

FCC RF Test Report

FCC ID : UZ7EM45A2

EQUIPMENT: Enterprise Mobile

BRAND NAME : Zebra
MODEL NAME : EM45A2

APPLICANT : Zebra Technologies Corporation

3 Overlook Point, Lincolnshire, IL 60069 USA

Manufacturer : Zebra Technologies Corporation

3 Overlook Point, Lincolnshire, IL 60069 USA

STANDARD : 47 CFR Part 2, 96

CLASSIFICATION : Citizens Band End User Devices (CBE)

EQUIPMENT TYPE: End User Equipment

Test Date(s) : Jun. 14, 2024 ~ Jun. 27, 2024

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26 and shown compliance with the applicable technical standards.

This report contains data that were produced under subcontract by Sporton International Inc (Shenzhen).

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

JasonJia





Report No.: FG460505H

Approved by: Jason Jia

Sporton International Inc. (Kunshan)

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History of this test report

Report No.	Version	Description	Issued Date
FG460505H	01	Initial issue of report	Sep. 05, 2024

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Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
-	§96.41	Peak-to-Average Ratio	Not Applicable	Not applicable for End User Devices
		Maximum E.I.R.P	Pass	-
3.3	§96.41	Maximum Power Spectral Density	Not Applicable	Not applicable for End User Devices
3.4	§2.1049 §96.41	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §96.41	Conducted Band Edge Measurement Adjacent Channel Leakage Ratio	Pass	-
3.6	§2.1051 §96.41	Conducted Spurious Emission	Pass	
3.7	§2.1055	Frequency Stability for Temperature & Voltage	Pass	-
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	Under limit 7.92 dB at 10850.000 MHz

Conformity Assessment Condition:

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

Disclaimer:

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

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1 General Description

1.1 Feature of Equipment Under Test

Product Feature					
Equipment	Enterprise Mobile				
Brand Name	Zebra				
Model Name	EM45A2				
FCC ID	UZ7EM45A2				
IMEI Code	Conducted: 352991990028965/352991990029377 Radiation: 352991990029096/352991990029708				
HW Version	EV2.5				
SW Version	13-32-08.00-TG-U06-STD-ATH-04				
MFD	08AUG24				
EUT Stage	Identical Prototype				

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Specification of Accessory				
Pottory	Brand Name		Model	BT-000501
Battery	Branu Name	Zebra	Part Number	BT-000501-2000

Supported Unit used in test configuration and system					
AC Adapter 1	Brand Name	Zebra	Model	SAWA-102-22520A	
(Type C Wall Charger 1)	Brand Name	Zebia	Part Number	PWR-WUA5V45W1US	
AC Adapter 2	Brand Name	Zebra	Model	SAWA-65-20005A	
(Type A Wall Charger 2)	Brand Name	Zebia	Part Number	PWR-WUA5V12W0US	
Earphone 1 (Wired headset USB-C)	Brand Name	Zebra	Part Number	HDST-USBC-PTT1-01	
Earphone 2 (Rugged Bluetooth Headset)	Brand Name	Zebra	Part Number	HS3100-OTH	
Earphone 3 (3.5mm PTT Headset)	Brand Name	Zebra	Part Number	HDST-35MM-PTT1-02	
Earphone 4 (Rugged Headset)	Brand Name	Zebra	Part Number	HS2100-OTH	
3.5mm to 3.5mm audio connector	Brand Name	Zebra	Part Number	CBL-HS2100-3MS1-01	
Type C-Audio Cable (Type C to 3.5mm)	Brand Name	Zebra	Part Number	ADP-USBC-35MM1-01	
USB Cable 1 (USB-C to C Cable)	Brand Name	Zebra	Part Number	CBL-EC5X-USBC3A-01	
USB Cable 2 (USB-A to C Cable)	Brand Name	Zebra	Part Number	CBL-TC5X-USBC2A-01	
EM45 Protective Case	Brand Name	Zebra	Part Number	SG-EM45EXO1-01	

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1.2 Product Specification of Equipment Under Test

Standards-related Product Specification					
Tx Frequency	LTE Band 48: 3550 MHz ~ 3700 MHz				
Rx Frequency	LTE Band 48: 3550 MHz ~ 3700 MHz				
Bandwidth	5MHz / 10MHz / 15MHz / 20MHz				
Maximum Output Power to Antenna	<ant.4>: LTE Band 48: 21.85 dBm LTE Band 48C: 21.55 dBm</ant.4>				
Antenna Type / Gain	<ant.4>: PIFA Antenna /-0.56 dBi</ant.4>				
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM				

1.3 Maximum EIRP Power and Emission Designator

Ľ	TE Band 48	QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	3552.5~3697.5	0.1324	4M52G7D	0.1045	4M51W7D
10	3555~3695	0.1297	8M99G7D	0.1045	9M05W7D
15	3557.5~3692.5	0.1297	13M5G7D	0.1038	13M5W7D
20	3560~3690	0.1346	17M8G7D	0.1064	17M8W7D

LTE Band 48 CA	QPSK		16QAM/64Q <i>A</i>	AM/256QAM
BW (MHz) Frequency (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5MHz+20MHz (3553.5 ~ 3690 MHz)	0.0998	23M4G7D	0.1035	23M2W7D
10MHz+20MHz (3555.5 ~ 3690 MHz)	0.1216	27M9G7D	0.1239	28M0W7D
15MHz+20MHz (3557.8 ~ 3690 MHz)	0.1059	32M7G7D	0.1119	32M8W7D
20MHz+5MHz (3560 ~ 3696.7 MHz)	0.1104	23M3G7D	0.1159	23M3W7D
20MHz+10MHz (3560 ~ 3694.5 MHz)	0.0968	28M1G7D	0.1005	28M1W7D
20MHz+15MHz (3560 ~ 3692.2 MHz)	0.1191	32M8G7D	0.1245	32M7W7D
20MHz+20MHz (3560 ~ 3690 MHz)	0.1211	37M7G7D	0.1256	37M6W7D

Note: All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report.

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1.4 Testing Site

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

Test Firm	Sporton International Inc. (Kunshan)				
	No. 1098, Pengxi North	n Road, Kunshan Econom	Kunshan Economic Development Zone		
Test Site Location	Jiangsu Province 215300 People's Republic of China				
	TEL: +86-512-579001	58			
	Sporton Sito No	FCC Designation No.	FCC Test Firm		
Test Site No.	Sporton Site No.	rcc besignation No.	Registration No.		
	03CH04-KS	CN1257	314309		

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (ShenZhen)						
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595						
	Sporton Site No.	FCC Designation No.	FCC Test Firm				
Test Site No.	Sporton Site No.	rec Designation No.	Registration No.				
	TH01-SZ	CN1256	421272				

Note: Test data subcontracted: Conducted test cases in section 3.2~3.7 of this report.

1.5 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	210616

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1.6 Applied Standards

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

- + ANSI C63.26-2015
- 47 CFR Part 2, 96
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 940660 D01 Part 96 CBRS v03
- FCC KDB 412172 D01 Determining ERP and EIRP 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.

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Test Configuration of Equipment Under Test 2

2.1 Test Mode

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

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

			Ва	ndwid	dth (M	Hz)			Modu	ulation			RB#		Test	t Char	nnel
Test Items	Band	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	М	Н
Max. Output Power	48	-	•	v	v	v	٧	v	v	v	v	>		v	٧	v	٧
26dB and 99% Bandwidth	48	•	•	v	v	v	٧	v	v					v		v	
Conducted Band Edge	48	-	•	v	v	v	>	v	v	v		٧		v	٧	v	٧
Conducted Spurious Emission	48	-	-	v	v	v	v	v				v			v	v	v
ACLR	48	•	•	v	v	v	>	v	v	v		>		v	٧	v	>
E.I.R.P.	48	,	-	v	v	v	v	v	v	v	v	v		v	v	v	٧
Frequency Stability	48		-		v			v				v				v	
Radiated Spurious Emission	48							Wors	t Case						٧	v	٧
Remark	 The uncertainty The uncertainty For a second or a s	e mark e devid der diff report	e is ir erent ted.	eans t nvestig RB siz ulation	hat thi gated f ze/offs	s band rom 30 et and	lwidth)MHz modu	lations in	oported. es of fund explorate	damental ory test. S	signal for Subsequer M&64QAM	ntly, o	nly the	worst	case	emiss	ions

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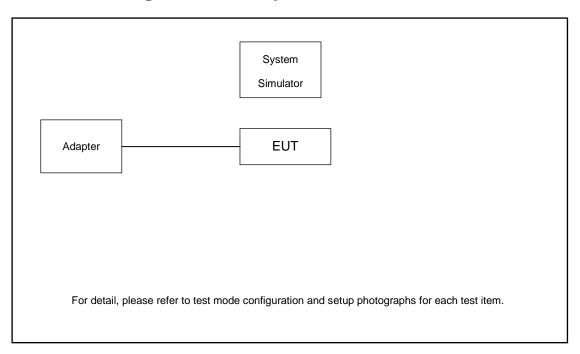
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				Ва	andwic	th (MI	Hz)				Modul	ation			RB#		Test	Char	nnel
Test Items	Band	20+20	20+15		20+10			20+5	5+20	QPSK	16QAM	64QAM	256 QAM	1	Half	Full	L	М	н
Max. Output Power	48C	٧	v	٧	٧	٧	•	v	٧	٧	V	v	٧	٧			٧	v	v
26dB and 99% Bandwidth	48C	٧	v	v	v	v	•	v	٧	٧	v					v		v	
Conducted Band Edge	48C	٧	v	V	V	٧	•	v	٧	٧	v	v	v	٧		v	٧	v	v
Conducted Spurious Emission	48C	v	v	٧	٧	٧	•	v	٧	٧				٧			٧	v	v
Adjacent Channel Leakage Ratio	48C	v	v	٧	v	v	•	v	v	v	v	v	٧	v		v	v	v	v
E.I.R.P.	48C	v	٧	٧	٧	v		٧	٧	٧	v	v	v	v			v	v	v
Radiated Spurious Emission	48C							Wor	st Cas	е							v	v	v
							U		nosen fo upporte	or testir d.	ng								
Note	d		RB siz								ental sig Ibseque								nder
	4. A	ll test i	tems a	re bas	ed on e	engine	ering e	/aluatio	on.										

