

Report No.: FG922214C



FCC RADIO TEST REPORT

FCC ID : UZ7RTL10B1

Equipment : Tablet
Brand Name : Zebra
Model Name : RTL10B1

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, and 90(S)

The product was received on Feb. 22, 2019 and testing was started from Mar. 27, 2019 and completed on Apr. 18, 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.

Approved by: Jones Tsai

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

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History of this test report

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Report No.	Version	Description	Issued Date
FG922214C	01	Initial issue of report	May 14, 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 §90.691	Emission masks – Out of band emissions	Pass	-
3.7	§2.1055 §90.213	Frequency Stability for Temperature & Voltage	Pass	-
3.8	§2.1053 §90.691	Field Strength of Spurious Radiation	Pass	Under limit 35.69 dB at 1632.000 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: Maggie Chiang

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1 General Description

1.1 Feature of Equipment Under Test

Product Feature							
Equipment	Tablet						
Brand Name	Zebra						
Model Name	RTL10B1						
FCC ID	UZ7RTL10B1						
Sample 1	EUT with SKU 1 + Keyboard						
Sample 2	EUT with SKU 1						
Sample 3	EUT with SKU 2						
Sample 4	EUT with SKU 3						
Sample 5	EUT with SKU 4						
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	DV0						
SW Version	Android version 8.1.0						
FW Version - Xpad	01-17-09.00-OG-U00-PLT						
FW Version - Xslate	01-17-05.00-OG-U00-PRD						
FW Version - Xbook	01-17-05.00-OG-U00-PRD						
MFD - Xpad	19MAR01						
MFD - Xslate	19MAR01						
MFD - Xbook	19MAR01						
EUT Stage	Identical Prototype						

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

Specification of Accessories								
AC Adapter	Brand Name	Delta	Model Name	ADP-65JH HB				
Spare Standard Battery 36Whr	Brand Name	XPLORE	Model Name	XLBM1				
Keyboard dock	Brand Name	XPLORE	Model Name	LX-KB				
Touch Pen	Brand Name	WACOM	Model Name	CP-903-05B-2				
Touch Pen	Brand Name	EMPIA	Model Name	EPNB-8C1000-0000 40820A01				
Touch Pen	Brand Name	HAO SHUAN	Model Name	440007				

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<Sample Information>

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
DV0	SKU 1+ Keyboard	L10A - SKU1 L10A - SKU2		L10A - SKU3	L10A - SKU4
ID	Xbook	XSLATE	XPAD	XPAD	XPAD
os		Android O	Android O	Android O	Android O
CPU		Qualcomm SDM660	Qualcomm SDM660	Qualcomm SDM660	Qualcomm SDM660
		Panasonic	Panasonic	Panasonic	Panasonic
Display with		EP101R1912N50 0TG	EP101R1912N50 0TG	EP101R1912N50 0TG	EP101R1912N50 0TG
touch		10.1" LCD (500nits)	10.1" LCD (500nits)	10.1" LCD (1000nits)	10.1" LCD (1000nits) with digitizer
Memory		Samsung LPDDR4 4GB	Samsung LPDDR4 4GB	Samsung LPDDR4 4GB	Samsung LPDDR4 4GB
	Refer Xslate	Hynix LPDD4 4 GB	Hynix LPDD4 4 GB	Micron LPDD4 4 GB	Micron LPDD4 4 GB
eMMC	Noioi Adiato	TOSHIBA 64GB	TOSHIBA 64GB	TOSHIBA 64GB	TOSHIBA 64GB
GPS		Qualcomm	Qualcomm	Qualcomm	Qualcomm
WWAN		Qualcomm	Qualcomm	Qualcomm	Qualcomm
WLAN		Qualcomm WCN3990	Qualcomm WCN3990	Qualcomm WCN3990	Qualcomm WCN3990
Antenna		WLAN*2/NFC	WLAN*2/NFC	WLAN*2/NFC	WLAN*2/NFC
Antenna		/GPS/WWAN*2	/GPS/WWAN*2	/GPS/WWAN*2	/GPS/WWAN*2
Barcode Reader		No	Yes	Yes	Yes
HDMI		No	No	Yes	No
Serial Port		No	Yes	No	No

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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	23.52 dBm						
Antenna Type	PCB Antenna						
Antenna Gain	2.03 dBi						
Type of Modulation	QPSK / 16QAM / 64QAM						

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1.3 Modification of EUT

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

1.4 Emission Designator

Lī	ΓE Band 26	QP	SK	160	AM	64QAM		
BW (MHz)	Range Designator To		Frequency Tolerance (ppm)	Emission Frequency Designator (99%OBW) (ppm)		Emission Designator (99%OBW)	Frequency Tolerance (ppm)	
1.4	814.7 ~ 823.3	1M09G7D	-	1M09W7D	-	1M09W7D	-	
3	815.5 ~ 822.5	2M72G7D	-	2M73W7D	-	2M73W7D	-	
5	816.5 ~ 821.5	4M50G7D	-	4M51W7D	-	4M50W7D	-	
10	819.0	9M01G7D	0.0116	9M01W7D	-	9M03W7D	-	
15	821.5	13M5G7D	0.0144	13M5W7D	-	13M5W7D	-	

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1.5 Testing Site

Test Site	SPORTON INTERNATIONAL INC.						
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.						
Test Site No.	TH05-HY						
Test Engineer	Jack Wang						
Temperature	22~24°C						
Relative Humidity	54~58%						

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

Test Site	SPORTON INTERNATIONAL INC.				
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.	03CH15-HY				
Test Engineer	Watt Tseng, Karl Hou, and BigShow Wang				
Temperature	23~24°C				
Relative Humidity	55~56%				

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 (X plane) were recorded in this report.

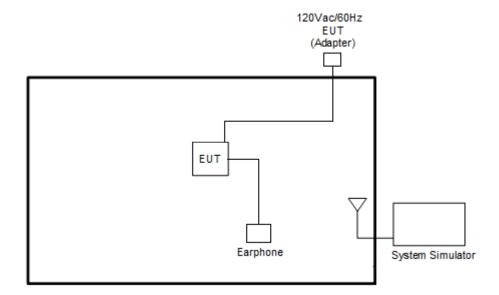
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Frequency range investigated for radiated emission is 30 MHz to 9000 MHz.

Conducted		Bandwidth (MHz)				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	V	v	v	v	v	-	v	v	v	٧	v	v	V	V	v
Peak-to-Average Ratio	26					V	ı	V	v	v	٧		v		>	
26dB and 99% Bandwidth	26	٧	٧	٧	v	v	1	v	v	v			v	V	٧	v
Emission masks In-band emissions	26	٧	٧	٧	v	v	1	v	v	v	٧		v	V		v
Emission masks – Out of band emissions	26	v	v	v	v	v	-	v	v	v	v			v	v	v
Frequency Stability	26				v	v	-	v					v		v	
E.R.P.	26					V	ı	V	v	v	٧			V		
Radiated Spurious Emission	26		Worst Case								V	>	v			
Remark	1. The mark "v " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. 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. 4. All the radiated test cases were performed with Sample 2.										ИНz.					

