

Report No.: FG101524C



FCC RADIO TEST REPORT

FCC ID : RAXXCI55AX

Equipment : TITAN II **Brand Name** : Verizon

: ARC-XCI55AX **Model Name**

: Arcadyan Technology Corporation **Applicant**

No.8, Sec.2, Guangfu Rd., Hsinchu, 30071 Taiwan

: Arcadyan Technology Corporation Manufacturer

No.8, Sec.2, Guangfu Rd., Hsinchu, 30071 Taiwan

Standard : FCC 47 CFR Part 2, 96

The product was received on Jan. 10, 2022 and testing was performed from Jan. 04, 2022 to Feb. 07, 2022. 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

Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

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

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Report Template No.: BU5-FGLTE96 Version 2.4

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History of this test report

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Report No.	Version	Description	Issued Date
FG1O1524C	01	Initial issue of report	Feb. 15, 2022
FG1O1524C	02	Revise Antenna information	Mar. 04, 2022

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Summary of Test Result

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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 4.08 dB at 22086.000 MHz

Declaration of Conformity:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
 - It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
- 2. The measurement uncertainty please refer to this report "Uncertainty of Evaluation".

Comments and Explanations:

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

Reviewed by: Yun Huang Report Producer: Cindy Liu

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1 General Description

1.1 Product Feature of Equipment Under Test

LTE/5G NR. and GNSS

LI E/3G NN, and GN33								
	Product Feature							
	WWAN							
	<ant. 0="">: Monopole Antenna</ant.>							
	<ant. 1="">: Dipole Antenna</ant.>							
	<ant. 2="">: Dipole Antenna</ant.>							
Antenna Type	<ant. 3="">: Monopole Antenna</ant.>							
	<ant. 4="">: Monopole Antenna</ant.>							
	<ant. 5="">: Dipole Antenna</ant.>							
	<ant. 6="">: Dipole Antenna</ant.>							
	GPS / Glonass / BDS / Galileo: Dipole Antenna							
Antenna Gain	1 dBi							

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Remark: The EUT's information above 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.

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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	21.5~23.6℃				
Relative Humidity	52.8~55.6%				

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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.			
rest site No.	03CH12-HY			
Test Engineer	Jack Cheng, Lance Chiang, and Chuan Chu (TAF Code: 3786)			
Temperature	21.2~24.2 ℃			
Relative Humidity	58.2~68.8%			
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.			

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

FCC Designation No.: TW1190 and TW3786

1.4 Applied Standards

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

- + 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 v03
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01

Remark:

- All test items were verified and recorded according to the standards and without any deviation during the test.
- **2.** The TAF code is not including all the FCC KDB listed without accreditation.

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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.

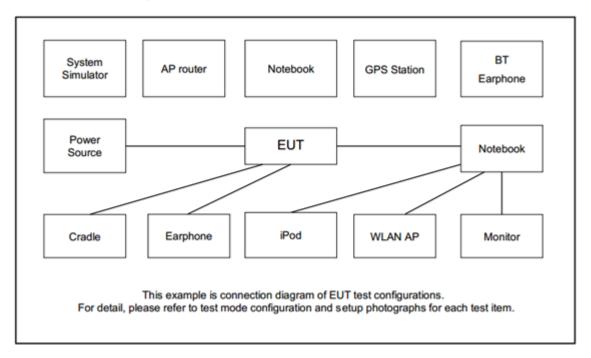
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For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and find X plane as worst plane.

			Ва	ndwid	lth (Mi	Hz)		Modulation				RB#			Test Channel		
Test Items	Band	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	М	н
Max. Output Power	48	•	•	٧	٧	v	٧	v	v	v	v	>	v	v	v	v	v
26dB and 99% Bandwidth	48	-	-	v	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	v
Peak-to-Average Ratio	48	•	•				v	v	v	v	v			v		v	
Conducted Spurious Emission	48	•	•	v	v	v	v	v				٧			v	v	v
E.I.R.P	48			٧	٧	٧	٧	v	v	v	٧		ı	Max. P	ower		
Frequency Stability	48	•	•		v			v				>				v	
Radiated Spurious Emission	48		Worst Case							v	٧	v					
1. The mark "v " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated under different RB size/offset and modulations in exploratory test. Subsequently, only are reported.																	

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2.2 Connection Diagram of Test System



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2.3 Support Unit used in test configuration

I	tem	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)

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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								

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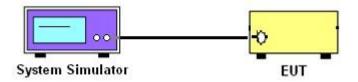
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

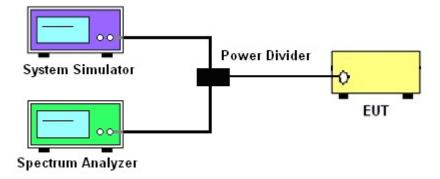
3.1.1 Test Setup

3.1.2 Conducted Output Power

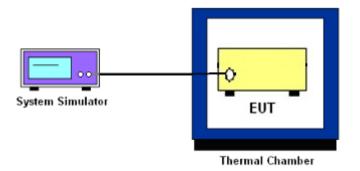


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3.1.3 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

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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.

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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.

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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.

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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

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3.4 EIRP

3.4.1 Description of the EIRP Measurement

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

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The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

EIRP = PT + GT - LC, where

PT = transmitter output power in dBm

GT = gain of the transmitting antenna in dBi

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

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

Remark: 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 CBRS Eqpt v03 Section 3.2(b)(2)

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

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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

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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.

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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.

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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.
- 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.

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3.7 Conducted Spurious Emission

3.7.1 Description of Conducted Spurious Emission Measurement

96.41 (e)(2)

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

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.

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- 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.

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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

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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.

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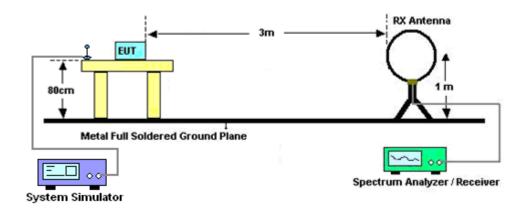
4 Radiated Test Items

4.1 Measuring Instruments

See list of measuring instruments of this test report.

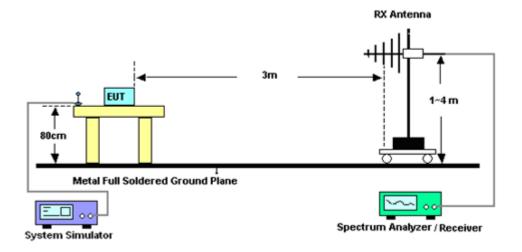
4.2 Test Setup

For radiated test below 30MHz



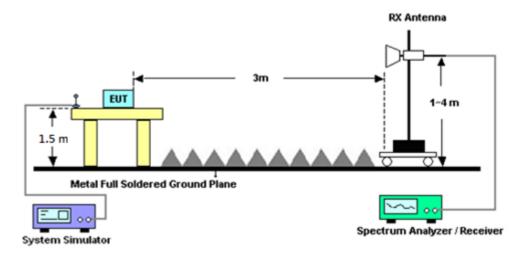
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For radiated test from 30MHz to 1GHz



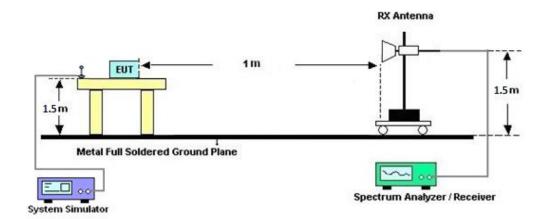
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For radiated test from 1GHz to 18GHz



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For radiated test above 18GHz



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.

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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.