2.2 Connection Diagram of Test System



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2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820/8821	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 5.5 dB and 10dB attenuator.

Example:

$$Offset(dB) = RF \ cable \ loss(dB) + attenuator \ factor(dB).$$

= 5.5 + 10 = 15.5 (dB)

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2.5 Frequency List of Low/Middle/High Channels

	LTE Band 48 Ch	annel and Frequen	cy List	
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	55340	55990	56640
20	Frequency	3560.0	Middle	3690.0
45	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
o O	Frequency	3552.5	3625.0	3697.5

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LTE Band 48C_CA Channel and Frequency List BW [MHz] Channel/Frequency(MHz) Lowest Middle **Highest** Channel 55273 55898 56523 **PCC** Frequency 3553.3 3615.8 3678.3 5 + 20Channel 55390 56015 56640 SCC Frequency 3565 3627.5 3690 55340 56590 Channel 55965 **PCC** Frequency 3560 3622.5 3685 20 + 556707 Channel 55457 56082 SCC Frequency 3571.7 3634.2 3696.7 Channel 55295 55896 56496 **PCC** Frequency 3555.5 3615.6 3675.6 10 + 2056640 Channel 55439 56040 SCC Frequency 3569.9 3630 3690 55340 55941 56541 Channel **PCC** 3560 3620.1 3680.1 Frequency 20 + 10Channel 55484 56085 56685 SCC Frequency 3574.4 3634.5 3694.5 55318 55893 Channel 56469 **PCC** Frequency 3557.8 3615.3 3672.9 15 + 2055489 56064 56640 Channel SCC 3574.9 3632.4 3690 Frequency Channel 55340 55916 56491 **PCC** Frequency 3560 3617.6 3675.1 20 + 15Channel 55511 56087 56662 SCC Frequency 3577.1 3634.7 3692.2 55340 55891 56442 Channel **PCC** Frequency 3560 3615.1 3670.2 20 + 2055538 56640 Channel 56089 SCC 3579.8 3634.9 3690 Frequency

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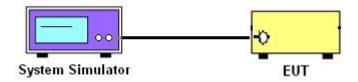
3 Conducted Test Items

3.1 Measuring Instruments

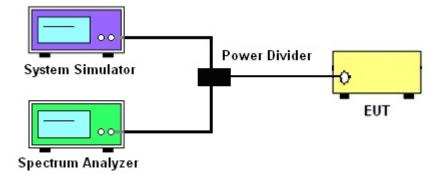
See list of measuring instruments of this test report.

3.1.1 Test Setup

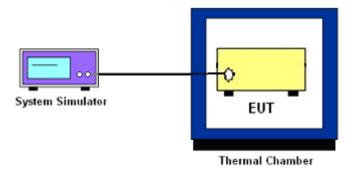
3.1.2 Conducted Output Power



3.1.3 PSD, 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.

3.2.2 Test Procedures

- 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 EIRP

3.3.1 Description of the EIRP Measurement

EIRP limits for CBRS equipment as below table:

De	evice	Maximum EIRP	Maximum PSD		
		(dBm/10 MHz)	(dBm/MHz)		
Applied	End User Device	23	n/a		
	Category A CBSD	30	20		
	Category B CBSD	47	37		

Remark:

The worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz)

3.3.2 Test Procedures for EIRP

- Establishing a communications link with the call box (Base station) to measure the Maximum conducted power, the parameters were set to force the EUT transmitting at maximum output power level. Use the average power measurement function to measure total channel power of each channel bandwidth (per ANSI C63.26-2015 Section 5.2.1)
- 2. Determining ERP and/or EIRP from conducted RF output power measurements (Per ANSI C63.26-2015 Section 5.2.5.5)

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

 P_T = transmitter output power in dBm

 G_T = gain of the transmitting antenna in dBi

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

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3.4 Occupied Bandwidth

3.4.1 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

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.

3.4.2 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.

3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

Part 96.41 (e) (1) (i)

For CBSD the emission limits outside the fundamental are as follows:

Within 0 MHz to 10 MHz above and below the assigned channel ≤ −13 dBm/MHz

Greater than 10 MHz above and below the assigned channel ≤ -25 dBm/MHz

Part 96.41 (e) (1) (ii)

For End User Devices the emission limits outside the fundamental are as follows:

Within 0 MHz to B MHz above and below the assigned channel ≤ −13 dBm/MHz

Greater than B MHz above and below the assigned channel ≤ -25 dBm/MHz

where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device.

Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

Part 96.41 (e) (2)

For CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz

3.5.2 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. Offset has included the duty factor for LTE Band 48. Duty factor =10 log (1/x), where x is the measured duty cycle.
- 6. Set spectrum analyzer with RMS detector.
- The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

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3.6 Conducted Spurious Emission

3.6.1 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.

3.6.2 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.
- 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.

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3.7 Frequency Stability

3.7.1 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.

3.7.2 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.

3.7.3 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.
- 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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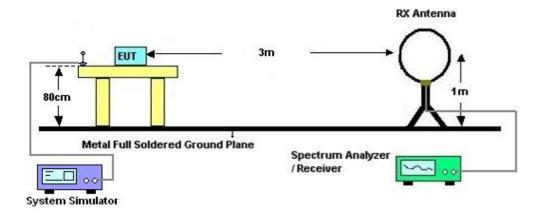
4 Radiated Test Items

4.1 Measuring Instruments

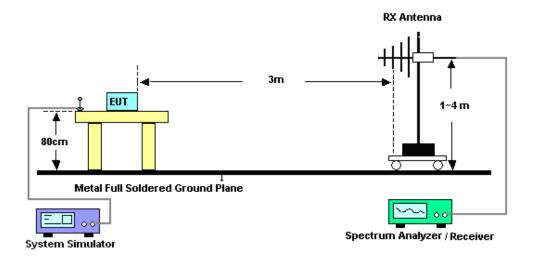
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



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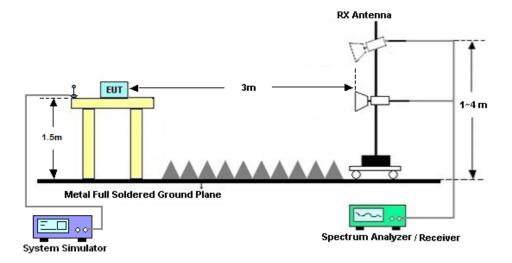
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For radiated test above 1GHz 4.2.3



4.3 Test Result of Radiated Test

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.

Please refer to Appendix B.

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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 C63.26-2015.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least -40dBm / MHz.

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

4.4.2 Test Procedures

- 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	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 09, 2024	Jun. 14, 2024~ Jun. 21, 2024	Apr. 08, 2025	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2023	Jun. 14, 2024~ Jun. 21, 2024	Dec. 24, 2024	Conducted (TH01-SZ)
Power Divider	SOLVANG TECHNOLOY	STI08-0055	-	Max 40GHz	Mar. 20, 2024	Jun. 14, 2024~ Jun. 21, 2024	Mar. 19, 2025	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 05, 2023	Jun. 14, 2024~ Jun. 21, 2024	Jul. 04, 2024	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 11, 2023	Jun. 27, 2024	Oct. 10, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 11 2023	Jun. 27, 2024	Sep. 10, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Jun. 27, 2024	Aug. 18, 2024	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 23, 2023	Jun. 27, 2024	Oct. 22, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 27, 2024	Jun. 27, 2024	Jan. 26, 2025	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	413740	9KHz-1GHz	Jan. 03, 2024	Jun. 27, 2024	Jan. 02, 2025	Radiation (03CH04-KS)
Amplifier	EM	EM18G40G A	060728	18~40GHz	Jan. 02, 2024	Jun. 27, 2024	Jan. 01, 2025	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz-18Ghz	Oct. 11, 2023	Jun. 27, 2024	Oct. 10, 2024	Radiation (03CH04-KS)
Amplifier	EM	EM01G18G A	060892	1Ghz-18Ghz	Oct. 11, 2023	Jun. 27, 2024	Oct. 10, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jun. 27, 2024	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jun. 27, 2024	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jun. 27, 2024	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

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6 Uncertainty of Evaluation

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	±1.34 dB
Occupied Channel Bandwidth	±0.012 MHz
Conducted Power	±1.34 dB
Conducted Power Density	±1.32 dB
Peak to Average Ratio	±1.34 dB
Frequency Stability	±1.3 Hz

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

Measuring Uncertainty for a Level of	2.83 dB
Confidence of 95% (U = 2Uc(y))	2.03 UB

