

Report No.: FG911635D

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Page Number



## FCC RADIO TEST REPORT

FCC ID UZ7ET56DE

**Equipment** : Tablet : ZEBRA **Brand Name Model Name** : **ET56DE** 

: Zebra Technologies Corporation Applicant

1 Zebra Plaza, Holtsville, NY 11742

Manufacturer : Zebra Technologies Corporation

1 Zebra Plaza, Holtsville, NY 11742

Standard : FCC 47 CFR Part 2, and 90(S)

The product was received on Jan. 16, 2019 and testing was started from Jun. 27, 2019 and completed on Jul. 26, 2019. 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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.

Reviewed by: Louis Wu

TEL: 886-3-327-3456

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

FAX: 886-3-328-4978 Issued Date : Aug. 08, 2019 : 01

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## History of this test report

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Report No.	Version	Description	Issued Date
FG911635D	01	Initial issue of report	Aug. 08, 2019

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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 §90.635	Conducted Output Power and Effective Radiated Power	Pass	-
3.3	-	Peak-to-Average Ratio	Reporting only	-
3.4	§2.1049 §90.209 Occupied Bandwidth and 26dB Bandwidth		Reporting only	-
3.5	§2.1051 §90.691	Emission masks – In-band emissions	Pass	-
3.6	§2.1051 Emission masks – §90.691 Out of band emissions		Pass	-
3.7	§2.1055 Frequency Stability for §90.213 Temperature & Voltage		Pass	-
3.8	§2.1053 §90.691	Field Strength of Spurious Radiation	Pass	Under limit 36.39 dB at 3296.000 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: Yimin Ho

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## 1 General Description

## 1.1 Feature of Equipment Under Test

Product Feature							
Equipment	Tablet						
Brand Name	ZEBRA						
Model Name	ET56DE						
FCC ID	UZ7ET56DE						
EUT supports Radios application	WCDMA/HSPA/LTE/NFC/GNSS WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE						
HW Version	DV2						
SW Version	Android version 8.1.0						
FW Version	01-20-03-00-OG-U00-PRD						
MFD	19Jun01						
EUT Stage	Identical Prototype						

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

Specification of Accessories							
Spare Standard Battery 24.13Wh	<b>Brand Name</b>	Zebra	Model Name	BT-000393			

Supported Unit Used in Test Configuration and System									
Cradle (Dock) for EMC	Brand Name	Zebra	Part Number	CRD-ET5X-1SCG1					
Cradle (Dock) for RSE	Brand Name	Zebra	Part Number	CHG-ET5X-CBL1-01					
Adapter	<b>Brand Name</b>	Zebra	Part Number	PWRBGA12V50W0WW					
DC Cable	Brand Name	Zebra	Part Number	CBL-DC-388A1-01					

## 1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard						
Tx Frequency	LTE Band 26: 814.7 ~ 823.3 MHz					
Rx Frequency	LTE Band 26 : 859.7 ~ 868.3 MHz					
Bandwidth	1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz					
Maximum Output Power to Antenna	24.80 dBm					
Antenna Type	PCB Antenna					
Antenna Gain	0.31 dBi					
Type of Modulation	QPSK / 16QAM / 64QAM					

#### 1.3 Modification of EUT

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

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## 1.4 Emission Designator

Lī	TE Band 26	QP	SK	160	QAM	64QAM		
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	
1.4	814.7 ~ 823.3	1M10G7D	-	1M09W7D	-	1M10W7D	-	
3	815.5 ~ 822.5	2M72G7D	-	2M73W7D	-	2M73W7D	-	
5	816.5 ~ 821.5	4M50G7D	-	4M51W7D	-	4M51W7D	-	
10	819.0	9M07G7D	0.0150	8M91W7D	-	9M03W7D	-	
15	821.5	13M4G7D	0.0190	13M4W7D	-	13M5W7D	-	

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#### 1.5 Testing Site

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory					
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, 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	Aking Chang					
Temperature	24~26°C					
Relative Humidity	54~56%					

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

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory					
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist.,  Faoyuan City, Taiwan (R.O.C.)  FEL: +886-3-327-0868  FAX: +886-3-327-0855					
Test Site No.	Sporton Site No.					
rest site No.	03CH12-HY					
Test Engineer	Jack Cheng, Lance Chiang, and Chuan Chu					
Temperature	19.3~26℃					
Relative Humidity	57.1~73.1%					

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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- FCC 47 CFR Part 2, 90
- ANSI / TIA-603-E
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- Interim Guidance for Equipment Authorization of Devices with Channel Bandwidths Combined Across Two Contiguous Service Rule Allocations OET/Lab/EACB, June 6, 2013

#### Remark:

- 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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## 2 Test Configuration of Equipment Under Test

#### 2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level.

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

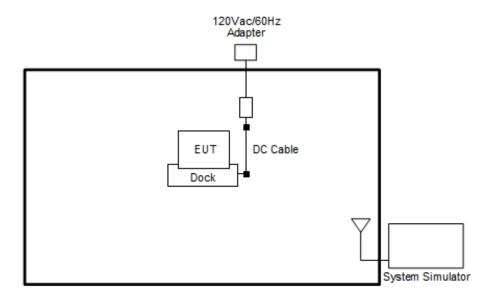
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Frequency range investigated for radiated emission is 30 MHz to 9000 MHz.

Conducted			Ba	ndwic	Ith (MI	łz)		Modulation				RB#		Test Channel		
Test Cases	Band	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	М	Н
Max. Output Power	26	<b>v</b>	٧	>	v	v	ı	٧	v	v	>	v	v	v	>	v
Peak-to-Average Ratio	26					v	ı	٧	v	v	>		v	V	>	v
26dB and 99% Bandwidth	26	v	V	v	v	v	-	v	v	v			v	v	v	v
Emission masks In-band emissions	26	٧	٧	٧	v	v	ı	v	v	v	٧		v	V		v
Emission masks – Out of band emissions	26	>	>	>	v	v	ı	V	v	v	>			v	>	V
Frequency Stability	26	ı	ı		v	v	ı	v					v		<b>v</b>	
E.R.P.	26					V	ı	٧	v	v	>			V		
Radiated Spurious Emission	· I 26 I Worst Case							V	٧	v						
<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>LTE Band26 transmit frequency for part22 rule is 824MHz-849MHz, for part90 rule is 814MHz-824MH ERP over 15MHz bandwidth complies the ERP limit line of part22 rule, therefore ERP of the partial frequency spectrum which falls within part 22 also complies.</li> </ol>						ЛНz.										

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#### 2.2 Connection Diagram of Test System



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#### 2.3 Support Unit used in test configuration and system

Item	Equipment Trade Name		Model No.	FCC ID	Data Cable	Power Cord	
1.	System Simulator	Anritsu	MT8820C	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 RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

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

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.2 dB and a 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 26 Channel and Frequency List										
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest							
15	Channel	26765	-	-							
15	Frequency	821.5	-	-							
10	Channel	-	26740	-							
10	Frequency	-	819	-							
5	Channel	26715	26740	26765							
5	Frequency	816.5	819	821.5							
3	Channel	26705	26740	26775							
3	Frequency	815.5	819	822.5							
1.4	Channel	26697	26740	26783							
1.4	Frequency	814.7	819	823.3							

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#### 3 Conducted Test Items

#### 3.1 Measuring Instruments

See list of measuring instruments of this test report.

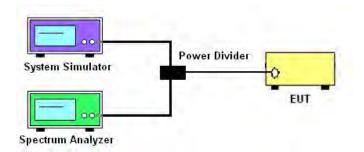
#### 3.1.1 Test Setup

#### 3.1.2 Conducted Output Power

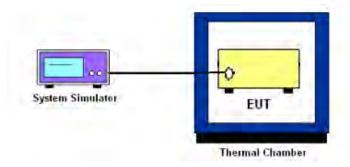


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# 3.1.3 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge, Emission Mask, Emissions Mask – Out Of Band Emissions, and Conducted Spurious Emission



#### 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 Measurement and ERP Measurement

## 3.2.1 Description of the Conducted Output Power Measurement and ERP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

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The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 26.

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

#### 3.2.2 Test Procedures

- 1. The transmitter output port was connected to the system simulator.
- 2. Set EUT at maximum power through 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

Reporting only

#### 3.3.2 Test Procedures

- 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.

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- 3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
- 4. Record the deviation as Peak to Average Ratio.

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#### 3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

#### 3.4.1 Description of (Occupied) Bandwidth Limitations Measurement

The 99% 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.

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The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### 3.4.2 Test Procedures

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- 2. The 26dB and 99% occupied bandwidth (BW) of the middle channel for the highest RF power with full RB sizes were measured.

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#### 3.5 Emissions Mask Measurement

#### 3.5.1 Description of Emissions Mask Measurement

Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of FCC Part 90.691.(a)

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- (a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:
- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116  $\log_{10}(f/6.1)$  decibels or 50 + 10  $\log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
- (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \text{Log}_{10}$  (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

#### 3.5.2 Test Procedures

- 1. The EUT was connected to spectrum analyzer and base station via power divider.
- 2. The emissions mask of low and high channels for the highest RF powers were measured.
- 3. Set RBW and VBW 3 times of RBW to make the measurement with the spectrum analyzer's, and according to KDB 971168 D02 Misc Rev Approve License Devices v02r01 standards, set RBW = 300 Hz to make offsets less than 37.5 kHz from a channel edge, RBW = 100 kHz to make offsets greater than 37.5 kHz, that is allowed.
- 4. The test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.

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#### 3.6 Emissions Mask - Out Of Band Emissions Measurement

#### 3.6.1 Description of Conducted Emissions Out of band emissions measurement

The power of any emission FCC Part 90.691 (a)(2) on any frequency removed from the assigned frequency by out of the authorized bandwidth at least 43 + 10 log (P) dB. It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10<sup>th</sup> harmonic.

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#### 3.6.2 Test Procedures

- 1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
- 2. 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. For testing below 1GHz, make the measurement with the spectrum analyzer's RBW = 100 kHz, VBW = 3MHz, taking the record of maximum spurious emission.
- 6. For testing above 1GHz, make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
- The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 8. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

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#### 3.7 Frequency Stability Measurement

#### 3.7.1 Description of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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#### 3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.7.3 Test Procedures for Temperature Variation

- 1. The EUT was set up in the thermal chamber and connected with the base station.
- 2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized for three hours. 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.

#### 3.7.4 Test Procedures for Voltage Variation

- 1. The EUT was placed in a temperature chamber at 20±5° C and connected with the base station.
- The power supply voltage to the EUT was varied from BEP 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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#### 3.8 Field Strength of Spurious Radiation Measurement

#### 3.8.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. The power of any emission FCC Part 90.691 on any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

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The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43+10log<sub>10</sub>(P[Watts]) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

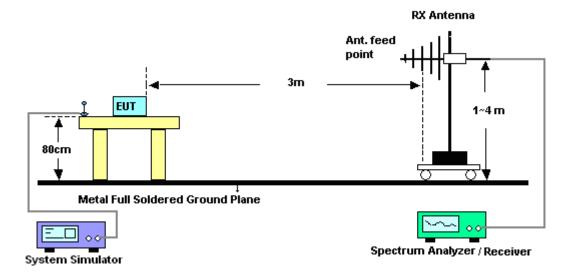
#### 3.8.2 Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- 5. For testing below 1GHz, make the measurement with the spectrum analyzer's RBW = 100 kHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
- 6. For testing above 1GHz, make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
- 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- 9. Taking the record of output power at antenna port.
- 10. Repeat step 7 to step 8 for another polarization.
- 11. EIRP (dBm) = S.G. Power Tx Cable Loss + Tx Antenna Gain
- 12. ERP (dBm) = EIRP 2.15
- 13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

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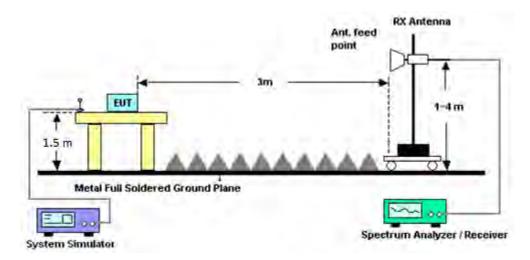
#### 3.8.3 Test Setup

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



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#### For radiated test above 1GHz



#### 3.8.4 Test Result of Field Strength of Spurious Radiated

Please refer to Appendix B.

