



# FCC Radio Test Report

## FCC ID: ZMOLE270LA

This report concerns: Class II permissive Change

**Project No.** : 2407C095A  
**Equipment** : LTE Module  
**Brand Name** : Fibocom  
**Test Model** : LE270-LA  
**Series Model** : N/A  
**Applicant** : Fibocom Wireless Inc.  
**Address** : 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China  
**Manufacturer** : Fibocom Wireless Inc.  
**Address** : 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China  
**Factory** : Fibocom Wireless Inc.  
**Address** : 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China  
**Date of Receipt** : Aug. 07, 2024  
Mar. 24, 2025  
**Date of Test** : Aug. 09, 2024 ~ Aug. 29, 2024  
Mar. 25, 2025 ~ Apr. 08, 2025  
**Issued Date** : Apr. 17, 2025  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: SSL2024080742 for conducted, DG2025032449 for radiated.  
**Standard(s)** : 47 CFR FCC Part 22 Subpart H  
47 CFR FCC Part 2

The above equipment has been tested and found compliance with the requirement of the relative 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 assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**BTL's** laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 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.

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### REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2407C095A	R00	<p>This is a supplementary report to the original test report (BTL-FCCP-1-2407C095).</p> <ol style="list-style-type: none"> <li>Added a new power IC and the location of the capacitor and resistor has changed. The other hardware is completely identical. (There is no change in the RF part.)</li> <li>Changed the software version.</li> <li>Added the seven antennas (Ant.2~8).</li> <li>Changed the ERP to Max. conducted power in section 3.1.</li> </ol> <p>Based on above changes described, so used the antennas with the highest gain in each frequency band to test radiated spurious emissions and recorded in this report. The conducted power was unchanged, ERP with worst new antenna was updated. The radiated spurious emissions and ERP test results of original antenna please refer to original report.</p>	Apr. 17, 2025	Valid

## 1. APPLICABLE STANDARDS

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

ANSI C63.26-2015

The following reference test guidance is not within the scope of accreditation of A2LA:

FCC KDB 971168 D01 Power Meas License Digital Systems v03r01

## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 22 Subpart H & Part 2			
Standard(s) Section	Test Item	Judgment	Remark
2.1046	Output Power	PASS	-----
22.913(a)(5)	Effective Radiated Power	PASS	-----
2.1049	Occupied Bandwidth	PASS	-----
2.1051 22.917(a)	Conducted Spurious Emissions	PASS	-----
2.1053 22.917(a)	Radiated Spurious Emissions	PASS	-----
22.917(a)	Band Edge Measurements	PASS	-----
22.913(d)	Peak To Average Ratio	PASS	-----
2.1055 22.355	Frequency Stability	PASS	-----

Note:

(1) "N/A" denotes test is not applicable in this test report.

## 2.1 TEST FACILITY

For Radiated items:

The test facilities used to collect the test data in this report is at the location of 1-2/F, 4/F, Building A, 1-2/F, Building B, 3/F, Building C, No.3, Jinshagang 1st Road, Dalang Town, Dongguan City, Guangdong People's Republic of China.

For other items:

The test facilities used to collect the test data in this report is at the location of Room 108-116, 309-310, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China.

BTL's Registration Number for FCC: 747969

BTL's Designation Number for FCC: CN1377

## 2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ( $k=2$ ))

The BTL measurement uncertainty as below table:

### A. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	$U_i$ (dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	$U_i$ (dB)
DG-CB03 (3m)	CISPR	30MHz ~ 200MHz	V	4.40
		30MHz ~ 200MHz	H	3.62
		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	H	3.98

Test Site	Method	Measurement Frequency Range	$U_i$ (dB)
DG-CB03 (3m)	CISPR	1GHz ~ 6GHz	4.08
		6GHz ~ 18GHz	4.62

### B. Other Measurement:

Parameter	Uncertainty
Spectrum Bandwidth	$\pm 1.74$ %
Maximum Output Power	$\pm 0.87$ dB
Frequency Stability	$\pm 53.10$ Hz
Temperature	$\pm 0.47$ °C
Humidity	$\pm 1.37$ %

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

### 2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
Output Power & ERP	25.3°C	49%	DC 3.8V	Mark Wu	Aug. 12, 2024~ Aug. 20, 2024
Occupied Bandwidth	25.3°C	49%	DC 3.8V	Mark Wu	Aug. 12, 2024~ Aug. 20, 2024
Conducted Spurious Emissions	25.3°C	49%	DC 3.8V	Mark Wu	Aug. 12, 2024~ Aug. 20, 2024
Radiated Spurious Emissions (9 kHz to 30 MHz)	20°C	50%	DC 3.8V	Zonda Cheng	Apr. 02, 2025
Radiated Spurious Emissions (30 MHz to 1000 MHz)	23°C	42%	DC 3.8V	Calvin Wen	Apr. 04, 2025
Radiated Spurious Emissions (Above 1000 MHz)	23°C	42%	DC 3.8V	Calvin Wen	Apr. 04, 2025
Band Edge	25.3°C	49%	DC 3.8V	Mark Wu	Aug. 12, 2024~ Aug. 20, 2024
Peak to Average Ratio	25.3°C	49%	DC 3.8V	Mark Wu	Aug. 12, 2024~ Aug. 20, 2024
Frequency Stability	Normal & Extreme	49%	Normal & Extreme	Mark Wu	Aug. 12, 2024~ Aug. 20, 2024



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	LTE Module			
Brand Name	Fibocom			
Test Model	LE270-LA			
Series Model	N/A			
Model Difference(s)	N/A			
Hardware Version	V1.2			
Software Version	12007.7001.00.04.46.01			
Power Source	DC voltage supplied from external power supply.			
Power Rating	DC 3.4V - 4.5V, Typical: 3.8V			
IMEI No.	Conducted	868317070000764		
	Radiated	868317070010060		
Modulation Type	LTE	UL: QPSK, 16QAM DL: QPSK, 16QAM, 64QAM		
Max. conducted power	LTE	Channel Bandwidth (MHz)	QPSK (dBm)	16QAM (dBm)
	Band 5	1.4	24.21	23.69
		3	24.18	23.50
		5	24.75	24.02
		10	24.84	24.09





Note:

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

#### 2. Channel List:

LTE Band 5(UL: 824-849MHz, DL: 869-894MHz)					
Test Frequency ID	Bandwidth (MHz)	N <sub>UL</sub>	Frequency of Uplink (MHz)	N <sub>DL</sub>	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:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
1		GHT-019A	Dipole	SMA Male J	1.32	LTE Band 5
2		F-0Y-31-0116-001-K0	FPC	IPEX	-2.46	LTE Band 5
3		F-0Y-31-0116-002-K0	FPC	IPEX	-0.39	LTE Band 5
4	Kenbotong	TQX-071427HK22	Dipole	IPEX-1	1.97	LTE Band 5
5	Kenbotong	KIT-HK23-PT24-4G	Dipole	IPEX-1	2.76	LTE Band 5
6		F-0Y-31-0166-001-K0	FPC	IPEX	1.55	LTE Band 5
7	Kenbotong	TQX-071427HK22-L	Dipole	IPEX-1	1.99	LTE Band 5
8	HEDA	HD0255-02-A01	FPC	IPEX-1	-1.1	LTE Band 5

Note:

(1) The antenna gain is provided by the manufacturer.

(2) The antennas are not attached when sales.

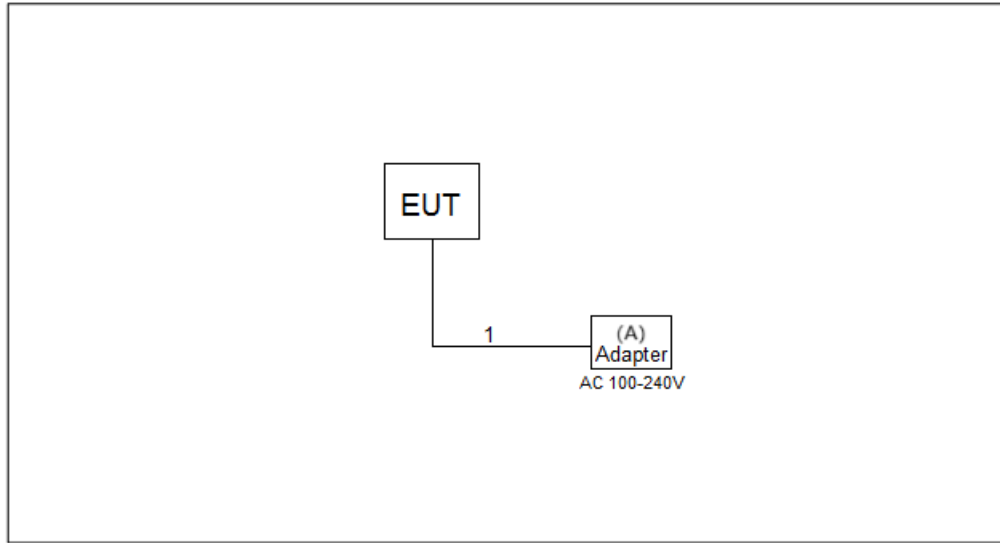
4. The UE capability is category 1, and the maximum RB Number is 27 when the modulation is 16QAM, so for the bandwidth of 10MHz, only tested to 27 RB when the modulation is 16QAM.

### 3.2 DESCRIPTION OF TEST MODES

Following mode(s) is (were) found to be the worst case(s) and selected for the final test.

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	1RB/3RB/6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1RB/8RB/15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1RB/12RB/25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK 16QAM	1RB/25RB/50RB 1RB/25RB/27RB
Occupied Bandwidth	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM	6RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	15RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	25RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK 16QAM	50RB 27RB
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	1RB
	20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM	1RB
	20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM	1RB
	20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM	1RB
Frequency Stability	20450 to 20600	20525	10MHz	QPSK	50RB

### 3.3 BLOCK DIGRAM SHOWING THE CONFIGURATIONOFSYSTEMTESTED



### 2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	Adapter	HUAWEI	HW-050100C01	H779KBJ5W03843

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	USB cable	Yes	No	1m

## 4. TEST RESULT

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMIT

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

#### 4.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5 or ANSI C63.26-2015 Section 5.2.

#### EIRP / ERP:

$EIRP = \text{Output Power} + \text{Antenan gain}$

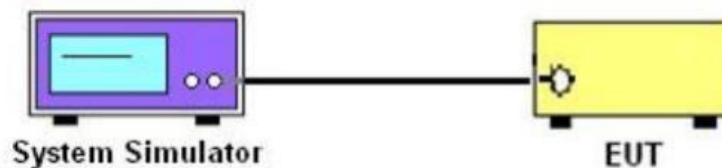
$ERP = EIPR - 2.15\text{dBi}$

#### Output Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, 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.

#### 4.1.3 TEST SETUP LAYOUT

##### Output Power Measurement



#### 4.1.4 TEST DEVIATION

No deviation

#### 4.1.5 TEST RESULTS

Please refer to the APPENDIX A.

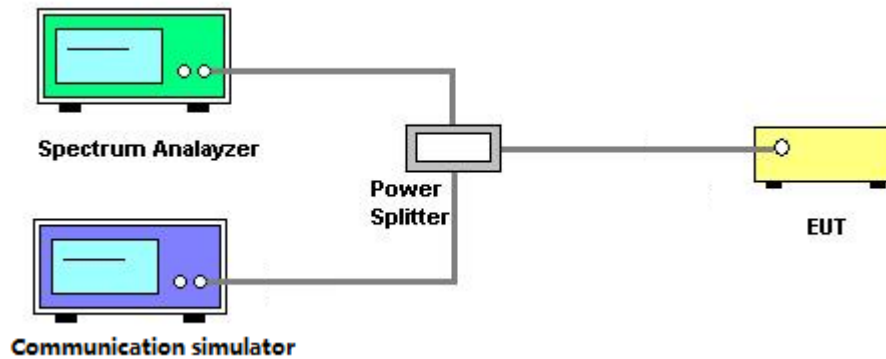
## 4.2 OCCUPIED BANDWIDTH MEASUREMENT

### 4.2.1 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 4 or ANSI C63.26-2015 Section 5.4.

1. 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.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3.  $RBW = (1\% \sim 5\%) * EBW$   
 $VBW \geq 3 * RBW$
4. Set spectrum analyzer with Peak detector.

### 4.2.2 TEST SETUP LAYOUT



### 4.2.3 TEST DEVIATION

No deviation

### 4.2.4 TEST RESULTS

Please refer to the APPENDIX B.

### 4.3 CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

#### 4.3.1 LIMIT

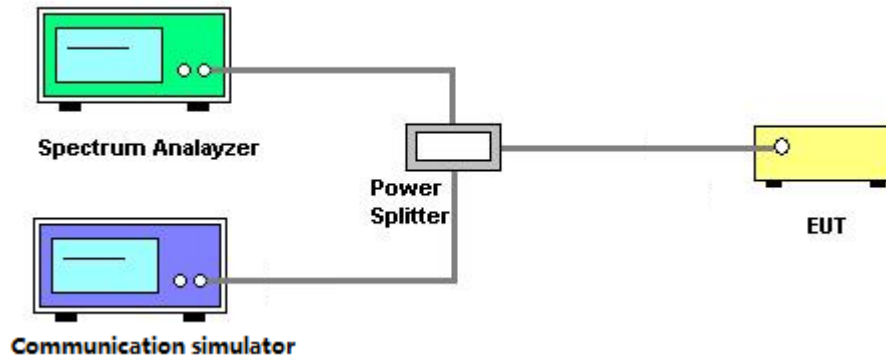
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13dBm.

#### 4.3.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6 or ANSI C63.26-2015 Section 5.7.

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

#### 4.3.3 TEST SETUP LAYOUT



#### 4.3.4 TEST DEVIATION

No deviation

#### 4.3.5 TEST RESULTS

Please refer to the APPENDIX C.