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

Measuring Uncertainty for a Level of	2.83 dB
Confidence of 95% (U = 2Uc(y))	2.03 UB

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

	1
Measuring Uncertainty for a Level of	2 02 AB
Confidence of 95% (U = 2Uc(y))	2.82 dB

----- THE END -----

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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)and EIRP

LTE Band 48:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.		EIRP(W)	
	Cha	nnel		55340	55990	56640			
	Frequenc	cy (MHz)		3560	3625	3690	L	M	н
20	QPSK	1	0	21.79	21.81	21.85	0.1327	0.1334	0.1346
20	QPSK	1	99	21.79	21.75	21.74	0.1327	0.1315	0.1312
20	QPSK	100	0	20.90	20.91	20.93	0.1081	0.1084	0.1089
20	16QAM	1	0	20.80	20.83	20.78	0.1057	0.1064	0.1052
20	64QAM	1	0	19.74	19.71	19.77	0.0828	0.0822	0.0834
20	256QAM	1	0	16.72	16.75	16.76	0.0413	0.0416	0.0417
Channel			55315	55990	56665		EIRP(W)		
	Frequenc	cy (MHz)		3557.5	3625	3692.5	L	M	Н
15	QPSK	1	0	21.62	21.67	21.69	0.1276	0.1291	0.1297
15	16QAM	1	0	20.72	20.65	20.64	0.1038	0.1021	0.1019
	Cha	nnel		55290	55990	56690		EIRP(W)	
	Frequenc	cy (MHz)		3555	3625	3695	L	M	Н
10	QPSK	1	0	21.66	21.69	21.67	0.1288	0.1297	0.1291
10	16QAM	1	0	20.71	20.75	20.66	0.1035	0.1045	0.1023
Channel		55265	55990	56715		EIRP(W)			
Frequency (MHz)			3552.5	3625	3697.5	L	M	Н	
5	QPSK	1	0	21.68	21.71	21.78	0.1294	0.1303	0.1324
5	16QAM	1	0	20.72	20.73	20.75	0.1038	0.1040	0.1045

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LTE Band 48C:

		Com	bination 20MHz+2	20MHz (100RB+1	00RB)		
O L 1		Р	CC	S	CC	Measured	E100040
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W)
L	QPSK	1	Max	1	0	18.02	0.0557
М	QPSK	1	Max	1	0	21.39	0.1211
Н	QPSK	1	Max	1	0	13.32	0.0189
L	16QAM	1	Max	1	0	17.96	0.0550
М	16QAM	1	Max	1	0	21.55	0.1256
Н	16QAM	1	Max	1	0	13.71	0.0207
L	64QAM	1	Max	1	0	17.74	0.0522
М	64QAM	1	Max	1	0	20.53	0.0993
Н	64QAM	1	Max	1	0	13.41	0.0193
L	256QAM	1	Max	1	0	17.47	0.0491
М	256QAM	1	Max	1	0	17.39	0.0482
Н	256QAM	1	Max	1	0	13.48	0.0196
		Con	nbination 20MHz+	15MHz (100RB+7	75RB)		
01 1		Р	CC	S	CC	Measured	EIDD (M)
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W)
М	QPSK	1	Max	1	0	21.32	0.1191
М	16QAM	1	Max	1	0	21.51	0.1245
		Con	nbination 15MHz+:	20MHz (100RB+7	75RB)		
01 1		Р	CC	S	CC	Measured	E100 (44)
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W
М	QPSK	1	Max	1	0	20.81	0.1059
М	16QAM	1	Max	1	0	21.05	0.1119
		Con	nbination 20MHz+	10MHz (100RB+	50RB)		
		Р	CC	S	CC	Measured	FIDD(M)
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W
M	QPSK	1	Max	1	0	20.42	0.0968
M	16QAM	1	Max	1	0	20.58	0.1005
		Con	nbination 10MHz+:	20MHz (50RB+10	00RB)		
		Р	CC	S	CC	Measured	
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W
М	QPSK	1	Max	1	0	21.41	0.1216
М	16QAM	1	Max	1	0	21.49	0.1239
		Cor	nbination 20MHz+		5RB)		
			CC	`	CC	Measured	
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W
M	QPSK	1	Max	1	0	20.99	0.1104
M	16QAM	1	Max	1	0	21.20	0.1159
		Cor	nbination 5MHz+2	20MHz (25RB+10	1		
			CC		CC	Measured	
Channel	Modulation	RB Size	RB offset	RB Size	RB offset	Power	EIRP(W)
M	QPSK	1	Max	1	0	20.55	0.0998
M	16QAM	<u> </u>	Max	1	0	20.71	0.1035

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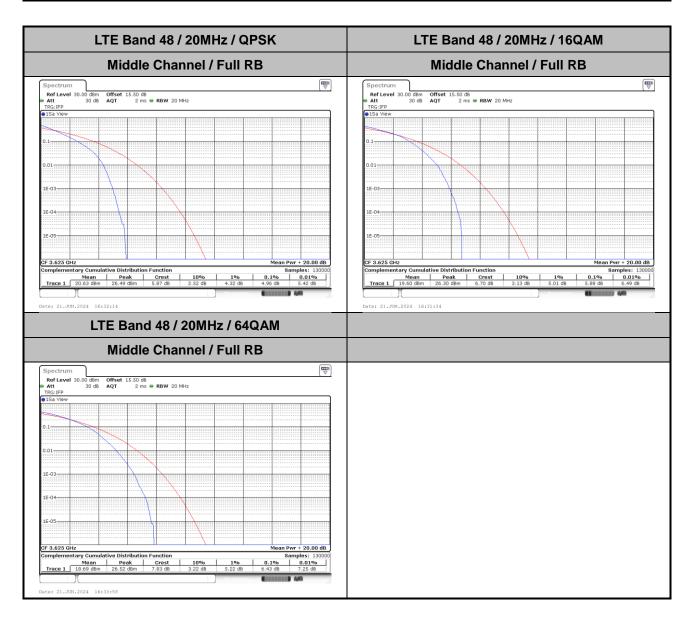


LTE Band 48

Peak-to-Average Ratio

Mode				
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	4.96	5.88	6.43	PASS

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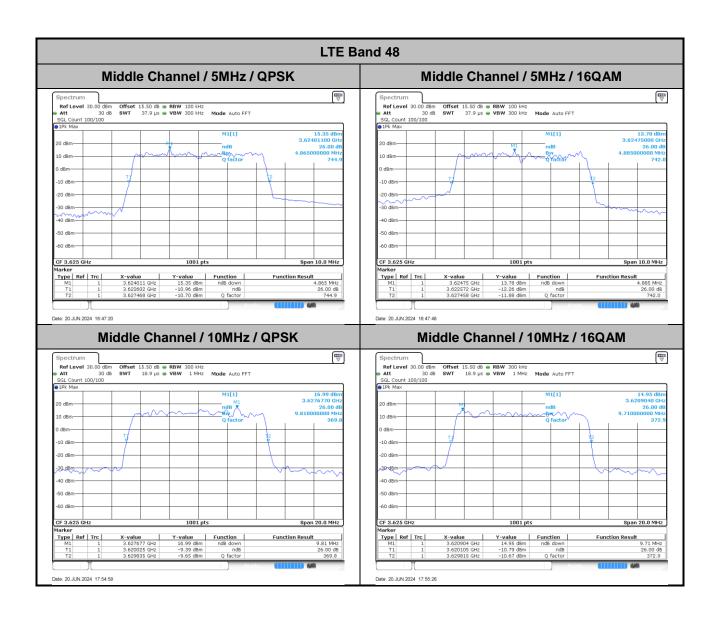


26dB Bandwidth

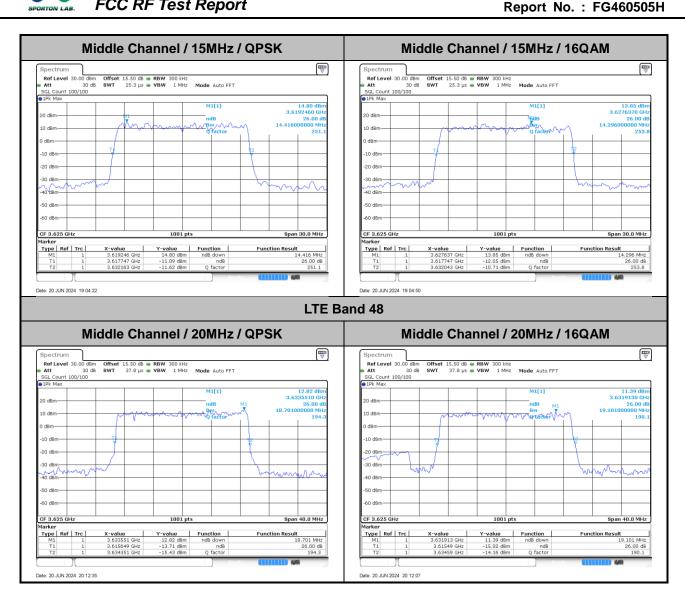
Mode	LTE Band 48 : 26dB BW(MHz)											
BW					5MHz		10MHz		15MHz		20MHz	
Mod.					QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH					4.87	4.89	9.81	9.71	14.42	14.30	18.70	19.10