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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

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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	100315	9 kHz~30 MHz	Jan. 07, 2022	Jan. 25, 2022~ Jan. 28, 2022	Jan. 06, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Oct. 09, 2021	Jan. 25, 2022~ Jan. 28, 2022	Oct. 08, 2022	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 09, 2021	Jan. 25, 2022~ Jan. 28, 2022	Oct. 08, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1326	1GHz~18GHz	Oct. 25, 2021	Jan. 25, 2022~ Jan. 28, 2022	Oct. 24, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1212	1GHz~18GHz	May 18, 2021	Jan. 25, 2022~ Jan. 28, 2022	May 17, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917025 1	18GHz~40GHz	Nov. 30, 2021	Jan. 25, 2022~ Jan. 28, 2022	Nov. 29, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917057 6	18GHz~40GHz	May 21, 2021	Jan. 25, 2022~ Jan. 28, 2022	May 20, 2022	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 24, 2021	Jan. 25, 2022~ Jan. 28, 2022	Mar. 23, 2022	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 25, 2021	Jan. 25, 2022~ Jan. 28, 2022	May 24, 2022	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18G-5 6-01-A70	EC1900249	1GHz~18GHz	Dec. 22, 2021	Jan. 25, 2022~ Jan. 28, 2022	Dec. 21, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Jan. 25, 2022~ Jan. 28, 2022	Jun. 21, 2022	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 14, 2022	Jan. 25, 2022~ Jan. 28, 2022	Jan. 13, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Jan. 25, 2022~ Jan. 28, 2022	Mar. 10, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 22, 2021	Jan. 25, 2022~ Jan. 28, 2022	Feb. 21, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 22, 2021	Jan. 25, 2022~ Jan. 28, 2022	Feb. 21, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12SS	SN2	1.2GHz Low Pass Filter	Mar. 17, 2021	Jan. 25, 2022~ Jan. 28, 2022	Mar. 16, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6 750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 17, 2021	Jan. 25, 2022~ Jan. 28, 2022	Jul. 16, 2022	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Sep. 30, 2021	Jan. 25, 2022~ Jan. 28, 2022	Sep. 29, 2022	Radiation
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jan. 25, 2022~ Jan. 28, 2022	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jan. 25, 2022~ Jan. 28, 2022	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jan. 25, 2022~ Jan. 28, 2022	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jan. 25, 2022~ Jan. 28, 2022	N/A	Radiation (03CH12-HY)

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Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communicatio n Analyzer	Anritsu	MT8821C	6201664755	2/3/4G/LTE FDD/TDD with44)/LTE-3CC DLCA/2CC ULCA, CatM1/NB1/NB2	Jul. 21, 2021	Jan. 04, 2022~ Feb. 07, 2022	Jul. 20, 2022	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101908	10Hz~40GHz	Oct. 01, 2021	Jan. 04, 2022~ Feb. 07, 2022	Sep. 30, 2022	Conducted (TH03-HY)
Thermal Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 09, 2021	Jan. 04, 2022~ Feb. 07, 2022	Sep. 08, 2022	Conducted (TH03-HY)
AC Power Source	AC POWER	AFC-500W	F104070011	50Hz~60Hz	Sep 14, 2021	Jan. 04, 2022~ Feb. 07, 2022	Sep 13, 2022	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 09, 2021	Jan. 04, 2022~ Jan. 07, 2022	Jan. 08, 2022	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 07, 2022	Jan. 08, 2022~ Feb. 07, 2022	Jan. 06, 2023	Conducted (TH03-HY)

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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

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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

<u>Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)</u>

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

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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & EIRP)

	LTE Band 48 Maximum Average Power [dBm] (GT - LC = 1 dB)												
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)					
20	1	0		21.85	21.65	21.62							
20	1	49		21.61	21.63	21.63							
20	1	99		21.77	21.84	21.63							
20	50	0	QPSK	20.66	20.71	20.70	22.85	0.1928					
20	50	24		20.65	20.72	20.70							
20	50	50		20.73	20.81	20.68							
20	100	0		20.75	20.76	20.70							
20	1	0		20.92	20.98	20.97							
20	1	49		20.95	20.99	20.97							
20	1	99		21.11	21.17	20.98							
20	50	0	16-QAM	19.69	19.74	19.69	22.17	0.1648					
20	50	24		19.67	19.76	19.72							
20	50	50		19.75	19.83	19.72							
20	100	0		19.74	19.77	19.70							
20	1	0		20.71	19.69	19.65							
20	1	49		20.73	19.67	19.66							
20	1	99		20.91	19.87	19.67							
20	50	0	64-QAM	18.74	18.78	18.72	21.91	0.1552					
20	50	24		18.73	18.81	18.80							
20	50	50		18.81	18.86	18.79							
20	100	0		18.79	18.82	18.78							
20	1	0		16.68	16.74	16.67							
20	1	49		16.70	16.72	16.69							
20	1	99		16.86	16.92	16.70							
20	50	0	256-QAM	16.80	16.83	16.80	17.92	0.0619					
20	50	24		16.76	16.84	16.84							
20	50	50		16.84	16.92	16.82							
20	100	0		16.77	16.80	16.77							
Limit	EIRP	< 23dBm/10	2HMC		Result		Pa	ISS					

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	LTE	Band 48	Maximum .	Average P	ower [dBn	n] (GT - LC	= 1 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
15	1	0		21.68	21.78	21.72		
15	1	37		21.75	21.84	21.75		
15	1	74		21.80	21.80	21.74		
15	36	0	QPSK	20.62	20.70	20.67	22.84	0.1923
15	36	20		20.66	20.69	20.66		
15	36	39		20.68	20.79	20.65		
15	75	0		20.68	20.79	20.72		
15	1	0		20.95	21.03	20.97		
15	1	37		20.98	21.07	20.98		
15	1	74		21.03	21.18	21.00		0.1652
15	36	0	16-QAM	19.61	19.69	19.67	22.18	
15	36	20	-	19.63	19.71	19.62		
15	36	39		19.65	19.79	19.68		
15	75	0		19.67	19.77	19.64		
15	1	0		19.66	19.73	19.63		
15	1	37		19.64	19.80	19.69		
15	1	74		19.74	19.88	19.70		
15	36	0	64-QAM	18.73	18.80	18.75	20.88	0.1225
15	36	20		18.73	18.80	18.75		
15	36	39		18.81	18.88	18.77		
15	75	0		18.77	18.83	18.78		
15	1	0		16.69	16.77	16.72		
15	1	37		16.69	16.82	16.72		
15	1	74		16.82	16.91	16.74		
15	36	0	256-QAM	16.71	16.78	16.75	17.91	0.0618
15	36	20		16.74	16.81	16.73		
15	36	39		16.81	16.86	16.77		
15	75	0		16.77	16.82	16.76		
Limit	EIRP	< 23dBm/10	0MHz		Result	Pa	ISS	

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	LTE	Band 48	Maximum	Average P	ower [dBn	n] (GT - LC	= 1 dB)		
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)	
10	1	0		21.59	21.66	21.66			
10	1	25		21.65	21.73	21.71			
10	1	49		21.68	21.83	21.65			
10	25	0	QPSK	20.66	20.75	20.71	22.83	0.1919	
10	25	12		20.74	20.77	20.69			
10	25	25		20.83	20.84	20.69			
10	50	0		20.67	20.82	20.71			
10	1	0		20.95	21.01	21.01			
10	1	25		20.97	21.06	21.05			
10	1	49		21.01	21.19	21.00	1		
10	25	0	16-QAM	19.68	19.78	19.73	22.19	0.1656	
10	25	12	-	19.67	19.79	19.70			
10	25	25		19.72	19.86	19.72			
10	50	0		19.74	19.82	19.71	1		
10	1	0		19.64	19.72	19.70			
10	1	25		19.70	19.77	19.70			
10	1	49		19.67	19.87	19.68	1		
10	25	0	64-QAM	18.82	18.91	18.86	20.87	0.1222	
10	25	12		18.82	18.93	18.86	1		
10	25	25		18.83	18.97	18.84	1		
10	50	0		18.80	18.87	18.81	1		
10	1	0		16.71	16.73	16.73			
10	1	25		16.74	16.83	16.76	1		
10	1	49		16.76	16.90	16.70			
10	25	0	256-QAM	16.76	16.85	16.82	17.92	0.0619	
10	25	12		16.79	16.88	16.78			
10	25	25		16.76	16.91	16.79			
10	50	0		16.80	16.92	16.82			
Limit	EIRP	< 23dBm/1	0MHz		Result		Pa	ass	

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	LTE	Band 48	Maximum .	Average P	ower [dBn	n] (GT - LC	= 1 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0		21.65	21.73	21.65		
5	1	12		21.68	21.84	21.69		
5	1	24		21.66	21.84	21.68		
5	12	0	QPSK	20.65	20.73	20.65	22.84	0.1923
5	12	7		20.56	20.78	20.70		
5	12	13		20.72	20.84	20.70		
5	25	0		20.75	20.77	20.68		
5	1	0		20.96	21.05	20.96		
5	1	12		21.05	21.14	20.98		
5	1	24	Ī	20.99	21.18	20.99		0.1652
5	12	0	16-QAM	19.66	19.75	19.63	22.18	
5	12	7		19.54	19.78	19.69		
5	12	13		19.69	19.85	19.69		
5	25	0		19.71	19.79	19.70		
5	1	0		19.70	19.77	19.70		0.1227
5	1	12		19.73	19.87	19.70		
5	1	24		19.70	19.89	19.71		
5	12	0	64-QAM	18.80	18.86	18.75	20.89	
5	12	7		18.79	18.90	18.79		
5	12	13		18.81	18.93	18.80		
5	25	0		18.80	18.91	18.84		
5	1	0		16.74	16.78	16.71		
5	1	12		16.75	16.87	16.72		
5	1	24		16.71	16.91	16.73		
5	12	0	256-QAM	16.79	16.91	16.80	17.94	0.0622
5	12	7		16.78	16.91	16.80		
5	12	13		16.79	16.94	16.78		
5	25	0		16.75	16.85	16.76		
Limit	EIRP	< 23dBm/10	OMHz		Result		Pa	ISS