#### **4.4 RADIATED SPURIOUS EMISSIONS MEASUREMENT**

##### **4.4.1 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.

##### **4.4.2 TEST PROCEDURES**

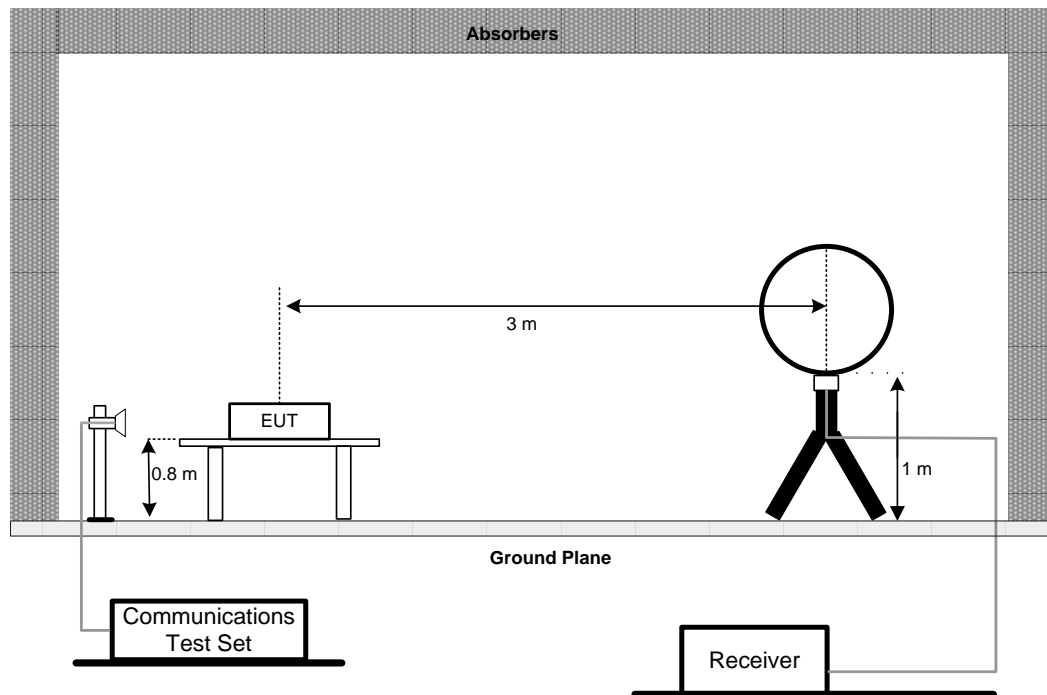
The testing follows FCC KDB 971168 v03r01 Section 6.2 or ANSI C63.26-2015 Section 5.5.

1. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
4. Start the test, rotate the table 360° to find the worst Angle, maintain the worst Angle, raise the antenna to 1-4m to find the worst height, maintain the worst height, then rotate the table to determine the final worst Angle, grab the spectrum diagram.
5. EUT shall be placed in accordance with X,Y,Z as required by Figure 5 in ANSI C63.26.  
Repeat Step 5 above to find the worst placement. Test all bands according to the worst placement.
6. Then EIRP is then converted to field strength as follows in Equation
7.  $E \text{ (dBuV/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$ ; where D is the measurement distance (in the far field region) in m. The emission limit equal to 82.26dBuV/m.

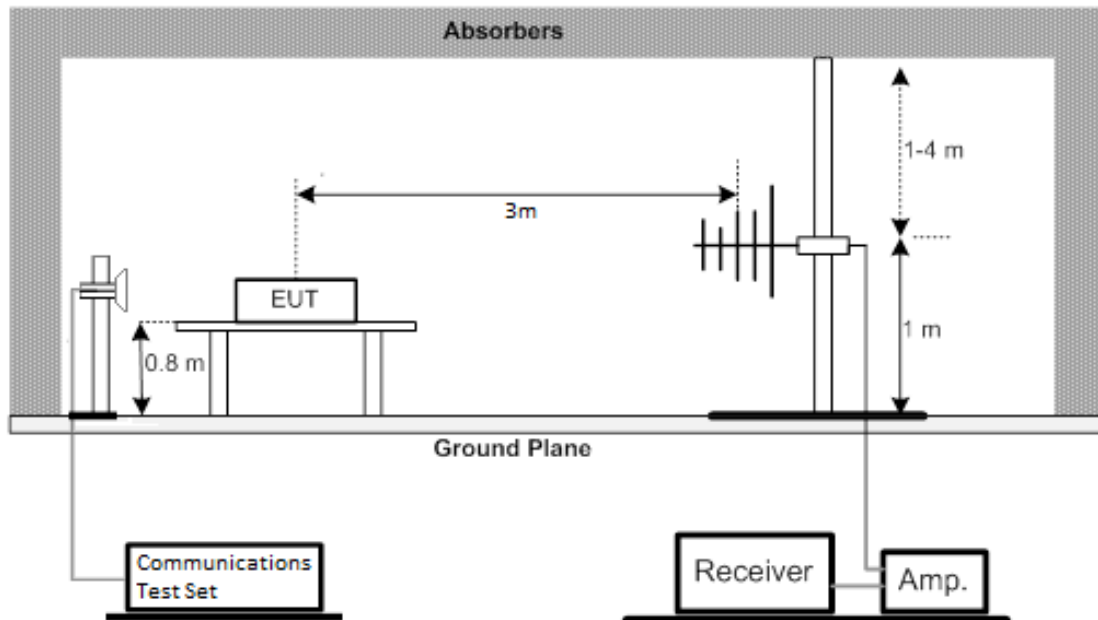


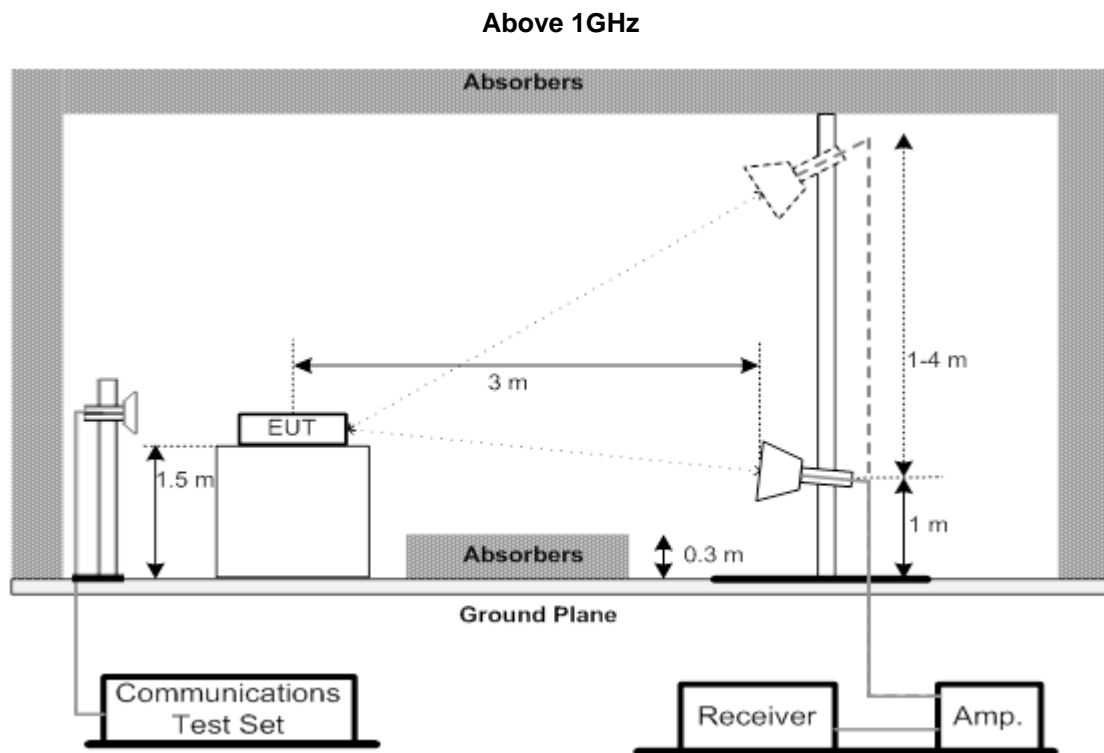
#### 4.4.3 TEST SETUP LAYOUT

##### Below 30MHz



##### 30MHz to 1000MHz





#### 4.4.4 TEST DEVIATION

No deviation

#### 4.4.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX D.

#### 4.4.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the APPENDIX E.

#### 4.4.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX F.

## 4.5 BAND EDGE MEASUREMENT

### 4.5.1 LIMIT

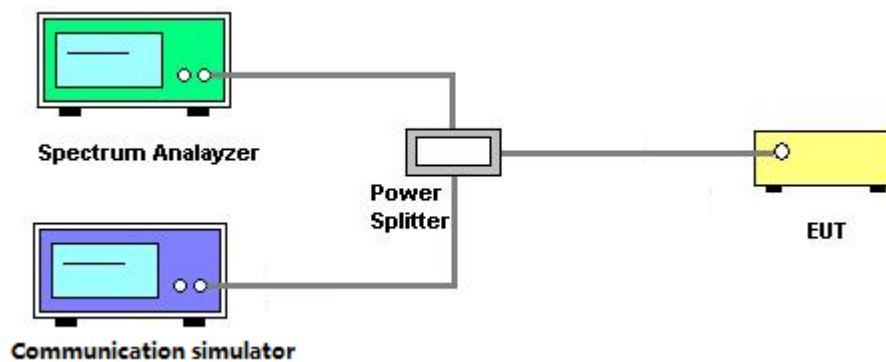
A Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of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

### 4.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6 or ANSI C63.26-2015 Section 5.7.

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

### 4.5.3 TEST SETUP LAYOUT



### 4.5.4 TEST DEVIATION

No deviation

### 4.5.5 TEST RESULTS

Please refer to the APPENDIX G.

## 4.6 PEAK TO AVERAGE RATIO MEASUREMENT

### 4.6.1 LIMIT

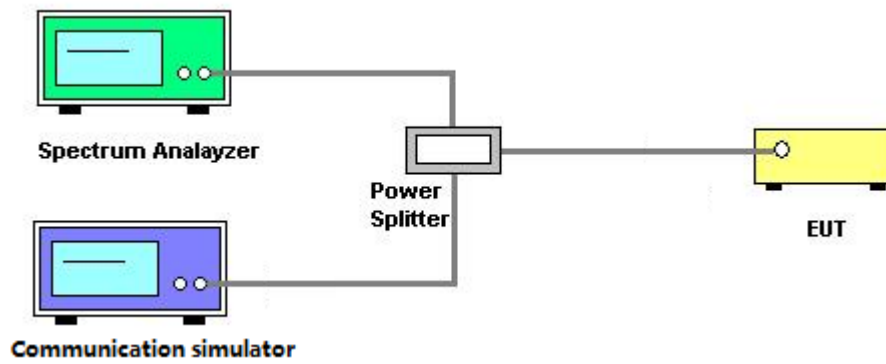
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

### 4.6.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 5.7 or ANSI C63.26-2015 Section 5.2.6.

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

### 4.6.3 TEST SETUP LAYOUT



### 4.6.4 TEST DEVIATION

No deviation

### 4.6.5 TEST RESULTS

Please refer to the APPENDIX H.

## 4.7 FREQUENCY STABILITY MEASUREMENT

### 4.7.1 LIMIT

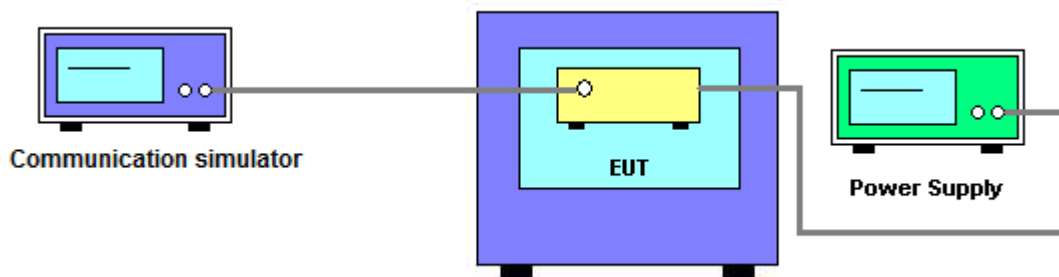
$\pm 1.5$  ppm is for base and fixed station.  $\pm 2.5$  ppm is for mobile station.

### 4.7.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 9 or ANSI C63.26-2015 Section 5.6.

1. 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.
2. 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.
3. 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.
4. The frequency error was recorded frequency error from the communication simulator.

### 4.7.3 TEST SETUP LAYOUT



### 4.7.4 TEST DEVIATION

No deviation

### 4.7.5 TEST RESULTS

Please refer to the APPENDIX I.