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FCC RF Test Report

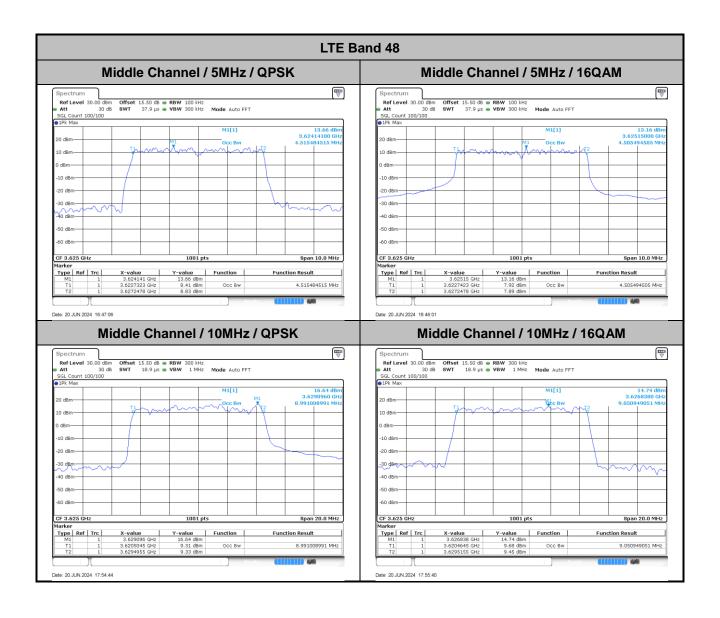




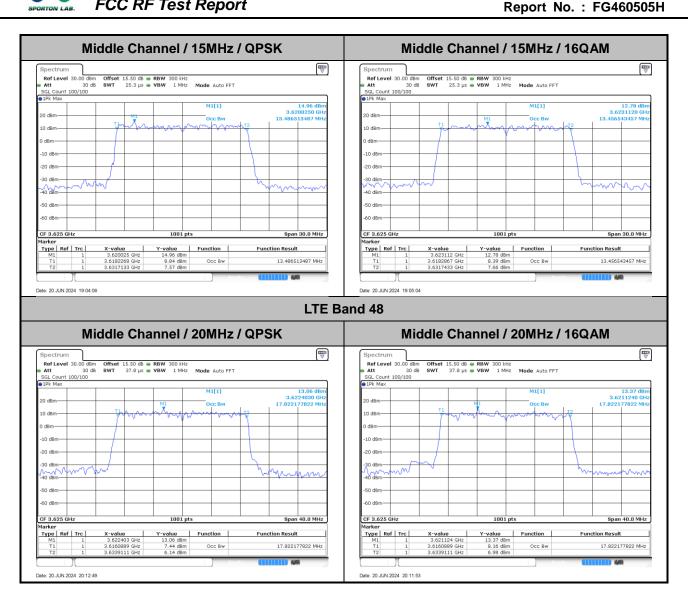
Occupied Bandwidth

Mode	LTE Band 48 : 99%OBW(MHz)											
BW					5MHz		10MHz		15MHz		20MHz	
Mod.					QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH					4.52	4.51	8.99	9.05	13.49	13.46	17.82	17.82

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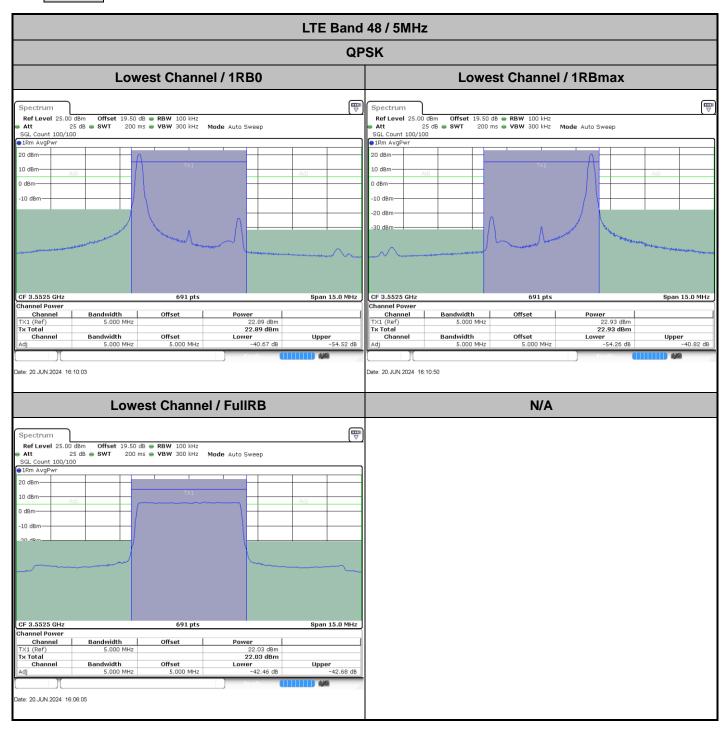
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LTE Band 48 / 5MHz **QPSK** Middle Channel / 1RB0 Middle Channel / 1RBmax Ref Level 25.00 dBm Offset 19.50 dB RBW 100 kHz
Att 25 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm 0 dBm 0 dBn CF 3.625 GHz
Channel Power
Channel
TX1 (Ref)
Tx Total
Channel CF 3.625 GHz Channel Power 691 pts Span 15.0 MHz 691 pts Span 15.0 MHz Bandwidth 5.000 MHz 22.66 dBm 22.66 dBm Lower -41.13 dB Power 22.76 dBm 22.76 dBm Lower -54.33 dB Channel
TX1 (Ref)
Tx Total
Channel Offset Bandwidth 5.000 MHz Offset Upper -54.50 dB Bandwidth 5.000 MHz Upper -41.13 dB ate: 20.JUN.2024 16:30:36 Date: 20.JUN.2024 16:29:50 Middle Channel / FullRB N/A Spectrum Offset 19.50 dB ● RBW 100 kHz SWT 200 ms ● VBW 300 kHz Mode Auto Sween 25 3GL Count 100/100 -10 dBn marantahan pekadahahahahahah CF 3.625 GHz 691 pts Span 15.0 MHz 21.78 dBm 21.78 dBm 21.78 dBm Lower -44.78 dB Bandwidth 5.000 MH; Offset Tx Total Channel **Upper** -44.75 dB Bandwidth 5.000 MHz

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ate: 20.JUN.2024 16:34:30

LTE Band 48 / 5MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Ref Level 25.00 dBm Offset 19.50 dB RBW 100 kHz
Att 25 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm dBm 0 dBn CF 3.6975 GHz Channel Power 691 pts Span 15.0 MHz CF 3.6975 GHz 691 pts Span 15.0 MHz 22.46 dBm 22.46 dBm Lower -41.16 dB Power 22.78 dBm 22.78 dBm Lower -54.16 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Upper -54.09 dB Bandwidth 5.000 MHz Upper -41.11 dB ate: 20.JUN.2024 16:56:19 Date: 20.JUN.2024 16:55:31 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 100 kHz

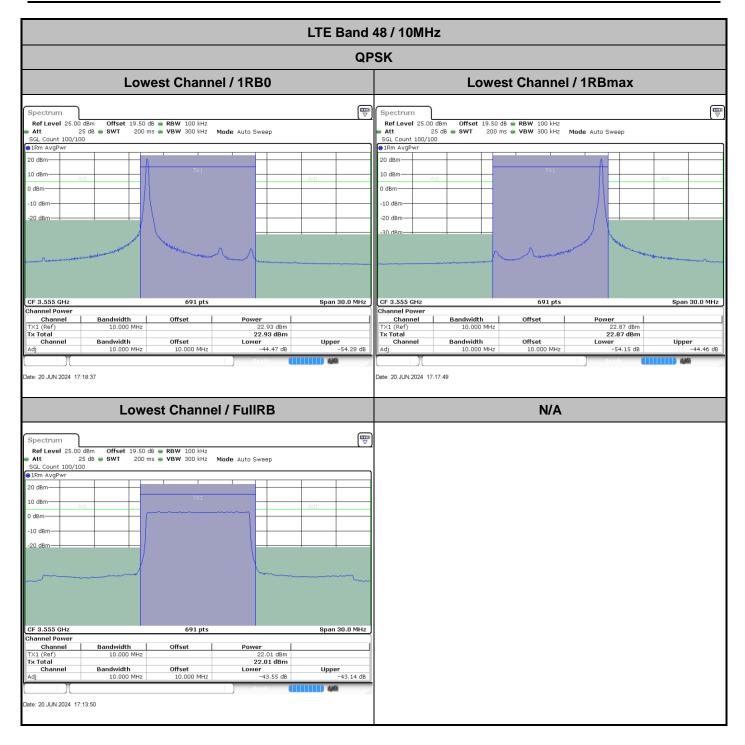
 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 300 kHz
 Mode Auto Sween 25 3GL Count 100/100 dBm -10 dBm Span 15.0 MHz CF 3.6975 GHz 691 pts hannel Power 21.61 dBm 21.61 dBm Lower -43.93 dB Bandwidth 5.000 MH; Offset TX1 (Ref)
Tx Total
Channel Upper -43.40 dB Bandwidth 5.000 MHz ate: 20.JUN.2024 16:51:29