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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.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m		
2.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A		

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	-	-								
40	Channel	-	26740	-								
10	Frequency	-	819	-								
5	Channel	26715	26740	26765								
5	Frequency	816.5	819	821.5								
2	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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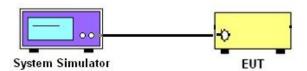
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

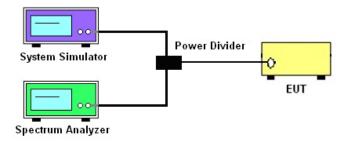
3.1.1 Test Setup

3.1.2 Conducted Output Power

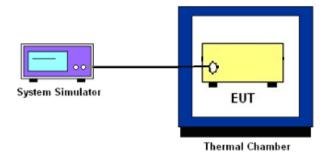


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3.1.3 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge, Emission Mask, Emissions Mask – Out Of Band Emissions, and Conducted Spurious Emission



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_C = 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. The measured RBW and the VBW set 3 times of RBW are then set in spectrum analyzer, and
- the RBW correction factor 10log (1% of OBW/measured RBW)(dB) was compensated, if required.
- 5. 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 10th 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. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 7. 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+10log₁₀(P[Watts]) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

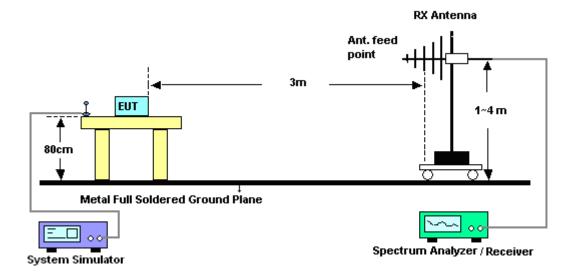
3.8.2 Test Procedures

- 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. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the record of maximum spurious emission.
- 6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- 8. Taking the record of output power at antenna port.
- 9. Repeat step 7 to step 8 for another polarization.
- 10. EIRP (dBm) = S.G. Power Tx Cable Loss + Tx Antenna Gain
- 11. ERP (dBm) = EIRP 2.15
- 12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 13. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

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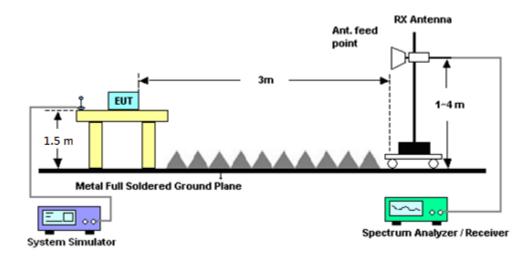
3.8.3 Test Setup

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
LTE Base Station	Anritsu	MT8820C	6201107509	-	Mar. 02, 2019	Apr. 10, 2019	Mar. 01, 2020	Conducted (TH05-HY)
LTE Base Station	Anritsu	MT8821C	6201664755	GSM / GPRS /WCDMA / LTE FDD/TDD with 44) /LTE-3CC DLCA,2CC ULCA	Mar. 03, 2019	Mar. 27, 2019~ Apr. 18, 2019	Mar. 02, 2020	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 13, 2018	Mar. 27, 2019~ Apr. 18, 2019	Nov. 12, 2019	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40°C~90°C	Aug. 29, 2018	Mar. 27, 2019~ Apr. 18, 2019	Aug. 28, 2019	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 02, 2018	Mar. 27, 2019~ Apr. 18, 2019	Oct. 01, 2019	Conducted (TH05-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#A	1-18GHz	Jan. 14, 2019	Mar. 27, 2019~ Apr. 18, 2019	Jan. 13, 2020	Conducted (TH05-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Apr. 09, 2019~ Apr. 12, 2019	Dec. 05, 2019	Radiation (03CH15-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jan. 07, 2019	Apr. 09, 2019~ Apr. 12, 2019	Jan. 06, 2020	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917057 6	18GHz ~ 40GHz	May 08, 2018	Apr. 09, 2019~ Apr. 12, 2019	May 07, 2019	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 28, 2018	Apr. 09, 2019~ Apr. 12, 2019	Dec. 27, 2019	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL6111D&00 800N1D01N-0 6	41912&05	30MHz to 1GHz	Feb. 12, 2019	Apr. 09, 2019~ Apr. 12, 2019	Feb. 11, 2020	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-1620	1G~18GHz	Oct. 17, 2018	Apr. 09, 2019~ Apr. 12, 2019	Oct. 16, 2019	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY53270195	1GHz~26.5GHz	Aug. 23, 2018	Apr. 09, 2019~ Apr. 12, 2019	Aug. 22, 2019	Radiation (03CH15-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 25, 2018	Apr. 09, 2019~ Apr. 12, 2019	Apr. 24, 2019	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Apr. 09, 2019~ Apr. 12, 2019	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Apr. 09, 2019~ Apr. 12, 2019	N/A	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA917025 1	18GHz- 40GHz	Nov. 20, 2018	Apr. 09, 2019~ Apr. 12, 2019	Nov. 19, 2019	Radiation (03CH15-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May 22, 2018	Apr. 09, 2019~ Apr. 12, 2019	May 21, 2019	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1522	1G~18GHz	Sep. 07, 2018	Apr. 09, 2019~ Apr. 12, 2019	Sep. 06, 2019	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24	RK-000451	N/A	N/A	Apr. 09, 2019~ Apr. 12, 2019	N/A	Radiation (03CH15-HY)

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5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	3.37
Confidence of 95% (U = 2Uc(y))	3.37

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

Measuring Uncertainty for a Level of	3.67
Confidence of 95% (U = 2Uc(y))	3.07

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

Measuring Uncertainty for a Level of	4.03
Confidence of 95% (U = 2Uc(y))	4.03

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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		23.51	-	-				
15	1	37		23.45	-	-				
15	1	74		23.45	-	-				
15	36	0	QPSK	22.48	-	-				
15	36	20		22.58	-	-				
15	36	39		22.53	-	-				
15	75	0		22.57	-	-				
15	1	0		22.57	-	-				
15	1	37		22.79	-	-				
15	1	74		22.76	-	-				
15	36	0	16-QAM	21.61	-	-				
15	36	20		21.69	-	-				
15	36	39		21.63	-	-				
15	75	0		21.68	-	-				
15	1	0		21.75	-	-				
15	1	37		21.73	-	-				
15	1	74		21.69	-	-				
15	36	0	64-QAM	20.65	-	-				
15	36	20		20.71	-	-				
15	36	39		20.67	-	-				
15	75	0		20.68	-	-				
10	1	0		-	23.52	-				
10	1	25		-	23.36	-				
10	1	49		-	23.32	-				
10	25	0	QPSK	-	22.56	-				
10	25	12		-	22.40	-				
10	25	25		-	22.30	-				
10	50	0		-	22.50	-				
10	1	0		-	22.83	-				
10	1	25		-	22.58	-				
10	1	49		-	22.71	-				
10	25	0	16-QAM	-	21.57	-				
10	25	12		-	21.46	-				
10	25	25		-	21.42	-				
10	50	0		-	21.49	-				
10	1	0		-	21.79	-				
10	1	25		-	21.56	-				
10	1	49		-	21.63	-				
10	25	0	64-QAM	-	20.58	-				
10	25	12		-	20.57	-				
10	25	25		-	20.47	-				
10	50	0		-	20.50	-				



