

Report No.: FG0O2628-02E



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Page Number

# FCC RADIO TEST REPORT

FCC ID : UZ7TC26EK

Equipment : Touch computer

Brand Name : Zebra Model Name : TC26EK

Applicant : Zebra Technologies Corporation

1 Zebra Plaza, Holtsville, NY 11742

Manufacturer : Zebra Technologies Corporation

1 Zebra Plaza, Holtsville, NY 11742

Standard : FCC 47 CFR Part 2, 96

The product was received on Jan. 27, 2021 and testing was started from Feb. 01, 2021 and completed on Feb. 05, 2021. We, Sporton International Inc., EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc., EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

TEL: 886-3-327-3456

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 Version : 01

## History of this test report

Report No. : FG0O2628-02E

Report No.	Version	Description	Issued Date
FG0O2628-02E	01	Initial issue of report	Mar. 04, 2021

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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 8.48 dB at 28408.000 MHz

### **Declaration of Conformity:**

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

### **Comments and Explanations:**

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

Reviewed by: Wii Chang
Report Producer: Lucy Wu

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## 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature						
Equipment	Touch computer					
Brand Name	Zebra					
Model Name	TC26EK					
FCC ID	UZ7TC26EK					
	WCDMA/HSPA/LTE/NFC/GNSS					
ELIT cumperts Dadies emplication	WLAN 11a/b/g/n HT20/HT40					
EUT supports Radios application	WLAN 11ac VHT20/VHT40/VHT80					
	Bluetooth BR/EDR/LE					
HW Version	EV1.5					
SW Version	Android version 10					
OS Version	FUSION_QA_2_1.3.0.022_Q					
FM Version	Zebra/TC26PG/TC26:10/10-16-10.00-QG-U46-STD-HEL-04/17					
FW Version	0:userdebug/release-keys					
MFD	13JAN21					
EUT Stage	Engineering Sample					

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**Remark:** The above EUT's information was declared by manufacturer.

Specification of Accessories								
AC Adapter	<b>Brand Name</b>	Zebra	Model Name	SAWA-65-20005A				
Battery	<b>Brand Name</b>	Zebra	<b>Model Name</b>	BT-000409A				
USB Cable 1	Brand Name	7ehra	Part Number	CBL-TC5X-USBC2A-01				
(TypeA plug to TypeC plug)	Brana Name	Zobia	i art itallibei	OBE 100X COBOZA 01				
USB Cable 2	Brand Name	7ehra	Part Number	CBL-TC2Y-USBC90A-01				
(TypeA plug to TypeC plug)	Brand Name	Zebia	i art itullibei	GBE-1021-00B090A-01				
Headset 3.5mm type with	Brand Name	Zobra	Part Number	HDST-35MM-PTVP-01				
PTT/micassy	Brand Name	Zebia	i art itullibei	11001-33141141-1 1 41 -01				
Adapter Cable PTT headset	Brand Name	Zobra	Part Number	CBL-TC51-HDST35-01				
(3.5mm to 3.5mm)	Dianu Name	Zebia	Fait Number	CBE-1031-11D3139-01				
Type C to 3.5mm adapter	<b>Brand Name</b>	Zebra	Part Number	ADP-USBC-35MM1-01				
Snap on Trigger handle	<b>Brand Name</b>	Zebra	Part Number	TRG-TC2Y-SNP1-01				
Belt Holster	<b>Brand Name</b>	Zebra	Part Number	SG-TC2Y-HLSTR1-01				
Wearable Arm Mount	<b>Brand Name</b>	Zebra	Part Number	SG-TC2Y-ARMNT-01				

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## 1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard							
Tx Frequency	3552.5 MHz ~ 3697.5 MHz						
Rx Frequency	3552.5 MHz ~ 3697.5 MHz						
Bandwidth	5 MHz / 10 MHz / 15 MHz / 20 MHz						
Maximum Output Power to Antenna	21.46 dBm						
Antenna Type	PIFA Antenna						
Antenna Gain	1.1 dBi						
Type of Modulation	QPSK / 16QAM / 64QAM						

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

### 1.3 Modification of EUT

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

## 1.4 Emission Designator

Ľ	TE Band 48		QPSK			16QAM		64QAM			
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	
5	3552.5~3697.5	4M50G7D	í	0.1782	4M49W7D	1	0.1406	4M47W7D	1	0.1117	
10	3555~3695	9M07G7D	0.0034	0.1778	9M03W7D	-	0.1387	9M05W7D	-	0.1102	
15	3557.5~3692.5	13M4G7D	-	0.1795	13M5W7D	-	0.1396	13M4W7D	-	0.1117	
20	3560~3690	17M8G7D	-	0.1816	17M8W7D	-	0.1409	17M8W7D	-	0.1127	

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## 1.5 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.	TH05-HY			
Test Engineer	George Chen			
Temperature	22~25°C			
Relative Humidity	51~55%			

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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 (TAF Code: 3786)				
Test Engineer	Jack Cheng, Lance Chiang and Chuan Chu				
Temperature	22.7~26.6°C				
Relative Humidity	58~66%				
Remark	The Radiated 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 TW0007

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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:

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

#### Remark:

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

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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.

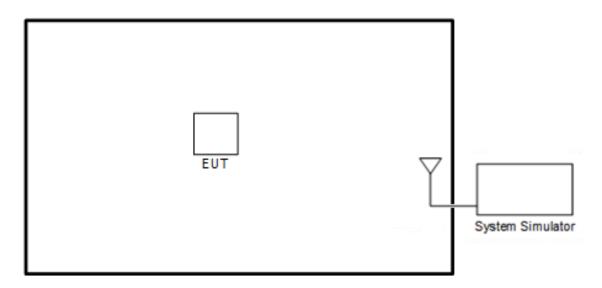
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For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

		Bandwidth (MHz)					Modulation			RB#			Test Channel			
Test Items	Band	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	М	н
Max. Output Power	48	•	-	v	v	v	v	v	v	v	v	v	v	v	v	v
26dB and 99% Bandwidth	48	•	-	v	v	v	v	v	v	v			v		v	
Conducted Band Edge	48	•	-	v	٧	v	v	v	v	v	v		v	v	v	v
Peak-to-Aver age Ratio	48	•	-				v	v	v	v			v		v	
Conducted Spurious Emission	48	-	-	v	v	v	v	v			v			v	v	v
E.R.P / E.I.R.P	48	-	-	v	v	v	v	v	v	v			Max F	Power		
Frequency Stability	48	•	-		V			V			V				v	
Radiated Spurious Emission	48	Worst Case v v v					v									
Remark	<ol> <li>The mark "v" means that this configuration is chosen for testing</li> <li>The mark "-" means that this bandwidth is not supported.</li> <li>The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.</li> </ol>						nder									

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### 2.2 Connection Diagram of Test System



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### 2.3 Support Unit used in test configuration

Iter	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					
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					
E	Channel	55265	55990	56715					
5	Frequency	3552.5	3625.0	3697.5					

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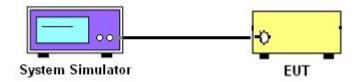
### 3 Conducted Test Items

### 3.1 Measuring Instruments

See list of measuring instruments of this test report.