#### 4. LIST OF MEASUREMENT EQUIPMENTS

Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60	00025	Mar. 01, 2026
2	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 06, 2025
3	Cable	N/A	RW4950-3.8A-NM SM-1.5	N/A	Nov. 12, 2025
4	Cable	N/A	LMR400-NMNM-8 M	N/A	Nov. 12, 2025
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	966 Chamber room	CM	9*6*6	N/A	May 16, 2025

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	01462	Dec. 14, 2025
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 14, 2025
3	Preamplifier	EMC INSTRUMENT	EMC001330	980998	May 31, 2025
4	Cable	RegalWay	LMR400-NMNM -12.5m	N/A	Jun. 06, 2025
5	Cable	RegalWay	LMR400-NMNM -3m	N/A	Jun. 06, 2025
6	Cable	RegalWay	LMR400-NMNM -0.5m	N/A	Jun. 06, 2025
7	Receiver	Agilent	N9038A	MY52130039	Jan. 10, 2026
8	Positioning Controller	MF	MF-7802	N/A	N/A
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
10	wideband radio communication tester	R&S	CMW500	152372	Dec. 06, 2025
11	966 Chamber room	CM	9*6*6	N/A	May 16, 2025

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Multi-Device Controller	ETS-Lindgren	N/A	N/A	N/A
2	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
3	966 Chamber room	CM	9*6*6	N/A	Dec. 28, 2025
4	Cable	RegalWay	RWLP50-4.0A-SMS M-12.5M	N/A	Jul. 03, 2025
5	Cable	RegalWay	RWLP50-4.0A-NM RASM-2.5M	N/A	Jul. 03, 2025
6	Cable	RegalWay	RWLP50-4.0A-NM RASMRA-0.8M	N/A	Jul. 03, 2025
7	Receiver	Agilent	N9038A	MY52130039	Jan.10, 2026
8	Double Ridged Guide Antenna	ETS	3115	75846	Mar. 02, 2026
9	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980888	Oct. 29, 2025
10	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A
11	Filter	STI	STI15-9912	N/A	May 31, 2025

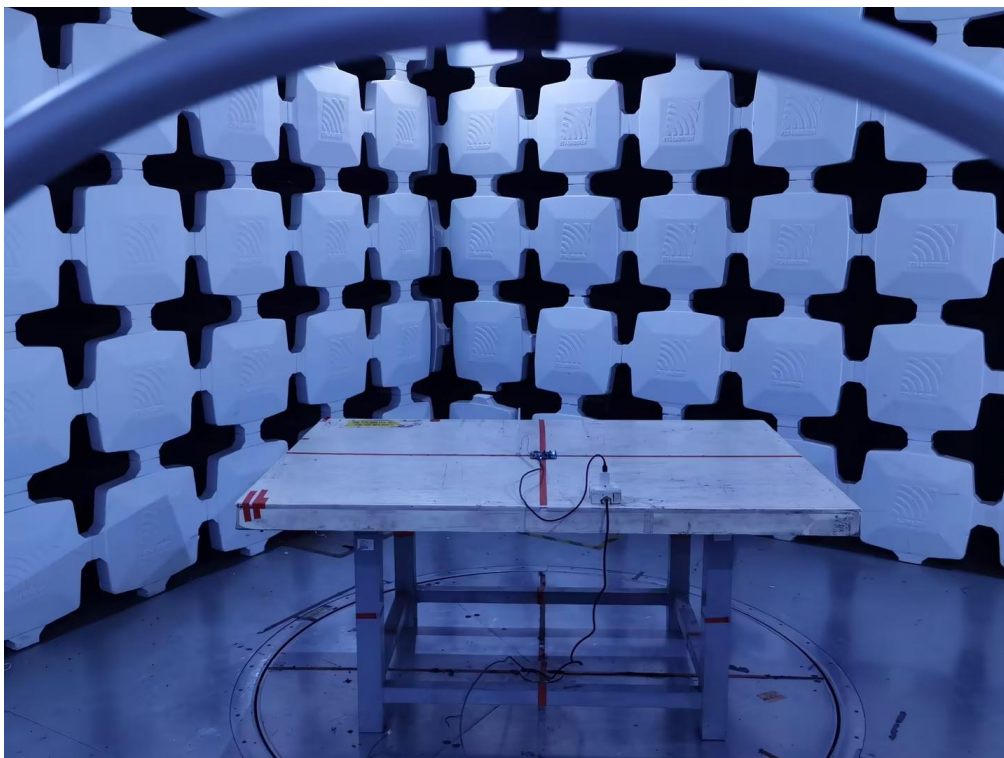
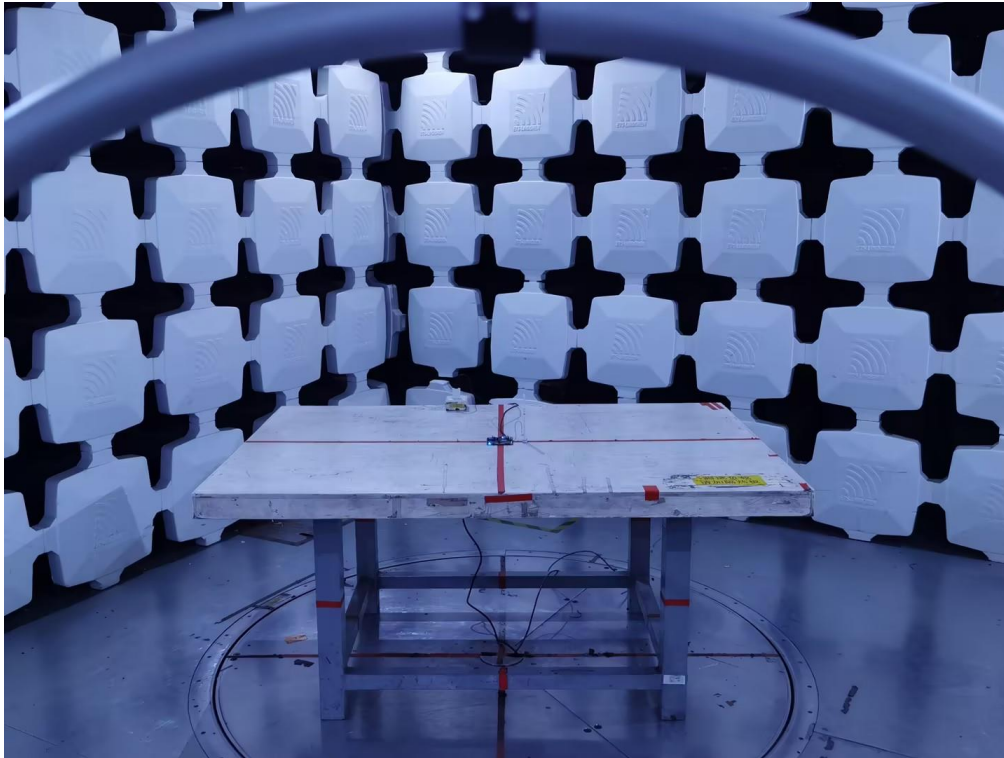
Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	MXA Signal Analyzer	Agilent Technologies	N9020A	MY49100060	Jun. 28, 2025
2	Wideband Radio Communication Tester	R&S	CWM 500	131463	Jan. 19, 2025
3	DC Source metter	Iteck	IT6154	0061041267682010 01	Jun. 28, 2025
4	Temperature Chamber	ESPEC	SU-242	93018786	Jun. 28, 2025

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

## 5. EUT TEST PHOTO

### Radiated Emissions Test Photos

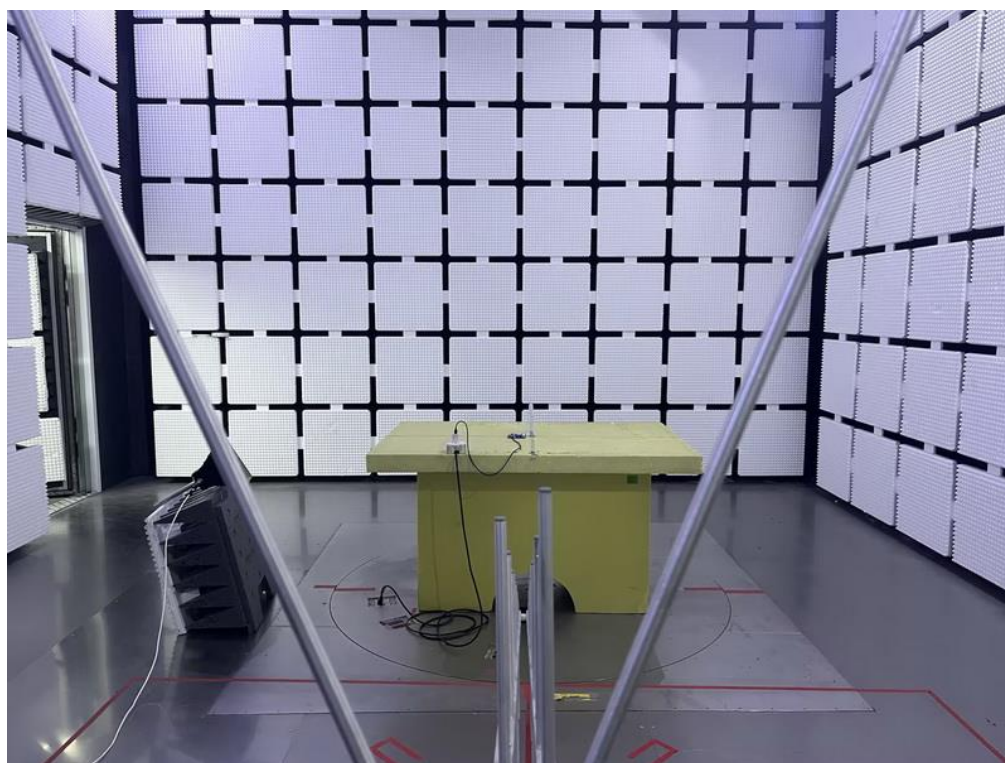
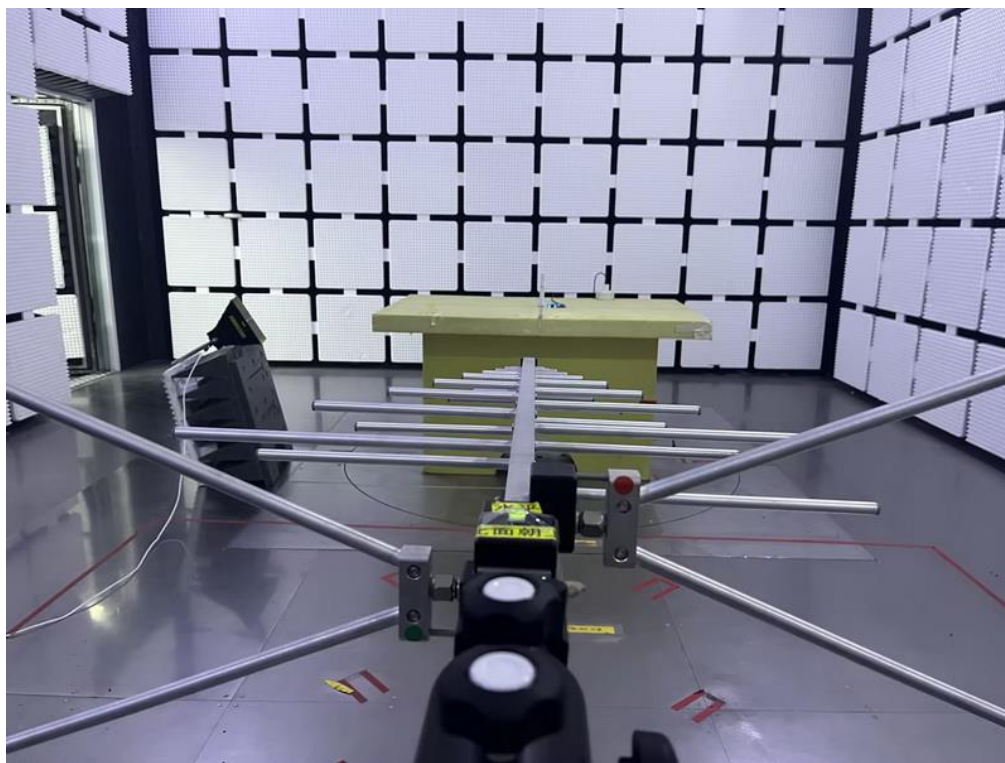
9 kHz to 30 MHz





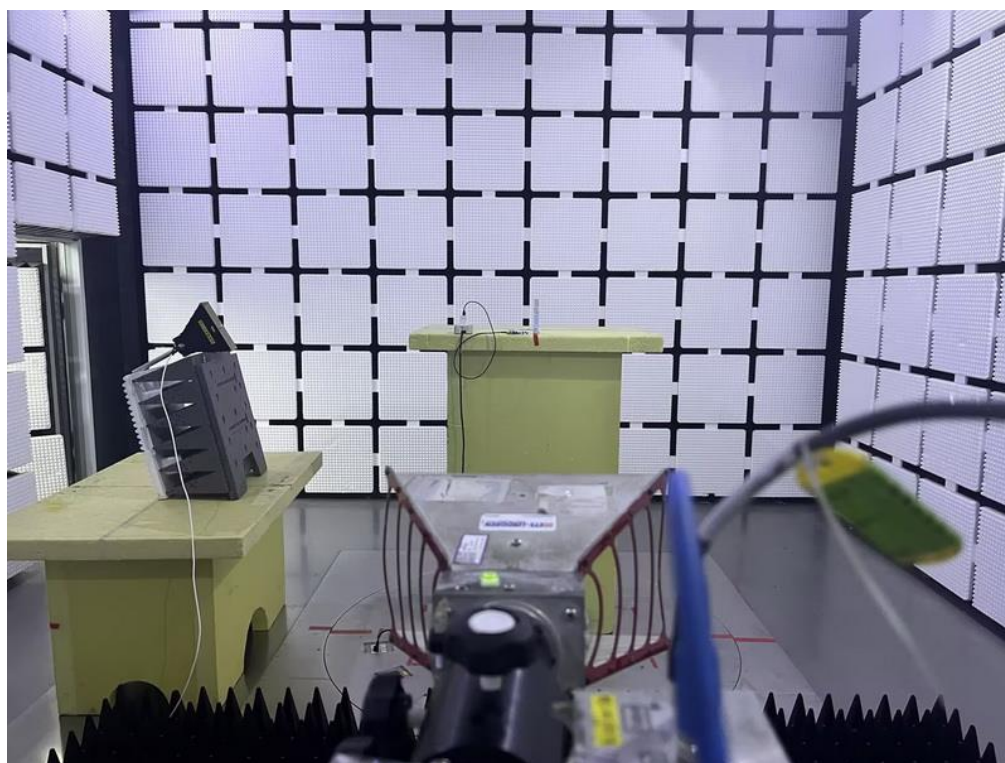
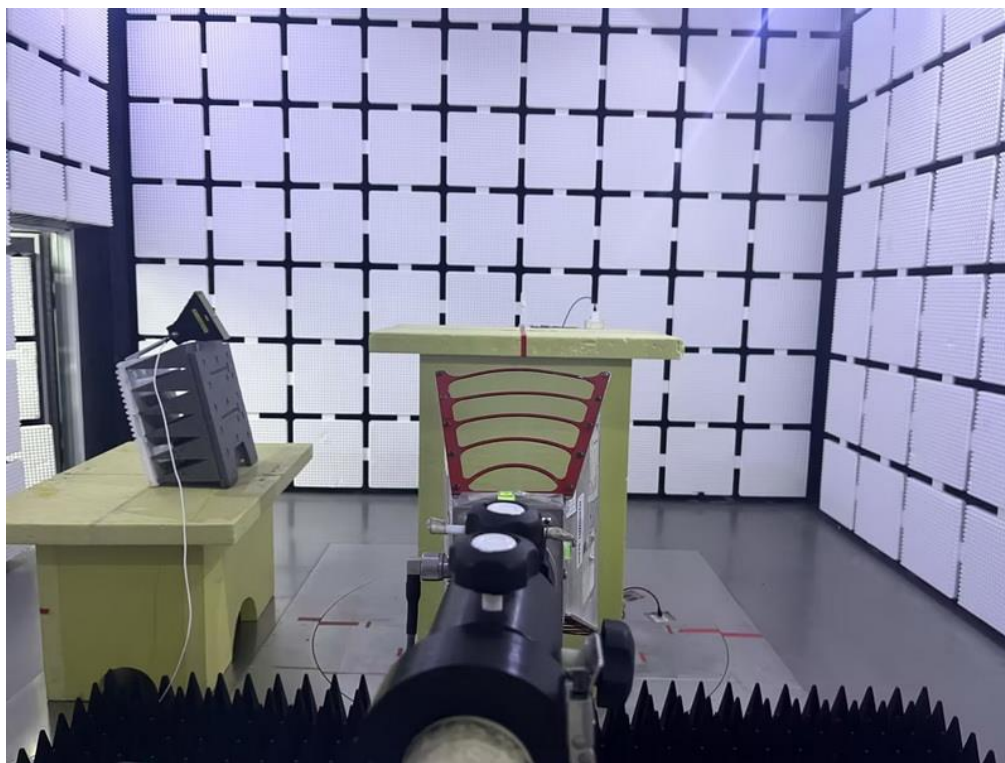
## Radiated Emissions Test Photos