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	LTE Band 26 Maximum Average Power [dBm]										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest					
5	1	0		23.46	23.49	23.31					
5	1	12		23.41	23.33	23.27					
5	1	24		23.35	23.31	23.32					
5	12	0	QPSK	22.44	22.49	22.28					
5	12	7		22.51	22.41	22.36					
5	12	13		22.52	22.30	22.29					
5	25	0		22.52	22.48	22.34					
5	1	0		22.47	22.82	22.66					
5	1	12		22.69	22.61	22.71					
5	1	24		22.69	22.75	22.66					
5	12	0	16-QAM	21.61	21.48	21.43					
5	12	7		21.69	21.49	21.52					
5	12	13		21.62	21.43	21.44					
5	25	0		21.58	21.51	21.50					
5	1	0		21.69	21.79	21.67					
5	1	12		21.67	21.60	21.59					
5	1	24		21.64	21.70	21.63					
5	12	0	64-QAM	20.62	20.51	20.46					
5	12	7		20.62	20.56	20.51					
5	12	13		20.57	20.48	20.48					
5	25	0		20.64	20.53	20.43					
3	1	0		23.41	23.52	23.29					
3	1	8		23.40	23.37	23.33					
3	1	14		23.45	23.41	23.28					
3	8	0	QPSK	22.43	22.58	22.30					
3	8	4		22.53	22.37	22.34					
3	8	7		22.50	22.32	22.25					
3	15	0		22.47	22.48	22.31					
3	1	0		22.51	22.75	22.61					
3	1	8		22.72	22.59	22.73					
3	1	14		22.69	22.72	22.68					
3	8	0	16-QAM	21.58	21.55	21.39					
3	8	4		21.60	21.48	21.49					
3	8	7		21.61	21.48	21.41					
3	15	0		21.60	21.53	21.44					
3	1	0		21.74	21.78	21.65					
3	1	8		21.71	21.61	21.57					
3	1	14		21.69	21.68	21.60					
3	8	0	64-QAM	20.59	20.56	20.43					
3	8	4		20.62	20.51	20.56					
3	8	7		20.60	20.49	20.40					
3	15	0		20.63	20.44	20.48					



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		23.42	23.43	23.35
1.4	1	3		23.43	23.37	23.27
1.4	1	5		23.45	23.38	23.38
1.4	3	0	QPSK	22.47	22.54	22.27
1.4	3	1		22.52	22.36	22.41
1.4	3	3		22.52	22.35	22.32
1.4	6	0		22.52	22.51	22.29
1.4	1	0		22.57	22.78	22.64
1.4	1	3		22.72	22.59	22.73
1.4	1	5		22.76	22.78	22.60
1.4	3	0	16-QAM	21.58	21.47	21.44
1.4	3	1		21.63	21.47	21.54
1.4	3	3		21.55	21.43	21.41
1.4	6	0		21.66	21.53	21.43
1.4	1	0		21.71	21.78	21.61
1.4	1	3		21.67	21.58	21.58
1.4	1	5		21.63	21.61	21.64
1.4	3	0	64-QAM	20.58	20.54	20.49
1.4	3	1		20.63	20.52	20.54
1.4	3	3		20.59	20.50	20.42
1.4	6	0		20.60	20.53	20.48

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LTE Band 26_Part 90S

Peak-to-Average Ratio

Mode					
Mod.	QP	SK	160	MAG	Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	-	-	-	-	
Middle CH	3.36	4.72	4.49	5.94	PASS
Highest CH	-	-	-	-]
Mode		LTE Band	26 / 10MHz		
Mod.	64Q	AM			Limit: 13dB
RB Size	1RB	Full RB			Result
Lowest CH	-	-	-	-	
Middle CH	5.97	6.67	-	-	PASS
Highest CH	-	-	-	-	

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LTE Band 26 / 10MHz / QPSK Middle Channel / 1RB Middle Channel / Full RB Date: 30.MAR.2019 06:08:14 Date: 30.MAR.2019 06:08:47 LTE Band 26 / 10MHz / 16QAM Middle Channel / 1RB Middle Channel / Full RB Spectrum
Ref Level 30.00
Att 3
1Sa View Ref Level 30.0 Att Date: 30.MAR.2019 06:08:25 Date: 30 MAR 2019 06:08:36 LTE Band 26 / 10MHz / 64QAM Middle Channel / 1RB Middle Channel / Full RB Ref Level 30.00 Ref Level 30.0 Att
 entary Cumulative Distribution Function

 Mean
 Peak
 Crest

 18.23 dBm
 24.40 dBm
 6.17 dR
 8amples: 13000 0.1% 0.01% 5.97 dR 5.20 dR Date: 30.MAR.2019 06:08:58 Date: 30.MAR.2019 06:09:09

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26dB Bandwidth

Mode		LTE Band 26 : 26dB BW(MHz)										
BW	1.4	ИНz	3M	lHz	5N	lHz	101	ЛHz	15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.22	1.21	3.00	3.00	4.92	4.93	-	-	14.27	14.60	-	-
Middle CH	1.22	1.22	3.00	3.00	4.95	4.92	9.81	9.63	-	-	-	-
Highest CH	1.23	1.23	3.03	2.99	4.92	4.83	-	-	-	-	-	-
Mode					LTE Ba	and 26 :	26dB BV	V(MHz)				
BW	1.4	ИНz	3M	lHz	5N	lHz	101	ИHz	15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	1.21	-	3.04	-	4.96	-	-	-	14.56	-	-	-
Middle CH	1.23	-	3.03	-	4.89	-	9.67	-	-	-	-	-
Highest CH	1.23	-	2.96	-	4.84	-	-	-	-	-	-	-

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LTE Band 26 Lowest Channel / 1.4MHz / QPSK Lowest Channel / 1.4MHz / 16QAM 15.58 dBn 814.81190 MH 26.00 dE 1.216800000 MH M1[1] M1[1] 16.02 dBr 16.02 dBn 814.84830 MH 26.00 dl 1.214000000 MH mm mo 10 dBm 669 671. -10 dBm--10 dBm 30 d8mm 50 d8m -50 dBm--60 dBm -60 dBm Function Result 1,2168 MHz 26.00 dB 669.6
 X-value
 Y-value
 Function