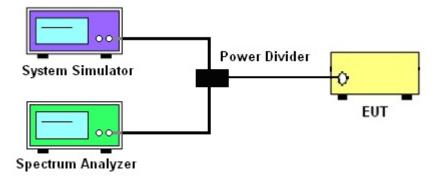
### 3.1.1 Test Setup

### 3.1.2 Conducted Output Power

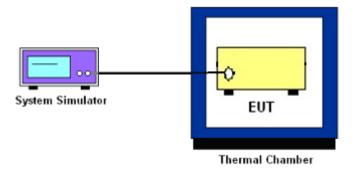


# 3.1.3 EIRP, Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission

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### 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.
- 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,

 $EIRP = P_T + G_T - L_C$ , where

 $P_T$  = transmitter output power in dBm

 $G_T$  = gain of the transmitting antenna in dBi

L<sub>C</sub> = signal attenuation in the connecting cable between the transmitter and antenna in dB

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

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

#### 3.4.1 Test Procedures.

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

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

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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

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)

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

For Adjacent Channel Leakage Ratio (ACLR) measurement,

- The Adjacent Channel Leakage Ratio (ACLR) is the ratio of the average power in the assigned aggregated channel bandwidth to the average power over the equivalent adjacent channel bandwidth.
- 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

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

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#### 3.7.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

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

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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.
- 2. 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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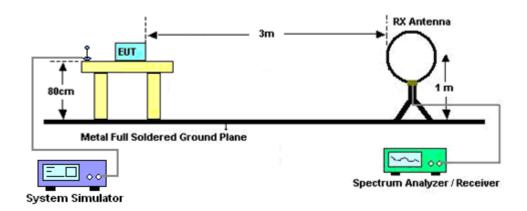
### 4 Radiated Test Items

### 4.1 Measuring Instruments

See list of measuring instruments of this test report.

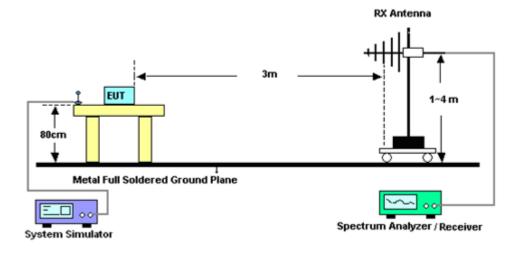
## 4.2 Test Setup

For radiated test below 30MHz



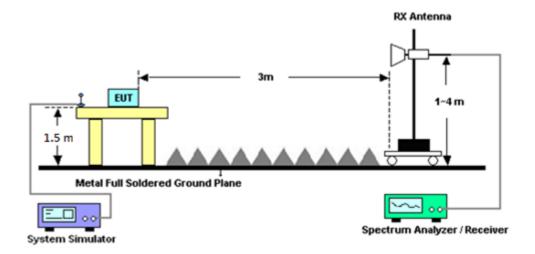
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#### For radiated test from 30MHz to 1GHz



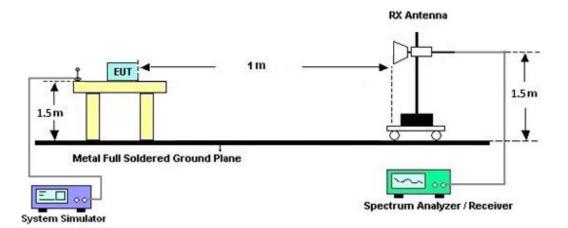
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#### For radiated test above 1GHz



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#### For radiated emissions 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 a comparison data 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. 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.

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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.

- 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	100488	9 kHz~30 MHz	Jul. 14, 2020	Feb. 03, 2021~ Feb. 04, 2021	Jul. 13, 2021	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01 N-06	40103 & 07	30MHz~1GHz	Apr. 29, 2020	Feb. 03, 2021~ Feb. 04, 2021	Apr. 28, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-132 8	1GHz~18GHz	Nov. 23, 2020	Feb. 03, 2021~ Feb. 04, 2021	Nov. 22, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-121 2	1GHz ~ 18GHz	May 20, 2020	Feb. 03, 2021~ Feb. 04, 2021	May 19, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00993	18GHz~40GHz	Dec. 19, 2020	Feb. 03, 2021~ Feb. 04, 2021	Dec. 18, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 576	18GHz~40GHz	May 22, 2020	Feb. 03, 2021~ Feb. 04, 2021	May 21, 2021	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2020	Feb. 03, 2021~ Feb. 04, 2021	Mar. 24, 2021	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY572801 20	1GHz~26.5GHz	Jul. 20, 2020	Feb. 03, 2021~ Feb. 04, 2021	Jul. 19, 2021	Radiation (03CH12-HY)
Preamplifier	E-INSTRUME NT TECH LTD.	ERA-100M-18 G-56-01-A70	EC190024 9	1GHz~18GHz	Dec. 05, 2020	Feb. 03, 2021~ Feb. 04, 2021	Dec. 04, 2021	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 15, 2020	Feb. 03, 2021~ Feb. 04, 2021	Jun. 14, 2021	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY534701 18	10Hz~44GHz	Sep. 14, 2020	Feb. 03, 2021~ Feb. 04, 2021	Sep. 13, 2021	Radiation (03CH12-HY)
Signal Generator	Rohde & Schwarz	SMB100A	101107	100kHz~40GHz	Dec. 04, 2020	Feb. 03, 2021~ Feb. 04, 2021	Dec. 03, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4 PE	9kHz~30MHz	Mar. 12, 2020	Feb. 03, 2021~ Feb. 04, 2021	Mar. 11, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 11, 2020	Feb. 03, 2021~ Feb. 04, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 25, 2020	Feb. 03, 2021~ Feb. 04, 2021	Feb. 24, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 25, 2020	Feb. 03, 2021~ Feb. 04, 2021	Feb. 24, 2021	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Oct. 02, 2020	Feb. 03, 2021~ Feb. 04, 2021	Oct. 01, 2021	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 03, 2021~ Feb. 04, 2021	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500- B	N/A	1m~4m	N/A	Feb. 03, 2021~ Feb. 04, 2021	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Feb. 03, 2021~ Feb. 04, 2021	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-00098 9	N/A	N/A	Feb. 03, 2021~ Feb. 04, 2021	N/A	Radiation (03CH12-HY)

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Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Anritsu	MT8821C	626200253 41	N/A	Oct. 06, 2020	Feb. 01, 2021~ Feb. 05, 2021	Oct. 05, 2021	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101909	10Hz~40GHz	May 19, 2020	Feb. 01, 2021~ Feb. 05, 2021	May 18, 2021	Conducted (TH05-HY)
Thermal Chamber	ESPEC	SH-641	92013720	-40°C ~90°C	Sep. 14, 2020	Feb. 01, 2021~ Feb. 05, 2021	Sep. 13, 2021	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 05, 2020	Feb. 01, 2021~ Feb. 05, 2021	Oct. 04, 2021	Conducted (TH05-HY)
Coupler	MVE	MVE4816	A400014	0.5~18GHz	May 08, 2020	Feb. 01, 2021~ Feb. 05, 2021	May 07, 2021	Conducted (TH05-HY)

