

Report No.: FG121931-04F



FCC RADIO TEST REPORT

FCC ID : A4RG8V0U

Equipment : Phone

Model Name : G8V0U, GF5KQ
Applicant : Google LLC

1600 Amphitheatre Parkway,

Mountain View, California, 94043 USA

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

The product was received on Jun. 10, 2021 and testing was started from Jun. 20, 2021 and completed on Jul. 25, 2021. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

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

Approved by: Louis Wu

Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

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

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History of this test report

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Report No.	Version	Description	Issued Date
FG121931-04F	01	Initial issue of report	Aug. 13, 2021

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Summary of Test Result

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Report Ref Std. Clause 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 18.32 dB at 2448.000 MHz for Primary Antenna Under limit 44.04 dB at 3256.000 MHz for ASDIV Antenna		

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: William Chen Report Producer: Lucy Wu

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1 General Description

1.1 Feature of Equipment Under Test

Product Feature							
Equipment	Phone						
Model Name	G8V0U, GF5KQ						
FCC ID	A4RG8V0U						
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/5G NR/ NFC/GNSS/WPC/WPT/UWB WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE						

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

EUT Information List							
S/N	Performed Test Item						
15271FDEE00013	Conducted Measurement ERP						
16011FDEE0008Y	Radiated Spurious Emission						

1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard						
Tx Frequency	814.7 ~ 823.3 MHz					
Rx Frequency	859.7 ~ 868.3 MHz					
Bandwidth	1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz					
Maximum Output Power to Antenna	<primary antenna=""> 24.24 dBm</primary>					
Maximum Output Power to Antenna	<asdiv antenna=""> 23.65 dBm</asdiv>					
Antenna Type	<primary antenna="">: IFA Antenna type</primary>					
Antenna Type	<a>ASDIV Antenna>: IFA Antenna type					
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM					

<Primary Antenna>

Radio Tech	Band Number	Antenna name	Gain
LTE	B26	Ant. 0	-3.2

<ASDIV Antenna>

Radio Tech	Band Number	Antenna name	Gain		
LTE	B26	Ant. 1	-6.5		

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

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1.3 Modification of EUT

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

1.4 Testing Site

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory							
Test Site Location No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978								
Test Site No.	Sporton Site No.							
rest site No.	TH03-HY	03CH07-HY						
Test Engineer	Benjamin Lin	Jesse Wang, Stan Hsieh and Ken Wu						
Temperature	23.4~25.5℃	20~26℃						
Relative Humidity	49.1~52.3%	48~63%						

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

FCC Designation No.: TW1190

1.5 Applied Standards

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

- 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
- FCC KDB 414788 D01 Radiated Test Site 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:

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

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2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

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

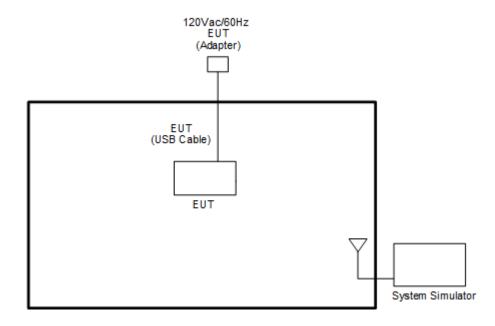
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Frequency range investigated for radiated emission is 30 MHz to 9000 MHz.

Conducted	Band		Ва	ndwid	lth (M	Hz)		Modulation			RB#			Test Channel			
Test Cases		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	М	Н
Max. Output Power	26	v	٧	v	v	٧	1	٧	v	v	v	v	v	v	٧	v	v
Peak-to-Average Ratio	26				v	v	-	v	v	v	v			v		v	
26dB and 99% Bandwidth	26	v	٧	v	v	٧	ı	٧	v	v	v			v	٧	v	
Emission masks In-band emissions	26	v	>	v	v	>	1	٧	v	v	v	v		v	>		v
Emission masks - Out of band emissions	26	v	v	v	v	v	-	v				v			v	v	v
Frequency Stability	26	-	ı		v	٧	-	٧						v	v	v	
E.R.P.	26	v v v v - v v v Max. Power						er									
Radiated																	
Spurious	26							Worst	Case						٧	v	v
Emission																	
	 The mark "v" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. LTE Band26 transmit frequency for part22 rule is 824MHz-849MHz, for part90 rule is 814MHz-824MHz. 																
						•											HZ.
Remark							•		ilso comp		2 rule, the	reioi	EEK	r OI TI	ne pa	ııldı	
		•	, ,								SB Cable	1.					
									•		and WPC		argino	nod	le) we	ere	
		-			•		-				for officia			,	,		

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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	Brand 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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	LTE Band 26 Ch	annel and Frequen	cy List	
BW [MHz]	Channel/Frequency(MHz)	-	cross-rule channels	-
15	Channel	-	26790	-
15	Frequency	-	824	-
10	Channel	-	26790	-
10	Frequency	-	824	-
5	Channel	-	26790	-
5	Frequency	-	824	-
3	Channel	-	26790	-
3	Frequency	-	824	-
1.4	Channel	-	26790	-
1.4	Frequency	-	824	-

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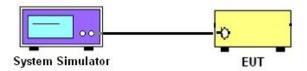
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

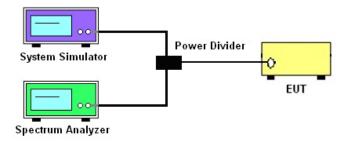
3.1.1 Test Setup

3.1.2 Conducted Output Power

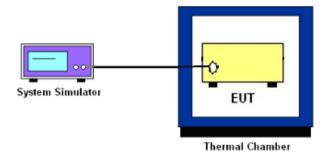


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3.1.3 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge, Emission Mask, Emissions Mask – Out Of Band Emissions, and Conducted Spurious Emission



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 100 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. 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 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. 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 $43+10\log_{10}(P[Watts])$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

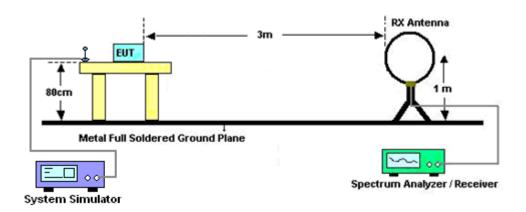
3.8.2 Test Procedures

- 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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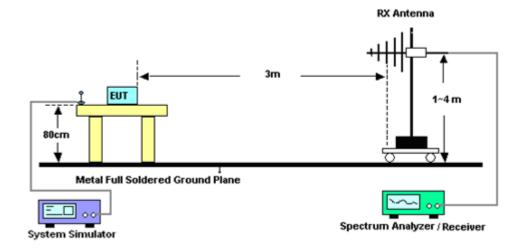
3.8.3 Test Setup

For radiated test below 30MHz



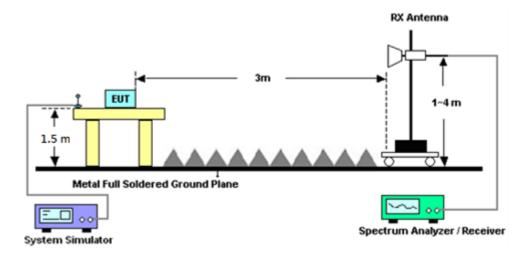
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For radiated test from 30MHz to 1GHz



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For radiated test above 1GHz



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3.8.4 Test Result of Field Strength of Spurious Radiated