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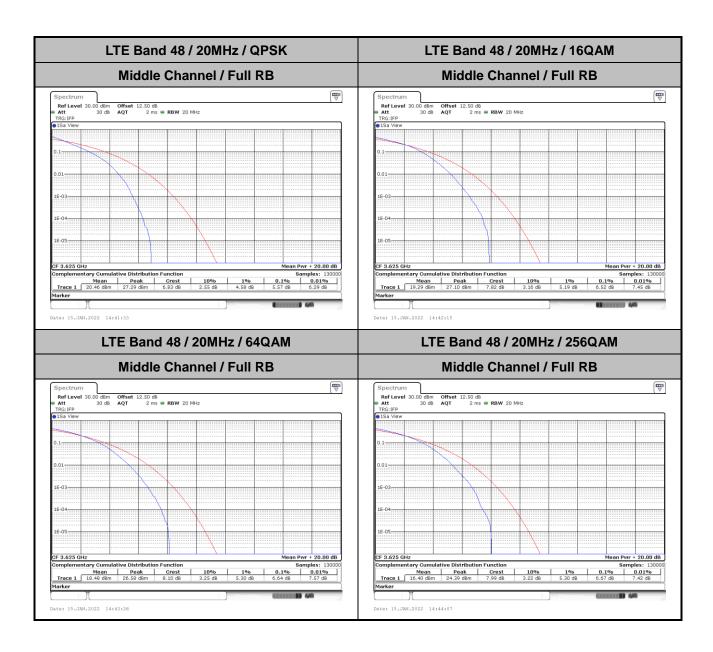
LTE Band 48

Peak-to-Average Ratio

Mode		LTE Band 48 / 20MHz								
Mod.	QPSK	16QAM	64QAM	64QAM 256QAM						
RB Size	Full RB	Full RB	Full RB	Full RB	Result					
Middle CH	5.57	6.52	6.64	6.67	PASS					

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26dB Bandwidth

Mode	LTE Band 48 : 26dB BW(MHz)											
BW	1.4	ИHz	3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.85	4.75	9.73	9.65	14.45	14.36	18.74	18.66
Mode	LTE Band 48 : 26dB BW(MHz)											
BW	1.4	ИНz	3M	lHz	5N	lHz	101	ЛHz	15N	ИHz	201	ИHz
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Middle CH	-	-	-	-	4.76	4.85	9.87	9.69	14.30	14.24	18.78	18.82

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LTE Band 48 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM 14.59 dB M1[1] M1[1] 14.12 dBr 10 dBm 748 764. -10 dBm-40 dBm 40 dBm -50 dBm-Span 10.0 MHz Function Result 4,845 MHz 26,00 dB 748.4 Function Result 4,745 MHz 26,00 dB 764.2
 X-value
 Y-value
 Function

 3.625939 GHz
 14.59 dBm
 ndB down

 3.622622 GHz
 -11.66 dBm
 ndB

 3.627468 GHz
 -11.69 dBm
 Q factor

 X-value
 Y-value
 Function

 3.626299 GHz
 14.12 dBm
 nd8 down

 3.622642 GHz
 -11.37 dBm
 nd8

 3.627388 GHz
 -11.90 dBm
 Q factor
 Type Ref Trc Type Ref Trc Date: 15.JAN.2022 14:27:44 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM
 Ref Level
 30.00 dBm
 Offset
 12.50 dB ⊕ RBW
 300 kHz

 Att
 30 dB
 SWT
 12.6 μs ⊕ VBW
 1 MHz
 Mode
 Auto FFT
 14.19 dBn 3.6292960 C M1[1] 15.70 dBr 3.6264990 GF -10 dBm -30 dBm -50 dBm--50 dBn
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.62929 GHz
 14.19 d8m
 nd8 down

 T1
 1
 3.62918 GHz
 10.94 d8m
 nd8

 T2
 1
 3.62983 GHz
 -12.17 d8m
 Q factor

 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.626499 GHz
 15.70 dBm
 nd8 down

 T1
 1
 3.620195 GHz
 -9.90 dBm
 nd8

 T2
 1
 3.62915 GHz
 -10.28 dBm
 Q factor
 Middle Channel / 15MHz / QPSK Middle Channel / 15MHz / 16QAM Ref Level 30.00 dBm Offset 12.50 db RBW 300 kHz

att 30 db SWT 12.6 µs VBW 1 MHz Mode Auto FFT

6.1Pk Max 13.31 dB 3.6193060 14.79 dBr 3.6264690 GF -20 dBm-40 dBm -50 dBm -50 dBm-Span 30.0 MHz CF 3.625 GH Span 30.0 MHz CF 3.625 GHz Function Result 14,446 MHz 26,00 dB 251.0 1001 pts Function Result 14,356 MHz 26,00 dB 252.1 Marker Type | Ref | Trc |
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.619306 GHz
 13.31 dBm
 ndB dom

 T1
 1
 3.61777 GHz
 12.71 dBm
 ndB dom

 T2
 1
 3.632133 GHz
 -12.41 dBm
 Q factor
 Y-value Function Date: 15.JAN.2022 14:31:35 Date: 15.JAN.2022 14:31:56

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LTE Band 48 Middle Channel / 20MHz / QPSK Middle Channel / 20MHz / 16QAM Ref Level 30.00 dBm Offset 12.50 dB ■ RBW 300 kHz Alt 30 dB SWT 18.9 µE ■ VBW 1 MHz Mode Auto FFT SGL Count 100/100 MP MRS NBW 1 MHz Mode Auto FFT MRS NBW MR M1[1] 13.58 dB M1[1] 13.00 dBr 13.58 dBr 3.6176470 GH 26.00 d 18.741000000 MH 10 dBm 193 194. -10 dBm--30 dBm AAAAAAAA -50 dBm-Function Result 18.741 MHz 26.00 dB 193.0 Function Result 18.661 MHz 26.00 dB 194.5
 X-value
 Y-value
 Function

 3.617647 GHz
 13.58 dBm
 nd8 down

 3.615689 GHz
 -11.41 dBm
 nd8

 3.634431 GHz
 -12.41 dBm
 Q factor

 X-value
 Y-value
 Function

 3.629875 GHz
 13.00 dBm
 nd8 down

 3.615609 GHz
 -13.75 dBm
 nd8

 3.634271 GHz
 -11.86 dBm
 Q factor
 Type Ref Trc Type Ref Trc Date: 15.JAN.2022 14:34:02 Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM Ref Level 30.00 dBm Offset 12.50 dB ● RBW 100 kHz
Att 30 dB SWT 19 µs ● VBW 300 kHz Mode Auto FFT
SQL Count 100/100
1Pk Max 12.75 dBn 3.6274380 GH 26.00 dl 9.870000000 MH 367. M1[1] 11.14 dBr 3.62544000 GF -10 dBm 30 dBm 200 ABM~ -50 dBm--50 dBm
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.627438 GHz
 1.2.75 dam
 nd8 down

 T1
 1
 3.620045 GHz
 1.3.22 dam
 nd8

 T2
 1
 3.629915 GHz
 -13.73 d8m
 Q factor

 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.62544 GHz
 11.14 dBm
 nd8 down

 T1
 1
 3.62238 GHz
 15.76 dBm
 nd8

 T2
 1
 3.627398 GHz
 -15.47 dBm
 Q factor
 Middle Channel / 15MHz / 64QAM Middle Channel / 20MHz / 64QAM 11.93 dBr 3.6230520 GF 11.25 dBr 3.6194060 GH -20 dBm 30 dBm-40.ABAL -50 dBm--50 dBm--60 dBm Function Result