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## 6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	2.07
Confidence of 95% (U = 2Uc(y))	3.07

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

Measuring Uncertainty for a Level of	2 24
Confidence of 95% (U = 2Uc(y))	3.21

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

Measuring Uncertainty for a Level of	3.80
Confidence of 95% (U = 2Uc(y))	3.80

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## **Appendix A. Test Results of Conducted Test**

## Conducted Output Power(Average power & EIRP)

	LTE	Band 48 N	laximum A	verage Po	wer [dBm	] (GT - LC :	= 1.1 dB)		
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)	
20	1	0		21.36	21.01	21.09			
20	1	49		21.31	20.91	21.43			
20	1	99		21.28	20.99	21.46			
20	50	0	QPSK	20.33	19.94	20.33	22.56	0.1803	
20	50	24		20.27	20.00	20.34			
20	50	50		20.29	19.96	20.32			
20	100	0		20.21	19.99	20.22			
20	1	0		20.33	20.28	20.35		0.1409	
20	1	49		20.38	20.07	20.39	21.49		
20	1	99	16-QAM	20.33	20.14	20.31			
20	50	0		19.26	19.05	19.35			
20	50	24		19.27	19.12	19.27			
20	50	50		19.21	19.08	19.34			
20	100	0		19.24	19.11	19.24			
20	1	0		19.30	18.95	19.42			
20	1	49		19.16	18.74	19.36			
20	1	99		19.10	18.82	19.27			
20	50	0	64-QAM	18.18	18.07	18.36	20.52	0.1127	
20	50	24	-	18.19	18.02	18.29			
20	50	50		18.14	17.97	18.36			
20	100	0		18.16	18.04	18.26			
Limit		EIRP < 7W			Result		Pa	iss	

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	LTE	Band 48 M	Maximum A	verage Po	wer [dBm	l (GT - LC :	= 1.1 dB)		
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)	
15	1	0		21.29	20.99	21.42			
15	1	37		21.29	20.87	21.40			
15	1	74		21.25	20.96	21.44			
15	36	0	QPSK	20.35	19.87	20.25	22.54	0.1795	
15	36	20		20.40	19.96	20.24			
15	36	39		20.20	19.87	20.27			
15	75	0		20.27	19.95	20.37			
15	1	0		20.29	20.24	20.35		0.1396	
15	1	37		20.35	20.00	20.31	21.45		
15	1	74	16-QAM	20.26	20.06	20.23			
15	36	0		19.18	19.02	19.35			
15	36	20		19.17	19.08	19.27			
15	36	39		19.18	19.06	19.30			
15	75	0		19.21	19.01	19.19			
15	1	0		19.24	18.91	19.38			
15	1	37		19.08	18.74	19.35			
15	1	74		19.03	18.72	19.24			
15	36	0	64-QAM	18.10	17.97	18.35	20.48	0.1117	
15	36	20	-	18.15	17.95	18.29			
15	36	39		18.10	17.88	18.31			
15	75	0		18.16	17.95	18.16			
Limit		EIRP < 7W			Result		Pa	ISS	

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				_					
	LTE	Band 48 N	laximum <i>A</i>	verage Po	wer [dBm	(GT - LC :	= 1.1 dB)		
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)	
10	1	0		21.26	20.98	21.40			
10	1	25		21.22	20.84	21.33			
10	1	49		21.20	20.89	21.36			
10	25	0	QPSK	20.38	19.88	20.31	22.50	0.1778	
10	25	12		20.35	19.90	20.24			
10	25	25		20.29	19.93	20.27			
10	50	0		20.25	19.94	20.36			
10	1	0		20.30	20.24	20.32		0.1387	
10	1	25		20.32	19.98	20.31	21.42		
10	1	49		20.25	20.04	20.30			
10	25	0	16-QAM	19.20	19.00	19.27			
10	25	12		19.22	19.07	19.24			
10	25	25		19.18	19.00	19.34			
10	50	0		19.18	19.02	19.22			
10	1	0		19.25	18.94	19.32			
10	1	25		19.12	18.69	19.32			
10	1	49		19.06	18.74	19.22			
10	25	0	64-QAM	18.11	18.07	18.36	20.42	0.1102	
10	25	12	-	18.15	18.02	18.22			
10	25	25		18.11	17.89	18.33	]		
10	50	0		18.14	18.04	18.16			
Limit		EIRP < 7W			Result	_	Pa	ISS	

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LTE Band 48 Maximum Average Power [dBm] (GT - LC = 1.1 dB) BW [MHz] **RB Size** RB Offset Mod Lowest Middle Highest EIRP (dBm) EIRP (W) 5 1 0 21.36 20.96 21.40 5 1 12 21.22 20.90 21.41 24 5 1 21.21 20.98 21.37 5 12 0 QPSK 20.42 19.84 20.25 22.51 0.1782 5 12 7 20.40 19.93 20.25 5 12 13 20.19 19.95 20.25 5 25 0 20.25 19.94 20.37 5 1 0 20.28 20.19 20.31 5 1 12 20.37 20.01 20.38 5 24 1 20.25 20.10 20.21 12 21.48 0.1406 5 0 16-QAM 19.16 19.04 19.28 5 12 7 19.26 19.04 19.23 5 12 13 19.21 19.00 19.31 5 25 0 19.22 19.09 19.15 5 19.28 19.38 1 0 18.88 5 1 12 19.14 18.66 19.28 5 1 24 19.06 18.79 19.26 5 12 0 64-QAM 18.17 17.98 18.30 20.48 0.1117 7 5 12 18.12 17.98 18.25 5 12 13 17.91 18.13 18.31 5 25 0 18.16 18.00 18.25 Limit EIRP < 7W Result Pass

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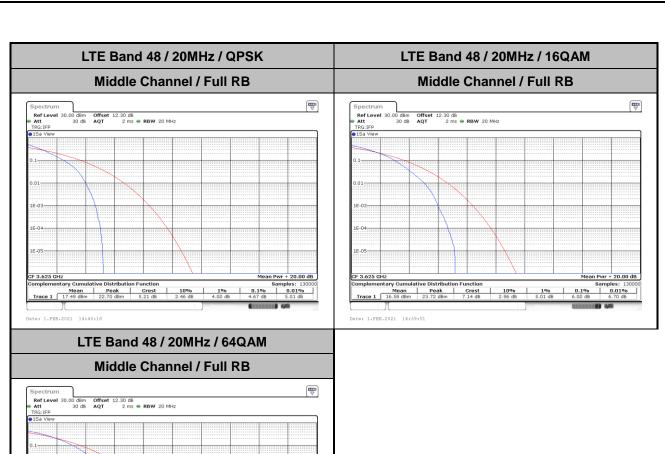
## LTE Band 48

