

Report No.: FG250217002



## FCC RADIO TEST REPORT

FCC ID : VDE-GGCAC

Equipment : Generator Connectivity Accessory, Cellular

Brand Name : Generac Power Systems, Inc

Model Name : RADIO-G3-4V

Applicant : Generac Power Systems, Inc.

S45W29290 WI-59, Waukesha, WI 53189

Manufacturer : Generac Power Systems, Inc.

S45W29290 WI-59, Waukesha, WI 53189

Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27

The product was received on Feb. 07, 2025 and testing was performed from Feb. 21, 2025 to Mar. 13, 2025. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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

Approved by: Neil Kao

Mil Kao

Sporton International (USA) Inc.

1175 Montague Expressway, Milpitas, CA 95035

TEL: 408 9043300 Page Number : 1 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## **Table of Contents**

His	story o	f this test reportf	3
Su	mmary	y of Test Result	4
1	-	ral Description	
	1.1	Modification of EUT	6
	1.2	Testing Location	6
	1.3	Applicable Standards	6
2	Test	Configuration of Equipment Under Test	7
	2.1	Test Mode	
	2.2	Connection Diagram of Test System	8
	2.3	Support Unit used in test configuration and system	8
	2.4	Frequency List of Low/Middle/High Channels	9
3	Radia	ated Test Items	11
	3.1	Measuring Instruments	11
	3.2	Radiated Output Power and ERP/EIRP	13
	3.3	Radiated Spurious Emission Measurement	14
4	List o	of Measuring Equipment	16
5	Meas	urement Uncertainty	17
Аp	pendi	A. Test Results for Radiated EIRP Measurements	
Ар	pendi	R B. Test Results of Radiated Test	
Аp	pendi	c C. Test Setup Photographs	

TEL: 408 9043300 Page Number : 2 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## History of this test report

Report No.	Version	Description	Issue Date
FG250217002	01	Initial issue of report	Mar. 31, 2025

TEL: 408 9043300 Page Number : 3 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## **Summary of Test Result**

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
	§22.913 (a)(5)	Effective Radiated Power (Band 5)		
3.2	§27.50 (b)(10) §27.50 (c)(10)	Effective Radiated Power (Band 12) (Band 13)	Dane	
3.2	§24.232 (c)	Equivalent Isotropic Radiated Power (Band 25)	- Pass	-
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (Band 66)		
-	§24.232 (d) §27.50 (d)(5)	Peak-to-Average Ratio	Pass	See Note
-	§2.1049	Occupied Bandwidth	Pass	See Note
-	\$2.1051 \$22.917 (a) \$24.238 (a) \$27.53 (c)(2)(4) \$27.53 (g) \$27.53 (h)	Conducted Band Edge Measurement (Band 5) (Band 12) (Band 13) (Band 25) (Band 66)	Pass	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (c)(2) §27.53 (g) §27.53 (h)	Conducted Spurious Emission (Band 5) (Band 12) (Band 13) (Band 25) (Band 66)	Pass	See Note
	§2.1055 §22.355§24.235 §27.54	Frequency Stability Temperature & Voltage	Pass	See Note
3.3	§2.1053 §22.917 (a) §24.238 (a) §27.53 (c)(2) §27.53 (f) §27.53 (g) §27.53 (h)	Radiated Spurious Emission (Band 5) (Band 12) (Band 13) (Band 25) (Band 66)	Pass	-

#### Note:

- For host device, Radiated Spurious Emission, Effective Radiated Power and Equivalent Isotropic Radiated Power are verified and comply with the limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: HL7810)

TEL: 408 9043300 Page Number : 4 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

#### Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented
  against the regulation limits or in accordance with the requirements stipulated by the
  applicant/manufacturer who shall bear all the risks of non-compliance that may potentially
  occur if measurement uncertainty is taken into account.
- 2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

#### Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

TEL: 408 9043300 Page Number : 5 of 17

Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## 1 General Description

### 1.1 Product Feature of Equipment Under Test

Product Feature	
General Specs	
LTE.	

**Remark:** The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

#### 1.2 Modification of EUT

No modifications made to the EUT during the testing.

### 1.3 Testing Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	Sporton Site No.
rest Site No.	03CH01-CA

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: US1250

### 1.4 Applicable Standards

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

- + ANSI C63.26-2015
- FCC 47 CFR Part 2, 22(H), 24(E), 27
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.