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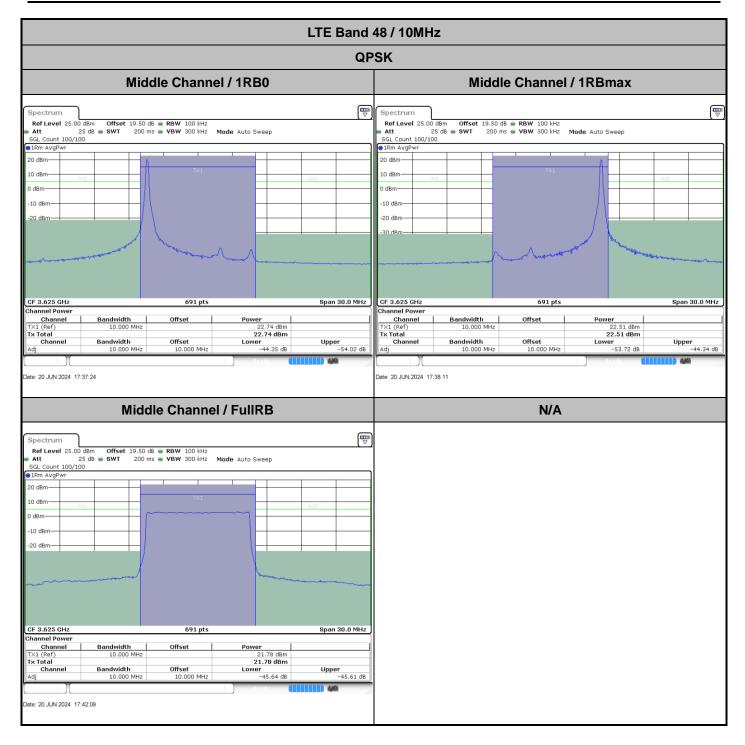
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LTE Band 48 / 10MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Ref Level 25.00 dBm Offset 19.50 dB RBW 100 kHz
Att 25 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100
1Rm AvgPwr 20 dBm-10 dBm dBm 0 dBn -10 dBn CF 3.695 GHz Channel Power CF 3.695 GHz Channel Power 691 pts Span 30.0 MHz 691 pts Span 30.0 MHz 22.68 dBm 22.68 dBm Lower -44.51 dB 22.66 dBm 22.66 dBm Lower -53.68 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -53.71 dB Bandwidth 10.000 MHz Upper -44.47 dB Pate: 20.JUN.2024 18:03:58 Date: 20.JUN.2024 18:03:10 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 100 kHz

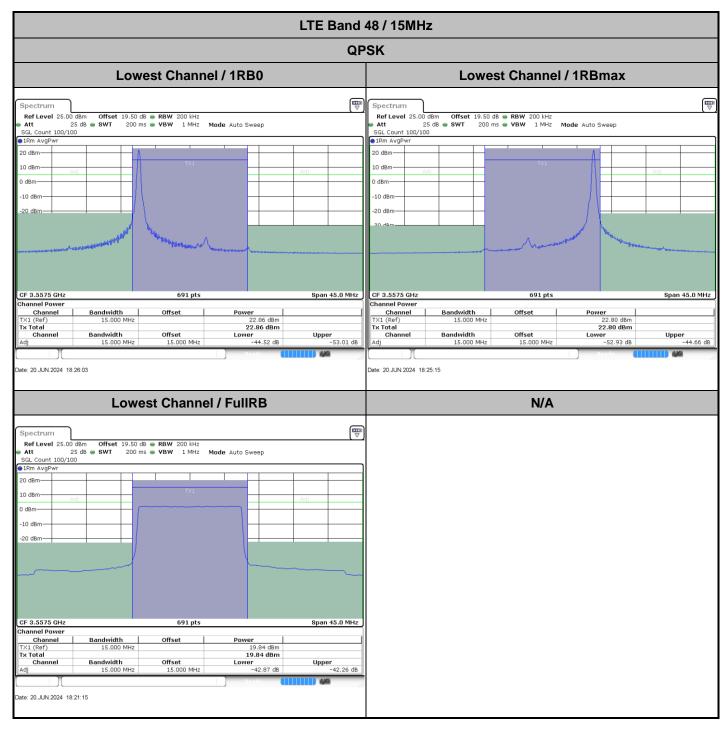
 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 300 kHz
 Mode Auto Sween 25 3GL Count 100/100 1Rm Avan dBm -10 dBm 20 dBm CF 3.695 GHz 691 pts Span 30.0 MHz 21.69 dBm 21.69 dBm 21.69 dBm Lower -44.74 dB Bandwidth 10.000 MHz Offset TX1 (Ref)
Tx Total
Channel Upper -44.58 dB Bandwidth 10.000 MH ite: 20.JUN.2024 17:59:07

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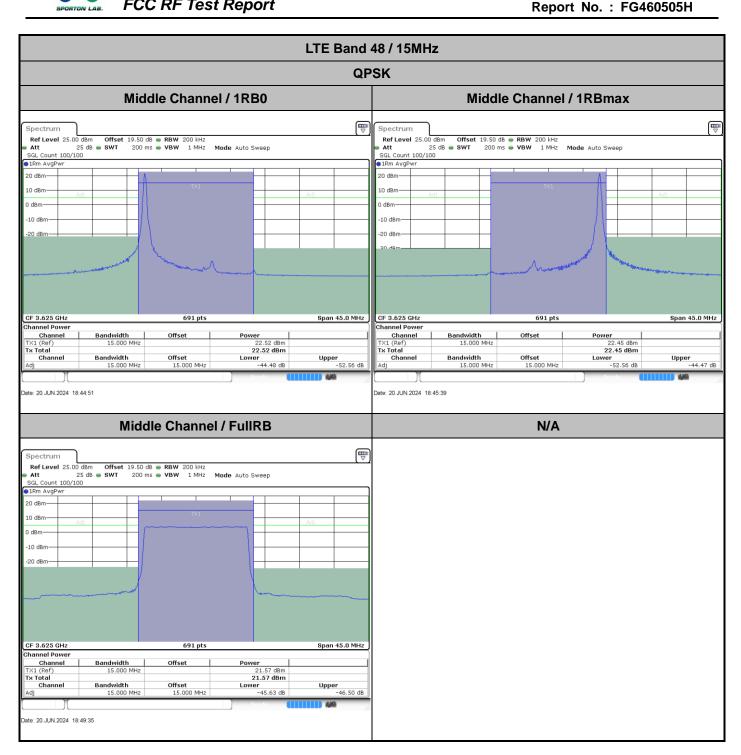
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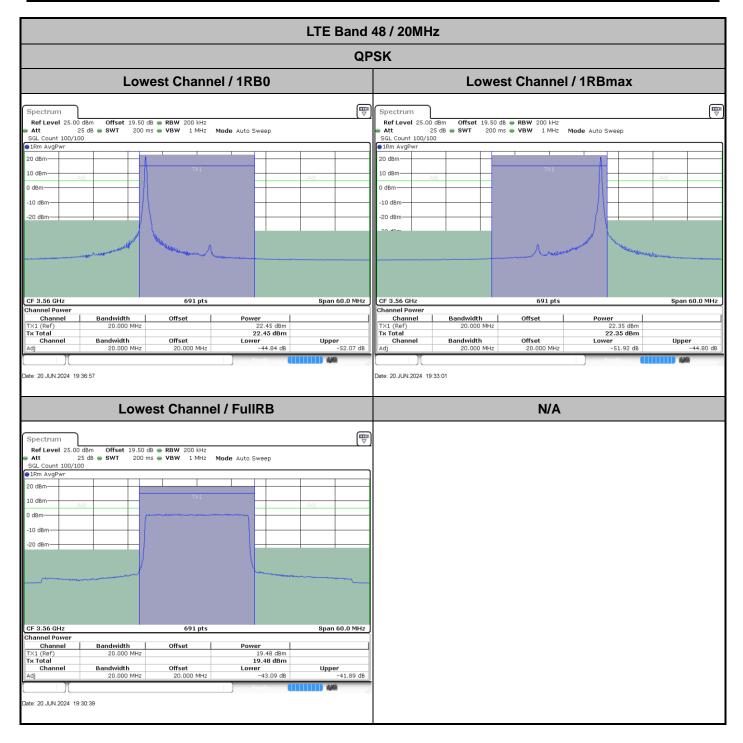
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LTE Band 48 / 15MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Ref Level 25.00 dBm Offset 19.50 dB RBW 200 kHz
Att 25 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm dBm 0 dBn -10 dBr CF 3.6925 GHz Channel Power CF 3.6925 GHz Channel Power 691 pts Span 45.0 MHz 691 pts Span 45.0 MHz Power 22.16 dBm 22.16 dBm Lower -52.11 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Power Bandwidth 15.000 MHz Offset 22.06 dBm 22.06 dBm 22.06 dBm Lower -44.30 dB Upper -51.94 dB Bandwidth 15.000 MHz Upper -44.52 dB Pate: 20.JUN.2024 19:13:23 Date: 20.JUN.2024 19:12:34 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 200 kHz

 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 1 MHz
 Mode Auto Sween 25 3GL Count 100/100 1Rm Avan -10 dBn 20 dBm Span 45.0 MHz CF 3.6925 GHz 691 pts 21.30 dBm 21.30 dBm 21.30 dBm Lower -44.72 dB Bandwidth 15.000 MHz Offset TX1 (Ref)
Tx Total
Channel **Upper** -45.47 dB Bandwidth 15.000 MHz ate: 20.JUN.2024 19:08:31