30 MHz to 1 GHz



## Radiated Emissions Test Photos

Above 1 GHz



## APPENDIX A - OUTPUT POWER

### Output Power (dBm)

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20407CH	20525CH	20643CH
				824.7MHz	836.5MHz	848.3MHz
5 / 1.4MHz	QPSK	1	0	24.19	24.14	23.97
		1	2	24.20	24.14	24.14
		1	5	24.21	24.06	24.08
		3	0	24.05	24.08	23.98
		3	1	24.07	24.11	24.13
		3	2	24.14	24.09	24.10
		6	0	23.22	23.22	23.06
	16QAM	1	0	23.38	23.64	23.30
		1	2	23.40	23.69	23.31
		1	5	23.52	23.59	23.29
		3	0	23.30	23.41	23.12
		3	1	23.34	23.44	23.13
		3	2	23.36	23.42	23.11
		6	0	22.36	22.49	22.22

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20415CH	20525CH	20635CH
				825.5MHz	836.5MHz	847.5MHz
5 / 3MHz	QPSK	1	0	23.62	24.06	23.74
		1	7	24.12	24.18	24.10
		1	14	23.96	24.09	23.98
		8	0	22.74	23.26	22.82
		8	4	22.85	23.29	22.94
		8	7	23.01	23.25	23.00
		15	0	22.92	23.21	22.97
	16QAM	1	0	22.89	23.39	22.90
		1	7	23.29	23.50	23.30
		1	14	23.24	23.29	23.22
		8	0	22.16	22.37	22.06
		8	4	22.27	22.39	22.20
		8	7	22.30	22.44	22.24
		15	0	21.99	22.31	22.09

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20425CH	20525CH	20625CH
				826.5MHz	836.5MHz	846.5MHz
5 / 5MHz	QPSK	1	0	24.22	24.62	24.45
		1	13	24.36	24.33	24.40
		1	24	24.61	24.45	24.75
		12	0	23.19	23.34	23.30
		12	6	23.22	23.22	23.38
		12	11	23.29	23.34	23.53
		25	0	23.26	23.29	23.47
	16QAM	1	0	23.55	23.90	23.71
		1	13	23.69	23.61	23.67
		1	24	23.92	23.82	24.02
		12	0	22.23	22.67	22.47
		12	6	22.36	22.58	22.45
		12	11	22.45	22.60	22.60
		25	0	22.38	22.57	22.48

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20450CH	20525CH	20600CH
				829.0MHz	836.5MHz	844.0MHz
5 / 10MHz	QPSK	1	0	23.94	24.52	24.45
		1	25	24.25	24.24	24.30
		1	49	24.36	24.42	24.84
		25	0	23.06	23.38	23.42
		25	13	23.16	23.28	23.35
		25	25	23.25	23.28	23.61
		50	0	23.42	23.65	23.81
	16QAM	1	0	23.25	23.79	23.80
		1	25	23.48	23.59	23.70
		1	49	23.50	23.64	24.09
		25	0	22.19	22.52	22.45
		25	13	22.34	22.48	22.52
		25	25	22.47	22.55	22.67
		27	0	22.54	22.48	22.57



**ERP (dBm)**

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20407CH	20525CH	20643CH
				824.7MHz	836.5MHz	848.3MHz
5 / 1.4MHz	QPSK	1	0	24.80	24.75	24.58
		1	2	24.81	24.75	24.75
		1	5	24.82	24.67	24.69
		3	0	24.66	24.69	24.59
		3	1	24.68	24.72	24.74
		3	2	24.75	24.70	24.71
	16QAM	6	0	23.83	23.83	23.67
		1	0	23.99	24.25	23.91
		1	2	24.01	24.30	23.92
		1	5	24.13	24.20	23.90
		3	0	23.91	24.02	23.73
		3	1	23.95	24.05	23.74
		3	2	23.97	24.03	23.72
		6	0	22.97	23.10	22.83

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20415CH	20525CH	20635CH
				825.5MHz	836.5MHz	847.5MHz
5 / 3MHz	QPSK	1	0	24.23	24.67	24.35
		1	7	24.73	24.79	24.71
		1	14	24.57	24.70	24.59
		8	0	23.35	23.87	23.43
		8	4	23.46	23.90	23.55
		8	7	23.62	23.86	23.61
		15	0	23.53	23.82	23.58
	16QAM	1	0	23.50	24.00	23.51
		1	7	23.90	24.11	23.91
		1	14	23.85	23.90	23.83
		8	0	22.77	22.98	22.67
		8	4	22.88	23.00	22.81
		8	7	22.91	23.05	22.85
		15	0	22.60	22.92	22.70

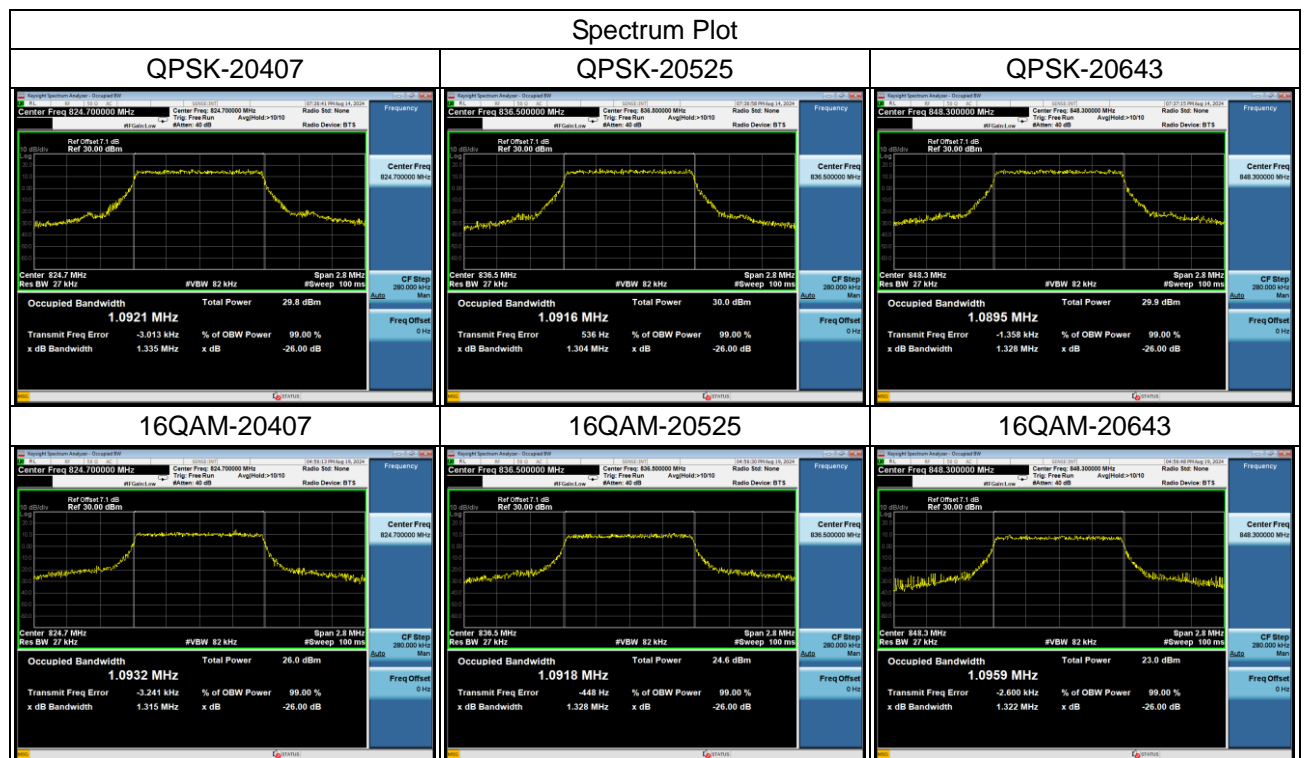
LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20425CH	20525CH	20625CH
				826.5MHz	836.5MHz	846.5MHz
5 / 5MHz	QPSK	1	0	24.83	25.23	25.06
		1	13	24.97	24.94	25.01
		1	24	25.22	25.06	25.36
		12	0	23.80	23.95	23.91
		12	6	23.83	23.83	23.99
		12	11	23.90	23.95	24.14
		25	0	23.87	23.90	24.08
	16QAM	1	0	24.16	24.51	24.32
		1	13	24.30	24.22	24.28
		1	24	24.53	24.43	24.63
		12	0	22.84	23.28	23.08
		12	6	22.97	23.19	23.06
		12	11	23.06	23.21	23.21
		25	0	22.99	23.18	23.09

LTE Band / BW	Modulation	RB Size	RB Offset	Low CH	Mid CH	High CH
				20450CH	20525CH	20600CH
				829.0MHz	836.5MHz	844.0MHz
5 / 10MHz	QPSK	1	0	24.55	25.13	25.06
		1	25	24.86	24.85	24.91
		1	49	24.97	25.03	25.45
		25	0	23.67	23.99	24.03
		25	13	23.77	23.89	23.96
		25	25	23.86	23.89	24.22
		50	0	24.03	24.26	24.42
	16QAM	1	0	23.86	24.40	24.41
		1	25	24.09	24.20	24.31
		1	49	24.11	24.25	24.70
		25	0	22.80	23.13	23.06
		25	13	22.95	23.09	23.13
		25	25	23.08	23.16	23.28
		27	0	23.15	23.09	23.18

