907.5	0.5059	0.5297	0.4944
20	1860.0 ~ 1905.0	0.4944	0.4944	0.4831
5G NR n25		64QAM	256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Maximum EIRP(W)	
5	1852.5 ~ 1912.5	0.4208	0.2595	
10	1855.0 ~ 1910.0	0.4306	0.2595	
15	1857.5 ~ 1907.5	0.4406	0.2595	
20	1860.0 ~ 1905.0	0.4208	0.2536	



1.7 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH04-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a

1.9 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 2, 22, 24
- ♦ ANSI C63.26-2015
- ♦ FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.




2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

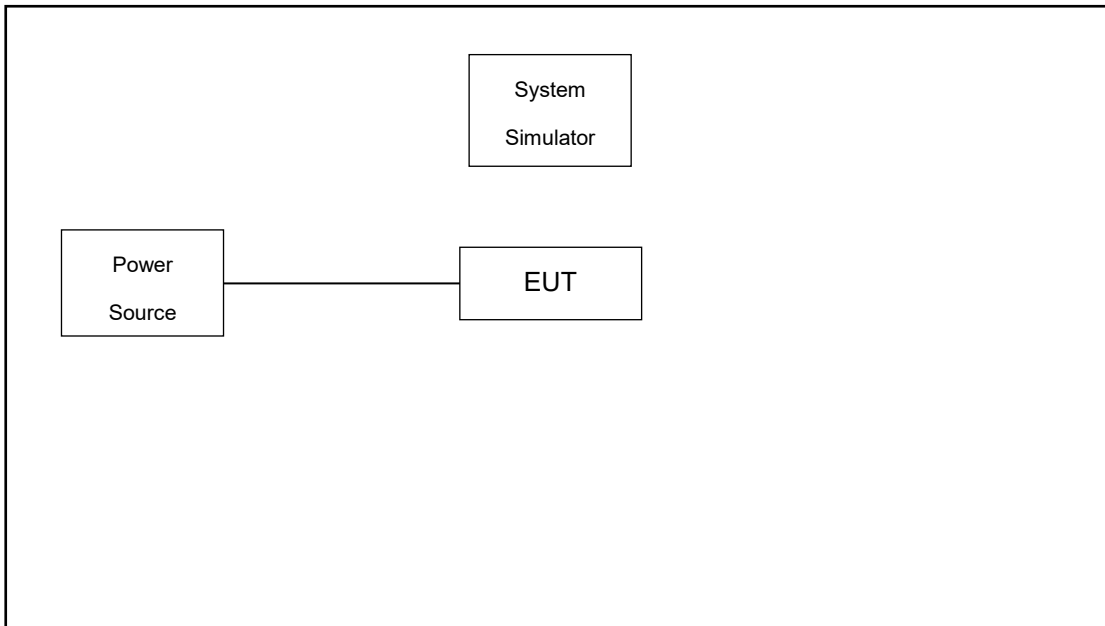
For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

	X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT			

Test Items	Band	Bandwidth (MHz)						Modulation					RB #			Test Channel		
		5	10	15	20	60	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
E.R.P / E.I.R.P	n2	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
	n5	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
	n25	v	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n2	Worst Case															v	
	n5	Worst Case															v	
	n25	Worst Case															v	
Note	<ol style="list-style-type: none"> The mark "v" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 																	

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m



2.4 Frequency List of Low/Middle/High Channels

5G NR n2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	372000	376000	380000
	Frequency	1860	1880	1900
15	Channel	371500	376000	380500
	Frequency	1857.5	1880	1902.5
10	Channel	371000	376000	381000
	Frequency	1855	1880	1905
5	Channel	370500	376000	381500
	Frequency	1852.5	1880	1907.5

5G NR n5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	166800	167300	167800
	Frequency	834	836.5	839
15	Channel	166300	167300	168300
	Frequency	831.5	836.5	841.5
10	Channel	165800	167300	168800
	Frequency	829	836.5	844
5	Channel	165300	167300	169300
	Frequency	826.5	836.5	846.5

5G NR n25 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	372000	376500	381000
	Frequency	1860	1882.5	1905
15	Channel	371500	376500	381500
	Frequency	1857.5	1882.5	1907.5
10	Channel	371000	376500	382000
	Frequency	1855	1882.5	1910
5	Channel	370500	376500	382500
	Frequency	1852.5	1882.5	1912.5



3 Conducted Test Items

3.1 ERP/EIRP

3.1.1 Description of the ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of transmitters must not exceed 7 Watts for 5G NR n5.

