Certificate #7130.01

FCC Radio Test Report

FCC ID: XMR2025SC682ANA

This report concerns: Original Grant

Project No.	:	2502H027
Equipment	:	LTE Module with Wi-Fi & Bluetooth
Brand Name	:	QUECTEL
Test Model	:	SC682A-NA
Series Model	:	N/A
Applicant	:	Quectel Wireless Solutions Co., Ltd.
Address	:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233, China.
Manufacturer	:	Quectel Wireless Solutions Co., Ltd.
Address	:	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233, China.
Date of Receipt	:	Mar. 03, 2025
Date of Test	:	Mar. 13, 2025 ~ Apr. 09, 2025
Issued Date	:	Apr. 22, 2025
Report Version	:	R00
Test Sample	:	Engineering Sample No.: SH20250305145 for radiated, SH20250305145 and SH20250305146 for conducted.
Standard(s)	:	47 CFR FCC Part 90 Subpart S 47 CFR FCC Part 2

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

Prepared by : Edward Li

Edward Li

Approved by : Steven Lu

Steven Lu

Room 108-116, 309-310, Building 2, No.1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong, People's Republic of China.

Tel: +86-769-8318-3000 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

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.

Table of Contents Page

Table of Contents Page

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-11-2502H027	R00	Original Report.	Apr. 22, 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 90 Subpart S & Part 2			
Standard(s) Section	**Test Item**	**Judgment**	**Remark**
2.1046 & 90.635 (b)	Effective Radiated Power	PASS	------
2.1049 & 90.209	Occupied Bandwidth	PASS	------
2.1053 & 90.669	Conducted Spurious Emissions	PASS	------
2.1053 & 90.669	Radiated Spurious Emissions	PASS	------
2.1053 & 90.691	Mask Measurements	PASS	------
-	Peak To Average Ratio	PASS	Record Only
2.1055 & 90.213	Frequency Stability	PASS	------

Note:
(1) “N/A” denotes test is not applicable in this test report.

2.1 TEST FACILITY

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*,(dB)
SSL-CB01	CISPR	9kHz ~ 30MHz	2.74

Test Site	Method	Measurement Frequency Range	Ant. H / V	*U*,(dB)
SSL-CB01 (3m)	CISPR	30MHz ~ 200MHz	V	4.70
		30MHz ~ 200MHz	H	3.56
		200MHz ~ 1,000MHz	V	4.92
		200MHz ~ 1,000MHz	H	4.54

Test Site	Method	Measurement Frequency Range	*U*,(dB)
SSL-CB01 (3m)	CISPR	1GHz ~ 6GHz	4.56
		6GHz ~ 18GHz	5.14

B. Other Measurement:

Parameter	Uncertainty
Spectrum Bandwidth	±1.74 dB
Maximum Output Power	±0.87 dB
Frequency Stability	±53.10Hz
Conducted Spurious Emissions	2.71 dB
Temperature	±0.48 °C
Humidity	±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	23.5°C	43%	DC 3.8V	Gavin Ge	Mar. 13, 2025~ Mar. 27, 2025
Occupied Bandwidth	23.5°C	43%	DC 3.8V	Gavin Ge	Mar. 13, 2025~ Mar. 27, 2025
Conducted Spurious Emissions	23.5°C	43%	DC 3.8V	Gavin Ge	Mar. 13, 2025~ Mar. 27, 2025
Radiated Spurious Emissions (9 kHz to 30 MHz)	23°C	47%	DC 3.8V	Young Zou	Mar. 24, 2025
Radiated Spurious Emissions (30 MHz to 1000 MHz)	22°C	50%	DC 3.8V	Young Zou	Mar. 24, 2025
Radiated Spurious Emissions (Above 1000 MHz)	22°C	50%	DC 3.8V	Young Zou	Mar. 24, 2025
Band Edge	23.5°C	43%	DC 3.8V	Gavin Ge	Mar. 13, 2025~ Mar. 27, 2025 Mar. 31, 2025
Peak To Average Ratio	23.5°C	43%	DC 3.8V	Gavin Ge	Mar. 13, 2025~ Mar. 27, 2025
Frequency Stability	Normal & Extreme	43%	Normal & Extreme	Gavin Ge	Mar. 13, 2025~ Mar. 27, 2025