#### Remark:

- All the test items were validated and recorded in accordance with the standards without any modification during the testing.
- 2. The TAF code is not including all the FCC KDB listed without accreditation.

TEL: 408 9043300 Page Number : 6 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## 2 Test Configuration of Equipment Under Test

#### 2.1 Test Mode

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

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in Tablet Mode (three orthogonal axis (X: flat, Y: portrait, Z: landscape)) and Notebook Mode, and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report..

Modulation Type	Modulation
Α	QPSK
В	16QAM
С	64QAM
D	256QAM

Test Item	Modulation Type	Bandwidth	RB Size	Channel
EIRP	Α	Max	1RB	L, M, H
RSE	A	Max	1RB	L, M, H

#### Remark:

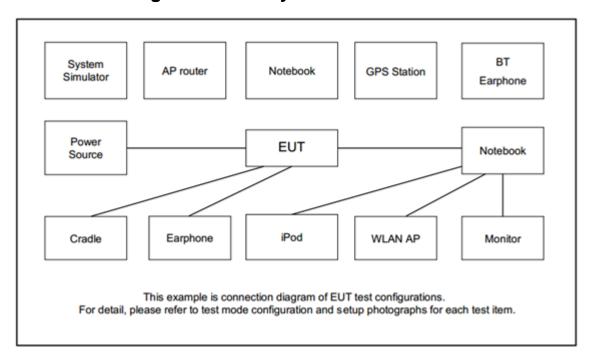
- Evaluated all the transmitter signal and reporting worst-case configuration among all modulation types.
- 2. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst-case emissions are reported.
- 3. One representative bandwidth is selected to perform PAR and frequency stability.

TEL: 408 9043300 Page Number : 7 of 17

Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

Item	Equipment	<b>Brand Name</b>	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMW500	N/A	N/A	Unshielded, 1.8 m

TEL: 408 9043300 Page Number : 8 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## 2.4 Frequency List of Low/Middle/High Channels

LTE Band 5 Channel and Frequency List						
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest		
40	Channel	20450	20525	20600		
10	Frequency	829	836.5	844		
F	Channel	20425	20525	20625		
5	Frequency	826.5	836.5	846.5		
2	Channel	20415	20525	20635		
3	Frequency	825.5	836.5	847.5		
4.4	Channel	20407	20525	20643		
1.4	Frequency	824.7	836.5	848.3		

LTE Band 12 Channel and Frequency List						
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest		
10	Channel	23060	23095	23130		
10	Frequency	704	707.5	711		
5	Channel	23035	23095	23155		
5	Frequency	701.5	707.5	713.5		
3	Channel	23025	23095	23165		
3	Frequency	700.5	707.5	714.5		
1.4	Channel	23017	23095	23173		
1.4	Frequency	699.7	707.5	715.3		

TEL: 408 9043300 Page Number : 9 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

LTE Band 13 Channel and Frequency List						
BW [MHz] Channel/Frequency(MHz) Lowest Middle Highest						
10	Channel	-	23230	-		
10	Frequency	-	782	-		
E	Channel	23205	23230	23255		
5	Frequency	779.5	782	784.5		

LTE Band 25 Channel and Frequency List						
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest		
20	Channel	26140	26340	26590		
20	Frequency	1860	1880	1905		
15	Channel	26115	26340	26615		
15	Frequency	1857.5	1880	1907.5		
10	Channel	26090	26340	26640		
10	Frequency	1855	1880	1910		
5	Channel	26065	26340	26665		
5	Frequency	1852.5	1880	1912.5		
3	Channel	26055	26340	26675		
3	Frequency	1851.5	1880	1913.5		
1.4	Channel	26047	26340	26683		
1.4	Frequency	1850.7	1880	1914.3		

	LTE Band 66 Channel and Frequency List												
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest									
00	Channel	132072	132322	132572									
20	Frequency	1720	1745	1770									
15	Channel	132047	132322	132597									
15	Frequency	1717.5	1745	1772.5									
40	Channel	132022	132322	132622									
10	Frequency	1715	1745	1775									
5	Channel	131997	132322	132647									
5	Frequency	1712.5	1745	1777.5									
2	Channel	131987	132322	132657									
3	Frequency	1711.5	1745	1778.5									
1.4	Channel	131979	132322	132665									
1.4	Frequency	1710.7	1745	1779.3									