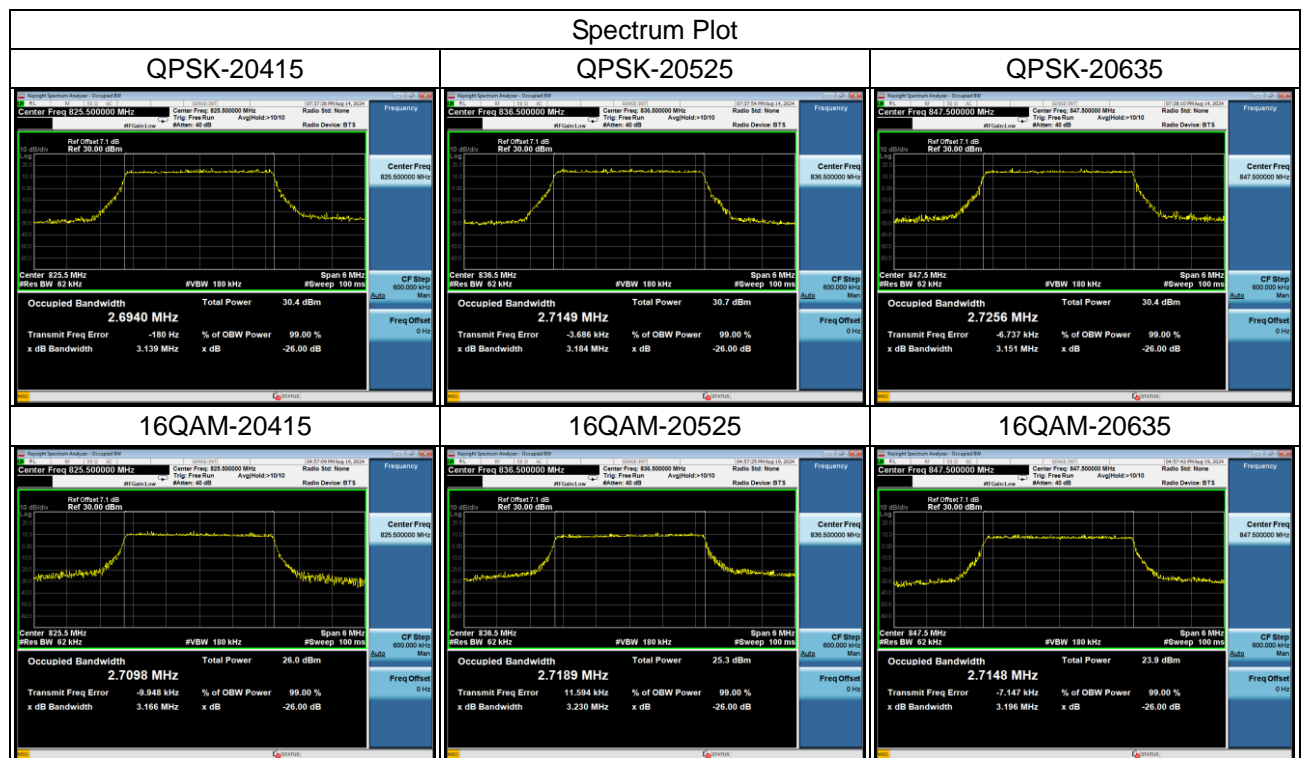
## **APPENDIX B - OCCUPIED BANDWIDTH**



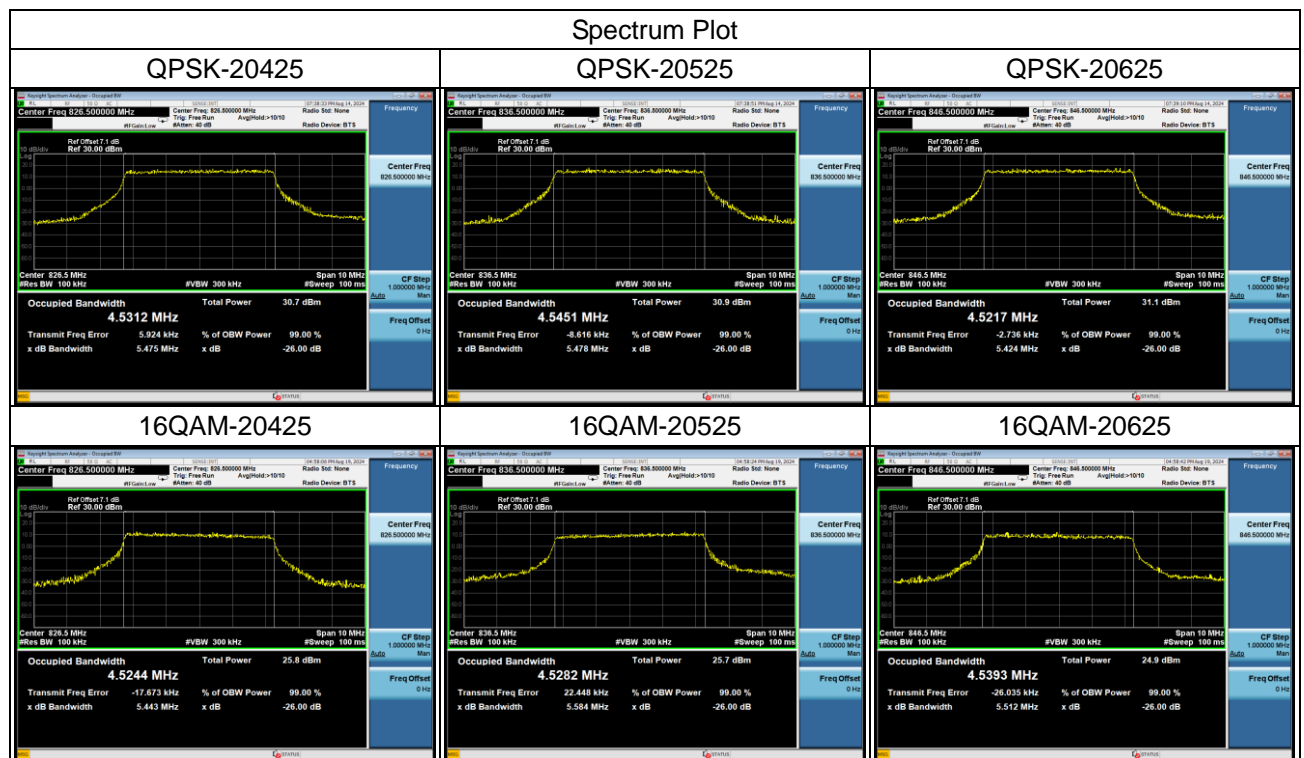
LTE Band 5_1.4MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20407	824.7	1.0921	1.0932	1.335	1.315
20525	836.5	1.0916	1.0918	1.304	1.328
20643	848.3	1.0895	1.0959	1.328	1.322



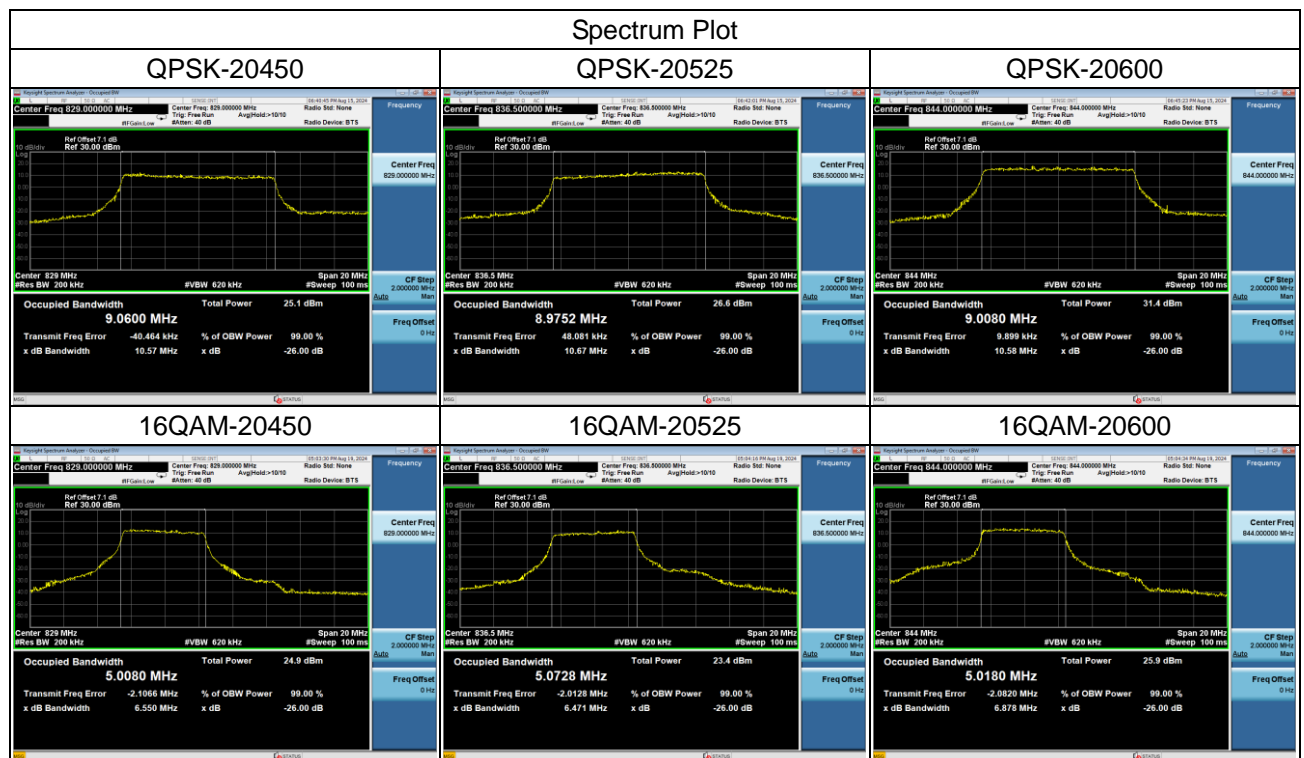
LTE Band 5_3MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20415	825.5	2.6940	2.7098	3.139	3.166
20525	836.5	2.7149	2.7189	3.184	3.230
20635	847.5	2.7256	2.7148	3.151	3.196



LTE Band 5_5MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20425	826.5	4.5312	4.5244	5.475	5.443
20525	836.5	4.5451	4.5282	5.478	5.584
20625	846.5	4.5217	4.5393	5.424	5.512

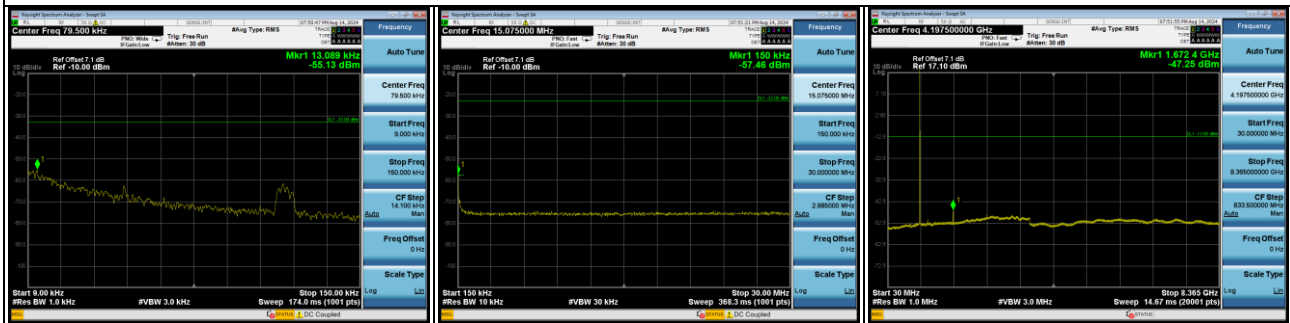


LTE Band 5_10MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
20450	829.0	9.0600	5.0080	10.57	6.550
20525	836.5	8.9752	5.0728	10.67	6.471
20600	844.0	9.0080	5.0180	10.58	6.878

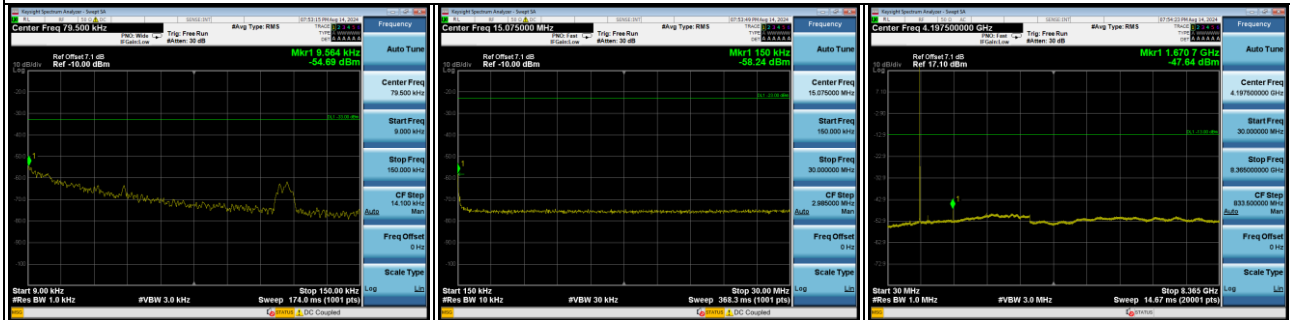


## **APPENDIX C - CONDUCTED SPURIOUS EMISSIONS**

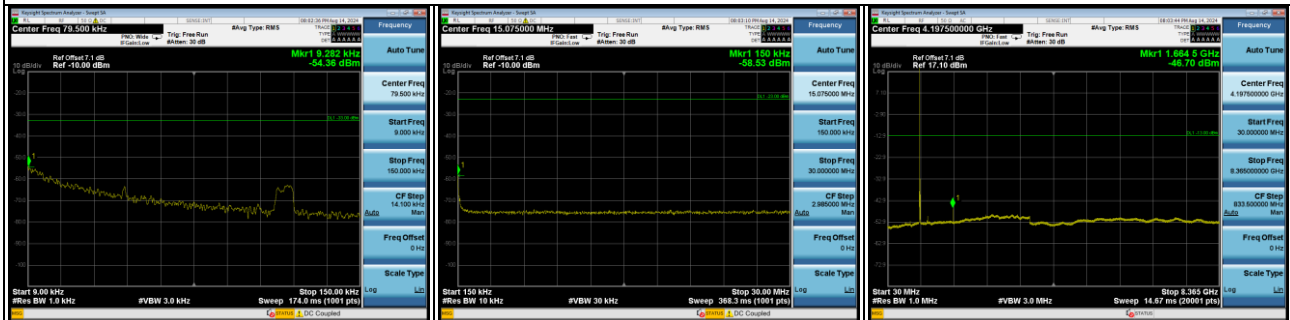
LTE Band 5\_1.4MHz\_CH20525 Spectrum Plot



LTE Band 5\_5MHz\_CH20525 Spectrum Plot



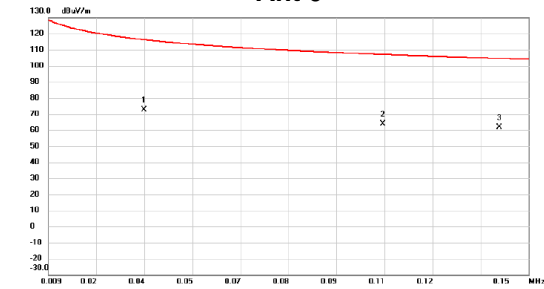
LTE Band 5\_10M\_CH20525 Spectrum Plot



## **APPENDIX D - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)**

Test Mode : TX Mode

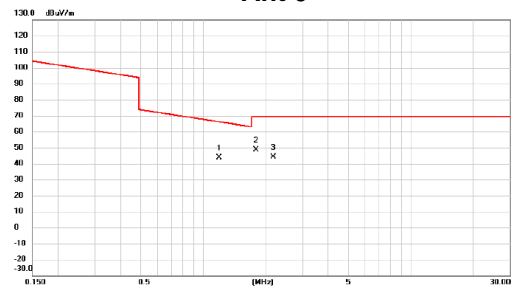
Ant 0°



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	0.037	51.26	21.18	72.44	116.22	-43.78	AVG	
2	0.107	42.34	21.33	63.67	107.00	-43.33	QP	
3 *	0.141	40.57	21.28	61.85	104.60	-42.75	QP	

Test Mode : TX Mode

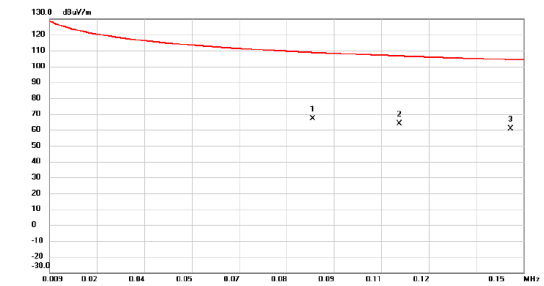
Ant 0°



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	1.195	22.48	21.18	43.66	66.06	-22.40	QP	
2 *	1.792	27.53	21.13	48.66	69.54	-20.88	QP	
3	2.180	23.16	21.11	44.27	69.54	-25.27	QP	