 814.8483 MHz
 16.02 dBm
 ndB down

 814.093 MHz
 -10.19 dBm
 ndB

 815.307 MHz
 -9.72 dBm
 Q factor
 Type | Ref | Trc | Type | Ref | Trc |
 X-value
 Y-value
 Function

 814.8119 MHz
 15.58 dBm
 ndB down
 Date: 30.MAR.2019 05:58:01 Middle Channel / 1.4MHz / QPSK Middle Channel / 1.4MHz / 16QAM **□** Ref Level 30.00 dBm Att 30 dB SGL Count 180/100 15.20 dBn 819.14550 MH: 26.00 dE 1.219600000 MH: 671. 16.50 dBn 819.08110 MH 26.00 df 1.219600000 MH 671.1 -20 dBm -20 dBm-40 dBm CF 819.0 MH CF 819.0 MHz Span 2.8 MHz Span 2.8 MHz Type Ref Trc Y-value 2 15.20 dBm 2 -10.94 dBm 2 -10.95 dBm Type | Ref | Trc | Function m nd8 down Function ndB down Date: 30 MAR 2019 06:00:57 Date: 30 MAR 2019 06:01:09 Highest Channel / 1.4MHz / QPSK Highest Channel / 1.4MHz / 16QAM 00 dBm Offset 30 dB SWT 10.80 dB **© RBW** 30 kHz 63.2 μs **© VBW** 100 kHz **Mode** Auto FFT 10.80 dB **© RBW** 30 kHz 63.2 μs **© VBW** 100 kHz **Mode** Auto FFT SGL Count 100/100 15.69 dBm 822.96150 MI M1[1] 15.65 dBn 823.40910 MH M1[1] 20 dBm 26.00 de 1.233600000 MH: 667.1 dBm--20 dBr 30 MBm -50 d8m 50 dBm CF 823.3 MHz CF 823.3 MHz Function Result 1.2336 MHz 26.00 db 667.1 Function Result
 X-value
 Y-value
 Function

 823.4091 MHz
 15.65 dBm
 nd8 down

 822.5846 MHz
 -10.31 dBm
 nd8

 823.9098 MHz
 -10.64 dBm
 Q factor

 Marker
 Trype
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 822,9615 MHz
 15,99 dBm
 nd8 down
 nd8 down

 T1
 1
 822,6674 MHz
 -10,20 dBm
 nd8

 T2
 1
 823,921 MHz
 -10,37 dBm
 Q factor
 Type | Ref | Trc |

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Date: 30.MAR.2019 06:04:05

LTE Band 26 Lowest Channel / 3MHz / QPSK Lowest Channel / 3MHz / 16QAM Ref Level 30.00 dBm Offset 10.80 dB RBW 100 kHz

Att 30 dB SWT 19 μs VBW 300 kHz Mode Auto FFT

SGL Count 100/100

1Pk Max 16.53 dB 15.76 dBr 16.53 dBr 816.12340 MH 26.00 d 2.997000000 MH 10 dBm 272 272. -10 dBm--50 dBm--60 dBm
 X-value
 Y-value
 Function

 816.1234 MHz
 16.53 dBm
 nd8 down

 814.0375 MHz
 -9.47 dBm
 nd8

 817.0345 MHz
 -9.13 dBm
 Q factor
 Type | Ref | Trc | Type | Ref | Trc |
 X-value
 Y-value
 Function

 816.453 MHz
 15.76 dBm
 ndB down
 Middle Channel / 3MHz / QPSK Middle Channel / 3MHz / 16QAM **□** 16.09 dBr 819.19180 MH 26.00 d 2.997000000 MH 273. 16.46 dBn 817.77120 MH 26.00 dl 2.997000000 MH 272. 40 dBm CF 819.0 MHz Span 6.0 MHz Span 6.0 MHz Type | Ref | Trc | Function m nd8 down Date: 30 MAR 2019 05:29:32 Date: 30 MAR 2019 05:29:45 Highest Channel / 3MHz / QPSK Highest Channel / 3MHz / 16QAM Ref Level 30.00 dBm Offset 10.80 db RBW 100 kHz

Att 30 db SWY 19 µs VBW 300 kHz Mode Auto FFT

SGL Count 100/100

BPL Max M1[1] 17.06 dB 821.57090 MH 15.93 dBn 823.30320 MH 20 dBm CF 822.5 MHz Function Result 2.991 MHz 26.00 dB 275.3 Function Result 3.033 MHz Type | Ref | Trc |
 X-value
 Y-value
 Function

 821.5709 MHz
 17.06 dBm
 ndB down

 X-value
 Y-value
 Function

 823.3032 MHz
 15.93 dBm
 ndB down
 Type | Ref | Trc |

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LTE Band 26 Lowest Channel / 5MHz / QPSK Lowest Channel / 5MHz / 16QAM Ref Level 30.00 dBm Offset 10.80 dB RBW 100 kHz

Att 30 dB SWT 19 μs VBW 300 kHz Mode Auto FFT

SGL Count 100/100

1Pk Max M1[1] 15.22 dB M1[1] 14.03 dBn 15.22 dBi 817.38900 MF 26.00 d 4.915000000 MF 10 dBm 166 166. -10 dBmwho 40 dBm 50 d8m -50 dBm--60 dBm -60 dBm Function Result 4.915 MHz 26.00 dB 166.3 Function Result 4.925 MHz 26.00 dB 166.0
 X-value
 Y-value
 Function

 817.389 MHz
 15.22 dBm
 nd8 down

 814.032 MHz
 -11.34 dBm
 nd8

 818.948 MHz
 -10.74 dBm
 Q factor

 X-value
 Y-value
 Function

 817.569 MHz
 14.03 dBm
 nd8 down

 814.042 MHz
 -11.71 dBm
 nd8

 818.968 MHz
 -12.17 dBm
 Q factor
 Type | Ref | Trc | Type | Ref | Trc | Date: 30.MAR.2019 05:36:32 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM **□** 13.38 dBn 816.90200 MH: 26.00 dE 4.915000000 MH: 166.2 14.56 dBr 817.71100 MH 26.00 d 4.945000000 MH 165. -20 dBm-80 dBm^ 36 VBm -40 dBm 40 dBm -50 dBn CF 819.0 MH CF 819.0 MHz Span 10.0 MHz Span 10.0 MHz
 X-value
 Y-value
 Function

 817.711 MHz
 14.56 dBm
 ndB down

 816.532 MHz
 -11.76 dBm
 ndB

 821.478 MHz
 -11.84 dBm
 Q factor
 Y-value 2 13.38 dBm 2 -12.69 dBm 2 -12.91 dBm Type | Ref | Trc | Function ndB down Date: 30 MAR 2019 05:39:15 Date: 30 MAR 2019 05:39:27 Highest Channel / 5MHz / QPSK Highest Channel / 5MHz / 16QAM 00 dBm Offset 30 dB SWT .80 dB **RBW** 100 kHz 19 µs **WBW** 300 kHz **Mode** Auto FFT .80 dB **RBW** 100 kHz 19 µs **WBW** 300 kHz **Mode** Auto FFT SGL Count 100/100 13.75 dBm 819.42200 MI 15.40 dBn 823.538gn Mi2 M1[1] M1[1] 20 dBm 26.00 d 4.915000000 MH 26.00 de 4.825000000 MH: 169.8 dBm-30 dBm 30 dBm -50 dBm 50 dBm CF 821.5 MHz CF 821.5 MH Function Result 4.915 MHz 26.00 dB 167.6 Span 10.0 MHz Function Result 4.825 MHz 26.00 dB 169.8
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 623.538 MHz
 15.40 dBm
 nd8 dom