The EIRP of transmitters must not exceed 2 Watts for 5G NR n2, n25.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.1.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

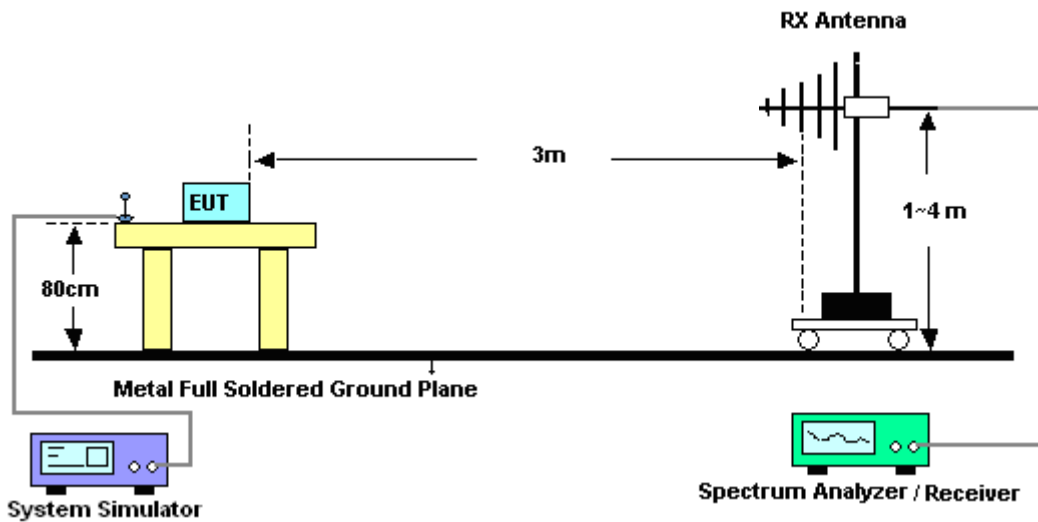
4 Radiated Test Items

4.1 Measuring Instruments

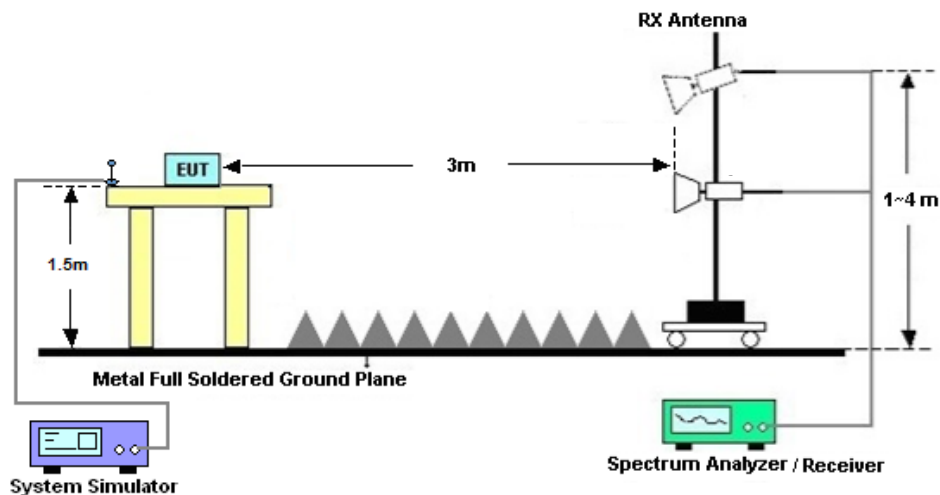
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.



4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 15, 2020	Oct. 08, 2020	Apr. 14, 2021	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jan. 03, 2020	Oct. 08, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 10, 2019	Oct. 08, 2020	Nov. 09, 2020	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 10, 2019	Oct. 08, 2020	Nov. 09, 2020	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 03, 2020	Oct. 08, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 08, 2020	Oct. 08, 2020	Jan. 07, 2021	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P	2025788	1Ghz-18Ghz	Jan. 03, 2020	Oct. 08, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 15, 2019	Oct. 08, 2020	Oct. 14, 2020	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 08, 2020	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Oct. 08, 2020	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Oct. 08, 2020	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required



6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.3dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8dB
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Appendix A. Test Results of Conducted Test