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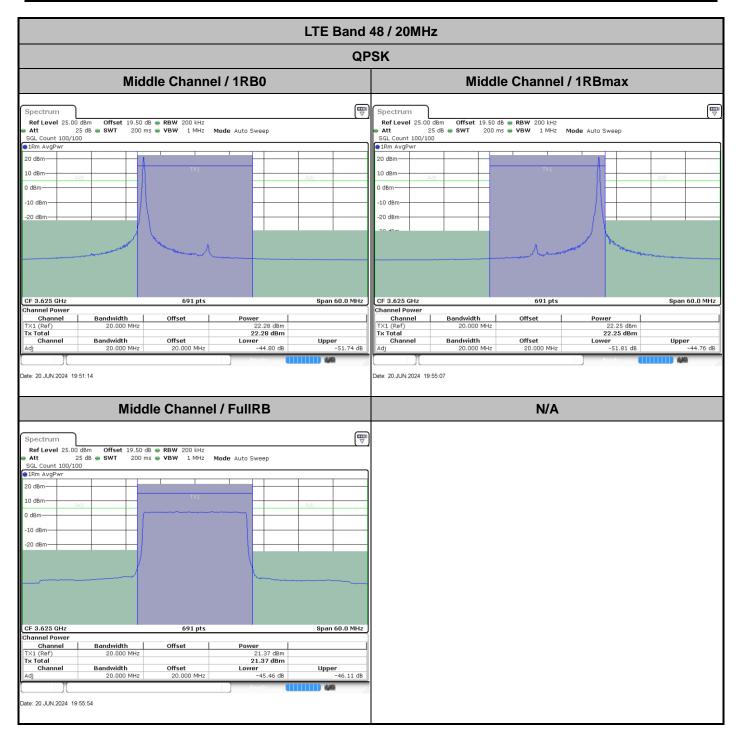
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LTE Band 48 / 20MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Ref Level 25.00 dBm Offset 19.50 dB RBW 200 kHz
Att 25 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm dBm 0 dBn -10 dBr CF 3.69 GHz Channel Power CF 3.69 GHz Channel Powe 691 pts Span 60.0 MHz 691 pts Span 60.0 MHz Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel 21.99 dBm 21.99 dBm Bandwidth 20.000 MHz Offset Power Bandwidth 20.000 MHz Offset 22.06 dBm 22.06 dBm 22.06 dBm Lower -44.47 dB Upper -51.28 dB -51.30 dB Bandwidth 20.000 MHz Upper -44.60 dB ate: 20.JUN.2024 20:23:59 Date: 20.JUN.2024 20:20:04 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 200 kHz

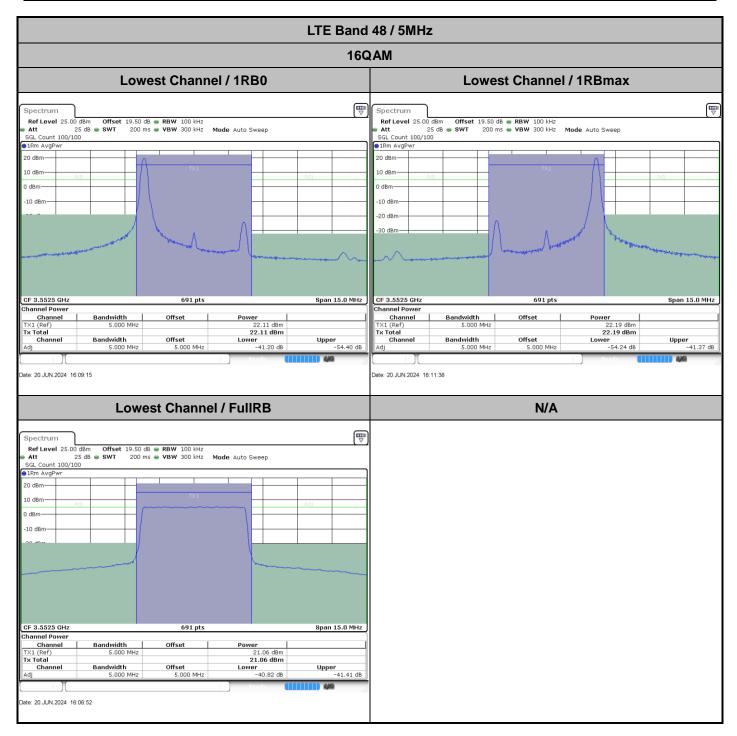
 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 1 MHz
 Mode Auto Sween 25 3GL Count 100/100 1Rm Avan -10 dBn 20 dBm CF 3.69 GHz 691 pts Span 60.0 MHz 21.16 dBm 21.16 dBm 21.16 dBm Lower -44.66 dB Bandwidth 20.000 MHz Offset Tx Total
Channel Upper -45.31 dB Bandwidth 20.000 MHz ate: 20.JUN.2024 20:19:16

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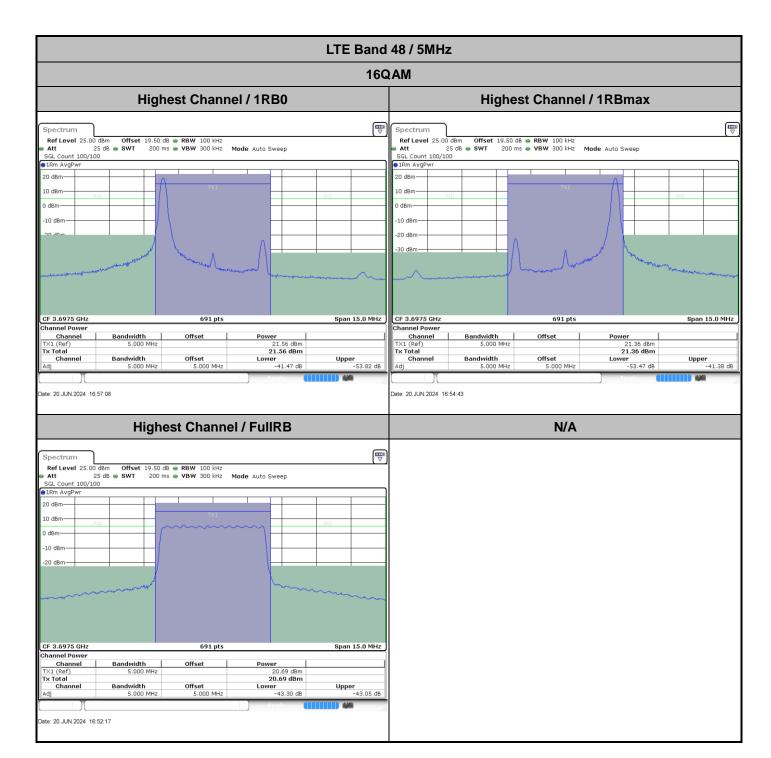
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LTE Band 48 / 5MHz **16QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax Ref Level 25.00 dBm Offset 19.50 dB RBW 100 kHz
Att 25 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm 0 dBm dBn CF 3.625 GHz Channel Power CF 3.625 GHz Channel Power 691 pts Span 15.0 MHz 691 pts Span 15.0 MHz 21.82 dBm 21.82 dBm 21.82 dBm Lower -41.44 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel 21.96 dBm 21.96 dBm Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Lower -54.19 dB Upper -54.31 dB Bandwidth 5.000 MHz Upper -41.58 dB Pate: 20.JUN.2024 16:31:23 Date: 20.JUN.2024 16:29:03 Middle Channel / FullRB N/A Spectrum Offset 19.50 dB ● RBW 100 kHz SWT 200 ms ● VBW 300 kHz Mode Auto Sween SGL Count 100/100 dBm -10 dBm 20 dBm Span 15.0 MHz CF 3.625 GHz 691 pts 20.84 dBm 20.84 dBm 20.84 dBm Lower -43.55 dB Bandwidth 5.000 MH; Offset TX1 (Ref)
Tx Total
Channel Upper -43.96 dB Bandwidth 5.000 MHz ate: 20.JUN.2024 16:33:43

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Report No.: FG460505H LTE Band 48 / 10MHz **16QAM Lowest Channel / 1RB0 Lowest Channel / 1RBmax** Spectrum Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 RBW
 100 kHz
 Mode
 Auto Sweep

 Att
 25 dB
 SWT
 200 ms
 VBW
 300 kHz
 Mode
 Auto Sweep

 SGL Count 100/100
 1Rm AvgPwr
 Mode
 Auto Sweep
 Mode
 Auto Sweep
 SGL Count 100/100 -10 dBm -10 dBm -20 dBm-CF 3.555 GHz Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz 691 pts 691 pts 22.11 dBm 22.11 dBm 22.11 dBm Lower -44.97 dB 22.07 dBm 22.07 dBm 22.07 dBm Lower -53.81 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Offset Offset Upper -53.87 dB Upper -45.12 dB Bandwidth 10.000 MHz Offset 10.000 MHz Bandwidth 10.000 MHz Lowest Channel / FullRB N/A Mode Auto Sweep 20 dBm-10 dBmdBm -10 dBm CF 3.555 GHz Channel Power 691 pts Span 30.0 MHz Channel
TX1 (Ref)
Tx Total
Channel Power 21.01 dBm 21.01 dBm Bandwidth 10.000 MHz Offset

