

FCC Radio Test Report

FCC ID: HFSQTA-LI7CS

Report No. : BTL-FCCP-1-2107T083A
Equipment : Notebook Computer
Model Name : NL72LTE, NL72CT-LTE, LI7, LI7XXXXXXXXXX, NL7XXXXXXXXXX(The "X" Can be 0-9,A-Z, a-z ,- or blank for the marketing purpose)
Brand Name : Quanta, CTL
Applicant : Quanta Computer Inc.
Address : No. 188, Wenhua 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan


Radio Function : WCDMA Band V+ LTE Band 5

FCC Rule Part(s) : 47 CRF FCC Part 22, Subpart H
47 CFR FCC Part 2
Measurement Procedure(s) : ANSI/TIA/EIA-603-E-2016
KDB 971168 D01 Power Meas License Digital Systems v03r01

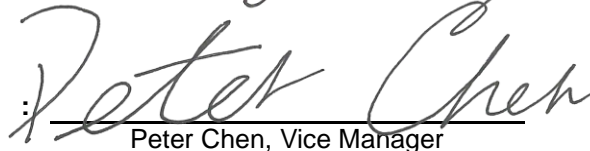
Date of Receipt : 2021/9/11
Date of Test : 2021/9/11 ~ 2021/10/4
Issued Date : 2021/11/1

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

CONTENTS

REVISION HISTORY	5
1 SUMMARY OF TEST RESULTS	6
1.1 TEST FACILITY	7
1.2 MEASUREMENT UNCERTAINTY	7
1.3 TEST ENVIRONMENT CONDITIONS	7
2 GENERAL INFORMATION	8
2.1 DESCRIPTION OF EUT	8
2.2 TEST MODES	10
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
2.4 SUPPORT UNITS	11
3 AC POWER LINE CONDUCTED EMISSIONS TEST	12
3.1 LIMIT	12
3.2 TEST PROCEDURE	12
3.3 DEVIATION FROM TEST STANDARD	12
3.4 TEST SETUP	13
3.5 TEST RESULT	13
4 RF POWER OUTPUT TEST	14
4.1 LIMIT	14
4.2 TEST PROCEDURE	14
4.3 DEVIATION FROM TEST STANDARD	14
4.4 TEST SETUP	14
4.5 TEST RESULT	14
5 OCCUPIED BANDWIDTH MEASUREMENT	15
5.1 TEST PROCEDURE	15
5.2 DEVIATION FROM TEST STANDARD	15
5.3 TEST SETUP	15
5.4 TEST RESULT	15
6 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	16
6.1 LIMIT	16
6.2 TEST PROCEDURE	16
6.3 DEVIATION FROM TEST STANDARD	16
6.4 TEST SETUP	16
6.5 TEST RESULT	16
7 RADIATED SPURIOUS EMISSIONS TEST	17
7.1 LIMIT	17
7.2 TEST PROCEDURE	17
7.3 DEVIATION FROM TEST STANDARD	17
7.4 TEST SETUP	18
7.5 EUT OPERATING CONDITIONS	18
7.6 TEST RESULT	18
8 BAND EDGE MEASUREMENT	19
8.1 LIMIT	19
8.2 TEST PROCEDURE	19
8.3 DEVIATION FROM TEST STANDARD	19
8.4 TEST SETUP	19
8.5 TEST RESULT	19
9 PEAK TO AVERAGE RATIO MEASUREMENT	20
9.1 LIMIT	20

9.2	TEST PROCEDURE	20
9.3	DEVIATION FROM TEST STANDARD	20
9.4	TEST SETUP	20
9.5	TEST RESULT	20
10	FREQUENCY STABILITY MEASUREMENT	21
10.1	LIMIT	21
10.2	TEST PROCEDURE	21
10.3	DEVIATION FROM TEST STANDARD	21
10.4	TEST SETUP	21
10.5	TEST RESULT	21
11	LIST OF MEASURING EQUIPMENTS	22
12	EUT TEST PHOTO	24
13	EUT PHOTOS	24
APPENDIX A	AC POWER LINE CONDUCTED EMISSIONS	25
APPENDIX B	RF POWER OUTPUT TEST	30
APPENDIX C	OCCUPIED BANDWIDTH	48
APPENDIX D	CONDUCTED SPURIOUS EMISSION	59
APPENDIX E	RADIATED SPURIOUS EMISSIONS TEST	65
APPENDIX F	BAND EDGE	74
APPENDIX G	PEAK TO AVERAGE RATIO	80
APPENDIX H	FREQUENCY STABILITY	86

REVISION HISTORY

Report No.	Version	Description	Issued Date
BTL-FCCP-1-2107T083A	R00	Original Report.	2021/10/13
BTL-FCCP-1-2107T083A	R01	Added one brand name.	2021/11/1

1 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

FCC Clause No	Description	Test Result	Judgement	Remark
15.207	AC Power Line Conducted Emissions	APPENDIX A	Pass	-----
2.1046 22.913(a)(5)	RF Power Output	APPENDIX B	Pass	-----
2.1049	Occupied Bandwidth	APPENDIX C	Pass	-----
2.1051 22.917(a)	Conducted Spurious Emissions	APPENDIX D	Pass	-----
2.1053 22.917(a)	Radiated Spurious Emissions	APPENDIX E	Pass	-----
22.917(a)	Band Edge Measurements	APPENDIX F	Pass	-----
-	Peak To Average Ratio	APPENDIX G	Pass	Record Only
2.1055 22.355	Frequency Stability	APPENDIX H	Pass	-----

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report.
- (2) The report format version is TP.1.1.1.

1.1 TEST FACILITY

The test facilities used to collect the test data in this report:

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

The test sites and facilities are covered under FCC RN: 674415 and DN: TW0659.

- C05 CB08 CB11 CB15 CB16
 SR05

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k = 2$, providing a level of confidence of approximately **95 %**.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{cispr} requirement.

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U (dB)
C05	CISPR	150 kHz ~ 30MHz	3.44

B. Radiated Spurious Emissions test :

Test Site	Measurement Frequency Range	U,(dB)
CB15	0.03 GHz ~ 0.2 GHz	4.17
	0.2 GHz ~ 1 GHz	4.72
	1 GHz ~ 6 GHz	5.21
	6 GHz ~ 18 GHz	5.51
	18 GHz ~ 26 GHz	3.69
	26 GHz ~ 40 GHz	4.23

NOTE:

Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Environment Condition	Test Voltage	Tested by
AC Power Line Conducted Emissions	24 °C, 51 %	AC 120V	Tim Lian
Output Power & ERP	24.6 °C, 67 % 25 °C, 52 %	AC 120V	Paul Shen Vincent Lee
Occupied Bandwidth	24.6 °C, 67 %	AC 120V	Paul Shen
Conducted Spurious Emissions	24.6 °C, 67 %	AC 120V	Paul Shen
Radiated Spurious Emissions	25 °C, 52 %	AC 120V	Vincent Lee
Band Edge	24.6 °C, 67 %	AC 120V	Paul Shen
Peak to Average Ratio	24.6 °C, 67 %	AC 120V	Paul Shen
Frequency Stability	Normal and Extreme		Paul Shen

2 GENERAL INFORMATION

2.1 DESCRIPTION OF EUT

Equipment	Notebook Computer		
Model Name	NL72LTE, NL72CT-LTE, LI7, LI7XXXXXXXXXX, NL7XXXXXXXXXX(The "X" Can be 0-9,A-Z, a-z ,- or blank for the marketing purpose)		
Brand Name	Quanta, CTL		
Model Difference	Brand Name	Model Name	
	Quanta	LI7, LI7XXXXXXXXXX (The "X" Can be 0-9,A-Z, a-z ,- or blank for the marketing purpose)	
	CTL	NL72LTE, NL72CT-LTE, NL7XXXXXXXXXX(The "X" Can be 0-9,A-Z, a-z ,- or blank for the marketing purpose)	
	Different model distribute to different area.		
Power Source	DC voltage supplied from AC/DC Adapter.		
Power Adapter	LITEON / PA-1450-50		
Power Adapter Power Rating	I/P: 100-240V~1.3A 50/60Hz O/P: 5.0V---3.0A, 9.0V---3.0A, 12.0V---3.0A, 15.0V---3.0A, 20.0V---2.25A		
WWAN Module	Fibocom / NL668-AM		
WCDMA IEMI No.	Call Setup Screen		
	Call Control	Active Cell Operating Mode	Call Parms
	Operating Mode	UE Information	Cell Power
	Active Cell	IMSI: 001012345678901 IMEI(SU): 867958050023747 (---) Power Class: 3	-25.00 dBm/3.84 MHz
	End Call	UE Expected Open Loop Transmit Power	Channel Type
	Paging Parameters	Initial PRACH TX Power: -60.00 dBm Initial DPCH TX Power: 18.45 dBm	12.2k RNC
	Handovers	Call Processing Status	Paging Service
	Clear UE Info	Current Service Type: RB Test Node IM Status: IMSI Attached GMM State: Attached Current DPCH Offset: 0 chips	RB Test Node
		HSUPA Information	HSPA Parameters
		Rep EDCH Cat/Ext: 6/Unrep Last received E-TFCI: --- Throughput: --- kbps Acks Transmitted: ---	Cur UE HS-DSCH Cat: 24 Block Error Ratio: --- % Throughput: --- kbps Blocks Transmitted: ---
	Background	Active Cell	Sys Type: UTRA FDD
		Connected	
	1 of 6	IntRef Offset	1 of 3
LTE IEMI No.	2021/09/22 13:33 Connected Phone-2 Phone-1 <Fundamental Measurement> Output Main Continuous --- LTE		
	Parameter Fundamental UE Report		
	Measuring (Spectrum) UE Power : 21.4 dBm UE Report		
	UE Report		
	IMSI(DEC)	001010123456789	
	IMEI	867958050023740	
	UE Category	4	
	PDN Type	IPv4v6	
	PCC		
	RSRP	()	
RSRQ	()		
SCC-1			
RSRP	()		
RSRQ	()		
SCC-2			
RSRP	()		
RSRQ	()		
Neighbour Cell			
LTE			
Cell ID			
RSRP	()		
RSRQ	()		
W-CDMA/TD-SCDMA	RAT	Cell ID RSCP	
GSM	Band ARFCN	NCC BCC RXLEV	

Test Model	NL72LTE			
Sample Status	Engineering Sample			
Operation Frequency	Mode	Band	UL Frequency (MHz)	DL Frequency (MHz)
	WCDMA	V	824 ~ 849	869 ~ 894
	LTE	5	824 ~ 849	869 ~ 894
EUT Modification(s)	N/A			

NOTE:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

(2) Channel List:

WCDMA Band V				
Test Frequency ID	UARFCN	Frequency of Uplink (MHz)	UARFCN	Frequency of Downlink (MHz)
Low Range	4132	826.4	4357	871.4
Mid Range	4183	836.6	4408	881.5
High Range	4233	846.6	4458	891.6

LTE Band 5					
Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink (MHz)	N _{DL}	Frequency of Downlink (MHz)
Low Range	1.4	20407	824.7	2407	869.7
	3	20415	825.5	2415	870.5
	5	20425	826.5	2425	871.5
	10	20450	829	2450	874
Mid Range	1.4/3/5/10	20525	836.5	2525	881.5
High Range	1.4	20643	848.3	2643	893.3
	3	20635	847.5	2635	892.5
	5	20625	846.5	2625	891.5
	10	20600	844	2600	889

(3) Table for Filed Antenna:

Antenna	Manufacturer	Part Number	Type	Gain (dBi)	Note
Main	WNC	DQ6615GAU00 (81EAA615.GAU)	PIFA	-1.99	-
Aux	WNC	DQ6615GVU00 (81EAA615.GAV)	PIFA	-0.50	-

2.2 TEST MODES

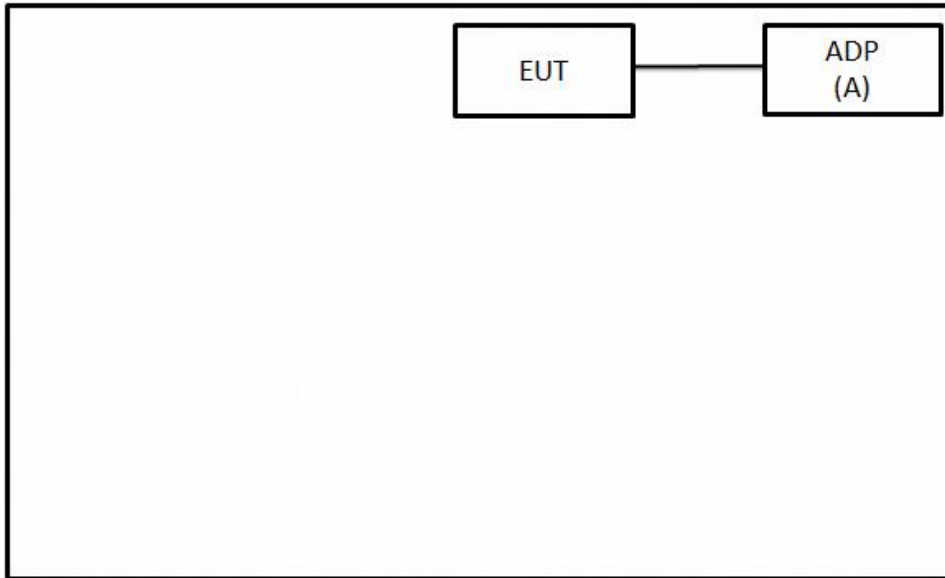
WCDMA BAND V MODE			
Test Item	Available Channel	Tested Channel	Mode
Output Power & ERP	4132 to 4233	4132, 4183, 4233	WCDMA, HSDPA, HSUPA
Occupied Bandwidth	4132 to 4233	4132, 4183, 4233	WCDMA
Conducted Spurious Emissions	4132 to 4233	4183	WCDMA
Radiated Spurious Emissions	4132 to 4233	4183	WCDMA
Band Edge	4132 to 4233	4132, 4233	WCDMA
Peak to Average Ratio	4132 to 4233	4132, 4183, 4233	WCDMA
Frequency Stability	4132 to 4233	4183	WCDMA

LTE BAND 5 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM,64QAM	1RB/3RB/6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM,64QAM	1RB/8RB/15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM,64QAM	1RB/12RB/25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM,64QAM	1RB/25RB/50RB
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM,64QAM	6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM,64QAM	15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM,64QAM	25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM,64QAM	50RB
Conducted Spurious Emissions	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB
Radiated Spurious Emissions	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB
Band Edge	20407 to 20643	20407, 20643	1.4MHz	QPSK	1RB/6RB
	20415 to 20635	20415, 20635	3MHz	QPSK	1RB/15RB
	20425 to 20625	20425, 20625	5MHz	QPSK	1RB/25RB
	20450 to 20600	20450, 20600	10MHz	QPSK	1RB/50RB
Peak To Average Ratio	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM,64QAM	1RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM,64QAM	1RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM,64QAM	1RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM,64QAM	1RB
Frequency Stability	20407 to 20643	20525	1.4MHz	QPSK	1RB
	20415 to 20635	20525	3MHz	QPSK	1RB
	20425 to 20625	20525	5MHz	QPSK	1RB
	20450 to 20600	20525	10MHz	QPSK	1RB

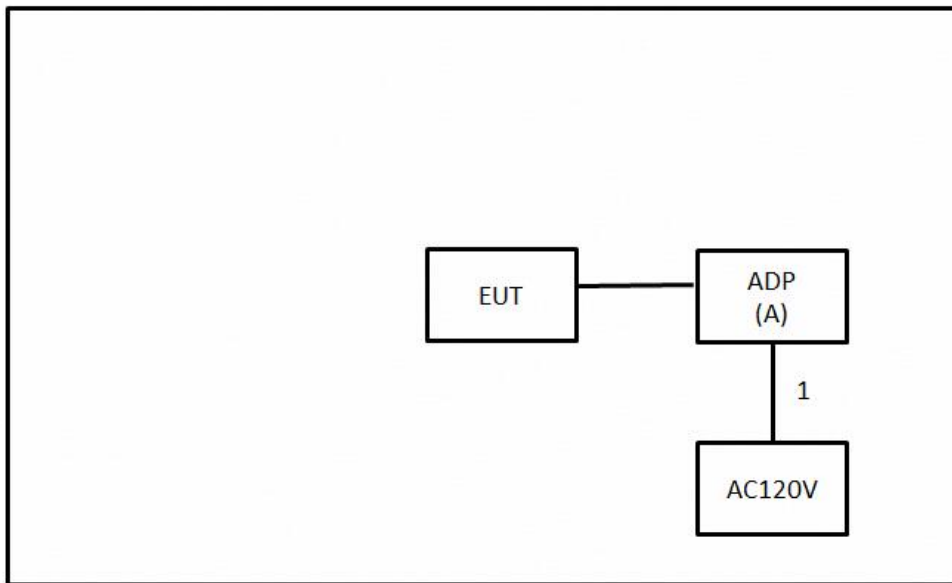
2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.

AC Power Line Conducted Emissions Test



Radiated Emissions



2.4 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	Adapter	LITEON	PA-1450-50	N/A	Supplied by test requester

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	N/A	N/A	1m	Power Cord	Supplied by test requester

3 AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56 *	56 - 46 *
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)
 Margin Level = Measurement Value – Limit Value
 Calculation example:

Reading Level		Correct Factor		Measurement Value
38.22	+	3.45	=	41.67

Measurement Value		Limit Value		Margin Level
41.67	-	60	=	-18.33

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
 All other support equipment were powered from an additional LISN(s).
 The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
- c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.
 The end of the cable will be terminated, using the correct terminating impedance.
 The overall length shall not exceed 1 m.
- d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
- e. For the actual test configuration, please refer to the related Item - EUT TEST PHOTO.

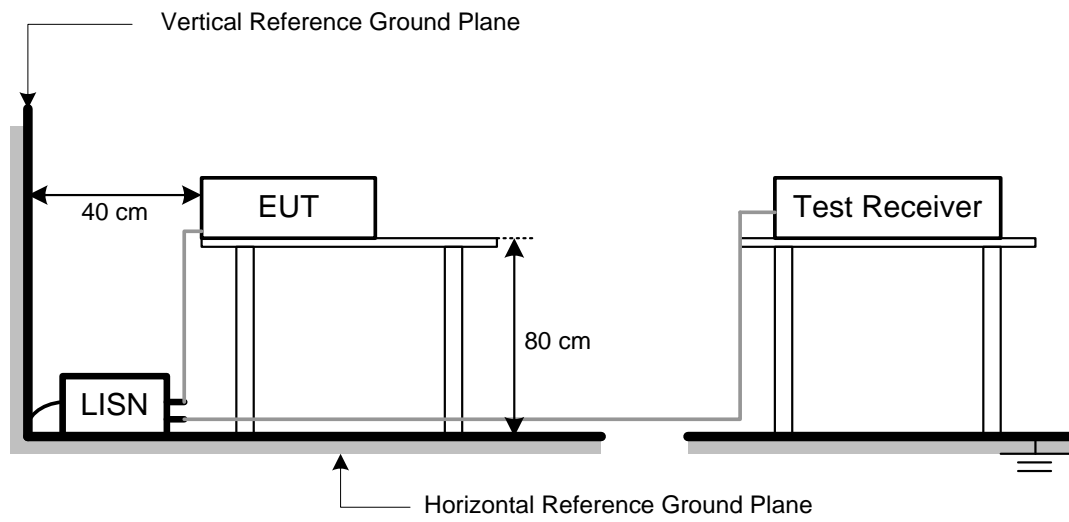
NOTE:

- (1) In the results, each reading is marked as Peak, QP or AVG per the detector used.
 BW=9 kHz (6 dB Bandwidth)
- (2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

3.3 DEVIATION FROM TEST STANDARD

No deviation.

3.4 TEST SETUP



3.5 TEST RESULT

Please refer to the APPENDIX A.

4 RF POWER OUTPUT TEST

4.1 LIMIT

Mobile / Portable station are limited to 7 watts e.r.p.

4.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.

EIRP / ERP Power Measurement:

EIRP = Conducted Power + Antenna gain.

ERP power = EIPR power - 2.15 dBi.

Conducted Power Measurement:

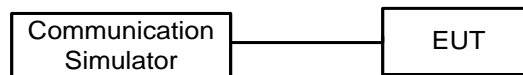
The EUT was set up for the maximum power with WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4 TEST SETUP

Conducted Power Measurement:



4.5 TEST RESULT

Please refer to the APPENDIX B.

5 OCCUPIED BANDWIDTH MEASUREMENT

5.1 TEST PROCEDURE

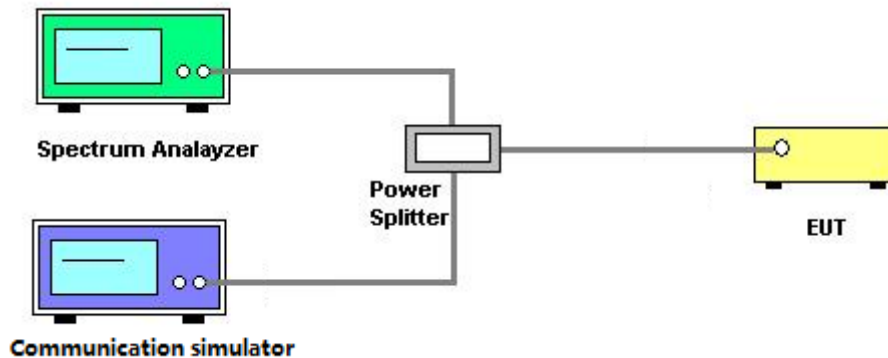
The testing follows FCC KDB 971168 v03r01 Section 4.

- The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth and 26dB bandwidth.
- The EUT was connected to spectrum analyzer and system simulator via a power divider.
- $RBW=(1\% \sim 5\%)*EBW$
 $VBW \geq 3* RBW$.
- Set spectrum analyzer with Peak detector.