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	LTE Module with Wi-Fi & Bluetooth			
Brand Name	QUECTEL			
Test Model	SC682A-NA			
Series Model	N/A			
Model Difference(s)	N/A			
Hardware Version	SC682A-NA			
Software Version	SC682ANAPAR01A01			
Power Source	DC Voltage supplied from host system.			
Power Rating	3.55 to 4.4V; Typical: 3.8V			
IMEI No.	Radiated	867665070008943		
	Conducted	867665070008943, 867665070010568		
Modulation Type	UL: QPSK,16QAM DL: QPSK,16QAM,64QAM			
Max. ERP	LTE	Channel Bandwidth (MHz)	QPSK (dBm)	16QAM (dBm)
	Band 26	1.4	21.45	20.71
		3	21.72	20.67
		5	21.40	20.40
		10	21.52	20.53

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 26					
Test Frequency ID	Bandwidth (MHz)	N_{UL}	Frequency of Uplink (MHz)	N_{DL}	Frequency of Downlink (MHz)
Low Range	1.4	26697	814.7	8697	859.7
	3	26705	815.5	8705	860.5
	5	26715	816.5	8715	861.5
Mid Range	1.4/3/5/10	26740	819	8740	864
High Range	1.4	26783	823.3	8783	868.3
	3	26775	822.5	8775	867.5
	5	26765	821.5	8765	866.5

3. Table for Filed Antenna:

Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
QUECTEL	External 5G Antenna	Dipole	SMA Male	0.3	LTE Band 26

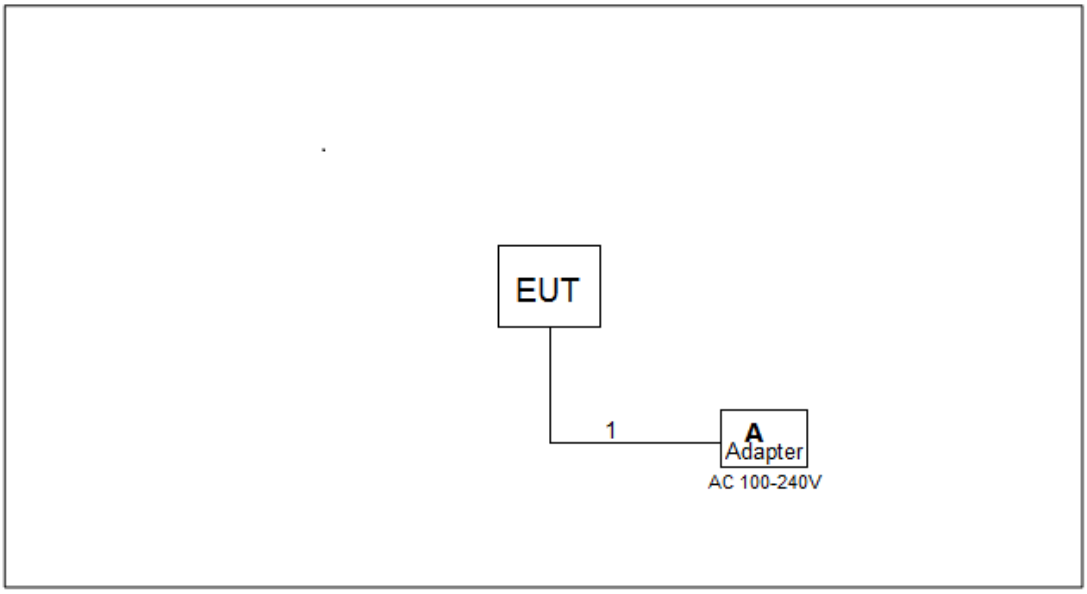
Note: The antenna gain is provided by the manufacturer.