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

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4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	35419 & 03	30MHz~1GHz	Apr. 28, 2021	Jul. 01, 2021~ Jul. 17, 2021	Apr. 27, 2022	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Dec. 01, 2020	Jul. 01, 2021~ Jul. 17, 2021	Nov. 30, 2021	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jan. 04, 2021	Jul. 01, 2021~ Jul. 17, 2021	Jan. 03, 2022	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	1590075	1GHz~18GHz	Apr. 22, 2021	Jul. 01, 2021~ Jul. 17, 2021	Apr. 21, 2022	Radiation (03CH07-HY)
Preamplifier	COM-POWE R	PA-103A	161241	10MHz~1GHz	May 18, 2021	Jul. 01, 2021~ Jul. 17, 2021	May 17, 2022	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A023 62	1GHz~26.5GHz	Oct. 31, 2020	Jul. 01, 2021~ Jul. 17, 2021	Oct. 30, 2021	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9030A	MY523502 76	3Hz~44GHz	Jun. 24, 2021	Jul. 01, 2021~ Jul. 17, 2021	Jun. 23, 2022	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY15682- 4	30MHz to 18GHz	Feb. 24, 2021	Jul. 01, 2021~ Jul. 17, 2021	Feb. 23, 2022	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY24971- 4	9kHz to 18GHz	Feb. 24, 2021	Jul. 01, 2021~ Jul. 17, 2021	Feb. 23, 2022	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY28655- 4	9kHz to 18GHz	Feb. 24, 2021	Jul. 01, 2021~ Jul. 17, 2021	Feb. 23, 2022	Radiation (03CH07-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126	532078/12 6E	30MHz~18GHz	Sep. 18, 2020	Jul. 01, 2021~ Jul. 17, 2021	Sep. 17, 2021	Radiation (03CH07-HY)
Controller	EMEC	EM1000	N/A	Control Ant Mast	N/A	Jul. 01, 2021~ Jul. 17, 2021	N/A	Radiation (03CH07-HY)
Controller	MF	MF-7802	N/A	Control Turn table	N/A	Jul. 01, 2021~ Jul. 17, 2021	N/A	Radiation (03CH07-HY)
Antenna Mast	EMEC	AM-BS-4500E	N/A	Boresight mast 1M~4M	N/A	Jul. 01, 2021~ Jul. 17, 2021	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Jul. 01, 2021~ Jul. 17, 2021	N/A	Radiation (03CH07-HY)
Software	Audix	E3 6.2009-8-24	N/A	N/A	N/A	Jul. 01, 2021~ Jul. 17, 2021	N/A	Radiation (03CH07-HY)
USB Data Logger	TECPEL	TR-32	HE17XB24 95	N/A	N/A	Jul. 01, 2021~ Jul. 17, 2021	N/A	Radiation (03CH07-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 11, 2020	Jul. 01, 2021~ Jul. 17, 2021	Oct. 10, 2021	Radiation (03CH07-HY)
Horn Antenna	EMCO	3117	00143261	1GHz~18GHz	Jan. 26, 2021	Jul. 01, 2021~ Jul. 17, 2021	Jan. 25, 2022	Radiation (03CH07-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	Dec. 04, 2020	Jul. 01, 2021~ Jul. 17, 2021	Dec. 03, 2021	Radiation (03CH07-HY)

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Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communication Analyzer	Anritsu	MT8821C	626200253 41	LTE FDD/TDD LTE-2CC ULCA/DLCA	Oct. 06, 2020	Jun. 20, 2021~ Jul. 25, 2021	Oct. 05, 2021	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 27, 2020	Jun. 20, 2021~ Jul. 25, 2021	Nov. 26, 2021	Conducted (TH03-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-9307 01	N/A	Aug. 05, 2020	Jun. 20, 2021~ Jul. 25, 2021	Aug. 04, 2021	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890094	1V~20V 0.5A~5A	Oct. 05, 2020	Jun. 20, 2021~ Jul. 25, 2021	Oct. 04, 2021	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 09, 2021	Jun. 20, 2021~ Jul. 25, 2021	Jan. 08, 2022	Conducted (TH03-HY)

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5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	2.4C 4D
Confidence of 95% (U = 2Uc(y))	3.16 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.71 dB

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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & ERP)

<Primary Antenna>

< <u>Primar</u>	<pre><primary antenna=""> LTE Band 26 Maximum Average Power [dBm] (GT - LC = -3.2 dB)</primary></pre>											
	LTE			verage Po	wer [dBm]	(GT - LC :	= -3.2 dB)					
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)				
15	1	0		24.15	-	-						
15	1	37		23.99	-	-						
15	1	74		24.13	-	-						
15	36	0	QPSK	23.23	-	-	18.80	0.0759				
15	36	20		23.27	-	-						
15	36	39		23.20	-	-						
15	75	0		23.26	-	-						
15	1	0		23.40	-	-						
15	1	37		23.41	-	-						
15	1	74		23.90	-	-						
15	36	0	16-QAM	22.33	-	-	18.55	0.0716				
15	36	20		22.21	-	-						
15	36	39		22.22	-	-						
15	75	0		22.27	-	-						
15	1	0		22.26	-	-						
15	1	37		22.75	-	-						
15	1	74		22.38	-	-	17.40	0.0550				
15	36	0	64-QAM	21.24	-	-						
15	36	20		21.25	-	-						
15	36	39		21.21	-	-						
15	75	0		21.33	-	-						
15	1	0		19.47	-	-						
15	1	37		19.56	-	-						
15	1	74		19.39	-	-						
15	36	0	256-QAM	19.44	-	-	14.21	0.0264				
15	36	20		19.41	-	-						
15	36	39		19.36	-	-	1					
15	75	0		19.37	-	-						
Limit	Е	PR < 100V	٧		Result		Pa	iss				



	LTE	Band 26 N	laximum A	verage Po	wer [dBm]	(GT - LC =	= -3.2 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
10	1	0		-	24.23	-		
10	1	25		-	24.07	-]	
10	1	49		-	24.10	-]	
10	25	0	QPSK	-	23.32	-	18.88	0.0773
10	25	12		-	23.25	-		
10	25	25		-	23.24	-		
10	50	0		-	23.24	-		
10	1	0		-	23.64	-		
10	1	25		-	23.26	-		
10	1	49		-	23.53	-		
10	25	0	16-QAM	-	22.29	-	18.29	0.0675
10	25	12		-	22.23	-		
10	25	25		-	22.19	-		
10	50	0		-	22.35	ı		
10	1	0		-	22.17	ı		
10	1	25		-	22.35	ı		
10	1	49		-	22.35	1		
10	25	0	64-QAM	-	21.20	ı	17.00	0.0501
10	25	12		-	21.32	ı		
10	25	25		-	21.31	ı		
10	50	0		-	21.30	1		
10	1	0		-	19.48	-		
10	1	25		-	19.35	-		
10	1	49		-	19.47	-		
10	25	0	256-QAM	-	19.37	-	14.13	0.0259
10	25	12		-	19.36	-		
10	25	25		-	19.25	-		
10	50	0		-	19.36	-		
Limit	E	PR < 100V	V		Result		Pa	ss



	LTE	Band 26 N	laximum A	verage Po	wer [dBm]	(GT - LC =	= -3.2 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
5	1	0		24.23	24.24	24.23		
5	1	12		24.19	24.12	24.19		
5	1	24		24.12	24.24	24.08		
5	12	0	QPSK	23.23	23.25	23.32	18.89	0.0774
5	12	7		23.23	23.30	23.34		
5	12	13		23.23	23.35	23.20		
5	25	0		23.24	23.31	23.29		
5	1	0		23.41	23.55	23.55		
5	1	12		23.68	23.70	23.67		
5	1	24		23.61	23.61	23.13		
5	12	0	16-QAM	22.14	22.38	22.35	18.35	0.0684
5	12	7		22.20	22.27	22.37		
5	12	13		22.17	22.35	22.27		
5	25	0		22.25	22.22	22.23		
5	1	0		21.93	22.46	22.71		
5	1	12		22.21	22.66	22.14		
5	1	24		22.36	22.23	22.29		
5	12	0	64-QAM	21.15	21.14	21.23	17.36	0.0545
5	12	7		21.23	21.25	21.25		
5	12	13		21.13	21.35	21.14		
5	25	0		21.29	21.26	21.22		
5	1	0		19.39	19.43	19.55		
5	1	12		19.52	19.38	19.54		
5	1	24		19.38	19.50	19.33		
5	12	0	256-QAM	19.38	19.31	19.39	14.20	0.0263
5	12	7		19.41	19.32	19.33		
5	12	13		19.26	19.33	19.31		
5	25	0		19.31	19.36	19.42		
Limit	E	PR < 100V	V		Result		Pa	ISS



	LTE	Band 26 N	laximum A	verage Po	wer [dBm]	(GT - LC =	= -3.2 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
3	1	0		24.13	24.23	24.24		
3	1	8		23.98	24.24	24.10		
3	1	14		24.06	24.05	24.15		
3	8	0	QPSK	23.19	23.18	23.31	18.89	0.0774
3	8	4		23.24	23.14	23.26		
3	8	7		23.13	23.22	23.26		
3	15	0		23.16	23.15	23.27		
3	1	0		23.56	23.35	23.61		
3	1	8		23.22	23.32	23.63		
3	1	14		23.21	23.36	23.66		
3	8	0	16-QAM	22.19	22.13	22.32	18.31	0.0678
3	8	4		22.22	22.16	22.25		
3	8	7		22.16	22.11	22.37		
3	15	0		22.17	22.28	22.33		
3	1	0		22.15	22.26	22.37		
3	1	8		22.20	22.35	21.94		
3	1	14		22.30	22.24	22.10		
3	8	0	64-QAM	21.18	21.21	21.21	17.02	0.0504
3	8	4		21.02	21.14	21.27		
3	8	7		21.19	21.24	21.33		
3	15	0		21.13	21.31	21.16		
3	1	0		19.47	19.50	19.54		
3	1	8		19.48	19.32	19.50		
3	1	14		19.29	19.40	19.41		
3	8	0	256-QAM	19.42	19.36	19.36	14.19	0.0262
3	8	4		19.34	19.30	19.35		
3	8	7		19.27	19.25	19.34		
3	15	0		19.33	19.33	19.41		
Limit	E	EPR < 100V	٧	Result			Pa	ISS