Test Mode : TX Mode

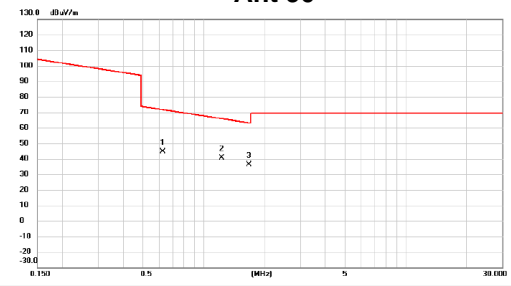
Ant 90°



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1 *	0.087	45.52	21.34	66.86	108.78	-41.92	AVG	
2	0.113	42.63	21.32	63.95	106.55	-42.60	QP	
3	0.146	39.34	21.27	60.61	104.31	-43.70	QP	

Test Mode : TX Mode

Ant 90°



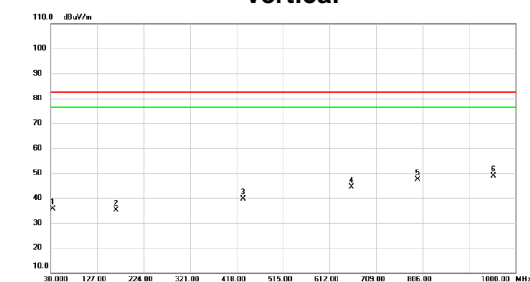
No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	0.628	23.45	21.10	44.55	71.65	-27.10	QP	
2 *	1.224	19.58	21.18	40.76	65.85	-25.09	QP	
3	1.672	15.23	21.14	36.37	63.14	-26.77	QP	



## **APPENDIX E - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1000MHZ)**

Test Mode : LTE Band 5\_TX CH20525\_1.4MHz

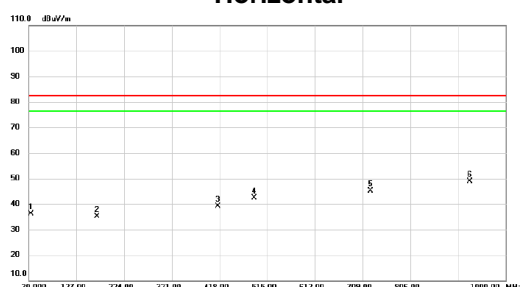
## Vertical



No. Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measurement dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	34.850	38.07	-2.40	35.67	82.30	-46.63	peak	
2	165.800	36.42	-1.28	35.14	82.30	-47.16	peak	
3	431.580	36.66	2.88	39.54	82.30	-42.76	peak	
4	657.590	36.96	7.45	44.41	82.30	-37.89	peak	
5	796.300	38.25	9.14	47.39	82.30	-34.91	peak	
6 *	954.410	37.99	10.83	48.82	82.30	-33.48	peak	

Test Mode : LTE Band 5\_TX CH20525\_1.4MHz

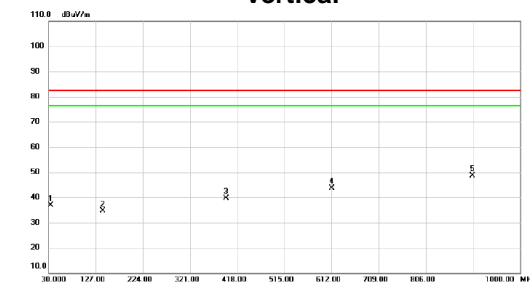
## Horizontal



No. Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measurement dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	34.850	38.55	-2.40	36.15	82.30	-46.15	peak	
2	168.710	36.47	-1.42	35.05	82.30	-47.25	peak	
3	414.120	36.82	2.35	39.17	82.30	-43.13	peak	
4	487.840	38.36	3.99	42.35	82.30	-39.95	peak	
5	725.490	36.91	8.33	45.24	82.30	-37.06	peak	
6 *	926.280	38.26	10.67	48.93	82.30	-33.37	peak	

Test Mode : LTE Band 5\_TX CH20525\_5MHz

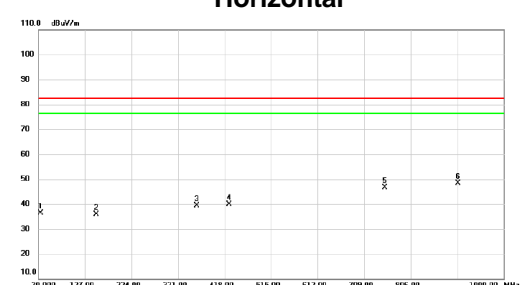
## Vertical



No. Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measurement dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	34.850	39.34	-2.40	36.94	82.30	-45.36	peak	
2	141.550	36.16	-1.58	34.58	82.30	-47.72	peak	
3	395.690	37.75	1.86	39.61	82.30	-42.69	peak	
4	612.970	37.03	6.61	43.64	82.30	-38.66	peak	
5 *	902.030	38.23	10.52	48.75	82.30	-33.55	peak	

Test Mode : LTE Band 5\_TX CH20525\_5MHz

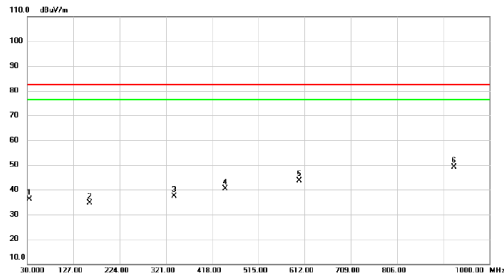
## Horizontal



No. Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measurement dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	33.880	39.00	-2.51	36.49	82.30	-45.81	peak	
2	151.250	36.92	-1.10	35.82	82.30	-46.48	peak	
3	360.770	38.43	0.83	39.26	82.30	-43.04	peak	
4	427.700	37.24	2.76	40.00	82.30	-42.30	peak	
5	752.650	37.48	9.17	46.65	82.30	-35.65	peak	
6 *	904.940	37.93	10.54	48.47	82.30	-33.83	peak	

Test Mode : LTE Band 5\_TX CH20525\_10MHz

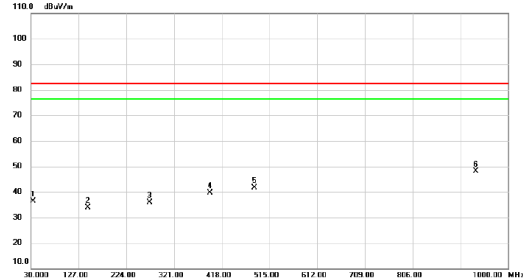
## Vertical



No. Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measurement dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	34.850	38.51	-2.40	36.11	82.30	-46.19	peak	
2	160.950	35.73	-1.07	34.66	82.30	-47.64	peak	
3	338.460	36.84	0.56	37.40	82.30	-44.90	peak	
4	445.160	37.23	3.27	40.50	82.30	-41.80	peak	
5	600.360	37.21	6.34	43.55	82.30	-38.75	peak	
6 *	925.310	38.38	10.66	49.04	82.30	-33.26	peak	

Test Mode : LTE Band 5\_TX CH20525\_10MHz

## Horizontal

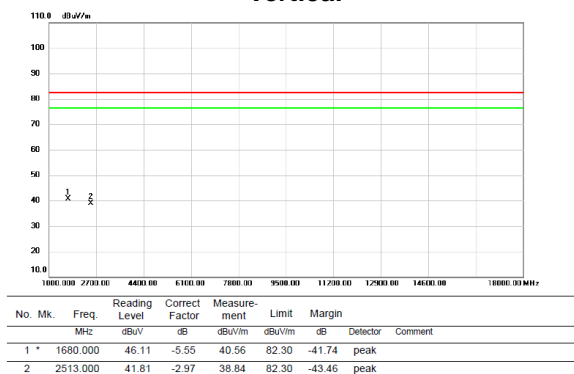


No. Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measurement dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	34.850	38.66	-2.40	36.26	82.30	-46.04	peak	
2	145.430	35.13	-1.36	33.77	82.30	-48.53	peak	
3	271.530	37.33	-1.38	35.95	82.30	-46.35	peak	
4	393.750	37.86	1.82	39.68	82.30	-42.62	peak	
5	483.960	37.61	3.94	41.55	82.30	-40.75	peak	
6 *	934.040	37.54	10.71	48.25	82.30	-34.05	peak	

## **APPENDIX F - RADIATED SPURIOUS EMISSIONS (ABOVE 1000MHZ)**

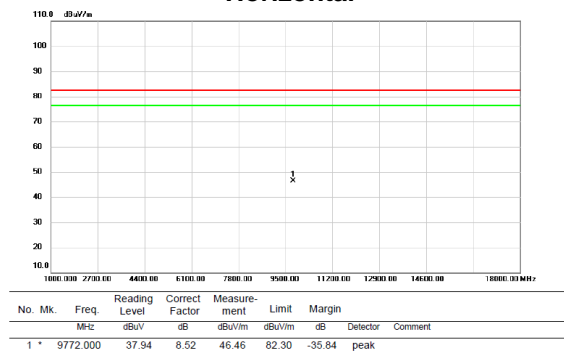
Test Mode : LTE Band 5\_TX CH20525\_1.4MHz

## Vertical



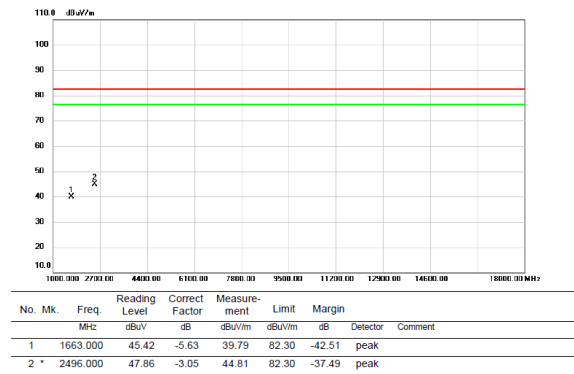
Test Mode : LTE Band 5\_TX CH20525\_1.4MHz

## Horizontal



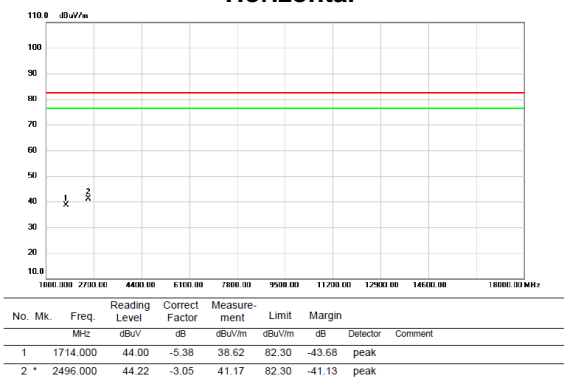
Test Mode : LTE Band 5\_TX CH20525\_5MHz

## Vertical



Test Mode : LTE Band 5\_TX CH20525\_5MHz

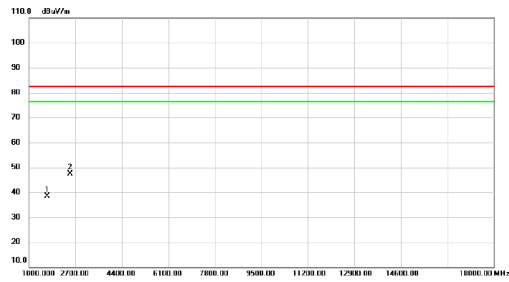
## Horizontal



Test Mode : LTE Band 5\_TX CH20525\_10MHz

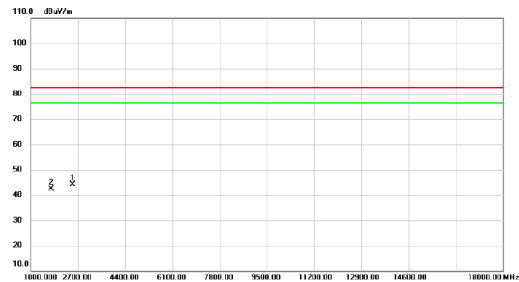
Test Mode : LTE Band 5\_TX CH20525\_10MHz

### Vertical



No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	*	1663.000	44.12	-5.63	38.49	82.30	-43.81	peak	
2	*	2496.000	50.52	-3.05	47.47	82.30	-34.83	peak	

### Horizontal



No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV/m	Limit dBμV/m	Margin dB	Detector	Comment
1	*	2496.000	47.09	-3.05	44.04	82.30	-38.26	peak	
2	*	1731.000	47.57	-5.30	42.27	82.30	-40.03	peak	

## APPENDIX G - BAND EDGE

# LTE Band 5\_1.4MHz Spectrum Plot

1RB#0

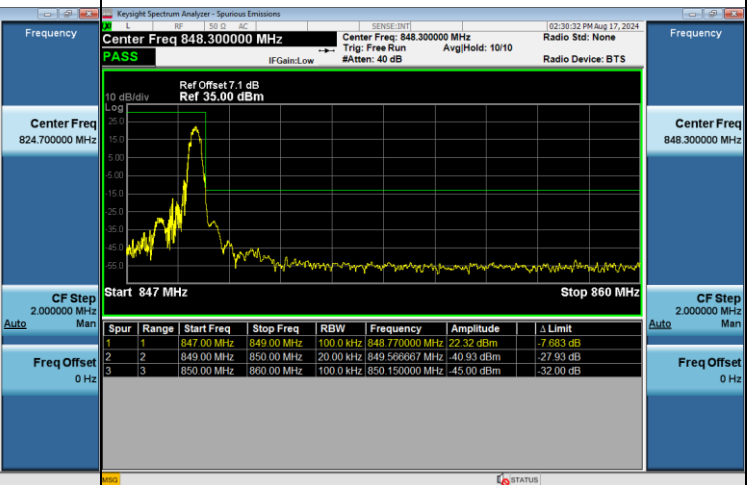
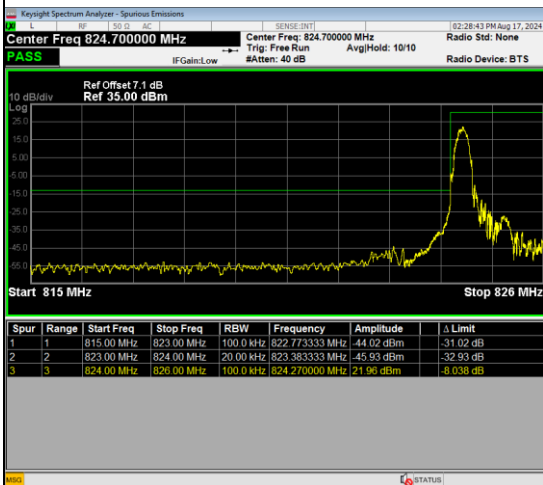
1RB#5

