



Report No.: FG140849D

FCC RADIO TEST REPORT

FCC ID : XHG-RG1000 **Equipment** : Mobile Hotspot

Model Name : RG1000

Applicant : Franklin Technology Inc.

906 JEI Platz, 186, Gasan digital 1-ro,

Gumcheon-Gu, Seoul, South Korea, 08502

Manufacturer : Franklin Technology Inc.

906 JEI Platz, 186, Gasan digital 1-ro,

Gumcheon-Gu, Seoul, South Korea, 08502

Standard : FCC 47 CFR Part 2, 96

The product was received on May 07, 2021 and testing was started from Jun. 10, 2021 and completed on Aug. 18, 2021. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E 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 of Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

Lunis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

TEL: 886-3-327-3456 : 1 of 24 Page Number FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021 : 01

Table of Contents

His	story c	of this test report	3
Su	mmar	y of Test Result	4
1	Gene	eral Description	5
	1.1 1.2 1.3 1.4	Product Feature of Equipment Under Test	5 5 6
2	Test	Configuration of Equipment Under Test	8
	2.1 2.2 2.3 2.4 2.5	Test Mode Connection Diagram of Test System Support Unit used in test configuration Measurement Results Explanation Example Frequency List of Low/Middle/High Channels	9 9
3	Cond	ducted Test Items	11
	3.1 3.2 3.3 3.4	Measuring Instruments Conducted Output Power Peak-to-Average Ratio EIRP	12 13
	3.5 3.6 3.7 3.8	Occupied Bandwidth Conducted Band Edge Conducted Spurious Emission Frequency Stability	15 16 17
4	Radia	ated Test Items	
	4.1 4.2 4.3 4.4	Measuring Instruments Test Setup Test Result of Radiated Test Radiated Spurious Emission	19 20
5	List	of Measuring Equipment	22
6	Unce	ertainty of Evaluation	24
Аp	pendi:	x A. Test Results of Conducted Test x B. Test Results of Radiated Test x C. Test Setup Photographs	

TEL: 886-3-327-3456 FAX: 886-3-328-4978

Report Template No.: BU5-FGLTE96 Version 2.4

Page Number : 2 of 24

Issued Date : Sep. 09, 2021

Report No.: FG140849D

Report Version : 01

History of this test report

Report No.: FG140849D

Report No.	Version	Description	Issued Date
FG140849D	01	Initial issue of report	Sep. 09, 2021

TEL: 886-3-327-3456 Page Number : 3 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

Summary of Test Result

Report No.: FG140849D

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
3.3	§96.41	Peak-to-Average Ratio	Pass	
3.4	§96.41	Effective Isotropic Radiated Power	Pass	-
3.5	§2.1049 §96.41	Occupied Bandwidth	Reporting only	-
3.6	§2.1051 §96.41	Conducted Band Edge Measurement	Pass	-
3.7	§2.1051 §96.41	Conducted Spurious Emission	Pass	
3.8	§2.1055	Frequency Stability for Temperature & Voltage	Pass	
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	Under limit 3.62 dB at 18080.000 MHz

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.

Reviewed by: Avis Chuang Report Producer: Amy Chen

TEL: 886-3-327-3456 Page Number : 4 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

1 General Description

1.1 Product Feature of Equipment Under Test

WCDMA/LTE/5G NR, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, and Wi-Fi 5GHz 802.11n/ac/ax.

Product S	pecification subjective to this standard
	WWAN
	<main>: PIFA Antenna</main>
Antonno Typo	<aux.>: PIFA Antenna</aux.>
Antenna Type	WLAN
	<chain 0="">: PIFA Antenna</chain>
	<chain 1="">: PIFA Antenna</chain>
Antenna Gain	-2.1 dBi

Report No.: FG140849D

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Modification of EUT

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

TEL: 886-3-327-3456 Page Number : 5 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory			
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978			
Test Site No.	Sporton Site No.			
rest site No.	TH03-HY			
Test Engineer	HaoEn Zhang			
Temperature	23.5~24.8℃			
Relative Humidity	52.4~55.6%			

Report No.: FG140849D

Test Site	Sporton International Inc. Wensan Laboratory				
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855				
Test Site No.	Sporton Site No.				
Test Site No.	03CH12-HY (TAF Code: 3786)				
Test Engineer	Jack Cheng, Lance Chiang, and Chuan Chu				
Temperature	22.3~26.4℃				
Relative Humidity	58.0~66.0%				
Remark	The Radiated Spurious Emission test item subcontracted to Sporton				
Remark	International Inc. Wensan Laboratory.				

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

FCC Designation No.: TW1190 and TW3786

TEL: 886-3-327-3456 Page Number : 6 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

1.4 Applied Standards

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

Report No.: FG140849D

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 96
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 940660 D01 Part 96 CBRS Eqpt v01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

- **1.** All test items were verified and recorded according to the standards and without any deviation during the test.
- 2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
- 3. The TAF code is not including all the FCC KDB listed without accreditation.

TEL: 886-3-327-3456 Page Number : 7 of 24
FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

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.

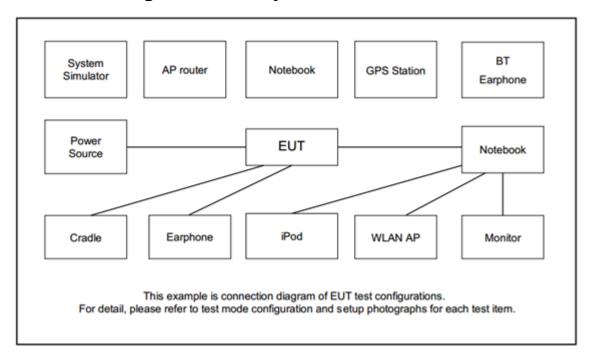
Report No.: FG140849D

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 three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and find Y Plane as worst plane.

	Band	Bandwidth (MHz)				Modulation			RB#			Test Channel				
Test Items		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	М	Н
Max. Output Power	48	•	-	٧	v	v	v	v	v	v	٧	v	v	v	٧	٧
26dB and 99% Bandwidth	48			v	v	v	v	v	v	v			v		v	
Conducted Band Edge	48	•	•	v	v	v	v	V	v	v	v		v	v	v	v
Peak-to-Aver age Ratio	48	•	-				v	v	v	v			v		v	
Conducted Spurious Emission	48			v	v	v	v	v			v			v	v	v
E.R.P / E.I.R.P	48	-	-	٧	v	v	v	v	v	v			Max F	Powe	r	
Frequency Stability	48	•	-		v			v			٧				v	
Radiated Spurious Emission	48	Worst Case v v v					v									
Remark	 The mark "v" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. 							nder								

TEL: 886-3-327-3456 Page Number : 8 of 24
FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

2.2 Connection Diagram of Test System



Report No.: FG140849D

2.3 Support Unit used in test configuration

ltem	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example:

Offset(dB) = RF cable loss(dB) + attenuator factor(dB). = 4.2 + 10 = 14.2 (dB)

TEL: 886-3-327-3456 Page Number : 9 of 24
FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

2.5 Frequency List of Low/Middle/High Channels

	LTE Band 48 Channel and Frequency List										
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest							
20	Channel	55340	55990	56640							
20	Frequency	3560.0	3625.0	3690.0							
15	Channel	55315	55990	56665							
15	Frequency	3557.5	3625.0	3692.5							
10	Channel	55290	55990	56690							
10	Frequency	3555.0	3625.0	3695.0							
5	Channel	55265	55990	56715							
5	Frequency	3552.5	3625.0	3697.5							

Report No.: FG140849D

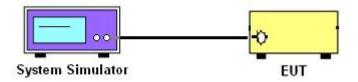
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

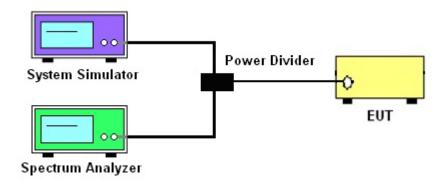
3.1.1 Test Setup

3.1.2 Conducted Output Power

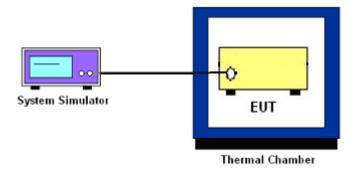


Report No.: FG140849D

3.1.3 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

TEL: 886-3-327-3456 Page Number : 11 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.2 Conducted Output Power

3.2.1 Description of the Conducted Output Power 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.

Report No.: FG140849D

3.2.2 Test Procedures

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

TEL: 886-3-327-3456 Page Number : 12 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.3 Peak-to-Average Ratio

3.3.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Report No.: FG140849D

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

- 1. The EUT was connected to spectrum and system simulator via a power divider.
- 2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
- 3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
- 4. Record the deviation as Peak to Average Ratio

TEL: 886-3-327-3456 Page Number : 13 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.4 EIRP

3.4.1 Description of the EIRP Measurement

The EIRP of mobile transmitters must not exceed 23 dBm /10 megahertz for Band 48.

Report No.: FG140849D

The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

 $EIRP = P_T + G_T - L_C$, 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

EIRP and PSD limits as below table:

Device	Maximum EIRP	Maximum PSD		
	(dBm/10 MHz)	(dBm/MHz)		
End User Device	23	n/a		

Remark: The total power is larger than the integrated power across 10MHz portion. Hence, total channel power is complied with EIRP limit 23dBm/10MHz.

3.4.2 Test Procedures

The testing follows procedure in Section 5.2 of ANSI C63.26-2015 and KDB 940660 D01 Part 96 Eqpt v02 Section 3.2(b)(2)

Determine the EIRP by adding the effective antenna gain to the measured average conducted power level.

TEL: 886-3-327-3456 Page Number : 14 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.5 Occupied Bandwidth

3.5.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the

Report No.: FG140849D

total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and

one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB

below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit

bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of

the emission bandwidth.