	LTE	Band 26 N	laximum A	verage Po	wer [dBm]	(GT - LC =	= -3.2 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
1.4	1	0		24.11	24.12	24.15		
1.4	1	3		24.08	24.07	24.11		
1.4	1	5		24.14	24.15	24.06		
1.4	3	0	QPSK	24.16	24.13	24.16	18.89	0.0774
1.4	3	1		24.20	24.14	24.24		
1.4	3	3		24.17	24.15	24.15		
1.4	6	0		23.13	23.19	23.20		
1.4	1	0		23.32	23.35	23.44		
1.4	1	3		23.32	23.19	23.27		
1.4	1	5		23.39	23.37	23.40		
1.4	3	0	16-QAM	23.21	23.18	23.26	18.09	0.0644
1.4	3	1		23.20	23.28	23.33		
1.4	3	3		23.21	23.20	23.34		
1.4	6	0		22.17	22.11	22.17		
1.4	1	0		22.37	22.30	22.34		
1.4	1	3		22.17	22.12	22.12		
1.4	1	5		22.31	22.29	22.28		
1.4	3	0	64-QAM	22.16	22.19	22.26	17.02	0.0504
1.4	3	1		22.29	22.26	22.31		
1.4	3	3		22.20	22.20	22.26		
1.4	6	0		21.06	21.06	21.10		
1.4	1	0		19.45	19.47	19.59		
1.4	1	3		19.52	19.40	19.54		
1.4	1	5		19.31	19.46	19.39		
1.4	3	0	256-QAM	19.42	19.35	19.40	14.24	0.0265
1.4	3	1		19.39	19.37	19.38		
1.4	3	3		19.31	19.31	19.32		
1.4	6	0		19.33	19.32	19.44		
Limit	E	PR < 100V	V		Result		Pa	ISS



<ASDIV Antenna>

<a>SDIV Antenna> LTE Band 26 Maximum Average Power [dBm] (GT - LC = -6.5 dB)											
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)			
15	1	0		23.60	-	-					
15	1	37		23.61	-	-					
15	1	74		23.59	-	-					
15	36	0	QPSK	22.77	-	-	14.96	0.0313			
15	36	20		22.81	-	-					
15	36	39		22.68	-	-					
15	75	0		22.81	-	-					
15	1	0		22.75	-	-					
15	1	37		22.06	-	-					
15	1	74		23.28	ı	-					
15	36	0	16-QAM	21.74	-	-	14.63	0.0290			
15	36	20		21.70	-	-					
15	36	39		21.78	ı	-					
15	75	0		21.70	ı	-					
15	1	0		21.88	ı	-		0.0217			
15	1	37		21.71	-	-					
15	1	74		22.01	ı	-					
15	36	0	64-QAM	20.74	ı	-	13.36				
15	36	20		20.73	ı	-					
15	36	39		20.75	-	-					
15	75	0		20.75	-	-					
15	1	0		18.97	-	-					
15	1	37		18.95	-	-					
15	1	74		18.75	-	-					
15	36	0	256-QAM	19.05	-	-	10.40	0.0110			
15	36	20		18.92	-	-					
15	36	39		18.90	-	-					
15	75	0		18.96	-	-					
Limit	Е	PR < 100V	V		Result		Pa	ISS			



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	LTE	Band 26 N	laximum A	verage Po	wer [dBm]	(GT - LC =	= -6.5 dB)	
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
10	1	0		-	23.63	-		
10	1	25		ı	23.52	-		
10	1	49		-	23.64	-		
10	25	0	QPSK	-	22.80	-	14.99	0.0316
10	25	12		-	22.72	-		
10	25	25		-	22.67	-		
10	50	0		-	22.81	-		
10	1	0		-	22.90	-		
10	1	25		-	22.96	-		
10	1	49		-	23.22	-		
10	25	0	16-QAM	-	21.80	-	14.57	0.0286
10	25	12		-	21.77	-		
10	25	25		-	21.78	-		
10	50	0		-	21.76	-		
10	1	0		-	21.81	-		
10	1	25		-	22.18	-		
10	1	49		ı	22.26	-		
10	25	0	64-QAM	ı	20.78	-	13.61	0.0230
10	25	12		-	20.69	-		
10	25	25		-	20.76	-		
10	50	0		-	20.80	-		
10	1	0		ı	18.84	-		
10	1	25		-	18.71	-		
10	1	49		-	18.79	_		
10	25	0	256-QAM	-	18.90	-	10.25	0.0106
10	25	12		-	18.86	-		
10	25	25		-	18.86	-		
10	50	0		-	18.86	-		
Limit	Е	PR < 100V	V		Result		Pa	ISS



	LTE Band 26 Maximum Average Power [dBm] (GT - LC = -6.5 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)			
5	1	0		23.61	23.58	23.65	15.00	0.0316			
5	1	12		23.59	23.62	23.58					
5	1	24		23.63	23.65	23.54					
5	12	0	QPSK	22.88	22.80	22.54					
5	12	7		22.89	22.79	22.62					
5	12	13		22.82	22.75	22.59					
5	25	0		22.99	22.70	22.51					
5	1	0		23.06	23.02	23.24					
5	1	12		23.38	23.17	22.99		0.0297			
5	1	24		23.25	23.17	22.80	14.73				
5	12	0	16-QAM	21.86	21.79	21.57					
5	12	7		21.93	21.70	21.64					
5	12	13		21.92	21.78	21.59					
5	25	0		21.94	21.69	21.57					
5	1	0		21.80	21.89	21.95	13.51	0.0224			
5	1	12		22.16	21.84	21.71					
5	1	24		22.15	22.11	21.88					
5	12	0	64-QAM	20.90	20.71	20.52					
5	12	7		20.91	20.72	20.63					
5	12	13		20.90	20.82	20.66					
5	25	0		21.00	20.68	20.54					
5	1	0		19.05	18.69	18.76					
5	1	12		18.85	18.61	18.78					
5	1	24		18.79	18.60	18.70	10.40				
5	12	0	256-QAM	19.02	18.92	18.82		0.0110			
5	12	7		18.95	18.75	18.86					
5	12	13		18.96	18.67	18.76					
5	25	0		18.95	18.93	18.92					
Limit	E	PR < 100V	V		Result		Pa	Pass			



	LTE Band 26 Maximum Average Power [dBm] (GT - LC = -6.5 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)			
3	1	0		23.59	23.61	23.50					
3	1	8		23.64	23.58	23.43					
3	1	14		23.63	23.54	23.45	14.99	0.0316			
3	8	0	QPSK	22.84	22.68	22.46					
3	8	4		22.82	22.64	22.43					
3	8	7		22.88	22.72	22.45					
3	15	0		22.86	22.63	22.53					
3	1	0		23.07	23.06	23.02					
3	1	8		22.95	22.85	22.96	14.59	0.0288			
3	1	14	16-QAM	22.97	23.24	22.61					
3	8	0		21.79	21.74	21.66					
3	8	4		21.84	21.64	21.62					
3	8	7		21.92	21.72	21.53					
3	15	0		21.91	21.74	21.53					
3	1	0		21.87	22.04	21.33	13.39	0.0218			
3	1	8		21.61	21.76	21.73					
3	1	14		22.02	21.99	21.49					
3	8	0	64-QAM	20.87	20.67	20.62					
3	8	4		20.84	20.80	20.49					
3	8	7		20.83	20.72	20.55					
3	15	0		20.76	20.56	20.37					
3	1	0		18.94	18.82	18.72					
3	1	8		19.05	18.62	18.79		0.0110			
3	1	14		18.76	18.56	18.71					
3	8	0	256-QAM	18.95	18.85	18.71	10.40				
3	8	4		18.97	18.73	18.78					
3	8	7		18.82	18.84	18.72					
3	15	0		18.88	18.88	18.92					
Limit	E	PR < 100V	V		Result	Pass					