5.2 DEVIATION FROM TEST STANDARD

No deviation.

5.3 TEST SETUP



5.4 TEST RESULT

Please refer to the APPENDIX C

6 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

6.1 LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm.

6.2 TEST PROCEDURE

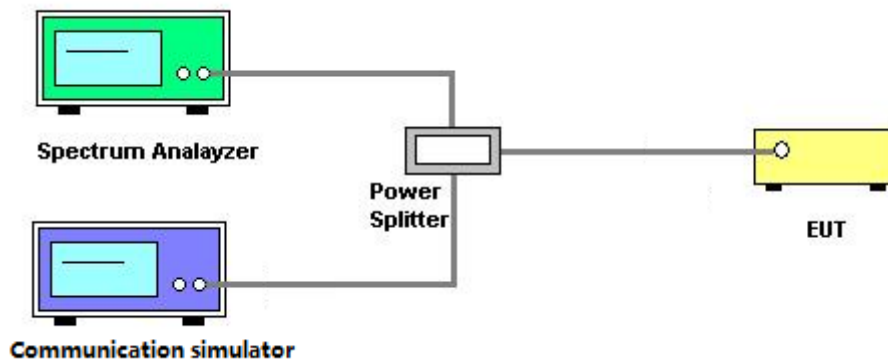
The testing follows FCC KDB 971168 v03r01 Section 6.

- The EUT was connected to spectrum analyzer and system simulator via a power divider.
- The band edges of low and high channels for the highest RF powers were measured. Set $RBW \geq 1\% EBW$ in the 1MHz band immediately outside and adjacent to the band edge.
- Set spectrum analyzer with Peak detector.
- The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

6.3 DEVIATION FROM TEST STANDARD

No deviation.

6.4 TEST SETUP



6.5 TEST RESULT

Please refer to the APPENDIX D

7 RADIATED SPURIOUS EMISSIONS TEST

7.1 LIMIT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm.

NOTE:

(1) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)

Margin Level = Measurement Value - Limit Value

Calculation example:

Reading Level		Correct Factor		Measurement Value
-50.43	+	-2.11	=	-52.54

Measurement Value		Limit Value		Margin Level
-52.54	-	-13	=	-39.54

7.2 TEST PROCEDURE

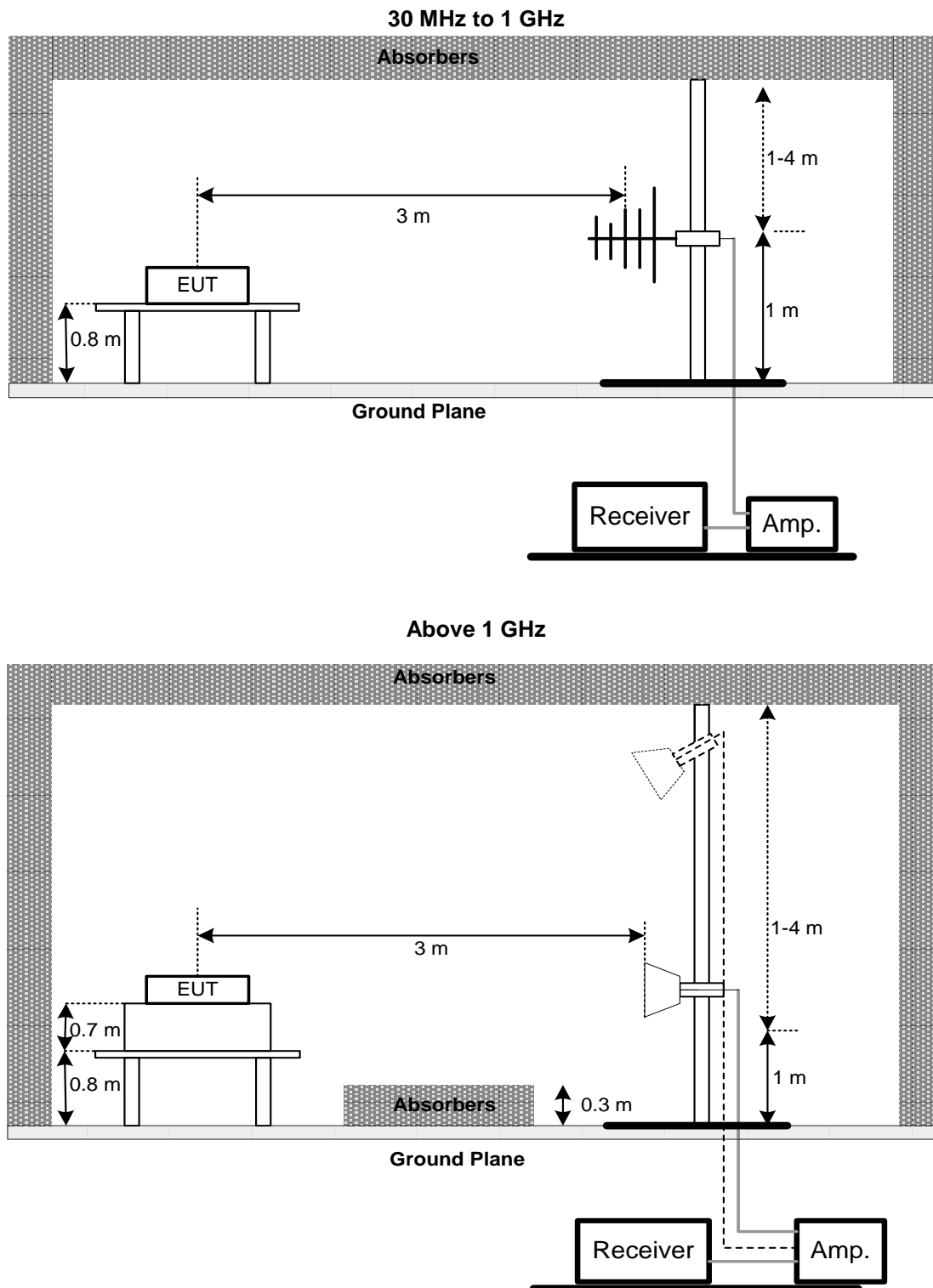
The testing follows FCC KDB 971168 v03r01 Section 6.2.

- a. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G
- c. EIRP = Output power level of S.G - TX cable loss + Antenna gain of substitution horn.
- d. ERP can be calculated form EIRP by subtracting the gain of dipole, $ERP = EIPR - 2.15\text{dBi}$.
- e. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

7.3 DEVIATION FROM TEST STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULT

Please refer to the APPENDIX E

8 BAND EDGE MEASUREMENT

8.1 LIMIT

A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

8.2 TEST PROCEDURE

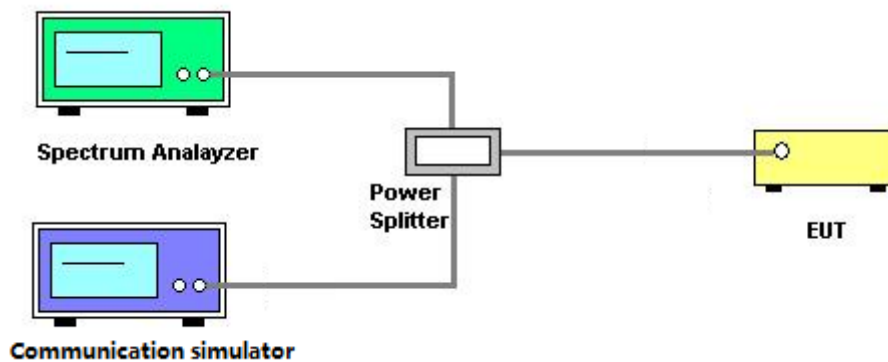
The testing follows FCC KDB 971168 v03r01 Section 6.

- a. All measurements were done at low and high operational frequency range.
- b. Record the max trace plot into the test report.

8.3 DEVIATION FROM TEST STANDARD

No deviation.

8.4 TEST SETUP



8.5 TEST RESULT

Please refer to the APPENDIX F

9 PEAK TO AVERAGE RATIO MEASUREMENT

9.1 LIMIT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

9.2 TEST PROCEDURE

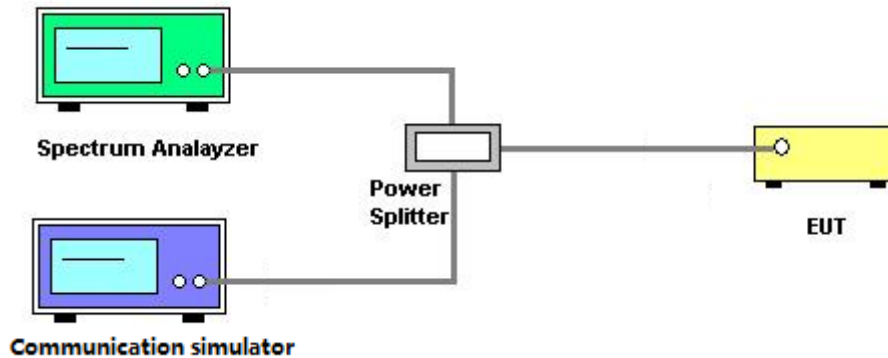
The testing follows FCC KDB 971168 v03r01 Section 5.7.

- Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

9.3 DEVIATION FROM TEST STANDARD

No deviation.

9.4 TEST SETUP



9.5 TEST RESULT

Please refer to the APPENDIX G

10 FREQUENCY STABILITY MEASUREMENT

10.1 LIMIT

± 1.5 ppm is for base and fixed station. ± 2.5 ppm is for mobile station.

10.2 TEST PROCEDURE

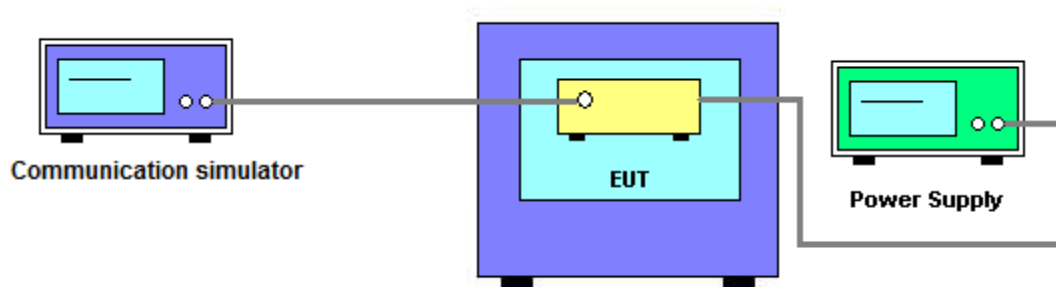
The testing follows FCC KDB 971168 v03r01 Section 9.

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error..
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
- The frequency error was recorded frequency error from the communication simulator.

10.3 DEVIATION FROM TEST STANDARD

No deviation.

10.4 TEST SETUP



10.5 TEST RESULT

Please refer to the APPENDIX H

11 LIST OF MEASURING EQUIPMENTS

AC Power Line Conducted Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	TWO-LINE V-NETWORK	R&S	ENV216	101339	2021/3/10	2022/3/9
2	Test Cable	EMCI	EMCRG58-BM-B M-9000	210501	2021/5/3	2022/5/2
3	EMI Test Receiver	R&S	ESR 7	101433	2020/12/11	2021/12/10
4	Measurement Software	EZ	EZ EMC (Version NB-03A1-01)	N/A	N/A	N/A

RF Power Output						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2021/7/23	2022/7/22
2	Radio Communication Analyzer	Anritsu	MT8820C	6201381608	2021/1/7	2022/1/6

Radiated Spurious Emissions						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	Preamplifier	EMCI	EMC02325B	980217	2021/4/8	2022/4/7
2	Preamplifier	EMCI	EMC012645B	980267	2021/4/8	2022/4/7
3	Test Cable	EMCI	EMC-SM-SM-1000	180809	2021/4/8	2022/4/7
4	Test Cable	EMCI	EMC104-SM-SM-3000	151205	2021/4/8	2022/4/7
5	Test Cable	EMCI	EMC-SM-SM-7000	180408	2021/4/8	2022/4/7
6	MXE EMI Receiver	Agilent	N9038A	MY554200087	2021/5/27	2022/5/26
7	Signal Analyzer	Agilent	N9010A	MY56480554	2021/8/25	2022/8/24
8	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	2021/6/2	2022/6/1
9	Horn Ant	Schwarzbeck	BBHA 9170	BBHA 9170340	2021/7/9	2022/7/8
10	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	VULB 9168-352	2021/8/11	2022/8/10
11	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0625	2021/8/11	2022/8/10
12	Measurement Software	EZ	EZ EMC (Version NB-03A1-01)	N/A	N/A	N/A
13	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2021/7/23	2022/7/22
14	Radio Communication Analyzer (LTE)	Anritsu	MT8820C	6201381608	2021/1/7	2022/1/6

Frequency Stability Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2021/7/23	2022/7/22
2	Radio Communication Analyzer	Anritsu	MT8820C	6201381608	2021/1/7	2022/1/6
3	Thermal Chamber	HOLINK	H-T-1F-D	BA03101701	2021/6/28	2022/6/27

Others Conducted Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated Date	Calibrated Until
1	8960 Series 10 Wireless Com Test Set	Agilent	E5515C	GB47390193	2021/7/23	2022/7/22
2	Radio Communication Analyzer	Anritsu	MT8820C	6201381608	2021/1/7	2022/1/6
3	Spectrum Analyzer	R&S	FSP40	100129	2021/6/8	2022/6/7
4	Spectrum Analyzer	Agilent	N9010A	MY54200240	2021/5/27	2022/5/26

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.
All calibration period of equipment list is one year.

12 EUT TEST PHOTO

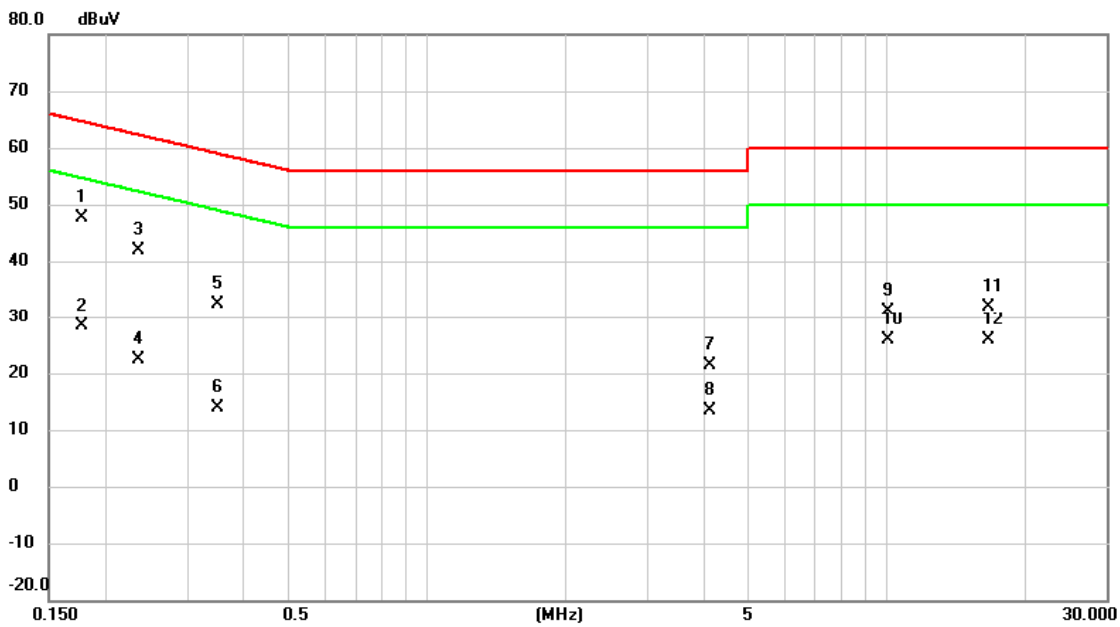
Please refer to document Appendix No.: TP-2107T083A-FCCP-1 (APPENDIX-TEST PHOTOS).

13 EUT PHOTOS

Please refer to document Appendix No.: EP-2107T083A-1 (APPENDIX-EUT PHOTOS).

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

Test Mode	Normal	Tested Date	2021/9/17
Test Frequency	-	Phase	Line

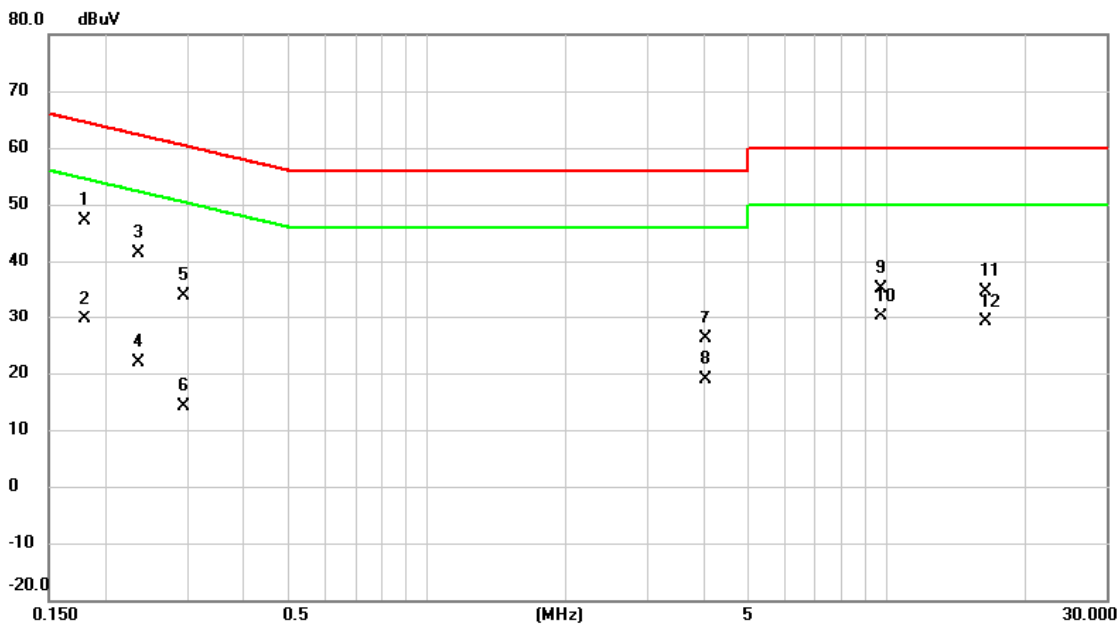


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1770	38.01	9.72	47.73	64.63	-16.90	QP	
2		0.1770	18.75	9.72	28.47	54.63	-26.16	AVG	
3		0.2355	32.10	9.72	41.82	62.25	-20.43	QP	
4		0.2355	12.74	9.72	22.46	52.25	-29.79	AVG	
5		0.3525	22.74	9.72	32.46	58.90	-26.44	QP	
6		0.3525	4.22	9.72	13.94	48.90	-34.96	AVG	
7		4.0920	11.43	9.90	21.33	56.00	-34.67	QP	
8		4.0920	3.46	9.90	13.36	46.00	-32.64	AVG	
9		10.0433	21.11	10.11	31.22	60.00	-28.78	QP	
10		10.0433	15.77	10.11	25.88	50.00	-24.12	AVG	
11		16.5930	21.65	10.20	31.85	60.00	-28.15	QP	
12		16.5930	15.64	10.20	25.84	50.00	-24.16	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Normal	Tested Date	2021/9/17
Test Frequency	-	Phase	Neutral

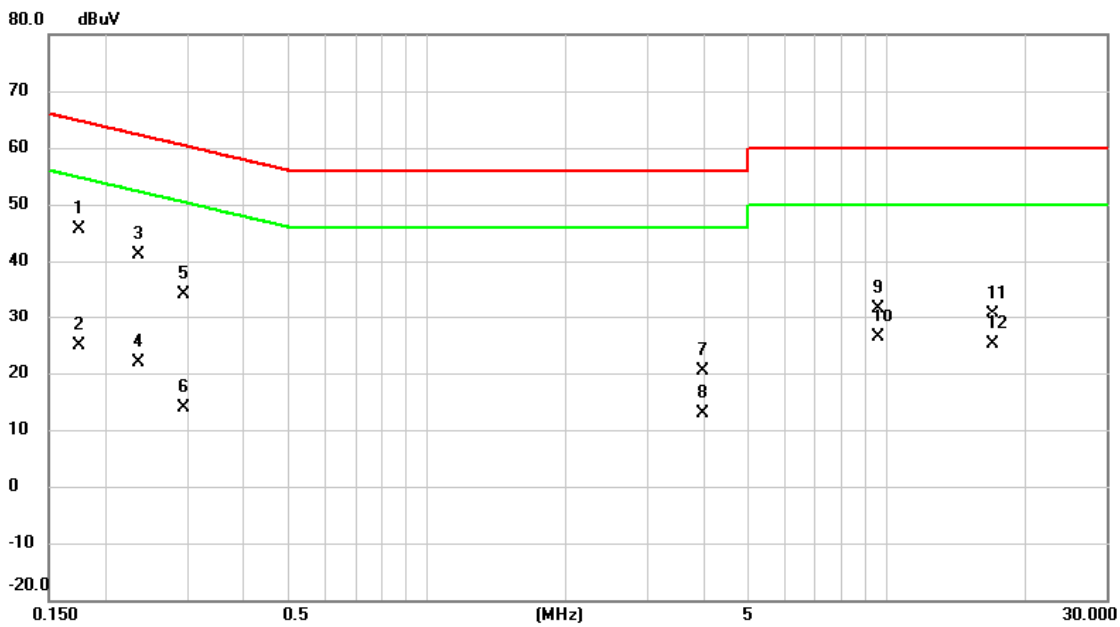


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1793	37.47	9.73	47.20	64.52	-17.32	QP	
2		0.1793	19.87	9.73	29.60	54.52	-24.92	AVG	
3		0.2355	31.62	9.72	41.34	62.25	-20.91	QP	
4		0.2355	12.19	9.72	21.91	52.25	-30.34	AVG	
5		0.2940	24.16	9.73	33.89	60.41	-26.52	QP	
6		0.2940	4.42	9.73	14.15	50.41	-36.26	AVG	
7		4.0155	16.13	9.91	26.04	56.00	-29.96	QP	
8		4.0155	8.86	9.91	18.77	46.00	-27.23	AVG	
9		9.7238	25.08	10.14	35.22	60.00	-24.78	QP	
10		9.7238	20.04	10.14	30.18	50.00	-19.82	AVG	
11		16.3568	24.47	10.28	34.75	60.00	-25.25	QP	
12		16.3568	18.96	10.28	29.24	50.00	-20.76	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2021/9/17
Test Frequency	-	Phase	Line