 TEL: 408 9043300
 Page Number
 : 10 of 17

 Report Template No.: BU5-FGLTE Version 2.5
 Issue Date
 : Mar. 31, 2025

Report Version : 01

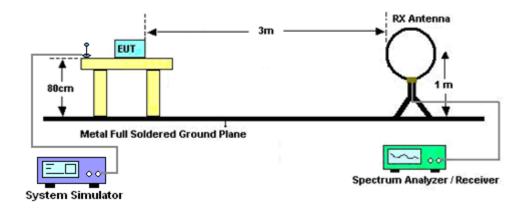
### 3 Radiated Test Items

## 3.1 Measuring Instruments

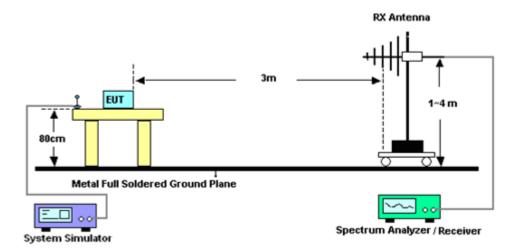
See list of measuring instruments of this test report.

### 3.1.1 Test Setup

#### For radiated test below 30MHz



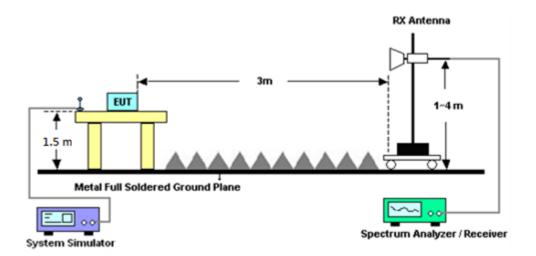
#### For radiated test from 30MHz to 1GHz



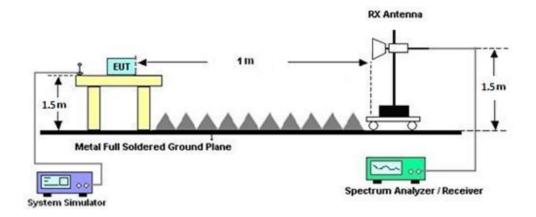
TEL: 408 9043300 Page Number : 11 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

#### For radiated test from 1GHz to 18GHz



#### For radiated test above 18GHz



#### 3.1.2 Test Result of Radiated Test

Please refer to Appendix B.

#### Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

TEL: 408 9043300 Page Number : 12 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

### 3.2 Radiated Output Power and ERP/EIRP

# 3.2.1 Description of the Conducted Output Power Measurement and 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 radiated power was measured by Field Strength method according to C63.26.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 12, Band 13

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 25

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 66

#### 3.2.2 Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, and RMS max-hold, taking the record of maximum spurious emission.
- To convert spectrum reading E(dBuV/m) to EIRP(dBm)
   EIRP(dBm) = Level (dBuV/m) + 20log(d) -104.77,
  - where d is the distance at which filed strength limit is specified in the rules
- 7. Reading (dBm) + Path Loss (dB) + Correction Factor (dB)+ Duty Factor (dB)
- 8. ERP (dBm) = EIRP (dBm) 2.15
- The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

 TEL: 408 9043300
 Page Number
 : 13 of 17

 Report Template No.: BU5-FGLTE Version 2.5
 Issue Date
 : Mar. 31, 2025

Report Version : 01

### 3.3 Radiated Spurious Emission Measurement

#### 3.3.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI C63.26-2015. 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.

#### For LTE Band 13

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

TEL: 408 9043300 Page Number : 14 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

#### 3.3.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

Report No.: FG250217002

- 1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- 5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, and RMS max-hold, taking the record of maximum spurious emission.
- To convert spectrum reading E(dBuV/m) to EIRP(dBm)
   EIRP(dBm) = Level (dBuV/m) + 20log(d) -104.77,
  - where d is the distance at which filed strength limit is specified in the rules
- 7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level Preamp Factor.
- 8. ERP (dBm) = EIRP (dBm) 2.15
- 9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

TEL: 408 9043300 Page Number : 15 of 17
Report Template No.: BU5-FGLTE Version 2.5 Issue Date : Mar. 31, 2025