ERP/EIRP

NR n2 / 5MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	0	23.59	0.2286	26.99	0.5001
Middle		1	0	23.24	0.2109	26.64	0.4614
Highest		1	0	23.14	0.2061	26.54	0.4509
Lowest	QPSK	1	0	23.70	0.2345	27.10	0.5129
Middle		1	0	23.24	0.2109	26.64	0.4614
Highest		1	0	23.14	0.2061	26.54	0.4509
Lowest	16QAM	1	1	23.41	0.2193	26.81	0.4798
Middle		1	1	23.04	0.2014	26.44	0.4406
Highest		1	1	22.94	0.1968	26.34	0.4306
Lowest	64QAM	1	1	22.85	0.1928	26.25	0.4217
Middle		1	1	22.04	0.1600	25.44	0.3500
Highest		1	1	21.94	0.1564	25.34	0.3420
Lowest	256QAM	1	1	20.49	0.1120	23.89	0.2450
Middle		1	1	19.87	0.0971	23.27	0.2124
Highest		1	1	19.74	0.0942	23.14	0.2061
Limit	EIRP < 2W			Result		PASS	

NR n2 / 10MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	23.66	0.2323	27.06	0.5082
Middle		1	1	23.24	0.2109	26.64	0.4614
Highest		1	1	23.34	0.2158	26.74	0.4721
Lowest	QPSK	25	12	23.29	0.2134	26.69	0.4667
Middle		25	12	23.44	0.2209	26.84	0.4831
Highest		25	12	23.34	0.2158	26.74	0.4721
Lowest	16QAM	1	1	23.27	0.2124	26.67	0.4646
Middle		1	1	23.04	0.2014	26.44	0.4406
Highest		1	1	23.04	0.2014	26.44	0.4406
Lowest	64QAM	1	1	22.94	0.1968	26.34	0.4306
Middle		1	1	22.04	0.1600	25.44	0.3500
Highest		1	1	22.14	0.1637	25.54	0.3581
Lowest	256QAM	1	1	20.48	0.1117	23.88	0.2444
Middle		1	1	19.84	0.0964	23.24	0.2109
Highest		1	1	19.94	0.0987	23.34	0.2158
Limit	EIRP < 2W			Result		PASS	



NR n2 / 15MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	0	23.57	0.2276	26.97	0.4978
Middle		1	0	23.34	0.2158	26.74	0.4721
Highest		1	0	23.24	0.2109	26.64	0.4614
Lowest	QPSK	1	0	23.72	0.2356	27.12	0.5153
Middle		1	0	23.34	0.2158	26.74	0.4721
Highest		1	0	23.24	0.2109	26.64	0.4614
Lowest	16QAM	1	1	23.62	0.2302	27.02	0.5036
Middle		1	1	23.14	0.2061	26.54	0.4509
Highest		1	1	22.94	0.1968	26.34	0.4306
Lowest	64QAM	1	1	22.99	0.1991	26.39	0.4356
Middle		1	1	22.24	0.1675	25.64	0.3665
Highest		1	1	22.14	0.1637	25.54	0.3581
Lowest	256QAM	1	1	20.73	0.1184	24.13	0.2589
Middle		1	1	19.94	0.0987	23.34	0.2158
Highest		1	1	19.84	0.0964	23.24	0.2109
Limit	EIRP < 2W			Result		PASS	

NR n2 / 20MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	23.64	0.2313	27.04	0.5059
Middle		1	1	23.54	0.2260	26.94	0.4944
Highest		1	1	23.24	0.2109	26.64	0.4614
Lowest	QPSK	50	25	23.17	0.2075	26.57	0.4540
Middle		50	25	23.44	0.2209	26.84	0.4831
Highest		50	25	23.34	0.2158	26.74	0.4721
Lowest	16QAM	1	1	23.62	0.2302	27.02	0.5036
Middle		1	1	23.44	0.2209	26.84	0.4831
Highest		1	1	23.24	0.2109	26.64	0.4614
Lowest	64QAM	1	1	22.82	0.1915	26.22	0.4188
Middle		1	1	22.04	0.1600	25.44	0.3500
Highest		1	1	21.74	0.1493	25.14	0.3266
Lowest	256QAM	1	1	20.56	0.1138	23.96	0.2489
Middle		1	1	20.14	0.1033	23.54	0.2260
Highest		1	1	19.84	0.0964	23.24	0.2109
Limit	EIRP < 2W			Result		PASS	