	LTE Band 26 Maximum Average Power [dBm] (GT - LC = -6.5 dB)										
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)			
1.4	1	0		23.65	23.56	23.36					
1.4	1	3		23.63	23.54	23.35					
1.4	1	5		23.61	23.62	23.49	15.00	0.0316			
1.4	3	0	QPSK	23.60	23.63	23.52					
1.4	3	1		23.62	23.59	23.57					
1.4	3	3		23.65	23.64	23.49					
1.4	6	0		22.83	22.64	22.50					
1.4	1	0		23.37	23.05	22.90					
1.4	1	3		23.43	23.11	22.66		0.0301			
1.4	1	5	16-QAM	23.11	22.75	22.70	14.78				
1.4	3	0		23.10	22.45	22.80					
1.4	3	1		23.04	22.66	22.63					
1.4	3	3		22.82	22.96	22.60					
1.4	6	0		21.93	21.71	21.58					
1.4	1	0		22.37	21.73	21.53	13.72	0.0236			
1.4	1	3		21.95	21.73	21.56					
1.4	1	5		22.16	21.84	21.45					
1.4	3	0	64-QAM	22.04	21.74	21.72					
1.4	3	1		22.02	21.71	21.61					
1.4	3	3		21.92	21.95	21.65					
1.4	6	0		20.82	20.60	20.53					
1.4	1	0		18.88	18.78	18.73					
1.4	1	3		19.04	18.60	18.76		0.0111			
1.4	1	5		18.85	18.73	18.66					
1.4	3	0	256-QAM	19.10	18.83	18.78	10.45				
1.4	3	1		18.95	18.76	18.73					
1.4	3	3		18.91	18.72	18.68					
1.4	6	0		18.94	18.83	18.81					
Limit	E	PR < 100V	V		Result		Pass				

LTE Band 26

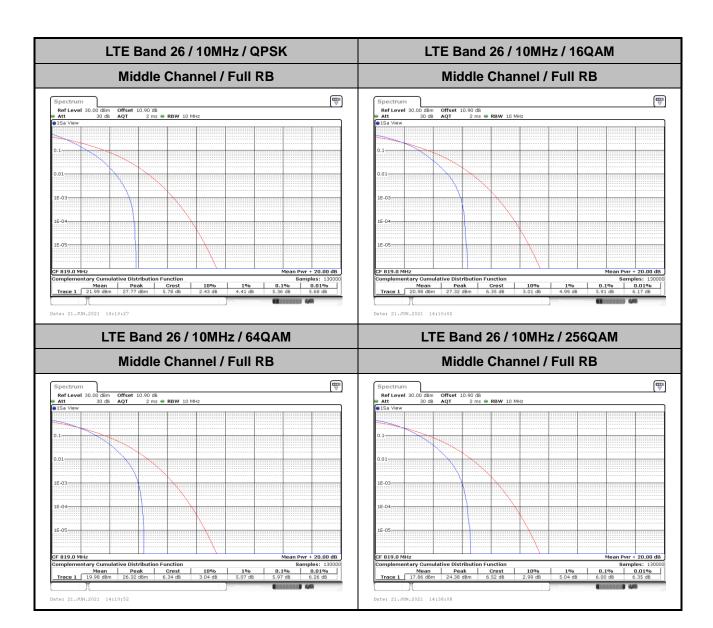
Peak-to-Average Ratio

Mode						
Mod.	QPSK	16QAM	64QAM	256QAM	Limit: 13dB	
RB Size	Full RB	Full RB	Full RB	Full RB	Result	
Middle CH	5.36	5.91	5.97	6.00	PASS	

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FAX: 886-3-328-4978



Report No.: FG121931-04F

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FAX: 886-3-328-4978

26dB Bandwidth

Mode		LTE Band 26 : 26dB BW(MHz)										
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Low CH	-	-	-	-	-	-	-	-	14.33	14.39	-	-
Middle CH	1.29	1.32	3.12	3.19	5.11	5.04	10.19	10.05	-	-	-	-
Mode	LTE Band 26 : 26dB BW(MHz)											
BW	1.4	ИHz	3M	lHz	5MHz 10MHz			15MHz		20MHz		
Mod.	64QAM	256	64QAM	256	64QAM	256	64QAM	256	64QAM	256	64QAM	256
WOG.	04QAW	QAM	UHQAW	QAM	UHQAW	QAM	UHQAW	QAM	UHQAW	QAM	UHQAW	QAM
Low CH	-	-	-	-	-	-	-	-	14.90	14.99	-	-
Middle CH	1.40	1.28	3.14	3.06	5.08	5.03	10.51	10.41	-	-	-	-

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FAX: 886-3-328-4978

LTE Band 26 Middle Channel / 1.4MHz / QPSK Middle Channel / 1.4MHz / 16QAM Ref Level 30.00 dBm Offset 10.90 dB ⊕ RBW 30 kHz
Att 30 dB SWT 63.2 µs ⊕ VBW 100 kHz Mode Auto FFT
SGL Count 100/100 16.12 dBm 818.83780 MH: 26.00 dE 1.323100000 MH: 618.9 M1[1] M1[1] 20 dBm-CF 819.0 MH Function Result 1.3231 MHz 26.00 dB 618.9
 X-value
 Y-value
 Function

 918.6811 MHz
 16.70 dBm
 nd8 down

 818.3483 MHz
 -9.36 dBm
 nd8

 819.6378 MHz
 -9.20 dBm
 Q factor
 Function Result 1.2895 MHz Type Ref Trc Type Ref Trc Middle Channel / 3MHz / QPSK Middle Channel / 3MHz / 16QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100
PIPK Max .90 dB **● RBW** 100 kHz 19 μs **● VBW** 300 kHz **Mode** Auto FFT .90 dB • RBW 100 kHz 19 µs • VBW 300 kHz Mode Auto FFT 18.57 dB: 818.76620 ML 17.53 dBr 819.35960 MH 20 dBm -10 dBm-40 dBm -50 dBm-Type Ref Trc Type Ref Trc Date: 21.JUN.2021 14:00:03 Date: 21.JUN.2021 14:00:24 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM 16.85 dB 818.15100 MF 26. 5.105000000 10 dBm-160 -60 dBm-CF 819.0 MHz larker CF 819.0 MHz n 10.0 MHz 10.0 MHz Function Result 5.105 MHz 26.00 dB 160.3 Function Result
5.035 MHz
26.00 dB
163.0 Type Ref Trc
 X-value
 Y-value
 Function

 818.15.1 MHz
 16.85 dBm
 nd8 down

 916.443 MHz
 -9.23 dBm
 nd8

 821.547 MHz
 -9.05 dBm
 Q factor

 X-value
 Y-value
 Function

 820.878 MHz
 15.21 dBm
 nd8 down

 916.532 MHz
 -10.95 dBm
 nd8

 821.567 MHz
 -10.80 dBm
 Q factor

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Date: 21.JUN.2021 14:03:48

FAX: 886-3-328-4978

Date: 21.JUN.2021 14:03:27

LTE Band 26 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 dbm Offset 10.90 db e RBW 300 kHz
Att 30 db SWT 12.6 µs e VBW 1 MHz Mode Auto FFT
SGL Count 100/100
10P Mm: 17.15 dBm 822.1770 MHz 26.00 dB 10.190000000 MHz 16.35 dBn 819.3800 MH 26.00 di M1[1] M1[1] CF 819.0 MHz Function Result 10.19 MHz 26.00 dB 80.7 Function Result 10.05 MHz 26.00 dB 81.5
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 819,38 MHz
 16.35 dbm
 nd8 down

 T1
 1
 919,956 MHz
 -9,951 dbm
 nd8

 T2
 1
 824,015 MHz
 -9,84 dbm
 Q factor

 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 6922,177 MHz
 17.15 dBm
 nd8 down

 T1
 1
 912,655 MHz
 -9.98 dBm
 nd8

 T2
 1
 823,855 MHz
 -10.00 dBm
 Q factor
 Date: 21.JUN.2021 Low Channel / 15MHz / QPSK Low Channel / 15MHz / 16QAM 15.84 dBr 817.0040 MH 16.74 dBr 817.9340 Mr 20 dBm-20 dBm--10 dBm--40 dBm -50 dBm X-value 817.004 MHz 814.427 MHz 828.753 MHz
 X-value
 Y-value

 817.934 MHz
 16.74 dBm

 814.457 MHz
 -10.03 dBm

 828.843 MHz
 -9.32 dBm
 Function ndB down Function ndB down

Date: 21.JUN.2021 13:54:27

Report No.: FG121931-04F

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FAX: 886-3-328-4978

Date: 21.JUN.2021 13:55:12

LTE Band 26 Middle Channel / 1.4MHz / 64QAM Middle Channel / 3MHz / 64QAM Ref Level 30.00 dBm Offset 10.50 dB @ RBW 30 kHz
Ref Level 30.00 dBm Offset 10.50 dB @ RBW 30 kHz
Act 30 dB SWT 65.2 µs @ VBW 100 kHz Mode Auto FFT
SGL Count 100/100
1Pk Max 13.98 dBm 818.56080 MHz 26.00 dB 1.401400000 MHz 15.64 dBn 818.91010 MH; 26.00 dE .140900000 MH; M1[1] M1[1] 20 dBm-40 dBm CF 819.0 MHz Function Result
3.1409 MHz
26.00 dB
260.7
 X-value
 Y-value
 Function