# Peak-to-Average Ratio

Mode	נז			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	4.67	6.00	6.55	PASS

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| Samples: 130000 | 0.1% | 0.01% | 6.55 dB | 7.51 dB

# 26dB Bandwidth

Mode		LTE Band 48 : 26dB BW(MHz)										
BW	1.4MHz		3MHz		5N	5MHz 1		10MHz		ИHz	20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.89	4.88	9.83	9.71	14.42	14.30	18.94	18.62
Mode		LTE Band 48 : 26dB BW(MHz)										
BW	1.4	ИНz	3M	lHz	5N	5MHz 10MHz			15MHz		20MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Middle CH	-	-	ı	-	4.86	-	9.73	-	14.18	-	18.62	-

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Date: 1.FEB.2021 14:35:56

FAX: 886-3-328-4978

LTE Band 48 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM 10.15 dBm 3.62657800 GHz 26.00 dB 4.875000000 MHz 13.12 dBn 3.62441100 GH: 26.00 df M1[1] M1[1] 10 dBm dBm--20 dBm--30 dBm--30 dBm-CF 3.625 GH Function Result 4.875 MHz 26.00 dB 743.9 
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.624411 GHz
 13.12 dBm
 nd8 down

 T1
 1
 3.62272 GHz
 12.23 dBm
 nd8

 T2
 1
 3.627459 GHz
 -12.92 dBm
 Q factor
 Function Result 4.885 MHz 
 Type
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.626578 GHz
 10.15 dBm
 nd8 down
 Date: 1.FEB.2021 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 dBm

Att 30 dB

SGL Count 100/100

PIPK Max Offset 12.30 dB ● RBW 300 kHz SWT 12.6 µs ● VBW 1 MHz Mode Auto FFT 12.56 dBi 3.6274380 GF 12.18 dBn 3.6272580 GH 20 dBm -10 dBm-40 dBm -50 dBm -50 dBm- 
 X-value
 Y-value
 Function

 3.627258 GHz
 12.18 dBm
 nd8 down

 3.620185 GHz
 -13.58 dBm
 nd8

 3.629995 GHz
 -13.41 dbm
 Q factor
 Type Ref Trc Type Ref Trc Date: 1.FEB.2021 14:35:00 Date: 1.FEB.2021 14:35:14 Middle Channel / 15MHz / QPSK Middle Channel / 15MHz / 16QAM 13.73 dBi 3.6282670 GF 26.00 d 14.416000000 MF 20 dBm 10 dBm-251 -20 dBm -60 dBm--60 dBm-CF 3.625 GH CF 3.625 GHz Marker Span 30.0 MHz Span 30.0 MHz Function Result 14.416 MHz 26.00 dB 251.7 Function Result 14.296 MHz 26.00 dB 253.2 Type Ref Trc 
 X-value
 Y-value
 Function

 3.628267 GHz
 13.73 dBm
 nd8 down

 3.617627 GHz
 -12.61 dBm
 nd8

 3.632043 GHz
 -11.82 dBm
 Q factor

 X-value
 Y-value
 Function

 3.619216 GHz
 9.55 dBm
 ndB down

 3.617927 GHz
 -16.19 dBm
 ndB

 3.632223 GHz
 -16.89 dBm
 Q factor

Report No.: FG0O2628-02E

Date: 1.FEB.2021 14:36:10

 X-value
 Y-value
 Function

 3.630574 GHz
 9.50 dBm
 nd8 down

 3.617927 GHz
 -17.87 dBm
 nd8

 3.632103 GHz
 -17.13 dBm
 Q factor

Type Ref Trc

Date: 1.FEB.2021 14:38:30

FAX: 886-3-328-4978

LTE Band 48 Middle Channel / 20MHz / 16QAM Middle Channel / 20MHz / QPSK Ref Level 30.00 dBm

Att 30 dB

SGL Count 100/100

Pk Max Offset 12.30 dB ● RBW 300 kHz SWT 18.9 µs ● VBW 1 MHz Mode Auto FFT 9.40 dBm 3.6301150 GHz 26.00 dB 18.621000000 MHz 11.09 dBn 3.6288360 GH: 26.00 df 18.941000000 MH: 191. M1[1] M1[1] 10 dBm dBm--20 dBm-30 dBm mymmy CF 3.625 GH Function Result 18.621 MHz 26.00 dB 194.9 
 Marker
 Troe
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.628936 GHz
 11.09 dBm
 nd8 down

 T1
 1
 3.63873 GHz
 14.40 dBm
 nd8

 T2
 1
 3.634311 GHz
 -14.23 dBm
 Q factor
 Function Result 18.941 MHz 
 Type
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.630115 GHz
 9.40 dBm
 ndB down
 Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100 .30 dB **● RBW** 100 kHz 19 μs **● VBW** 300 kHz **Mode** Auto FFT 12.30 dB **RBW** 300 kHz 12.6 μs **VBW** 1 MHz **Mode** Auto FFT 9.06 dBi 3.62623900 GF 10.49 dBn 3.6244410 GH 20 dBm--10 dBm--30 dBm-40 dBm--50 dBm- 
 X-value
 Y-value
 Function

 3.624441 GHz
 10.49 dBm
 nd8 down

 3.620185 GHz
 -15.47 dBm
 nd8

 3.62915 GHz
 -15.43 dBm
 Q factor
 Date: 1.FEB.2021 14:37:34 Date: 1.FEB.2021 14:38:02 Middle Channel / 15MHz / 64QAM Middle Channel / 20MHz / 64QAM 8.91 dB 20 dBm 26. 14.176000000 10 dBm--20 dBm -60 dBm--60 dBm-CF 3.625 GH CF 3.625 GHz Marker 1 40.0 MHz Function Result 14.176 MHz 26.00 dB 256.1 Function Result 18.621 MHz 26.00 dB 194.3

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Date: 1.FEB.2021 14:38:58

 X-value
 Y-value
 Function

 3.617697 GHz
 8.91 dBm
 ndB down

 3.615699 GHz
 -17.01 dBm
 ndB

 3.634311 GHz
 -17.00 dBm
 Q factor

# **Occupied Bandwidth**

Mode		LTE Band 48 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5N	5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	
Middle CH	-	-	-	-	4.50	4.49	9.07	9.03	13.43	13.46	17.82	17.78	
Mode		LTE Band 48 : 99%OBW(MHz)											
BW	1.4	ИНz	3M	lHz	5N	5MHz 10MHz		ЛHz	15MHz		20MHz		
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	
Middle CH	-	-	ı	-	4.47	-	9.05	-	13.43	-	17.82	-	

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LTE Band 48 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM Ref Level 3 0.00 dbm Offset 12.30 db e RBW 100 kHz
Ref Level 3 0.00 dbm Offset 12.30 db e RBW 100 kHz
Act 30 db SWT 19 µs e VBW 300 kHz Mode Auto FFT
SGL Count 100/100 11.96 dBn 3.62702800 GH 4.495504496 MH 11.10 dBn 3.62468000 GH 4.485514486 MH M1[1] M1[1] 10 dBmdBm--20 dBm--30 dBm--30 dBm-40 dBm-CF 3.625 GH CF 3.625 GHz Marker Span 10.0 MHz 
 Marker
 Type Ref
 Trc
 X-value
 Y-value
 Function
 Function Result