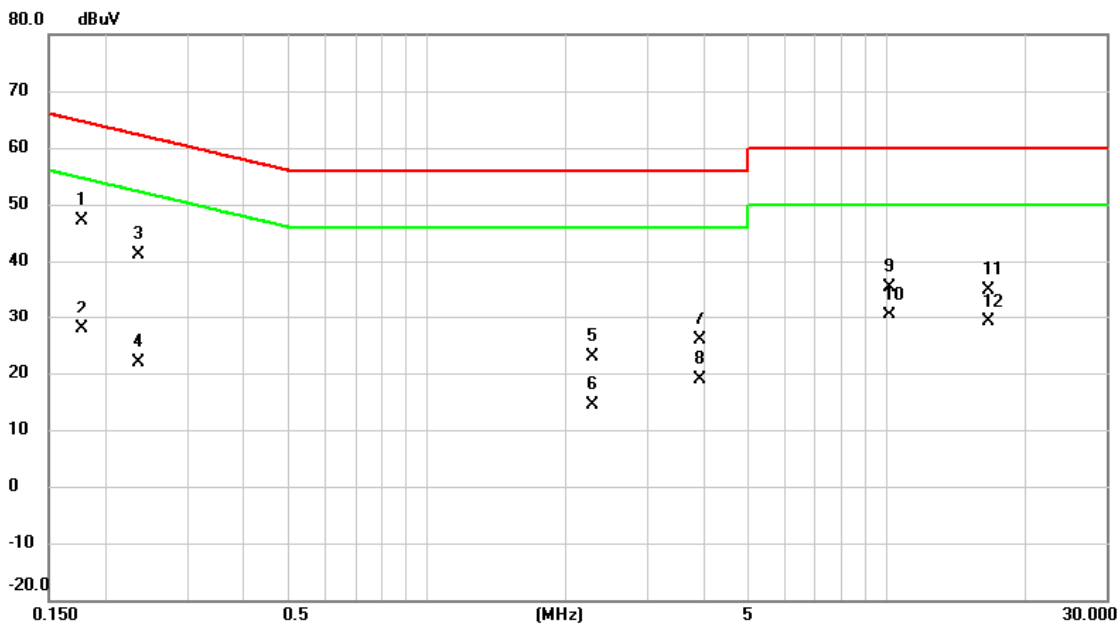


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1748	35.94	9.73	45.67	64.73	-19.06	QP	
2		0.1748	15.04	9.73	24.77	54.73	-29.96	AVG	
3		0.2355	31.32	9.72	41.04	62.25	-21.21	QP	
4		0.2355	12.15	9.72	21.87	52.25	-30.38	AVG	
5		0.2940	24.39	9.73	34.12	60.41	-26.29	QP	
6		0.2940	4.19	9.73	13.92	50.41	-36.49	AVG	
7		3.9525	10.61	9.89	20.50	56.00	-35.50	QP	
8		3.9525	2.87	9.89	12.76	46.00	-33.24	AVG	
9		9.6158	21.54	10.10	31.64	60.00	-28.36	QP	
10		9.6158	16.16	10.10	26.26	50.00	-23.74	AVG	
11		17.0160	20.52	10.20	30.72	60.00	-29.28	QP	
12		17.0160	14.89	10.20	25.09	50.00	-24.91	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	Idle	Tested Date	2021/9/17
Test Frequency	-	Phase	Neutral



No.	Mk.	Freq. (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector	Comment
1	*	0.1770	37.46	9.73	47.19	64.63	-17.44	QP	
2		0.1770	18.13	9.73	27.86	54.63	-26.77	AVG	
3		0.2355	31.36	9.72	41.08	62.25	-21.17	QP	
4		0.2355	12.10	9.72	21.82	52.25	-30.43	AVG	
5		2.2853	13.11	9.79	22.90	56.00	-33.10	QP	
6		2.2853	4.60	9.79	14.39	46.00	-31.61	AVG	
7		3.9075	15.98	9.90	25.88	56.00	-30.12	QP	
8		3.9075	8.93	9.90	18.83	46.00	-27.17	AVG	
9		10.1625	25.35	10.15	35.50	60.00	-24.50	QP	
10		10.1625	20.18	10.15	30.33	50.00	-19.67	AVG	
11		16.5863	24.50	10.29	34.79	60.00	-25.21	QP	
12		16.5863	18.93	10.29	29.22	50.00	-20.78	AVG	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX B RF POWER OUTPUT TEST

Output Power (dBm):

Band	Mode	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)
WCDMA Band V	Rel 99	4132/4357	826.4	22.89
		4183/4408	836.6	23.11
		4233/4458	846.6	23.08

Band	Sub-test	UL/DL Channel No.	Average power(dBm)
HSDPA V	1	4132/4357	22.85
		4183/4408	23.01
		4233/4458	23.04
	2	4132/4357	22.40
		4183/4408	22.56
		4233/4458	22.59
	3	4132/4357	21.90
		4183/4408	22.06
		4233/4458	22.09
	4	4132/4357	21.95
		4183/4408	22.11
		4233/4458	22.14

Band	Sub-test	UL/DL Channel No.	Average power(dBm)
HSUPA V	1	4132/4157	22.89
		4182/4407	23.05
		4233/4458	23.08
	2	4132/4157	21.01
		4182/4407	21.17
		4233/4458	21.20
	3	4132/4157	22.01
		4182/4407	22.17
		4233/4458	22.20
	4	4132/4157	21.03
		4182/4407	21.19
		4233/4458	21.22
	5	4132/4157	22.80
		4182/4407	22.96
		4233/4458	22.99

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	
5	1.4	20407	824.7	QPSK	1	0	0	21.97	
					1	3	0	21.88	
					1	5	0	21.66	
					3	0	0	21.97	
					3	1	0	21.88	
					3	3	0	21.66	
				16QAM	6	0	1	21.03	
					1	0	1	21.15	
					1	3	1	21.11	
					1	5	1	20.73	
					3	0	1	21.15	
					3	1	1	21.11	
		20525	836.5	QPSK	836.5	3	3	1	20.73
						6	0	2	20.12
						1	0	0	21.82
						1	3	0	21.88
						1	5	0	21.84
						3	0	0	21.82
				16QAM	3	1	0	21.88	
					3	3	0	21.84	
					6	0	1	20.88	
					1	0	1	21.00	
					1	3	1	20.96	
					1	5	1	20.91	
		20643	848.3	QPSK	848.3	3	0	1	21.00
						3	1	1	20.96
						3	3	1	20.91
						6	0	2	20.50
						1	0	0	21.71
						1	3	0	21.76
				16QAM	1	5	0	21.82	
					3	0	0	21.71	
					3	1	0	21.76	
					3	3	0	21.82	
					6	0	1	20.77	
					1	0	1	20.89	
16QAM	1	3	1	20.85					
	1	5	1	20.89					
	3	0	1	20.89					
	3	1	1	20.85					
	3	3	1	20.89					
	6	0	2	20.60					

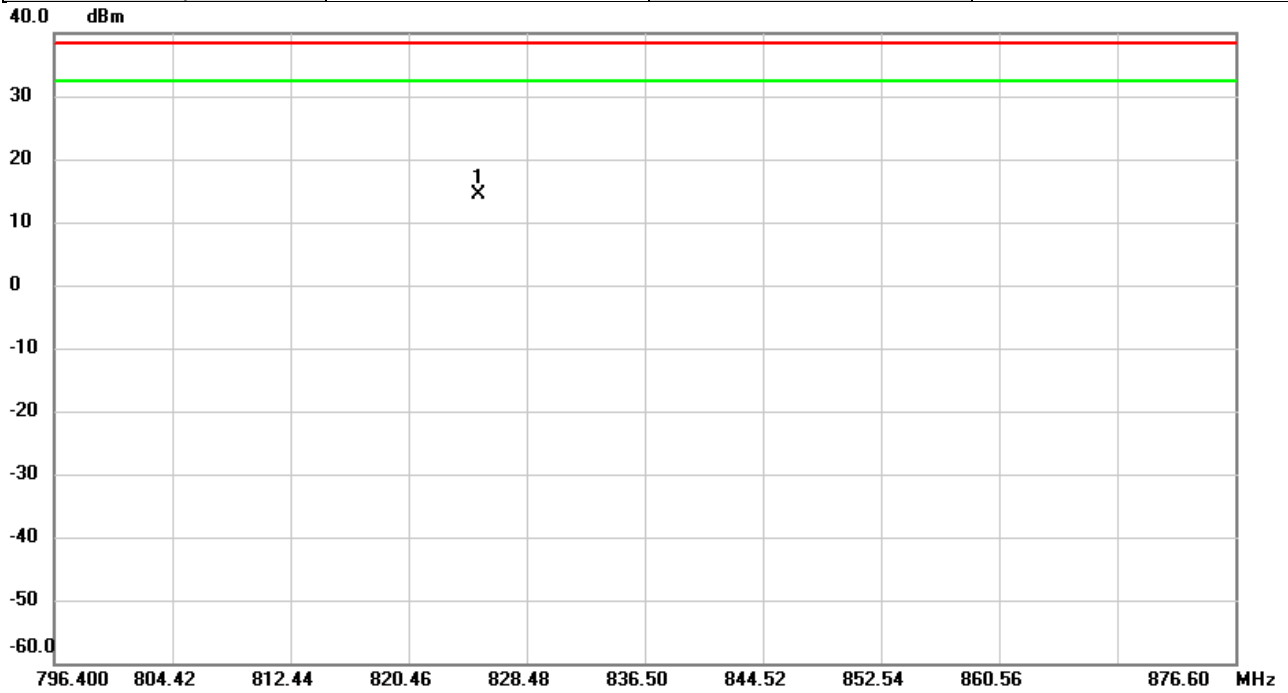
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)	
5	3	20415	825.5	QPSK	1	0	0	22.02	
					1	8	0	21.93	
					1	14	0	21.71	
					8	0	1	21.13	
					8	4	1	20.97	
					8	7	1	20.89	
				16QAM	15	0	1	21.08	
					1	0	1	21.20	
					1	8	1	21.16	
					1	14	1	20.78	
					8	0	2	20.03	
					8	4	2	20.07	
		20525	836.5	QPSK	8	8	7	2	19.74
						8	0	2	20.17
						15	0	2	20.17
						1	0	0	21.87
						1	8	0	21.93
						1	14	0	21.89
				16QAM	8	0	1	20.98	
					8	4	1	20.97	
					8	7	1	21.07	
					8	0	1	20.93	
					15	0	1	20.93	
					1	0	1	21.05	
		20635	847.5	QPSK	8	1	8	1	21.01
						1	14	1	20.96
						8	0	2	19.88
						8	4	2	20.07
						8	7	2	19.92
						8	0	2	19.92
				16QAM	15	0	2	20.02	
					1	0	0	21.76	
					1	8	0	21.81	
					1	14	0	21.87	
					8	0	1	20.87	
					8	4	1	20.85	
16QAM	8	7	1	21.05					
	8	0	1	20.82					
	15	0	1	20.82					
	1	0	1	20.94					
	1	8	1	20.90					
	1	14	1	20.94					
16QAM	8	0	2	19.77					
	8	4	2	19.95					
	8	7	2	19.90					
	8	0	2	19.90					
	8	4	2	19.95					
	8	7	2	19.90					
15	0	2	19.91						

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)				
5	5	20425	826.5	QPSK	1	0	0	22.07				
					1	12	0	21.98				
					1	24	0	21.76				
					12	0	1	21.18				
					12	7	1	21.02				
					12	13	1	20.94				
				16QAM	25	0	1	21.13				
					1	0	1	21.25				
					1	12	1	21.21				
					1	24	1	20.83				
					12	0	2	20.08				
					12	7	2	20.12				
		20525	836.5	QPSK	836.5	QPSK	12	13	2	19.79		
							12	0	2	20.22		
							25	0	2	20.22		
							1	0	0	21.92		
							1	12	0	21.98		
							1	24	0	21.94		
				16QAM	QPSK	16QAM	16QAM	QPSK	12	0	1	21.03
									12	7	1	21.02
									12	13	1	21.12
									25	0	1	20.98
									1	0	1	21.10
									1	12	1	21.06
		20625	846.5	QPSK	846.5	QPSK	1	24	1	21.01		
							12	0	2	19.93		
							12	7	2	20.12		
							12	13	2	19.97		
							25	0	2	20.07		
							1	0	0	21.81		
16QAM	QPSK			16QAM	16QAM	QPSK	1	12	0	21.86		
							1	24	0	21.92		
							12	0	1	20.92		
							12	7	1	20.90		
							12	13	1	21.10		
							25	0	1	20.87		
16QAM	16QAM	16QAM	16QAM	16QAM	1	0	1	20.99				
					1	12	1	20.95				
					1	24	1	20.99				
					12	0	2	19.82				
					12	7	2	20.00				
					12	13	2	19.95				
					25	0	2	19.96				

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Offset	MPR	Average power (dBm)		
5	10	20450	829.0	QPSK	1	0	0	22.44		
					1	25	0	22.35		
					1	49	0	22.03		
					25	0	1	21.23		
					25	12	1	21.07		
					25	25	1	20.99		
				16QAM	50	0	1	21.18		
					1	0	1	21.30		
					1	25	1	21.26		
					1	49	1	20.88		
					25	0	2	20.13		
					25	12	2	20.17		
		20525	836.5	QPSK	836.5	QPSK	25	25	2	19.84
							50	0	2	20.27
							1	0	0	22.46
							1	25	0	22.27
							1	49	0	22.31
							25	0	1	21.08
				16QAM	25	12	1	21.07		
					25	25	1	21.17		
					50	0	1	21.03		
					1	0	1	21.15		
					1	25	1	21.11		
					1	49	1	21.06		
		20600	844.0	QPSK	844.0	QPSK	25	0	2	19.98
							25	12	2	20.17
							25	25	2	20.02
							50	0	2	20.12
							1	0	0	22.16
							1	25	0	22.19
16QAM	1			49	0	22.22				
	25			0	1	20.97				
	25			12	1	20.95				
	25			25	1	21.15				
	50			0	1	20.92				
	1			0	1	21.04				
16QAM	1	25	1	21.00						
	1	49	1	21.04						
	25	0	2	19.87						
	25	12	2	20.05						
	25	25	2	20.00						
	50	0	2	20.01						

ERP (dBm):

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4357	Polarization	Vertical
Temp	25°C	Hum.	52%

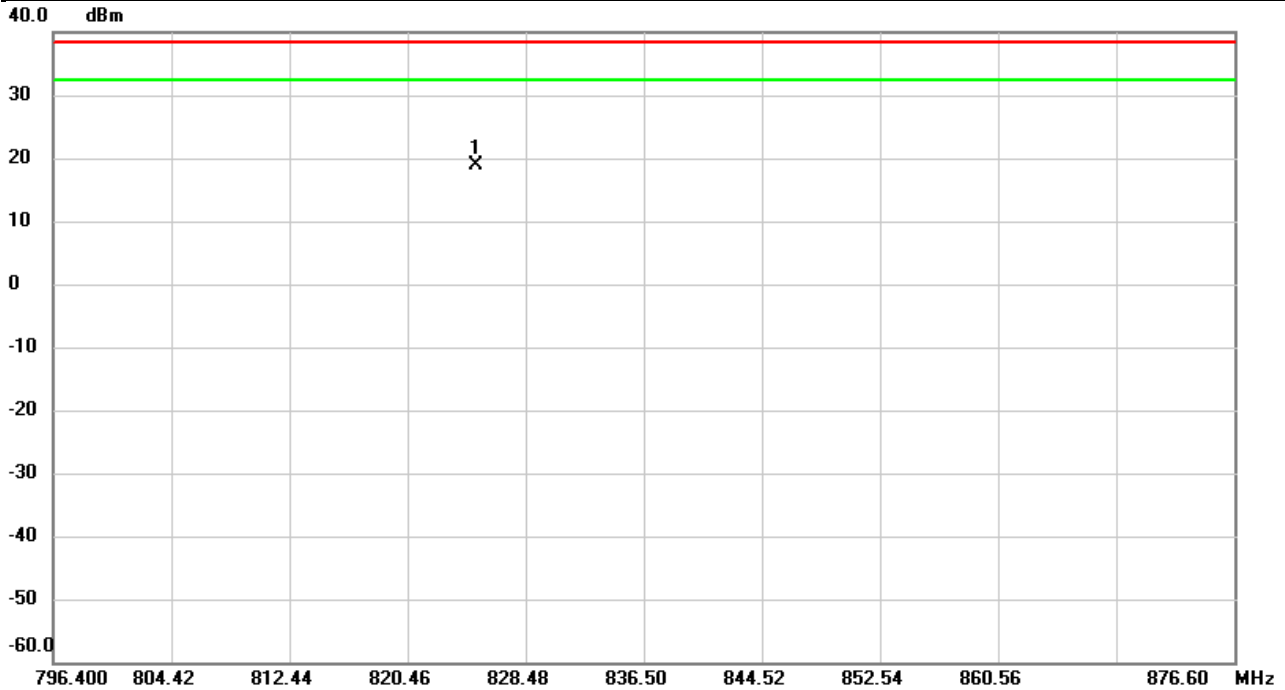


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	825.2320	-19.60	34.02	14.42	38.45	-24.03	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4357	Polarization	Horizontal
Temp	25°C	Hum.	52%

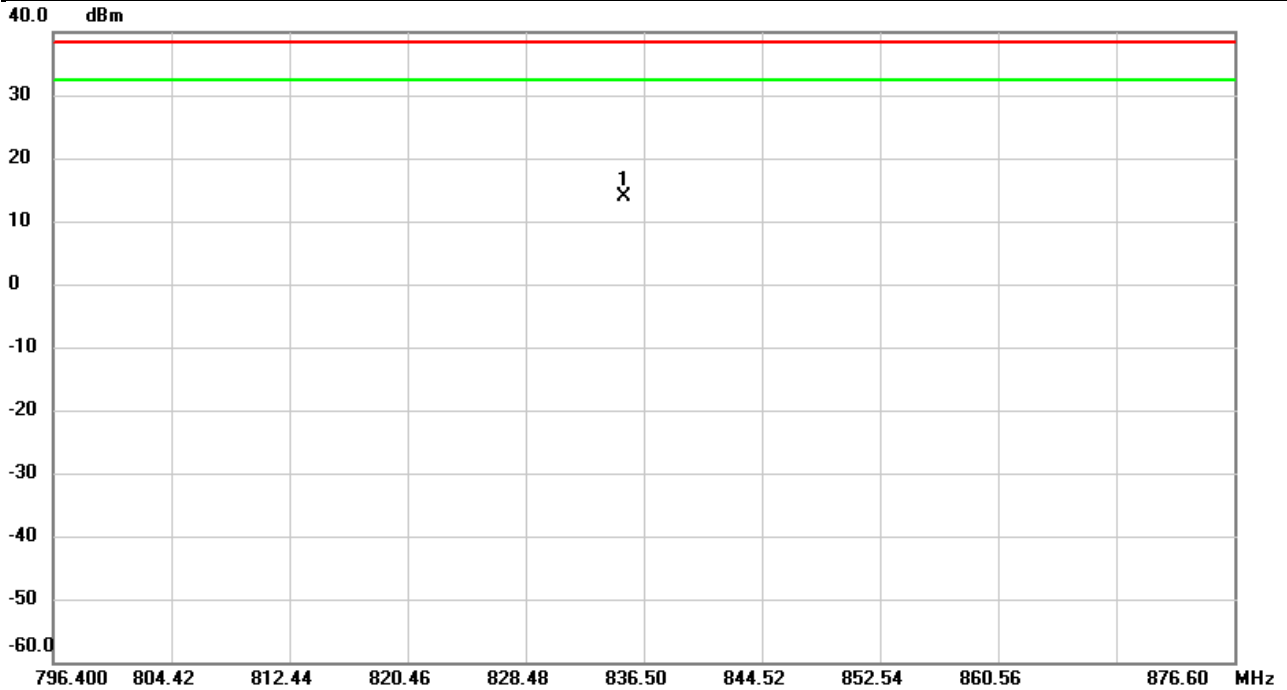


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	825.1517	-14.67	33.54	18.87	38.45	-19.58	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4407	Polarization	Vertical
Temp	25°C	Hum.	52%