 818.5608 MHz
 13.96 dBm
 nd8 down

 818.3091 MHz
 -12.03 dBm
 nd8

 819.7105 MHz
 -12.11 dBm
 Q factor
 Function Result 1.4014 MHz Type Ref Trc Type Ref Trc Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM Ref Level 30.00 dBm
Att 30 dB
SGL Count 100/100

1Pk Max .90 dB **● RBW** 100 kHz 19 μs **● VBW** 300 kHz **Mode** Auto FFT 10.90 dB **RBW** 300 kHz 12.6 μs **VBW** 1 MHz **Mode** Auto FFT 15.60 dBr 820.3300 *** 14.59 dBi 817.94100 MF 20 dBm-26.00 d 5.075000000 MF 161 -10 dBm-40 dBm -50 dBm-
 X-value
 Y-value
 Function

 817.941 MHz
 14.59 dbm
 nd8 down

 915.443 MHz
 -11.38 dbm
 nd8

 921.517 MHz
 -11.31 dbm
 Q factor
 X-value Y-value 820.339 MHz 15.60 dBm 813.885 MHz -10.59 dBm 824.395 MHz -10.59 dBm Type Ref Trc Date: 21.JUN.2021 13:57:02 Date: 21.JUN.2021 13:58:15 Low Channel / 15MHz / 64QAM 14.56 dBi 819.7620 MF 26.00 d 14.895000000 MF

Report No.: FG121931-04F

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Function Result 14.895 MHz 26.00 dB 55.0

FAX: 886-3-328-4978

Type Ref Trc

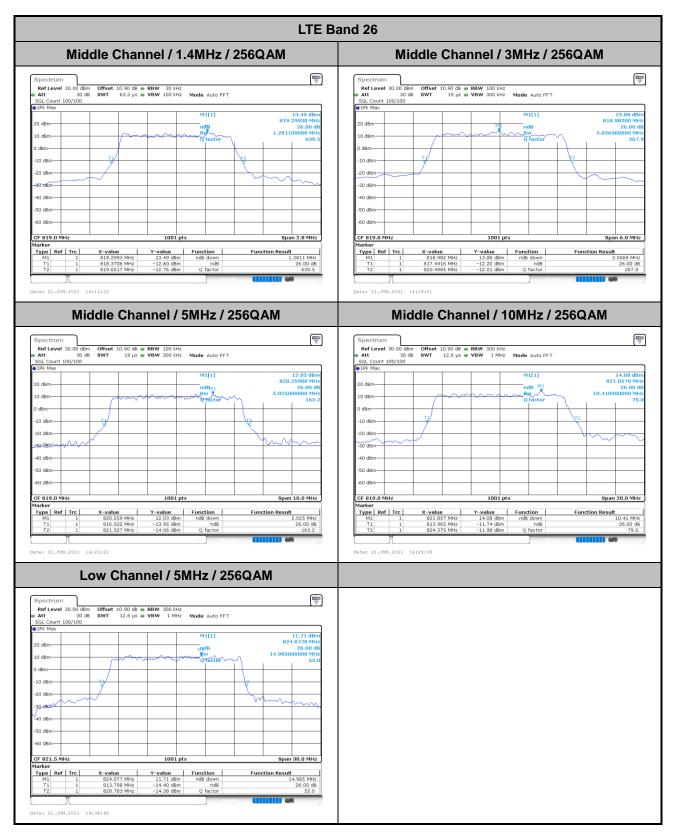
Date: 21.JUN.2021 13:53:43

 X-value
 Y-value
 Function

 819.762 MHz
 14.56 dBm
 nd8 down

 814.067 MHz
 -11.67 dBm
 nd8

 826.963 MHz
 -11.31 dBm
 Q factor



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Occupied Bandwidth

Mode	LTE Band 26 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Low CH	-	-	-	-	-	-	-	-	13.37	13.46	-	-
Middle CH	1.10	1.10	2.72	2.72	4.49	4.49	9.07	9.05	-	-	-	-
Mode	LTE Band 26 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Low CH	-	-	-	-	-	-	-	-	13.46	13.46	-	-
Middle CH	1.10	1.11	2.74	2.73	4.50	4.48	9.11	9.07	-	-	-	-

Report No.: FG121931-04F

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Date: 21.JUN.2021 14:02:41

LTE Band 26 Middle Channel / 1.4MHz / QPSK Middle Channel / 1.4MHz / 16QAM | Spectrum | Ref Level 30.00 d8m | Offset 10.90 d8 @ RBW 30 kHz | Alt 0.90 d8 @ SWT | 63.2 µs @ VBW 100 kHz | Mode Auto FFT | SGL count 100/100 | SWT | SGL count 100/100 | SGL co -10 dBm--10 dBm--20 dBm 30 d8m7 -40 dBm-40 dBm--50 dBm -50 dBm CF 819.0 MHz CF 819.0 MHz Span 2.8 MHz X-value Y-value Function 818.17986 MHz 16.02 dBm 918.45455 MHz 8.44 dBm Occ 8w 919.55664 MHz 7.95 dBm Type Ref Trc
 X-value
 Y-value
 Function
 Function Result

 819.1706 MHz
 15.17 dBm
 15.17 dBm
 15.17 dBm

 819.44995 MHz
 8.30 dBm
 Occ Bw
 1.09930

 819.54825 MHz
 8.38 dBm
 Occ Bw
 1.09930
 Type Ref Trc Function Result 1.102097902 MHz Date: 23.JUN.2021 11:33:38 Date: 23.JUN.2021 11:34:01 Middle Channel / 3MHz / QPSK Middle Channel / 3MHz / 16QAM 17.83 dBr 818.35860 MH 2.721278721 MH 17.75 dBn 819.80920 MH 2.721278721 MH 20 dBm 10 dBm--10 dBm--10 dBm -20 dBm-20 d8m 40 dBm 40 dBm -50 dBm -50 dBm-
 X-value
 Y-value
 Function

 818.3586 MHz
 17.83 dBm
 9

 817.63936 MHz
 11.99 dBm
 Occ Bw

 820.35064 MHz
 12.22 dBm

 X-value
 Y-value
 Function

 819.8092 MHz
 17.75 dbm
 917.63936 MHz

 817.63936 MHz
 11.19 dbm
 Occ Bw

 820.36064 MHz
 9.86 dbm
 Function Result Type Ref Trc 2.721278721 MHz 2.721278721 MHz Date: 21.JUN.2021 13:59:17 Date: 21.JUN.2021 13:59:40 Middle Channel / 5MHz / QPSK Middle Channel / 5MHz / 16QAM 16.51 dBn 820.54800 MH: 4.485514486 MH: 14.40 dBn 820.66800 MH; 4.485514486 MH; M1[1] M1[1] 10 dBm 0 dBm--10 dBm--36.98mmmm 30 dBm m 40 dBm -60 dBm--60 dBm-CF 819.0 MHz Marker 1001 pts CF 819.0 MHz Span 10.0 MHz 1001 pts Span 10.0 MHz
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 820,549 MHz
 16.51 dBm
 Occ 8w

 T1
 1
 916.75224 MHz
 11.10 dBm
 Occ 8w

 T2
 1
 821.24775 MHz
 11.62 dbm

 Marker
 Trope | Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 820.668 MHz
 14.40 dBm
 1

 T1
 1
 816.75225 MHz
 9.86 dBm
 Occ Bw

 T2
 1
 821.23776 MHz
 9.95 dBm
 Occ Bw
 Function Result Function Result 4.485514486 MHz 4.485514486 MHz 11111111 444

Report No.: FG121931-04F

Date: 21.JUN.2021 14:03:04

LTE Band 26 Middle Channel / 10MHz / QPSK Middle Channel / 10MHz / 16QAM Ref Level 30.00 dBm Offset 10.50 dB @ RBW 300 kHz
Ref Level 30.00 dBm V1 12.6 µs @ VBW 1 MHz Mode Auto FFT
SGL Count 100/100
13Pk Max 16.33 dBn 821.0380 MH 9.050949051 MH M1[1] M1[1] 10 dBmdBm-20 dBm--20 dBm--30 dBm-40 dBm-CF 819.0 MHz CF 819.0 MHz Marker Span 20.0 MHz Function Result 9.070929071 MHz 11.59 dBm Occ Bw 10.88 dBm 9.050949051 MHz Date: 21.JUN.2021 Low Channel / 15MHz / QPSK Low Channel / 15MHz / 16QAM 20 dBm-10 dBm--10 dBm--40 dBm--50 dBm-
 X-value
 Y-value
 Function

 818.743 MHz
 15.79 dBm
 St4.8167 MHz

 814.8167 MHz
 10.83 dBm
 Occ Bw

 828.1833 MHz
 10.37 dbm

 Marker
 Trype
 Ref
 Trc
 X-value
 Y-value
 Function

 M1
 1
 815.416 MHz
 14.97 dbm
 14.97 dbm

 T1
 1
 814.7867 MHz
 11.41 dbm
 Occ 8w

 T2
 1
 828.2493 MHz
 9.56 dbm
 Occ 8w
 Function Result 13.366633367 MHz 13.456543457 MHz