 M1
 1
 3.627028 GHz
 11.96 dbm
 Percentage
 Percentage
 Percentage
 Percentage
 Percentage
 4.495504

 T2
 1
 3.6272478 GHz
 5.70 dbm
 Occ Bw
 4.495504
 4.495504496 MHz 3.6227622 GHz 5.67 dBm Occ Bw 3.6227478 GHz 5.65 dBm 4.485514486 MHz Date: 1.FEB.2021 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM 13.38 dBi 3.6221030 GF 9.070929071 MF 20 dBm--10 dBm--20 dBm--40 dBm-40 dBm -50 dBm -50 dBm- 
 X-value
 Y-value
 Function

 3.622103 GHz
 13.38 dBm
 3.6205045 GHz
 6.04 dBm
 Occ Bw

 3.6295784 GHz
 7.75 dBm
 0.00 BW
 0.00 BW
 0.00 BW
 0.00 BW

 Marker
 Trppe
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.628237 GHz
 11.64 dbm
 11.64 dbm

 T1
 1
 3.62824645 GHz
 6.85 dbm
 Occ 8w

 T2
 1
 3.6294955 GHz
 3.89 dbm
 Occ 8w
 Type Ref Trc 9.070929071 MHz 9.030969031 MHz Date: 1.FEB.2021 14:34:33 Date: 1.FEB.2021 14:34:47 Middle Channel / 15MHz / QPSK Middle Channel / 15MHz / 16QAM 10.47 dBi 3.6215230 GF 13.426573427 MF M1[1] 20 dBm 10 dBm--20 dBn -20 dBm--60 dBm--60 dBm-CF 3.625 GH CF 3.625 GHz 1001 pt 1001 pt 1 30.0 MHz Type Ref Trc 
 X-value
 Y-value
 Function

 3.621523 GHz
 10.47 dBm
 Occ Bw

 3.6183167 GHz
 4.91 dBm
 Occ Bw

 3.637433 GHz
 6.03 dBm

 X-value
 Y-value
 Function

 3.622572 GHz
 9.92 dBm
 Occ Bw

 3.6182567 GHz
 4.20 dBm
 Occ Bw

 3.6317133 GHz
 3.64 dBm
 Occ Bw
 Function Result **Function Result** 13.426573427 MHz 13.456543457 MHz

Report No.: FG0O2628-02E

Date: 1.FEB.2021 14:35:42

440

Date: 1.FEB.2021 14:35:28

Type Ref Trc

Date: 1.FEB.2021 14:38:16

FAX: 886-3-328-4978

 X-value
 Y-value
 Function

 3.621643 GHz
 9.54 dBm
 9.54 dBm

 3.6183467 GHz
 3.49 dBm
 Occ BW

 3.6917732 GHz
 4.58 dBm

LTE Band 48 Middle Channel / 20MHz / 16QAM Middle Channel / 20MHz / QPSK Ref Level 30.00 dbm Offset 12.30 db • RBW 300 kHz Att SGL Count 100/100 SWT 18.9 µs • VBW 1 MHz Mode Auto FFT SGL Count 100/100 SUR Mark SGL COUNT MAR 10.24 dBr 3.6249600 GH 17.822177822 MH 8.93 dBn 3.6211640 GH 17.782217782 MH M1[1] M1[1] 10 dBmdBm--20 dBm-30 dBm-CF 3.625 GH Span 40.0 MHz 
 Marker
 Type Ref
 Trc
 X-value
 Y-value
 Function
 Function Result

 M1
 1
 3.62496 GHz
 10.24 dbm
 Punction
 1.0.24 dbm
 Punction
 1.0.24 dbm
 Punction
 1.0.24 dbm
 Punction
 1.0.24 dbm
 Punction
 Punction
 1.0.24 dbm
 Punction
 1.0.24 dbm
 Punction
 Punction
 1.0.24 dbm
 Pun 17.822177822 MHz 3.6160889 GHz 3.00 dBm Occ Bw 3.6338711 GHz 3.39 dBm 17.782217782 MHz Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM Ref Level 30.00 dBm Offset 12.30 dB RBW 300 kHz
Att 30 dB SWT 12.6 µs VBW 1 MHz Mode Auto FFT
61P Max Ref Level 30.00 dBm Offset 12
Att 30 dB SWT
SGL Count 100/100

1Pk Max .30 dB **● RBW** 100 kHz 19 μs **● VBW** 300 kHz **Mode** Auto FFT 8.80 dBi 3.62684800 GF 4.465534466 MF 20 dBm-10 dBm--10 dBm -10 dBm--20 dBm--30 dBm--40 dBm--50 dBm -50 dBm- 
 X-value
 Y-value
 Function

 3.626948 GHz
 8.80 dBm
 9.827522 GHz

 3.627522 GHz
 3.93 dBm
 Occ Bw

 3.6272178 GHz
 3.86 dBm

 Marker
 Trype
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 3.627757 GHz
 10.13 dbm
 Occ Bw

 T1
 1
 3.6295945 GHz
 3.25 dbm
 Occ Bw

 T2
 1
 3.6295564 GHz
 5.37 dbm
 S.37 dbm
 4.465534466 MHz 9.050949051 MHz Date: 1.FEB.2021 14:37:20 Date: 1.FEB.2021 14:37:48 Middle Channel / 15MHz / 64QAM Middle Channel / 20MHz / 64QAM 20 dBm-10 dBmdBm--20 dBm -20 dBm -40 dBm--60 dBm--60 dBm-CF 3.625 GH CF 3.625 GHz 1001 pt 1001 pt Span 40.0 MHz