Upper -42.20 dB

Lower -42.31 dB

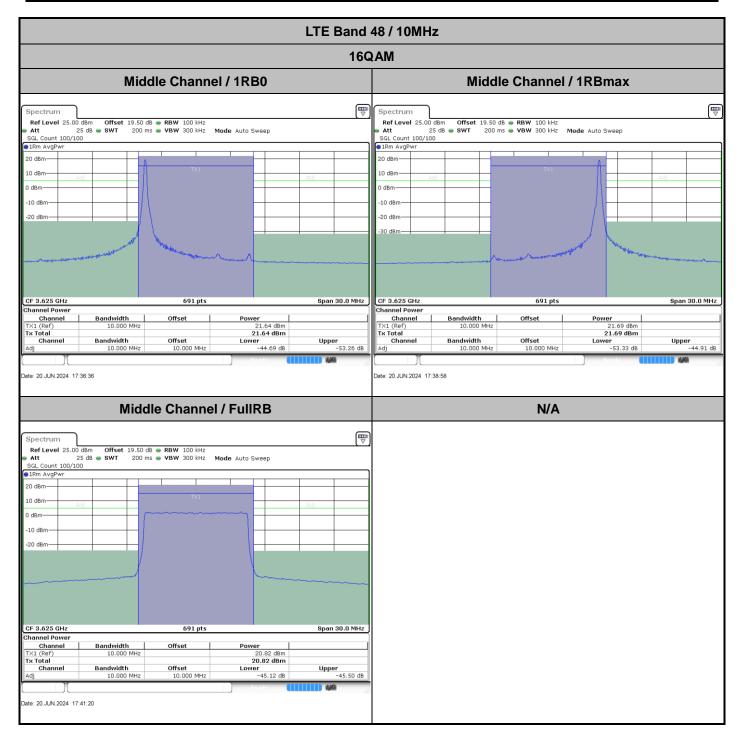
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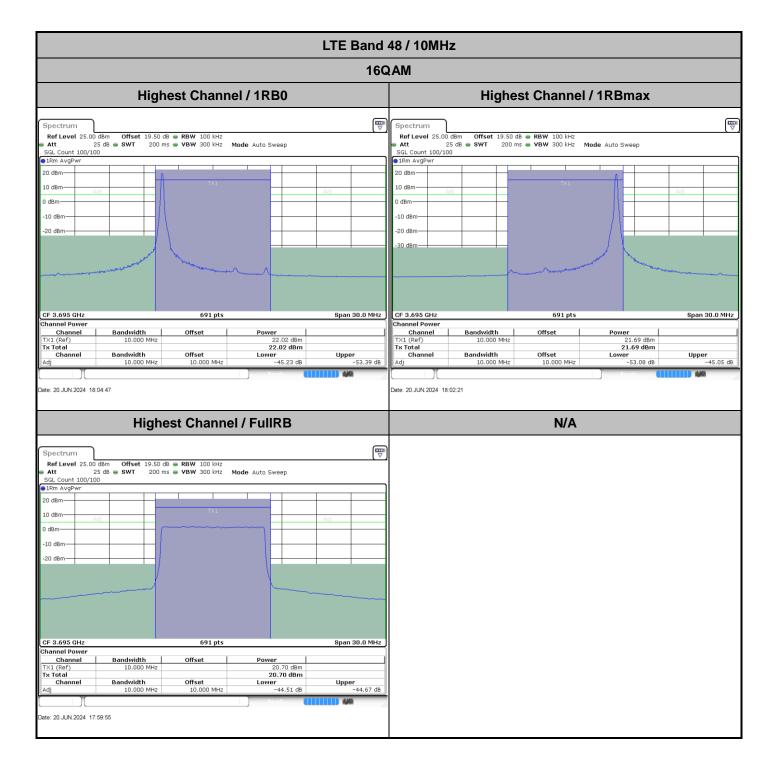
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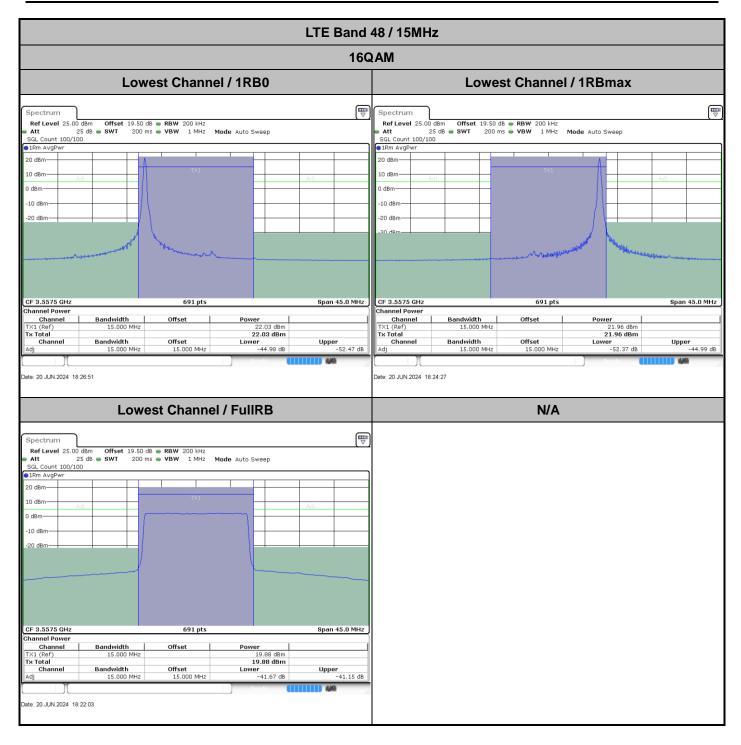


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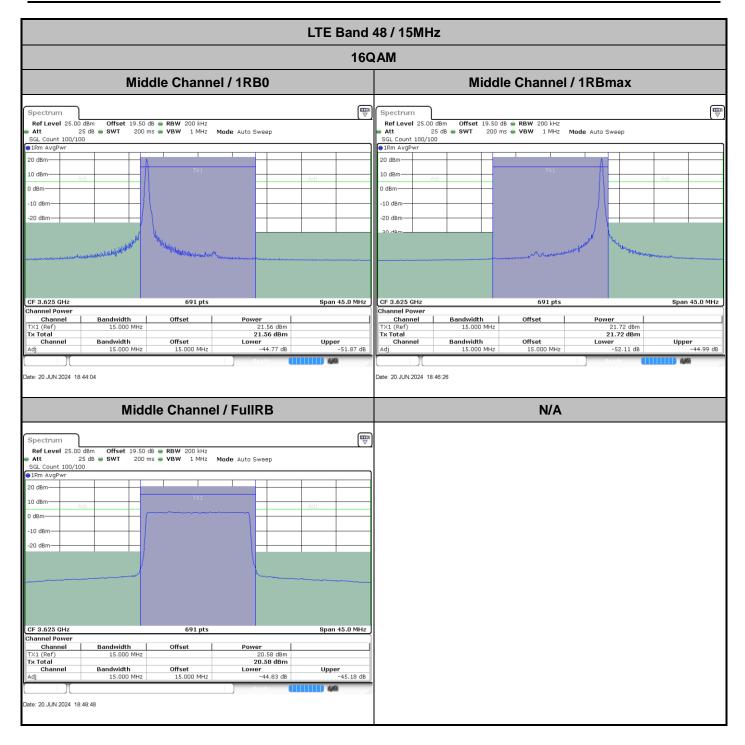


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LTE Band 48 / 15MHz **16QAM Highest Channel / 1RB0 Highest Channel / 1RBmax** Ref Level 25.00 dBm Offset 19.50 dB RBW 200 kHz
Att 25 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm dBm dBn -10 dBr CF 3.6925 GHz Channel Power CF 3.6925 GHz Channel Power 691 pts Span 45.0 MHz 691 pts Span 45.0 MHz 21.28 dBm 21.28 dBm 21.28 dBm Lower -44.76 dB 21.41 dBm 21.41 dBm 21.41 dBm Lower -51.60 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz Offset Upper -51.41 dB Bandwidth 15.000 MHz Upper -44.88 dB ate: 20.JUN.2024 19:14:12 Date: 20.JUN.2024 19:11:46 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 200 kHz

 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 1 MHz
 Mode Auto Sween SGL Count 100/100 dBm -10 dBn -20 dBm-Span 45.0 MHz CF 3.6925 GHz 691 pts 20.32 dBm 20.32 dBm 20.32 dBm Lower -44.30 dB Bandwidth 15.000 MHz Offset TX1 (Ref)
Tx Total
Channel Upper -44.60 dB Bandwidth 15.000 MHz ate: 20.JUN.2024 19:09:19

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Report No.: FG460505H LTE Band 48 / 20MHz **16QAM Lowest Channel / 1RB0 Lowest Channel / 1RBmax** Spectrum Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 RBW
 200 kHz
 Mode
 Auto Sweep

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

 SGL Count 100/100
 1Rm AvgPwr
 Mode
 Auto Sweep
 Auto Sweep
 Auto Sweep
 SGL Count 100/100 -10 dBn -10 dBm -20 dBm Span 60.0 MHz CF 3.56 GHz Span 60.0 MHz CF 3.56 GHz 691 pts 691 pts 21.51 dBm 21.51 dBm 21.51 dBm Lower -44.82 dB 21.52 dBm 21.52 dBm 21.52 dBm Lower -51.24 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Offset Offset **Upper** -44.87 dB Bandwidth 20.000 MHz Offset 20.000 MHz Bandwidth 20.000 MHz Lowest Channel / FullRB N/A Mode Auto Sweep 20 dBm-10 dBmdBm -10 dBm CF 3.56 GHz Channel Powe 691 pts Span 60.0 MHz Channel
TX1 (Ref)
Tx Total
Channel Power 19.49 dBm 19.49 dBm Bandwidth 20.000 MHz Offset