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## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 07, 2019	Jul. 05, 2019~ Jul. 23, 2019	Jan. 06, 2020	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802 N1D01N-06	47020&06	30MHz to 1GHz	Oct. 13, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 12, 2019	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-1212	1GHz ~ 18GHz	Oct. 19, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 18, 2019	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-1326	1GHz ~ 18GHz	Oct. 30, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 29, 2019	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917058 4	18GHz ~ 40GHz	Dec. 05, 2018	Jul. 05, 2019~ Jul. 23, 2019	Dec. 04, 2019	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2019	Jul. 05, 2019~ Jul. 23, 2019	Mar. 24, 2020	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5Ghz	May 28, 2018	Jul. 05, 2019~ Jul. 23, 2019	May 26, 2020	Radiation (03CH12-HY)
Preamplifier	Jet-Power	JPA0118-55-30 3	17100018000 55007	1GHz~18GHz	Apr. 01, 2019	Jul. 05, 2019~ Jul. 23, 2019	Mar. 31, 2020	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Jul. 05, 2019~ Jul. 23, 2019	Dec. 05, 2019	Radiation (03CH12-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100390	20Hz~26.5GHz	Dec. 26, 2018	Jul. 05, 2019~ Jul. 23, 2019	Dec. 25, 2019	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Dec. 19, 2018	Jul. 05, 2019~ Jul. 23, 2019	Dec. 18, 2019	Radiation (03CH12-HY)
Signal Generator	Rohde & Schwarz	SMB100A	175727	100kHz~40GHz	Dec. 23, 2018	Jul. 05, 2019~ Jul. 23, 2019	Dec. 23, 2019	Radiation (03CH12-HY)
Base Station	Anritsu	MT8821C	6201432816	GSM / GPRS /WCDMA / LTE FDD/TDD with 44) /LTE-3CC DLCA,2CC ULCA	May 05, 2019	Jul. 05, 2019~ Jul. 23, 2019	May 04, 2020	Radiation (03CH12-HY)
Filter	Wainwright	WLK4-1000-15 30-6000-40SS	SN11	1 GHz Lowpass	Sep. 16, 2018	Jul. 05, 2019~ Jul. 23, 2019	Sep. 15, 2019	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-1080 -1200-1500-60 SS	SN2	1.2G High Pass	Sep. 16, 2018	Jul. 05, 2019~ Jul. 23, 2019	Sep. 15, 2019	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0ST	SN2	3GHz High Pass	Mar. 20, 2019	Jul. 05, 2019~ Jul. 23, 2019	Mar. 19, 2020	Radiation (03CH12-HY)
Notch Filter	EWT	EWT-14-0041	D1	DCS 1800	Nov. 01, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 31, 2019	Radiation (03CH12-HY)
Notch Filter	Wainwright	WRCT698/798 -10/40 8SSK	SN1	AWS Band	Nov. 01, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 31, 2019	Radiation (03CH12-HY)
Notch Filter	Wainwright	WRCG824/849 -40/8SS	SN35	CDMA 850	Nov. 07, 2018	Jul. 05, 2019~ Jul. 23, 2019	Nov. 06, 2019	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30M-18G	Mar. 13, 2019	Jul. 05, 2019~ Jul. 23, 2019	Mar. 12, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30M~40GHz	Oct. 16, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 15, 2019	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30M~40GHz	Oct. 16, 2018	Jul. 05, 2019~ Jul. 23, 2019	Oct. 15, 2019	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jul. 05, 2019~ Jul. 23, 2019	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jul. 05, 2019~ Jul. 23, 2019	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jul. 05, 2019~ Jul. 23, 2019	N/A	Radiation (03CH12-HY)

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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LTE Base Station	Anritsu	MT8820C	6201432821	GSM/GPRS /WCDMA/LTE	Oct. 14, 2018	Jun. 27, 2019~ Jul. 26, 2019	Oct. 13, 2019	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 13, 2018	Jun. 27, 2019~ Jul. 26, 2019	Nov. 12, 2019	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40°C~90°C	Aug. 29, 2018	Jun. 27, 2019~ Jul. 26, 2019	Aug. 28, 2019	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 02, 2018	Jun. 27, 2019~ Jul. 26, 2019	Oct. 01, 2019	Conducted (TH05-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#A	1-18GHz	Jan. 14, 2019	Jun. 27, 2019~ Jul. 26, 2019	Jan. 13, 2020	Conducted (TH05-HY)

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## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	3.36
Confidence of 95% (U = 2Uc(y))	3.30

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#### <u>Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)</u>

Measuring Uncertainty for a Level of	3.70
Confidence of 95% (U = 2Uc(y))	

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

Measuring Uncertainty for a Level of	3.98
Confidence of 95% (U = 2Uc(y))	3.30

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

## Conducted Output Power(Average power)

LTE Band 26 Maximum Average Power [dBm]										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest				
15	1	0		24.66	-	-				
15	1	37		24.72	-	-				
15	1	74		24.72	-	-				
15	36	0	QPSK	23.84	-	-				
15	36	20		23.81	-	-				
15	36	39		23.79	-	-				
15	75	0		23.83	-	-				
15	1	0		23.97	-	-				
15	1	37		24.07	-	-				
15	1	74		23.99	-	-				
15	36	0	16-QAM	22.88	-	-				
15	36	20		23.00	-	-				
15	36	39		22.90	-	-				
15	75	0		22.97	-	-				
15	1	0		22.96	-	-				
15	1	37		22.98	-	-				
15	1	74		22.99	-	-				
15	36	0	64-QAM	21.95	-	-				
15	36	20		22.06	-	-				
15	36	39		21.98	-	-				
15	75	0		21.97	-	-				
10	1	0		-	24.75	-				
10	1	25		-	24.67	-				
10	1	49		-	24.71	-				
10	25	0	QPSK	-	23.75	-				
10	25	12		-	23.81	-				
10	25	25		-	23.77	-				
10	50	0		-	23.71	-				
10	1	0		-	24.13	-				
10	1	25		-	23.96	-				
10	1	49		-	24.09	-				
10	25	0	16-QAM	-	22.88	-				
10	25	12		-	22.95	-				
10	25	25		-	22.87	-				
10	50	0		-	22.89	-				
10	1	0		-	22.96	-				
10	1	25		-	22.90	-				
10	1	49		-	23.04	-				
10	25	0	64-QAM	-	22.00	-				
10	25	12		-	21.99	-				
10	25	25		-	21.94	-				
10	50	0		-	21.87	-				



## FCC RADIO TEST REPORT

SPORTON LAB.	SPORTON LAS. 1 GO KADIO 1201 KEI OKI										
		LTE	Band 26 Ma	ximum Average Po	ower [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest					
5	1	0		24.56	24.73	24.70					
5	1	12		24.69	24.74	24.68					
5	1	24		24.66	24.71	24.71					
5	12	0	QPSK	23.78	23.72	23.84					
5	12	7		23.82	23.86	23.74					
5	12	13		23.70	23.79	23.83					
5	25	0		23.80	23.81	23.77					
5	1	0		23.89	24.09	24.01					
5	1	12		23.99	23.95	23.98					
5	1	24		23.90	24.05	24.00					
5	12	0	16-QAM	22.85	22.95	22.91					
5	12	7		22.96	22.94	22.88					
5	12	13		22.90	22.83	22.91					
5	25	0		22.95	22.85	22.91					
5	1	0		22.91	23.03	23.00					
5	1	12		22.91	22.98	23.06					
5	1	24		22.89	22.95	23.03					
5	12	0	64-QAM	21.91	21.92	21.97					
5	12	7		22.01	21.91	21.95					
5	12	13		21.91	21.89	21.95					
5	25	0		21.89	21.85	21.93					
3	1	0		24.56	24.78	24.71					
3	1	8		24.70	24.67	24.74					
3	1	14		24.70	24.69	24.71					
3	8	0	QPSK	23.73	23.81	23.81					
3	8	4		23.89	23.83	23.79					
3	8	7		23.75	23.79	23.88					
3	15	0		23.74	23.76	23.77					
3	1	0		23.90	24.08	24.03					
3	1	8		24.04	23.94	23.97					
3	1	14		23.99	24.01	23.98					
3	8	0	16-QAM	22.87	22.94	22.86					
3	8	4		22.93	22.92	22.89					
3	8	7		22.82	22.81	22.96					
3	15	0		22.88	22.84	22.87					
3	1	0		22.94	23.05	23.00					
3	1	8		22.94	22.93	23.09					
3	1	14		22.96	23.01	22.97					
3	8	0	64-QAM	21.85	21.94	22.00					
3	8	4		21.98	22.01	21.89					
3	8	7		21.98	21.94	21.95					
3	15	0		21.97	21.92	21.88					

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## SPORTON LAB. FCC RADIO TEST REPORT

		LTE	Band 26 Ma	ximum Average Po	ower [dBm]	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
1.4	1	0		24.58	24.64	24.71
1.4	1	3		24.66	24.70	24.51
1.4	1	5		24.58	24.62	24.68
1.4	3	0	QPSK	24.64	24.69	24.64
1.4	3	1		24.43	24.73	24.80
1.4	3	3		24.61	24.69	24.76
1.4	6	0		23.59	23.59	23.82
1.4	1	0		23.86	23.87	23.99
1.4	1	3		23.88	23.95	24.02
1.4	1	5		23.72	23.89	23.95
1.4	3	0	16-QAM	23.67	23.71	23.79
1.4	3	1		23.69	23.73	23.80
1.4	3	3		23.64	23.68	23.76
1.4	6	0		22.78	22.85	22.93
1.4	1	0		22.82	22.86	22.97
1.4	1	3		22.83	22.90	22.98
1.4	1	5		22.76	22.86	22.93
1.4	3	0	64-QAM	22.80	22.85	22.96
1.4	3	1		22.84	22.91	22.97
1.4	3	3		22.77	22.84	22.94
1.4	6	0		21.75	21.81	21.90

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## LTE Band 26\_Part 90S

## Peak-to-Average Ratio

Mode		LTE Band 26 / 10MHz								
Mod.	QP	SK	16	Limit: 13dB						
RB Size	1RB Full RB		1RB	Full RB	Result					
Lowest CH	-	-	-	-						
Middle CH	3.19	4.52	4.38	5.77	PASS					
Highest CH	-	-	-	-						
Mode		LTE Band	26 / 10MHz							
Mod.	64C	AM			Limit: 13dB					
RB Size	1RB	Full RB			Result					
Lowest CH	-	-	-	-						
Middle CH	6.17	6.43	-	-	PASS					
Highest CH	-	-	-	-						

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LTE Band 26 / 10MHz / QPSK Middle Channel / 1RB Middle Channel / Full RB ∇ V 8amples: 130000 | 8.01% | 4.75 d8 Samples: 130000 0.1% 0.01% 3.19 dB 3.25 dB LTE Band 26 / 10MHz / 16QAM Middle Channel / 1RB Middle Channel / Full RB 7 V Ref Level 30.0 0 dBm Offset 11.60 dB 30 dB AQT 2 ms = RBW 10 MH: Offset 11.60 dB AQT 2 ms 8amples: 130000 | 0.01% | 4.46 dB Samples: 130000 0.1% LTE Band 26 / 10MHz / 64QAM Middle Channel / 1RB Middle Channel / Full RB 7 Samples: 13 0.1% 0.01% 6.17 dB 6.29 dB

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## 26dB Bandwidth

Mode		LTE Band 26 : 26dB BW(MHz)											
BW	1.4MHz 3MHz				5N	5MHz		10MHz		ИHz	20MHz		
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	
Lowest CH	1.24	1.22	2.97	3.00	4.93	4.86	-	-	14.33	14.57	-	-	
Middle CH	1.24	1.22	3.02	3.02	4.89	4.91	9.75	9.77	-	-	-	-	
Highest CH	1.24	1.22	3.05	3.02	4.97	4.88	-	-	-	-	-	-	
Mode					LTE Ba	and 26 :	26dB BV	V(MHz)					
BW	1.4	ИНz	3M	lHz	5N	5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM		
Lowest CH	1.22	-	2.97	-	4.94	-	-	-	14.30	-	-	-	
Middle CH	1.23	-	3.03	-	4.91	-	9.87	-	-	-	-	-	
Highest CH	1.25	-	3.02	-	4.84	-	-	-	-	-	-	-	

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Report No.: FG911635D LTE Band 26 Lowest Channel / 1.4MHz / QPSK Lowest Channel / 1.4MHz / 16QAM ₩ V Ref Level 30.00 dBm • Att 30 dB SGL Count 100/100 • 1Pk Max 16,75 dBn H14,36150 MH 26,80 dB 1,222480000 MH 1.2354000 Span 2.8 MHz CF 814.7 MHz 2.8 MHz Type Ref Trc 814.079 MHz 815.3154 MHz Middle Channel / 1.4MHz / QPSK Middle Channel / 1.4MHz / 16QAM 7 ▽ 11.60 dB **RBW** 30 kHz 63.2 µs **WBW** 100 kHz **Mode** Auto FFT 11,60 dB **RBW** 30 kHz 63.2 µs **VBW** 100 kHz **Mode** Auto FFT 16.73 dBn 818.6587n Av 17.15 dBn 019.10100 MH 26.00 dt 1.236400000 MH 662.1 Function Result 1,2364 MHz 26.00 dB 562.6 Function Result 1,2196 MHz 26,00 dB 671,3 Type Ref Trc Type Ref Trc Highest Channel / 1.4MHz / 16QAM Highest Channel / 1.4MHz / QPSK ∀ ∀ Offset 11,60 dB = RBW 30 kHz SWT 63.2 µs = VBW 100 kHz Mode Auto FFT Offset 11,60 dB • RBW 30 kHz SWT 63.2 µs • VBW 100 kHz Mode Auto FFT SGL Count 100/100 30 dB 17.42 dB 823.59090 Mi 17.24 dB 822.96150 MH 30 dBm