14.296 MHz

26.00 dB

253.4 Span 30.0 MHz CF 3.625 GHz Function Result

18.781 MHz
26.00 dB
192.7 Span 40.0 MHz CF 3.625 GHz 1001 pts Marker Type | Ref | Trc |
 Marker

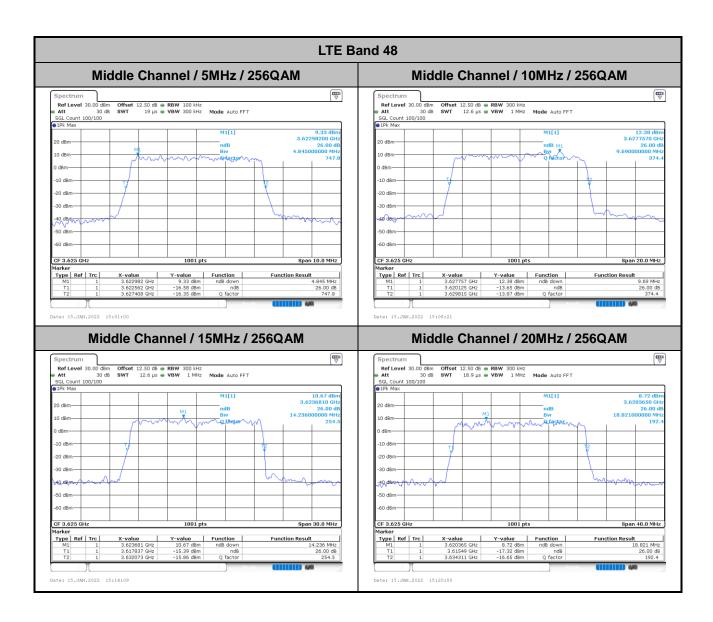
 Type
 Ref
 Tr
 X-value
 Y-value

 M1
 1
 3.619406 GHz
 11.25 de

 T1
 1
 3.615529 GHz
 -14.59 de

 T2
 1
 3.634311 GHz
 -14.49 de
 Date: 15.JAN.2022 14:32:38 Date: 15.JAN.2022 14:34:45

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Occupied Bandwidth

Mode	LTE Band 48 : 99%OBW(MHz)												
BW	1.4	ИHz	3MHz		5MHz		10MHz		15MHz		20MHz		
Mod.	QPSK 16QAM		QPSK	16QAM									
Middle CH	-	-	-	-	4.51	4.50	9.07	9.07	13.40	13.40	17.86	17.98	
Mode	LTE Band 48 : 99%OBW(MHz)												
BW	1.4	ИНz	3M	lHz	5N	lHz	101	ЛHz	15N	ЛHz	201	20MHz	
Mod.	64QAM	256	64QAM	256	64QAM	256	64QAM	256	64QAM	256	64QAM	256	
		QAM		QAM		QAM		QAM		QAM		QAM	
Middle CH	-	-	-	-	4.49	4.48	9.03	8.99	13.43	13.43	17.94	17.90	

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LTE Band 48 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM 13.14 dBr 3.62365100 GH 4.505494505 MH 13.64 dBn 3.62713800 GH 1.495504496 MH M1[1] M1[1] -10 dBm--20 dBm-40 dBm -30 dBm 40 dBm− -50 dBm-50 dBm CF 3.625 GHz 1001 pts Span 10.0 MHz CF 3.625 GHz 1001 pts Span 10.0 MHz
 X-value
 Y-value
 Function

 3.623651 GHz
 13.14 dBm
 0.00 dBm

 3.6227522 GHz
 9.60 dBm
 Occ Bw

 3.6272577 GHz
 8.73 dBm
 Type | Ref | Trc | Function Result
 Type
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.627138 GHz
 13.64 dBm
 Function Result 8.17 dBm Occ Bw 8.58 dBm 4.505494505 MHz 4.495504496 MHz Date: 15.JAN.2022 14:26:41 Date: 15.JAN.2022 14:27:02 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 Att Offset 12.50 dB ● RBW 300 kHz SWT 12.6 µs ● VBW 1 MHz Mode Auto FFT 30 dB SGL Count 100/100 14.76 dBr 3.6273980 GH 9.070929071 MH 15.47 dBn 3.6292360 GH 9.070929071 MH M1[1] M1[1] 20 dBm dBm--10 dBm 10 dBm--30 dBm -40 dBm-50 dBm -50 dBm-CF 3.625 GHz CF 3.625 GHz Span 20.0 MHz
 Marker
 Trope
 Ref
 Trc
 X-value
 Y-value
 Function
 Function Result

 M1
 1
 3.627398 GHz
 14.76 dBm
 14.76 dBm
 11.75 dBm
 9.07 dBm
 15.47 dBm 8.63 dBm Occ Bw 8.03 dBm 9.070929071 MHz 9.070929071 MHz Date: 15.JAN.2022 14:28:47 Date: 15.JAN.2022 14:29:08 Middle Channel / 15MHz / QPSK Middle Channel / 15MHz / 16QAM Ref Level 30.00 dbm Offset 12.50 db e RBW 300 kHz
Att 30 db SWT 12.6 µs e VBW 1 MHz Mode Auto FFT
SCL Count 100/100
13Pk Max 14.33 dBn 3.6286260 GH: 13.396603397 MH: 13.42 dBn 3.6282670 GH: 13.396603397 MH: 20 dBm 10 dBm -10 dBm -10 dBm-30 d8m -30 dBm -40 dBm-50 dBm -50 dBm-60 dBm -60 dBm-1001 pts Span 30.0 MHz 1001 pts Span 30.0 MHz Marker Type | Ref | Trc |
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.628207 GHz
 13.42 d8m
 0.00 d8m

 T1
 1
 3.618107 GHz
 7.78 d8m
 0.00 8w

 T2
 1
 3.6317133 GHz
 8.09 d8m
 0.00 d8m

 X-value
 Y-value
 Function

 3.628026 GHz
 14.33 dBm
 3.6182867 GHz

 3.6182867 GHz
 9.62 dBm
 Occ Bw

 3.6316833 GHz
 8.91 dBm
 Function Result Function Result 13.396603397 MHz 13.396603397 MHz

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LTE Band 48 Middle Channel / 20MHz / QPSK Middle Channel / 20MHz / 16QAM Ref Level 30.00 dBm Offset 12.50 dB = RBW 300 kHz = Att 30 dB SWT 18.9 μs = VBW 1 MHz Mode Auto FFT SQL COUNT 100/100 Ref Level 30.00 dBm Offset 12.50 dB ● RBW 300 kHz
Att 30 dB SWT 18.9 µs ● VBW 1 MHz Mode Auto FFT
SGL Count 100/100
SGL SOUNT 10.9 µs ● VBW 1 MHz Mode Auto FFT M1[1] M1[1] -10 dBm-20 dBm -20 dBm--30 dBm--30 dBm-46/dB/h^ -50 dBm-50 dBm-CF 3.625 GHz CF 3.625 GHz 1001 pts Span 40.0 MHz 1001 pts Span 40.0 MHz
 X-value
 Y-value
 Function

 3.616129 GHz
 11.06 dBm

 3.615969 GHz
 8.63 dBm
 Occ Bw

 3.633951 GHz
 7.42 dBm

 X-value
 Y-value
 Function

 3.632952 GHz
 12.55 dBm

 3.616049 GHz
 9.13 dBm
 Occ Bw

 3.6339111 GHz
 8.85 dBm
 Type Ref Trc Type | Ref | Trc | Function Result Function Result 9.13 dBm Occ Bw 8.85 dBm 17.862137862 MHz 17.982017982 MHz Date: 15.JAN.2022 14:33:00 Date: 27.JAN.2022 12:14:00 Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM Ref Level 30.00 Att Offset 12.50 dB ● RBW 300 kHz SWT 12.6 µs ● VBW 1 MHz Mode Auto FFT 30 dB SGL Count 100/100 11.93 dBr 3.62514000 GH 4.485514486 MH 12.59 dBn 3.6223630 GH 9.030969031 MH M1[1] M1[1] 20 dBm dBm-10 dBm -10 d8m--30 dBm -30 dBm-40,dBm 40 dBm--50 dBm-CF 3.625 GHz CF 3.625 GHz Span 10.0 MHz 3.62514 GHz 11.93 dBm 3.6227423 GHz 7.75 dBm Occ Bw 3.6272278 GHz 6.31 dBm 6.81 dBm Occ Bw 7.94 dBm 9.030969031 MHz 4.485514486 MHz Date: 15.JAN.2022 14:30:11 Middle Channel / 20MHz / 64QAM Middle Channel / 15MHz / 64QAM Ref Level 30.00 dbm Offset 12.50 db e RBW 300 kHz
Att 30 db SWT 12.6 µs e VBW 1 MHz Mode Auto FFT
SCL Count 100/100
13Pk Max 11.87 dBr 3.6289860 GH 13.426573427 MH 11.89 dBn 3.6218430 GH: 17.942057942 MH: 20 dBm 10 dBm -10 dBm -10 dBm--30 dBm -30 dBm-4o′dsm≏ 50 dBm -50 dBm-60 dBm -60 dBm-1001 pts Span 30.0 MHz 1001 pts Span 40.0 MHz Marker Type | Ref | Trc |
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.621843 GHz
 11.99 dbm
 1.199 dbm