3.5.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.

2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.

The span range for the spectrum analyzer shall be between two and five times the anticipated

OBW.

3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated

OBW, and the VBW shall be at least 3 times the RBW.

4. Set the detection mode to peak, and the trace mode to max hold.

5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to

stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.

(this is the reference value)

6. Determine the "-26 dB down amplitude" as equal to (Reference Value – X).

7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of

the spectral display such that each marker is at or slightly below the "-X dB down amplitude"

determined in step 6. If a marker is below this "-X dB down amplitude" value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the

two markers.

8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured

bandwidth.

TEL: 886-3-327-3456 Page Number : 15 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.6 Conducted Band Edge

3.6.1 Description of Conducted Band Edge Measurement

The conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

Report No.: FG140849D

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- 2. The band edges of low and high channels for the highest RF powers were measured.
- 3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
- 4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used
- 5. Set spectrum analyzer with RMS detector.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

For Adjacent Channel Leakage Ratio (ACLR) measurement,

- The Adjacent Channel Leakage Ratio (ACLR) is the ratio of the average power in the assigned aggregated channel bandwidth to the average power over the equivalent adjacent channel bandwidth.
- 2. The option ACLR of spectrum analyzer is used and measures the ACLR ratio by setting equivalent channel bandwidth.
- 3. The measured ACLR ratio shall be at least 30 dB.

TEL: 886-3-327-3456 Page Number : 16 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.7 Conducted Spurious Emission

3.7.1 Description of Conducted Spurious Emission Measurement

Emission and interference limits: the device satisfies the emission limits specified in Section FCC Part 96.41 e) 1) ii) & e) 2) at the lowest and highest edges of the band, and in the middle of the band.

Report No.: FG140849D

3.7.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
 The path loss was compensated to the results for each measurement.
- 3. The middle channel for the highest RF power within the transmitting frequency was measured.
- 4. The conducted spurious emission for the whole frequency range was taken.
- 5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
- 6. Set spectrum analyzer with RMS detector.
- 7. Taking the record of maximum spurious emission.
- 8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 9. The limit line is -40dBm/MHz.

TEL: 886-3-327-3456 Page Number : 17 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

3.8 Frequency Stability

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency

Report No.: FG140849D

3.8.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

- 1. The EUT was set up in the thermal chamber and connected with the system simulator.
- With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
- 3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

- 1. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
- 2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
- 3. The variation in frequency was measured for the worst case.

TEL: 886-3-327-3456 Page Number : 18 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

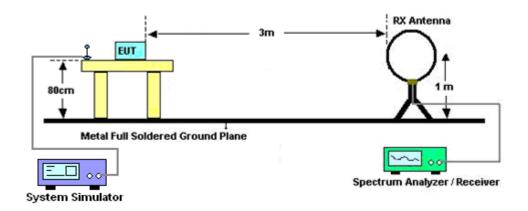
4 Radiated Test Items

4.1 Measuring Instruments

See list of measuring instruments of this test report.

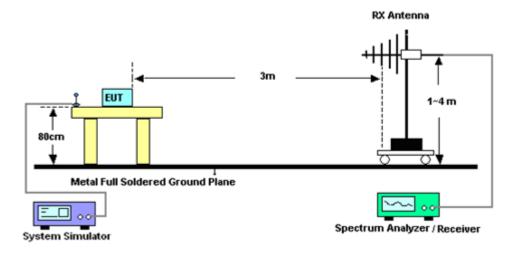
4.2 Test Setup

For radiated test below 30MHz



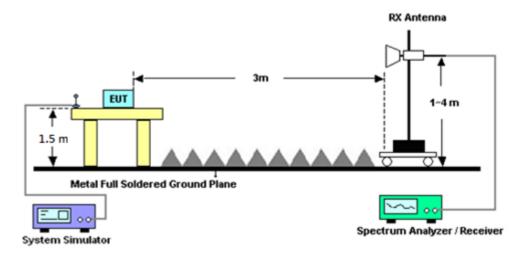
Report No.: FG140849D

For radiated test from 30MHz to 1GHz



TEL: 886-3-327-3456 Page Number : 19 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

For radiated test above 1GHz



Report No.: FG140849D

4.3 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: 886-3-327-3456 Page Number : 20 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E.

Report No.: FG140849D

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 -40dBm / MHz.

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

4.4.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

- 1. 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.
- 2. The EUT was set 3 meters from the receiving antenna 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 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
- 5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
- 6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
- A horn antenna was substituted in place of the EUT and was driven by a signal generator.
 Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

EIRP (dBm) = S.G. Power - Tx Cable Loss + Tx Antenna Gain<math>ERP (dBm) = EIRP - 2.15

8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is -40dBm/MHz

TEL: 886-3-327-3456 Page Number : 21 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jul. 14, 2020	Jun. 23, 2021~ Jun. 24, 2021	Jul. 13, 2021	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	37059 & 01	30MHz~1GHz	Oct. 11, 2020	Jun. 23, 2021~ Jun. 24, 2021	Oct. 10, 2021	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 11, 2020	Jun. 23, 2021~ Jun. 24, 2021	Oct. 10, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Nov. 23, 2020	Jun. 23, 2021~ Jun. 24, 2021	Nov. 22, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz~18GHz	May 18, 2021	Jun. 23, 2021~ Jun. 24, 2021	May 17, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00993	18GHz~40GHz	Nov. 19, 2020	Jun. 23, 2021~ Jun. 24, 2021	Nov. 18, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917057 6	18GHz~40GHz	May 21, 2021	Jun. 23, 2021~ Jun. 24, 2021	May 20, 2022	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 24, 2021	Jun. 23, 2021~ Jun. 24, 2021	Mar. 23, 2022	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY57280120	1GHz~26.5GHz	Jul. 20, 2020	Jun. 23, 2021~ Jun. 24, 2021	Jul. 19, 2021	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900249	1GHz~18GHz	Dec. 05, 2020	Jun. 23, 2021~ Jun. 24, 2021	Dec. 04, 2021	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 11, 2020	Jun. 23, 2021~ Jun. 24, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Sep. 14, 2020	Jun. 23, 2021~ Jun. 24, 2021	Sep. 13, 2021	Radiation (03CH12-HY)
Signal Generator	Rohde & Schwarz	SMB100A	101107	100kHz~40GHz	Dec. 04, 2020	Jun. 23, 2021~ Jun. 24, 2021	Dec. 03, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 11, 2020	Jun. 23, 2021~ Jun. 24, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 22, 2021	Jun. 23, 2021~ Jun. 24, 2021	Feb. 21, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 22, 2021	Jun. 23, 2021~ Jun. 24, 2021	Feb. 21, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12 SS	SN2	1.2GHz Low Pass Filter	Mar. 17, 2021	Jun. 23, 2021~ Jun. 24, 2021	Mar. 16, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-1080 -1200-15000-6 0SS	SN1	1.2GHz High Pass Filter	Mar. 17, 2021	Jun. 23, 2021~ Jun. 24, 2021	Mar. 16, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0ST	SN2	3GHz High Pass Filter	Jul. 14, 2020	Jun. 23, 2021~ Jun. 24, 2021	Jul. 13, 2021	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Oct. 02, 2020	Jun. 23, 2021~ Jun. 24, 2021	Oct. 01, 2021	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jun. 23, 2021~ Jun. 24, 2021	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jun. 23, 2021~ Jun. 24, 2021	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jun. 23, 2021~ Jun. 24, 2021	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jun. 23, 2021~ Jun. 24, 2021	N/A	Radiation (03CH12-HY)

Report No.: FG140849D

: 01

TEL: 886-3-327-3456 Page Number : 22 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Anritsu	MT8821C	62620025341	LTE FDD/TDD LTE-2CC ULCA/DLCA	Oct. 06, 2020	Jun. 10, 2021~ Aug. 18, 2021	Oct. 05, 2021	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101565	10Hz~40GHz	Nov. 13, 2020	Jun. 10, 2021~ Aug. 18, 2021	Nov. 12, 2021	Conducted (TH03-HY)
Thermal Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 14, 2020	Jun. 10, 2021~ Aug. 18, 2021	Sep. 13, 2021	Conducted (TH03-HY)
DC Power Supply	GW Instek	PSS-2005	GET861546	0V~64V ; 0A~6A	Jul. 01, 2020	Jun. 10, 2021~ Jun. 21, 2021	Jun. 30, 2021	Conducted (TH03-HY)
DC Power Supply	GW Instek	PSS-2005	GET861546	0V~64V ; 0A~6A	Jun. 22, 2020	Jun. 23, 2021~ Aug. 18, 2021	Jun. 21, 2022	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 09, 2021	Jun. 10, 2021~ Aug. 18, 2021	Jan. 08, 2022	Conducted (TH03-HY)

Report No.: FG140849D

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	3.10 dB
Confidence of 95% (U = 2Uc(y))	3.10 dB

Report No.: FG140849D

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of	3,39 dB
Confidence of 95% (U = 2Uc(y))	3.39 UB

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of	4.34 dB
Confidence of 95% (U = 2Uc(y))	4.34 UB

TEL: 886-3-327-3456 Page Number : 24 of 24 FAX: 886-3-328-4978 Issued Date : Sep. 09, 2021

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & EIRP)