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 26 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Output Power & ERP	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM	1RB/3RB/6RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM	1RB/8RB/15RB
	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM	1RB/12RB/25RB
	26740	26740	10MHz	QPSK, 16QAM	1RB/25RB/50RB
Occupied Bandwidth	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM	6RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM	15RB
	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM	25RB
	26740	26740	10MHz	QPSK, 16QAM	50RB
Conducted Spurious Emissions	26697 to 26783	26740	1.4MHz	QPSK	1RB
	26705 to 26775	26740	5MHz	QPSK	1RB
	26715 to 26765	26740	10MHz	QPSK	1RB
Radiated Spurious Emissions	26697 to 26783	26740	1.4MHz	QPSK	1RB
	26705 to 26775	26740	5MHz	QPSK	1RB
	26715 to 26765	26740	10MHz	QPSK	1RB
Mask	26697 to 26783	26697, 26783	1.4MHz	QPSK	1RB
					6RB
	26705 to 26775	26705, 26775	3MHz	QPSK	1RB
					15RB
	26715 to 26765	26715, 26765	5MHz	QPSK	1RB
					25RB
	26740	26740	10MHz	QPSK	1RB
					50RB
Peak To Average Ratio	26697 to 26783	26697, 26740, 26783	1.4MHz	QPSK, 16QAM	1RB
	26705 to 26775	26705, 26740, 26775	3MHz	QPSK, 16QAM	1RB
	26715 to 26765	26715, 26740, 26765	5MHz	QPSK, 16QAM	1RB
	26740	26740	10MHz	QPSK, 16QAM	1RB
Frequency Stability	26715 to 26765	26740	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	Keyu Power Supply	KA1801A-0503000DE-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.2m

4. TEST RESULT

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMIT

Mobile / Portable stations are limited to 100 watts e.r.p.

4.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.0 or ANSI C63.26-2015 Section 5.2.

ERP:

EIRP= Output Power + Antenan gain
ERP = EIPR - 2.15dBi.

Output Power:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, CDMA, 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 TESTSETUP LAYOUT

Output Power Measurement

4.1.4 TEST DEVIATION

No deviation.

4.1.5 TEST RESULTS

Please refer to the APPENDIX A.

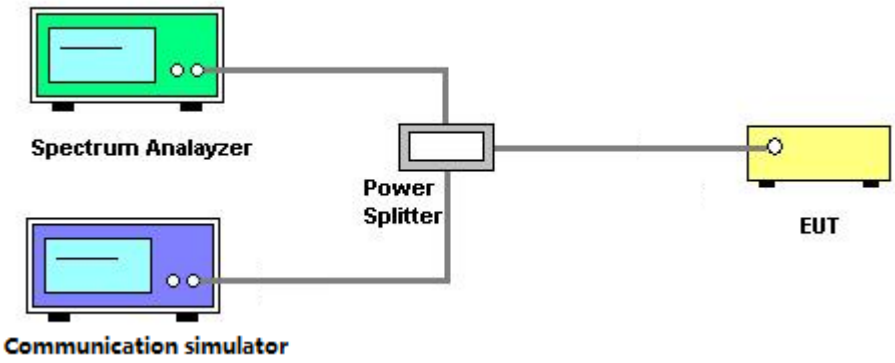
4.2 OCCUPIED BANDWIDTH MEASUREMENT

4.2.1 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 4.0 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% ~ 5%)*EBW
   VBW≥3* RBW
4. Set spectrum analyzer with RMS 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

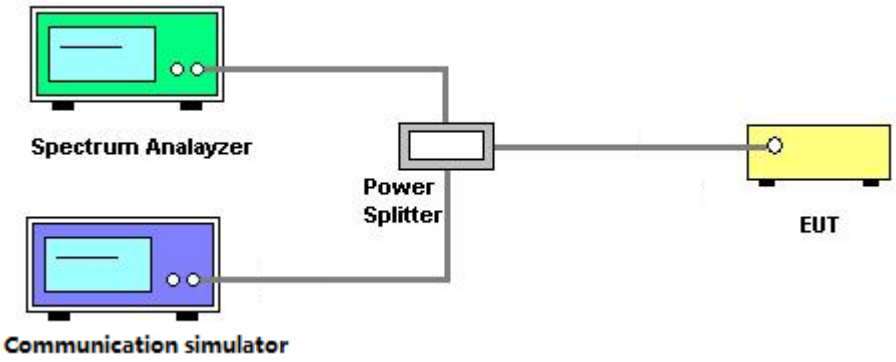
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

4.3.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.0 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>=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 TESTSETUP LAYOUT



4.3.4 TESTDEVIATION

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 theauthorized operating frequency ranges must be attenuated below the transmitting power (P) by a factorof at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

E (dBμV/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.26dBμV/m.