Channel

20407

Channel

20643



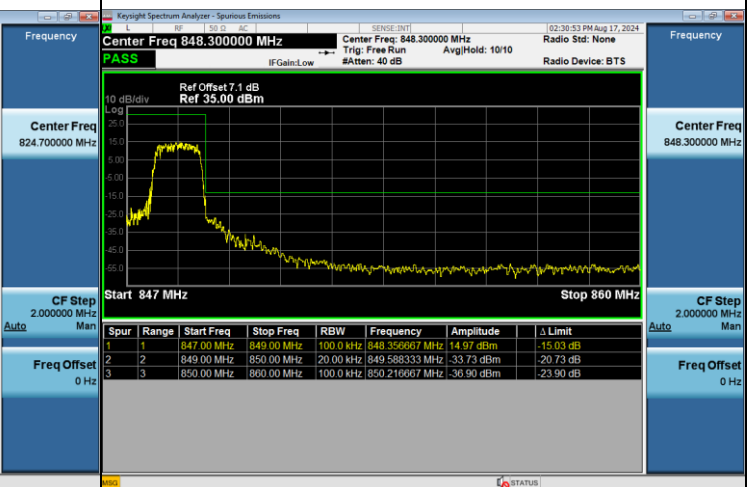
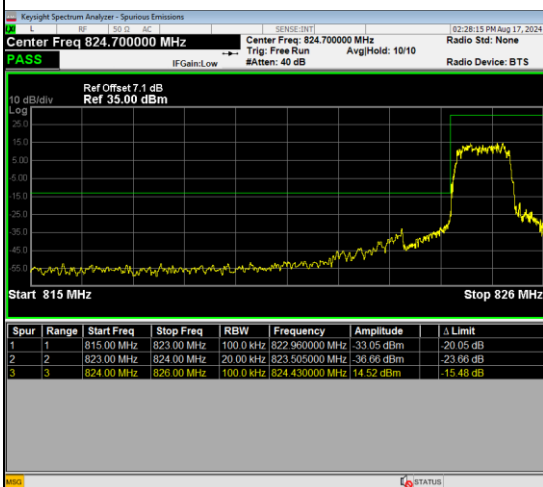
6RB#0

Channel

20407

Channel

20643





## LTE Band 5\_3MHz Spectrum Plot

1RB#0

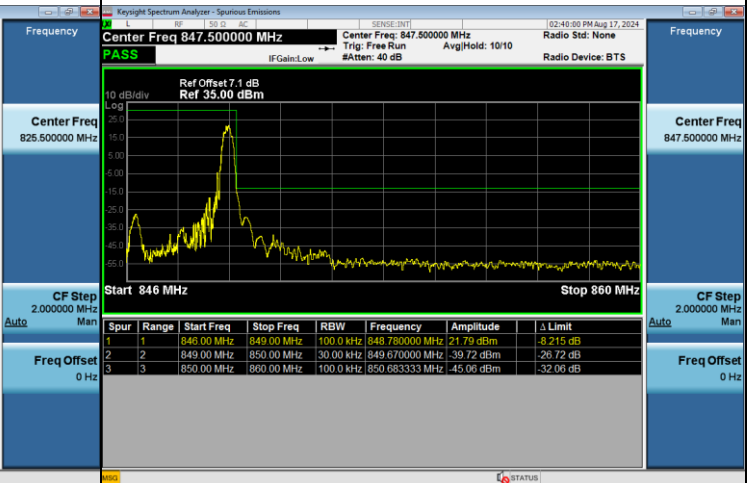
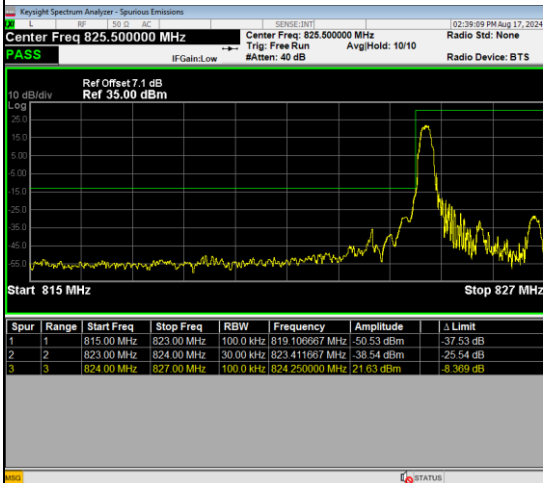
1RB#14

Channel

20415

Channel

20635



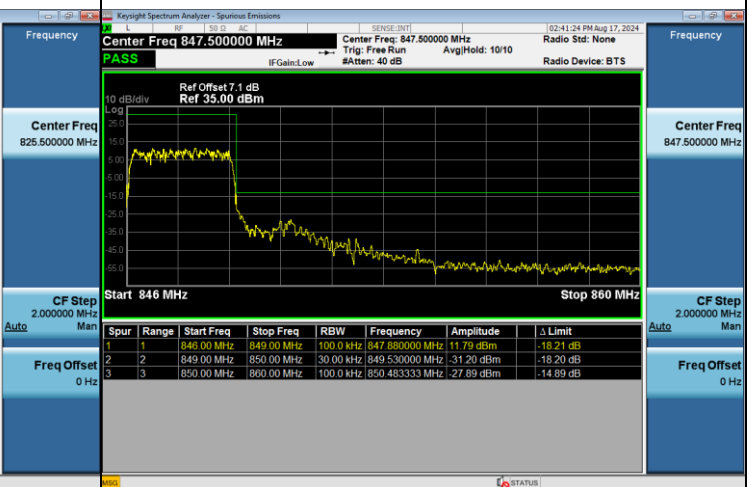
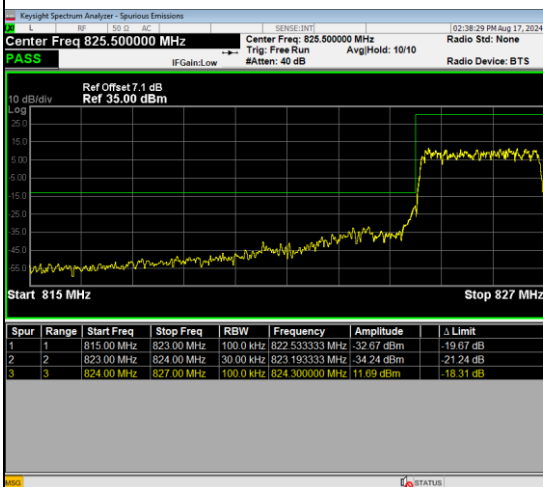
15RB#0

Channel

20415

Channel

20635



## LTE Band 5\_5MHz Spectrum Plot

1RB#0

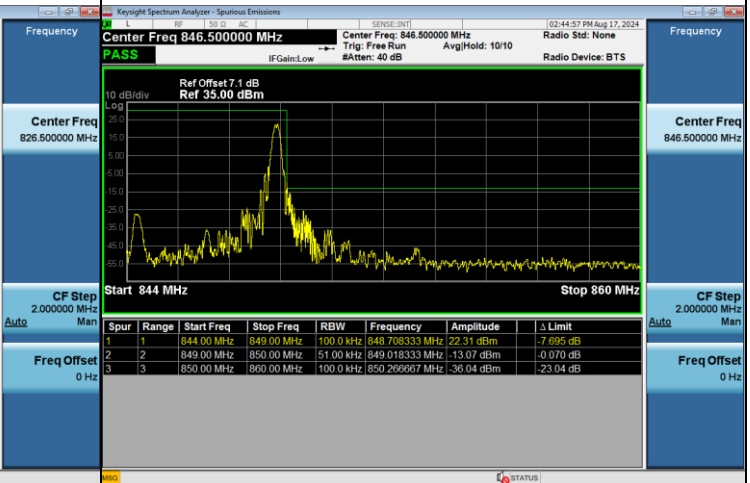
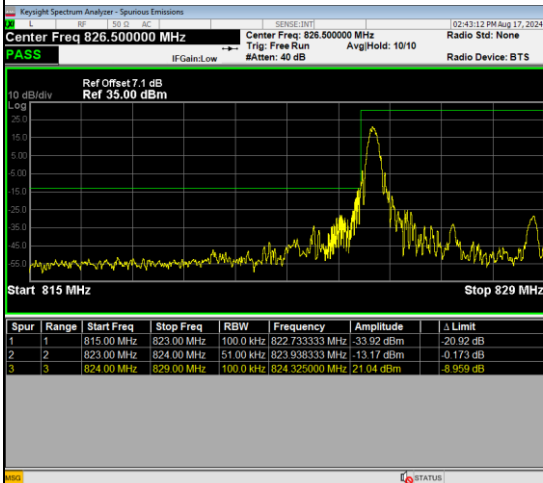
1RB#24

Channel

20425

Channel

20625



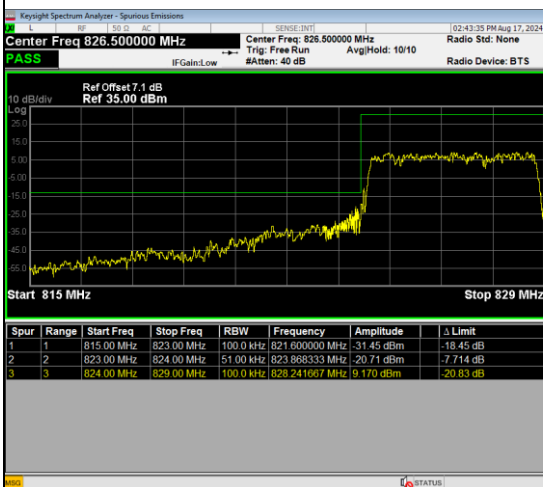
25RB#0

Channel

20425

Channel

20625



## LTE Band 5\_10MHz Spectrum Plot

1RB#0

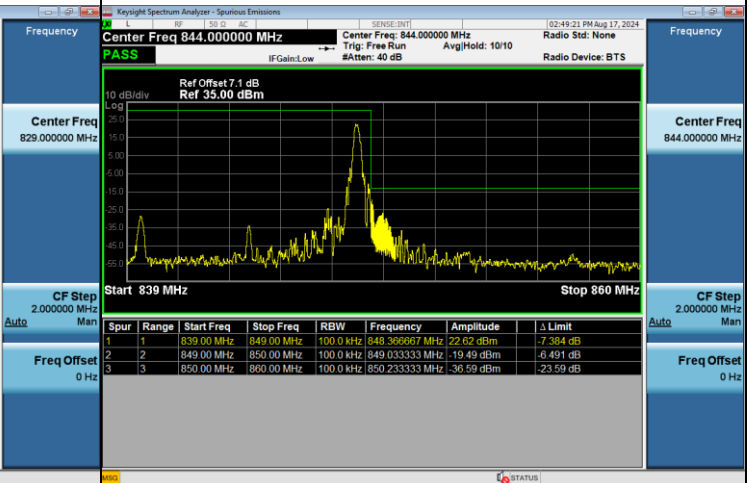
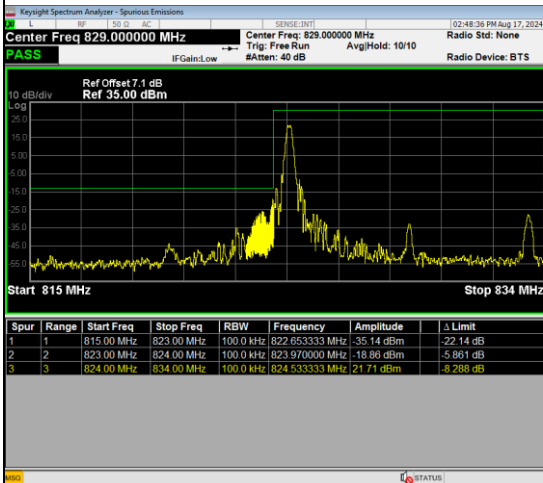
1RB#49