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Function Result 1,2364 MHz

Type | Ref | Trc |

 X-value
 Y-value
 Function

 823.5909 MHz
 17.43 dBm
 ndB down

CF 823.3 MH

Type | Ref | Trc |

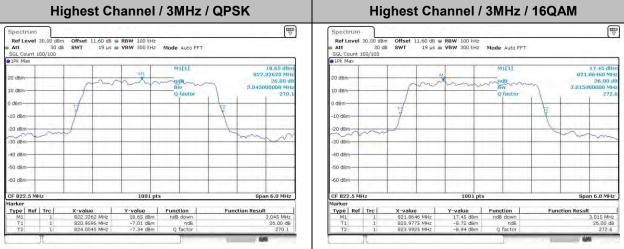
Function ndB down

Report No.: FG911635D LTE Band 26 Lowest Channel / 3MHz / QPSK Lowest Channel / 3MHz / 16QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100 18.55 dBn 815.47600 MH: 26.00 dB 3.003000000 MH 18,24 dB 816,09940 MF 26,00 d 2,967000000 MF 275 271. Span 6.0 MHz CF 815.5 MHz 6.0 MHz Type Ref Trc Middle Channel / 3MHz / QPSK Middle Channel / 3MHz / 16QAM 7 11.60 dB **RBW** 100 kHz 19 µs **VBW** 300 kHz **Mode** Auto FFT Offset 11,60 dB • RBW 100 kHz SWT 19 µs • VBW 300 kHz Mode Auto FFT 18.74 dBn 818.67038 AP 17.79 dBr 820,22280 MF 920,22280 Mm 26,00 dt 3,021980000 MH 271. 30 780 Function Result 3.021 MHz 26.00 dB 271.5 Function Result 3,015 MHz 26,00 dB 271.5 
 X-value
 Y-value
 Function

 820, 2228 MHz
 17,79 dbm
 ndB down

 817, 4715 MHz
 -8,44 dbm
 ndB

 820,4925 MHz
 -8,18 dbm
 Q factor
 Type Ref Trc Type Ref Trc



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Report No.: FG911635D LTE Band 26 Lowest Channel / 5MHz / QPSK Lowest Channel / 5MHz / 16QAM Ref Level 30.00 dBm

Att 30 dB

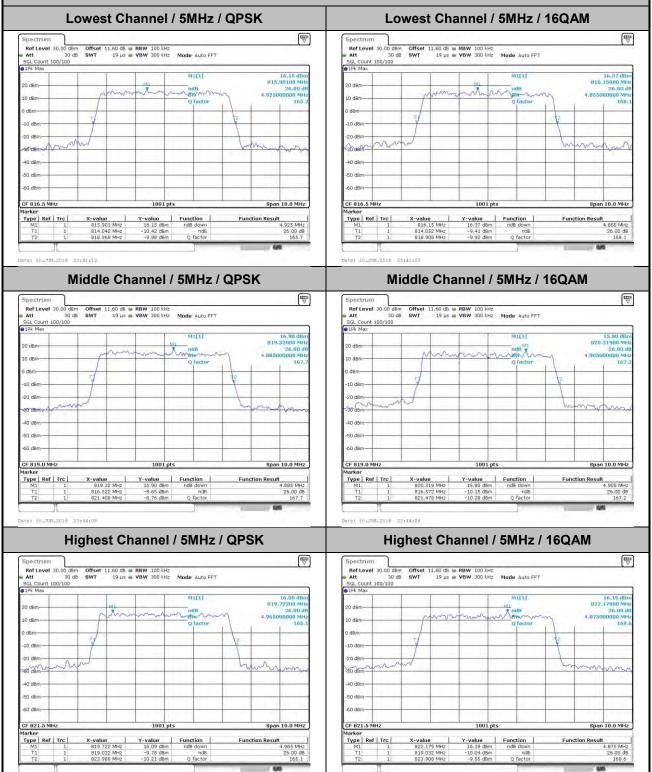
SGL Count 100/100

1Pk Max 16.15 dBr 815,90100 MF 26.80 d 4.925000000 MF 165 -10 dBm 36 ABA Span 10.0 MHz CF 816.5 MHz Span 10.0 MHz Type Ref Trc Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM 7 11.60 dB **RBW** 100 kHz 19 µs **WBW** 300 kHz **Mode** Auto FFT Offset 11,60 dB • RBW 100 kHz SWT 19 µs • VBW 300 kHz Mode Auto FFT 16.90 dBr 819,32000 MH 26.00 d 4.885000000 MH 167. 15.90 dBn 820.31900 Mi Function Result 4.885 MHz 26.00 dB 167.7 Function Result 4.905 MHz 25.00 dB 167.2 
 X-value
 Y-value
 Function

 819.32 MHz
 16.90 dbm
 ndB down

 916.522 MHz
 -8.65 dbm
 ndB

 921.408 MHz
 -8.76 dbm
 Q factor
 Type Ref Trc Type Ref Trc Highest Channel / 5MHz / QPSK Highest Channel / 5MHz / 16QAM ∇ Ref Level 30.00 Offset 11,60 dB = RBW 100 kHz SWT 19 µs = VBW 300 kHz SGL Count 100/100 Mode Auto FFT 16.19 dBi 822.17900 MH 16.09 dB 819.72288 M



Type | Ref | Trc |

FAX: 886-3-328-4978

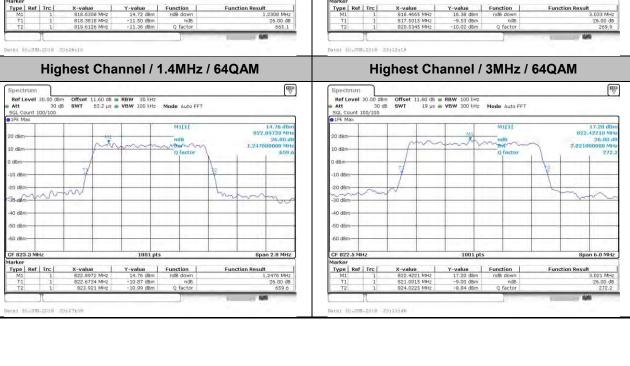
LTE Band 26 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100 17.90 dBr 816.7220 MH 26.00 d 9.750000000 MH 83. -10 dBm Span 20.0 MHz CF 819.0 MHz Span 20.0 MHz Type | Ref | Trc | Lowest Channel / 15MHz / QPSK Lowest Channel / 15MHz / 16QAM 7 7 11.60 dB **RBW** 300 kHz 12.6 µs **VBW** 1 MHz **Mode** Auto FFT 11,60 dB **RBW** 300 kHz 12.6 µs **VBW** 1 MHz **Mode** Auto FFT 16.38 dBn 818.3530 MH 26.00 dE 14.326000000 MH 57. 16.20 dBn 815.0560 MHz 26.00 dB 40 dBm

> Function Result 14.326 MHz 26.00 dB 57.1

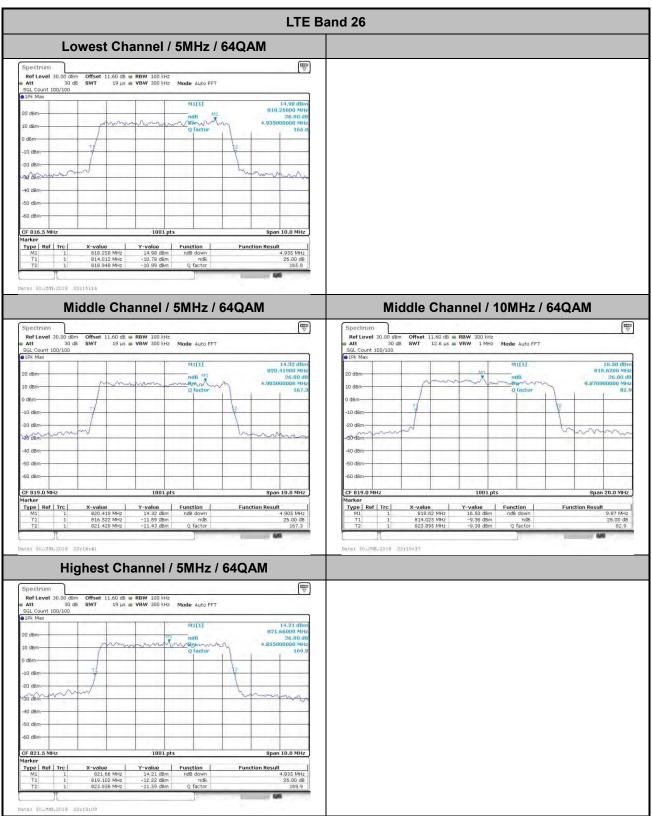
Report No.: FG911635D

Function Result 14.565 MHz 26.00 dB 56.0

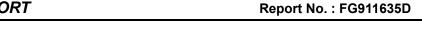
Report No.: FG911635D LTE Band 26 Lowest Channel / 1.4MHz / 64QAM Lowest Channel / 3MHz / 64QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100 15.78 dBi 814.69440 MF 26.80 d 1.216800000 MF 669 274. Span 2.8 MHz 6.0 MHz Type | Ref | Trc | Middle Channel / 1.4MHz / 64QAM Middle Channel / 3MHz / 64QAM 7 Offset 11,60 dB • RBW 100 kHz SWT 19 µs • VBW 300 kHz Mode Auto FFT 11,60 dB **RBW** 30 kHz 63.2 μs **VBW** 100 kHz **Mode** Auto FFT 14.72 dBi 818.63080 A 16.38 dBn 818.4665n Av Function Result 1,2308 MHz 25.00 dB 565.1 Function Result 3,033 MHz 26,00 dB 269,9 Type Ref Trc Type Ref Trc Highest Channel / 1.4MHz / 64QAM Highest Channel / 3MHz / 64QAM ∇ Offset 11,60 dB = RBW 100 kHz SWT 19 µs = VBW 300 kHz SGL Count 100/100 17.20 dBn 822.42210 MH: 26.00 dB 14.76 dB 822.89720 M

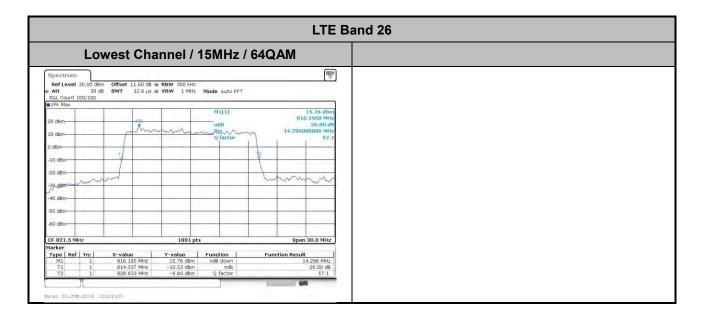


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## Occupied Bandwidth

Mode					LTE Ba	and 26 :	99%OBV	V(MHz)				
BW	1.4MHz 3MHz				5N	lHz	101	10MHz		ИHz	20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.09	1.08	2.72	2.71	4.50	4.49	-	-	13.43	13.43	-	-
Middle CH	1.09	1.09	2.71	2.73	4.50	4.50	9.07	8.91	-	-	-	-
Highest CH	1.10	1.09	2.72	2.73	4.50	4.51	-	-	-	-	-	-
Mode					LTE Ba	and 26 :	99%OBV	V(MHz)				
BW	1.4	ИНz	3M	lHz	5N	1Hz 10MHz		15MHz		20MHz		
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	1.10	-	2.73	-	4.48	-	-	-	13.46	-	-	-
Middle CH	1.09	-	2.72	-	4.51	-	9.03	-	-	-	-	-
Highest CH	1.09	-	2.73	-	4.48	-	-	-	-	-	-	-

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Report No.: FG911635D LTE Band 26 Lowest Channel / 1.4MHz / QPSK Lowest Channel / 1.4MHz / 16QAM 7 7 Ref Level 30.00 dBm Att 30 dB SGL Count 180/100 40 dBm CF 814.7 MHz 
 X-value
 Y-value
 Function

 814,9937 MHz
 17,53 dBm

 914.15175 MHz
 10,75 dBm
 Occ BW

 815,23986 MHz
 9,80 dBm
 Type Ref Trc 
 X-value
 Y-value
 Function

 814,3895 MHz
 16.78 dBm
 914.16014 MHz
 10.71 dBm
 Occ BW

 815,24256 MHz
 8.64 dBm
 0.64 dBm
 < Type | Ref | Trc | **Function Result Function Result** 1.088111888 MHz 1.082517483 MHz Middle Channel / 1.4MHz / QPSK Middle Channel / 1.4MHz / 16QAM \(\frac{\triangle}{\triangle}\) V Ref Level 30.00 dBm

Att 30 dB

SGL Count 100/100

1Pk Max Ref Level 30.0 Att 16.96 dBr #19.50040 MH 1.088111888 MH MITT -30 dBro Type | Ref | Trc | **Function Result** Type | Ref | Trc | Function X-value Y-value 819.1483 MHz 17.65 dBm 818.5804 MHz 16.86 dBm 818.45455 MHz 10.26 dBm Occ Bw 819,54266 MHz 9.58 dBm 819.1483 MHz 17.65 dBm 818.46014 MHz 11.02 dBm Occ BW 819.54825 MHz 9.72 dBm 1.088111888 MHz 1.088111888 MHz Highest Channel / 1.4MHz / QPSK Highest Channel / 1.4MHz / 16QAM \(\frac{\pi}{\pi}\) Ref Level 30.00 dBm • Att 30 dB SGL Count 100/100 • 1Pk Max MILIT 17.35 dB 16.99 dBn 10 dBm--10 dBm -60 dBm-

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1.096503497 MHz

Type Ref Trc

FAX: 886-3-328-4978

Type | Ref | Trc |

X-value Y-value Function 823.4091 MHz 17.35 dbm 822.74615 MHz 9.59 dbm Occ BW 823.84266 MHz 12.05 dbm