 T1
 1
 3.63999 GHz
 6.54 dbm
 Occ BW

 T2
 1
 3.6399111 GHz
 6.14 dbm
 Occ BW

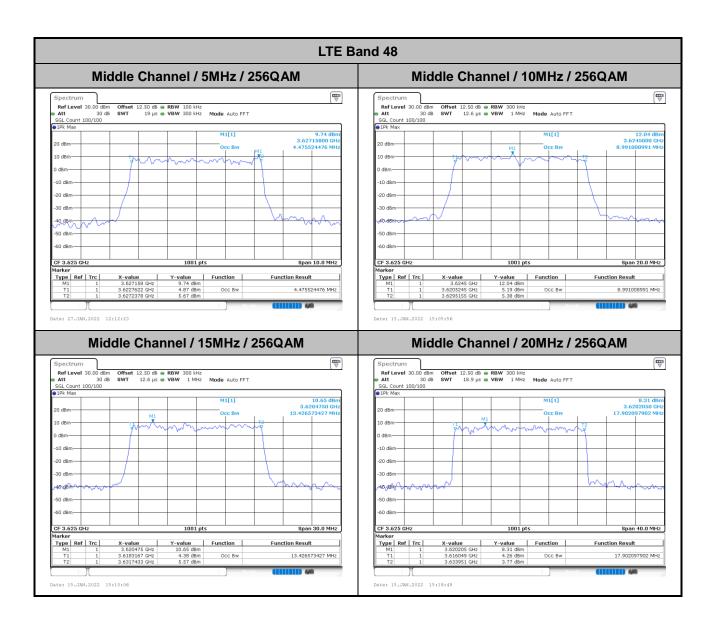
 X-value
 Y-value
 Function

 3.628986 GHz
 11.87 dBm
 3.6182867 GHz

 3.6182867 GHz
 6.86 dBm
 Occ Bw

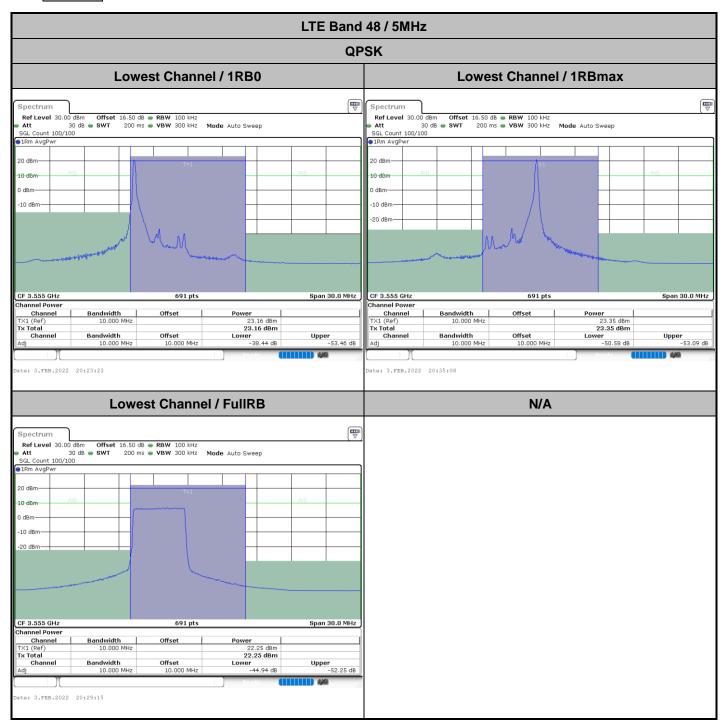
 3.6917133 GHz
 5.43 dBm
 Function Result Function Result 13.426573427 MHz 17.942057942 MHz

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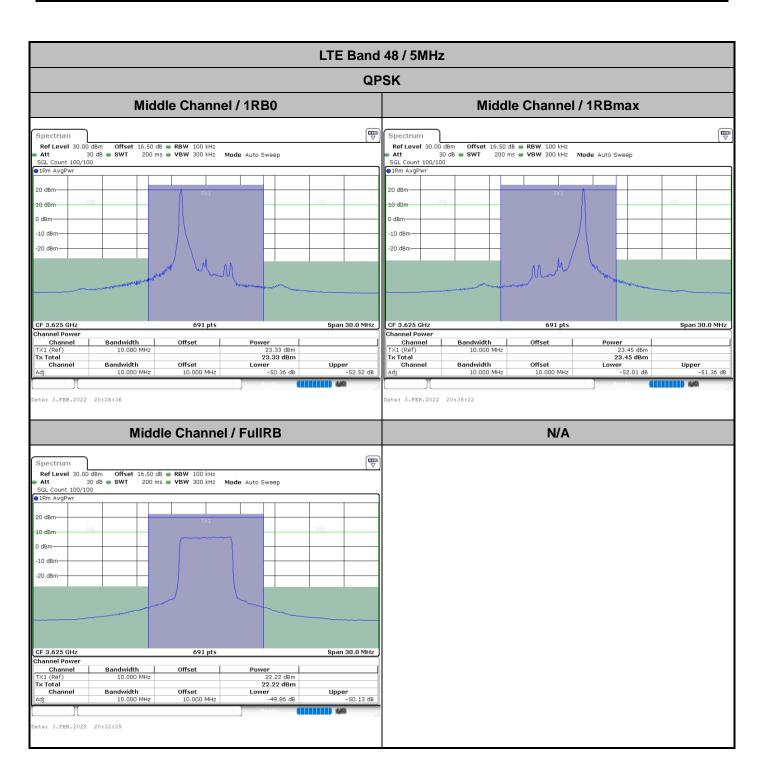
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ACLR



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LTE Band 48 / 5MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Mode Auto Sweep ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm -un CF 3.695 GHz Span 30.0 MHz Span 30.0 MHz hannel Power hannel Power 23.08 dBm 23.08 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Offset Power 23.25 dBm 23.25 dBm 23.25 dBm Lower -53.52 dB Upper -50.98 dB Bandwidth Lower -52.74 dB Bandwidth Offset Upper -38.27 dB 10.000 MH; ate: 3.FEB.2022 20:27:16 ate: 3.FEB.2022 20:39:01 **Highest Channel / FullRB** N/A Spectrum Mode Auto Sweep -10 dBn -20 dBm CF 3.695 GHz 691 pts Span 30.0 MHz 22.01 dBm 22.01 dBm 22.01 dBm Lower -52.01 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz te: 3.FEB.2022 20:33:09

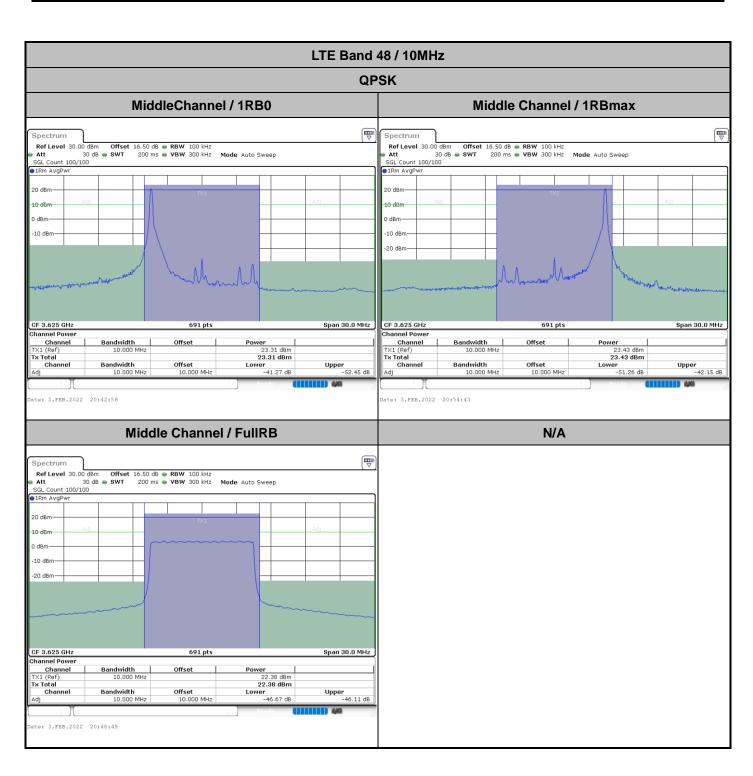
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LTE Band 48 / 10MHz **QPSK** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz hannel Power hannel Power 23.30 dBm 23.30 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 23.37 dBm 23.37 dBm 23.37 dBm Lower -51.34 dB Upper -52.21 dB Bandwidth Bandwidth Offset **Lower** -41.48 dB Upper -41.89 dB 10.000 MH; ate: 3.FEB.2022 20:42:20 Date: 3.FEB.2022 20:54:04 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.50 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBn 20 dBm CF 3.555 GHz 691 pts Span 30.0 MHz Power 22.38 dBm 22.38 dBm Lower -47.18 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz ate: 3.FEB.2022 20:48:10