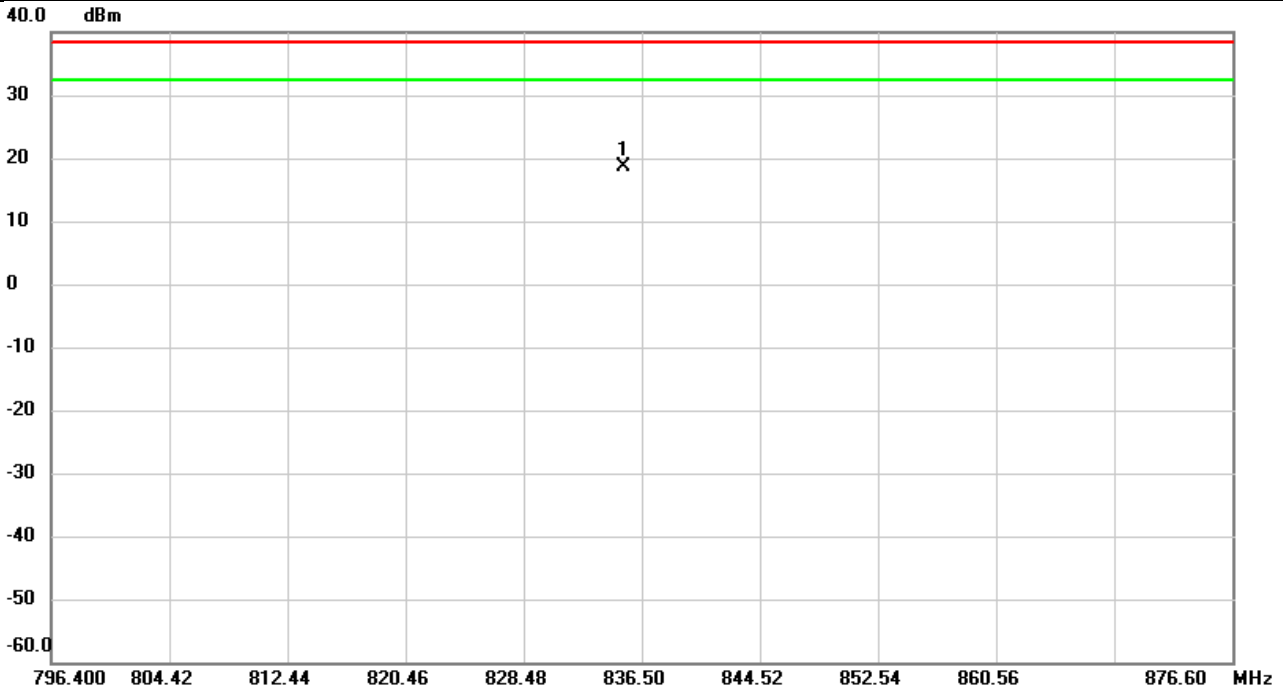


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1	*	835.1820	-20.11	33.90	13.79	38.45	-24.66	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4407	Polarization	Horizontal
Temp	25°C	Hum.	52%

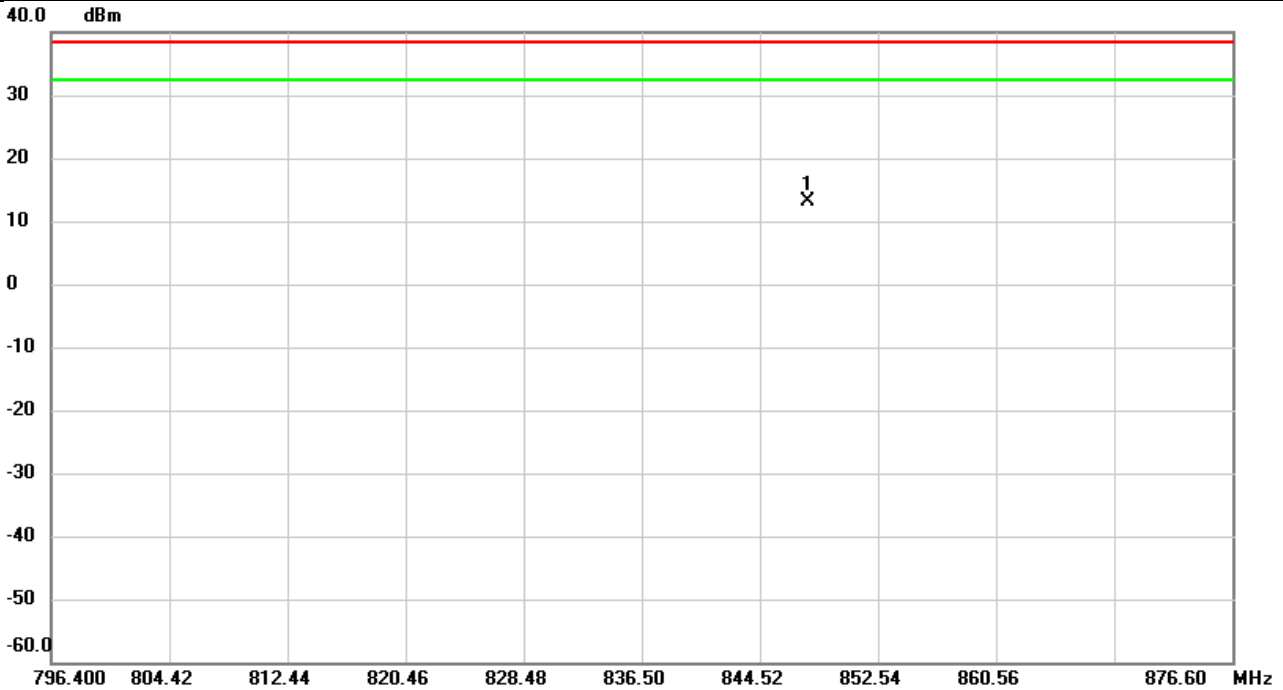


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	835.2917	-14.62	33.28	18.66	38.45	-19.79	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4458	Polarization	Vertical
Temp	25°C	Hum.	52%

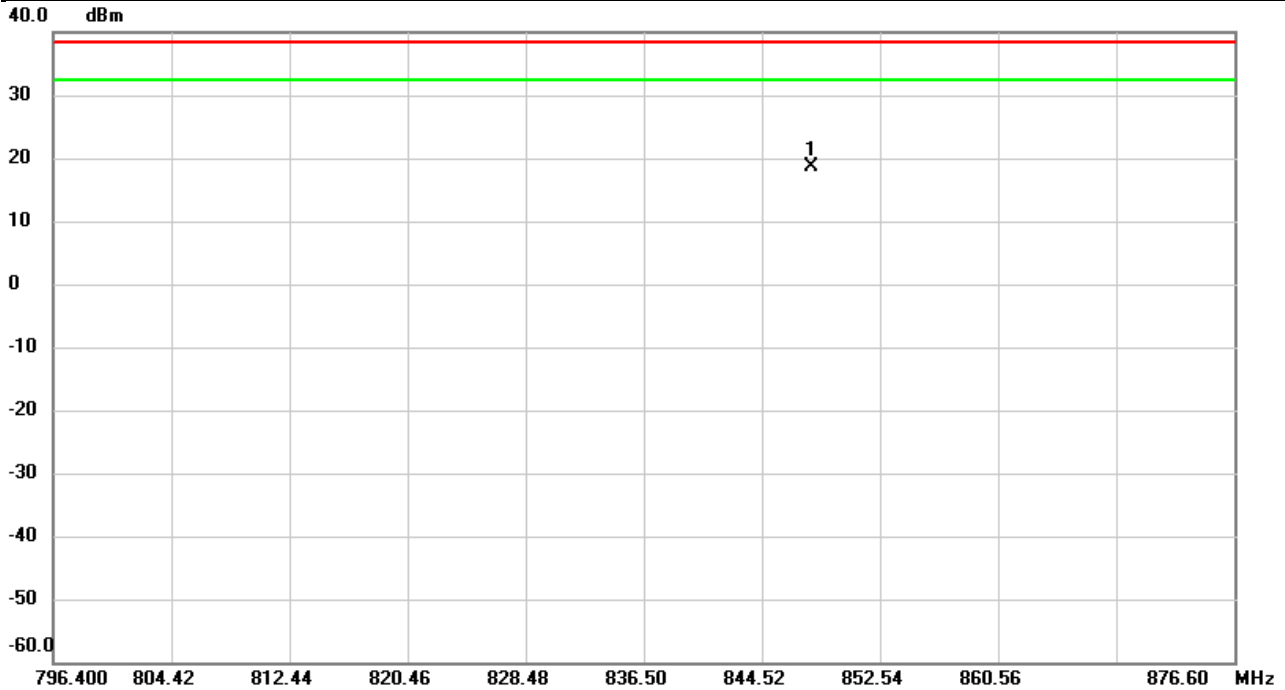


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	847.8216	-20.59	33.75	13.16	38.45	-25.29	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4458	Polarization	Horizontal
Temp	25°C	Hum.	52%

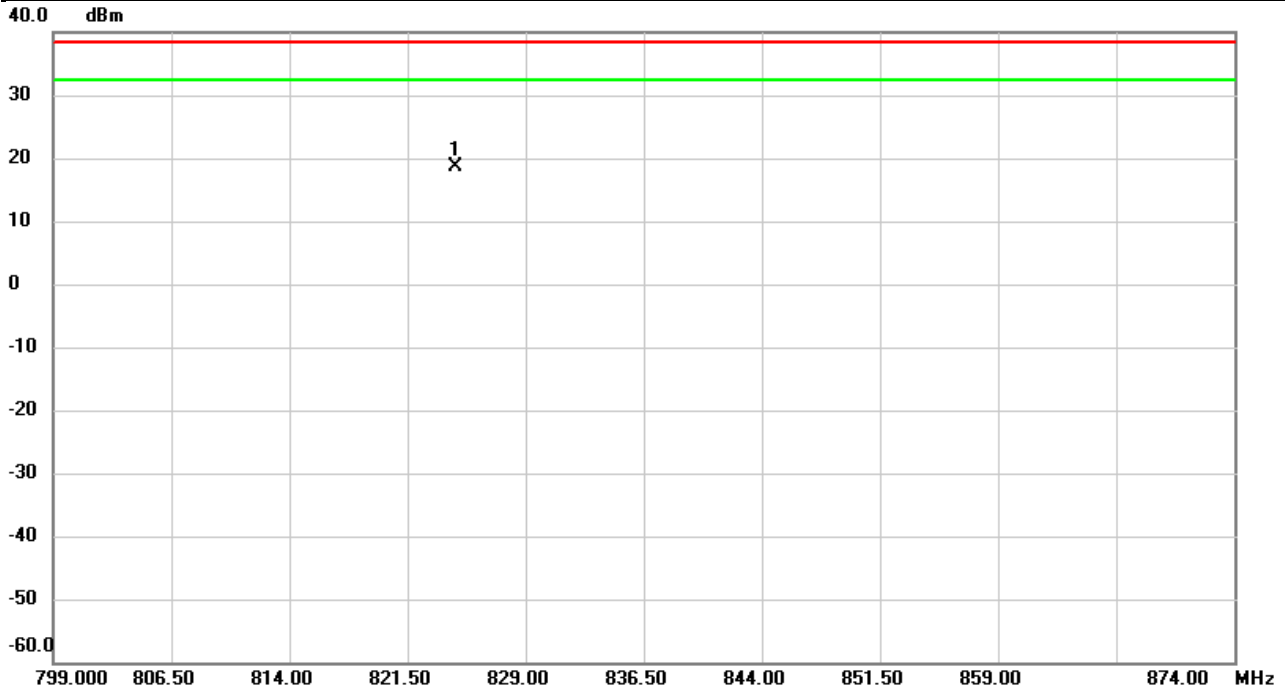


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	847.8403	-14.43	32.96	18.53	38.45	-19.92	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20450	Polarization	Vertical
Temp	25°C	Hum.	52%

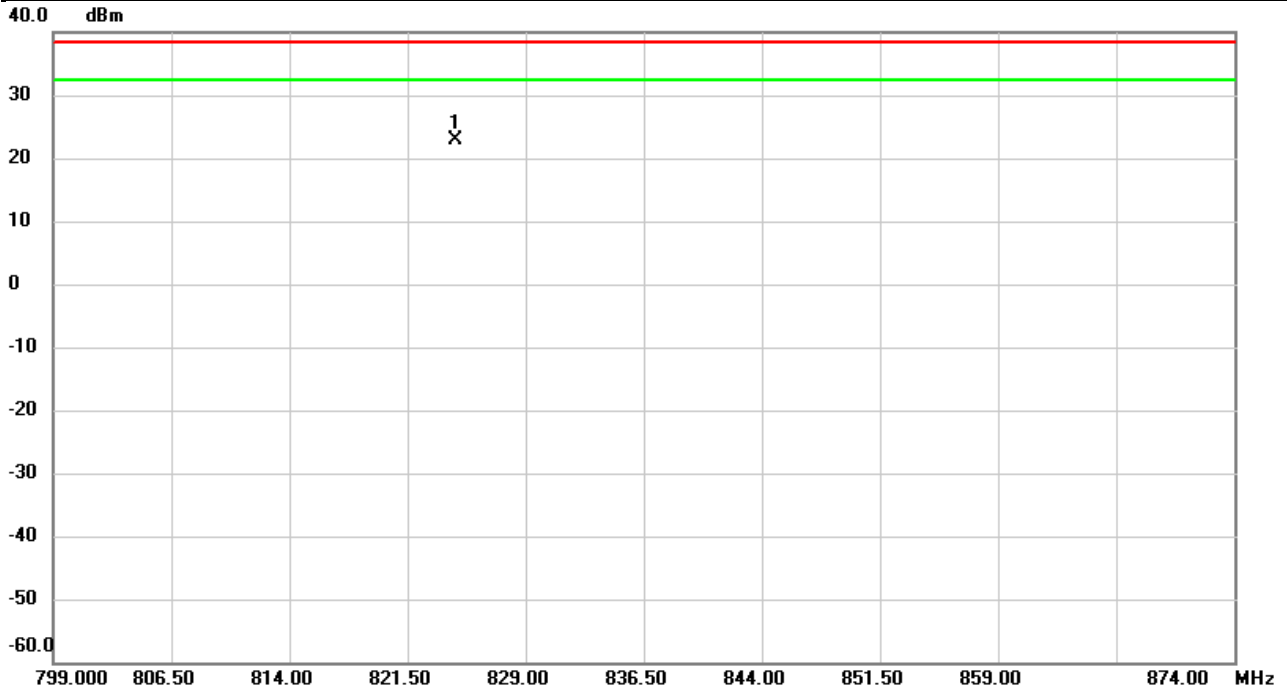


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	824.5800	-15.40	34.03	18.63	38.45	-19.82	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20450	Polarization	Horizontal
Temp	25°C	Hum.	52%

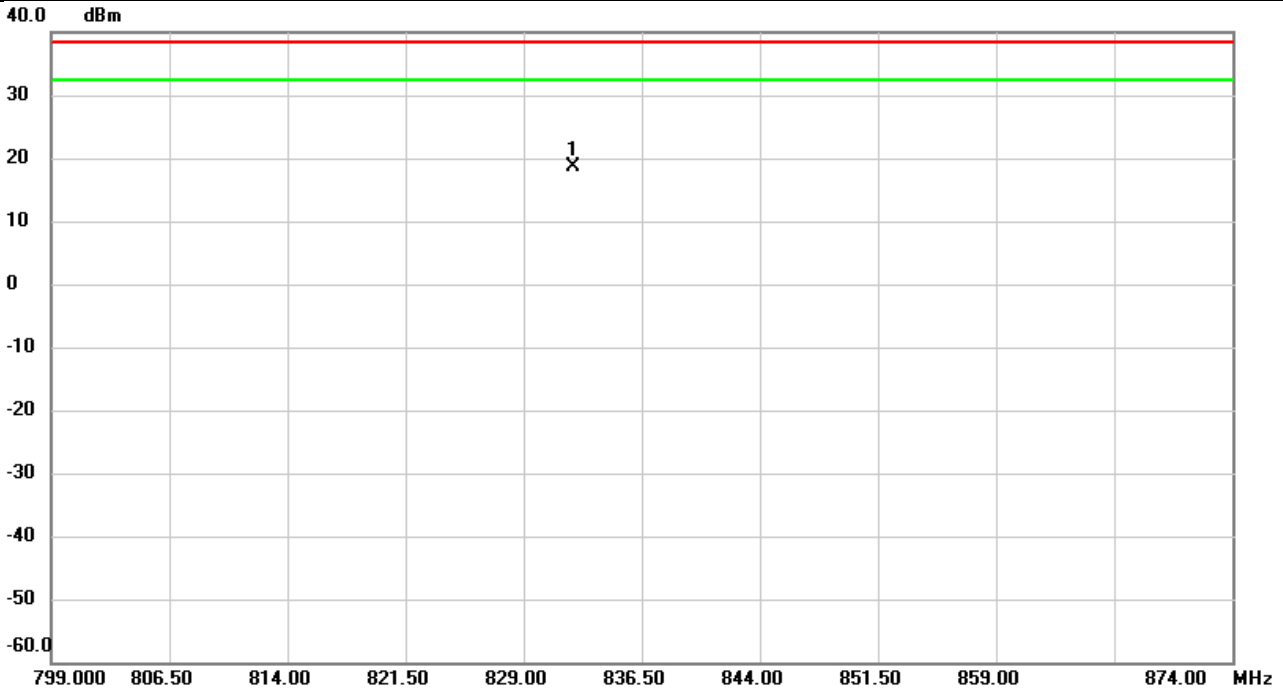


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	824.5625	-10.71	33.55	22.84	38.45	-15.61	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20525	Polarization	Vertical
Temp	25°C	Hum.	52%

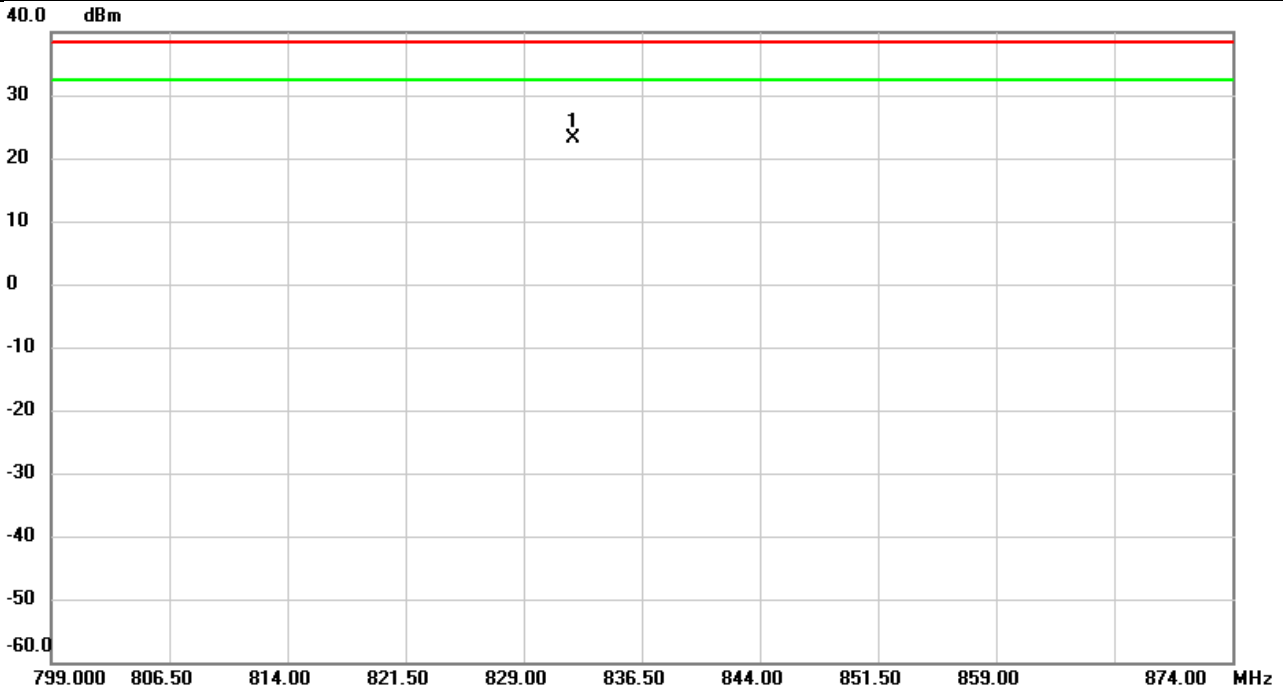


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	832.1400	-15.39	33.93	18.54	38.45	-19.91	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20525	Polarization	Horizontal
Temp	25°C	Hum.	52%

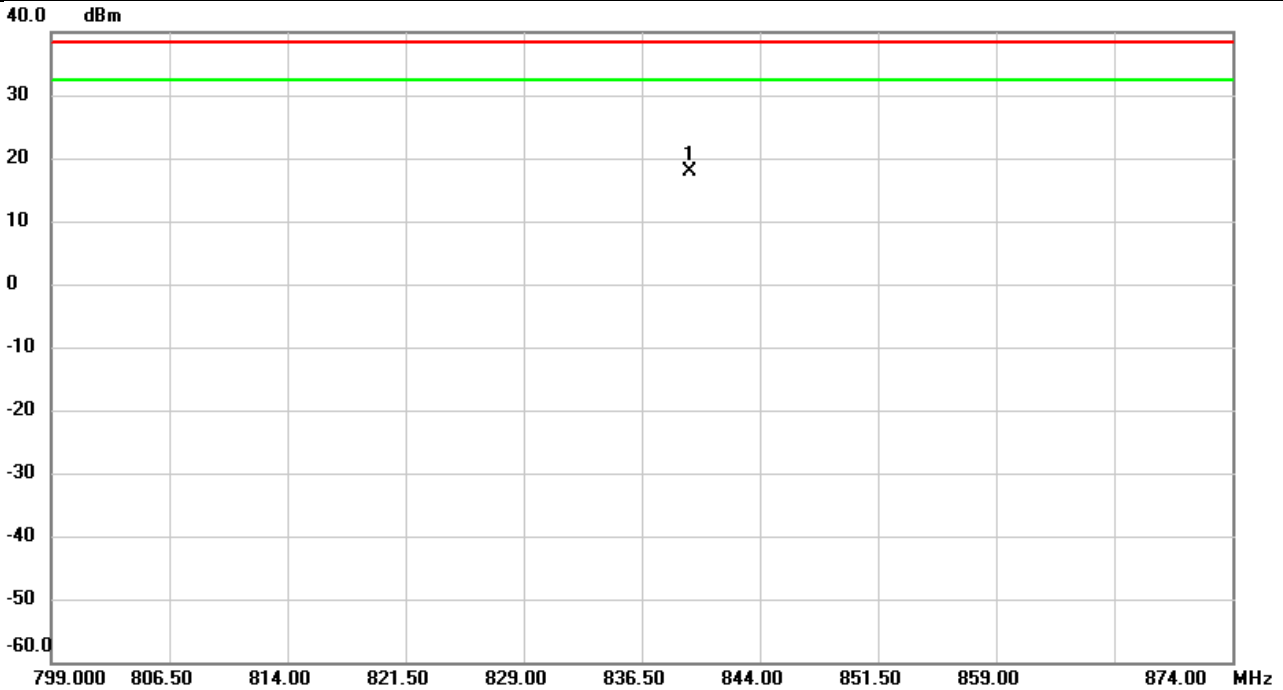


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	832.1125	-10.31	33.36	23.05	38.45	-15.40	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20600	Polarization	Vertical
Temp	25°C	Hum.	52%