Report No.: FG911635D LTE Band 26 Lowest Channel / 3MHz / QPSK Lowest Channel / 3MHz / 16QAM Ref Level 30.00 dBm Att 30 dB SGL Count 100/100 18.74 dB: 015.00570 MH 2.721278721 MH -10 dВп 40 dBm 60 dBm CF 815.5 MHz Span 6.0 MHz Y-value 18.74 dBm 11.96 dBm 12.59 dBm Y-value 18.04 dBm 12.35 dBm 12.09 dBm Type Ref Trc Function **Function Result** Type | Ref | Trc | Middle Channel / 3MHz / QPSK Middle Channel / 3MHz / 16QAM 7 ₩ ∇ Offset 11,60 dB • RBW 100 kHz SWT 19 µs • VBW 300 kHz Mode Auto FFT 18.09 dB: 819,32970 MF 2,709290709 MF 40 dBn 40 dBm CF 819.0 MHz Type Ref Trc 
 X-value
 Y-value
 Function

 819.3297 MHz
 18.09 dBm
 819.3297 MHz

 817.63337 MHz
 12.58 dBm
 Occ BW

 820.34266 MHz
 11.60 dBm
 Type Ref Trc 
 X-value
 Y-value
 Function

 817,7473 MHz
 17,35 dBm
 917,69337 MHz

 817,69337 MHz
 11,91 dBm
 Occ BW

 820,36663 MHz
 11,52 dBm
 **Function Result Function Result** 2.709290709 MHz 2.733266733 MHz Highest Channel / 3MHz / QPSK Highest Channel / 3MHz / 16QAM ∇ ∇ Ref Level 30.00 dBm Offset 11.60 dB RBW 100 Hz Att 30 dB SWY 19 µs VBW 300 kHz Mode Auto FFT SGL count 100/100 18.81 dB: 823.24330 MF 2.715284715 MF 18.14 dBm 821.22330 MHs 2.727272727 MHs

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CF 822.5 MH

Type Ref Trc

X-value Y-value Function 821.2233 MHz 18.14 dBm

Occ Bw

**Function Result** 

2.727272727 MHz

Span 6.0 MHz

2.715284715 MHz

FAX: 886-3-328-4978

Type | Ref | Trc |

X-value Y-value Function 823.2433 MHz 18.81 dBm

12.09 dBm Occ Bw 12.55 dBm

Report No.: FG911635D LTE Band 26 Lowest Channel / 5MHz / QPSK Lowest Channel / 5MHz / 16QAM 7 Ref Level 30.00 dBm

Att 30 dB

SGL Count 100/100

Pk Max 16.24 dB 814.55200 MF mtunmummy -10 dBm -10 dBr 20 dBm 40 dBm 60 dBn 1001 pts Span 10.0 MHz CF 816.5 MHz Y-value Function

16.34 dBm

8.79 dBm Occ BW

11.07 dBm X-value 815.091 MHz 814.25225 MHz 818.73776 MHz Y-value 15.37 dBm 10.57 dBm 10.27 dBm Type Ref Trc Type | Ref | Trc | Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM ₩ 7 16.00 dB: 817.01200 MF 4.495504496 MF 30"dBm 30 AB 40 dBm 40 dBm 50 d8m-CF 819.0 MHz Type Ref Trc 
 X-value
 Y-value
 Function

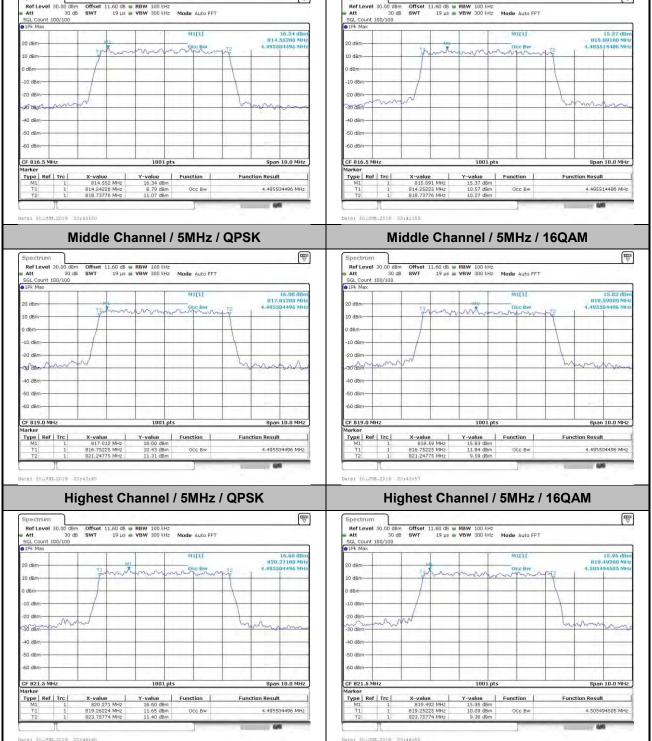
 817.012 MHz
 16.00 dBm
 816.75225 MHz
 10.43 dBm
 Occ BW

 812.24775 MHz
 11.31 dBm
 0cc BW
 0cc BW</t Type Ref Trc 
 X-value
 Y-value
 Function

 918.59 MHz
 15.83 dBm

 916.75225 MHz
 11.94 dBm
 Occ BW

 821.24775 MHz
 9.59 dBm
 **Function Result Function Result** 4.4955B4496 MHz 4.495504496 MHz Highest Channel / 5MHz / QPSK Highest Channel / 5MHz / 16QAM ∇ ∇ Ref Level 30.00 dBm Offset 11,60 dB RBW 100 Hz
Att 30 dB SWT 19 µs VBW 300 kHz Mode Auto FFT
SGL count 100/100 16.60 dB: 920.27100 MH 4.495584496 MH



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LTE Band 26 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 dBm

Att 30 dB

SGL Count 100/100

Pk Max 17.67 dBr 915.0640 MH 9.070929071 MH 18,15 dBn 016,5420 MH; 8,911088911 MH; -10 dBm -10 dBn -40 dBm 40 dBm 1001 pts CF 819.0 MHz Span 20.0 MHz CF 819.0 MHz Span 20.0 MHz X-value 815.064 MHz 814.4446 MHz 823.5155 MHz Y-value Function
17.67 dBm
12.42 dBm Occ BW
12.13 dBm Type Ref Trc Function **Function Result** Type Ref Trc 9.070929071 MHz LTE Band 26 Lowest Channel / 15MHz / QPSK Lowest Channel / 15MHz / 16QAM Ref Level 30.00 dBm Offset 11.60 db = RBW 300 kHz att 30 db SWT 12.6 µs = VBW 1 MHz Mode Auto FFT 61.4 Max ₩ V 16.74 dBn 820.4518 MH 13.426573427 MH 10 dBm--10 dBm 39.dBm 50 dBm -60 dBm

 Type
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 825.246 MHz
 16.07 dBm

Report No.: FG911635D

**Function Result** 

13.426573427 MHz

Occ BW

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FAX: 886-3-328-4978

Marker
Type Ref Trc

X-value Y-value Function 820.451 MHz 16.74 dBm

10.74 dBm 11.79 dBm Occ BW 12.39 dBm

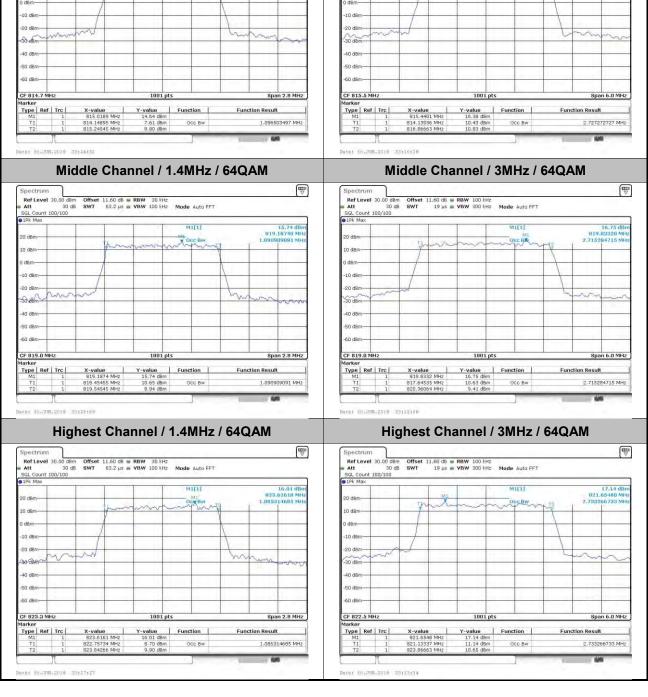
13.426573427 MHz

Report No.: FG911635D LTE Band 26 Lowest Channel / 1.4MHz / 64QAM Lowest Channel / 3MHz / 64QAM V Ref Level 30.00 dBm Att 30 dB SGL Count 180/100 X-value Y-value Function 815.0189 MHz 14.64 dBm 914.14895 MHz 7.61 dBm Occ Bw 815.24545 MHz 8.80 dBm Type Ref Trc 
 X-value
 Y-value
 Function

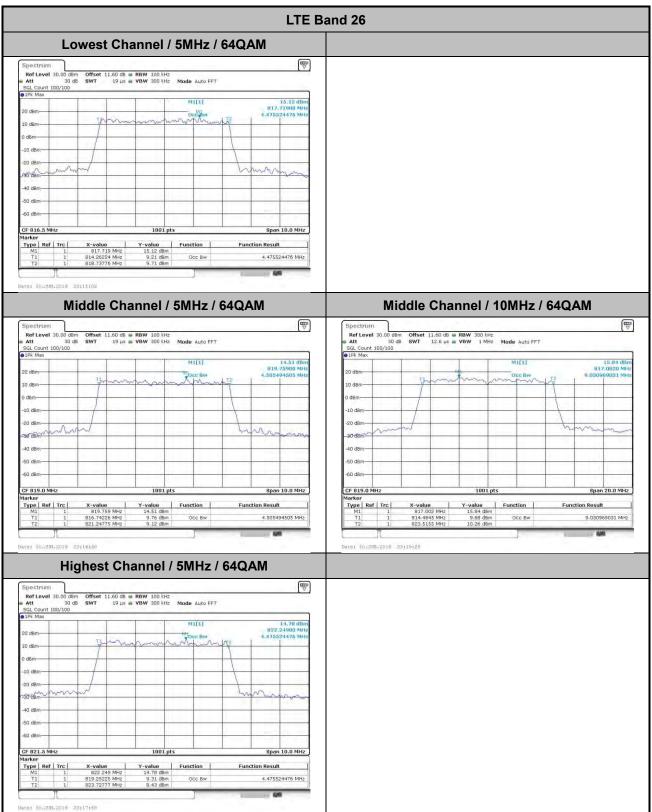
 815.4401 MHz
 16.38 dBm
 914.13936 MHz
 10.43 dBm
 Occ BW

 816.86663 MHz
 10.83 dBm
 10.83 dBm
 Occ BW
 Type | Ref | Trc | **Function Result** 1-096503497 MHz 2.727272727 MHz Middle Channel / 1.4MHz / 64QAM Middle Channel / 3MHz / 64QAM V Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100 15.74 dB: 019.10740 MH 1.090909091 MH 16.75 dBn #19.#3320 MH; 2.715284715 MH; MILIT MILLI m 50 dBm 
 X-value
 Y-value
 Function

 819.1874 MHz
 15.74 dBm
 Type | Ref | Trc | **Function Result** Type | Ref | Trc | Function X-value Y-value 819.8332 MHz 16.75 dBm 819.1874 MHz 15.74 dBm 818.45455 MHz 10.65 dBm Occ BW 819.54545 MHz 8.94 dBm 1.090909091 MHz Occ Bw 2.715284715 MHz Highest Channel / 1.4MHz / 64QAM Highest Channel / 3MHz / 64QAM \(\frac{\pi}{\pi}\) Ref Level 30.00 dBm • Att 30 dB SGL Count 100/100 • 1Pk Max 17,14 dBm 821,65480 MHz 2,733266733 MHz MILIT 16.01 dB MILLI 10 dBm-



Report No.: FG911635D

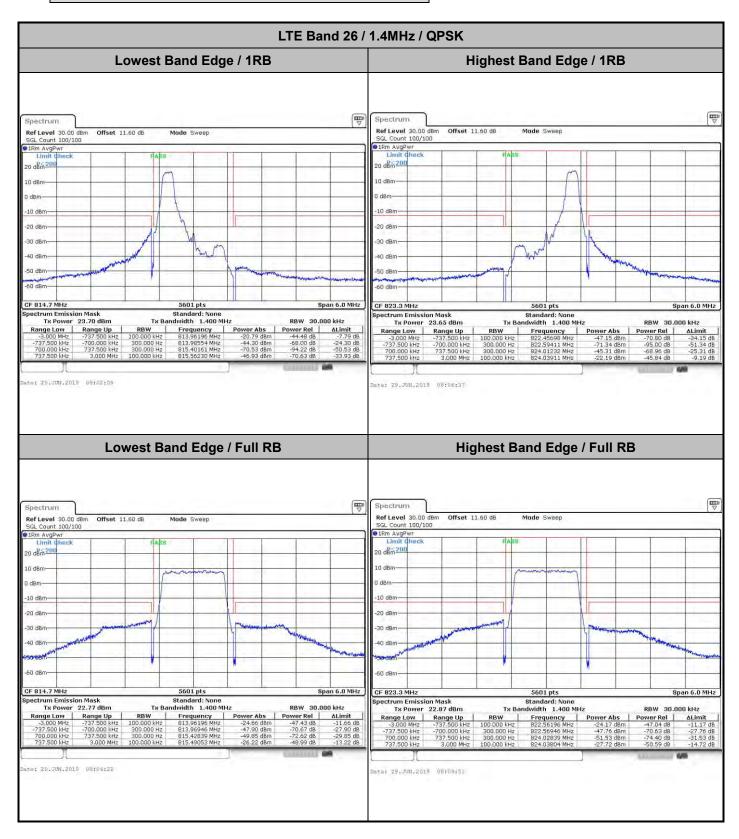


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### Emission masks - In-band emissions