Date: 21.JUN.2021 13:54:04

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FAX: 886-3-328-4978

Date: 21.JUN.2021 13:54:49

-60 dBm CF 821.5 MHz Marker

Date: 21.JUN.2021 13:53:20

1001 pts

 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 816.135 MHz
 14.23 dBm

 T1
 1
 814.7867 MHz
 9.23 dBm
 Occ 8w

 T2
 1
 826.2433 MHz
 9.04 dBm
 Occ 8w

Report No.: FG121931-04F LTE Band 26 Middle Channel / 1.4MHz / 64QAM Middle Channel / 3MHz / 64QAM | Spectrum | Ref Level 30.00 d8m | Offset 10.90 d8 | RBW 100 kHz | Mode Auto FFT | SGL Count 100/100 | SWY | 19 µs | VBW 300 kHz | Mode Auto FFT | SGL Count 100/100 | SWY | Mode Auto FFT | SGL Count 100/100 | SWY | S M1[1] -10 dBm--10 dBm--40 dBm-40 dBm--50 dBm -50 dBm CF 819.0 MHz CF 819.0 MHz Span 2.8 MHz X-value Y-value Function
817.8971 MHz 16.88 dBm
817.62737 MHz 9.49 dBm Occ Bw
820.36663 MHz 9.25 dBm
 X-value
 Y-value
 Function
 Function Result

 819.2406 MHz
 14.55 dBm
 0cc Bw
 1.09930

 819.54825 MHz
 4.72 dBm
 Occ Bw
 1.09930

 819.54825 MHz
 6.41 dBm
 0cc Bw
 1.09930
 Type Ref Trc Type Ref Trc Function Result 1.099300699 MHz 2.739260739 MHz Date: 23.JUN.2021 11:32:15 Date: 21.JUN.2021 13:55:36 Middle Channel / 5MHz / 64QAM Middle Channel / 10MHz / 64QAM ▽ 14.02 dBn 818.25100 MH 4.495504406 20 dBm-10 dBm--10 dBm -10 dBm-20 dBm -20 dBm-40 dBm-40 dBm -50 dBm -50 dBm-
 X-value
 Y-value
 Function

 817.402 MHz
 15.19 dBm
 Occ Bw

 914.4446 MHz
 9.59 dBm
 Occ Bw

 823.5554 MHz
 9.76 dBm
 Function Result Type Ref Trc 4.495504496 MHz 9.110889111 MHz Date: 21.JUN.2021 13:56:39 Date: 21.JUN.2021 13:57:52 Low Channel / 5MHz / 64QAM 14.23 dBn 816.1350 MH 13.456543457 MH M1[1] mm



Function Result

13.456543457 MHz

LTE Band 26 Middle Channel / 1.4MHz / 256QAM Middle Channel / 3MHz / 256QAM Spectrum

Ref Level 30.80 dBm Offset 10.90 dB • RBW 30 kHz
Att 30 dB SWT 63.2 µs • VBW 100 kHz Mode Auto FFT
SGL Count 100/100 M1[1] -10 dBm--10 dBm-30 dBm--40 dBm-40 dBm--50 dBm -50 dBm CF 819.0 MHz CF 819.0 MHz Span 2.8 MHz
 X-value
 Y-value
 Function
 Function Result

 819.1678 MHz
 11.86 dBm
 18.84 4895 MHz
 3.36 dBm
 Occ Bw
 1.10769

 819.55664 MHz
 5.16 dBm
 Occ Bw
 1.10769
 Type Ref Trc 6.18 dBm Occ Bw 7.59 dBm 1.107692308 MHz 2.733266733 MHz Date: 21.JUN.2021 14:12:05 Date: 21.JUN.2021 14:17:22 Middle Channel / 5MHz / 256QAM Middle Channel / 10MHz / 256QAM 11.72 dBr 819.55900 MH 4.475524476 MH 20 dBm 10 dBm--10 dBm -10 dBm--20 dBm -20 dBm--40 dBm-40 dBm -50 dBm -50 dBm-| X-value | Y-value | Function | | | 819.559 MHz | 11.72 dBm | | | 815.76224 MHz | 5.97 dBm | Occ Bw | | | 821.23776 MHz | 6.36 dBm |
 X-value
 Y-value
 Function

 816.103 MHz
 13.86 dBm
 68.84 dBm

 814.4845 MHz
 6.88 dBm
 Occ Bw

 823.5554 MHz
 7.92 dBm
 Function Result Type Ref Trc 4.475524476 MHz 9.070929071 MHz Date: 21.JUN.2021 14:22:55 Date: 21.JUN.2021 14:28:43 Low Channel / 15MHz / 256QAM 11.96 dBn 822.2490 MH 13.456543457 MH M1[1] -30 dBm= -60 dBm-CF 821.5 MHz Marker 1001 pts
 Marker
 Trc
 X-value
 Y-value
 Function

 M1
 1
 822.249 MHz
 11.96 dBm
 0 Cc Bw

 T1
 1
 814.7856 MHz
 6.91 dBm
 0 Cc Bw

 T2
 1
 828.2133 MHz
 6.03 dBm
 0 Cc Bw
 Function Result

Report No.: FG121931-04F

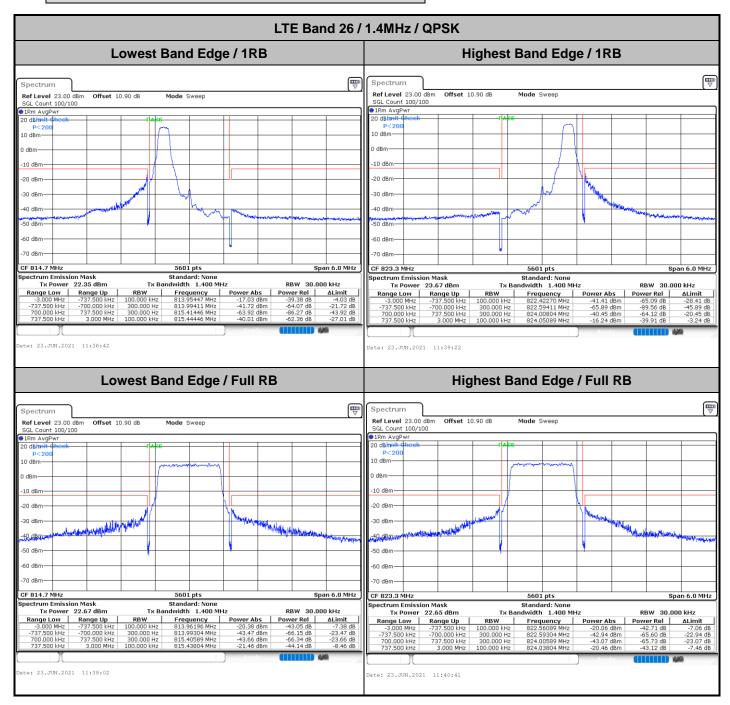
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13.456543457 MHz