 T1
 1
 818.993 MHz
 10.87 dBm
 nd8 dom

 T2
 1
 623.908 MHz
 -10.76 dBm
 Q factor

 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 819.422 MHz
 13.75 dbm
 mdB dom
 ndB dom

 T1
 1
 819.102 MHz
 -12.60 dbm
 ndB

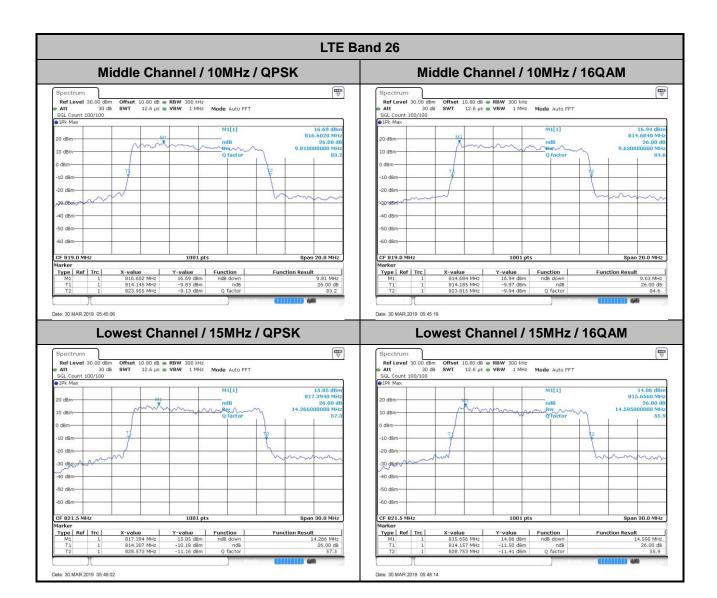
 T2
 1
 823.928 MHz
 -12.17 dbm
 Q factor

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Date: 30.MAR.2019 05:42:22



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LTE Band 26 Lowest Channel / 1.4MHz / 64QAM Lowest Channel / 3MHz / 64QAM M1[1] 13.76 dB M1[1] 15.18 dBr 13.76 dBr 814.96290 MH 26.00 d 1.214000000 MH 10 dBm 671 268. -10 dBm-30 dBm 50 d8m -50 dBm--60 dBm -60 dBm
 X-value
 Y-value
 Function

 814.9629 MHz
 13.76 dBm
 ndB down

 814.093 MHz
 -11.97 dBm
 ndB

 815.307 MHz
 -11.92 dBm
 Q factor
 Type | Ref | Trc | Type | Ref | Trc |
 X-value
 Y-value
 Function

 816.6628 MHz
 15.18 dBm
 ndB down
 Date: 30.MAR.2019 05:22:01 Date: 30.MAR.2019 05:08:15 Middle Channel / 1.4MHz / 64QAM Middle Channel / 3MHz / 64QAM 16.10 dBm 817.90910 MH: 26.00 dE 3.027000000 MH: 270.: 13.35 dBr 819.20420 MH 26.00 d 1.230800000 MH 665. -20 dBm CF 819.0 MHz Span 6.0 MHz Span 2.8 MHz X-value 819.2042 MHz 818.3846 MHz 819.6154 MHz Type | Ref | Trc | Function m nd8 down Function ndB down Date: 30 MAR 2019 05:23:29 Date: 30 MAR 2019 05:09:42 Highest Channel / 1.4MHz / 64QAM Highest Channel / 3MHz / 64QAM 00 dBm Offset 30 dB SWT 10.80 dB **© RBW** 30 kHz 63.2 μs **© VBW** 100 kHz **Mode** Auto FFT .80 dB **RBW** 100 kHz 19 µs **WBW** 300 kHz **Mode** Auto FFT SGL Count 100/100 16.11 dBm 821.39710 MHz 26.00 dB 2.955000000 MHz 278.0 M1[1] 13.92 dBn 823.54620 MH M1[1] dBm--20 dBr -50 dBm 50 dBm CF 823.3 MHz CF 822.5 MHz Function Result
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 823.5462 MHz
 13.92 d8m
 nd8 down

 T1
 1
 822.693 MHz
 12.46 d8m
 nd8 down

 T2
 1
 823.9182 MHz
 -11.81 d8m
 Q factor

 Marker
 Trope
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 821.3971 MHz
 16.11 dBm
 ndB down

 T1
 1
 821.0135 MHz
 -9.92 dBm
 ndB

 T2
 1
 823.9685 MHz
 -10.23 dBm
 Q factor
 Function Result

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Date: 30.MAR.2019 05:11:10

LTE Band 26 Lowest Channel / 5MHz / 64QAM M1[1] 164
 X-value
 Y-value
 Function

 814.472 MHz
 13.33 dbm
 ndb down

 813.973 MHz
 -13.02 dbm
 ndb

 818.938 MHz
 -12.83 dbm
 Q factor
 Type | Ref | Trc | Middle Channel / 10MHz / 64QAM Middle Channel / 5MHz / 64QAM **□** 16.19 dBn 817.8010 MH: 26.00 dE 9.670000000 MH: 84.0 14.23 dBi 816.91200 MF 26.00 d 4.895000000 MF
 Y-value
 Function

 2
 14.23 dBm
 nd8 down

 2
 -11.75 dBm
 nd8

 :
 -11.81 dBm
 Q factor
 X-value 817.801 MHz 814.145 MHz 823.815 MHz Type | Ref | Trc | Date: 30 MAR 2019 05:14:05 Date: 30 MAR 2019 05:17:00 Highest Channel / 5MHz / 64QAM M1[1] 13.72 dB 821.51000 MH -30 dBm-Function Result 4.845 MHz
 X-value
 Y-value
 Function