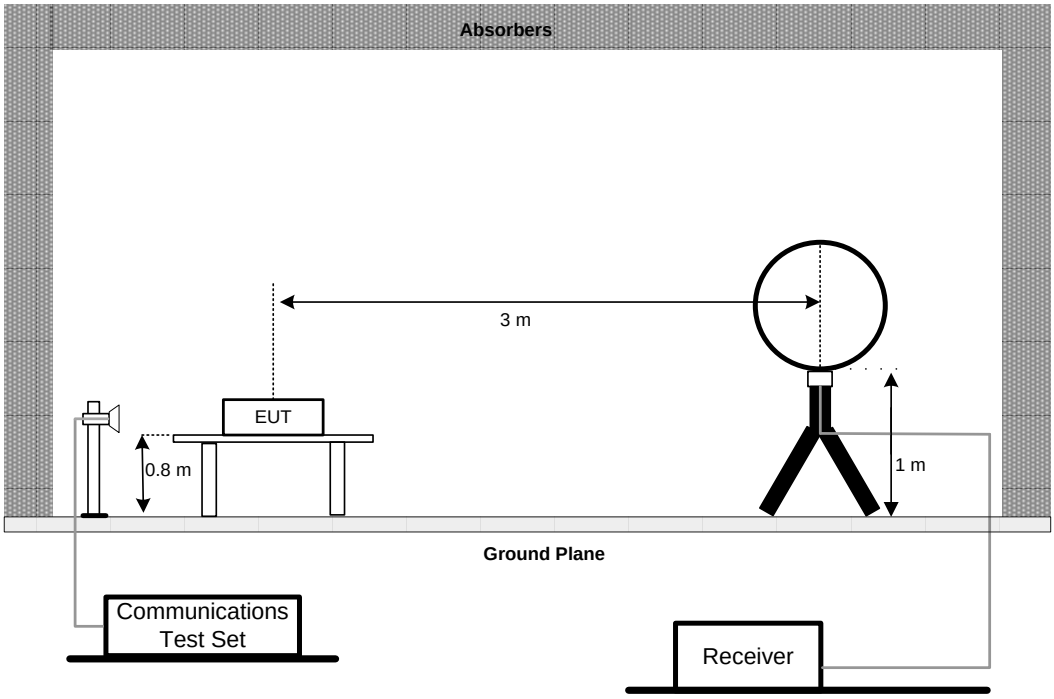
4.4.2 TEST PROCEDURES

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

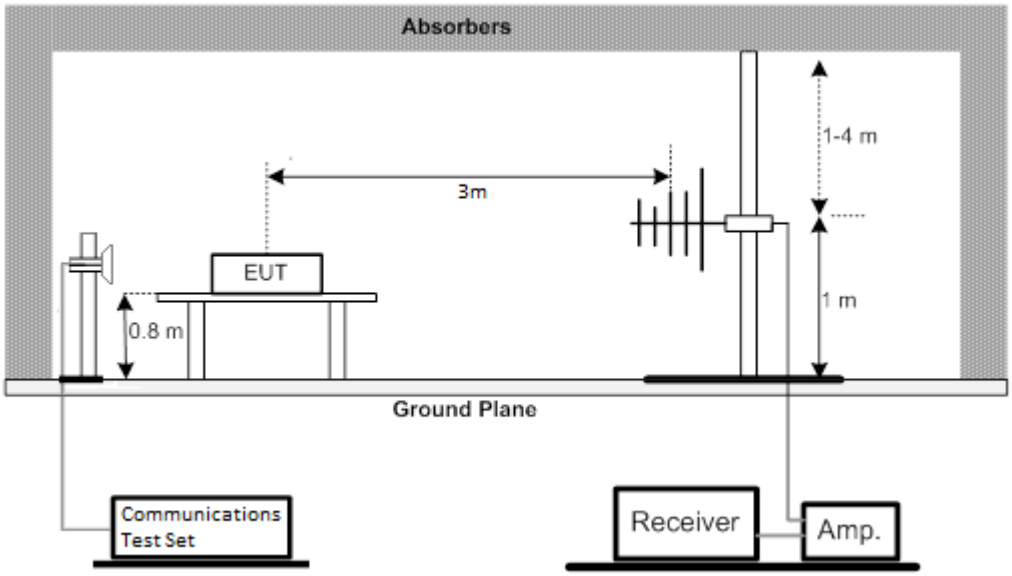
1. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. During the measurement, the system simulator parameters 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 (dBuV/m) = EIRP (dBm) - 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.The emission limit equal to 82.26dBuV/m or 70.26dBμV/m or 55.26dBμV/m.