FAX: 886-3-328-4978

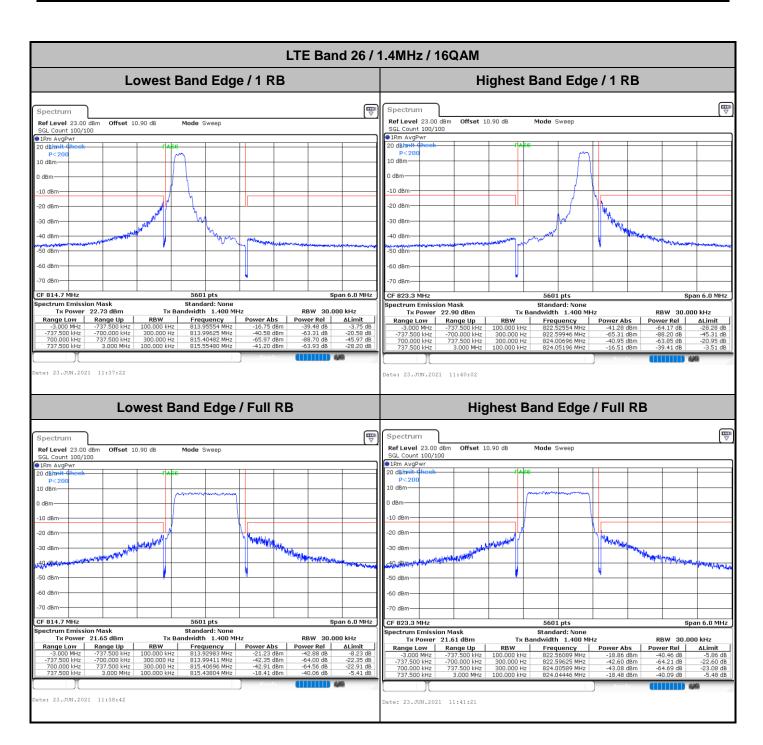
Date: 21.JUN.2021 14:36:21

Emission masks - In-band emissions

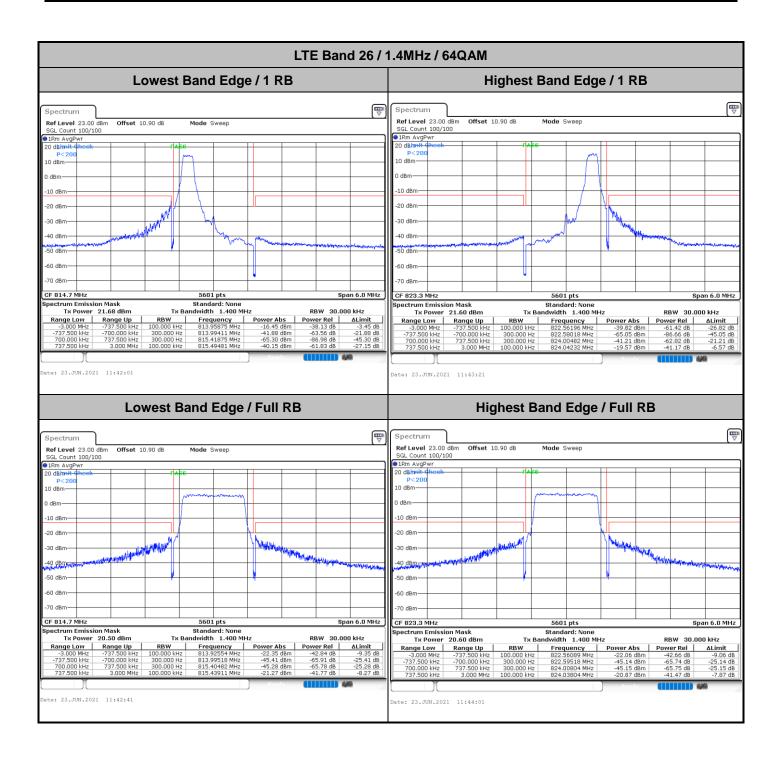


Report No.: FG121931-04F

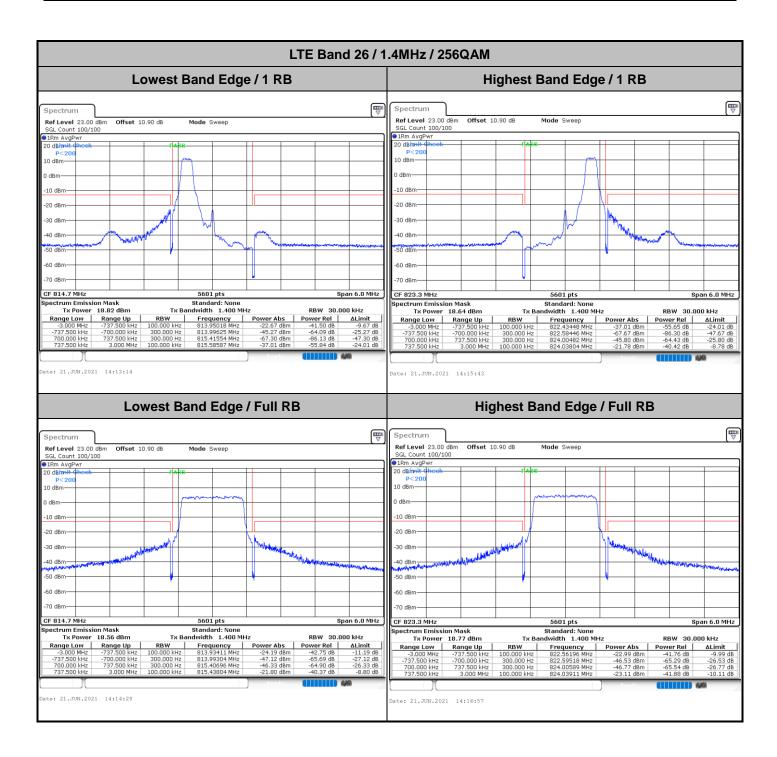
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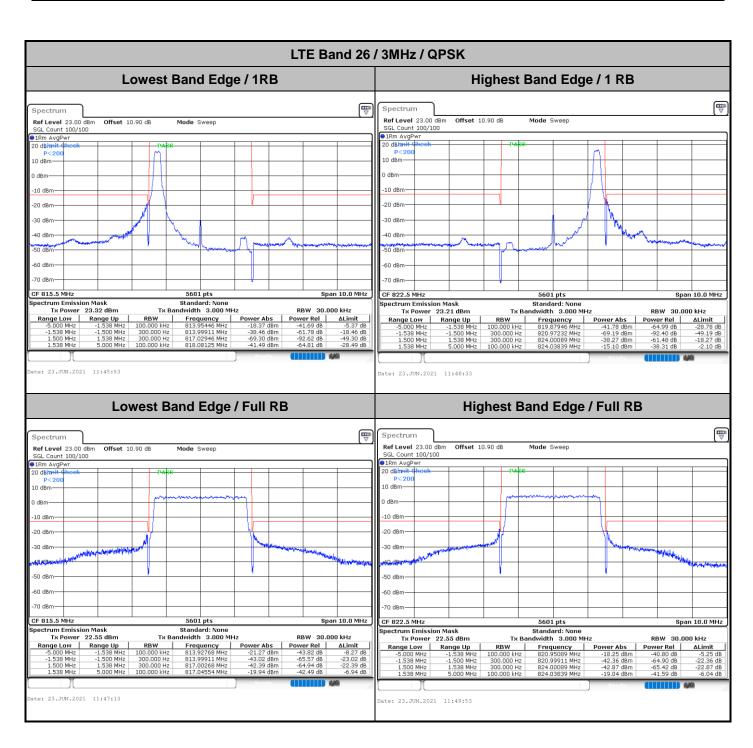
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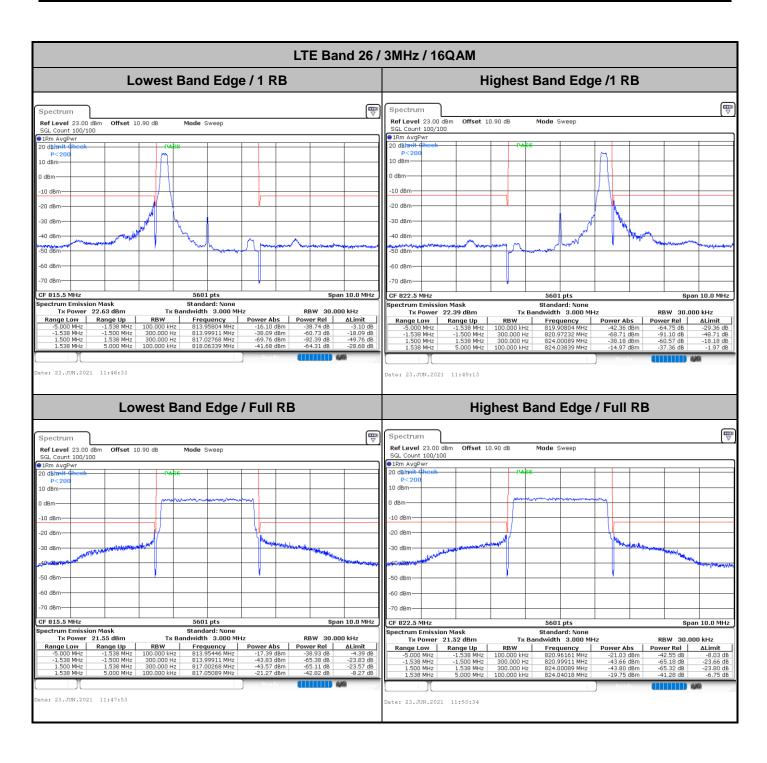
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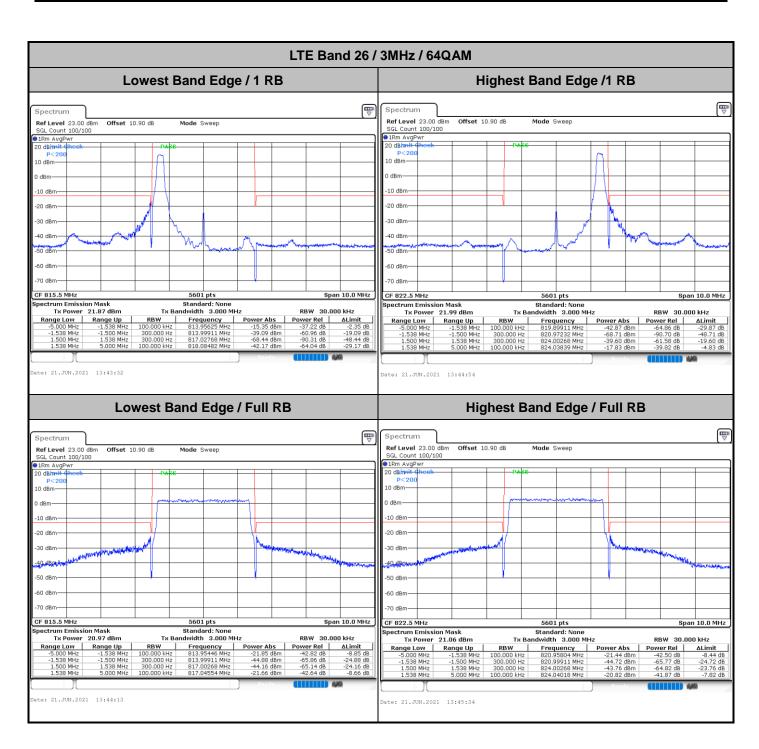