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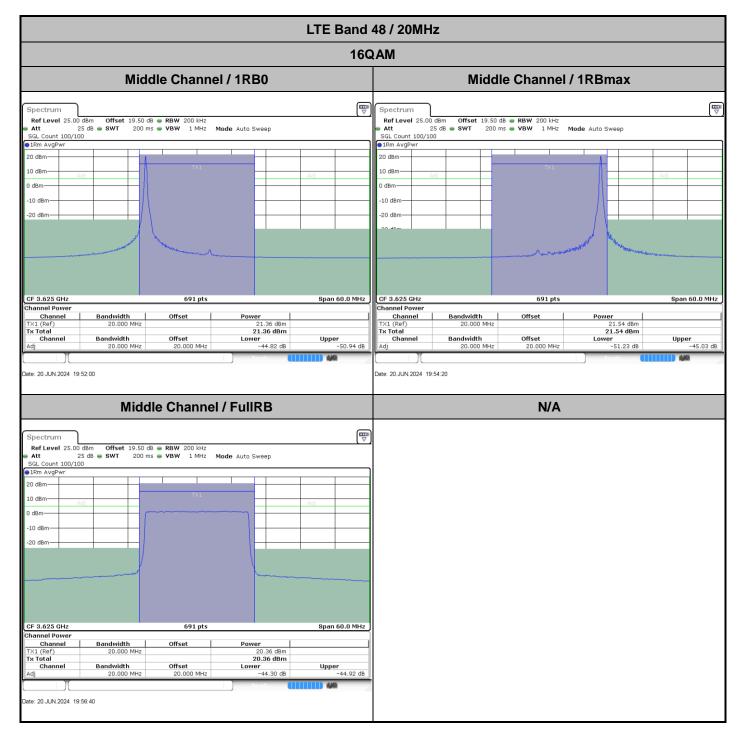
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-41.64 dB

Offset 20.000 MHz

Upper -40.95 dB





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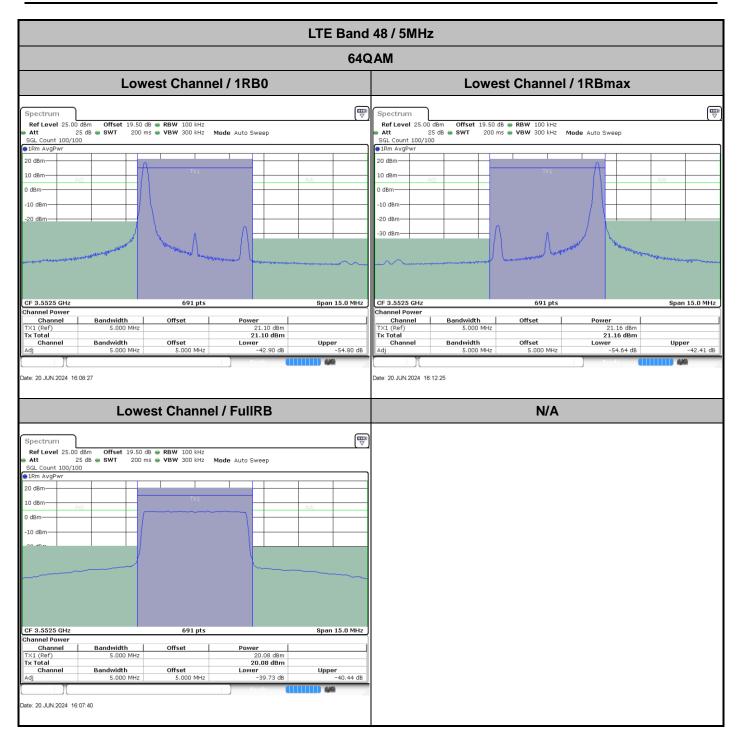
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LTE Band 48 / 20MHz **16QAM Highest Channel / 1RB0 Highest Channel / 1RBmax** Ref Level 25.00 dBm Offset 19.50 dB RBW 200 kHz
Att 25 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm dBn dBm -10 dBr CF 3.69 GHz Channel Power CF 3.69 GHz Channel Powe 691 pts Span 60.0 MHz 691 pts Span 60.0 MHz 21.24 dBm 21.24 dBm 21.24 dBm Lower -44.70 dB Power 21.28 dBm 21.28 dBm Lower -50.73 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Upper -50.56 dB Bandwidth 20.000 MHz Upper -44.73 dB Pate: 20.JUN.2024 20:23:12 Date: 20.JUN.2024 20:20:51 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 200 kHz

 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 1 MHz
 Mode Auto Sween SGL Count 100/100 -10 dBn 20 dBm-CF 3.69 GHz 691 pts Span 60.0 MHz 20.17 dBm 20.17 dBm 20.17 dBm Lower -43.79 dB Bandwidth 20.000 MHz Offset TX1 (Ref)
Tx Total
Channel **Upper** -44.50 dB Bandwidth 20.000 MHz ite: 20.JUN.2024 20:18:29

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LTE Band 48 / 5MHz **64QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax Ref Level 25.00 dBm Offset 19.50 dB RBW 100 kHz
Att 25 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100
1Rm AvgPwr Mode Auto Sweep 20 dBm-10 dBm 0 dBm dBn Military Charles and Commencer of the Co CF 3.625 GHz Channel Power CF 3.625 GHz Channel Power 691 pts Span 15.0 MHz 691 pts Span 15.0 MHz 20.86 dBm 20.86 dBm 20.86 dBm Lower -43.37 dB 20.97 dBm 20.97 dBm 20.97 dBm Lower -54.37 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Upper -54.44 dB Bandwidth 5.000 MHz Upper -42.50 dB Pate: 20.JUN.2024 16:32:10 Date: 20.JUN.2024 16:28:16 Middle Channel / FullRB N/A Spectrum
 Ref Level
 25.00 dBm
 Offse

 Att
 25 dB ■ SWT
 Offset 19.50 dB ● RBW 100 kHz SWT 200 ms ● VBW 300 kHz Mode Auto Sween 25 3GL Count 100/100 1Rm AvaPort -10 dBn 20 dBm Span 15.0 MHz CF 3.625 GHz 691 pts 19.87 dBm 19.87 dBm 19.87 dBm Lower -43.24 dB Bandwidth 5.000 MH; Offset Tx Total Channel Upper -44.13 dB Bandwidth 5.000 MHz ite: 20.JUN.2024 16:32:57

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LTE Band 48 / 5MHz **64QAM Highest Channel / 1RB0 Highest Channel / 1RBmax** Mode Auto Sweep 20 dBm-10 dBm dBm dBn CF 3.6975 GHz 691 pts Span 15.0 MHz CF 3.6975 GHz 691 pts Span 15.0 MHz 20.32 dBm 20.32 dBm 20.32 dBm Lower -43.20 dB Power 20.92 dBm 20.92 dBm Lower -54.09 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Upper -53.77 dB Bandwidth 5.000 MHz Upper -42.43 dB Pate: 20.JUN.2024 16:57:56 Date: 20.JUN.2024 16:53:54 **Highest Channel / FullRB** N/A Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 ■ RBW
 100 kHz

 Att
 25 dB
 ■ SWT
 200 ms
 ■ VBW
 300 kHz
 Mode Auto Sween 25 3GL Count 100/100 1Rm Avan -10 dBn 20 dBm-Span 15.0 MHz CF 3.6975 GHz 691 pts 19.64 dBm 19.64 dBm Lower -44.49 dB Bandwidth 5.000 MH; Offset Tx Total Channel Upper -44.70 dB Bandwidth 5.000 MHz ate: 20.JUN.2024 16:53:06

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Report No.: FG460505H LTE Band 48 / 10MHz 64QAM **Lowest Channel / 1RB0 Lowest Channel / 1RBmax** Spectrum Spectrum
 Ref Level
 25.00 dBm
 Offset
 19.50 dB
 RBW
 100 kHz
 Mode
 Auto Sweep

 Att
 25 dB
 SWT
 200 ms
 VBW
 300 kHz
 Mode
 Auto Sweep

 SGL Count 100/100
 1Rm AvgPwr
 Mode
 Auto Sweep
 Mode
 Auto Sweep
 SGL Count 100/100 -10 dBn -10 dBm -20 dBm-30 dBm CF 3.555 GHz Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz 691 pts 691 pts 21.11 dBm 21.11 dBm 21.11 dBm Lower -45.60 dB 21.12 dBm 21.12 dBm 21.12 dBm Lower -53.05 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Offset Offset Upper -53.10 dB Upper -45.46 dB Bandwidth 10.000 MHz Offset 10.000 MHz Bandwidth 10.000 MHz Lowest Channel / FullRB N/A Mode Auto Sweep 20 dBm-10 dBmdBm -10 dBm

Span 30.0 MHz

Upper -40.28 dB

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691 pts

Offset

Offset 10.000 MHz 20.07 dBm 20.07 dBm

Lower -40.47 dB

CF 3.555 GHz Channel Power

Channel
TX1 (Ref)
Tx Total
Channel

ate: 20.JUN.2024 17:15:26

Bandwidth 10.000 MHz