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LTE Band 26 / 1.4MHz / 16QAM Lowest Band Edge / 1 RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm GL Count 100/100 GL Count 100/100 20 dBm2 10 dBm dBmdBm -10 dBm -10 dBm 20 dBm -20 dBm 30 dBm 30 dBm MV 40 dBm 40 dBm 50 dBm 50 dBm CF 814.7 MHz 5601 pts Span 6.0 MHz Standard: None Tx Bandwidth 1.400 MHz | Registration | Regi Standard: None Idwidth 1.400 MHz Frequency Power Abs 813.96196 MHz -18.60 dBi 813.96768 MHz -43.51 dBi 815.40161 MHz -72.68 dBi 815.46267 MHz -47.19 dBi Range Low Range Up RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 822.54697 MHz
 -46.95 dBm

 822.59089 MHz
 -73.14 dBm

 824.00161 MHz
 -44.30 dBm

 824.004339 MHz
 -20.86 dBm
 | Power Rel | ΔLimit | | -70.09 dB | -33.95 dB | | -96.29 dB | -53.14 dB | | -67.44 dB | -24.30 dB | | -44.01 dB | -7.86 dB | ate: 29.JUN.2019 08:83:16 Date: 29.JUN.2019 08:07:44 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 Offset 11.60 dB Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o dBm2 20 dBr 5601 pts 5601 pts oectrum Emission Mask Tx Power 21.88 dBm Standard: None Tx Bandwidth 1.400 MHz ectrum Emission Mask Tx Power 22.00 dBm Tx Bandwidth 1,400 MHz Frequency 03840 MHz Range Low Range Up Power Rel ALimit 
 Frequency
 Power Abs

 822.53947 MHz
 -24.57 dBn
 te: 29.JUN.2019 08:05:29 Date: 29.JUN.2019 08:09:57

Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-20 of 44

LTE Band 26 / 1.4MHz / 64QAM Lowest Band Edge / 1 RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBmdBm -10 dBm -10 dBm 20 dBm -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm 50 dBm 60 dBm CF 814.7 MHz 5601 pts Span 6.0 MHz Standard: None Tx Bandwidth 1.400 MHz Standard: None Idwidth 1.400 MHz Frequency Power Abs 813.95768 MHz -22.01 dB 813.98875 MHz -45.67 dB 815.41768 MHz -72.53 dB 815.65122 MHz -46.80 dB Range Low Range Up | Power Rel | ALimit | -44.48 dB | -9.01 | -69.14 dB | -25.67 | -95.00 dB | -52.53 | -69.27 dB | -33.80 RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 822.38092 MHz
 -47.32 dBm

 822.58446 MHz
 -72.96 dBm

 824.0991 MHz
 -46.43 dBm

 824.04232 MHz
 -23.91 dBm
 Power Rel ALimit
-69.94 dB -34.32 dB
-95.58 dB -52.96 dB
-69.05 dB -26.43 dB
-46.53 dB -10.91 dB te: 30.JUN.2019 22:51:17 Date: 30.JUN.2019 22:53:31 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 Offset 11.60 dB Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o dBm2 20 dBr 40 dBm 5601 pts 5601 pts oectrum Emission Mask Tx Power 21.41 dBm Standard: None Tx Bandwidth 1.400 MHz ectrum Emission Mask Tx Power 21.52 dBm Tx Bandwidth 1,400 MHz RBW 30,000 kHz Frequency 813.95768 MHz Range Low Range Up Power Rel ΔLimit -45.39 dB -10.98 Frequency Power Abs 822.51804 MHz -24.69 dBn te: 30.JUN.2019 22:52:24 Date: 30.JUN.2019 22:54:37

Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-21 of 44

LTE Band 26 / 3MHz / QPSK Lowest Band Edge / 1RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm GL Count 100/100 GL Count 100/100 20 dBm2 10 dBm dBm -10 dBm -10 dBm -20 dBm -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm 50 dBm milly hu CF 815.5 MHz 5601 pts Span 10.0 MHz GF 822.5 MHz
Spectrum Emission Mask
Tx Power 23.63 dBm
Range Low Range Up
-5,000 MHz -1.538 MHz
-1.538 MHz -1.500 MHz
1.538 MHz 1.538 MHz
1.538 MHz 5,000 MHz Standard: None Tx Bandwidth 3.000 MHz Standard: None Idwidth 3.000 MHz Range Low Range Up ### Prequency Power Abs | ### 14.52 dBm | ### 14.52 dBm | ### 14.52 dBm | ### 14.52 dBm | ### 17.00446 MHz | ### 17.06 dBm | ### 17.04375 MHz | ### 147.66 dBm | ### 17.04375 MHz | ### 147.66 dBm | ### 147.60 dB RBW 100.000 kHz 300.000 Hz 300,000 Hz 100.000 kHz 
 Frequency
 Power Abs

 820.96161 MHz
 -44.62 dBm

 820.99554 MHz
 -67.38 dBm

 824.01161 MHz
 -37.72 dBm

 824.03839 MHz
 -13.04 dBm

 Power Rel
 ALimit

 -68.24 dB
 -31.62 dB

 -91.01 dB
 -47.38 dB

 -61.35 dB
 -17.72 dB

 -36.67 dB
 -0.04 dB
 ΔLimit ate: 29.JUN.2019 09:11:06 ate: 29.JUN.2019 08:15:42 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** W. Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 Offset 11.60 dB Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o dBm2 10 dBm -10 dBm 20 dBr 50 dBm 5601 pts 5601 pts pectrum Emission Mask Tx Power 22.78 dBm Standard: None Tx Bandwidth 3.000 MHz ectrum Emission Mask Standard: None Tx Bandwidth 3.000 MHz Tx Power 22.93 dBm RBW 30,000 kHz Frequency 913 96161 MHz Range Low Range Up Power Rel ALimit Frequency Power Abs 820.96161 MHz -21.19 dBn te: 29.JUN.2019 08:13:24 Date: 29.JUN.2019 08:17:59

Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-22 of 44

LTE Band 26 / 3MHz / 16QAM Lowest Band Edge / 1 RB Highest Band Edge /1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm dBm -10 dBm -10 dBm -20 dBm -20 dBm 30 dBm 40 dBm 40 dBm 50 dBm 50 dBm CF 815.5 MHz 5601 pts Span 10.0 MHz rectrum Emission Mask
TX Power 22.80 dBm
Range Low Range Up
-5.000 MHz -1.538 MH; | Separation | Sep Standard: None Tx Bandwidth 3.000 MHz Standard: None Idwidth 3.000 MHz Frequency Power Abs

813.96161 MHz -15.71 dBm

813.99911 MHz -38.12 dBm

817.00268 MHz -73.85 dBm

818.05804 MHz -50.63 dBm RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 820.95089 MHz
 -48.19 dBm

 820.99196 MHz
 -71.25 dBm

 824.01339 MHz
 -39.58 dBm

 824.04196 MHz
 -15.66 dBm
 Power Rel ALimit
-71.40 d8 -35.19 d8
-94.47 d8 -51.25 d8
-62.79 d8 -19.58 d8
-38.87 d8 -2.66 d8 ΔLimit ate: 29.JUN.2019 08:12:15 ate: 29.JUN.2019 08:16:51 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** W. Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm Offset 11.60 dB SGL Count 100/100 Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o dBm2 -10 dBm 20 dBr 50 dBm 60 dBm CF 815.5 MHz 5601 pts 5601 pts oectrum Emission Mask Tx Power 21.89 dBm Standard: None Tx Bandwidth 3.000 MHz ectrum Emission Mask Standard: None Tx Bandwidth 3.000 MHz Tx Power 21.92 dBm RBW 30,000 kHz Frequency 913 94554 MHz Range Low Range Up Power Rel ALimit Frequency Power Abs 820.95804 MHz -22.32 dBn te: 29.JUN.2019 08:14:33 Date: 29.JUN.2019 08:19:07

Report No.: FG911635D

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Report No.: FG911635D LTE Band 26 / 3MHz / 64QAM Lowest Band Edge / 1 RB Highest Band Edge /1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm dBm -10 dBm -10 dBm -20 dBn -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm 50 dBm 50 dBm 60 dBm CF 815.5 MHz 5601 pts Span 10.0 MHz rectrum Emission Mask
TX Power 22.09 dBm
Range Low Range Up
-5.000 MHz -1.538 MH; | Separation | Sep Standard: None Tx Bandwidth 3.000 MHz Standard: None Idwidth 3.000 MHz Frequency Power Abs 813.96161 MHz -18.26 d8 813.99911 MHz -40.22 d8 817.02768 MHz -75.16 d8 818.54018 MHz -46.81 d8 RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 820.01518 MHz
 -48.48 dBm

 820.97768 MHz
 -77.41 dBm

 824.00446 MHz
 -41.20 dBm

 824.03839 MHz
 -15.45 dBm
 | Power Rel | ΔLimit | | -71.15 dB | -35.48 dB | | -100.08 dB | -57.41 dB | | -63.87 dB | -21.20 dB | | -38.12 dB | -2.45 dB | ΔLimit te: 30.JUN.2019 22:55:45 ate: 30.JUN.2019 22:58:00 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm Offset 11.60 dB SGL Count 100/100 Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o des 20 -10 dBm 20 dBr 50 dBm 60 dBm CF 815.5 MHz 5601 pts 5601 pts oectrum Emission Mask Tx Power 21.44 dBm Standard: None Tx Bandwidth 3.000 MHz ectrum Emission Mask Standard: None Tx Bandwidth 3.000 MHz Tx Power 21.58 dBm RBW 30,000 kHz Frequency 212 04375 MHz | Power Rel | ALimit | -46.11 dB -11.67 | -69.11 dB -27.67 | -67.59 dB -26.15 | -46.56 dB -12.12 Range Low Range Up Frequency Power Abs 820.93839 MHz -25.68 dBn

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Date: 30.JUN.2019 22:59:21

FAX: 886-3-328-4978

te: 30.JUN.2019 22:56:52

LTE Band 26 / 5MHz / QPSK Lowest Band Edge / 1 RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm dBm -10 dBm -10 dBm -20 dBm -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm 50 dBr CF 816.5 MHz 5601 pts Span 15.0 MHz P 816.3 MHz
sectrum Emission Mask
Tx Power 23.47 dBm
Range Low Range Up
-7.500 MHz -2.538 MH. | September | Sept Standard: None Tx Bandwidth 5.000 MHz Standard: None Idwidth 5.000 MHz 
 Frequency
 Power Abs

 813.96116 MHz
 -23.46 dBm

 813.99866 MHz
 -44.12 dBm

 819.01473 MHz
 -79.66 dBm

 820.83413 MHz
 -51.14 dBm
 Power Rel -46.93 dB -67.60 dB -103.13 dB -74.61 dB ΔLimit -10.46 dB -24.12 dB -59.66 dB -38.14 dB RBW 100.000 kHz 300.000 Hz 300,000 Hz 100.000 kHz 
 Frequency
 Power Abs

 817.15783 MHz
 -49.89 dBm

 818.98795 MHz
 -78.92 dBm

 824.00134 MHz
 -45.52 dBm

 824.04688 MHz
 -22.67 dBm
 | Power Rel | ΔLimit | | -73.29 dB | -36.89 dB | | -102.32 dB | -58.92 dB | | -68.92 dB | -25.52 dB | | -46.07 dB | -9.67 dB ate: 29.JUN.2019 08:20:14 ate: 29.JUN.2019 08:24:41 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** W. Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 Offset 11.60 dB Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o dBm2 -10 dBm 20 dBr 50 dBm 60 dBm 5601 pts CF 821.5 MHz 5601 pts oectrum Emission Mask Tx Power 22.96 dBm Standard: None Tx Bandwidth 5.000 MHz ectrum Emission Mask Tx Power 22.88 dBm Tx Bandwidth 5,000 MHz RBW 50,000 kHz Range Low Range Up Frequency 813,96116 MHz Power Rel ALimit Frequency Power Abs 818.94508 MHz -26.60 dBn te: 29.JUN.2019 08:22:28 Mate: 29.JUN.2019 08:26:55

Report No.: FG911635D

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LTE Band 26 / 5MHz / 16QAM Lowest Band Edge / 1RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm dBm -10 dBm -10 dBm 20 dBm -20 dBm 30 dBm 40 dBm 40 dBm 50 dBn F 816.5 MHz
sectrum Emission Mask
Tx Power 22.79 dBm
Range Low Range Up
-7.500 MHz -2.538 MHz
-2.538 MHz -2.500 MHz
2.538 MHz -2.538 MHz
2.538 MHz -7.500 MHz CF 816.5 MHz 5601 pts Span 15.0 MHz | GF 821.5 MHz | Spectrum Emission Mask | Tx Power | 22.83 dBm | Range Lp | 7.9500 MHz | 2.538 MHz | 2.558 MHz | 2.538 MHz | 2 tandard; Non-width 5.000 MHz

Frequency Power Abs
813.9616 MHz -21.52 dBm
813.99866 MHz -45.01 dBm
2.1005 MHz -51.65 dBm
-51.65 dBm Standard: None Tx Bandwidth 5.000 MHz Standard: None Idwidth 5.000 MHz ΔLimit RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 817.24894 MHz
 -49.65 dBm