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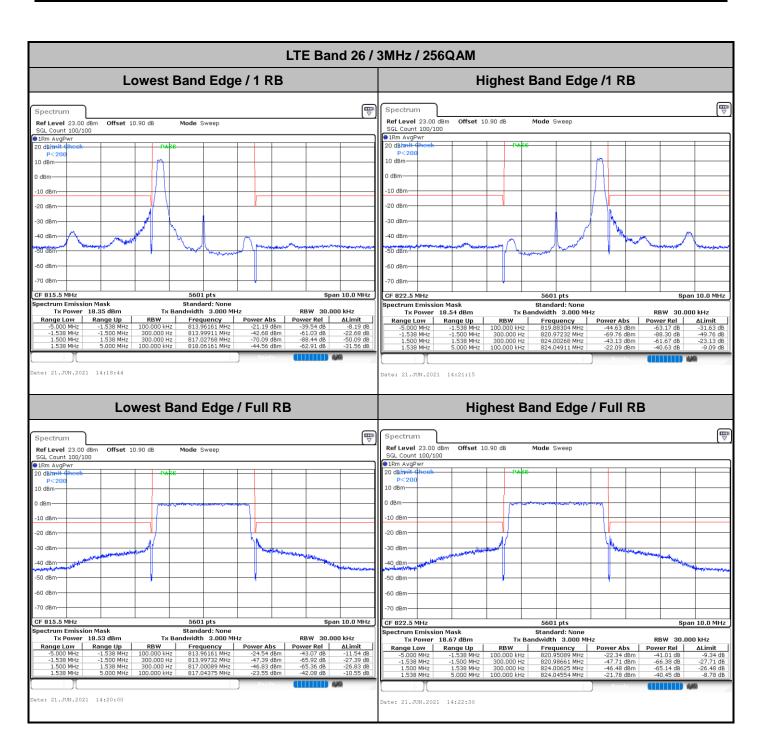
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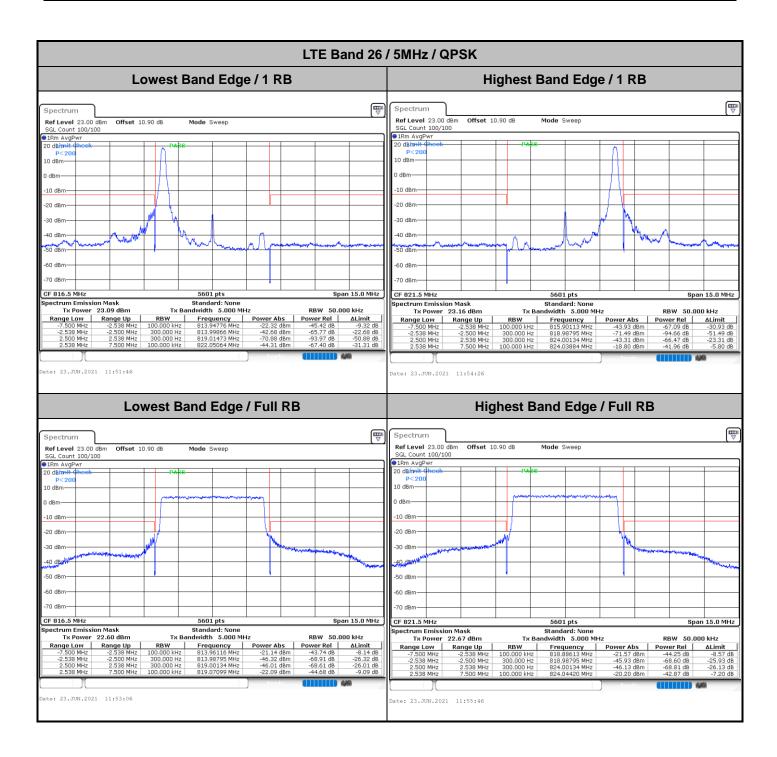
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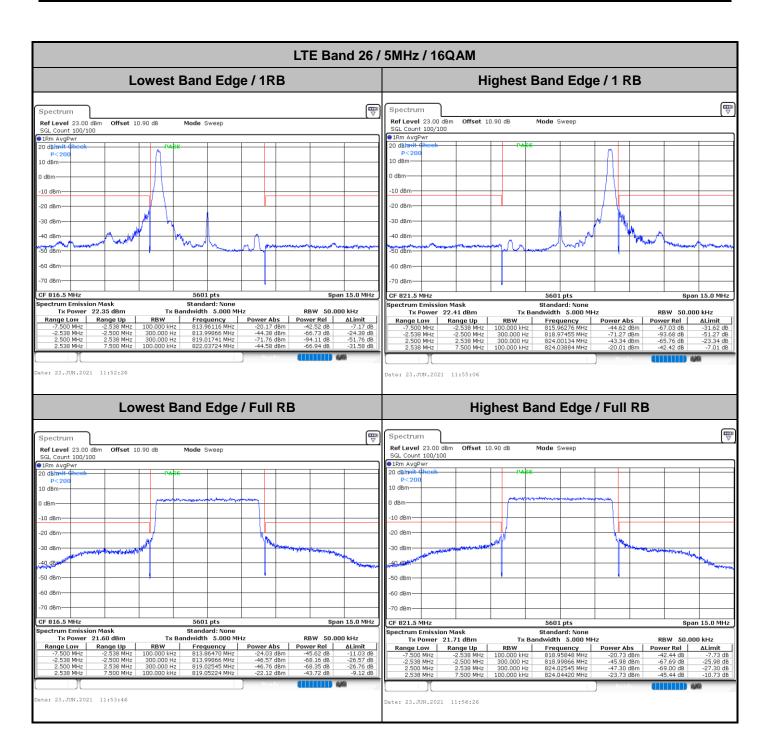
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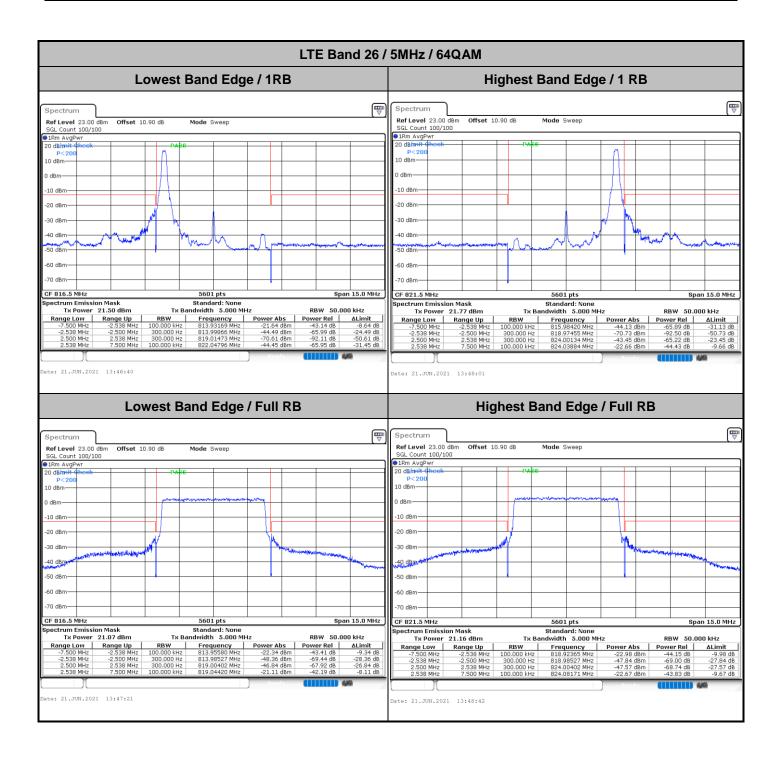
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