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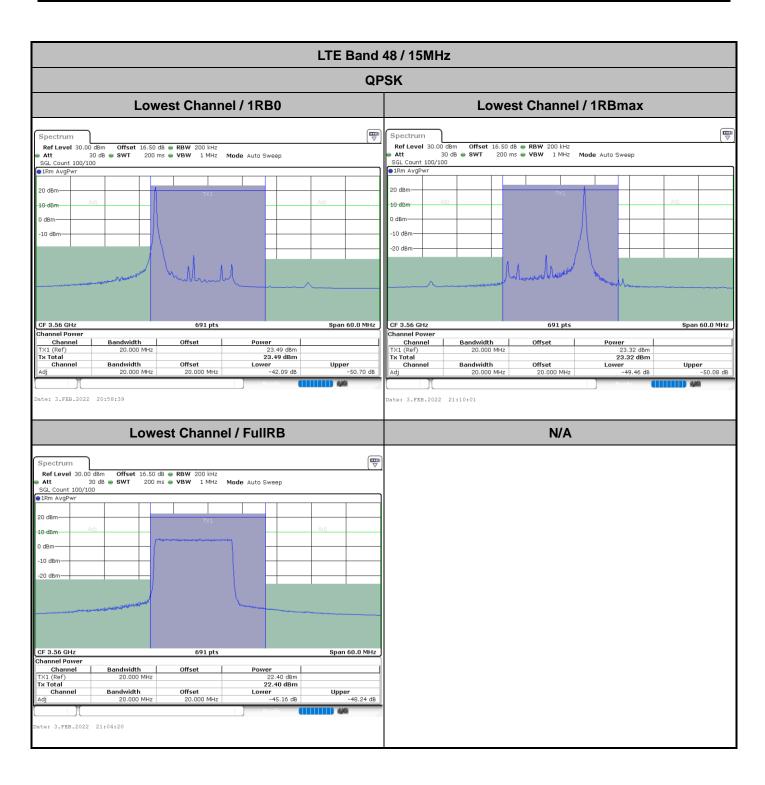


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LTE Band 48 / 10MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Mode Auto Sweep ●1Rm AvgPwr 20 dRm 0 dBn -10 dBm -10 dBm -20 dBm CF 3.695 GHz hannel Power hannel Power Power 23.17 dBm 23.17 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 23.04 dBm 23.04 dBm 23.04 dBm Lower -50.69 dB Upper -52.08 dB **Upper** -42.07 dB Bandwidth **Lower** -41.30 dB Bandwidth Offset 10.000 MH; ate: 3.FEB.2022 20:46:14 ate: 3.FEB.2022 20:57:59 **Highest Channel / FullRB** N/A Spectrum Mode Auto Sweep CF 3.695 GHz 691 pts Span 30.0 MHz 22.12 dBm 22.12 dBm 22.12 dBm Lower -45.84 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz te: 3.FEB.2022 20:52:06

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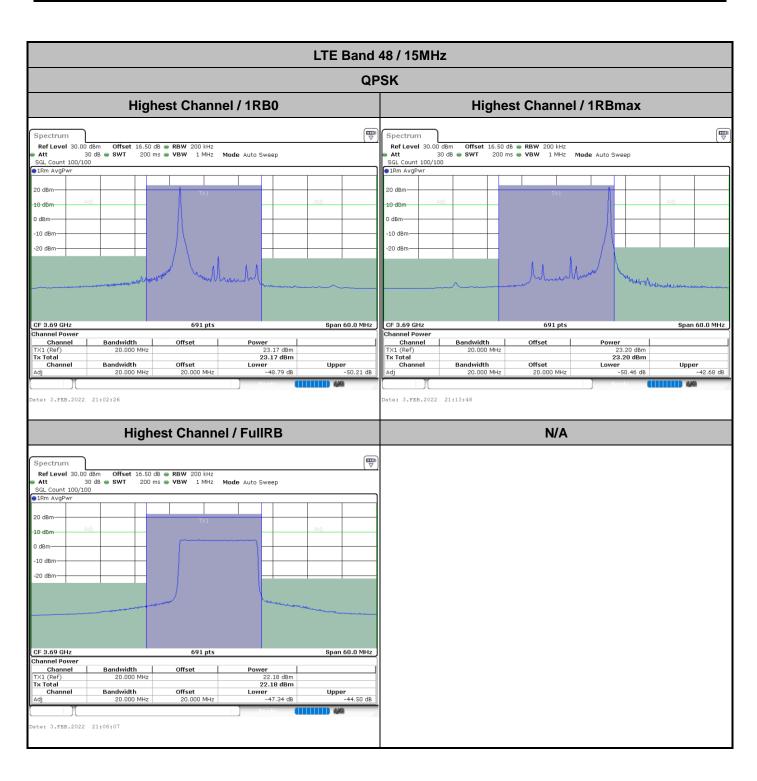
LTE Band 48 / 15MHz **QPSK** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum
 Ref Level
 30.00 dBm
 Offset
 16.50 dB
 RBW
 200 kHz

 Att
 30 dB
 SWT
 200 ms
 VBW
 1 MHz
 Mode
 Auto Sweep

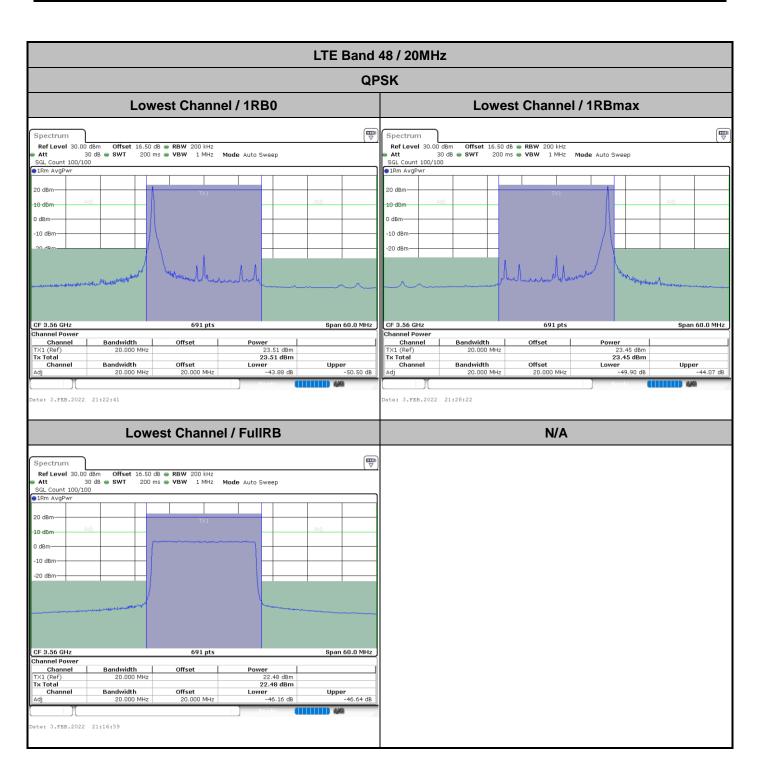
 SGL Count 100/100
 ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 60.0 MHz Span 60.0 MHz hannel Power hannel Power Power 23.66 dBm Channel
TX1 (Ref)
Tx Total
Channel 23.42 dBm 23.42 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset 23.66 dBm 23.66 dBm Lower -50.56 dB Upper -50.78 dB Bandwidth Offset **Lower** -47.33 dB Bandwidth Offset Upper -50.03 dB 20.000 MH ate: 3.FEB.2022 21:01:48 ate: 3.FEB.2022 21:13:10 Middle Channel / FullRB N/A Spectrum Mode Auto Sweep -10 dBn CF 3.625 GHz 691 pts Span 60.0 MHz 22,44 dBm 22,44 dBm 22,44 dBm Lower -46,49 dB Bandwidth 20.000 MHz Channel (Ref) Offset **Upper** -47.06 dB Bandwidth 20.000 MHz te: 3.FEB.2022 21:07:29