	LTE Band 48 Maximum Average Power [dBm] (GT - LC = -2.1 dB)											
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)				
20	1	0		23.45	23.33	23.03						
20	1	49		23.32	23.29	22.91						
20	1	99	QPSK	23.22	22.76	22.80]					
20	50	0		22.58	22.48	22.16	21.35	0.1365				
20	50	24		22.55	22.42	22.10						
20	50	50		22.38	21.76	22.01						
20	100	0		22.43	22.36	22.11						
20	1	0		22.57	22.06	22.15	20.47	0.1114				
20	1	49		22.42	22.33	21.97						
20	1	99		22.32	21.97	21.91						
20	50	0	16-QAM	21.63	21.28	21.18						
20	50	24		21.56	21.34	21.10						
20	50	50		21.40	20.94	21.05						
20	100	0		21.47	20.89	21.09						
20	1	0		21.28	20.79	20.92						
20	1	49		21.13	20.82	20.71						
20	1	99		20.99	20.87	20.60						
20	50	0	64-QAM	20.62	20.44	20.20	19.18	0.0828				
20	50	24		20.56	19.98	20.12						
20	50	50		20.41	19.87	20.03						
20	100	0		20.43	20.41	20.12						
Limit	EIRP	< 23dBm/1	0MHz		Result		Pa	ISS				



FCC RADIO TEST REPORT

	LTE Band 48 Maximum Average Power [dBm] (GT - LC = -2.1 dB)											
BW [MHz]	RB Size	RB Offset	Highest	EIRP (dBm)	EIRP (W)							
15	1	0		23.35	22.95	22.92						
15	1	37		23.16	22.71	22.88						
15	1	74		23.20	22.60	22.75						
15	36	0	QPSK	22.43	22.11	21.98	21.25	0.1334				
15	36	20		22.52	21.97	22.00						
15	36	39		22.31	21.80	21.83						
15	75	0		22.32	22.13	22.07						
15	1	0		22.54	22.04	22.07		0.1107				
15	1	37		22.23	22.05	21.96	20.44					
15	1	74		22.17	22.00	21.90						
15	36	0	16-QAM	21.56	20.92	21.17						
15	36	20		21.49	21.09	21.00						
15	36	39		21.28	20.65	20.86						
15	75	0		21.38	21.19	21.08						
15	1	0		21.28	21.08	20.83						
15	1	37		21.02	20.82	20.67						
15	1	74		20.90	20.52	20.59						
15	36	0	64-QAM	20.57	19.96	20.07	19.18	0.0828				
15	36	20		20.45	19.85	20.01						
15	36	39		20.41	20.12	19.89						
15	75	0		20.34	20.25	20.06						
Limit	EIRP	< 23dBm/1	0MHz		Result		Pa	ISS				



FCC RADIO TEST REPORT

	LTE Band 48 Maximum Average Power [dBm] (GT - LC = -2.1 dB)											
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)				
10	1	0		23.27	23.15	22.80						
10	1	25		23.11	22.82	22.80						
10	1	49		23.15	22.91	22.61						
10	25	0	QPSK	22.32	21.98	21.97	21.17	0.1309				
10	25	12		22.48	22.20	21.85						
10	25	25		22.31	21.92	21.69						
10	50	0		22.25	21.84	22.07						
10	1	0		22.34	22.31	22.04		0.1057				
10	1	25		22.15	21.73	21.80	20.24					
10	1	49		22.10	21.40	21.76						
10	25	0	16-QAM	21.46	21.43	21.06						
10	25	12		21.47	20.98	20.91						
10	25	25		21.08	20.64	20.66						
10	50	0		21.25	20.84	21.06						
10	1	0		21.10	21.04	20.72						
10	1	25		20.93	20.54	20.50						
10	1	49		20.78	20.29	20.55						
10	25	0	64-QAM	20.48	20.19	19.89	19.00	0.0794				
10	25	12		20.28	20.11	19.95						
10	25	25		20.35	20.02	19.85						
10	50	0		20.33	19.92	20.01						
Limit	EIRP	< 23dBm/1	0MHz		Result		Pa	ISS				



FCC RADIO TEST REPORT

	LTE	Band 48 M	laximum A	verage Po	wer [dBm]	(GT - LC =	= -2.1 dB)		
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)	
5	1	0		23.12	23.21	22.60			
5	1	12		23.01	22.78	22.77			
5	1	24		23.15	22.57	22.55			
5	12	0	QPSK	22.28	22.18	21.85	21.11	0.1291	
5	12	7		22.48	22.19	21.77			
5	12	13		22.26	22.05	21.69			
5	25	0		22.23	22.16	21.90			
5	1	0		22.24	21.96	21.84		0.1033	
5	1	12		22.13	21.86	21.75	20.14		
5	1	24		22.06	21.42	21.72			
5	12	0	16-QAM	21.27	20.80	21.06			
5	12	7		21.42	20.78	20.74			
5	12	13		20.90	20.58	20.57			
5	25	0		21.14	20.78	20.92			
5	1	0		20.92	21.01	20.58			
5	1	12		20.89	20.32	20.41			
5	1	24		20.66	19.95	20.37			
5	12	0	64-QAM	20.47	20.07	19.83	18.91	0.0778	
5	12	7		20.14	20.00	19.87			
5	12	13		20.27	19.49	19.85			
5	25	0		20.23	19.57	20.01			
Limit	EIRP	< 23dBm/1	0MHz		Result		Pa	ISS	

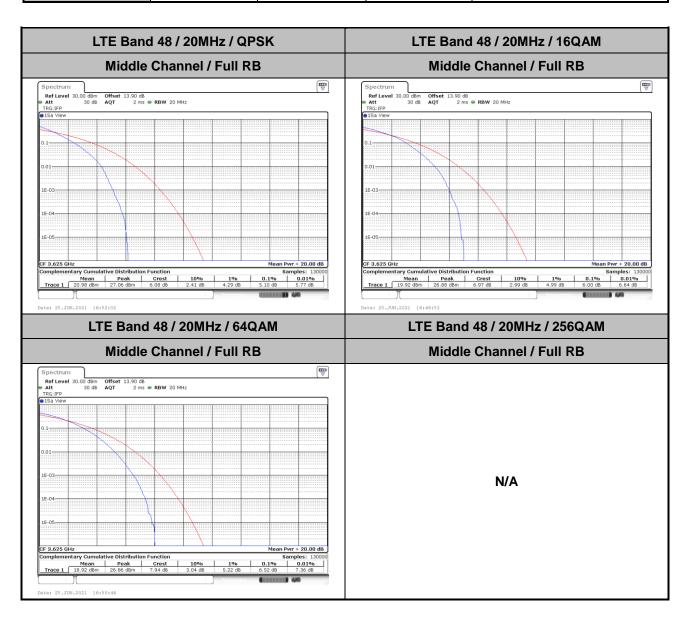


LTE Band 48

Peak-to-Average Ratio

Mode	LTE Band 48 / 20MHz									
Mod.	QPSK	QPSK 16QAM 64QAM Limit: 13dB								
RB Size	Full RB	Full RB	Full RB	Result						
Middle CH	5.10	6.00	6.52	PASS						

Report No.: FG140849D



TEL: 886-3-327-3456 Page Number: A2-1 of 84



26dB Bandwidth

Mode	LTE Band 48 : 26dB BW(MHz)											
BW	1.4MHz		1.4MHz 3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK 16QAM		QPSK	16QAM	QPSK	16QAM	QPSK	QPSK 16QAM		16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.90	4.86	9.63	9.87	14.39	14.42	18.86	18.90
Mode	LTE Band 48 : 26dB BW(MHz)											
BW	1.4	ИНz	3M	lHz	5MHz 10MHz				15MHz		20MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Middle CH	-	-	-	-	4.74	-	9.73	•	14.21	-	18.78	-

Report No. : FG140849D

TEL: 886-3-327-3456 Page Number : A2-2 of 84

LTE Band 48 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM M1[1] 10 dBm-40 dBm -60 dBm-
 Y-value
 Function

 2
 15.33 dBm
 ndB down

 2
 -10.80 dBm
 ndB

 z
 -11.07 dBm
 Q factor
 Type Ref Trc Function Result Type Ref Trc Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 dBm Offset 13.90 dB @ RBW 300 kHz

Att 30 dB SWT 12.6 µs @ VBW 1 MHz Mode Auto FFT
SGL Count 100/100

GPF Max 3.62 38 dBm -50 dBm-Span 20.0 MHz CF 3.625 GHz Span 20.0 MHz CF 3.625 GHz 1001 pts 1001 pts Type Ref Trc Type Ref Trc
 X-value
 Y-value
 Function

 3.6245 GHz
 15.87 dBm
 ndB down

 3.620185 GHz
 -10.12 dBm
 ndB

 3.629915 GHz
 -9.43 dBm
 Q factor

 X-value
 Y-value
 Function

 3.629296 GHz
 15.14 dBm
 ndB down

 3.619965 GHz
 -10.76 dBm
 ndB

 3.629835 GHz
 -10.74 dBm
 Q factor
 Function Result Function Result Middle Channel / 15MHz / QPSK Middle Channel / 15MHz / 16QAM ∇ 14.12 dBi 3.6291060 GF 26.00 d 14.386000000 MF 10 dBm-252 251. -10 dBm--60 dBm -60 dBm-Span 30.0 MHz Span 30.0 MHz

Report No.: FG140849D

LTE Band 48 Middle Channel / 20MHz / QPSK Middle Channel / 20MHz / 16QAM Offset 13.90 dB ● RBW 300 kHz SWT 18.9 µs ● VBW 1 MHz Mode Auto FFT Offset 13.90 dB • RBW 300 kHz SWT 18.9 μs • VBW 1 MHz Mode Auto FFT 13.38 dBi 3.6244810 GF 26.00 d 18.861000000 MF M1[1] 10 dBm--20 dBm--60 dBm -60 dBm-Function Result 18.861 MHz 26.00 dB 192.2 Function Result
 Y-value
 Function

 13.38 dBm
 ndB down

 -12.69 dBm
 ndB

 -13.23 dBm
 Q factor
 X-value 3.624481 GHz 3.61549 GHz 3.634351 GHz Type Ref Trc Type Ref Trc Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM Ref Level 30.00 dBm Offset 13.90 dB @ RBW 300 kHz