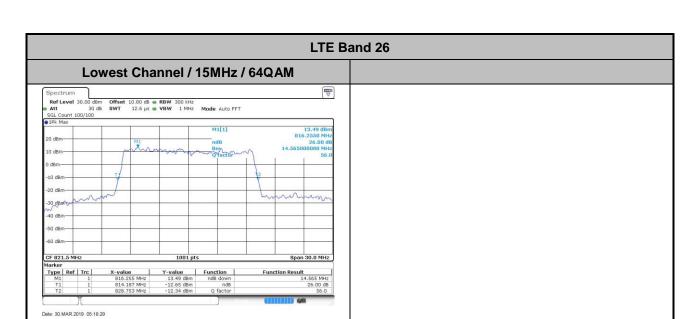
 821.51 MHz
 13.72 dBm
 ndB down

 819.052 MHz
 -12.59 dBm
 ndB

 923.898 MHz
 -12.08 dBm
 Q factor
 Type | Ref | Trc |

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Occupied Bandwidth

Mode		LTE Band 26 : 99%OBW(MHz)										
BW	1.4	ИНz	3M	lHz	5N	lHz	101	ЛHz	15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	1.09	1.08	2.72	2.70	4.47	4.49	-	-	13.52	13.46	-	-
Middle CH	1.09	1.09	2.69	2.73	4.50	4.51	9.01	9.01	-	-	-	-
Highest CH	1.09	1.09	2.72	2.71	4.48	4.50	-	-	-	-	-	-
Mode					LTE Ba	and 26 :	99%OBV	V(MHz)				
BW	1.4	ИНz	3M	lHz	5N	5MHz 10MHz			15MHz		20MHz	
Mod.	64QAM		64QAM		64QAM		64QAM		64QAM		64QAM	
Lowest CH	1.09	-	2.71	-	4.49	-	-	-	13.46	-	-	-
Middle CH	1.08	-	2.71	-	4.50	-	9.03	-	-	-	-	-
Highest CH	1.09	-	2.73	-	4.50	-	-	-	-	-	-	-

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LTE Band 26 Lowest Channel / 1.4MHz / QPSK Lowest Channel / 1.4MHz / 16QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100 my m 10 dBm -10 dBm -10 dBm -20 dBm-30 d8m~ 36 dBm--40 dBm 40 dBm -60 dBn -60 dBm 1001 pts Span 2.8 MHz CF 814.7 MHz CF 814.7 MHz Y-value 14.80 dBm 8.84 dBm 8.06 dBm X-value 814.8818 MHz 814.15455 MHz 815.24545 MHz X-value 814.5825 MHz 814.16014 MHz 815.24266 MHz Type | Ref | Trc | **Function Result** Type Ref Trc Date: 30 MAR 2019 05:57:48 Middle Channel / 1.4MHz / QPSK Middle Channel / 1.4MHz / 16QAM 0 dBm Offset 10.80 dB • RBW 30 kHz 30 dB SWT 63.2 µs • VBW 100 kHz Mode Auto FFT 15.60 dBi 819.16220 MH 1.090909091 MH dBm--20 dBr act of the Con-3er dam--50 dBm 50 dBm CF 819.0 MHz Span 2.8 MHz
 X-value
 Y-value
 Function

 819.1622 MHz
 15.60 dBm

 818.45455 MHz
 10.02 dBm
 Occ Bw

 819.54545 MHz
 9.56 dBm
 Type | Ref | Trc | Function Result Function Result 1.090909091 MHz 1.085314685 MHz Date: 30.MAR.2019 06:00:32 Date: 30.MAR.2019 06:00:44 Highest Channel / 1.4MHz / QPSK Highest Channel / 1.4MHz / 16QAM Ref Level 30.00 dBm Offset 10.80 dB RBW 30 kHz
Att 30 dB SWT 63.2 µs VBW 100 kHz Mode Auto FFT
SGL Count 100/100 15.86 dBn 823.07620 MH 1.088111888 MH 15.22 dBm 822.98670 MHz 1.088111888 MHz MILIT MILII mi mon -10 dBm -10 dBm -60 dBm--60 dBm-Marker Type | Ref | Trc | Type | Ref | Trc | Occ Bw 1.088111888 MHz Occ Bw 1.088111888 MHz

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LTE Band 26 Lowest Channel / 3MHz / QPSK Lowest Channel / 3MHz / 16QAM 16.32 dBn 814.22930 MH; 2.697302697 MH; M1[1] 16.49 dB M1[1] 10 dBm--10 dBm--10 dBm 40 dBm 50 d8m -50 d8m--60 dBm -60 dBm-
 X-value
 Y-value
 Function

 814.2293 MHz
 16.32 dBm

 814.15135 MHz
 10.65 dBm
 Occ Bw

 816.84865 MHz
 9.77 dBm
 Type | Ref | Trc | Type Ref Trc Date: 30.MAR.2019 05:26:25 Middle Channel / 3MHz / QPSK Middle Channel / 3MHz / 16QAM 40 dBm -40 dBm 50 dBm CF 819.0 MHz CF 819.0 MHz 1001 pts Span 6.0 MHz Span 6.0 MHz 1001 pts
 X-value
 Y-value
 Function

 818.5025 MHz
 15.26 dBm
 917.62737 MHz

 910.56237 MHz
 9.06 dBm
 Occ Bw

 820.36064 MHz
 8.76 dBm
 Type | Ref | Trc |
 X-value
 Y-value
 Function

 818.4725 MHz
 16.40 dBm

 817.64535 MHz
 11.35 dBm
 Occ Bw

 820.33666 MHz
 10.43 dBm
 Function Result Function Result 2.691308691 MHz 2.733266733 MHz Date: 30 MAR 2019 05:29:08 Date: 30 MAR 2019 05:29:20 Highest Channel / 3MHz / QPSK Highest Channel / 3MHz / 16QAM 00 dBm Offset 30 dB SWT 0.80 dB **© RBW** 100 kHz 19 µs **© VBW** 300 kHz **Mode** Auto FFT Ref Level 30.00 SGL Count 100/100 16.63 dBn 822.79970 MH 2.715284715 MH 16.61 dBm 822.18830 MHz 2.709290709 MHz 20 dBm dBm--10 dBm -30 dBm--50 dBm 50 dBm CF 822.5 MHz CF 822.5 MHz Span 6.0 MHz
 Marker
 Trc
 X-value
 Y-value
 Function
 Function Result

 M1
 1
 862.7997 MHz
 16.63 dbm
 Process
 11
 1
 821.4535 MHz
 10.19 dbm
 Occ 8w
 2.715284

 T2
 1
 823.86064 MHz
 10.43 dBm
 Occ 8w
 2.715284

 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 822.1893 MHz
 16.61 dBm
 16.91 dBm

 T1
 1
 821.19396 MHz
 10.24 dBm
 Occ Bw

 T2
 1
 823.84855 MHz
 10.83 dBm
 Occ Bw
 Function Result 2.715284715 MHz 2.709290709 MHz Date: 30.MAR.2019 05:33:11

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LTE Band 26 Lowest Channel / 5MHz / QPSK Lowest Channel / 5MHz / 16QAM 14.99 dBr 814.40200 MH 4.465534466 MH 14.22 dBn 815.24100 MH; 4.485514486 MH; M1[1] M1[1] 10 dBm -10 dBm--10 dBm -20 dBm-SO-CHART 88,d8m 40 dBm -50 dBm -50 d8m--60 dBm -60 dBm-| Marker | Trc | X-value | Y-value | Function | | M1 | 1 | 815.524 | MHz | 14.22 dsm | | T1 | 1 | 814.5225 MHz | 9,30 dsm | Occ Bw | T2 | 1 | 818.73776 MHz | 9,45 dsm | Occ Bw | T2 | 1 | 818.73776 MHz | 9,45 dsm | Occ Bw | Occ B Type | Ref | Trc | Date: 30.MAR.2019 05:36:07 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM
 Ref Level
 30.00 dBm
 Offset
 10.80 dB
 RBW
 100 kHz
 Auto FFT