4.4.3 TEST SETUP LAYOUT

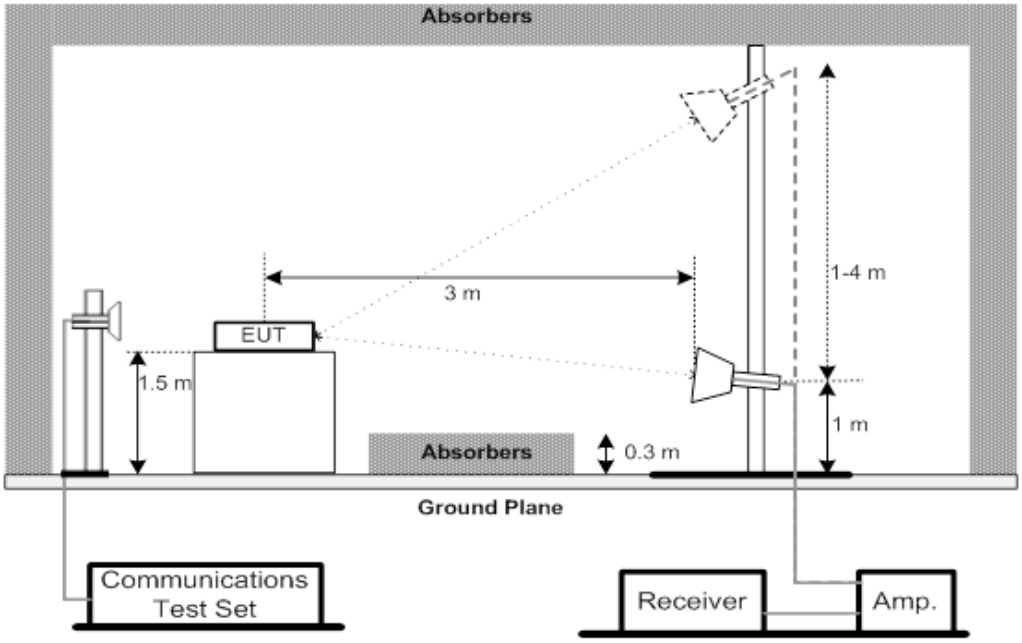
Below 30MHz



30MHz to 1000MHz



Above 1GHz



4.4.4 TESTDEVIATION

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 MASK MEASUREMENTS

4.5.1 LIMIT

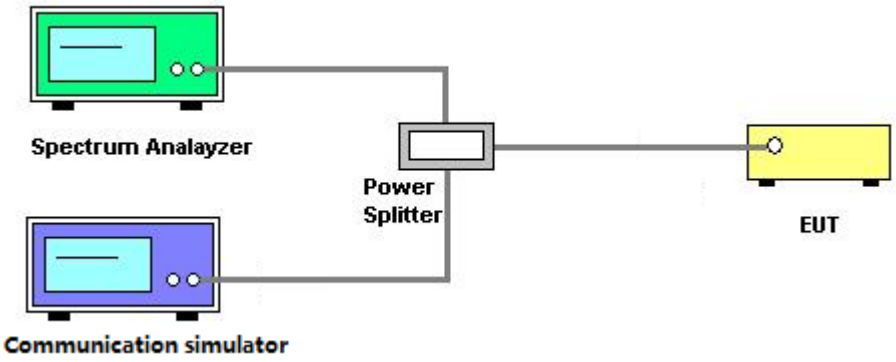
According to FCC part 90.691 shall be tested the emission mask. For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50+10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz. For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