Att 30 dB SWT 12.6 µs @ VBW 1 MHz Mode Auto FFT
SGL Count 100/100

GPF Max 12.79 dBi 3.62577900 GF 20 dBm--50 dBm-CF 3.625 GHz Span 10.0 MHz CF 3.625 GHz Span 20.0 MHz 1001 pts 1001 pts Type Ref Trc
 X-value
 Y-value
 Function

 3.625779 GHz
 12.79 dBm
 ndB down

 3.622622 GHz
 -13.27 dBm
 ndB

 3.627358 GHz
 -12.69 dBm
 Q factor
 Function Result 4.735 MHz
 X-value
 Y-value
 Function

 3.626119 GHz
 14.65 d8m
 nd8 down

 3.620185 GHz
 -12.18 d8m
 nd8

 3.629915 GHz
 -11.64 d8m
 Q factor
 Type Ref Trc Function Result Middle Channel / 15MHz / 64QAM Middle Channel / 20MHz / 64QAM ∇ 11.82 dBn 3.6238910 GH 26.00 dE 14.206000000 MH 10 dBm-255 193. -10 dBm -60 dBn -60 dBm-Span 30.0 MHz Span 40.0 MHz

Report No.: FG140849D

Occupied Bandwidth

Mode	LTE Band 48 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.48	4.47	9.03	8.99	13.43	13.46	17.82	17.78
Mode	LTE Band 48 : 99%OBW(MHz)											
BW	1.4	ИHz	3M	lHz	5MHz 10MHz			ЛHz	15MHz		20MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Middle CH	-	-	-	-	4.50	-	8.97	-	13.49	-	17.90	-

Report No. : FG140849D

TEL: 886-3-327-3456 Page Number : A2-5 of 84

LTE Band 48 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM Offset 13.90 dB ● RBW 100 kHz SWT 19 µs ● VBW 300 kHz | Mode Auto FFT 14.56 dBi 3.62487000 GF 4.475524476 MF M1[1] 10 dBmdBm--10 dBm -10 dBr -20 dBmmym 40 dBm--60 dBm--60 dBm CF 3.625 GH
 X-value
 Y-value
 Function

 3.62487 GHz
 14.56 dBm
 0.00 dBm

 3.622722 GHz
 9.43 dBm
 Occ Bw

 3.6272478 GHz
 9.84 dBm
 0.00 dBm
 Type Ref Trc Function Result Type Ref Trc Function Function Result 4.475524476 MHz Occ Bw 4.465534466 MHz Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM 20 dBm--20 dBm--40 dBm -50 dBm-CF 3.625 GHz Marker CF 3.625 GHz Span 20.0 MHz 1001 pts Span 20.0 MHz 1001 pts
 X-value
 Y-value
 Function

 3.620818 GHz
 15.84 dBm

 3.6205245 GHz
 10.06 dBm
 Occ Bw

 3.6295554 GHz
 10.05 dBm
 X-value Y-value Function
3.626938 GHz 15.06 dBm
3.6205245 GHz 5.26 dBm Occ Bw
3.6295155 GHz 9.40 dBm Type Ref Trc Type | Ref | Trc | Function Result Function Result 9.030969031 MHz 8.991008991 MHz Middle Channel / 15MHz / QPSK Middle Channel / 15MHz / 16QAM Ref Level 30.00 dBm Offset 13.90 dB • RBW 300 kHz

• Att 30 dB SWT 12.6 µs • VBW 1 MHz

• SQL Count 100/100

• 1Pk Max ∇ 14.31 dBr 3.6266780 GH 13.426573427 MH 10 dBm--10 dBm--60 dBm -60 dBm-1001 pts Type Ref Trc Function

LTE Band 48 Middle Channel / 20MHz / QPSK Middle Channel / 20MHz / 16QAM Offset 13.90 dB • RBW 300 kHz SWT 18.9 µs • VBW 1 MHz Mode Auto FFT Offset 13.90 dB ● RBW 300 kHz SWT 18.9 µs ● VBW 1 MHz | Mode Auto FFT 13.91 dBi 3.6238810 GF 17.822177822 MF M1[1] 10 dBmdBm--10 dBm -10 dBr -20 dBm--60 dBm--60 dBm 1001 pt X-value 3.623881 GHz 3.6161289 GHz 3.633951 GHz | Y-value | Function |
| 2 | 13.91 dBm |
| 2 | 7.72 dBm | Occ Bw |
| 2 | 9.25 dBm | Type | Ref | Trc | Function Result Type Ref Trc Function Function Result 17.822177822 MHz Occ Bw 17.782217782 MHz Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM 13.62 dBn 3.6287360 GH 971028971 MH 12.83 dBr 3.62483000 GH 4.495504496 MH 20 dBmdBm--20 dBm--50 dBm-CF 3.625 GHz CF 3.625 GHz Span 20.0 MHz 1001 pts Span 10.0 MHz 1001 pts
 X-value
 Y-value
 Function

 3.62483 GHz
 12.83 dBm

 3.627552 GHz
 8.91 dBm
 Occ Bw

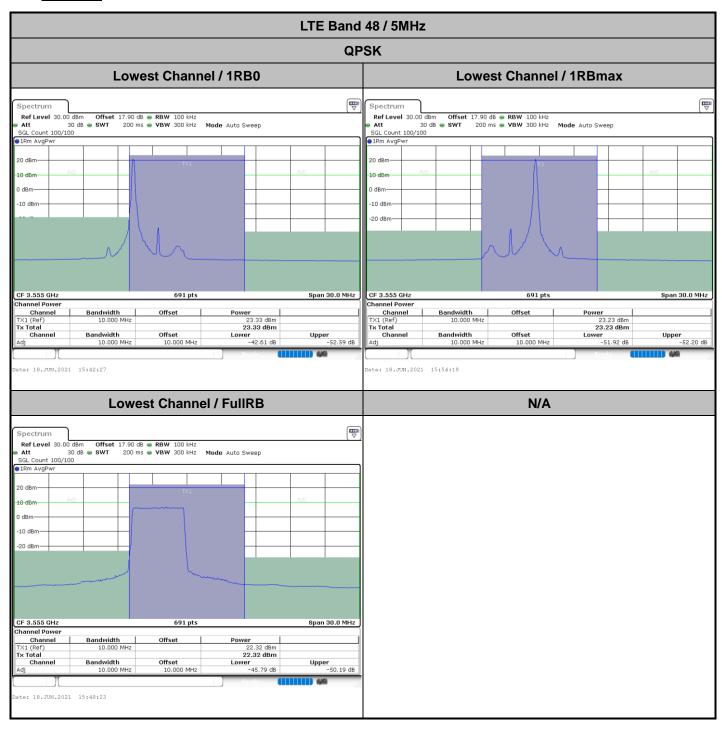
 3.6272478 GHz
 7.38 dBm
 X-value Y-value Function
3.629736 GHz 13.62 dBm
3.6205245 GHz 7.51 dBm Occ Bw
3.6294955 GHz 7.26 dBm Type Ref Trc Type Ref Trc Function Result Function Result 4.495504496 MHz 8.971028971 MHz Middle Channel / 15MHz / 64QAM Middle Channel / 20MHz / 64QAM Ref Level 30.00 dBm Offset 13.90 dB • RBW 300 kHz

Att 30 dB SWT 18.9 µs • VBW 1 MHz

SQL Count 100/100

1Pk Max ∇ 11.49 dBn 3.6309940 GH 17.902097902 **** 12.25 dBi 3.6258090 GF 13.486513487 MF 10 dBm--10 dBm--50 dBm--60 dBm -60 dBm-1001 pts Span 40.0 MHz Type Ref Trc Function





Report No.: FG140849D

TEL: 886-3-327-3456 Page Number : A2-8 of 84

LTE Band 48 / 5MHz **QPSK** Middle Channel / 1RB0 Middle Channel / 1RBmax **T** 20 dBm-20 dBm 10 dBm dBm dBm -10 dBm CF 3.625 GHz Channel Power 691 pts Span 30.0 MHz CF 3.625 GHz 691 pts Span 30.0 MHz CF 3.625 GHz
Channel Power
Channel
TX1 (Ref)
Tx Total
Channel 23.01 dBm 23.01 dBm 23.01 dBm Lower -52.09 dB Channel
TX1 (Ref)
Tx Total
Channel 22.64 dBm 22.64 dBm Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Offset 10.000 MHz Upper -51.78 dB **Lower** -52.18 dB ate: 18.JUN.2021 15:45:43 Date: 18.JUN.2021 15:57:35 Middle Channel / FullRB N/A Spectrum Att 30.08 dBm Offset 17.90 dB • RBW 100 kHz Auto Sweep Count 100/100 m AvgPwr -10 dBm 20 dBm CF 3.625 GHz 691 pts Span 30.0 MHz Channel Power 21.95 dBm 21.95 dBm 21.95 dBm Lower -48.86 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -48.65 dB te: 18.JUN.2021 15:51:38