Report No.: FG0O2628-02E

**Function Result** 

13.426573427 MHz

440

Date: 1.FEB.2021 14:38:44

 X-value
 Y-value
 Function

 3.632113 GHz
 8.53 dBm
 9.53 dBm

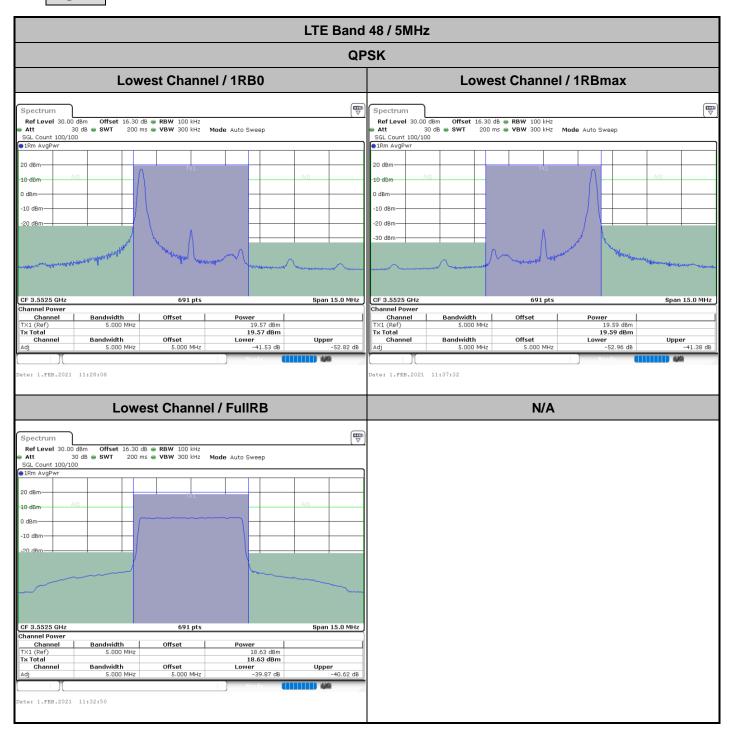
 3.6160889 GHz
 2.77 dBm
 Occ BW

 3.6399111 GHz
 3.94 dBm

**Function Result** 

17.822177822 MHz

ACLR



Report No.: FG0O2628-02E

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LTE Band 48 / 5MHz **QPSK** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum 
 Ref Level
 30.00 dBm
 Offset
 16.30 dB
 RBW
 100 kHz

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

 SGL Count 100/100

 Ref Level
 30.00 dBm
 Offset
 16.30 dB ● RBW
 100 kHz

 Att
 30 dB ● SWT
 200 ms ● VBW
 300 kHz
 Mode
 Auto Sweep
 Att 30 SGL Count 100/100 ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm MANAHAMANAHAMANAM CF 3.625 GHz Span 15.0 MHz hannel Power Channel Power Channel
TX1 (Ref)
Tx Total
Channel 9.14 dBm 19.14 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Power 19.23 dBm 19.23 dBm 19.23 dBm Lower -52.82 dB Upper -52.59 dB Bandwidth **Lower** -41.41 dB Bandwidth Offset Offset Upper -41.36 dB 5.000 MH 5.000 MHz ate: 1.FEB.2021 11:30:42 ate: 1.FEB.2021 11:40:06 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.625 GHz 691 pts Span 15.0 MHz 18.27 dBm 18.27 dBm 18.27 dBm Lower -40.66 dB Bandwidth 5.000 MHz Offset

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TEL: 886-3-327-3456 Page Number : A2-10 of 85

FAX: 886-3-328-4978

te: 1.FEB.2021 11:35:24

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 Span 15.0 MHz CF 3.6975 GHz Span 15.0 MHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Power 19.58 dBm 19.58 dBm 19.58 dBm Lower -53.06 dB 19.47 dBm Upper -53.16 dB **Upper** -42.05 dB Bandwidth **Lower** -41.80 dB Bandwidth Offset 5.000 MHz ate: 1.FEB.2021 11:31:14 ate: 1.FEB.2021 11:40:37 **Highest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBn CF 3.6975 GHz 691 pts Span 15.0 MHz 18.64 dBm 18.64 dBm 18.64 dBm Lower -41.44 dB Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz

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TEL: 886-3-327-3456 Page Number : A2-11 of 85

FAX: 886-3-328-4978

ate: 1.FEB.2021 11:35:56

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 -20 dBm CF 3.555 GHz Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 19.57 dBm 19.60 dBm 19.57 dBm 19.57 dBm Lower -51.84 dB Upper -48.74 dB Bandwidth Offset **Lower** -47.85 dB Bandwidth Upper -51.73 dB 10.000 MH; ate: 1.FEB.2021 11:43:17 ate: 1.FEB.2021 11:52:44 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 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 18.50 dBm 18.50 dBm 18.50 dBm Lower -40.02 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-12 of 85

FAX: 886-3-328-4978

ate: 1.FEB.2021 11:48:00

LTE Band 48 / 10MHz **QPSK** MiddleChannel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm Span 30.0 MHz CF 3.625 GHz Span 30.0 MHz hannel Power Channel Power Power 19.12 dBm 19.12 dBm Lower -51.55 dB Power 19.31 dBm 19.31 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -48.68 dB Bandwidth Offset **Lower** -47.70 dB Bandwidth Upper -51.70 dB 10.000 MHz ate: 1.FEB.2021 11:43:48 Date: 1.FEB.2021 11:53:15 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.625 GHz 691 pts Span 30.0 MHz Power 18.24 dBm 18.24 dBm Lower -40.82 dB Bandwidth 10.000 MHz Channel (Ref) Offset Upper -42.23 dB Bandwidth 10.000 MHz

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TEL: 886-3-327-3456 Page Number: A2-13 of 85

FAX: 886-3-328-4978

ate: 1.FEB.2021 11:48:32

LTE Band 48 / 10MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Mode Auto Sweep Mode Auto Sweep ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm Span 30.0 MHz CF 3.695 GHz CF 3.695 GHz Span 30.0 MHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel 19.45 dBm 19.45 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 19.60 dBm 19.60 dBm 19.60 dBm Lower -52.07 dB Upper -51.89 dB Upper -48.76 dB Bandwidth **Lower** -47.74 dB Bandwidth Offset 10.000 MH; ate: 1.FEB.2021 11:46:26 ate: 1.FEB.2021 11:55:54 **Highest Channel / FullRB** N/A Spectrum Mode Auto Sweep CF 3.695 GHz 691 pts Span 30.0 MHz Power 18.62 dBm 18.62 dBm Lower -41.81 dB Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz ate: 1.FEB.2021 11:51:10

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-14 of 85

LTE Band 48 / 15MHz **QPSK** Lowest Channel / 1RB0 **Lowest Channel / 1RBmax** Spectrum Spectrum Count 100/100 ●1Rm AvgPwr 20 dRm 10 d0m 0 dBn -10 dBm -10 dBn -20 dBm -20 dBn Span 45.0 MHz Span 45.0 MHz CF 3.5575 GHz Channel Power hannel Power Power 20.06 dBm Channel TX1 (Ref) Tx Total Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Power Bandwidth 15.000 MHz Offset 20.06 dBm 20.06 dBm Lower -50.66 dB 20.07 dBm Upper -50.41 dB Upper -48.88 dB Bandwidth 15.000 MHz Offset 15.000 MHz Lower -48.36 dB Bandwidth Channel 15.000 MHz Date: 1.FEB.2021 13:38:07 ate: 1.FEB.2021 13:47:37 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.5575 GHz 691 pts Span 45.0 MHz Power 19.06 dBm 19.06 dBm Lower -39.58 dB Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz

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TEL: 886-3-327-3456 Page Number : A2-15 of 85