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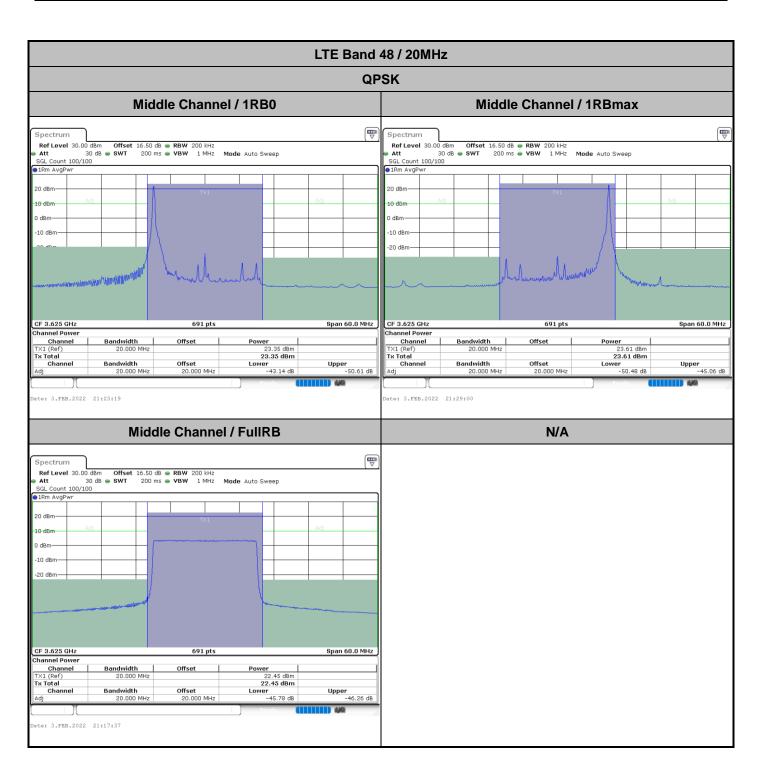
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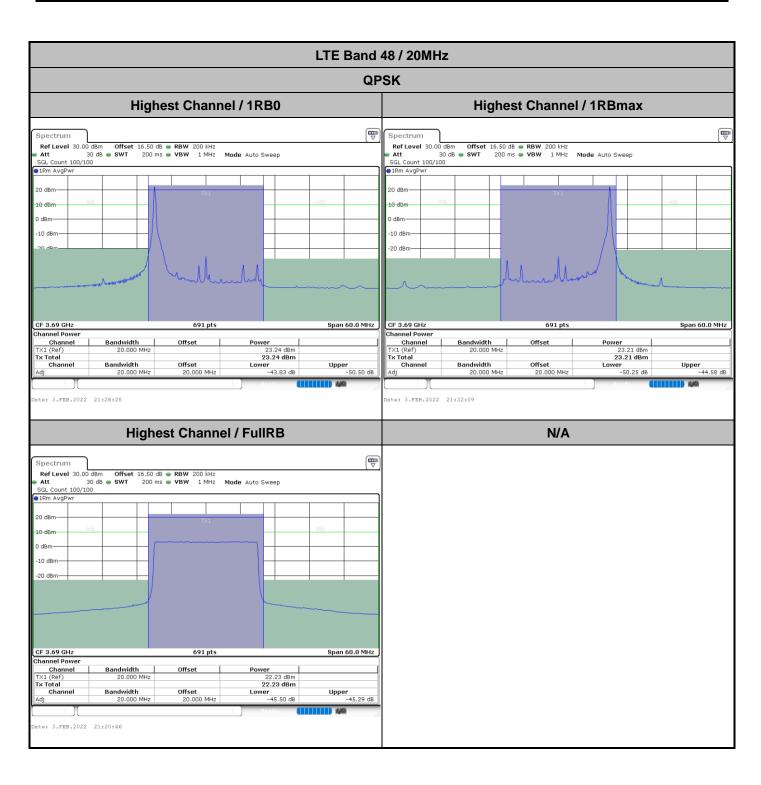
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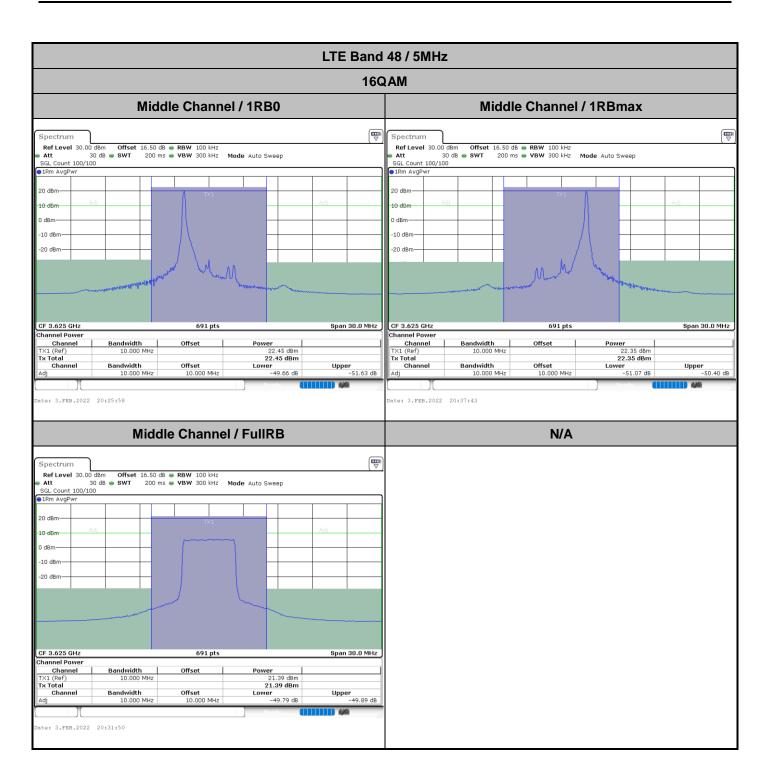


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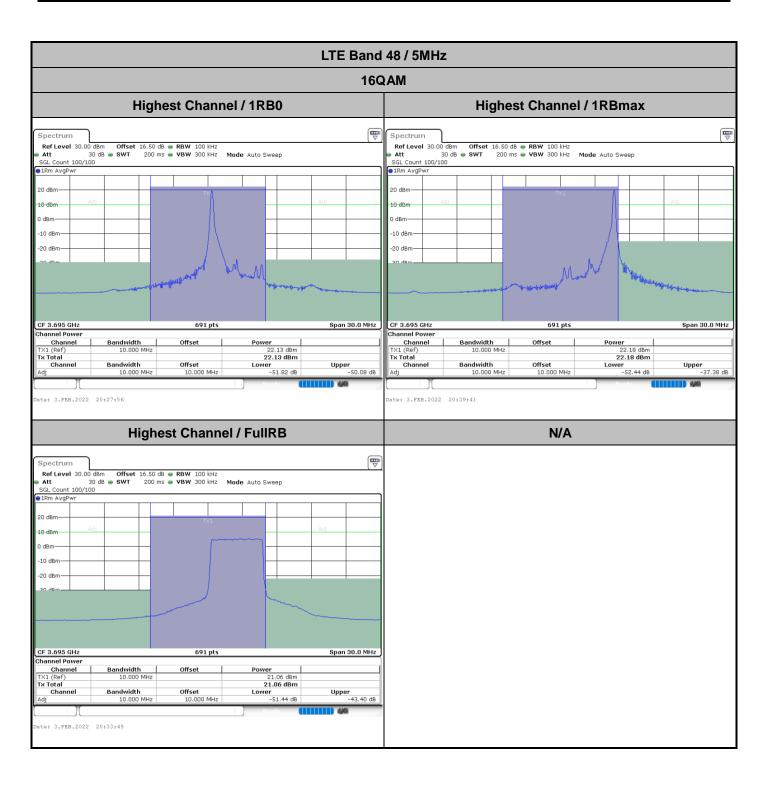
LTE Band 48 / 5MHz **16QAM** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz hannel Power hannel Power Power 22.28 dBm 22.28 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 22.46 dBm 22.46 dBm 22.46 dBm Lower -49.80 dB Upper -52.54 dB Bandwidth -37.32 dB Bandwidth Offset Upper -52.29 dB 10.000 MH; ate: 3.FEB.2022 20:24:02 ate: 3.FEB.2022 20:35:47 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.50 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.555 GHz 691 pts Span 30.0 MHz Power 21.32 dBm 21.32 dBm Lower -44.76 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz te: 3.FEB.2022 20:29:54