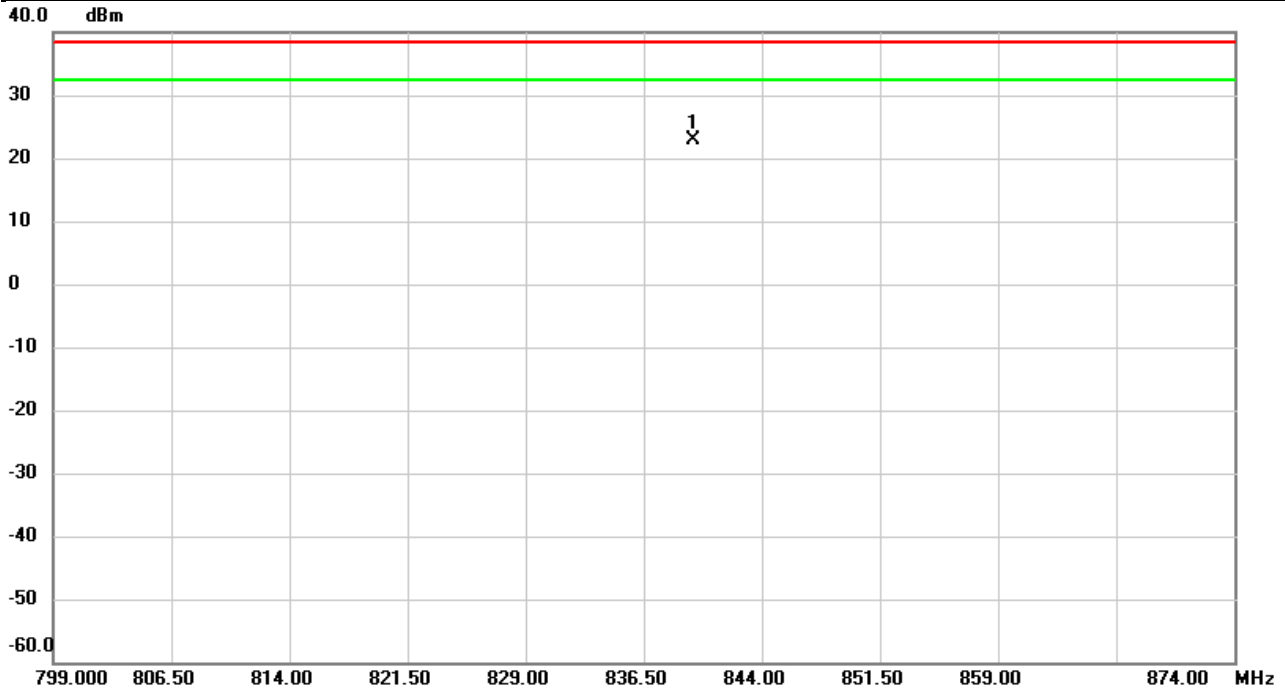


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	839.5850	-15.90	33.84	17.94	38.45	-20.51	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20600	Polarization	Horizontal
Temp	25°C	Hum.	52%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	839.6475	-10.32	33.17	22.85	38.45	-15.60	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX C OCCUPIED BANDWIDTH

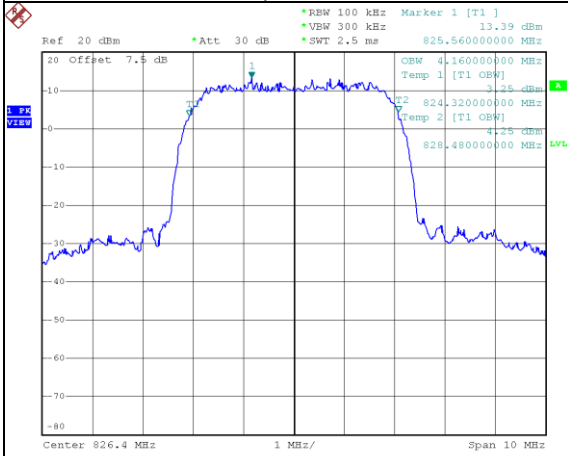
WCDMA Band V_WCDMA

QPSK

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
4132	826.4	4.16	4132	826.4	4.80
4183	836.6	4.18	4183	836.3	4.76
4233	846.6	4.14	4233	846.6	4.74

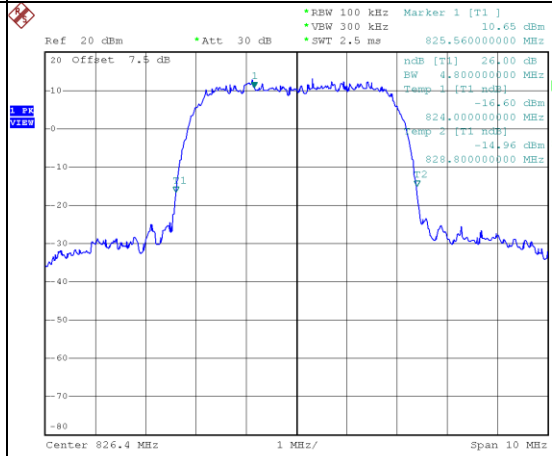
Spectrum Plot

99% Occupied Bandwidth-4132



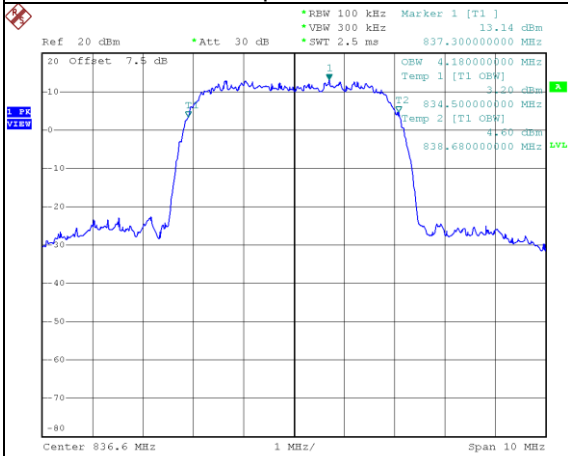
Date: 27.SEP.2021 15:51:59

26dB Bandwidth-4132



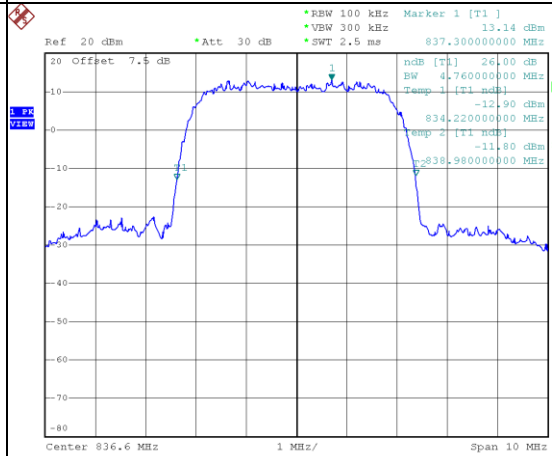
Date: 27.SEP.2021 15:52:41

99% Occupied Bandwidth-4183

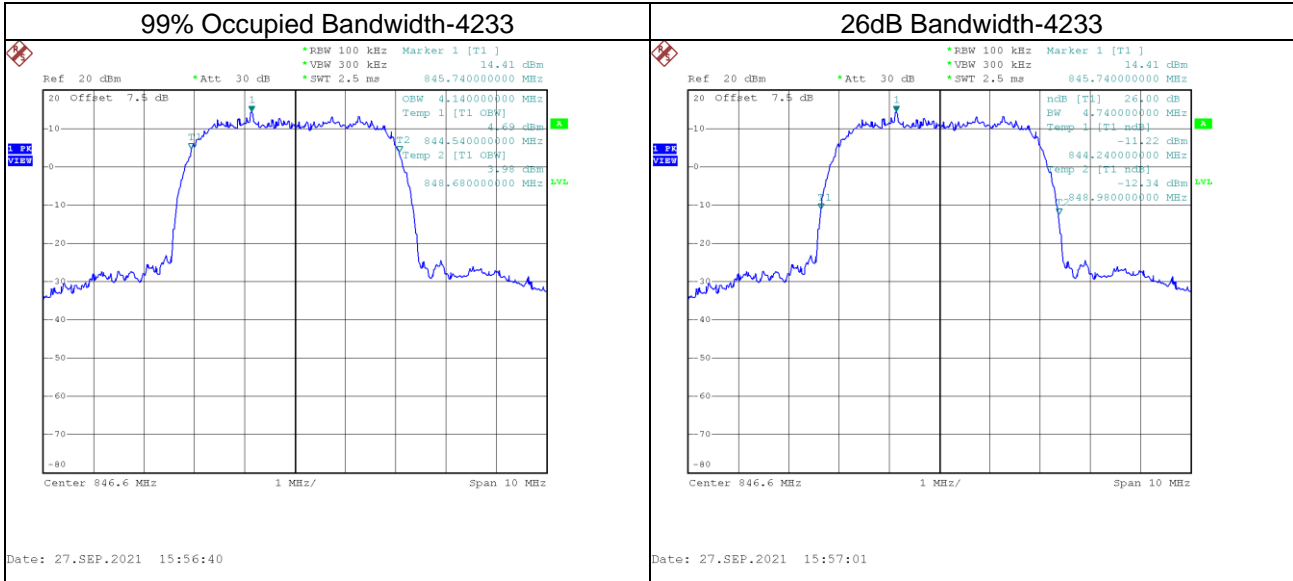


Date: 27.SEP.2021 15:55:12

26dB Bandwidth-4183



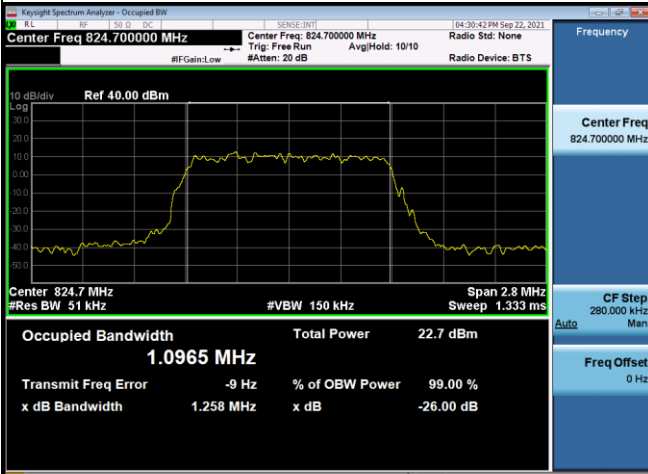
Date: 27.SEP.2021 15:55:43



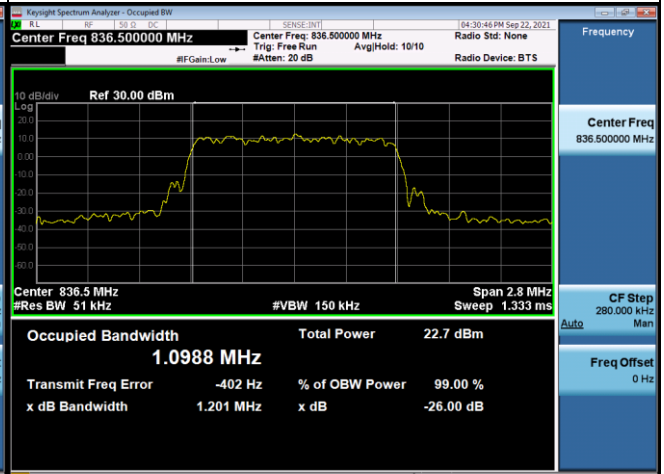
LTE Band 5_1.4M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0965	20407	824.7	1.258
20525	836.5	1.0988	20525	836.5	1.201
20643	848.3	1.0997	20643	848.3	1.241
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20407	824.7	1.0934	20407	824.7	1.189
20525	836.5	1.1031	20525	836.5	1.230
20643	848.3	1.0988	20643	848.3	1.217

Spectrum Plot

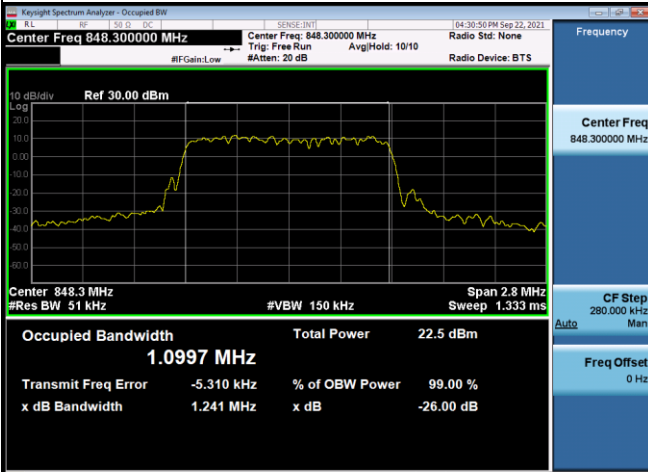
QPSK-20407



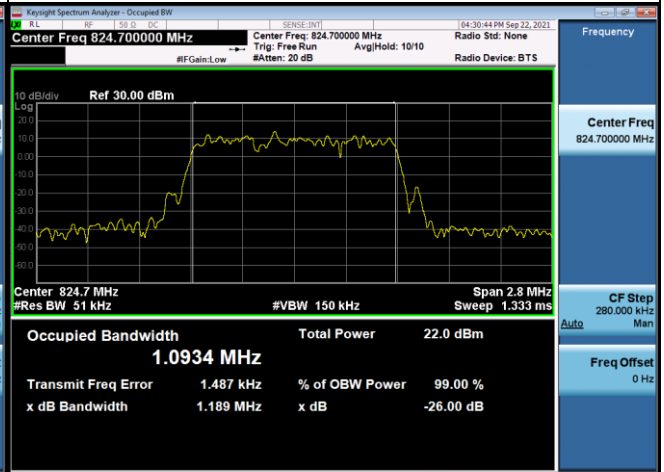
QPSK-20525



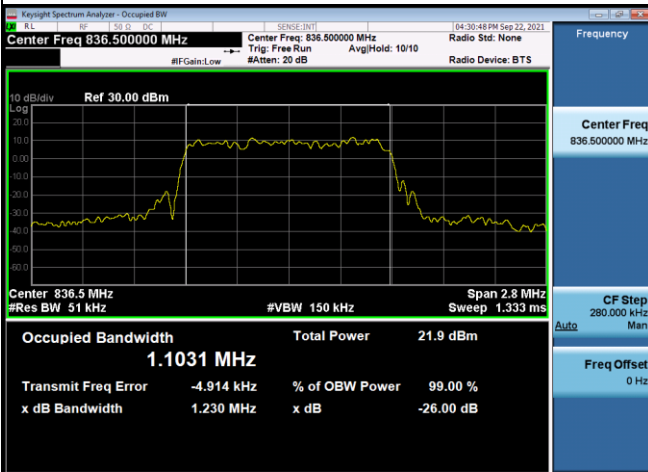
QPSK-20643



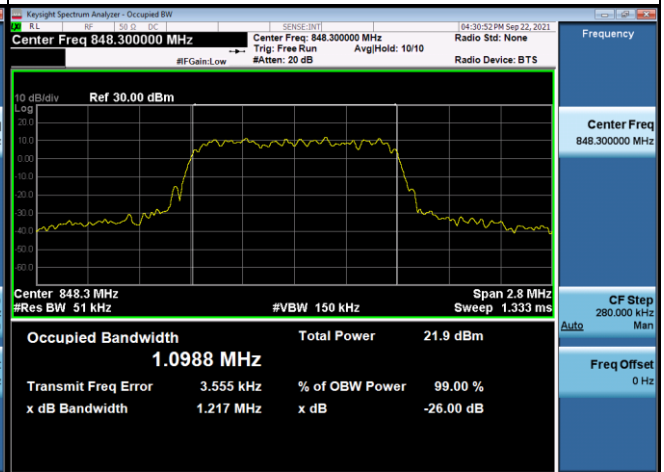
16QAM-20407



16QAM-20525



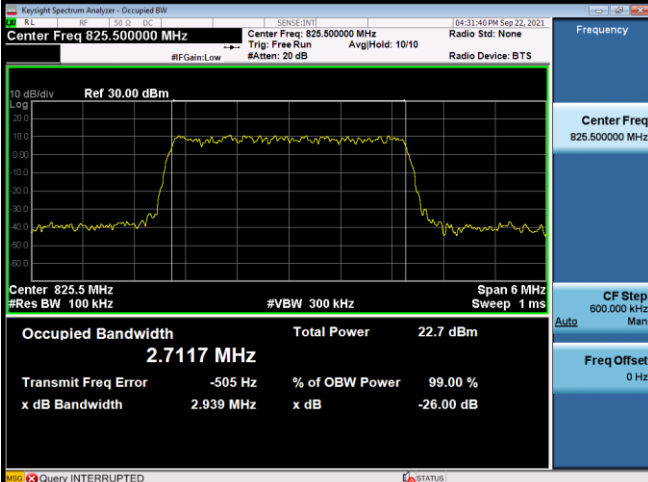
16QAM-20643



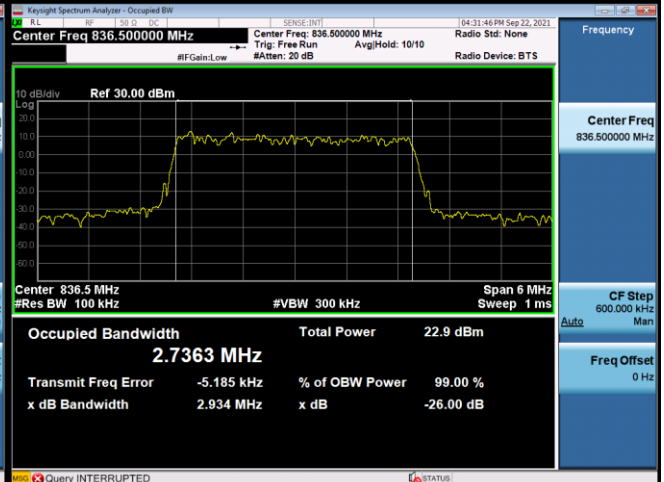
LTE Band 5_3M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.7117	20415	825.5	2.939
20525	836.5	2.7363	20525	836.5	2.934
20635	847.5	2.7117	20635	847.5	2.924
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20415	825.5	2.7282	20415	825.5	2.940
20525	836.5	2.7011	20525	836.5	2.906
20635	847.5	2.7200	20635	847.5	2.942