Report No.: FG140849D

TEL: 886-3-327-3456 Page Number: A2-9 of 84

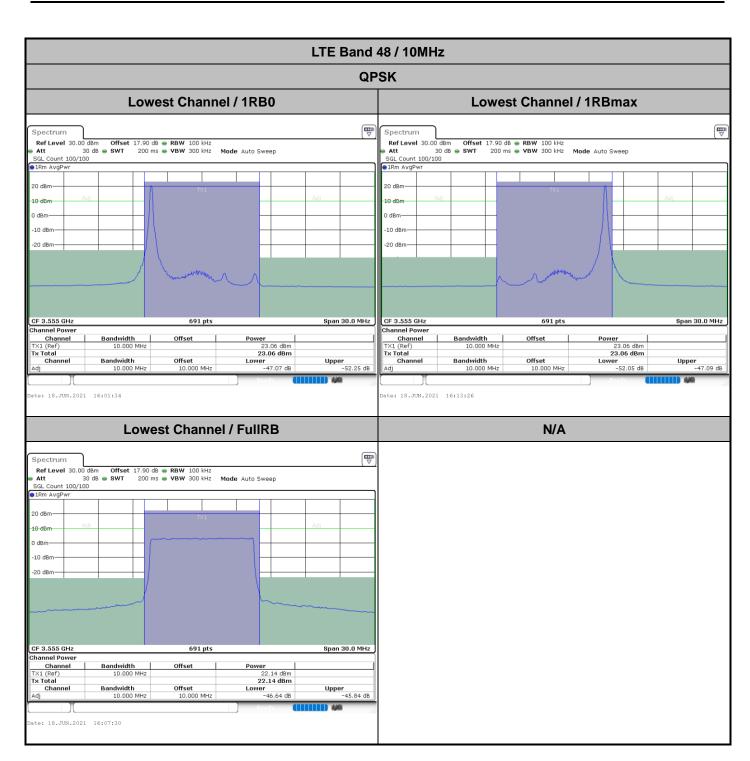
LTE Band 48 / 5MHz **QPSK** Highest Channel / 1RB0 **Highest Channel / 1RBmax T** 20 dBm 20 dBm dBm -10 dBm CF 3.695 GHz 691 pts Span 30.0 MHz CF 3.695 GHz 691 pts Span 30.0 MHz 22.90 dBm 22.90 dBm 22.90 dBm Lower -52.24 dB 22.75 dBm 22.75 dBm 22.75 dBm Lower -52.40 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset **Upper** -42.15 dB ate: 18.JUN.2021 15:46:22 ate: 18.JUN.2021 15:58:15 **Highest Channel / FullRB** N/A Spectrum Att 30.08 dBm Offset 17.90 dB • RBW 100 kHz Auto Sweep Count 100/100 m AvgPwr -10 dBm CF 3.695 GHz 691 pts Span 30.0 MH Channel Power 21.92 dBm 21.92 dBm 21.92 dBm Lower -49.82 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -42.05 dB

Report No.: FG140849D

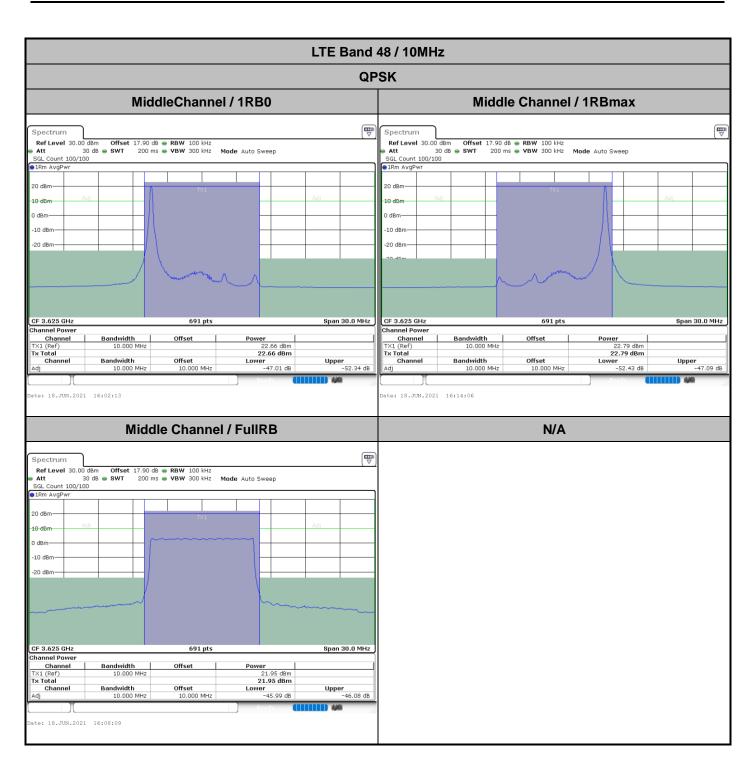
TEL: 886-3-327-3456 Page Number : A2-10 of 84

FAX: 886-3-328-4978

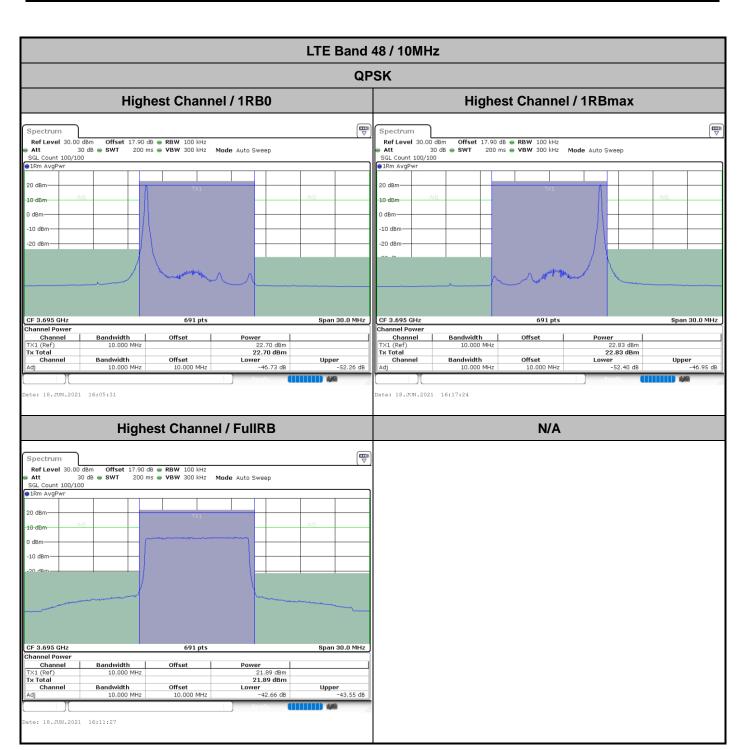
te: 18.JUN.2021 15:52:18



TEL: 886-3-327-3456 Page Number : A2-11 of 84



TEL: 886-3-327-3456 Page Number : A2-12 of 84



TEL: 886-3-327-3456 Page Number : A2-13 of 84

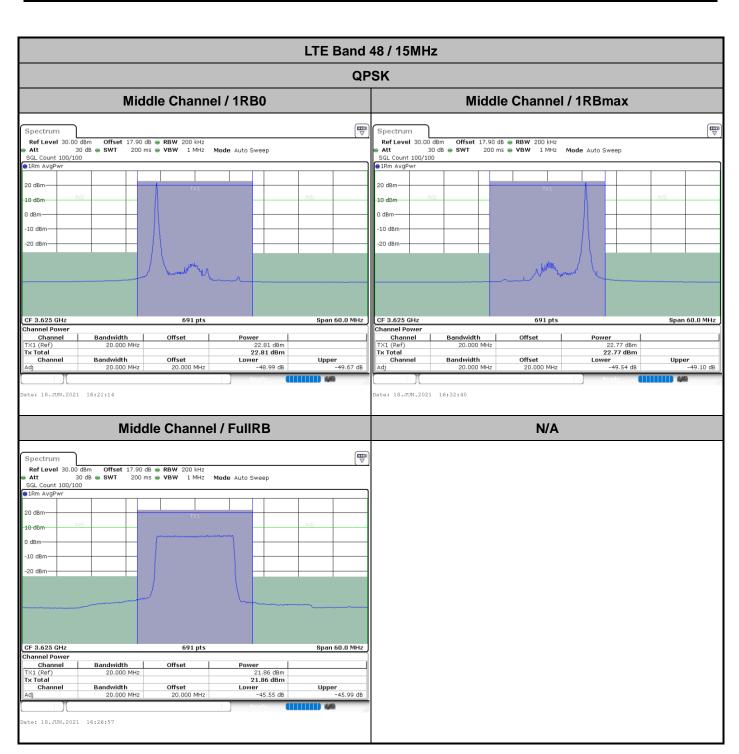
LTE Band 48 / 15MHz **QPSK** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum ●1Rm AvgPwi 20 dBm-20 dBm 10 dBm 10 dBm dBm 0 dBm -10 dBm CF 3.56 GHz Channel Powe CF 3.56 GHz 691 pts Span 60.0 MHz 691 pts Span 60.0 MHz Channel Power 23.17 dBm 23.17 dBm 23.17 dBm Lower -46.73 dB Channel
TX1 (Ref)
Tx Total
Channel Offset 23.12 dBm 23.12 dBm 23.12 dBm Lower -49.12 dB Bandwidth 20.000 MHz Bandwidth 20.000 MHz Offset TX1 (Ref)
Tx Total
Channel Upper -49.75 dB **Upper** -49.33 dB ate: 18.JUN.2021 16:18:04 Date: 18.JUN.2021 16:29:30 **Lowest Channel / FullRB** N/A Spectrum Att 30.08 dBm Offset 17.90 dB • RBW 200 kHz