 818.96384 MHz
 -80.15 dBm

 824.00134 MHz
 +46.76 dBm

 824.003884 MHz
 -20.83 dBm
 | Power Rel | ALimit | -72.48 dB | -36.65 dB | -102.98 dB | -60.15 dB | -69.59 dB | -26.76 dB | -43.66 dB | -7.83 dB | -7 ate: 29.JUN.2019 08:21:21 ate: 29.JUN.2019 08:25:48 Lowest Band Edge / Full RB **Highest Band Edge / Full RB** W. Spectrum Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 Offset 11.60 dB Made Sweep SGL Count 100/100 ●1Rm AvgPw 20 dBm 200 o dBm2 -10 dBm 20 dBr 50 dBm 60 dBm 5601 pts CF 821.5 MHz 5601 pts pectrum Emission Mask Tx Power 22.03 dBm Standard: None Tx Bandwidth 5.000 MHz ectrum Emission Mask Tx Power 21.94 dBm Tx Bandwidth 5,000 MHz RBW 50,000 kHz Frequency Power Rel ΔLimit -50.97 d8 -15.93 Range Low Range Up Frequency Power Abs 818.96116 MHz -26.72 dBn te: 29.JUN.2019 08:23:35 Mate: 29.JUN.2019 08:28:02

Report No.: FG911635D

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LTE Band 26 / 5MHz / 64QAM Lowest Band Edge / 1RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm dBm -10 dBm -10 dBm 20 dBn -20 dBm 30 dBm 40 dBm 40 dBm 50 dBm -50 dBm CF 816.5 MHz 5601 pts Span 15.0 MHz Standard: None ndwidth 5.000 MHz Standard: None Idwidth 5.000 MHz RBW 50.000 kHz Tx Power 21.99 dom

Range Low Range Up

2.538 MH 
 Frequency
 Power Abs

 813.96116 MHz
 -21.87 dBm

 813.99598 MHz
 -46.82 dBm

 819.03616 MHz
 -82.06 dBm

 820.81805 MHz
 -51,30 dBm
 | Power Rel | ALimit | -43.86 dB | -8.87 | -68.81 dB | -26.82 | -104.04 dB | -62.06 | -73.28 dB | -38.30 RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 817.15247 MHz
 -50.17 dBm

 818.99330 MHz
 -91.56 dBm

 824.00134 MHz
 -45.49 dBm

 824.03884 MHz
 -24.73 dBm
Power Rel	ΔLimit
-72.13 dB	-37.17 dB
-103.53 dB	-61.56 dB
-67.45 dB	-25.49 dB
-46.70 dB	-11.73 dB

Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-27 of 44

Report No.: FG911635D LTE Band 26 / 10MHz / QPSK Lowest Band Edge / 1 RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm--10 dBm -10 dBm -20 dBm -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm 50 dBr -50 dBn CF 819.0 MHz 5601 pts Span 20.0 MHz rectrum Emission Mask
Tx Power 23.11 dBm
Range Low Range Up
-10.000 MHz -5.038 MH; Standard: None Tx Bandwidth 10.000 MHz Standard: None Idwidth 10.000 MHz | Power Rel | ALimit |
-59.28 dB	-23.17 dB
-83.06 dB	-39.95 dB
-102.56 dB	-59.45 dB
-74.83 dB	-38.72 dB
 Frequency
 Power Abs

 813.95357 MHz
 -50.86 dBm

 813.99813 MHz
 -75.55 dBm

 824.00188 MHz
 -58.22 dBm

 824.03929 MHz
 -35.63 dBm
 | Power Rel | ALimit | -74.12 dB | -37.86 dB | -98.81 dB | -55.55 dB | -81.48 dB | -38.22 dB | -58.89 dB | -22.63 dB ate: 29.JUN.2019 08:29:08 Date: 29.JUN.2019 08:31:22 Band Edge / Full RB **₩** Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep SGL Count 100/100 1Rm AvgPwr Limit Check PASS 20 dBm 200 10 dBm-0 dBm -10 dBm--20 dBm -30 dBm -50 dBm--60 dBm-Span 20.0 MHz 5601 pts Spectrum Emission Mask Standard: None RBW 100,000 kHz Tx Power 22.97 dBm Tx Bandwidth 10.000 MHz -10.000 MHz -5.038 MHz -5.000 MHz Power Abs -30.53 dBm -54.48 dBm -55.14 dBm -32.91 dBm Power Rel -53.49 dB -77.44 dB -78.11 dB -55.87 dB 
 Range Up
 RBW

 -5.038 MHz
 100.000 kHz

 -5.000 MHz
 300.000 Hz

 5.038 MHz
 300.000 Hz
 Frequency 813.92499 MHz 813.97938 MHz 824.01313 MHz -35.14 dB -19.91 dB

TEL: 886-3-327-3456 Page Number : A26S-28 of 44

FAX: 886-3-328-4978

Date: 29.JUN.2019 08:33:35

LTE Band 26 / 10MHz / 16QAM Lowest Band Edge / 1 RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm--10 dBm -10 dBm 20 dBm -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm 50 dBr -50 dBm CF 819.0 MHz 5601 pts Span 20.0 MHz Standard: None Tx Bandwidth 10.000 MHz Standard: None Idwidth 10.000 MHz Range Low Range Up | Power Rel | ALimit | -57,24 dB | -21,97 dB | -81,51 dB | -39,24 dB | -103,81 dB | -61,53 dB | -74,34 dB | -39,07 dB RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 810.24152 MHz
 -53.31 dBm

 813.99813 MHz
 -80.04 dBm

 824.00188 MHz
 -59.01 dBm

 824.00787 MHz
 -38.50 dBm
 | Power Rel | ΔLimit | | -75.83 dB | -40.31 dB | | -102.56 dB | -60.04 dB | | -81.53 dB | -39.01 dB | | -61.02 dB | -25.50 dB | ate: 29.JUN.2019 08:30:15 Date: 29.JUN.2019 08:32:26 Band Edge / Full RB **₩** Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep SGL Count 100/100 1Rm AvgPwr Limit Check PASS 20 dBm 200 10 dBm 0 dBm -10 dBm--20 dBm -30 dBm 40 dBm -50 dBm--60 d8m-Span 20.0 MHz 5601 pts Spectrum Emission Mask Standard: None Tx Power 19.73 dBm

Range Low Range Up
-10.000 MHz -5.038 MH
-5.038 MHz 5.000 MHz 5.038 MH RBW 100,000 kHz Tx Bandwidth 10.000 MHz Power Abs -35.61 dBm -59.38 dBm -61.01 dBm -36.16 dBm Power Rel -55.34 dB -79.11 dB -80.74 dB -55.88 dB ALimit -22.61 dB -39.38 dB -41.01 dB -23.16 dB 
 Range Up
 RBW

 -5.038 MHz
 100.000 kHz

 -5.000 MHz
 300.000 Hz

 5.038 MHz
 300.000 Hz
 Frequency 813.96071 MHz 813.99437 MHz 824.01688 MHz

Report No.: FG911635D

TEL: 886-3-327-3456 Page Number: A26S-29 of 44

FAX: 886-3-328-4978

Date: 29.JUN.2019 08:34:42

Report No.: FG911635D LTE Band 26 / 10MHz / 64QAM Lowest Band Edge / 1 RB Highest Band Edge / 1 RB Spectrum Offset 11.60 dB Mode Sweep Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm SGL Count 100/100 1Rm AvgPwr GL Count 100/100 20 dBm2 10 dBm dBm--10 dBm -10 dBm 20 dBm -20 dBm 30 dBm 30 dBm 40 dBm 40 dBm-50 dBm CF 819.0 MHz 5601 pts Span 20.0 MHz Standard: None Tx Bandwidth 10.000 MHz Standard: None Idwidth 10.000 MHz Power Rel ALimit
1 -59.29 dB -24.34 dB
1 -83.45 dB -41.50 dB
1 -104.81 dB -62.86 dB
1 -73.74 dB -38.79 dB Range Low Range Up RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 810.20579 MHz
 -52.16 dBm

 813.99063 MHz
 -82.59 dBm

 824.00188 MHz
 -62.30 dBm

 824.03929 MHz
 -38.19 dBm
 | Power Rel | ΔLimit | | -73.78 dB | -39.16 dB | | -104.21 dB | -62.59 dB | | -83.92 dB | -42.30 dB | | -59.81 dB | -25.19 dB | ate: 30.JUN.2019 23:04:54 Date: 30.JUN.2019 23:06:01 Band Edge / Full RB Spectrum Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep SGL Count 100/100 1Rm AvgPwr Limit Check PASS 20 dBm 200 10 dBm 0 dBm -10 dBm--20 dBm -50 dBm -60 dBm-Span 20.0 MHz 5601 pts Spectrum Emission Mask Standard: None RBW 100,000 kHz Tx Power 21.55 dBm Tx Bandwidth 10.000 MHz Ronge Up RBW
-5.038 MHz 100.000 kHz
-5.000 MHz 300.000 Hz
5.038 MHz 300.000 Hz
10.000 MHz 100.000 kHz Range Low -10,000 MHz -5,038 MHz 5,000 MHz Frequency 813.96071 MHz 813.99813 MHz 824.00563 MHz 824.11789 MHz Power Abs -33,38 dBm -57,85 dBm -59,30 dBm -34,60 dBm Power Rel -20.38 dB -37.85 dB -39.30 dB -21.60 dB -54.93 dB -79.40 dB -80.85 dB -56.15 dB

TEL: 886-3-327-3456 Page Number : A26S-30 of 44

FAX: 886-3-328-4978

Date: 30.JUN.2019 23:07:07

te: 30.JUN.2019 22:45:44

FAX: 886-3-328-4978

Report No.: FG911635D LTE Band 26 / 15MHz QPSK Lowest Band Edge / 1 RB Lowest Band Edge / Full RB Spectrum Ref Level 30.00 dBm SGL Count 100/100 Mode Sweep Offset 11.60 dB Made Sweep Ref Level 30.00 dBm SGL Count 100/100 ●1Rm AvgP 20 dBm 200 20 dBm2 10 dBm 10 dBn dBmdBm -10 dBm -10 dBm 20 dBm -20 dBm 30 dBm -30 dBm-40 dBm 50 dBm 50 dBm 50 dBm -60 dBm-CF 821.5 MHz 5601 pts Span 30.0 MHz CF 821.5 MHz 30.0 MHz Standard: None Tx Bandwidth 15.000 MHz Standard: None Idwidth 15.000 MHz Frequency Power Abs 813.89554 MHz -36.96 dB 813.99732 MHz -59.51 dB Range Low Range Up ΔLimit -23.96 dB -39.51 dB -55.80 dB -36.15 dB RBW 100.000 kHz 300.000 Hz 300.000 Hz 100.000 kHz 
 Frequency
 Power Abs

 813.95982 MHz
 -31.67 dBm

 813.98661 MHz
 -56.05 dBm

 829.02411 MHz
 -54.44 dBm

 829.04018 MHz
 -30.80 dBm
 Power Rel -55.20 dB -79.58 dB -77.97 dB -54.33 dB -18.67 dB -36.05 dB -34.44 dB -17.80 dB te: 30.JUN.2019 22:44:38 Date: 30.JUN.2019 22:49:04 LTE Band 26 / 15MHz 16QAM Lowest Band Edge / 1 RB Lowest Band Edge / Full RB Spectrum Spectrum Ref Level 30.00 dBm SGL Count 100/100 Offset 11.60 dB Mode Sweep Ref Level 30.00 dBm Offset 11.60 dB Mode Sweep SGL Count 100/100 ●1Rm AvgP 20 dBm 200 20 dBm2 10 dBn 10 dBm dBm 0 dBm -10 dBm -10 dBm 20 dBr -20 dBm 30 dBm -30 dBm-40 dBm 50 dBn -50 dBm--60 dBm CF 821.5 MHz 5601 pts Span 30.0 MHz CF 821.5 MHz Standard: None Tx Bandwidth 15.000 MHz pectrum Emission Mask Tx Power 22.59 dBm Standard: None Idwidth 15.000 MHz RBW 100.000 kHz Power Rel ΔLimit
-53.54 dB -17.78
-80.01 dB -37.24
-101.54 dB -58.78 Frequency Power Abs 813.92768 MHz -30.78 dB 813.99732 MHz -57.24 dB 829.03482 MHz -78.78 dB 929.03482 MHz -78.78 dB Power Rel ALimit
-56.57 dB -20.98 dB
-80.80 dB -38.21 dB
-81.07 dB -38.48 dB
-55.96 dB -20.37 dB Range Up 2 -7.538 MHz 2 -7.500 MHz 2 7.538 MHz 
 Frequency
 Power Abs