Report Version : 01

## 4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	6111D	54683	30MHz~1GHz	Nov. 15, 2024	Feb. 21, 2025~ Mar. 13, 2025	Nov. 14, 2025	Radiation (03CH01-CA)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	02113	1GHz~18GHz	Apr. 26, 2024	Feb. 21, 2025~ Mar. 13, 2025	Apr. 25, 2025	Radiation (03CH01-CA)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA9170	00841	18GHz~40GHz	Aug. 07, 2024	Feb. 21, 2025~ Mar. 13, 2025	Aug. 06, 2025	Radiation (03CH01-CA)
Amplifier	SONOMA	310N	372241	9kHz~1GHz	Apr. 24, 2024	Feb. 21, 2025~ Mar. 13, 2025	Apr. 23, 2025	Radiation (03CH01-CA)
Preamplifier	Keysight	83017A	MY53270321	1GHz~26.5GHz	Apr. 25, 2024	Feb. 21, 2025~ Mar. 13, 2025	Apr. 24, 2025	Radiation (03CH01-CA)
Preamplifier	E-instrument	ERA-100M-18 G-56-01-A70	EC1900252	1GHz~18GHz	Apr. 25, 2024	Feb. 21, 2025~ Mar. 13, 2025	Apr. 24, 2025	Radiation (03CH01-CA)
Preamplifier	EMEC	EMC18G40G	060725	18G-40G	Apr. 24, 2024	Feb. 21, 2025~ Mar. 13, 2025	Apr. 23, 2025	Radiation (03CH01-CA)
Wideband Radio Communicatio n Tester	R&S	CMW500	150250	N/A	Jun. 05, 2024	Feb. 21, 2025~ Mar. 13, 2025	Jun. 04, 2025	Radiation (03CH01-CA)
RF Cable	RF Cable HUBER+SUH NER		8015932/2, 8015762/2, 804938/2	N/A	Mar. 05, 2024	Feb. 21, 2025~ Mar. 13, 2025	Mar. 04, 2025	Radiation (03CH01-CA)
Hygrometer	TESEO	608-H1	45142559	N/A	Aug. 14, 2024	Feb. 21, 2025~ Mar. 13, 2025	Aug. 13, 2025	Radiation (03CH01-CA)
Controller	Controller Chaintek		060881	Control Turn Table & Antenna Mast	N/A	Feb. 21, 2025~ Mar. 13, 2025	N/A	Radiation (03CH01-CA)
Antenna Mast	last ChainTek MBS-520-1 N/A		N/A	1m~4m	N/A	Feb. 21, 2025~ Mar. 13, 2025	N/A	Radiation (03CH01-CA)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Feb. 21, 2025~ Mar. 13, 2025	N/A	Radiation (03CH01-CA)
Test Software	Audix E3	E3 230621 Sporton US,V9	PK-002093	N/A	N/A	Feb. 21, 2025~ Mar. 13, 2025	N/A	Radiation (03CH01-CA)

 TEL: 408 9043300
 Page Number
 : 16 of 17

 Report Template No.: BU5-FGLTE Version 2.5
 Issue Date
 : Mar. 31, 2025

Report Version : 01

## **5** Measurement Uncertainty

#### <u>Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)</u>

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.7 dB
01 95% (U = 20C(y))	

Report No. : FG250217002

#### **Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)**

Measuring Uncertainty for a Level of Confidence	5.5 dB
of 95% (U = 2Uc(y))	5.5 UB

#### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence	4.5 dB
of 95% (U = 2Uc(y))	4.5 dB