Offset 17.90 dB • RBW 200 kHz

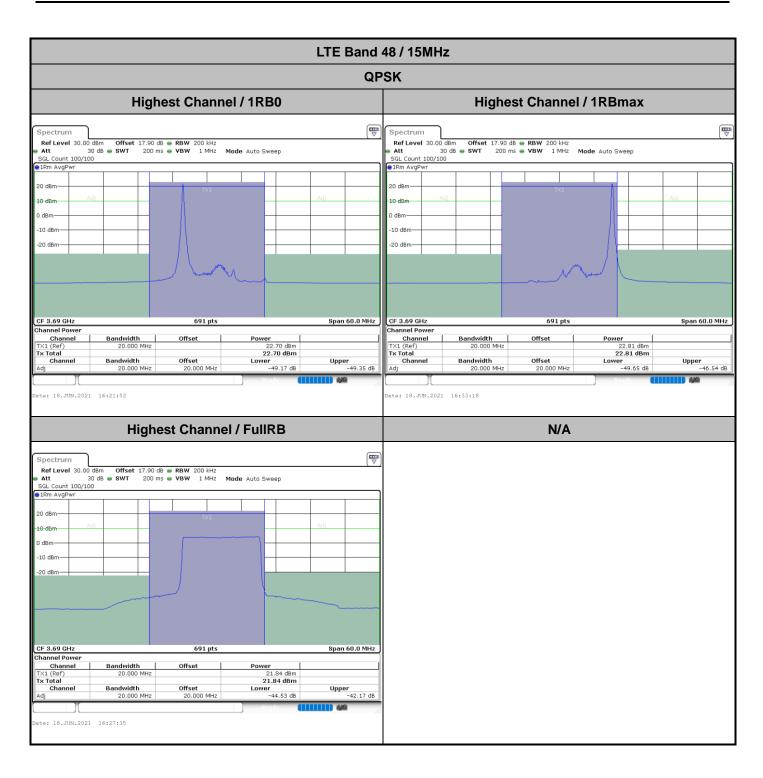
Att 30.08 • SWT 200 ms • VBW 1 MHz Mode Auto Sweep SGL Count 100/100 1Rm AvgPwr -10 dBm CF 3.56 GHz 691 pts Span 60.0 MHz Channel Power 22.21 dBm 22.21 dBm 22.21 dBm Lower -44.43 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -46.67 dB te: 18.JUN.2021 16:23:47

Report No.: FG140849D

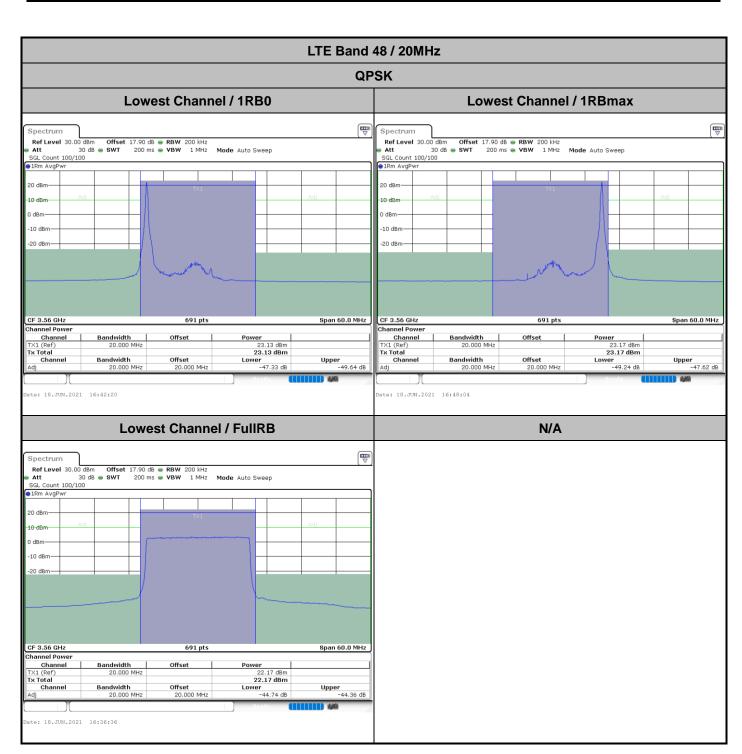
TEL: 886-3-327-3456 Page Number : A2-14 of 84



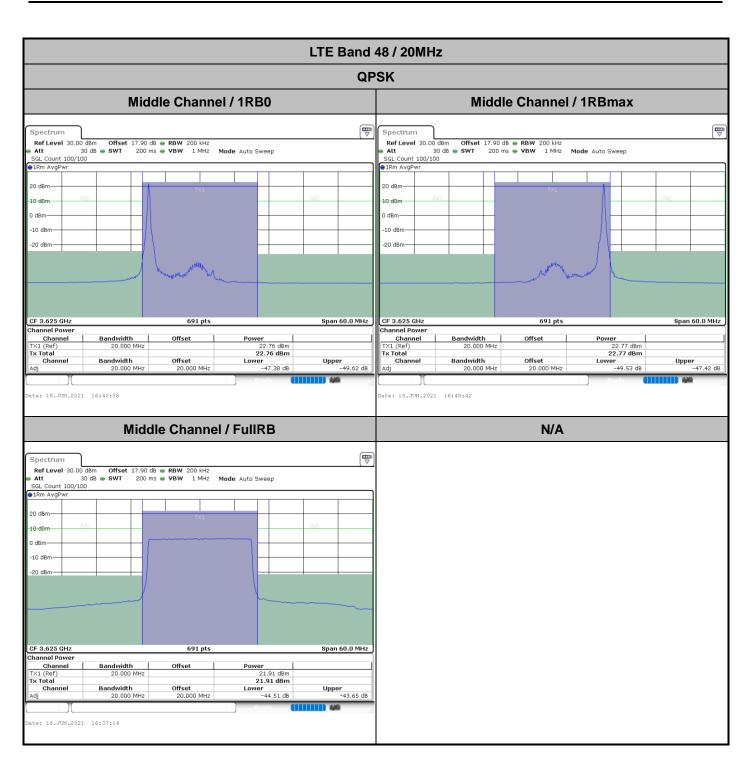
TEL: 886-3-327-3456 Page Number : A2-15 of 84



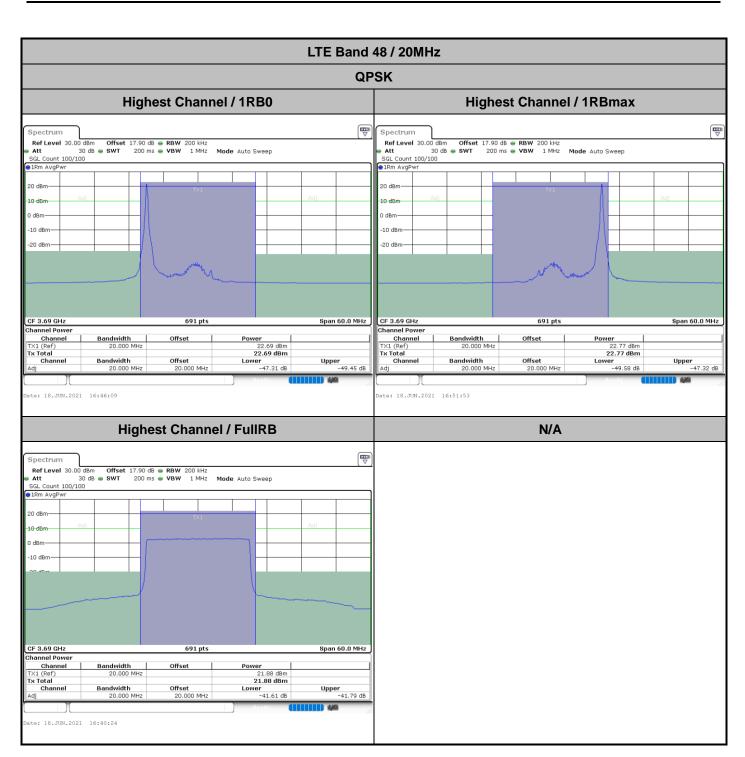
TEL: 886-3-327-3456 Page Number: A2-16 of 84