 Att
 30 dB
 SWT
 19 µs
 VBW
 300 kHz
 Mode
 Auto FFT
 SGL Count 100/100 1Pk Max -20 dBm -20 dBm-30 d8m-40 dBm -40 dBm -50 dBm -50 d8m CF 819.0 MH CF 819.0 MHz 1001 pts Span 10.0 MHz 1001 pts Span 10.0 MHz
 X-value
 Y-value
 Function

 816.952 MHz
 14.85 dBm
 B16.74226 MHz

 816.74226 MHz
 8.87 dBm
 Occ Bw

 821.24775 MHz
 9.10 dBm
 Type Ref Trc Type Ref Trc **Function Result Function Result** 4.495504496 MHz 4.505494505 MHz Date: 30 MAR 2019 05:38:50 Date: 30 MAR 2019 05:39:02 Highest Channel / 5MHz / QPSK Highest Channel / 5MHz / 16QAM 00 dBm Offset 30 dB SWT 0.80 dB **© RBW** 100 kHz 19 µs **© VBW** 300 kHz **Mode** Auto FFT Ref Level 30.00 SGL Count 100/100 SGL Count 100/100 91Pk Max 15.53 dBn 821.82000 MH 4.475524476 MH 14.14 dBm 820.31100 MHz 4.495504496 MHz M1[1] M1[1] 20 dBm dBm--10 dBm -20 dBm -20 dBr m many 30 dBm -30 dBm--50 dBm-50 dBm-CF 821.5 MHz CF 821.5 MHz Span 10.0 MHz Span 10.0 MHz
 Marker
 Trope
 Ref
 Trc
 X-value
 Y-value
 Function
 Function Result

 M1
 1
 821.82 MHz
 15.53 dbm
 5.53 dbm
 000 BW
 4.475524

 T1
 1
 819.27222 MHz
 8.66 dbm
 00c BW
 4.475524

 T2
 1
 823.74775 MHz
 9.81 dbm
 00c BW
 4.475524
 Function Result 4.475524476 MHz 4.495504496 MHz Date: 30.MAR.2019 05:41:58

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LTE Band 26 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM
 Ref Level
 30.00 dBm
 Offset
 10.80 dB
 RBW
 300 kHz

 Att
 30 dB
 SWT
 12.6 µs
 VBW
 1 MHz
 Mode
 Auto FFT

 SGL Count 100/100
 100/100
 100/100
 100/100
 100/100
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 100/100
 17.29 dBr 816.2630 MH 9.010989011 MH 15.19 dBn 816.1630 MH; 9.010989011 MH; M1[1] M1[1] 10 dBm -10 dBm-30 der 50 d8m -50 dBm--60 dBm
 X-value
 Y-value
 Function

 816.263 MHz
 17.29 dBm

 814.4645 MHz
 9.90 dBm
 Occ Bw

 823.4755 MHz
 9.24 dBm

 X-value
 Y-value
 Function

 816.163 MHz
 15.19 dbm
 15.19 dbm

 814.4845 MHz
 8.54 dbm
 Occ Bw

 823.4955 MHz
 8.71 dbm
 Occ Bw
 Type | Ref | Trc | Type | Ref | Trc | 9.010989011 MHz 9.010989011 MHz Date: 30.MAR.2019 05:44:41 Date: 30.MAR.2019 05:44:54 LTE Band 26 Lowest Channel / 15MHz / QPSK Lowest Channel / 15MHz / 16QAM RefLevel 30.00 dBm Offset 10.80 dB ● RBW 300 bHz
Att 30 dB SWT 12.6 μs ● VBW 1 MHz Mode Auto FFT
SGL Count 100/100
11Pk Max 16.11 dBr 815.5060 MH 20 dBm 10 dBm--10 d8m--20 dBm 30 dela -50 dBm--50 dBm--60 dBm CF 821.5 MHz Span 30.0 MHz CF 821.5 MHz Span 30.0 MHz 1001 pts
 X-value
 Y-value
 Function

 817.694 MHz
 14.52 dBm

 814.7867 MHz
 8.07 dBm
 Occ Bw

 828.2433 MHz
 9.66 dBm
 Y-value Function Type | Ref | Trc | Type | Ref | Trc | Function Result Function Result 16.11 dBm 11.53 dBm Occ Bw 9.79 dBm 13.516483516 MHz 13.456543457 MHz 1111) 4/4 Date: 30.MAR.2019 05:47:37 Date: 30.MAR.2019 05:47:50

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LTE Band 26 Lowest Channel / 1.4MHz / 64QAM Lowest Channel / 3MHz / 64QAM 13.91 dBi 814.94900 MH 1.090909091 MH 14.53 dBn 816.38110 MH 2.715284715 MH 10 dBm -10 dBm -10 dBm -20 dBm-3Q.dBm -40 dBm 40 dBm -60 dBn -60 dBm 1001 pts CF 814.7 MHz CF 815.5 MHz X-value 814.949 MHz 814.15455 MHz 815.24545 MHz Y-value 14.53 dBm 8.56 dBm 8.77 dBm Type Ref Trc **Function Result** Type Ref Trc Middle Channel / 1.4MHz / 64QAM Middle Channel / 3MHz / 64QAM 13.09 dBi 818.68670 MH 1.085314685 MH -20 dBn Low -50 dBm 50 dBm CF 819.0 MHz
 Marker
 Trope
 Ref
 Trc
 X-value
 Y-value
 Function

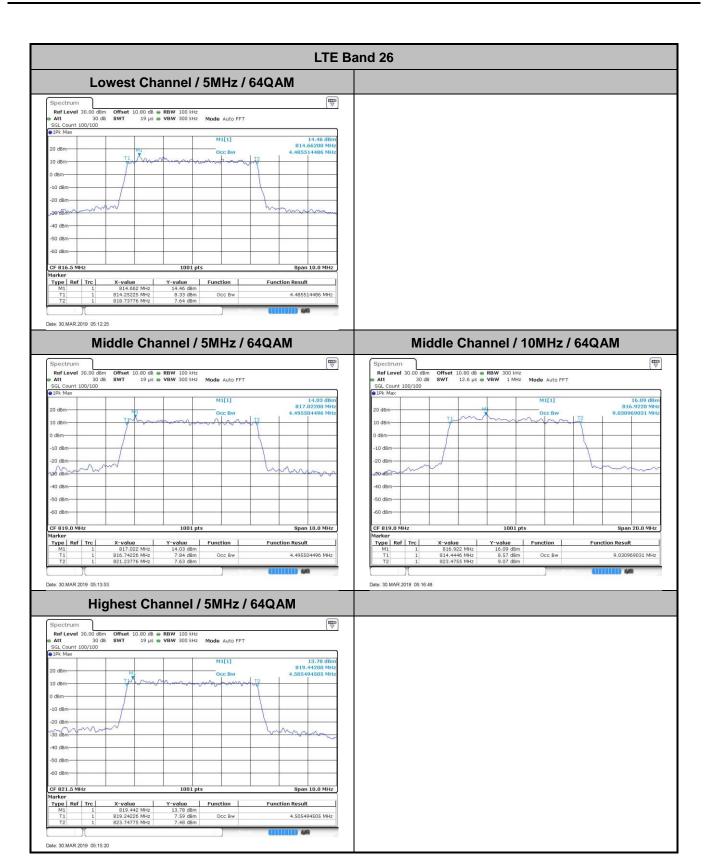
 M1
 1
 818.5994 MHz
 14.98 d dm
 1
 11.93.3936 MHz
 8.43 dem
 0 cc 8w