Spectrum Plot

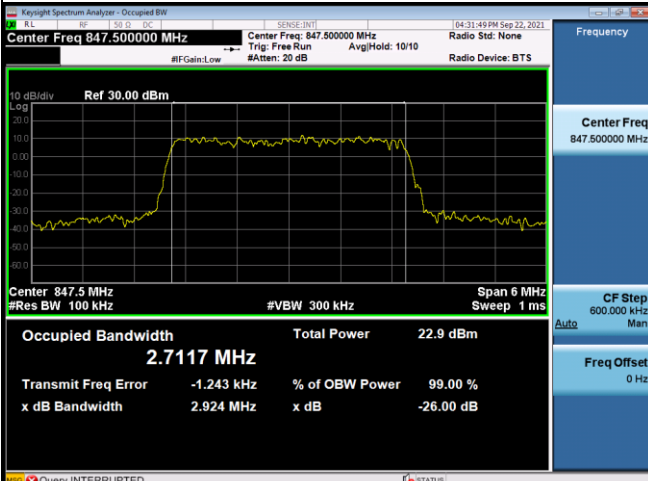
QPSK-20415



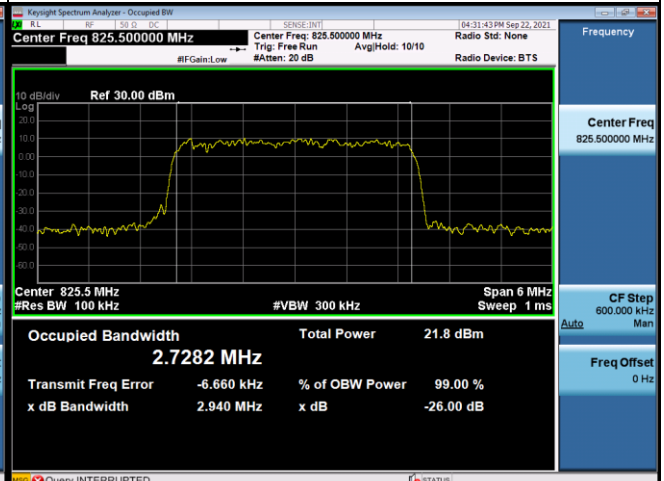
QPSK-20525



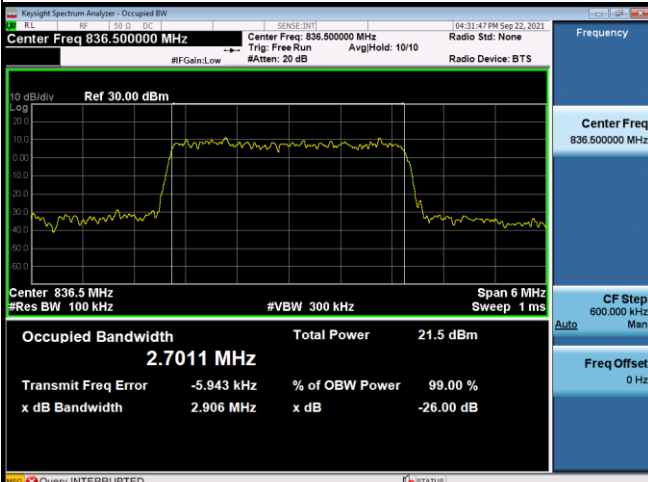
QPSK-20635



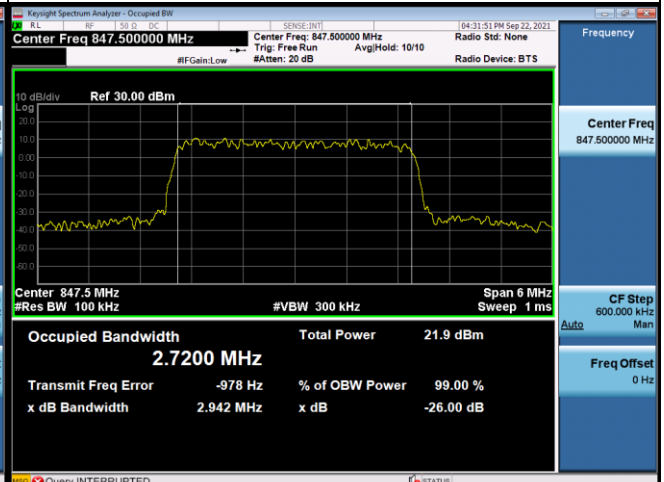
16QAM-20415



16QAM-20525



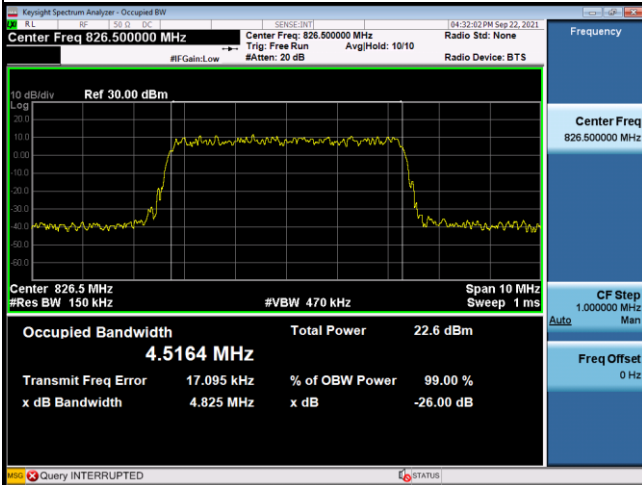
16QAM-20635



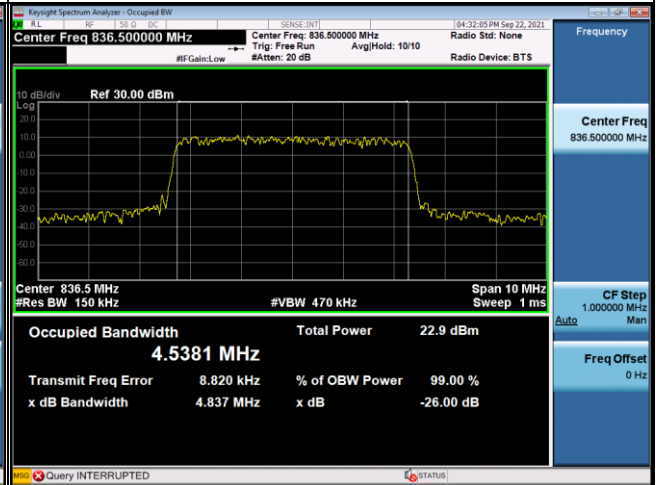
LTE Band 5_5M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.5164	20425	826.5	4.825
20525	836.5	4.5381	20525	836.5	4.837
20625	846.5	4.5203	20625	846.5	4.826
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20425	826.5	4.5197	20425	826.5	4.887
20525	836.5	4.4976	20525	836.5	4.836
20625	846.5	4.5031	20625	846.5	4.823

Spectrum Plot

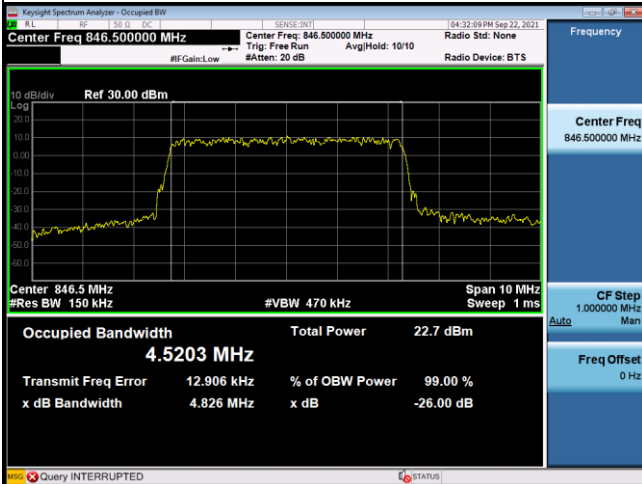
QPSK-20425



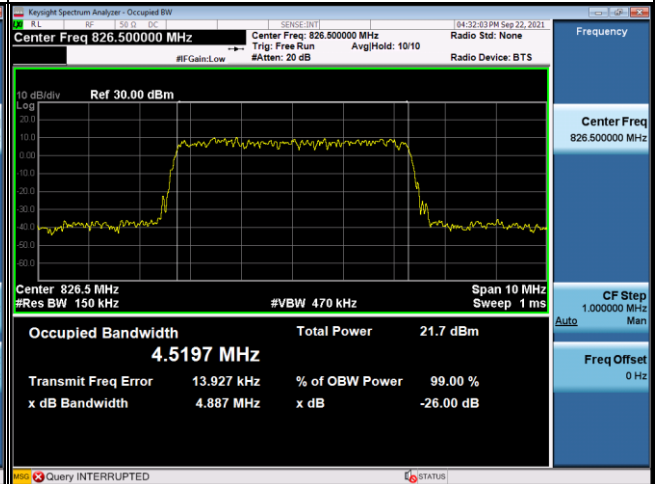
QPSK-20525



QPSK-20625



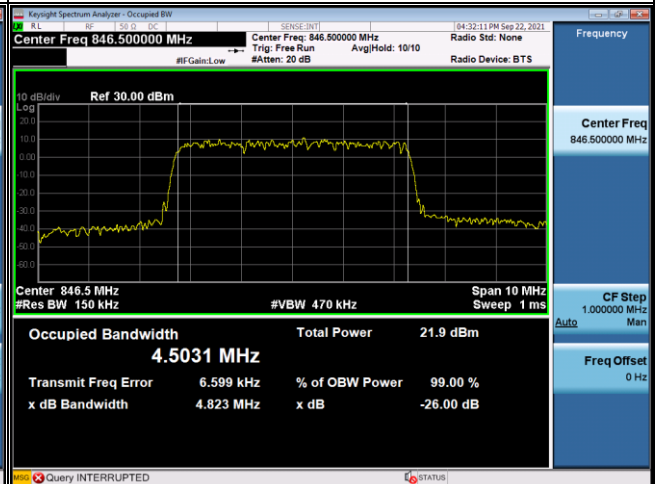
16QAM-20425



16QAM-20525



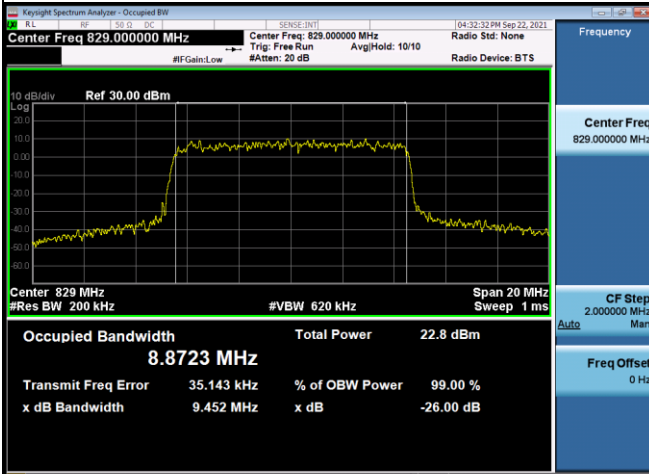
16QAM-20625



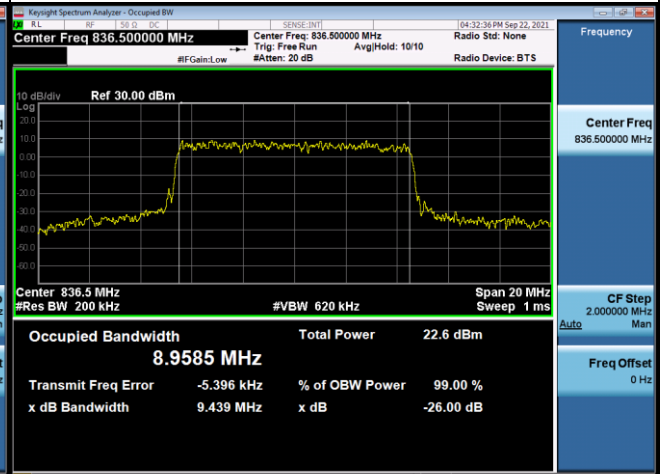
LTE Band 5_10M					
QPSK					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	8.8723	20450	829.0	9.452
20525	836.5	8.9585	20525	836.5	9.439
20600	844.0	8.9133	20600	844.0	9.494
16QAM					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
20450	829.0	8.9429	20450	829.0	9.410
20525	836.5	8.9700	20525	836.5	9.536
20600	844.0	8.9146	20600	844.0	9.420

Spectrum Plot

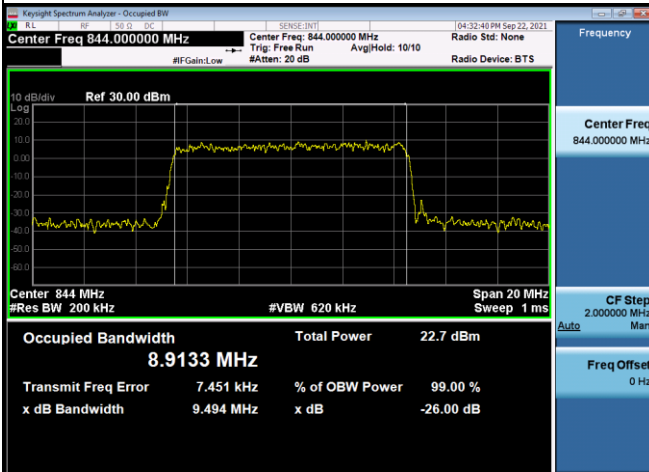
QPSK-20450



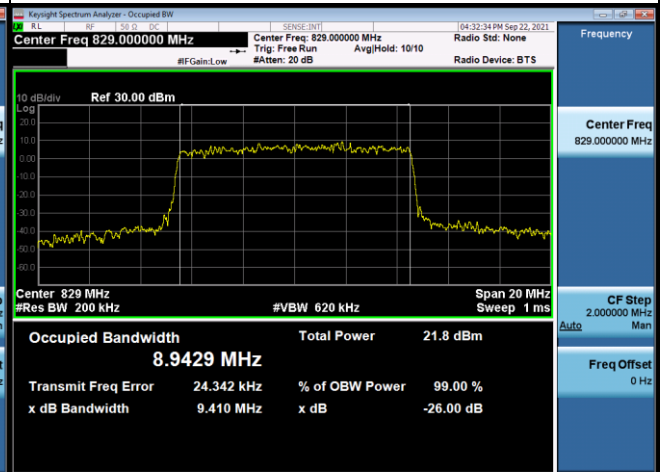
QPSK-20525



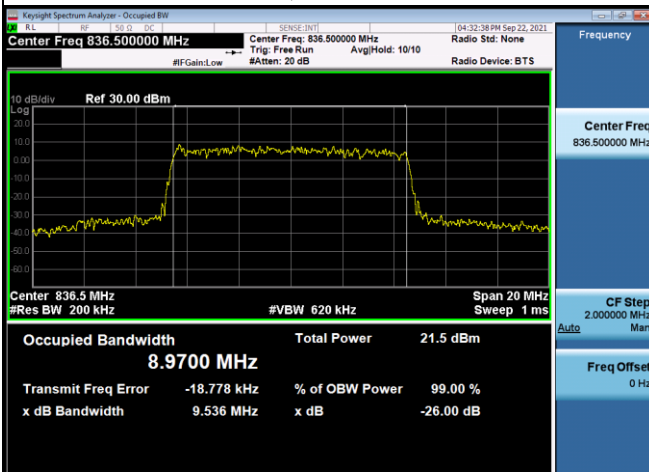
QPSK-20600



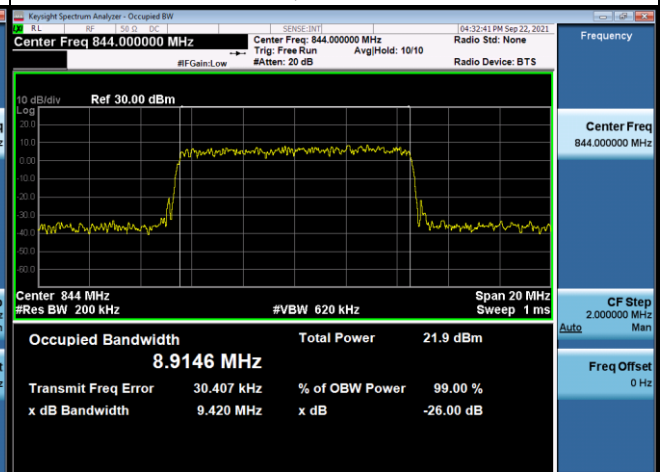
16QAM-20450



16QAM-20525



16QAM-20600



APPENDIX D CONDUCTED SPURIOUS EMISSION

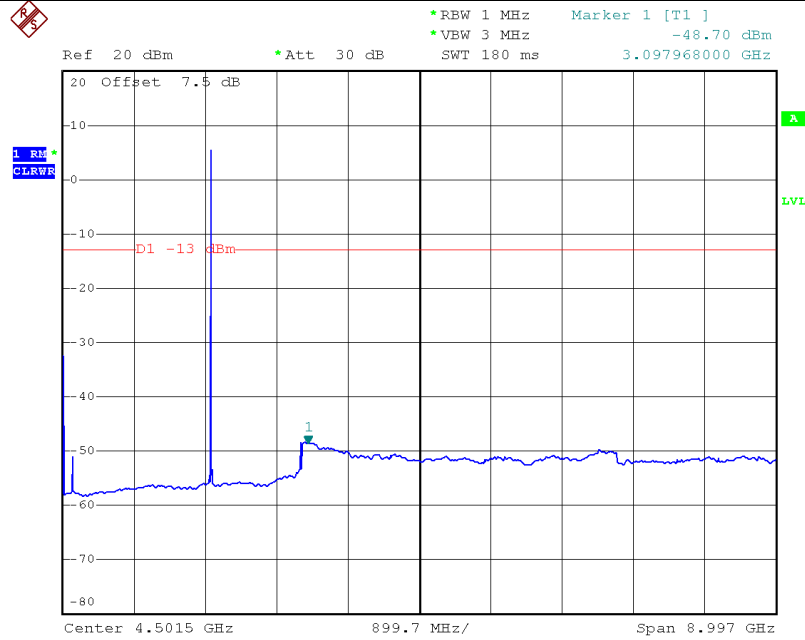
WCDMA Band V_WCDMA Spectrum Plot

Channel

Frequency(MHz)

4183

836.6



Date: 27.SEP.2021 16:30:29

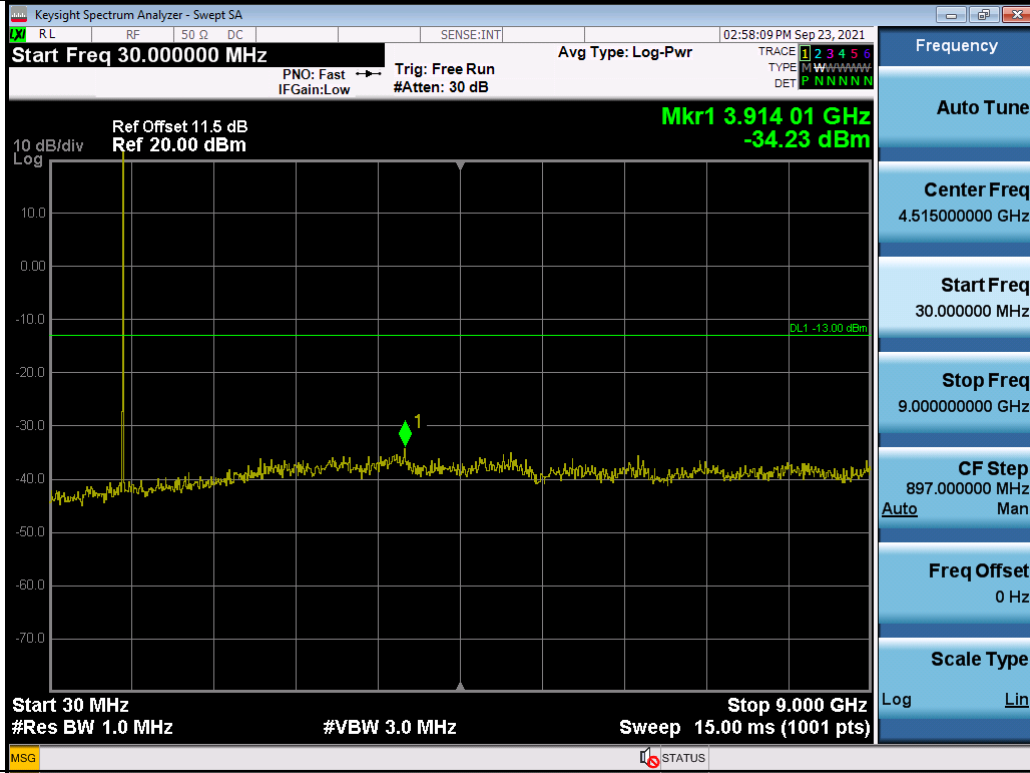
LTE Band 5_1.4M Spectrum Plot

Channel

Frequency(MHz)

20525

836.5



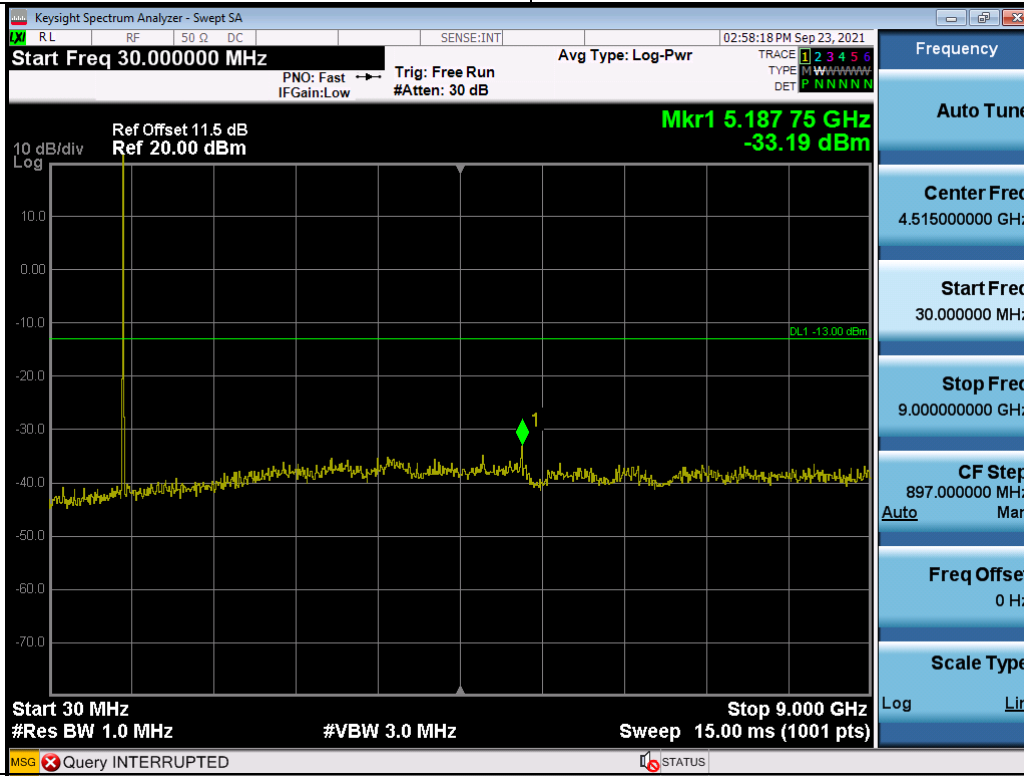
LTE Band 5_3M Spectrum Plot

Channel

Frequency(MHz)