TEL: 886-3-327-3456 Page Number : A2-17 of 84



TEL: 886-3-327-3456 Page Number : A2-18 of 84

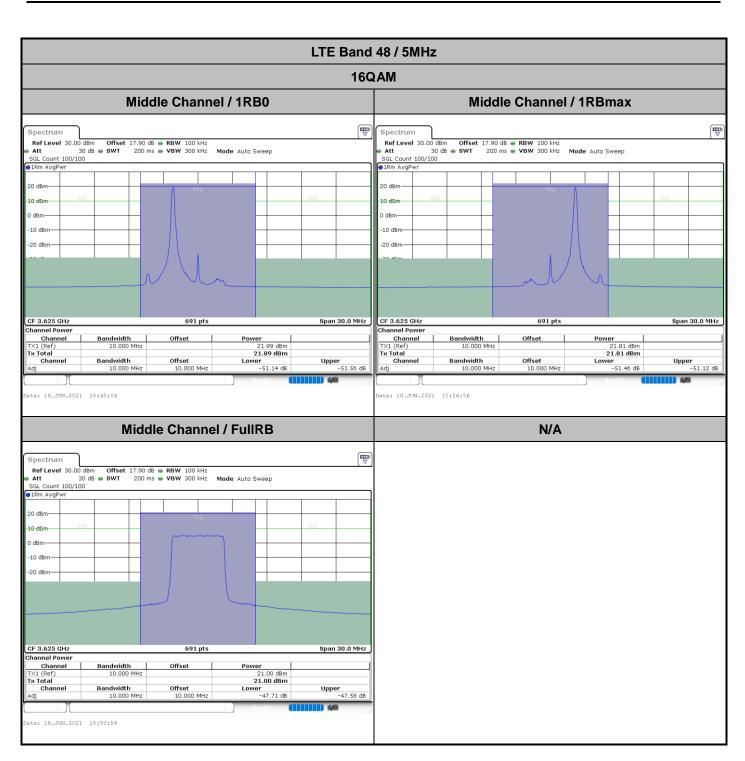


TEL: 886-3-327-3456 Page Number : A2-19 of 84

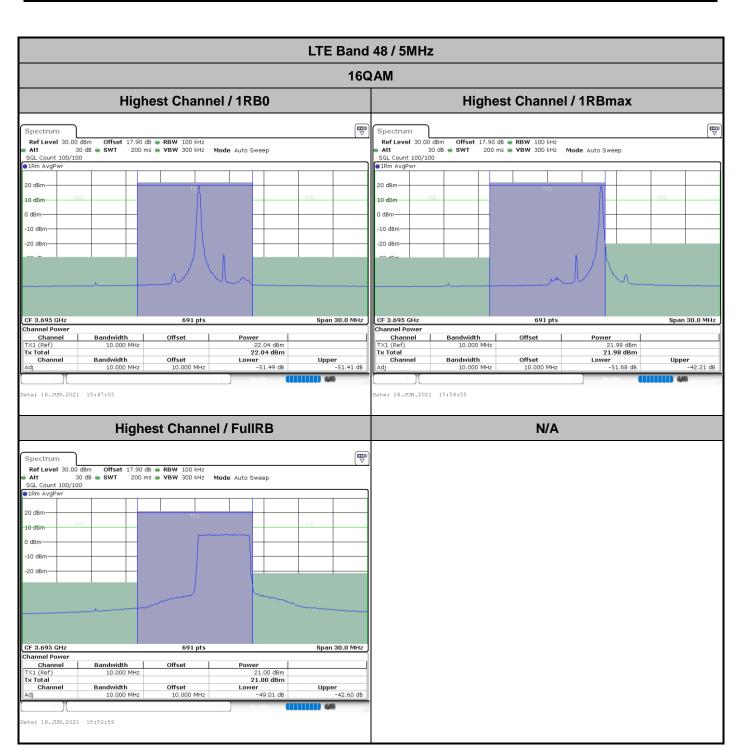
LTE Band 48 / 5MHz **16QAM** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax T** 20 dBm-20 dBm-10 dBm dBm dBm 10 dBm CF 3.555 GHz 691 pts Span 30.0 MHz CF 3.555 GHz 691 pts Span 30.0 MHz CF 3.555 GHz Channel Power Channel TX1 (Ref) TX Total Channel CF 3.555 GHz
Channel Power
Channel
TX1 (Ref)
Tx Total
Channel Power 22.39 dBm 22.39 dBm Lower -42.41 dB 22.29 dBm 22.29 dBm Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -51.72 dB Upper -51.41 dB **Lower** -51.14 dB ate: 18.JUN.2021 15:54:58 ate: 18.JUN.2021 15:43:07 **Lowest Channel / FullRB** N/A Spectrum SGL Count 100/100 1Rm AvgPwr -10 dBm 20 dBm CF 3.555 GHz 691 pts Span 30.0 MHz Channel Power 21.37 dBm 21.37 dBm 21.37 dBm Lower -45.71 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -49.39 dB te: 18.JUN.2021 15:49:02

Report No.: FG140849D

TEL: 886-3-327-3456 Page Number : A2-20 of 84



TEL: 886-3-327-3456 Page Number: A2-21 of 84



TEL: 886-3-327-3456 Page Number : A2-22 of 84

LTE Band 48 / 10MHz **16QAM** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax T** 20 dBm-20 dBmdBm dBm -10 dBm CF 3.555 GHz 691 pts Span 30.0 MHz CF 3.555 GHz 691 pts Span 30.0 MHz CF 3.555 GHz
Channel Power
Channel
TX1 (Ref)
Tx Total
Channel 22.30 dBm 22.30 dBm 22.30 dBm Lower -47.25 dB Channel
TX1 (Ref)
Tx Total
Channel 22.19 dBm 22.19 dBm 22.19 dBm Lower -51.29 dB Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -51.61 dB **Upper** -47.19 dB ate: 18.JUN.2021 16:00:55 ate: 18.JUN.2021 16:12:47 **Lowest Channel / FullRB** N/A Spectrum SGL Count 100/100 1Rm AvgPwr -10 dBm 20 dBm CF 3.555 GHz 691 pts Span 30.0 MHz Channel Power 21.17 dBm 21.17 dBm 21.17 dBm Lower -46.74 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -46.70 dB Offset 10.000 MHz te: 18.JUN.2021 16:06:50

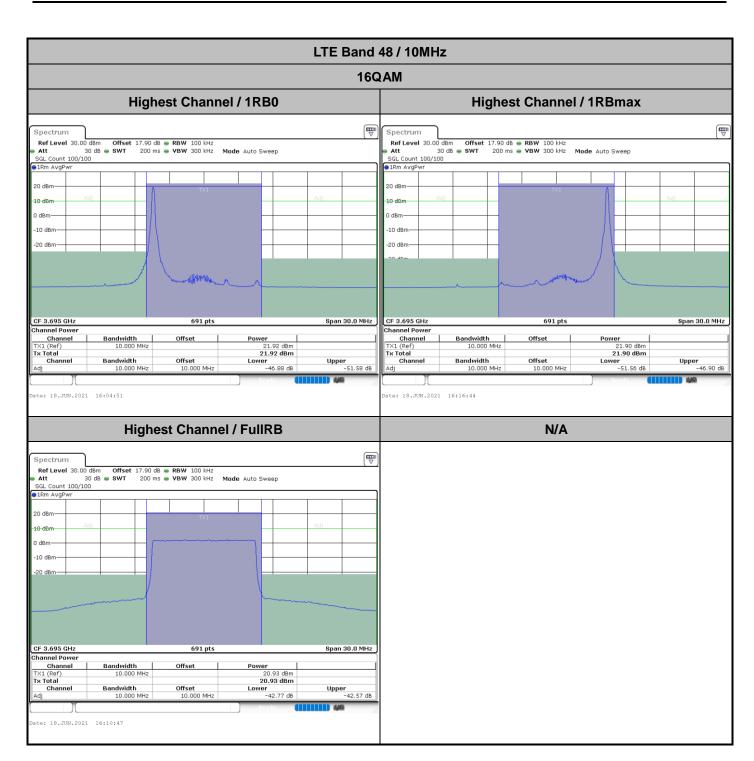
Report No.: FG140849D

TEL: 886-3-327-3456 Page Number : A2-23 of 84

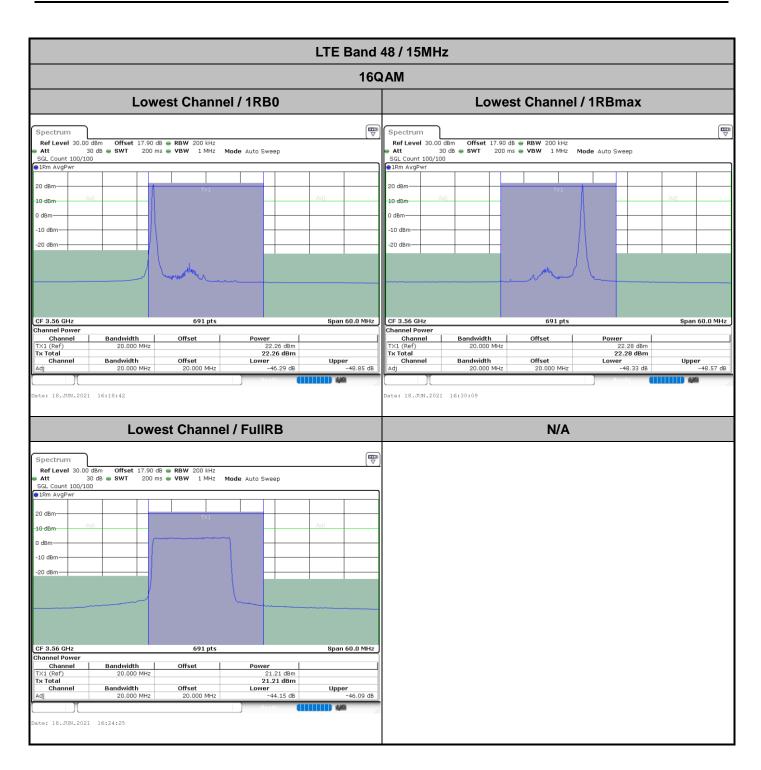
LTE Band 48 / 10MHz **16QAM** MiddleChannel / 1RB0 Middle Channel / 1RBmax **T** 20 dBm-20 dBm dBm dBm -10 dBm CF 3.625 GHz Channel Power 691 pts Span 30.0 MHz CF 3.625 GHz 691 pts Span 30.0 MHz 21.96 dBm 21.96 dBm 21.96 dBm Lower -47.09 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel 21.88 dBm 21.88 dBm Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -51.75 dB **Upper** -47.08 dB -51.63 dB ate: 18.JUN.2021 16:02:52 ate: 18.JUN.2021 16:14:45 Middle Channel / FullRB N/A Spectrum Att 30.08 dBm Offset 17.90 dB • RBW 100 kHz Auto Sweep Count 100/100 m AvgPwr -10 dBm 20 dBm CF 3.625 GHz 691 pts Span 30.0 MH: Channel Power 20.95 dBm 20.95 dBm 20.95 dBm Lower -45.83 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -45.82 dB te: 18.JUN.2021 16:08:48

Report No.: FG140849D

TEL: 886-3-327-3456 Page Number : A2-24 of 84



TEL: 886-3-327-3456 Page Number: A2-25 of 84



TEL: 886-3-327-3456 Page Number : A2-26 of 84

LTE Band 48 / 15MHz **16QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax **T** 20 dBm-20 dBm 10 dBm dBm dBm -10 dBm CF 3.625 GHz Channel Power 691 pts Span 60.0 MHz CF 3.625 GHz 691 pts Span 60.0 MHz 22.01 dBm 22.01 dBm 22.01 dBm Lower -48.34 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Power 21.85 dBm 21.85 dBm Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Upper -48.31 dB Lower -48.65 dB ate: 18.JUN.2021 16:20:36 ate: 18.JUN.2021 16:32:03 Middle Channel / FullRB N/A Spectrum Att 30.08 dBm Offset 17.90 dB • RBW 200 kHz