FAX: 886-3-328-4978

ate: 1.FEB.2021 13:42:52

LTE Band 48 / 15MHz **QPSK** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm CF 3.625 GHz Span 45.0 MHz CF 3.625 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel 19.74 dBm 19.74 dBm Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz Offset Power 19.64 dBm 19.64 dBm 19.64 dBm Lower -50.43 dB **Upper** -48.98 dB Bandwidth Offset Lower -48.30 dB Bandwidth Upper -50.35 dB 15.000 MHz 15.000 MHz ate: 1.FEB.2021 13:40:44 ate: 1.FEB.2021 13:50:13 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.625 GHz 691 pts Span 45.0 MHz Power 18.75 dBm 18.75 dBm Lower -40.39 dB Bandwidth 15.000 MHz Channel (Ref) Offset Bandwidth 15.000 MHz

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TEL: 886-3-327-3456 Page Number : A2-16 of 85

FAX: 886-3-328-4978

te: 1.FEB.2021 13:45:28

LTE Band 48 / 15MHz **QPSK Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Spectrum ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm CF 3.6925 GHz Span 45.0 MHz hannel Power hannel Power Power 20.00 dBm Power 19.91 dBm 19.91 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz Offset 20.00 dBm 20.00 dBm Lower -50.83 dB Upper -50.62 dB **Upper** -48.79 dB Bandwidth Lower -48.09 dB Bandwidth Offset 15.000 MH 15.000 MHz ate: 1.FEB.2021 13:41:16 ate: 1.FEB.2021 13:50:45 **Highest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBn CF 3.6925 GHz 691 pts Span 45.0 MHz Power 19.03 dBm 19.03 dBm Lower -41.44 dB Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz ate: 1.FEB.2021 13:46:00

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-17 of 85

LTE Band 48 / 20MHz **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 -20 dBm Span 60.0 MHz CF 3.56 GHz Span 60.0 MHz CF 3.56 GHz hannel Power hannel Power Power 19.90 dBm 19.90 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 19.85 dBm 19.85 dBm 19.85 dBm Lower -49.27 dB Upper -49.30 dB Upper -48.52 dB Bandwidth Offset **Lower** -48.15 dB Bandwidth Channel 20.000 MHz ate: 1.FEB.2021 13:57:59 Date: 1.FEB.2021 14:02:34 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.56 GHz 691 pts Span 60.0 MHz Power 19.00 dBm 19.00 dBm Lower -39.73 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz te: 1.FEB.2021 13:53:22

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-18 of 85

LTE Band 48 / 20MHz **QPSK** 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 CF 3.625 GHz Span 60.0 MHz CF 3.625 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Power 19.60 dBm Bandwidth 20.000 MHz Offset Power 19.67 dBm 19.60 dBm 19.67 dBm 19.67 dBm Lower -49.30 dB Upper -49.12 dB Upper -48.51 dB Bandwidth Offset Lower -48.09 dB Bandwidth 20.000 MHz ate: 1.FEB.2021 13:58:29 Date: 1.FEB.2021 14:03:05 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.625 GHz 691 pts Span 60.0 MHz Power 18.71 dBm 18.71 dBm Lower -40.51 dB Bandwidth 20.000 MHz Channel (Ref) Offset Bandwidth 20.000 MHz te: 1.FEB.2021 13:53:53

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-19 of 85

LTE Band 48 / 20MHz **QPSK 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 Span 60.0 MHz CF 3.69 GHz hannel Power hannel Power Power 19.81 dBm 19.81 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 20.01 dBm 20.01 dBm 20.01 dBm Lower -49.66 dB **Upper** -49.44 dB Upper -48.88 dB Bandwidth Offset Lower -48.29 dB Bandwidth 20.000 MH; ate: 1.FEB.2021 14:01:02 ate: 1.FEB.2021 14:05:38 **Highest Channel / FullRB** N/A Spectrum Mode Auto Sweep -10 dBn CF 3.69 GHz 691 pts Span 60.0 MHz 19.00 dBm 19.00 dBm 19.00 dBm Lower -41.54 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz

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TEL: 886-3-327-3456 Page Number : A2-20 of 85

FAX: 886-3-328-4978

te: 1.FEB.2021 13:56:26

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 15.0 MHz Span 15.0 MHz CF 3.5525 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Power 18.87 dBm 18.87 dBm 18.87 dBm Lower -52.83 dB 18.89 dBm Upper -52.74 dB Bandwidth Offset Lower -42.89 dB Bandwidth Offset Upper -41.96 dB 5.000 MHz 5.000 MHz ate: 1.FEB.2021 11:28:39 ate: 1.FEB.2021 11:38:03 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.5525 GHz 691 pts Span 15.0 MHz 17.74 dBm 17.74 dBm 17.74 dBm Lower -39.42 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset **Upper** -41.03 dB Bandwidth 5.000 MHz

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-21 of 85

FAX: 886-3-328-4978

ate: 1.FEB.2021 11:33:21

LTE Band 48 / 5MHz **16QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum 
 Ref Level
 30.00 dBm
 Offset
 16.30 dB ● RBW
 100 kHz

 Att
 30 dB ● SWT
 200 ms ● VBW
 300 kHz
 Mode
 Auto Sweep
 Att 30 SGL Count 100/100 ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm Span 15.0 MHz CF 3.625 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Offset Power 18.49 dBm 18.49 dBm 18.49 dBm Lower -52.67 dB 18.55 dBm Upper -52.57 dB Offset **Lower** -42.97 dB Bandwidth Offset Upper -41.98 dB 5.000 MHz ate: 1.FEB.2021 11:30:11 ate: 1.FEB.2021 11:39:35 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBn CF 3.625 GHz 691 pts Span 15.0 MHz Power 17.40 dBm 17.40 dBm Lower -40.18 dB Bandwidth 5.000 MHz Channel (Ref) Offset Bandwidth 5.000 MHz te: 1.FEB.2021 11:34:54

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-22 of 85

LTE Band 48 / 5MHz **16QAM Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Mode Auto Sweep Mode Auto Sweep ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm CF 3.6975 GHz Span 15.0 MHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 5.000 MHz Offset Bandwidth 5.000 MHz Power 18.83 dBm 18.83 dBm 18.83 dBm Lower -52.78 dB 18.90 dBm Upper -41.88 dB Bandwidth Lower -42.92 dB Bandwidth Offset Upper -53.00 dB 5.000 MHz ate: 1.FEB.2021 11:31:46 ate: 1.FEB.2021 11:41:10 **Highest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep CF 3.6975 GHz 691 pts Span 15.0 MHz Power 17.78 dBm 17.78 dBm Lower -40.90 dB Bandwidth 5.000 MHz Offset te: 1.FEB.2021 11:36:28

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-23 of 85

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 -20 dBm CF 3.555 GHz Span 30.0 MHz CF 3.555 GHz Span 30.0 MHz hannel Power Channel Power Power 18.74 dBm 18.74 dBm Lower -51.10 dB Power 18.81 dBm 18.81 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Upper -47.12 dB Bandwidth Offset Lower -46.24 dB Bandwidth Upper -51.07 dB 10.000 MHz 10.000 MHz ate: 1.FEB.2021 11:42:45 ate: 1.FEB.2021 11:52:13 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 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 17.60 dBm 17.60 dBm Lower -39.71 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-24 of 85