 T2
 1
 820.34865 MHz
 7.86 dBm
 7.86 dBm
 Function Result **Function Result** 1.085314685 MHz 2.709290709 MHz Date: 30.MAR.2019 05:23:16 Date: 30.MAR.2019 05:09:30 Highest Channel / 1.4MHz / 64QAM Highest Channel / 3MHz / 64QAM Ref Level 30.00 dBm Offset 10.80 dB RBW 100 kHz
Att 30 dB SWT 19 µs VBW 300 kHz Mode Auto FFT
SGL Count 100/100

1Pk Max 13.93 dBr 823.54340 MH 1.090909091 MH 16.18 dBm 821.39110 MHz 2.72727277 MHz MILII MILII -10 dBm -10 dBm -60 dBm--60 dBm-Marker Type | Ref | Trc | Type | Ref | Trc | 1.090909091 MHz Occ Bw 2.727272727 MHz

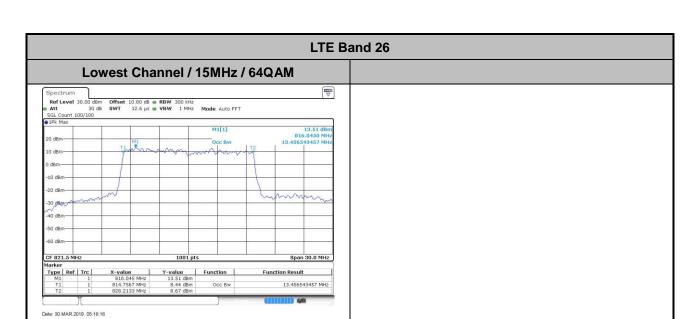
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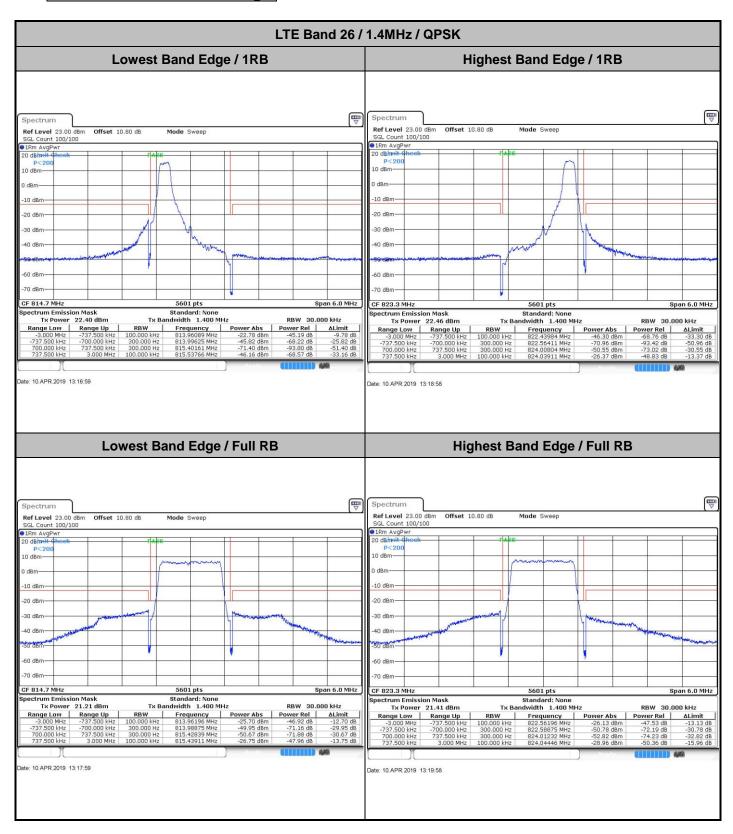
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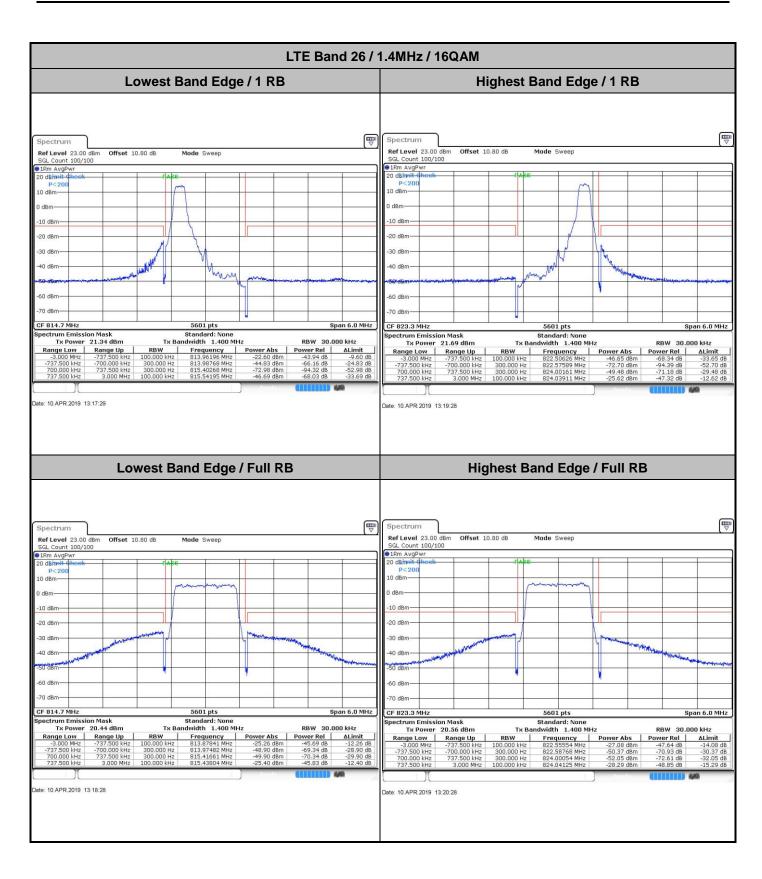
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Conducted Band Edge



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