 813.87411 MHz
 -33.98 dBm

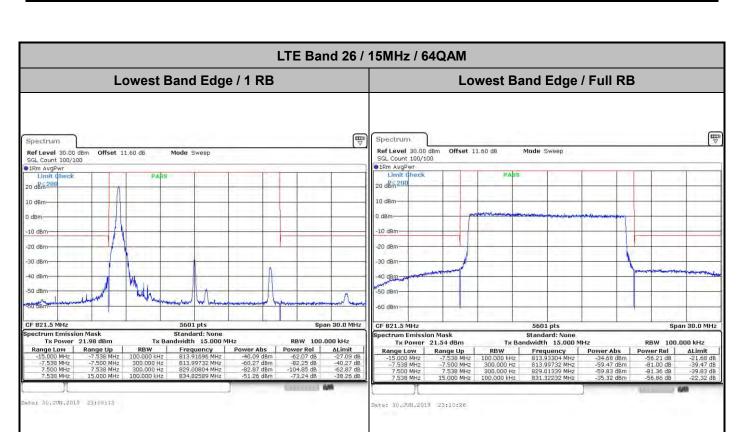
 813.99196 MHz
 -58.21 dBm

 829.00804 MHz
 -58.48 dBm

 829.04018 MHz
 -33.37 dBm

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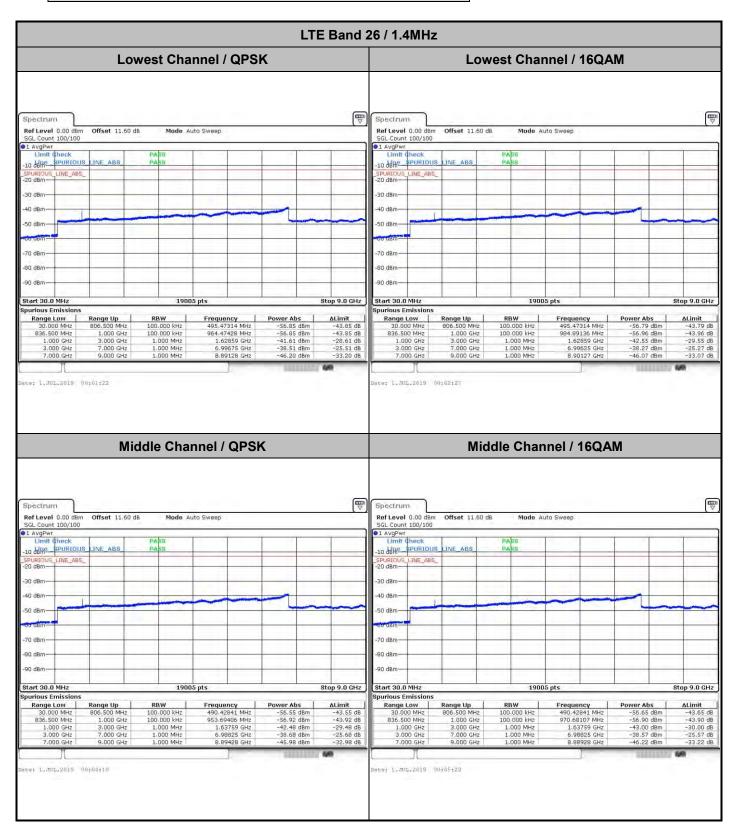
ate: 30.JUN.2019 22:50:10



Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-32 of 44

### Emission masks – Out of band emissions



Report No.: FG911635D

TEL: 886-3-327-3456 Page Number: A26S-33 of 44

Report No.: FG911635D LTE Band 26 / 1.4MHz **Highest Channel / QPSK Highest Channel / 16QAM** Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Offset 11.60 dB Mode Auto Sweep Ref Level 0.00 dBm GL Count 100/100 SGL Count 100/100 1 AvgPwr Limit Check ●1 AvgPwr Limit Check 10 dene SPURIOUS LINE ABS 10 dene SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 20 dBm 30 dBm 30 dBm 40 dBm 50 d8m Start 30.0 MHz ious Emissi Spurious Emission RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz -56.53 dBm -56.91 dBm -40.98 dBm 30.000 MHz 836.500 MHz RBW 100.000 kHz 100.000 kHz 1.000 MHz Range Low 30.000 MHz Range Up 806.500 MHz Frequency 485.38368 MHz ΔLimit −43.53 dB Range Up 806.500 MH: Power Abs -57.46 dBm ΔLimit 1.000 GHz 957.61414 MHz -43.91 dB -27.98 dB -25.53 dB -33.11 dB 924.94680 MHz 1.64609 GHz 6.98075 GHz 8.90427 GHz -56.88 dBm -42.26 dBm -38.35 dBm -46.11 dBm -43.88 dB -29.26 dB -25.35 dB -33.11 dB 1.000 GHz 3.000 GHz 1.64609 GHz 6.97875 GHz 8.91427 GHz 1.000 GHz 3.000 GHz 7.000 GHz -38.53 dBm -46.11 dBm ate: 1.JUL.2019 00:07:13 Date: 1.JUL.2019 00:08:18 LTE Band 26 / 3MHz Lowest Channel / QPSK **Lowest Channel / 16QAM** Spectrum Spectrum Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep GL Count 100/100 SGL Count 100/100 ●1 AvgPwr Limit (heck 10 dame SPURIOUS LINE ABS 10 dene SPURIOUS LINE ABS LINE ABS INE ABS SPURIOUS 20 dBm-20 dBm 30 dBr 30 dBn 70 dBm 70 dBm 80 dBm 80 dBm 90 dBm on dam Start 30.0 MHz Stop 9.0 GHz Start 30.0 MHz 19005 pts Stop 9.0 GHz 19005 pts Range Up Range Low 30,000 MHz 836,500 MHz 1,000 GHz 3,000 GHz 7,000 GHz Frequency 495.47314 MHz 868.26898 MHz 1.62859 GHz 6.99675 GHz 8.86928 GHz Power Abs
-56.45 dBm
-57.01 dBm
-41.62 dBm
-38.19 dBm
-46.11 dBm ALimit
-43.45 dB
-44.01 dB
-28.62 dB
-25.19 dB
-33.11 dB RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 495.47314 MHz 881.33591 MHz 1.62859 GHz 6.99975 GHz 8.88678 GHz ALimit
-44.11 dB
-43.98 dB
-30.14 dB
-25.30 dB
-33.27 dB Range Low 30.000 MHz Power Abs -57.11 dBm 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz 7.000 GHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz

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ate: 90.JUN.2019 23:34:38

FAX: 886-3-328-4978

ste: 90.JUN.2019 23:33:33

LTE Band 26 / 3MHz Middle Channel / QPSK Middle Channel / 16QAM Spectrum Spectrum Offset 11.60 dB Mode Auto Sweep Offset 11.60 dB Mode Auto Sweep Ref Level 0.00 dBm Ref Level 0.00 dBm GL Count 100/100 SGL Count 100/100 1 AvgPwr Limit Check ●1 AvgPwr Limit Check 10 dene SPURIOUS LINE ABS 10 deline SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 20 dBm 30 dBm 30 dBm 40 dBm Start 30.0 MHz ious Emissi Spurious Emission RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz ΔLimit
-43.86 dB
-43.95 dB
-28.65 dB
-25.30 dB
-33.18 dB Power Abs
-57.08 dBm
-56.73 dBm
-42.43 dBm
-38.54 dBm
-46.22 dBm Frequency 491.20452 MHz 953.04071 MHz -56.86 dBm -56.95 dBm -41.65 dBm 30.000 MHz 836.500 MHz RBW 100.000 kHz 100.000 kHz 1.000 MHz △Limit -44.08 dB Range Low 30.000 MHz Range Up 806.500 MHz Range Up 806.500 MH: 1.000 GHz 964.96429 MHz 1.63559 GHz 6.99525 GHz 8.88578 GHz -43.73 dB -29.43 dB -25.54 dB -33.22 dB 1.000 GHz 3.000 GHz 1.63559 GHz 6.99525 GHz 8.89928 GHz 1.000 GHz 3.000 GHz 7.000 GHz -38.30 dBm -46.18 dBm ate: 90.JUN.2019 23:36:38 ate: 90.JUN.2019 23:37:42 **Highest Channel / QPSK Highest Channel / 16QAM** P. Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep SGL Count 100/100 1 AvgPwr Limit Check SGL Count 100/100 1 AvgPwr Limit ¢heck 10 dine SPURIOUS LINE ABS 10 dine SPURIOUS LINE ABS 20 dBm 30 dBr 30 dBm 40 dBm 40 dBm 50 dBm 50 d8m Start 30.0 MHz rious Emissions Spurious Emissions Range Low 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz -44.28 dB -43.84 dB -28.72 dB -25.63 dB -33.09 dB Range Low 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz ALimit
-44.43 dB
-44.07 dB
-28.99 dB
-25.45 dB
-33.19 dB -57.28 dBm -56.84 dBm -41.72 dBm -38.63 dBm -46.09 dBm Frequency 487.32396 MHz 838.54171 MHz 1.64309 GHz 6.97975 GHz 8.89428 GHz te: 30.JUN.2019 23:39:33 ats: 30.JUN.2019 23:40:38

Report No.: FG911635D

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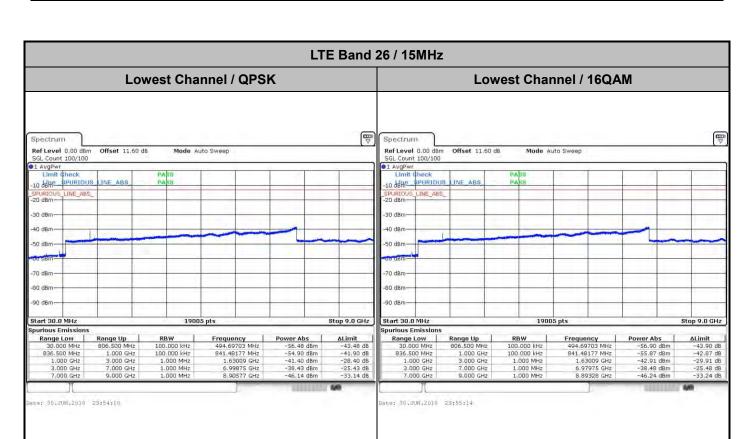
LTE Band 26 / 5MHz Lowest Channel / QPSK **Lowest Channel / 16QAM** Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Offset 11.60 dB Mode Auto Sweep Ref Level 0.00 dBm GL Count 100/100 SGL Count 100/100 1 AvgPwr Limit Check ●1 AvgPwr Limit Check 10 dene SPURIOUS LINE ABS 10 deline SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 20 dBm 30 dBm 30 dBm 40 dBm 50 dBm 90 dBm Start 30.0 MHz ious Emissi Spurious Emissions RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 495.08508 MHz 966.10764 MHz 30.000 MHz 836.500 MHz RBW 100.000 kHz 100.000 kHz 1.000 MHz ∆Limit -44.43 dB Range Low 30.000 MHz Range Up 806.500 MHz -57.10 dBm ΔLimit -44.10 dB Range Up 806.500 MH: Power Abs -57.43 dBm -57.43 dBm -57.03 dBm -42.71 dBm -38.57 dBm -45.90 dBm 1.000 GHz -56.98 dBm -41.76 dBm -38.55 dBm -46.02 dBm -43.98 dB -28.76 dB -25.55 dB -33.02 dB 990.44481 MHz 1.62909 GHz 6.98125 GHz 8.90177 GHz -44.03 dB -29.71 dB -25.57 dB -32.90 dB 1.000 GHz 3.000 GHz 1.62909 GHz 6.97425 GHz 8.90927 GHz 1.000 GHz 3.000 GHz 7.000 GHz ate: 90.JUN.2019 23:42:28 mate: 90.JUN.2019 23:43:33 Middle Channel / QPSK Middle Channel / 16QAM P. B Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep SGL Count 100/100 1 AvgPwr Limit Check SGL Count 100/100 1 AvgPwr Limit ¢heck 10 dine SPURIOUS LINE ABS 10 dine SPURIOUS LINE ABS 20 dBm 30 dBn 30 dBm 40 dBm 40 dBm 50 d8m 50 dBm Start 30.0 MHz rious Emissions **Spurious Emissions** Range Low 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Range Low 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz Frequency 492.36869 MHz 998.93831 MHz 1.63409 GHz 6.99825 GHz 8.87578 GHz -56.56 dBm -56.81 dBm -41.51 dBm -38.48 dBm -46.11 dBm Frequency 492.36869 MHz 986.85140 MHz 1.63409 GHz 6.99975 GHz 8.89078 GHz Power Abs
-56.66 dBm
-56.88 dBm
-41.50 dBm
-38.52 dBm
-46.05 dBm -43.66 dB -43.88 dB -28.50 dB -25.52 dB -33.05 dB te: 30.JUN.2019 23:45:23 ate: 90.JUN.2019 29:46:28

Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-36 of 44

Report No.: FG911635D LTE Band 26 / 5MHz **Highest Channel / QPSK Highest Channel / 16QAM** Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Offset 11.60 dB Mode Auto Sweep Ref Level 0.00 dBm GL Count 100/100 SGL Count 100/100 1 AvgPwr Limit Check ●1 AvgPwr Limit ¢heck 10 dene SPURIOUS LINE ABS 10 dene SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 20 dBm 30 dBm 30 dBm Start 30.0 MHz ious Emissi Spurious Emissions RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 489.26424 MHz 946.67058 MHz 30.000 MHz 836.500 MHz Range Low 30.000 MHz Range Up 806.500 MHz Power Abs -56.94 dBm ΔLimit -43.94 dB Range Up 806.500 MH: Power Abs -57.37 dBm △Limit -44.37 -57.37 dBm -57.01 dBm -42.00 dBm -38.54 dBm -46.17 dBm 1.000 GHz -43.85 dB -27.41 dB -25.29 dB -33.04 dB 963.82093 MHz 1.63909 GHz 6.99175 GHz 8.90327 GHz -44.01 dB -29.00 dB -25.54 dB -33.17 dB -56.85 dBm -40.41 dBm 1.000 GHz 3.000 GHz 1.000 GHz 3.000 GHz 7.000 GHz ate: 90.JUN.2019 23:48:19 ate: 90.JUN.2019 23:49:23 LTE Band 26 / 10MHz Middle Channel / QPSK Middle Channel / 16QAM Spectrum Spectrum Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep GL Count 100/100 SGL Count 100/100 ●1 AvgPwr Limit (heck 10 dame SPURIOUS LINE ABS 10 deme SPURIOUS LINE ABS LINE ABS INE ABS SPURIOUS 20 dBm-20 dBm 30 dBr 30 dBm 70 dBn 70 dBm 80 dBm 80 dBm 90 dBm 90 dBm Stop 9.0 GHz Start 30.0 MHz 19005 pts Stop 9.0 GHz Start 30.0 MHz 19005 pts Range Up Range Low 30,000 MHz 836,500 MHz 1,000 GHz 3,000 GHz 7,000 GHz 43.96 dB -43.81 dB -28.35 dB -25.73 dB -33.10 dB Frequency 495.08508 MHz 984.40135 MHz 1.62959 GHz 6.99925 GHz 8.89878 GHz Frequency 495.08508 MHz 886.88936 MHz 1.62959 GHz ΔLimit -44.14 Range Low 30.000 MHz Power Abs -57.14 dBm 30.000 MHz 836.500 MHz 1,000 GHz 3,000 GHz 7,000 GHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz -56.81 dBm -41.35 dBm -38.73 dBm -46.10 dBm 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz ste: 90.JUN.2019 29:51:14 ats: 90.JUN.2019 23:52:19