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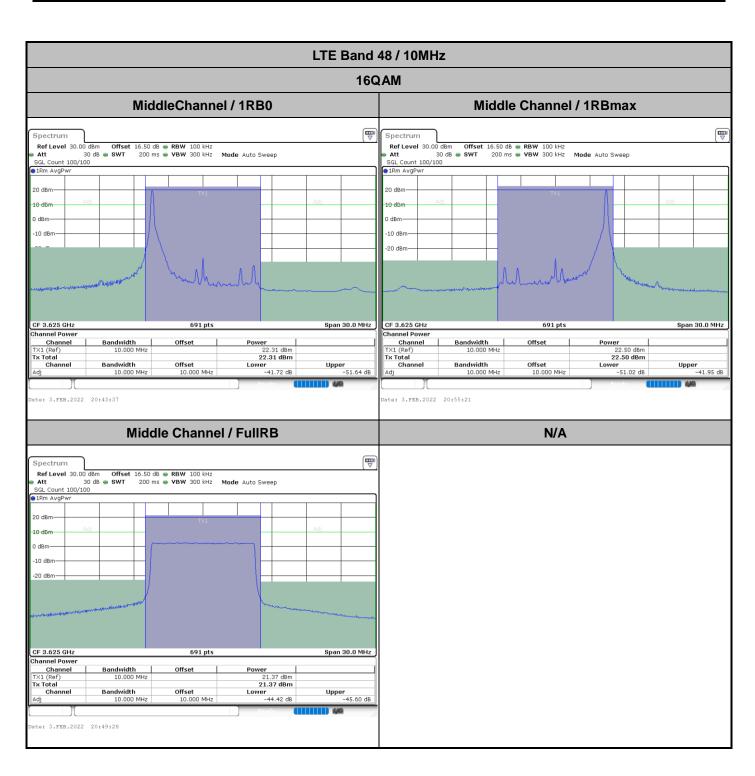


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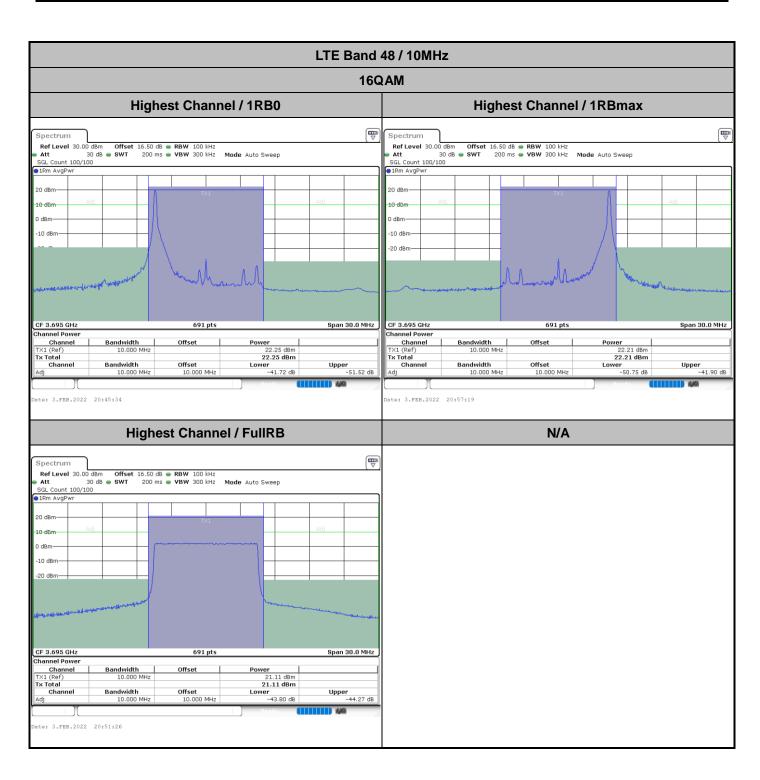
LTE Band 48 / 10MHz **16QAM** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel 22.45 dBm 22.45 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 22.47 dBm 22.47 dBm Upper -51.48 dB Bandwidth Bandwidth Offset **Lower** -41.94 dB Lower -50.90 dB Upper -41.85 dB 10.000 MH; ate: 3.FEB.2022 20:41:40 Date: 3.FEB.2022 20:53:24 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.50 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBn CF 3.555 GHz 691 pts Span 30.0 MHz Power 21.37 dBm 21.37 dBm Lower -45.28 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz te: 3.FEB.2022 20:47:32

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LTE Band 48 / 15MHz **16QAM** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 60.0 MHz Span 60.0 MHz CF 3.56 GHz hannel Power hannel Power 22.56 dBm 22.56 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 22.51 dBm 22.51 dBm 22.51 dBm Lower -48.91 dB Upper -49.81 dB Upper -49.46 dB Bandwidth Bandwidth Offset Lower -42.25 dB Offset 20.000 MH ate: 3.FEB.2022 20:59:17 Date: 3.FEB.2022 21:10:39 **Lowest Channel / FullRB** N/A Spectrum Mode Auto Sweep -10 dBn CF 3.56 GHz 691 pts Span 60.0 MHz 21.39 dBm 21.39 dBm 21.39 dBm Lower -44.80 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Upper -47.68 dB Bandwidth 20.000 MHz te: 3.FEB.2022 21:04:58

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LTE Band 48 / 15MHz **16QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm Span 60.0 MHz Span 60.0 MHz CF 3.625 GHz hannel Power hannel Power 22.66 dBm 22.66 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 22.45 dBm 22.45 dBm 22.45 dBm Lower -49.51 dB Upper -50.06 dB **Upper** -49.05 dB Bandwidth Offset Lower -47.87 dB Bandwidth Offset 20.000 MH ate: 3.FEB.2022 21:01:10 ate: 3.FEB.2022 21:12:33 Middle Channel / FullRB N/A Spectrum Mode Auto Sweep -10 dBn 20 dBm CF 3.625 GHz 691 pts Span 60.0 MHz Power 21.41 dBm 21.41 dBm Lower -46.01 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz te: 3.FEB.2022 21:06:52

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LTE Band 48 / 15MHz **16QAM Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm Span 60.0 MHz CF 3.69 GHz hannel Power hannel Power Power 22.29 dBm Power 22.33 dBm 22.33 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset 22.29 dBm 22.29 dBm Lower -49.61 dB Upper -49.50 dB **Upper** -42.73 dB Bandwidth Offset Lower -48.76 dB Bandwidth 20.000 MH; ate: 3.FEB.2022 21:03:04 ate: 3.FEB.2022 21:14:26 **Highest Channel / FullRB** N/A Spectrum Mode Auto Sweep -10 dBr 20 dBm CF 3.69 GHz 691 pts Span 60.0 MHz Power 21.17 dBm 21.17 dBm Lower -46.79 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Upper -44.08 dB Bandwidth 20.000 MHz te: 3.FEB.2022 21:08:45

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LTE Band 48 / 20MHz **16QAM** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 60.0 MHz Span 60.0 MHz CF 3.56 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel 22.46 dBm 22.46 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 22.49 dBm 22.49 dBm 22.49 dBm Lower -49.06 dB **Upper** -49.56 dB **Upper** -44.03 dB Bandwidth Bandwidth Offset Lower -43.99 dB Offset 20.000 MH ate: 3.FEB.2022 21:22:03 ate: 3.FEB.2022 21:27:44 **Lowest Channel / FullRB** N/A Spectrum Mode Auto Sweep -10 dBn CF 3.56 GHz 691 pts Span 60.0 MHz 21,43 dBm 21,43 dBm 21,43 dBm Lower -45,84 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset **Upper** -46.07 dB Bandwidth 20.000 MHz Offset 20.000 MHz te: 3.FEB.2022 21:16:21

Report No.: FG101524C

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LTE Band 48 / 20MHz **16QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum
 Ref Level
 30.00 dBm
 Offset
 16.50 dB
 RBW
 200 kHz

 Att
 30 dB
 SWT
 200 ms
 VBW
 1 MHz
 Mode
 Auto Sweep

 SGL Count 100/100
 ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 60.0 MHz Span 60.0 MHz CF 3.625 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel 22.41 dBm 22.41 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 22.63 dBm 22.63 dBm Upper -49.75 dB Upper -44.71 dB Bandwidth Bandwidth Offset Lower -43.66 dB Offset **Lower** -49.65 dB 20.000 MH ate: 3.FEB.2022 21:23:56 ate: 3.FEB.2022 21:29:38 Middle Channel / FullRB N/A Spectrum Mode Auto Sweep -10 dBn CF 3.625 GHz 691 pts Span 60.0 MHz 21.41 dBm 21.41 dBm 21.41 dBm Lower -45.42 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset **Upper** -45.57 dB Bandwidth 20.000 MHz te: 3.FEB.2022 21:18:15

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