Offset 17.90 dB • RBW 200 kHz

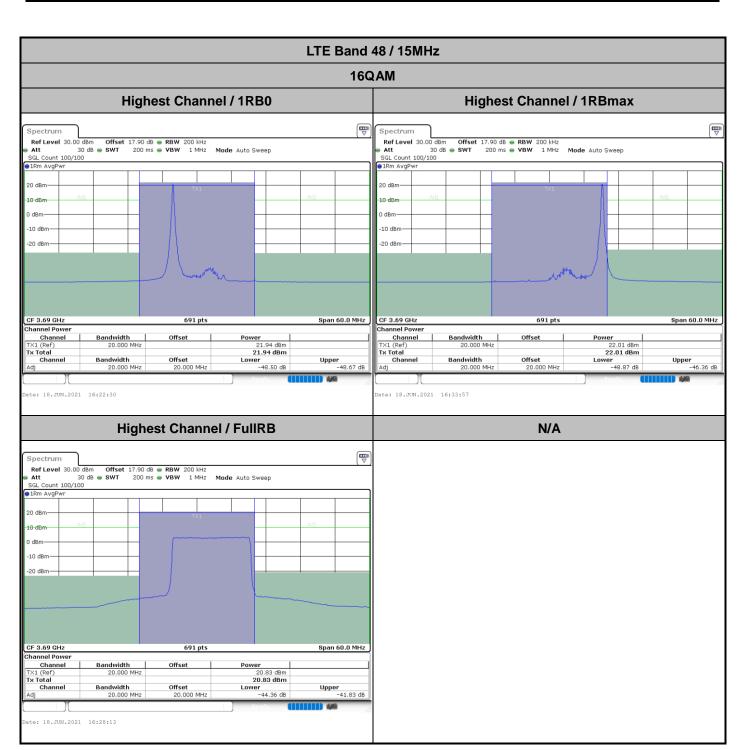
Att 30.08 • SWT 200 ms • VBW 1 MHz Mode Auto Sweep Count 100/100 m AvgPwr -10 dBm CF 3.625 GHz 691 pts Span 60.0 MH: Channel Power 20.90 dBm 20.90 dBm 20.90 dBm Lower -44.73 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -44.70 dB

Report No.: FG140849D

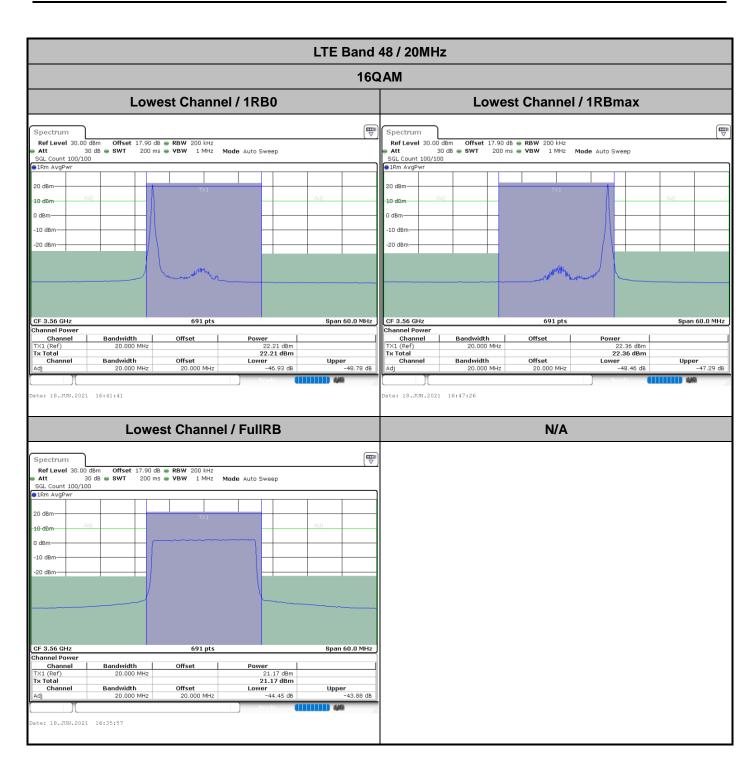
TEL: 886-3-327-3456 Page Number : A2-27 of 84

FAX: 886-3-328-4978

te: 18.JUN.2021 16:26:20



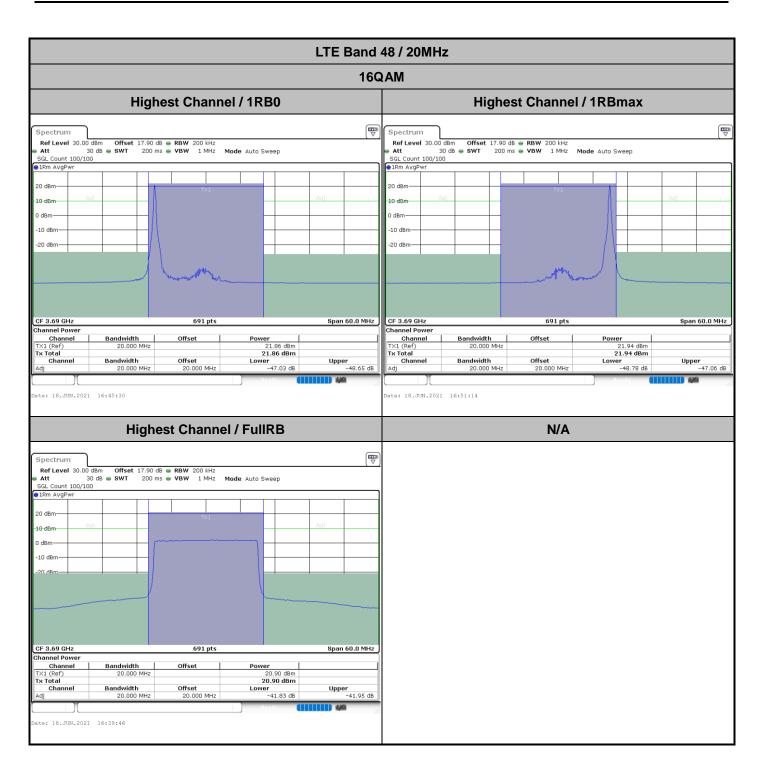
TEL: 886-3-327-3456 Page Number : A2-28 of 84



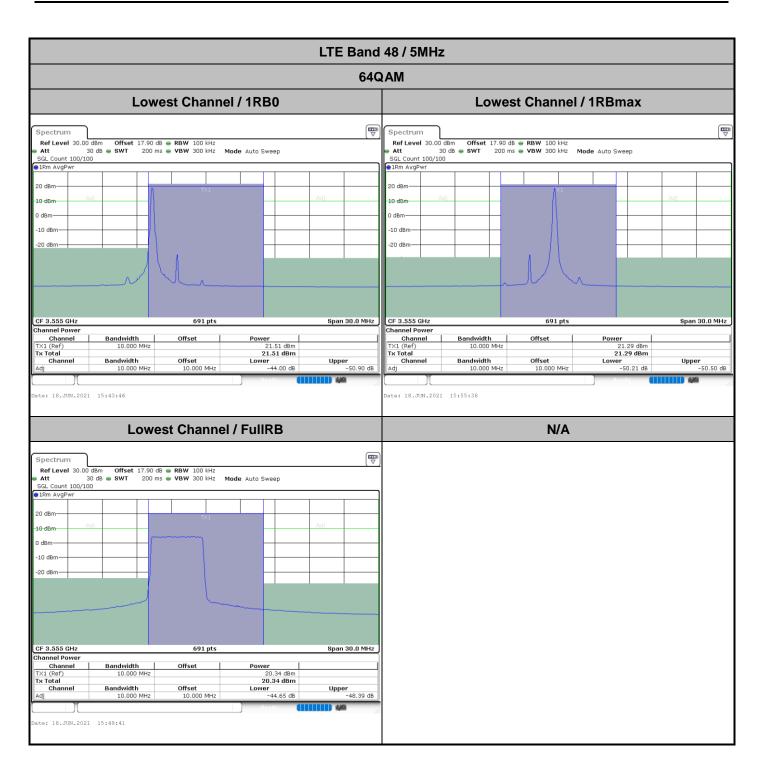
TEL: 886-3-327-3456 Page Number : A2-29 of 84



TEL: 886-3-327-3456 Page Number : A2-30 of 84



TEL: 886-3-327-3456 Page Number : A2-31 of 84



TEL: 886-3-327-3456 Page Number : A2-32 of 84

LTE Band 48 / 5MHz 64QAM Middle Channel / 1RB0 Middle Channel / 1RBmax **T** 20 dBm-20 dBm 10 dBm dBm dBm -10 dBm CF 3.625 GHz Channel Power 691 pts Span 30.0 MHz CF 3.625 GHz 691 pts Span 30.0 MHz CF 3.625 GHz
Channel Power
Channel
TX1 (Ref)
Tx Total
Channel 21.29 dBm 21.29 dBm Lower -50.68 dB Channel
TX1 (Ref)
Tx Total
Channel 21.27 dBm 21.27 dBm Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -51.04 dB Upper -50.71 dB -51.00 dB ate: 18.JUN.2021 15:56:17 ate: 18.JUN.2021 15:44:26 Middle Channel / FullRB N/A Spectrum Att 30.08 dBm Offset 17.90 dB • RBW 100 kHz Auto Sweep Count 100/100 m AvgPwr -10 dBm 20 dBm CF 3.625 GHz 691 pts Span 30.0 MHz Channel Power 19.97 dBm 19.97 dBm 19.97 dBm Lower -46.65 dB Channel
TX1 (Ref)
Tx Total
Channel Upper -46.38 dB te: 18.JUN.2021 15:50:21

Report No.: FG140849D

TEL: 886-3-327-3456 Page Number: A2-33 of 84