TEL: 886-3-327-3456 Page Number : A26S-37 of 44



Report No.: FG911635D

TEL: 886-3-327-3456 Page Number : A26S-38 of 44

Report No.: FG911635D LTE Band 26 / 1.4MHz Lowest Channel / 64QAM Middle Channel / 64QAM Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep SGL Count 100/100 SGL Count 100/100 ●1 AvgPwr Limit Check ●1 AvgPwr Limit Check 10 dene SPURIOUS LINE ABS 10 dene SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 30 dBm 30 dBm 40 dBm 50 dBm Start 30.0 MHz ious Emissic Spurious Emissions RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz 578.51712 MHz 842.62512 MHz 1.62859 GHz 6.99075 GHz 8.89878 GHz Power Abs
-57.49 dBm
-57.05 dBm
-43.75 dBm
-38.57 dBm
-45.94 dBm RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 490.42841 MHz 991.75150 MHz 1.63759 GHz 6.99575 GHz 8.90977 GHz 30.000 MHz 836.500 MHz Range Low 30.000 MHz 836.500 MHz -57.32 dBm -56.85 dBm -43.07 dBm ΔLimit -44.32 dB Range Up 806.500 MHz ΔLimit -44.49 dB Range Up 806.500 MHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz -44.05 dB -30.75 dB -25.57 dB -32.94 dB 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz -43.85 dB -30.07 dB -25.60 dB -32.97 dB 1.000 GHz 3.000 GHz 7.000 GHz ate: 30.JUN.2019 23:25:47 Date: 90.JUN.2019 23:27:14 **Highest Channel / 64QAM** V Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep SGL Count 100/100

1 AvgPwr
Limit Check 10 dine SPURIOUS LINE ABS 30 dBr 40 dBm -50 dBm rious Emissions Range Low 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 595.20352 MH2 851.44530 MH2 1.64609 GHz 6.94376 GHz 8.88878 GHz

TEL: 886-3-327-3456 Page Number : A26S-39 of 44

FAX: 886-3-328-4978

ts: 90.JUN.2019 29:28:43

Report No.: FG911635D LTE Band 26 / 3MHz Lowest Channel / 64QAM Middle Channel / 64QAM Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep SGL Count 100/100 SGL Count 100/100 ●1 AvgPwr Limit Check ●1 AvgPwr Limit Check 10 dene SPURIOUS LINE ABS 10 dene SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 30 dBm 30 dBm 40 dBm Start 30.0 MHz ious Emissic Spurious Emissions RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 495.47314 MHz 969.04770 MHz 1.62859 GHz 6.99875 GHz 8.91027 GHz Power Abs
-57,30 dBm
-56,86 dBm
-43,70 dBm
-38,50 dBm
-46,02 dBm -44.30 dB -43.86 dB -30.70 dB -25.50 dB -33.02 dB RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 491.20452 MHz 964.96429 MHz 1.63559 GHz 6.99625 GHz 8.86278 GHz Power Abs
-56.50 dBm
-56.89 dBm
-43.84 dBm
-38.70 dBm
-46.08 dBm 30.000 MHz 836.500 MHz Range Low 30.000 MHz 836.500 MHz Range Up 806.500 MHz Range Up 806.500 MHz ΔLimit −43.50 dB 1.000 GHz 3.000 GHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz -43.89 dB -30.84 dB -25.70 dB -33.08 dB 1.000 GHz 3.000 GHz 7.000 GHz 7.000 GHz 9.000 GHz ate: 30.JUN.2019 23:11:54 ate: 90.JUN.2019 23:13:22 **Highest Channel / 64QAM** V Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep SGL Count 100/100

1 AvgPwr
Limit Check 10 dine SPURIOUS LINE ABS 30 dBr 40 dBm -50 dBm rious Emissions Range Low 30.000 MHz 836.500 MHz 1.000 GHz 3.000 GHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz

TEL: 886-3-327-3456 Page Number : A26S-40 of 44

FAX: 886-3-328-4978

te: 90.JUN.2019 23:14:50

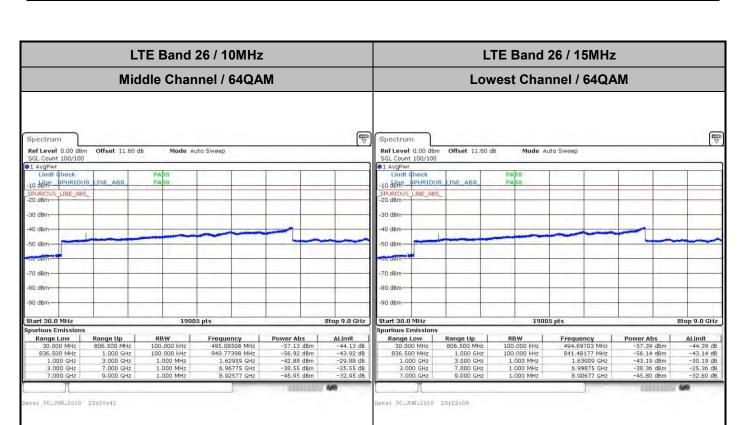
Report No.: FG911635D LTE Band 26 / 5MHz Lowest Channel / 64QAM Middle Channel / 64QAM Spectrum Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep Ref Level 0.00 dBm Offset 11.60 dB Mode Auto Sweep SGL Count 100/100 SGL Count 100/100 ●1 AvgPwr Limit Check ●1 AvgPwr Limit Check 10 dene SPURIOUS LINE ABS 10 dene SPURIOUS LINE ABS LINE\_ABS LINE\_ABS\_ 20 dBm 30 dBm 30 dBm 40 dBm Start 30.0 MHz ious Emissic Spurious Emissions RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 495.08508 MHz 976.72453 MHz 1.62909 GHz 6.99975 GHz 8.90077 GHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz Frequency 687.56084 MHz 932.95030 MHz 1.63409 GHz 6.99175 GHz 8.88978 GHz 30.000 MHz 836.500 MHz -57.21 dBm -56.91 dBm -42.90 dBm Range Low 30.000 MHz 836.500 MHz -57.35 dBm -56.89 dBm -43.22 dBm ΔLimit -44.35 dB Range Up 806.500 MHz ΔLimit -44.21 dB Range Up 806.500 MHz 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz -43.91 dB -29.90 dB -25.49 dB -33.07 dB 1.000 GHz 3.000 GHz 7.000 GHz 9.000 GHz -43.89 dB -30.22 dB -25.60 dB -33.13 dB 1.000 GHz 3.000 GHz 7.000 GHz -38.49 dBm -46.07 dBm -38.60 dBm -46.13 dBm ate: 30.JUN.2019 23:16:17 ate: 90.JUN.2019 23:17:45 **Highest Channel / 64QAM** V Spectrum Ref Level 0.00 dBm Offset 11.50 dB Mode Auto Sweep SGL Count 100/100

1 AvgPwr
Limit Check 10 dine SPURIOUS LINE ABS 30 dBr 40 dBm -50 dBm rious Emissions Range Low 30.000 MHz 836.500 MHz 1,000 GHz 3,000 GHz 7,000 GHz RBW 100.000 kHz 100.000 kHz 1.000 MHz 1.000 MHz 1.000 MHz -57.20 dBm -56.91 dBm -43.12 dBm -38.63 dBm -46.32 dBm Frequency 489.26424 MHz 893.58616 MHz 1.63909 GHz 6.99825 GHz 8.90377 GHz

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## Frequency Stability

Test Conditions		LTE Band 26 (QPSK) / Middle Channel		
Temperature	Voltage	BW 10MHz	Note 2.	
(°C)	(Volt)	Deviation (ppm)	Result	
50	Normal Voltage	0.0050		
40	Normal Voltage	0.0018		
30	Normal Voltage	0.0150		
20(Ref.)	Normal Voltage	0.0000		
10	Normal Voltage	0.0050		
0	Normal Voltage	0.0095	DAGG	
-10	Normal Voltage	0.0114	PASS	
-20	Normal Voltage	0.0132		
-30	Normal Voltage	0.0107		
20	Maximum Voltage	0.0033		
20	Normal Voltage	0.0000		
20	Battery End Point	0.0062		

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#### Note:

- 1. Normal Voltage =3.8 V.; Battery End Point (BEP) =3.5 V.; Maximum Voltage =4.4 V.
- 2. The frequency fundamental emissions stay within the authorized frequency block.

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Test Conditions		LTE Band 26 (QPSK) / Low Channel	Limit	
Temperature	Voltage	Voltage	BW 15MHz	Note 2.
(°C)	(Volt)	Deviation (ppm)	Result	
50	Normal Voltage	0.0022		
40	Normal Voltage	0.0037		
30	Normal Voltage	0.0019		
20(Ref.)	Normal Voltage	0.0000		
10	Normal Voltage	0.0026		
0	Normal Voltage	0.0009	DACC	
-10	Normal Voltage	0.0030	PASS	
-20	Normal Voltage	0.0037		
-30	Normal Voltage	0.0072		
20	Maximum Voltage	0.0010		
20	Normal Voltage	0.0000		
20	Battery End Point	0.0190		

Report No.: FG911635D

#### Note:

- 1. Normal Voltage =3.8 V.; Battery End Point (BEP) =3.5 V.; Maximum Voltage =4.4 V.
- 2. The frequency fundamental emissions stay within the authorized frequency block.

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

### ERP

<Reporting Only>

Treporting Only?								
LTE Band 26 / 15MHz (Channel 26765) (GT - LC = 0.31 dB)								
Channel	Mode	RB		Conducted		ERP		
		Size	Offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)	
Lowest	QPSK	1	37	24.72	0.30	22.88	0.19	
Middle		-	-	-	-	-	-	
Highest	1	-	-	-	-	-	-	
Lowest	16QAM	1	37	24.07	0.26	22.23	0.17	
Middle		-	-	-	-	-	-	
Highest	]	-	-	-	-	-	-	
Lowest	64QAM	1	74	22.99	0.20	21.15	0.13	
Middle		-	-	-	-	-	-	
Highest	1	-	-	-	-	-	-	
Limit	ERP < 7W			Re	sult	PASS		

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# Radiated Spurious Emission

## LTE Band 26 (Part 90S)

Report No.: FG911635D

LTE Band 26 / 1.4MHz / QPSK									
Channel	Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading (dBm)	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain (dBi)	Polarization (H/V)
	1632	-54.29	-13	-41.29	-64.33	-59.83	0.91	8.60	Н
	2440	-52.99	-13	-39.99	-67.32	-60.32	1.14	10.62	Н
	3256	-49.59	-13	-36.59	-65.33	-58.04	1.32	11.91	Н
	4072	-51.12	-13	-38.12	-69.83	-60.28	1.48	12.79	Н
									Н
Lowoot									Н
Lowest	1632	-57.61	-13	-44.61	-67.18	-63.15	0.91	8.60	V
	2440	-53.77	-13	-40.77	-68.2	-61.10	1.14	10.62	V
	3256	-54.62	-13	-41.62	-70.84	-63.07	1.32	11.91	V
	4072	-53.11	-13	-40.11	-71.82	-62.27	1.48	12.79	V
									V
									V
	1640	-55.35	-13	-42.35	-65.44	-60.91	0.92	8.63	Н
	2456	-53.28	-13	-40.28	-67.61	-60.63	1.14	10.64	Н
	3272	-52.26	-13	-39.26	-67.96	-60.74	1.32	11.95	Н
									Н
									Н
NAC-L-II-									Н
Middle	1640	-57.62	-13	-44.62	-67.17	-63.18	0.92	8.63	V
	2456	-53.41	-13	-40.41	-67.87	-60.76	1.14	10.64	V
	3272	-54.68	-13	-41.68	-70.85	-63.16	1.32	11.95	V
									V
									V
									V
	1648	-51.66	-13	-38.66	-61.76	-57.25	0.92	8.66	Н
	2472	-54.16	-13	-41.16	-68.48	-61.53	1.14	10.66	Н
	3296	-49.39	-13	-36.39	-65.06	-57.93	1.32	12.01	Н
	4120	-50.97	-13	-37.97	-69.71	-60.13	1.47	12.78	Н
									Н
l limbaat									Н
Highest	1648	-56.06	-13	-43.06	-65.62	-61.65	0.92	8.66	V
	2472	-52.92	-13	-39.92	-67.42	-60.29	1.14	10.66	V
	3296	-54.78	-13	-41.78	-70.91	-63.32	1.32	12.01	V
	4120	-53.21	-13	-40.21	-72.02	-62.37	1.47	12.78	V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

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