4.5.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 6.0 or ANSI C63.26-2015 Section 5.7.

1. All measurements were done at low and high operational frequency range.
2. Set RBW=1% of 26dBc bandwidth, VBW=3 X RBW, detector=RMS, Sweep time = Auto.
   For Section 90.691(a) compliance testing, use RBW = 300 Hz for offsets less than 37.5 kHz fr om a channel edge; RBW = 100 kHz for offsets greater than 37.5 kHz is allowed.
3. Record the max trace plot into the test report.

4.5.3 TESTSETUP LAYOUT



4.5.4 TESTDEVIATION

No deviation.

4.5.5 TEST RESULTS

Please refer to the APPENDIX G.

4.6 PEAK TO AVERAGE RATIO MEASUREMENT

4.6.1 LIMIT

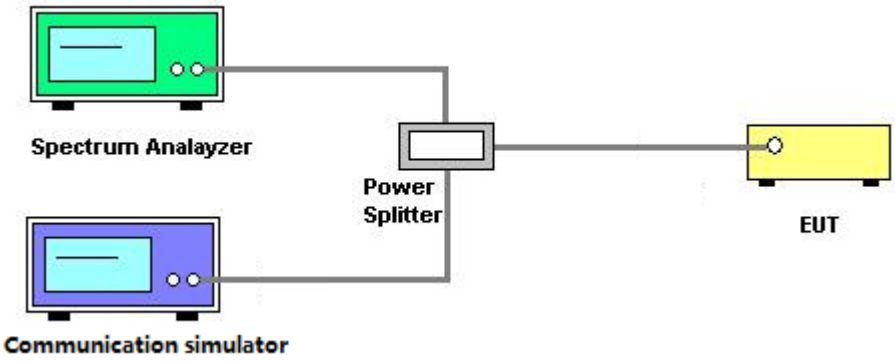
In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

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 ≥ 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

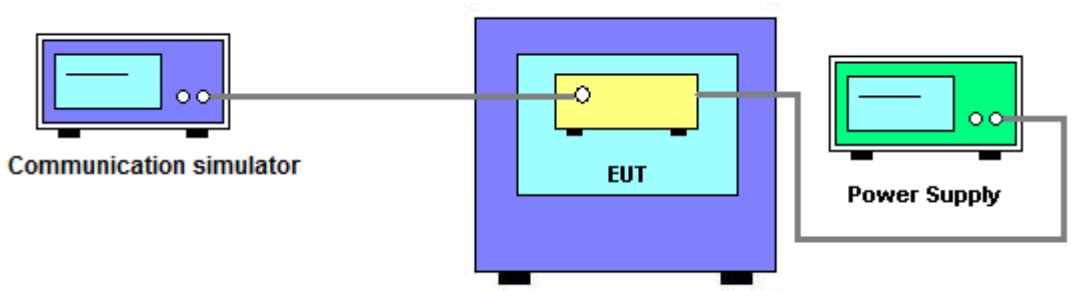
±1.5 ppm is for base and fixed station. ±2.5 ppm is for mobile station.