NR n5 / 5MHz (Average) (GT - LC = 1.7 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	PI/2 BPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.76	0.2377	23.31	0.2143
Highest		1	1	23.46	0.2219	23.01	0.2000
Lowest	QPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.76	0.2377	23.31	0.2143
Highest		1	1	23.16	0.2071	22.71	0.1867
Lowest	16QAM	1	1	23.26	0.2119	22.81	0.1910
Middle		1	1	23.66	0.2323	23.21	0.2095
Highest		1	1	22.26	0.1683	21.81	0.1518
Lowest	64QAM	1	1	21.86	0.1535	21.41	0.1384
Middle		1	1	22.16	0.1645	21.71	0.1483
Highest		1	1	20.76	0.1192	20.31	0.1074
Lowest	256QAM	1	1	20.46	0.1112	20.01	0.1003
Middle		1	1	20.36	0.1087	19.91	0.0980
Highest		1	1	19.46	0.0884	19.01	0.0797
Limit	ERP < 7W			Result		PASS	

NR n5 / 10MHz (Average) (GT - LC = 1.7 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	PI/2 BPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.76	0.2377	23.31	0.2143
Highest		1	1	23.56	0.2270	23.11	0.2047
Lowest	QPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.66	0.2323	23.21	0.2095
Highest		1	1	23.56	0.2270	23.11	0.2047
Lowest	16QAM	1	1	22.96	0.1977	22.51	0.1783
Middle		1	1	23.16	0.2071	22.71	0.1867
Highest		1	1	23.36	0.2168	22.91	0.1955
Lowest	64QAM	1	1	22.16	0.1645	21.71	0.1483
Middle		1	1	22.06	0.1607	21.61	0.1449
Highest		1	1	22.06	0.1607	21.61	0.1449
Lowest	256QAM	1	1	20.56	0.1138	20.11	0.1026
Middle		1	1	20.26	0.1062	19.81	0.0958
Highest		1	1	20.36	0.1087	19.91	0.0980
Limit	ERP < 7W			Result		PASS	



NR n5 / 15MHz (Average) (GT - LC = 1.7 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	PI/2 BPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.76	0.2377	23.31	0.2143
Highest		1	1	23.76	0.2377	23.31	0.2143
Lowest	QPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.66	0.2323	23.21	0.2095
Highest		1	1	23.76	0.2377	23.31	0.2143
Lowest	16QAM	1	1	23.46	0.2219	23.01	0.2000
Middle		1	1	23.16	0.2071	22.71	0.1867
Highest		1	1	23.56	0.2270	23.11	0.2047
Lowest	64QAM	1	1	22.06	0.1607	21.61	0.1449
Middle		1	1	21.96	0.1571	21.51	0.1416
Highest		1	1	21.96	0.1571	21.51	0.1416
Lowest	256QAM	1	1	20.56	0.1138	20.11	0.1026
Middle		1	1	20.46	0.1112	20.01	0.1003
Highest		1	1	20.46	0.1112	20.01	0.1003
Limit	ERP < 7W			Result		PASS	

NR n5 / 20MHz (Average) (GT - LC = 1.7 dB)							
Channel	Mode	RB		Conducted		ERP	
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	PI/2 BPSK	1	1	23.76	0.2377	23.31	0.2143
Middle		1	1	23.78	0.2388	23.33	0.2153
Highest		1	1	23.76	0.2377	23.31	0.2143
Lowest	QPSK	50	25	23.56	0.2270	23.11	0.2047
Middle		50	25	23.66	0.2323	23.21	0.2095
Highest		50	25	23.76	0.2377	23.31	0.2143
Lowest	16QAM	1	1	23.36	0.2168	22.91	0.1955
Middle		1	1	22.76	0.1888	22.31	0.1703
Highest		1	1	22.76	0.1888	22.31	0.1703
Lowest	64QAM	1	1	21.96	0.1571	21.51	0.1416
Middle		1	1	21.96	0.1571	21.51	0.1416
Highest		1	1	21.96	0.1571	21.51	0.1416
Lowest	256QAM	1	1	20.46	0.1112	20.01	0.1003
Middle		1	1	20.46	0.1112	20.01	0.1003
Highest		1	1	20.56	0.1138	20.11	0.1026
Limit	ERP < 7W			Result		PASS	