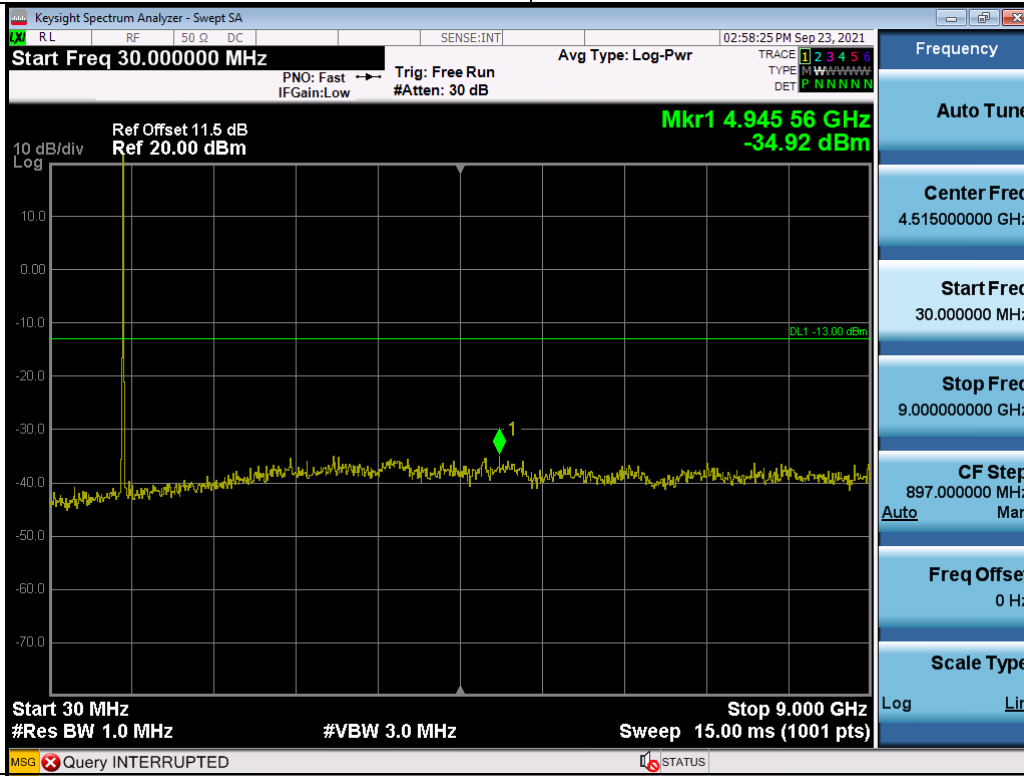
20525

836.5



LTE Band 5_5M Spectrum Plot

Channel	Frequency(MHz)
20525	836.5



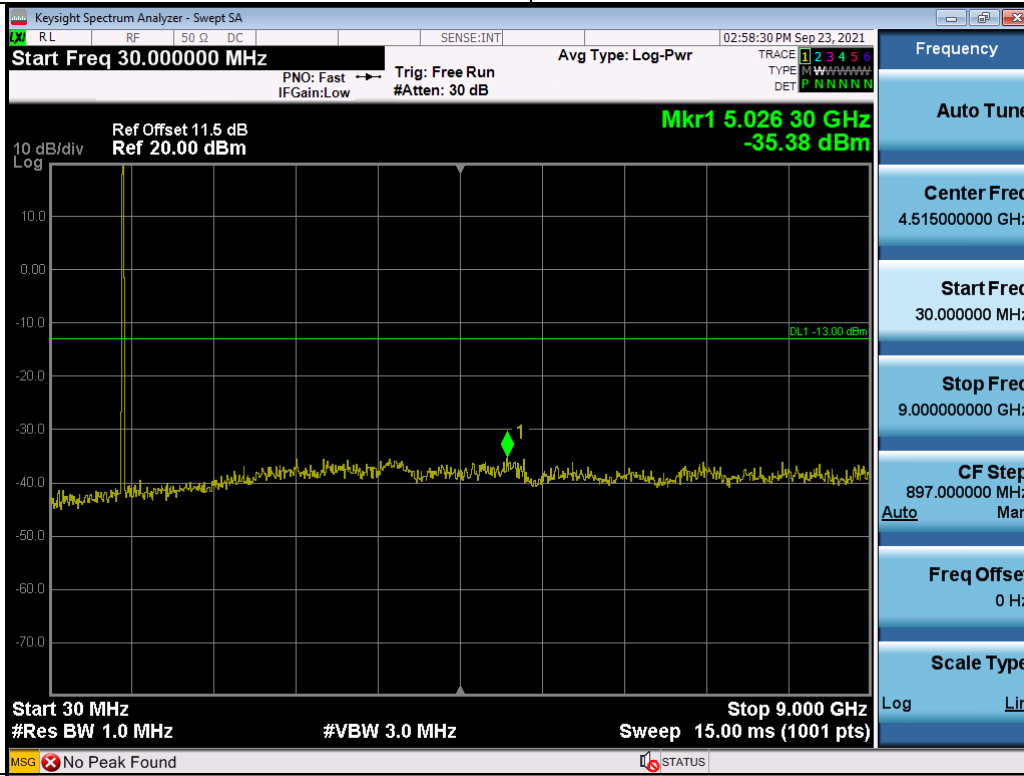
LTE Band 5_10M Spectrum Plot

Channel

Frequency(MHz)

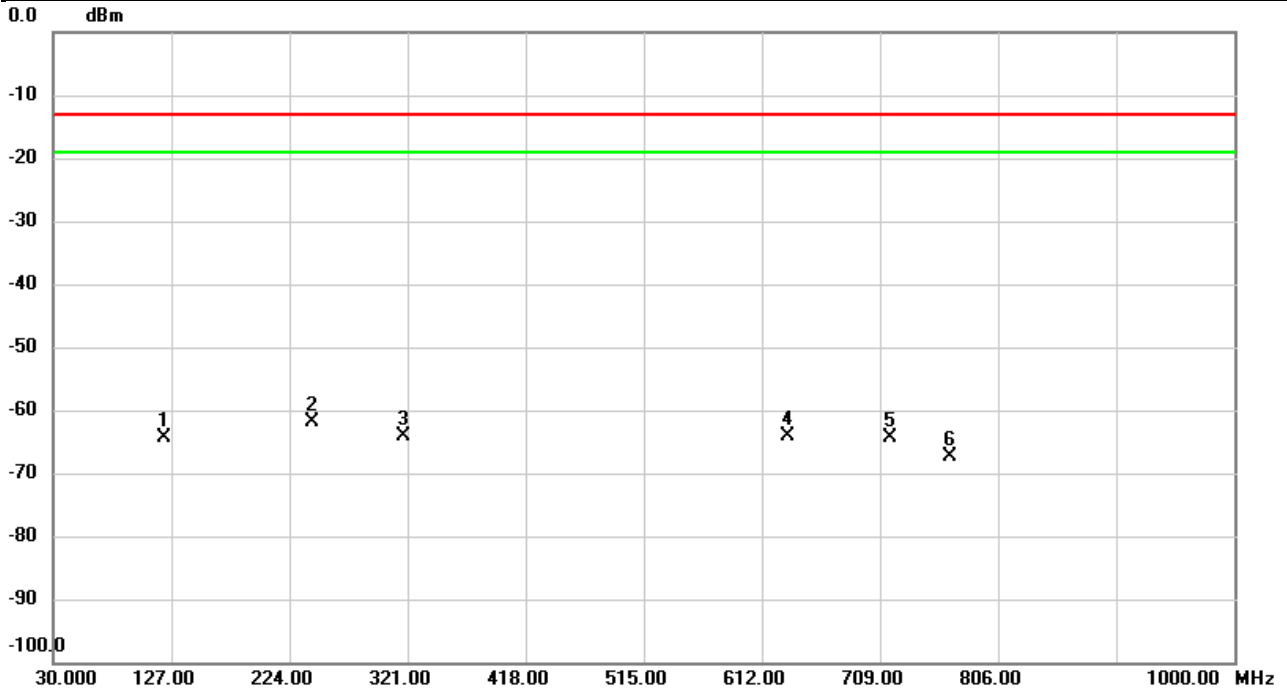
20525

836.5



APPENDIX E RADIATED SPURIOUS EMISSIONS TEST

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4407	Polarization	Vertical
Temp	25°C	Hum.	52%

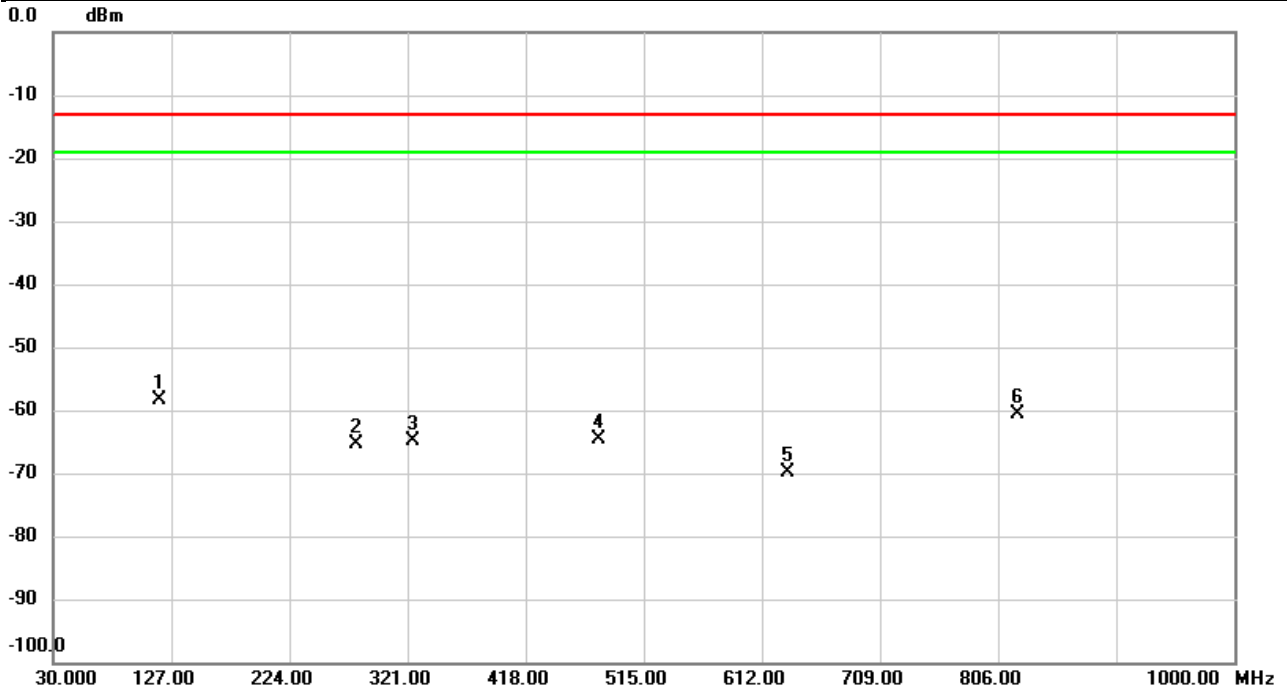


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1		121.5033	-63.72	-0.62	-64.34	-13.00	-51.34	peak	
2	*	242.9796	-69.59	7.72	-61.87	-13.00	-48.87	peak	
3		317.5080	-71.56	7.45	-64.11	-13.00	-51.11	peak	
4		633.3076	-77.24	13.08	-64.16	-13.00	-51.16	peak	
5		717.0185	-76.82	12.41	-64.41	-13.00	-51.41	peak	
6		766.5533	-77.63	10.36	-67.27	-13.00	-54.27	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4407	Polarization	Horizontal
Temp	25°C	Hum.	52%

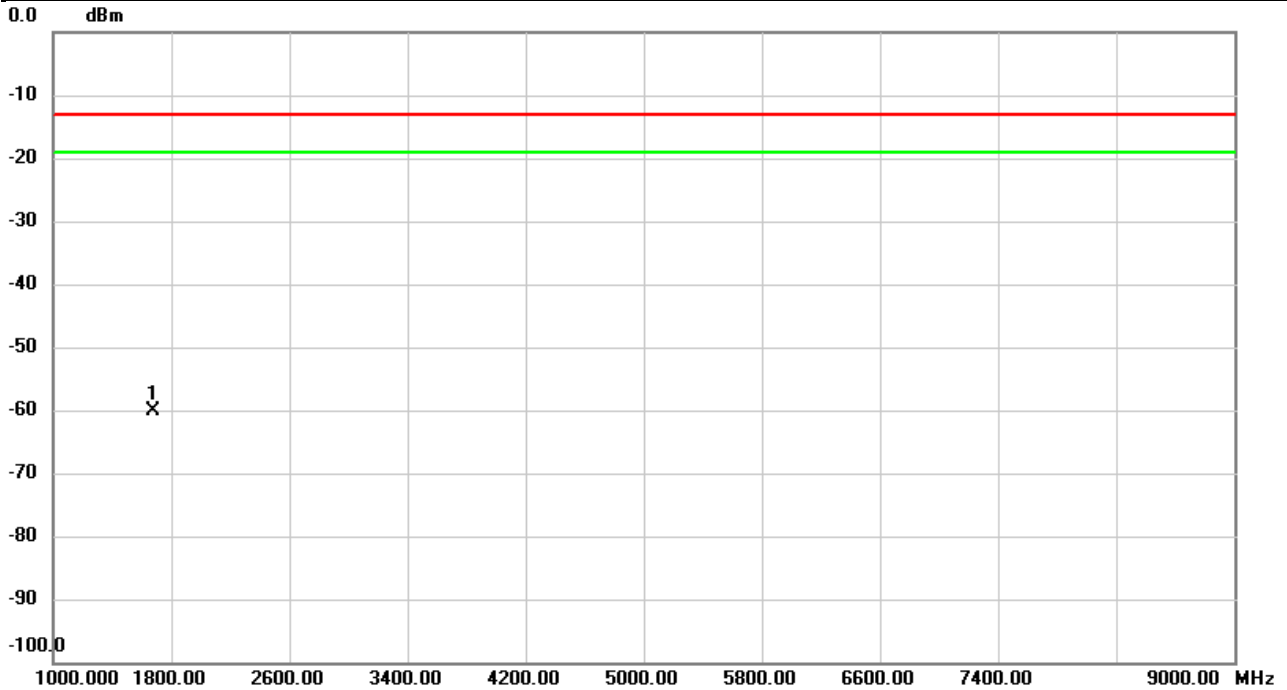


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	117.8496	-61.04	2.68	-58.36	-13.00	-45.36	peak	
2		279.1930	-65.60	0.21	-65.39	-13.00	-52.39	peak	
3		325.0740	-67.26	2.47	-64.79	-13.00	-51.79	peak	
4		478.5926	-76.37	11.77	-64.60	-13.00	-51.60	peak	
5		633.9542	-77.00	7.18	-69.82	-13.00	-56.82	peak	
6		822.3605	-76.29	15.74	-60.55	-13.00	-47.55	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4407	Polarization	Vertical
Temp	25°C	Hum.	52%

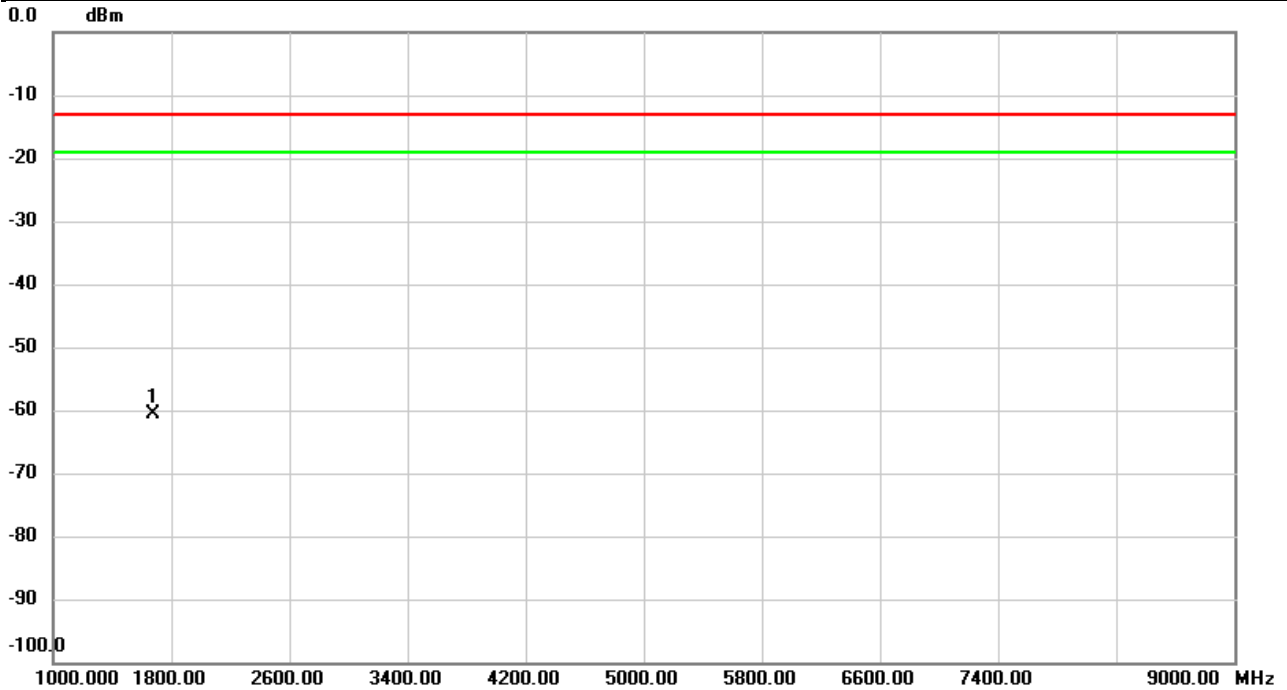


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	1672.800	-53.59	-6.57	-60.16	-13.00	-47.16	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	WCDMA Band V	Test Date	2021/9/17
Test Channel	CH4407	Polarization	Horizontal
Temp	25°C	Hum.	52%

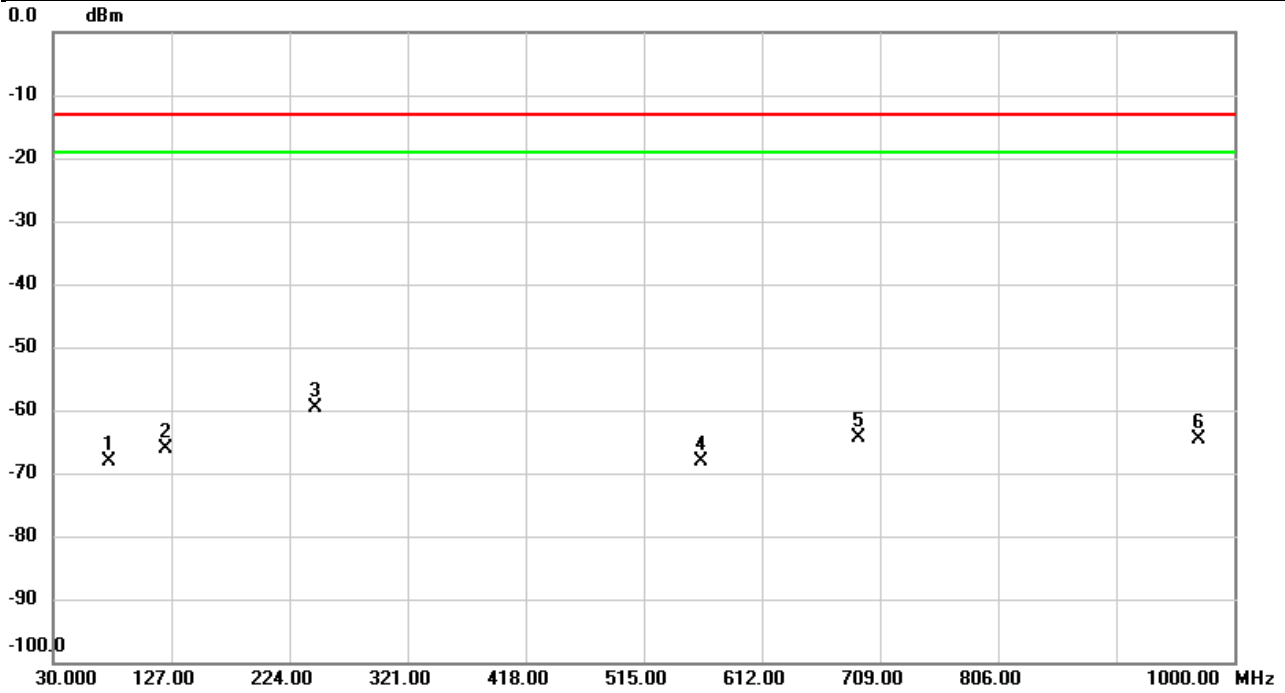


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	1672.800	-52.51	-8.12	-60.63	-13.00	-47.63	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20525	Polarization	Vertical
Temp	25°C	Hum.	52%