4.7.2 TEST PROCEDURES

The testing follows FCC KDB 971168 v03r01 Section 9.0 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 ±0.5°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 TESTSETUP LAYOUT



4.7.4 TESTDEVIATION

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	MY59050118	Jun. 28, 2025
3	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-3000	N/A	Jun. 06, 2025
4	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-7000	N/A	Jun. 06, 2025
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	Wideband Radio Communication Tester	R&S	CWM 500	104462	Jun. 28, 2025
7	966 Chamber room	Tai He	9*6*6 (NSA&VSWR)	N/A	Jun. 06, 2025

Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	01269	May 18, 2025
2	Attenuator	EMCI	EMCI-N-6-06	AN-N0697	May 18, 2025
3	MXE EMI Receiver	Keysight	N9038A	MY59050118	Jun. 28, 2025
4	Preamplifier	EMC INSTRUMENT	EMC001330	980825	Jan. 10, 2026
5	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-2500	N/A	Jun. 06, 2025
6	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-7000	N/A	Jun. 06, 2025
7	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-3000	N/A	Jun. 06, 2025
8	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
9	Wideband Radio Communication Tester	R&S	CWM 500	104462	Jun. 28, 2025
10	966 Chamber room	Tai He	9*6*6 (NSA&VSWR)	N/A	Jun. 06, 2025

Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	MXE EMI Receiver	Keysight	N9038A	MY59050118	Jun. 28, 2025
2	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
3	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980739	Jan. 11, 2026
4	Cable	EMC INSTRUMENT	EMC104-SM-SM-10000	N/A	Dec. 09, 2025
5	Cable	EMC INSTRUMENT	EMC104-SM-SM-3000	N/A	Dec. 09, 2025
6	Cable	EMC INSTRUMENT	EMC104-SM-SM-1000	N/A	Dec. 09, 2025
7	Double Ridged Broadband Horn Antenna	RF SPIN	DRH18-E	210106A18E	Jul. 17, 2025
8	Band Reject Filter	COM-MW	ZHPF6-M1000-15000-533	7213127	Jun. 28, 2025
9	Wideband Radio Communication Tester	R&S	CWM 500	104462	Jun. 28, 2025
10	Band Reject Filter	COM-MW	ZHPF6-C3000-18000-174	7213126	Jun. 28, 2025
11	Preamplifier	EMC INSTRUMENT	EMC184045SE	980793	Jan. 10, 2026
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	01046	Jul. 22, 2025
13	Cable	RegalWay	RWLP50-3.6A-2.92M2.92M-6M	20241119-001	Nov. 26, 2025
14	Cable	RegalWay	RWLP50-3.6A-2.92M2.92M-0.8M	20241119-001	Nov. 26, 2025
15	966 Chamber room	Tai He	9*6*6 (NSA&VSWR)	N/A	Jun. 06, 2025

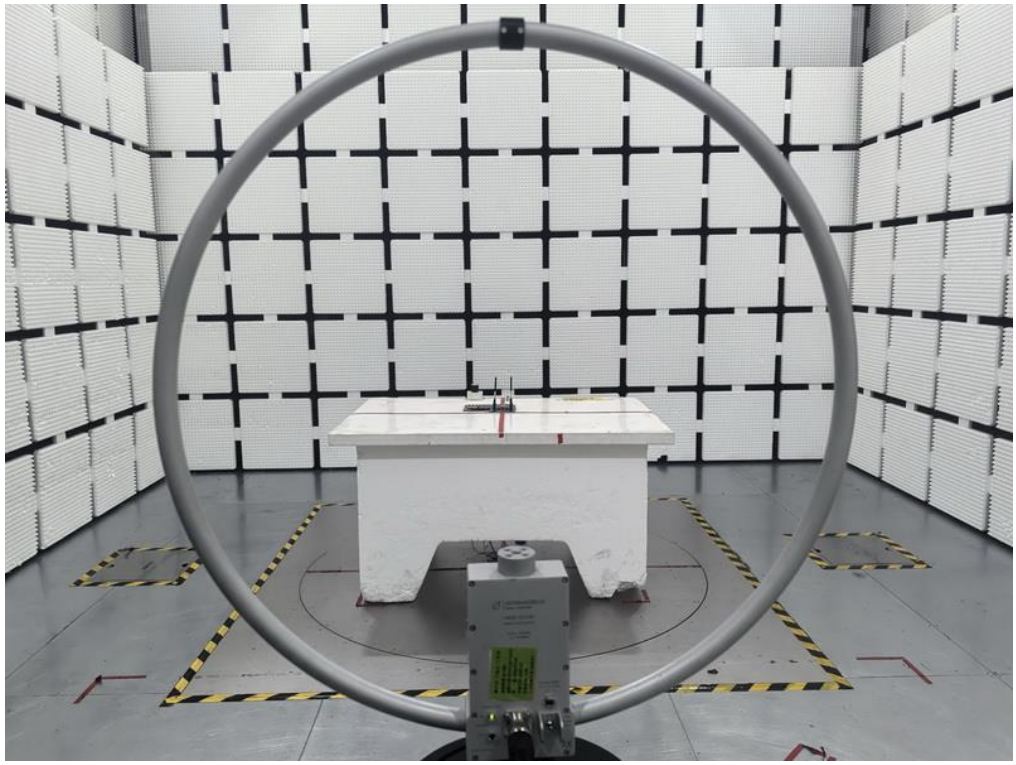
Conducted Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Wideband Radio Communication Tester	R&S	CWM 500	165848	Jan. 10, 2026
2	MXA Signal Analyzer	KEYSIGHT	N9020A	MY52091060	Jan. 11, 2026
3	Temperature Chamber	ESPEC	SU-242	93018777	Jun. 28, 2025
4	DC power supply	UNI-T	UDP6721	AWP7224050018	Jan. 10, 2026