NR n25 / 5MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	0	23.74	0.2366	27.14	0.5177
Middle		1	0	23.34	0.2158	26.74	0.4721
Highest		1	0	23.14	0.2061	26.54	0.4509
Lowest	QPSK	1	1	23.64	0.2313	27.04	0.5059
Middle		1	1	23.34	0.2158	26.74	0.4721
Highest		1	1	23.04	0.2014	26.44	0.4406
Lowest	16QAM	1	1	23.54	0.2260	26.94	0.4944
Middle		1	1	23.34	0.2158	26.74	0.4721
Highest		1	1	23.14	0.2061	26.54	0.4509
Lowest	64QAM	1	1	22.84	0.1924	26.24	0.4208
Middle		1	1	22.64	0.1837	26.04	0.4018
Highest		1	1	22.34	0.1714	25.74	0.3750
Lowest	256QAM	1	1	20.74	0.1186	24.14	0.2595
Middle		1	1	20.44	0.1107	23.84	0.2422
Highest		1	1	20.14	0.1033	23.54	0.2260
Limit	EIRP < 2W			Result		PASS	

NR n25 / 10MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	23.64	0.2313	27.04	0.5059
Middle		1	1	23.44	0.2209	26.84	0.4831
Highest		1	1	23.14	0.2061	26.54	0.4509
Lowest	QPSK	1	1	23.64	0.2313	27.04	0.5059
Middle		1	1	23.44	0.2209	26.84	0.4831
Highest		1	1	23.14	0.2061	26.54	0.4509
Lowest	16QAM	1	1	23.64	0.2313	27.04	0.5059
Middle		1	1	23.44	0.2209	26.84	0.4831
Highest		1	1	23.04	0.2014	26.44	0.4406
Lowest	64QAM	1	1	22.94	0.1968	26.34	0.4306
Middle		1	1	22.74	0.1880	26.14	0.4112
Highest		1	1	22.34	0.1714	25.74	0.3750
Lowest	256QAM	1	1	20.74	0.1186	24.14	0.2595
Middle		1	1	20.54	0.1133	23.94	0.2478
Highest		1	1	20.24	0.1057	23.64	0.2313
Limit	EIRP < 2W			Result		PASS	



NR n25 / 15MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	23.64	0.2313	27.04	0.5059
Middle		1	1	23.44	0.2209	26.84	0.4831
Highest		1	1	22.94	0.1968	26.34	0.4306
Lowest	QPSK	1	78	23.24	0.2109	26.64	0.4614
Middle		1	78	23.84	0.2422	27.24	0.5297
Highest		1	78	22.94	0.1968	26.34	0.4306
Lowest	16QAM	1	1	23.54	0.2260	26.94	0.4944
Middle		1	1	23.44	0.2209	26.84	0.4831
Highest		1	1	22.84	0.1924	26.24	0.4208
Lowest	64QAM	1	1	23.04	0.2014	26.44	0.4406
Middle		1	1	22.64	0.1837	26.04	0.4018
Highest		1	1	22.24	0.1675	25.64	0.3665
Lowest	256QAM	1	1	20.74	0.1186	24.14	0.2595
Middle		1	1	20.44	0.1107	23.84	0.2422
Highest		1	1	19.84	0.0964	23.24	0.2109
Limit	EIRP < 2W			Result		PASS	

NR n25 / 20MHz (Average) (GT - LC = 3.4 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	23.54	0.2260	26.94	0.4944
Middle		1	1	23.24	0.2109	26.64	0.4614
Highest		1	1	22.94	0.1968	26.34	0.4306
Lowest	QPSK	1	0	23.54	0.2260	26.94	0.4944
Middle		1	0	23.34	0.2158	26.74	0.4721
Highest		1	0	22.84	0.1924	26.24	0.4208
Lowest	16QAM	1	1	23.44	0.2209	26.84	0.4831
Middle		1	1	23.24	0.2109	26.64	0.4614
Highest		1	1	22.74	0.1880	26.14	0.4112
Lowest	64QAM	1	1	22.84	0.1924	26.24	0.4208
Middle		1	1	22.54	0.1795	25.94	0.3927
Highest		1	1	22.04	0.1600	25.44	0.3500
Lowest	256QAM	1	1	20.64	0.1159	24.04	0.2536
Middle		1	1	20.24	0.1057	23.64	0.2313
Highest		1	1	19.64	0.0921	23.04	0.2014
Limit	EIRP < 2W			Result		PASS	