FAX: 886-3-328-4978

ate: 1.FEB.2021 11:47:29

LTE Band 48 / 10MHz **16QAM** MiddleChannel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum 
 Ref Level
 30.00 dBm
 Offset
 16.30 dB ● RBW
 100 kHz

 Att
 30 dB ● SWT
 200 ms ● VBW
 300 kHz
 Mode
 Auto Sweep
 Att 30 SGL Count 100/100 ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm Span 30.0 MHz CF 3.625 GHz Span 30.0 MHz hannel Power Channel Power Power 18.53 dBm 18.53 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 18.54 dBm 18.54 dBm 18.54 dBm Lower -51.08 dB **Upper** -47.34 dB Bandwidth Offset Lower -46.18 dB Bandwidth Upper -51.08 dB 10.000 MHz 10.000 MHz ate: 1.FEB.2021 11:44:19 ate: 1.FEB.2021 11:53:46 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep CF 3.625 GHz 691 pts Span 30.0 MHz Power 17.35 dBm 17.35 dBm Lower -40.52 dB Bandwidth 10.000 MHz Channel (Ref) Offset Upper -42.05 dB Bandwidth 10.000 MHz te: 1.FEB.2021 11:49:03

Report No.: FG0O2628-02E

TEL: 886-3-327-3456 Page Number : A2-25 of 85

LTE Band 48 / 10MHz **16QAM Highest Channel / 1RB0 Highest Channel / 1RBmax** Spectrum Spectrum Mode Auto Sweep Mode Auto Sweep ●1Rm AvgPwr 20 dRm 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm CF 3.695 GHz Span 30.0 MHz CF 3.695 GHz Span 30.0 MHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz Offset Power 18.90 dBm 18.90 dBm 18.90 dBm Lower -51.47 dB 18.80 dBm Upper -47.41 dB Bandwidth Lower -46.29 dB Bandwidth Offset Upper -51.37 dB 10.000 MH; ate: 1.FEB.2021 11:45:54 ate: 1.FEB.2021 11:55:21 **Highest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 100 kHz
Att 30 dB SWT 200 ms VBW 300 kHz
SGL Count 100/100 Mode Auto Sweep -10 dBr CF 3.695 GHz 691 pts Span 30.0 MHz Power 17.73 dBm 17.73 dBm Lower -41.55 dB Bandwidth 10.000 MHz Offset Bandwidth 10.000 MHz

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te: 1.FEB.2021 11:50:38

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 -20 dBm Span 45.0 MHz CF 3.5575 GHz Span 45.0 MHz CF 3.5575 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Power 19.48 dBm Bandwidth 15.000 MHz Offset Power 19.40 dBm 19.48 dBm 19.40 dBm 19.40 dBm Lower -50.08 dB **Upper** -49.97 dB **Upper** -47.98 dB Bandwidth Bandwidth Offset **Lower** -47.60 dB 15.000 MHz 15.000 MHz ate: 1.FEB.2021 13:38:39 ate: 1.FEB.2021 13:48:08 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.5575 GHz 691 pts Span 45.0 MHz Power 18.18 dBm 18.18 dBm Lower -39.26 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz te: 1.FEB.2021 13:43:24

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LTE Band 48 / 15MHz **16QAM** Middle Channel / 1RB0 Middle Channel / 1RBmax Spectrum Spectrum ●1Rm AvgPwr 20 dRm 10 d0m 0 dBm 0 dBn -10 dBm -10 dBm -20 dBm -20 dBm CF 3.625 GHz Span 45.0 MHz CF 3.625 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Power 19.08 dBm Bandwidth 15.000 MHz Offset Power 18.99 dBm 19.08 dBm 18.99 dBm 18.99 dBm Lower -49.84 dB Upper -49.81 dB **Upper** -47.89 dB Bandwidth Offset **Lower** -47.47 dB Bandwidth 15.000 MHz 15.000 MHz ate: 1.FEB.2021 13:40:13 ate: 1.FEB.2021 13:49:42 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.625 GHz 691 pts Span 45.0 MHz 17.88 dBm 17.88 dBm Lower -40.07 dB Bandwidth 15.000 MHz Channel (Ref) Offset Bandwidth 15.000 MHz te: 1.FEB.2021 13:44:57

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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 CF 3.6925 GHz Span 45.0 MHz hannel Power hannel Power Power 19.44 dBm 19.44 dBm Lower -50.35 dB Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 15.000 MHz Offset Power 19.35 dBm Bandwidth 15.000 MHz Offset 19.35 dBm Upper -50.20 dB Upper -47.71 dB Bandwidth Lower -47.28 dB Bandwidth Offset 15.000 MH 15.000 MHz ate: 1.FEB.2021 13:41:48 ate: 1.FEB.2021 13:51:17 **Highest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep CF 3.6925 GHz 691 pts Span 45.0 MHz Power 18.13 dBm 18.13 dBm Lower -41.15 dB Bandwidth 15.000 MHz Offset Bandwidth 15.000 MHz

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te: 1.FEB.2021 13:52:52

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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 -20 dBm Span 60.0 MHz CF 3.56 GHz Span 60.0 MHz CF 3.56 GHz hannel Power hannel Power Power 19.24 dBm 19.24 dBm Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 19.21 dBm 19.21 dBm 19.21 dBm Lower -48.66 dB Upper -48.69 dB **Upper** -47.83 dB Bandwidth Offset **Lower** -47.35 dB Bandwidth Channel 20.000 MHz ate: 1.FEB.2021 13:57:28 Date: 1.FEB.2021 14:02:04 **Lowest Channel / FullRB** N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.56 GHz 691 pts Span 60.0 MHz Power 18.08 dBm 18.08 dBm Lower -39.34 dB Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset **Upper** -41.04 dB Bandwidth 20.000 MHz Offset 20.000 MHz

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LTE Band 48 / 20MHz **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 CF 3.625 GHz Span 60.0 MHz CF 3.625 GHz hannel Power hannel Power Channel
TX1 (Ref)
Tx Total
Channel Channel
TX1 (Ref)
Tx Total
Channel Bandwidth 20.000 MHz Offset Bandwidth 20.000 MHz Offset Power 19.07 dBm 19.02 dBm 19.07 dBm 19.07 dBm Lower -48.73 dB Upper -48.60 dB Upper -47.82 dB Bandwidth Offset **Lower** -47.37 dB Bandwidth 20.000 MHz ate: 1.FEB.2021 13:59:00 ate: 1.FEB.2021 14:03:35 Middle Channel / FullRB N/A Spectrum Ref Level 30.00 dBm Offset 16.30 dB RBW 200 kHz
Att 30 dB SWT 200 ms VBW 1 MHz
SGL Count 100/100 Mode Auto Sweep -10 dBm CF 3.625 GHz 691 pts Span 60.0 MHz 17.80 dBm 17.80 dBm 17.80 dBm Lower -40.09 dB Bandwidth 20.000 MHz Channel (Ref) Offset Bandwidth 20.000 MHz

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te: 1.FEB.2021 13:54:23