 TEL: 408 9043300
 Page Number
 : 17 of 17

 Report Template No.: BU5-FGLTE Version 2.5
 Issue Date
 : Mar. 31, 2025

Report Version : 01



FCC RADIO TEST REPORT Report No.: FG250217002

#### Appendix A. Test Results for Radiated EIRP Measurements.

Band	Ant	Channel	Freq. (MHz)	BW	RB	Data Rate	Reading Field Strength (dBm/m)	Path Loss (dB)	Level Field Strength (dBm/m)	Duty Factor (dB)	Correction Factor (dB) =107-95.23	EIRP Power (dBm)	Pass /Fail
LTE B5	ANT 1+2	20643	847.85	1.4M	1RB0	QPSK	-24.500	33.460	8.960	0.000	11.770	20.730	
LTE B25	ANT 1+2	26115	1850.84	15M	1RB0	QPSK	-23.790	32.220	8.430	0.000	11.770	20.200	
LTE B12	ANT 1+2	20395	705.34	5M	1RB0	QPSK	-22.580	30.610	8.030	0.000	11.770	19.800	
LTE B13	ANT 1+2	23230	779.84	5M	1RB0	QPSK	-23.040	32.410	9.370	0.000	11.770	21.140	
LTE B66	ANT 1+2	132072	1711.09	20M	1RB0	QPSK	-23.330	31.640	8.310	0.000	11.770	20.080	

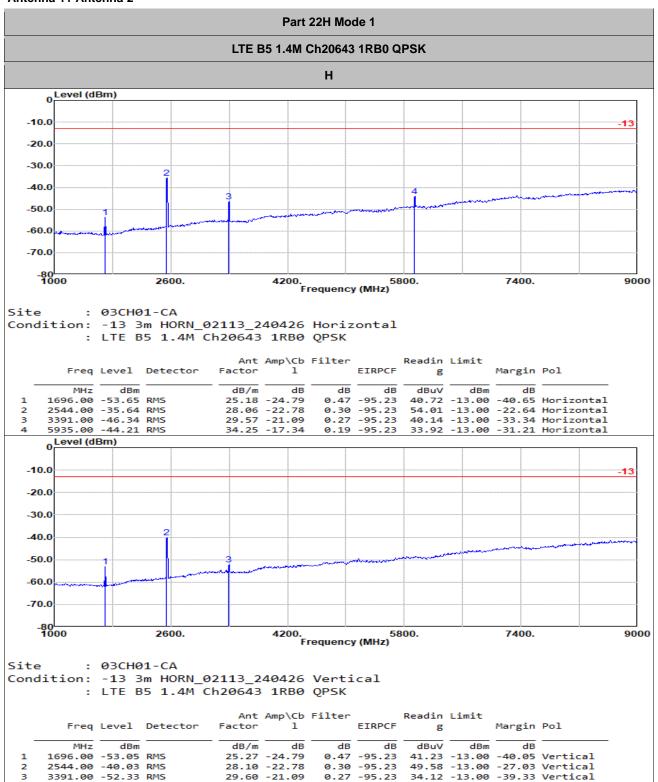
## **Appendix B. Test Results of Radiated Test**