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

EN-DC_5A_n2A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3741	-57.17	-13	-44.17	-69.43	2.64	14.90	H
	5613	-40.74	-13	-27.74	-52.60	2.94	14.80	H
	7488	-48.90	-13	-35.90	-58.67	3.39	13.16	H
	3741	-57.31	-13	-44.31	-69.57	2.64	14.90	V
	5613	-51.54	-13	-38.54	-63.40	2.94	14.80	V
	7488	-48.58	-13	-35.58	-58.35	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_12A_n2A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3741	-57.51	-13	-44.51	-69.77	2.64	14.90	H
	5613	-47.96	-13	-34.96	-59.82	2.94	14.80	H
	7488	-48.67	-13	-35.67	-58.44	3.39	13.16	H
	3741	-55.95	-13	-42.95	-68.21	2.64	14.90	V
	5613	-46.40	-13	-33.40	-58.26	2.94	14.80	V
	7488	-48.57	-13	-35.57	-58.34	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_13A_n2A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3741	-57.43	-13	-44.43	-69.69	2.64	14.90	H
	5613	-50.91	-13	-37.91	-62.77	2.94	14.80	H
	7488	-48.70	-13	-35.70	-58.47	3.39	13.16	H
	3741	-56.91	-13	-43.91	-69.17	2.64	14.90	V
	5613	-48.63	-13	-35.63	-60.49	2.94	14.80	V
	7488	-48.57	-13	-35.57	-58.34	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



EN-DC_66A_n2A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3741	-57.11	-13	-44.11	-69.37	2.64	14.90	H
	5613	-49.02	-13	-36.02	-60.88	2.94	14.80	H
	7488	-48.48	-13	-35.48	-58.25	3.39	13.16	H
	3741	-56.74	-13	-43.74	-69.00	2.64	14.90	V
	5613	-52.49	-13	-39.49	-64.35	2.94	14.80	V
	7488	-48.33	-13	-35.33	-58.10	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_48A_n2A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3741	-56.47	-13	-43.47	-68.73	2.64	14.90	H
	5613	-53.04	-13	-40.04	-64.90	2.94	14.80	H
	7488	-48.48	-13	-35.48	-58.25	3.39	13.16	H
	3741	-55.80	-13	-42.80	-68.06	2.64	14.90	V
	5613	-53.36	-13	-40.36	-65.22	2.94	14.80	V
	7488	-47.74	-13	-34.74	-57.51	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_2A_n5A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1656	-66.78	-13	-53.78	-73.75	1.58	10.70	H
	2482	-63.90	-13	-50.90	-72.15	2.102	12.50	H
	3312	-62.48	-13	-49.48	-71.37	2.856	13.90	H
	1656	-66.87	-13	-53.87	-73.84	1.58	10.70	V
	2482	-64.38	-13	-51.38	-72.63	2.10	12.50	V
	3312	-62.49	-13	-49.49	-71.38	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



EN-DC_66A_n5A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1656	-66.87	-13	-53.87	-73.84	1.58	10.70	H
	2482	-64.45	-13	-51.45	-72.70	2.102	12.50	H
	3312	-62.02	-13	-49.02	-70.91	2.856	13.90	H
	1656	-66.63	-13	-53.63	-73.60	1.58	10.70	V
	2482	-63.60	-13	-50.60	-71.85	2.10	12.50	V
	3312	-61.96	-13	-48.96	-70.85	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_48A_n5A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1656	-67.57	-13	-54.57	-74.54	1.58	10.70	H
	2482	-65.05	-13	-52.05	-73.30	2.102	12.50	H
	3312	-62.69	-13	-49.69	-71.58	2.856	13.90	H
	1656	-67.38	-13	-54.38	-74.35	1.58	10.70	V
	2482	-64.72	-13	-51.72	-72.97	2.10	12.50	V
	3312	-62.58	-13	-49.58	-71.47	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_66A_n25A / LTE 10MHz + NR 20MHz / PI/2 BPSK DFT-s-OFDM								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3747	-56.91	-13	-43.91	-69.17	2.64	14.90	H
	5619	-51.24	-13	-38.24	-63.10	2.94	14.80	H
	7500	-48.56	-13	-35.56	-58.33	3.39	13.16	H
	3747	-57.07	-13	-44.07	-69.33	2.64	14.90	V
	5619	-52.39	-13	-39.39	-64.25	2.94	14.80	V
	7500	-48.29	-13	-35.29	-58.06	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.