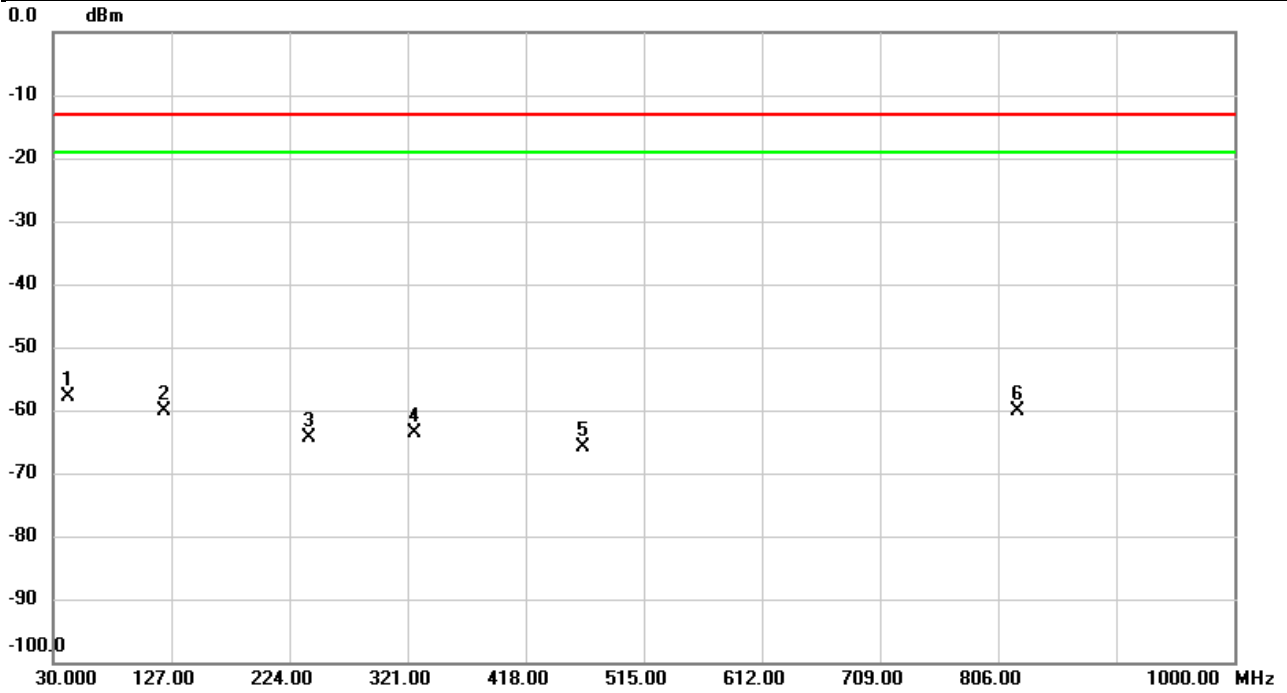


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Detector	Comment
1		75.6870	-65.78	-2.25	-68.03	-13.00	-55.03	peak	
2		122.0530	-65.48	-0.57	-66.05	-13.00	-53.05	peak	
3	*	245.7926	-67.40	7.71	-59.69	-13.00	-46.69	peak	
4		561.9156	-78.19	10.02	-68.17	-13.00	-55.17	peak	
5		691.1520	-77.47	13.09	-64.38	-13.00	-51.38	peak	
6		970.7383	-78.12	13.59	-64.53	-13.00	-51.53	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20525	Polarization	Horizontal
Temp	25°C	Hum.	52%

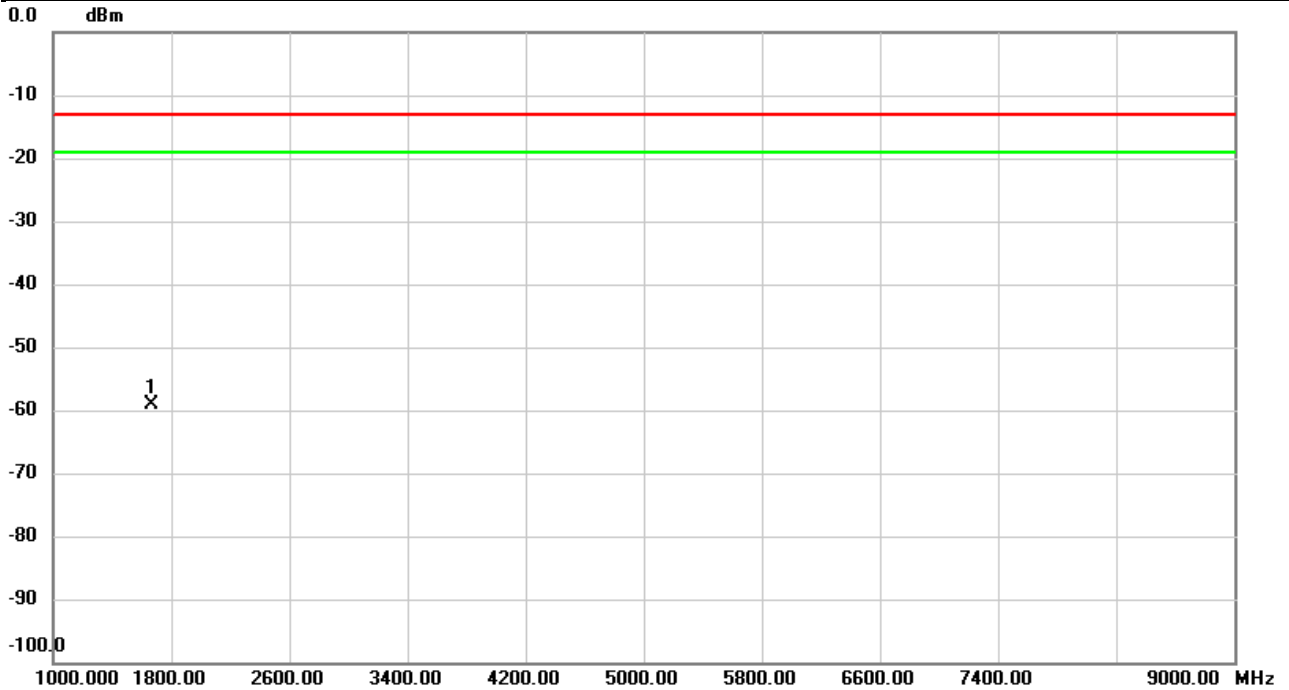


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	41.7693	-74.49	16.64	-57.85	-13.00	-44.85	peak	
2		121.1153	-62.69	2.53	-60.16	-13.00	-47.16	peak	
3		240.0696	-63.83	-0.47	-64.30	-13.00	-51.30	peak	
4		326.2056	-66.10	2.55	-63.55	-13.00	-50.55	peak	
5		464.7863	-78.31	12.35	-65.96	-13.00	-52.96	peak	
6		822.6516	-75.81	15.75	-60.06	-13.00	-47.06	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20525	Polarization	Vertical
Temp	25°C	Hum.	52%

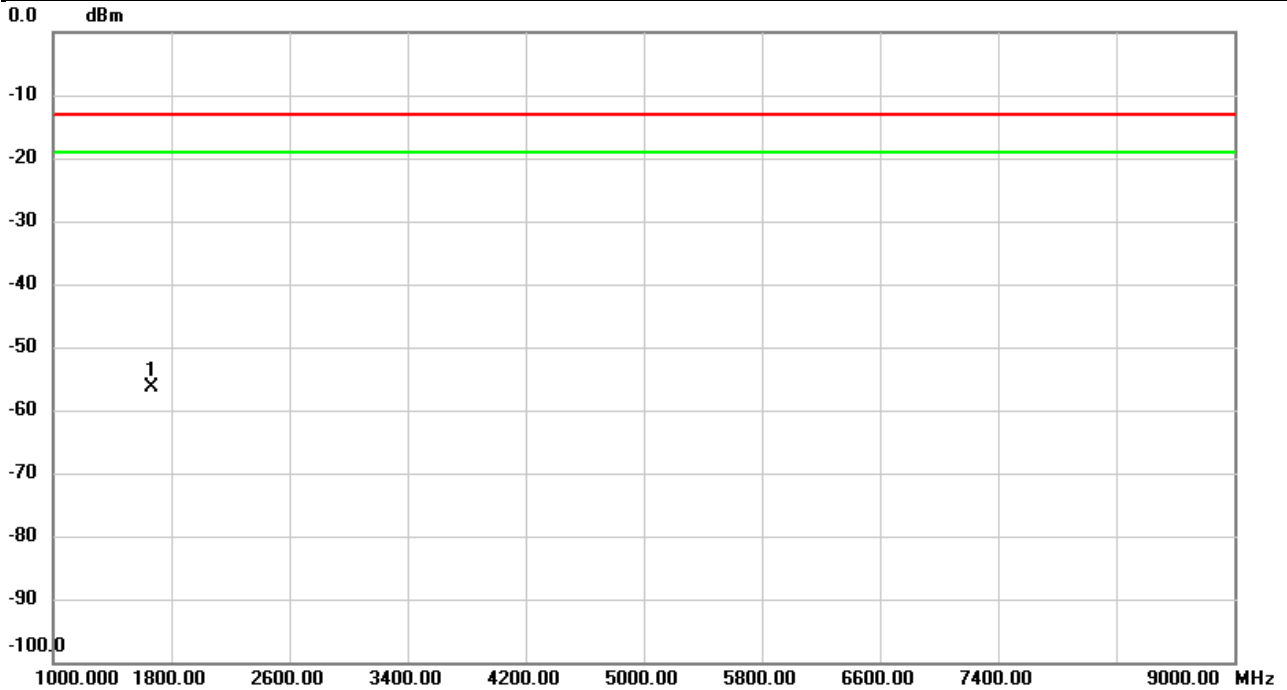


No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	1664.000	-52.60	-6.52	-59.12	-13.00	-46.12	peak	

REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Test Mode	LTE Band 5	Test Date	2021/9/17
Test Channel	CH20525	Polarization	Horizontal
Temp	25°C	Hum.	52%



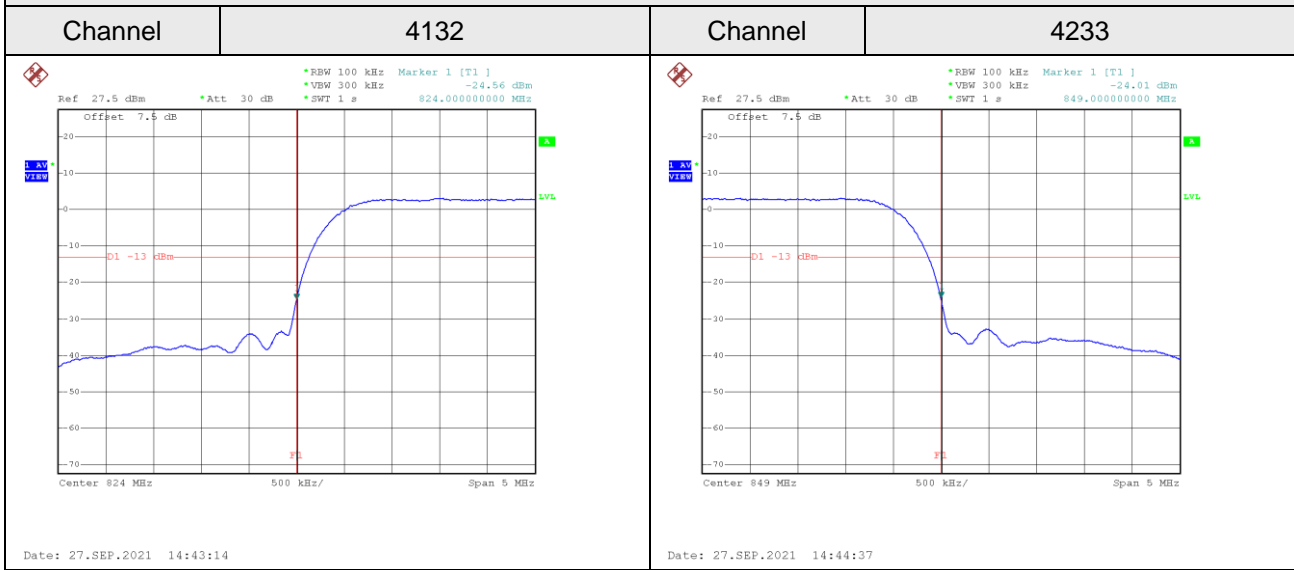
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBm	dB	dBm	dBm	dB		
1	*	1664.267	-48.12	-8.24	-56.36	-13.00	-43.36	peak	

REMARKS:

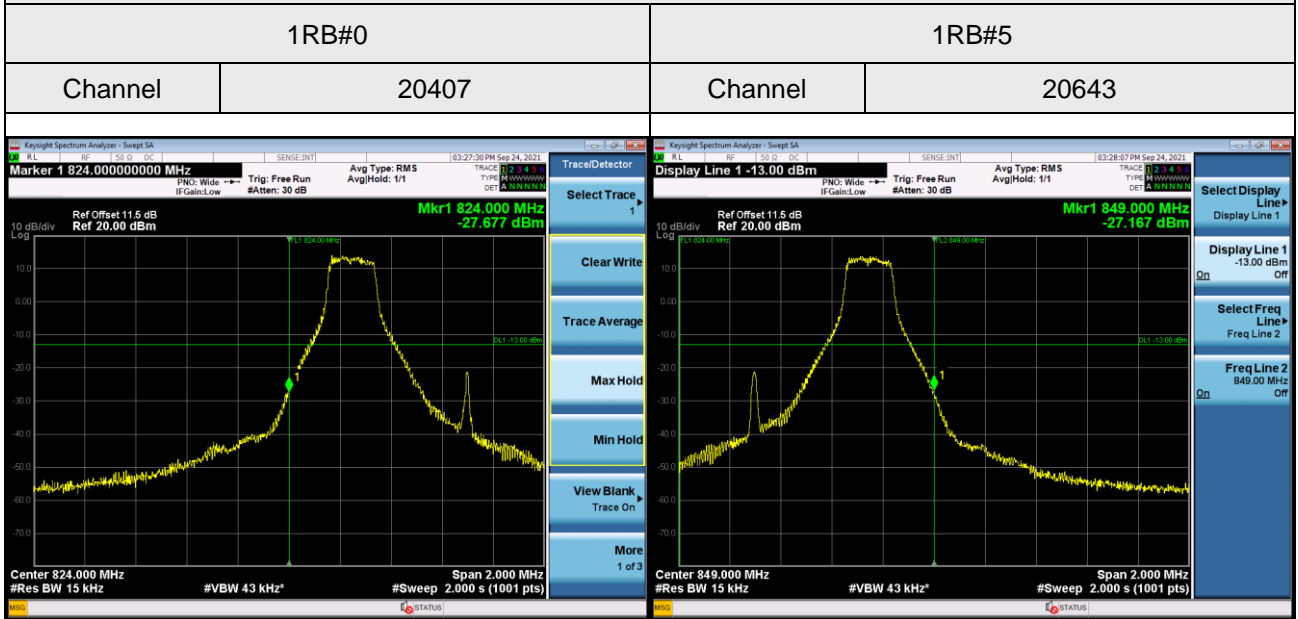
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

APPENDIX F BAND EDGE

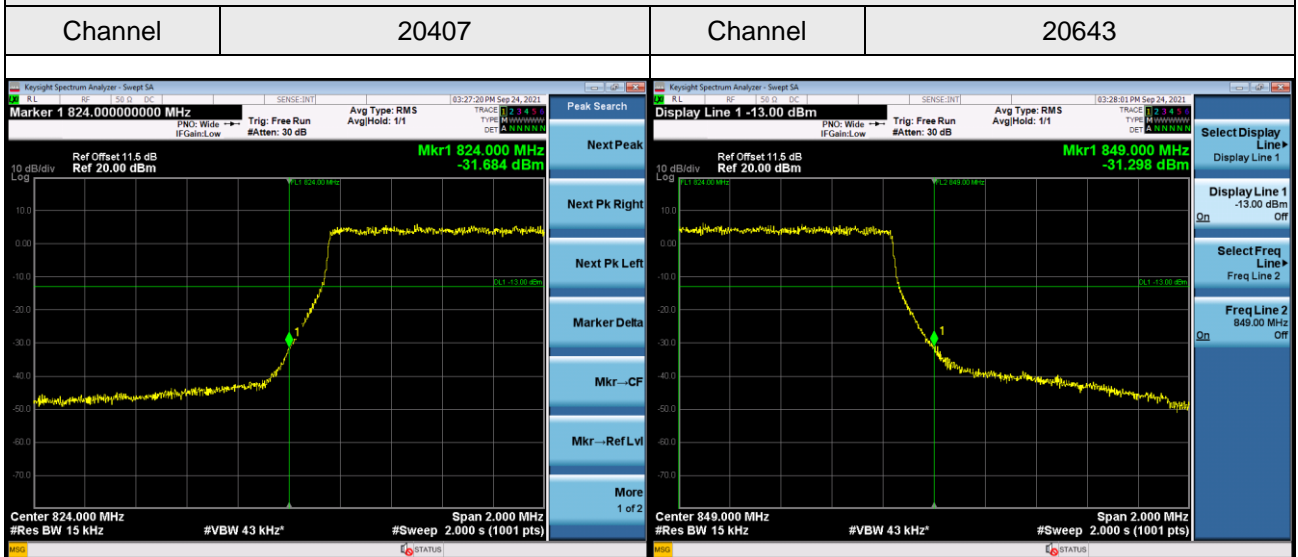
WCDMA Band V_WCDMA Spectrum Plot



LTE Band 5_1.4M Spectrum Plot



6RB#0



LTE Band 5_3M Spectrum Plot

1RB#0

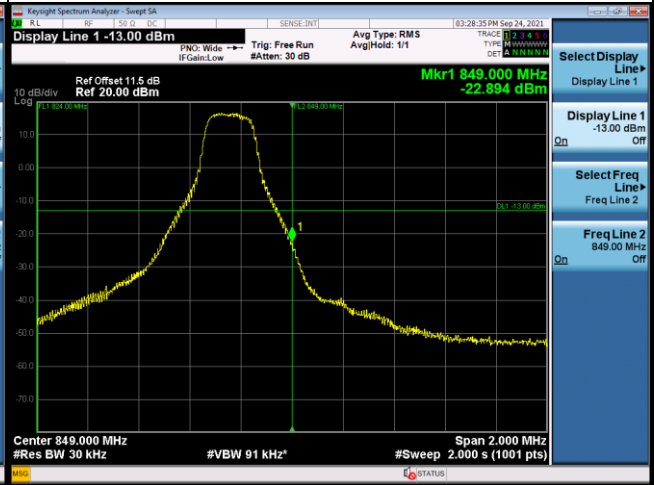
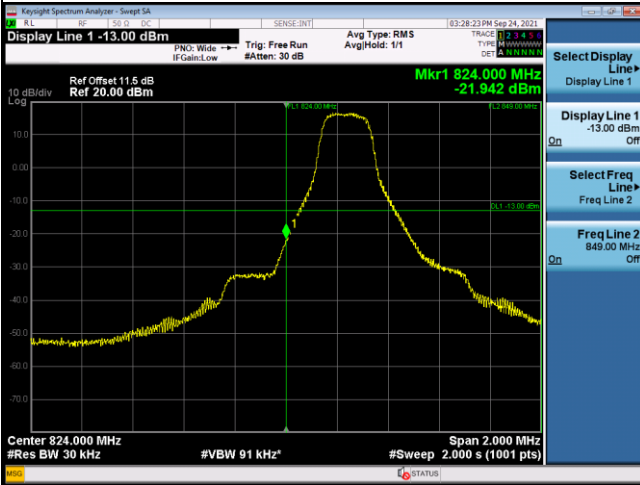
1RB#14

Channel

20415

Channel

20635



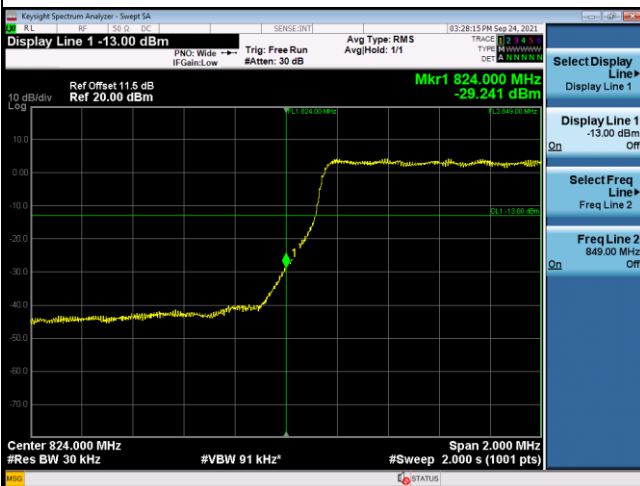
15RB#0

Channel

20415

Channel

20635



LTE Band 5_5M Spectrum Plot

1RB#0

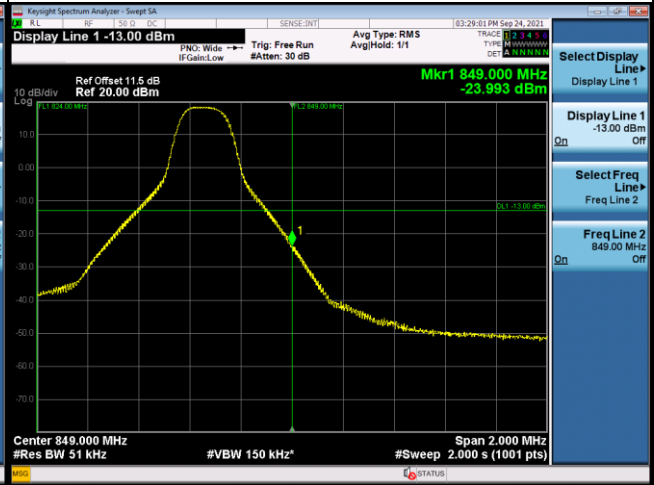
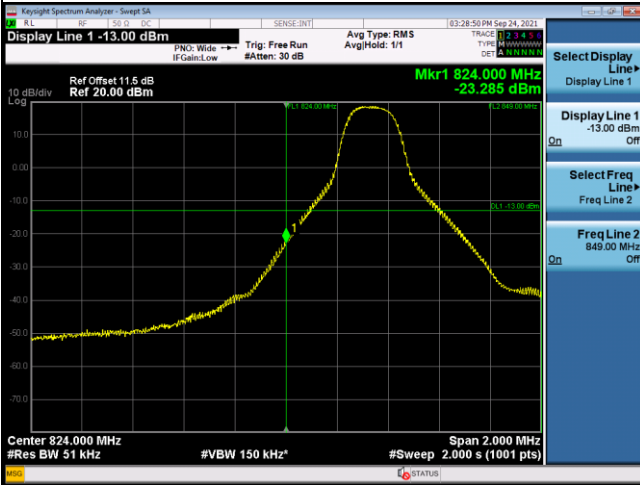
1RB#24

Channel

20425

Channel

20625



25RB#0

Channel

20425

Channel

20625