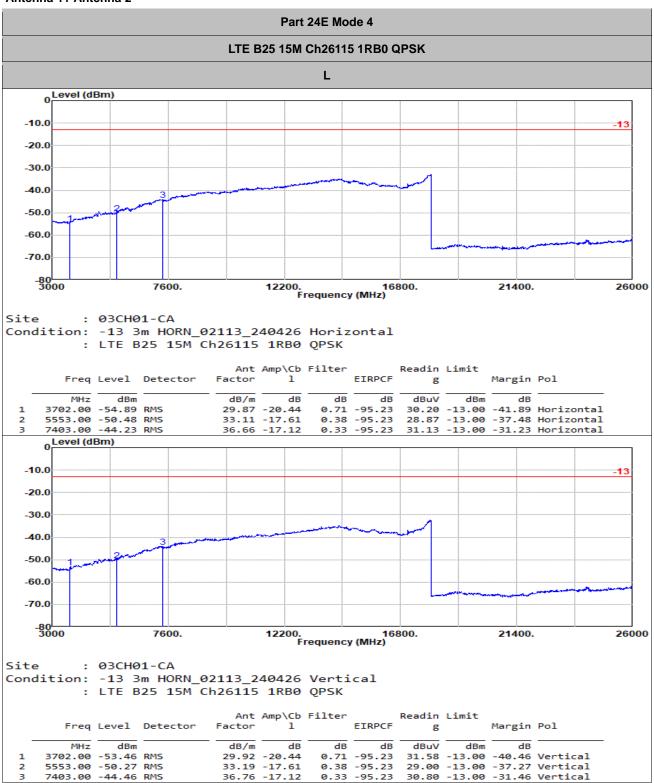
B1. Summary of each worse mode

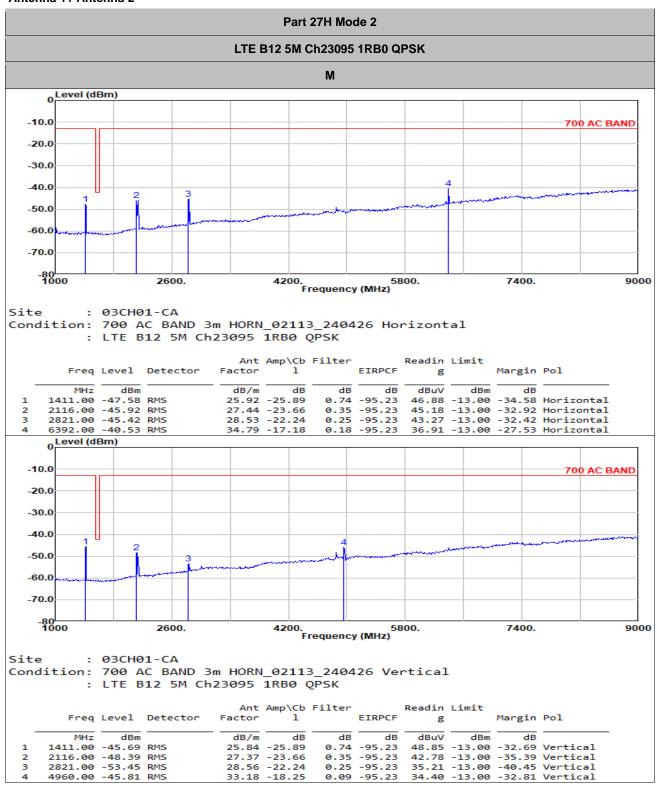
Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp\Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	Part 22H	LTE B5	Н	2544	-35.64	RMS	28.06	-22.78	0.30	-95.23	54.01	-13.00	-22.64	Н	Antenna 1+ Antenna 2
4	Part 24E	LTE B25	L	7403	-44.23	RMS	36.66	-17.12	0.33	-95.23	31.13	-13.00	-31.23	Н	Antenna 1+ Antenna 2
2	Part 27H	LTE B12	М	6392	-40.53	RMS	34.79	-17.18	0.18	-95.23	36.91	-13.00	-27.53	Н	Antenna 1+ Antenna 2
3	Part 27F	LTE B13	М	1560	-49.32	RMS	25.56	-25.25	0.56	-95.23	45.04	-42.15	-7.17	V	Antenna 1+ Antenna 2
5	Part 27L	LTE B66	L	6844	-45.87	RMS	36.05	-17.14	0.33	-95.23	30.12	-13.00	-32.87	V	Antenna 1+ Antenna 2