Channel

20450

Channel

20600



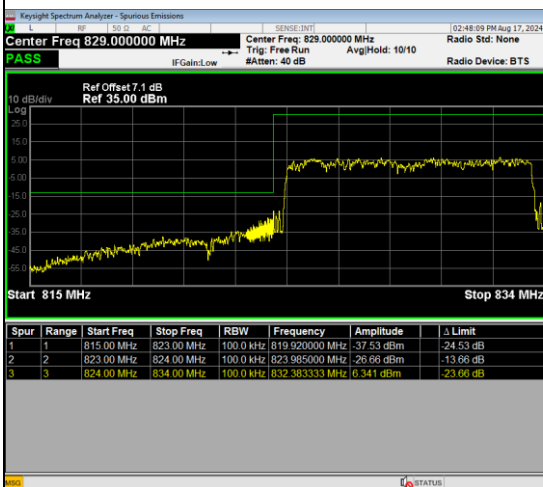
50RB#0

Channel

20450

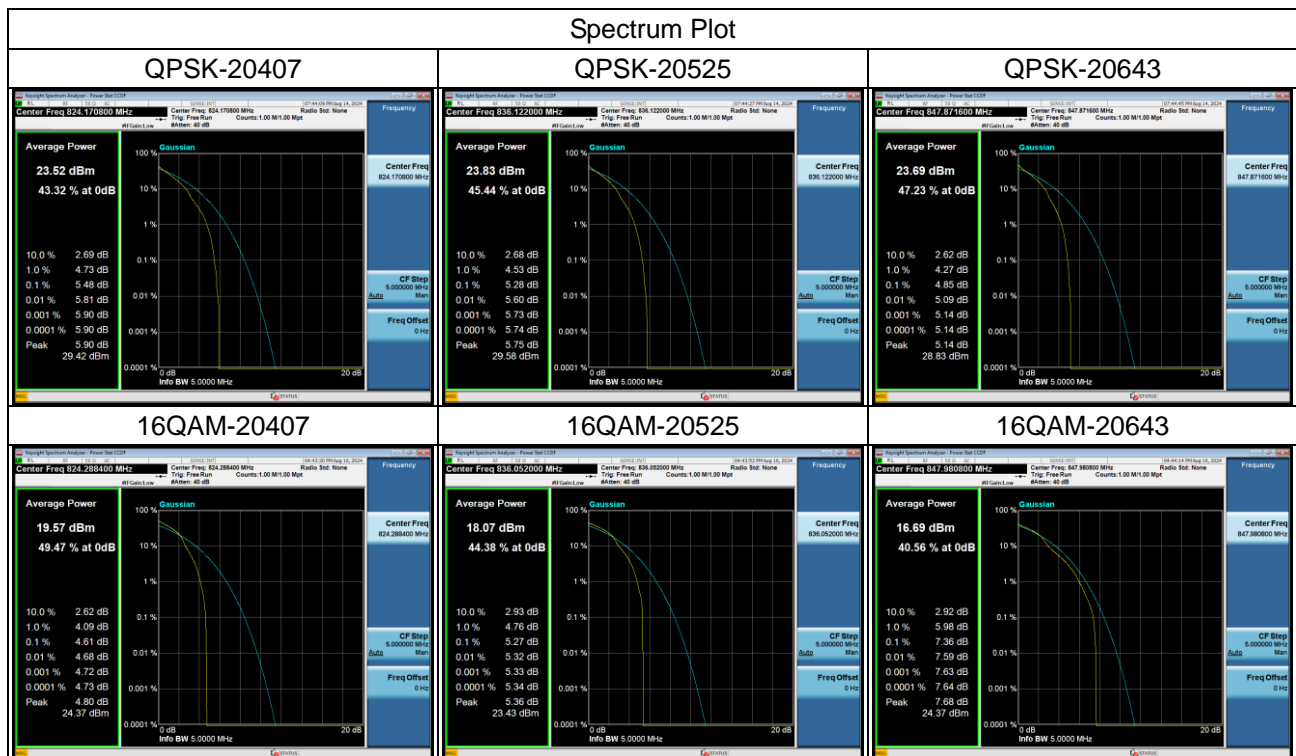
Channel

20600

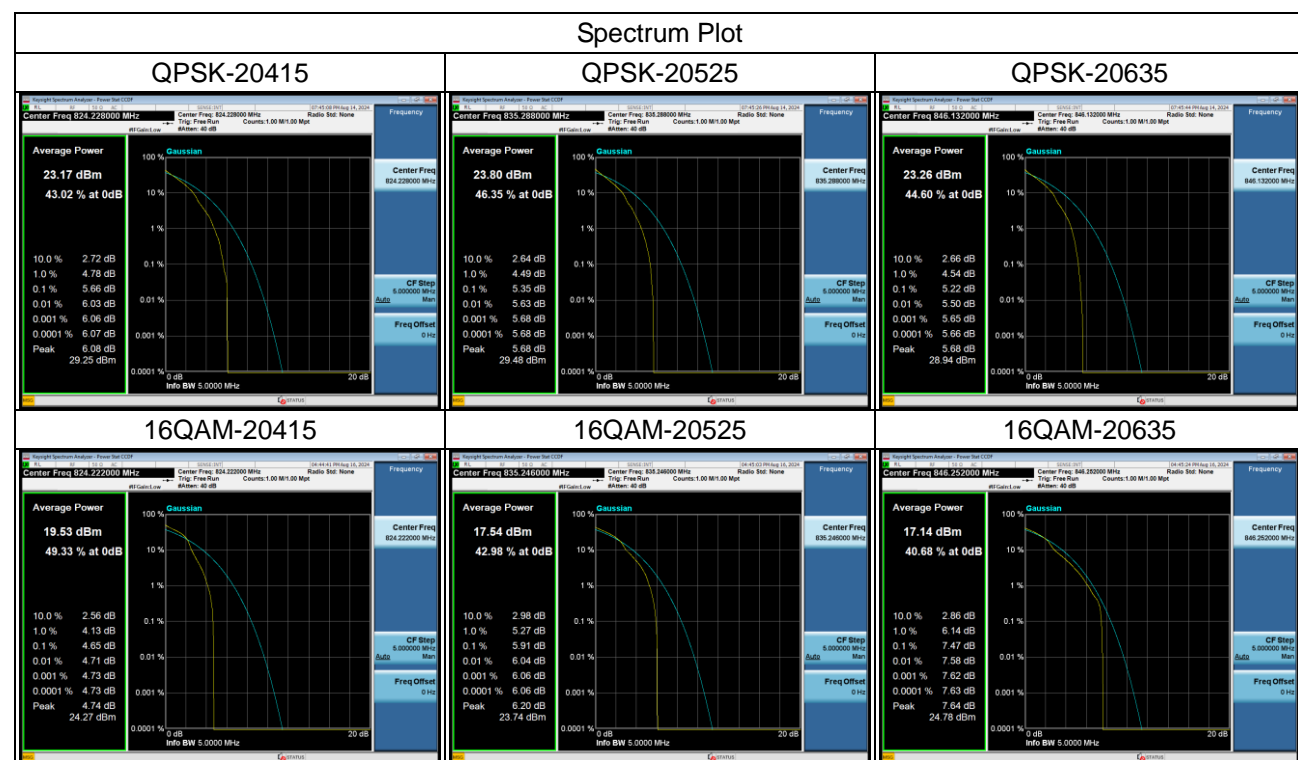


## APPENDIX H - PEAK TO AVERAGE RATIO

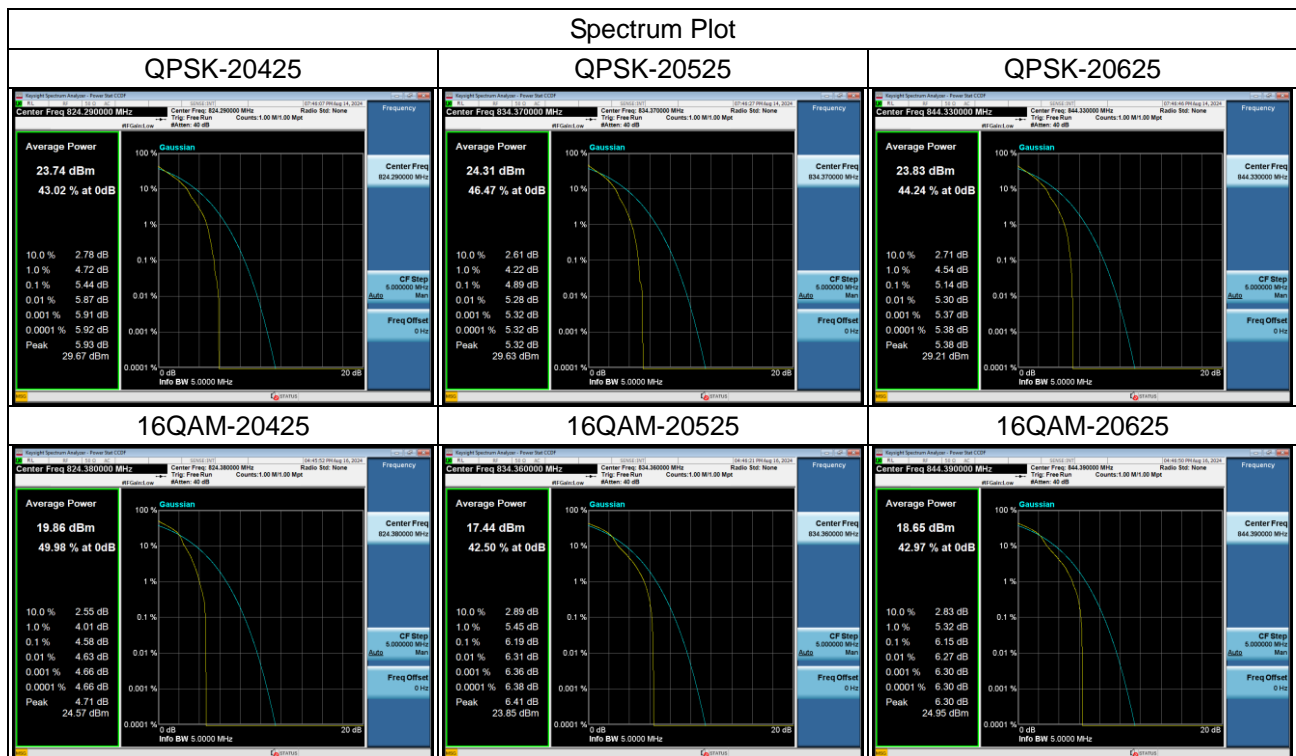
LTE Band 5_1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
20407	824.7	5.48	4.61	13	Pass
20525	836.5	5.28	5.27	13	Pass
20643	848.3	4.85	7.36	13	Pass



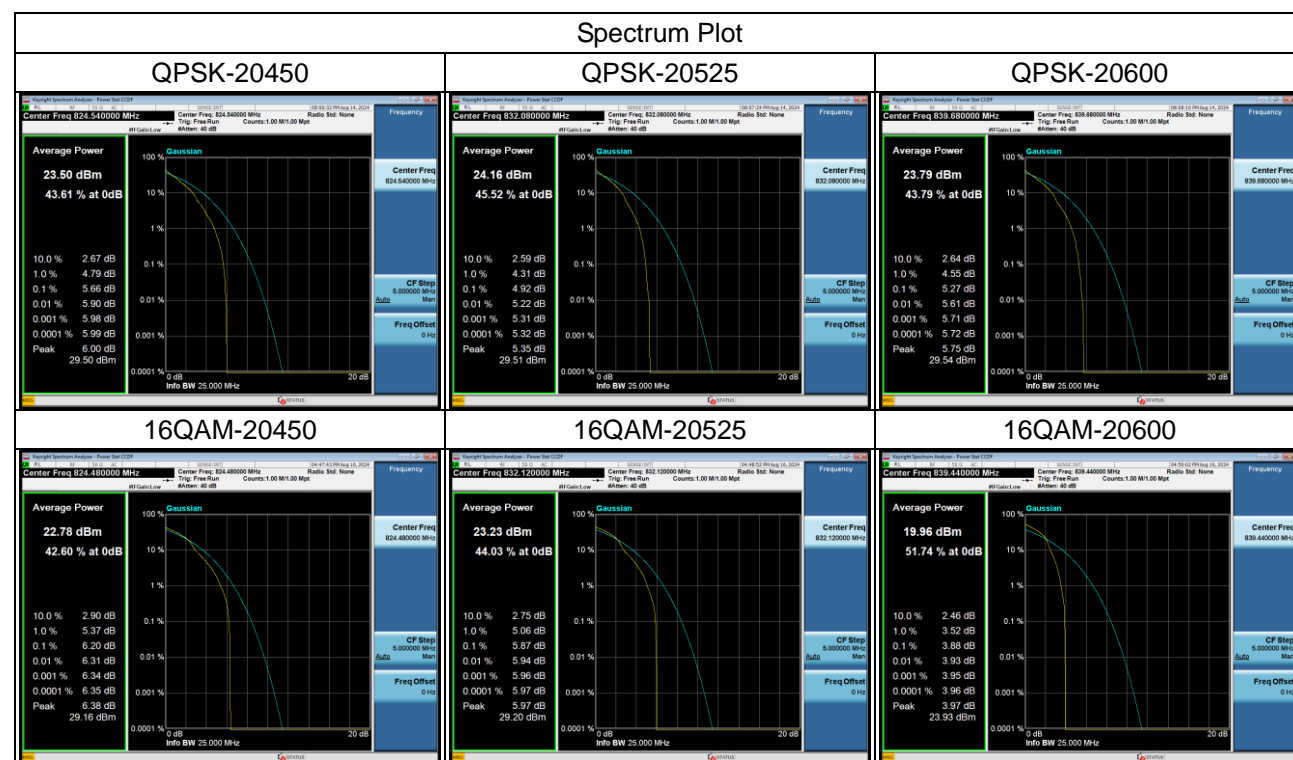
LTE Band 5_3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
20415	825.5	5.66	4.65	13	Pass
20525	836.5	5.35	5.91	13	Pass
20635	847.5	5.22	7.47	13	Pass



LTE Band 5_5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
20425	826.5	5.44	4.58	13	Pass
20525	836.5	4.89	6.19	13	Pass
20625	846.5	5.14	6.15	13	Pass



LTE Band 5_10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
20450	829.0	5.66	6.20	13	Pass
20525	836.5	4.92	5.87	13	Pass
20600	844.0	5.27	3.88	13	Pass





## APPENDIX I - FREQUENCY STABILITY

Test Mode	LTE Band 5_CH20525_10MHz
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Frequency error versus temperature and supply voltage			
Temperature (°C)	Frequency error (Hz)	ppm	Limit
50	-0.64	-0.0008	±2.5ppm
40	0.77	0.0009	
30	-0.56	-0.0007	
20	1.09	0.0013	
10	0.31	0.0004	
0	0.84	0.0010	
-10	0.04	0.0000	
-20	1.16	0.0014	
-30	-0.34	-0.0004	
Minimum voltage	0.39	0.0005	
Maximum voltage	-0.04	0.0000	
Nominal voltage	0.21	0.0003	

Note: Nominal voltage= 3.8V, Maximum voltage= 4.5V, Minimum voltage= 3.4V.

**End of Test Report**