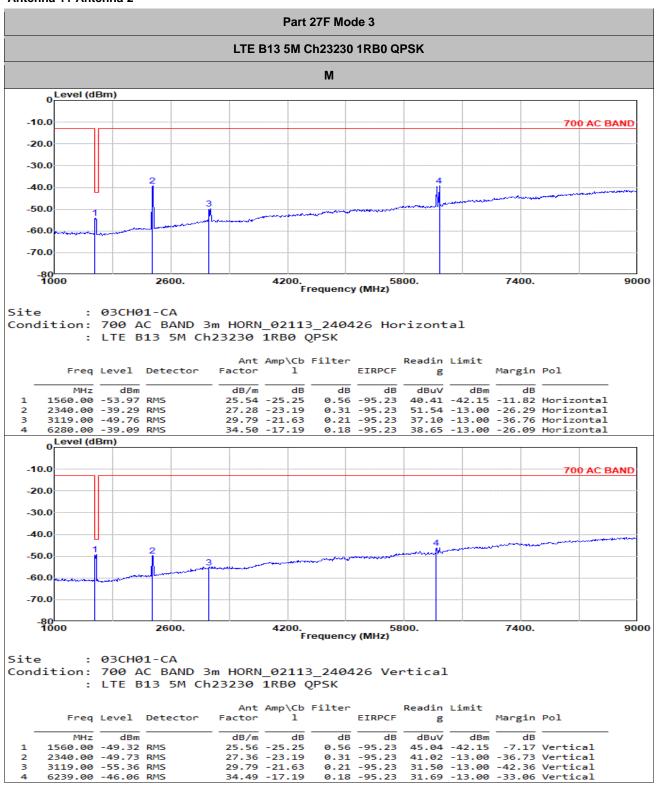
Report No.: FR250217002

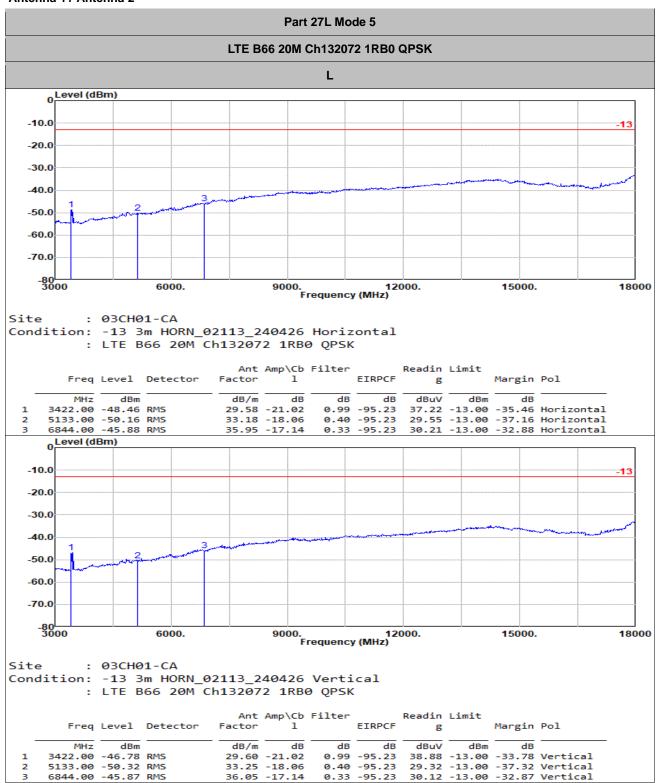
TEL: 408 9043300 Page Number : B1 of B7







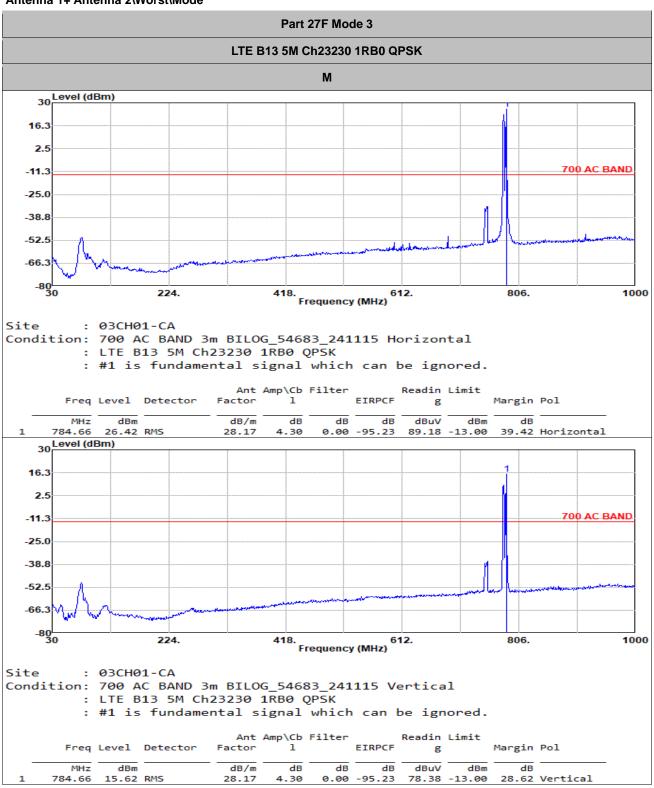




Report No.: FR250217002

TEL: 408 9043300 Page Number : B6 of B7

#### Antenna 1+ Antenna 2\Worst\Mode



Report No.: FR250217002

Remark: #1 is fundamental signal which can be ignored.

TEL: 408 9043300 Page Number : B7 of B7

## **Appendix C. Setup Photographs**

<Radiated Emission>

**Z** Plane

LF



Report No. : FG250217002





TEL: 408 9043300 Page Number : C1 of C2



Report No. : FG250217002





**EUT** 



———THE END——

TEL: 408 9043300 Page Number : C2 of C2