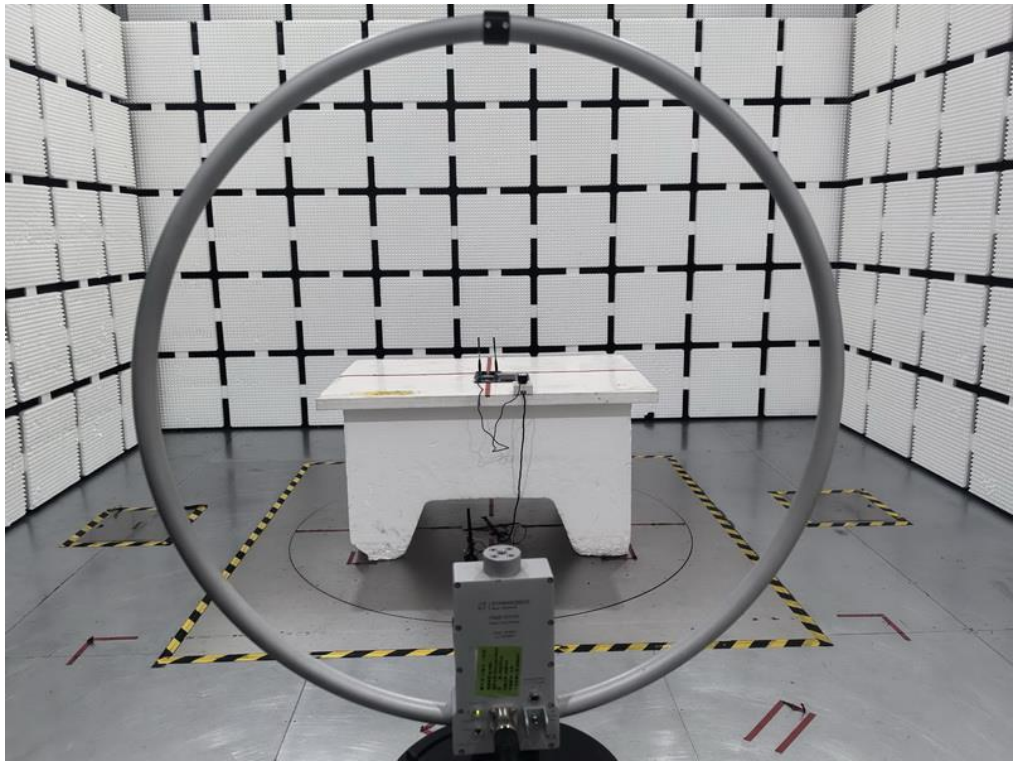
Remark: ”N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

5. EUT TEST PHOTO

Radiated Emissions Test Photos

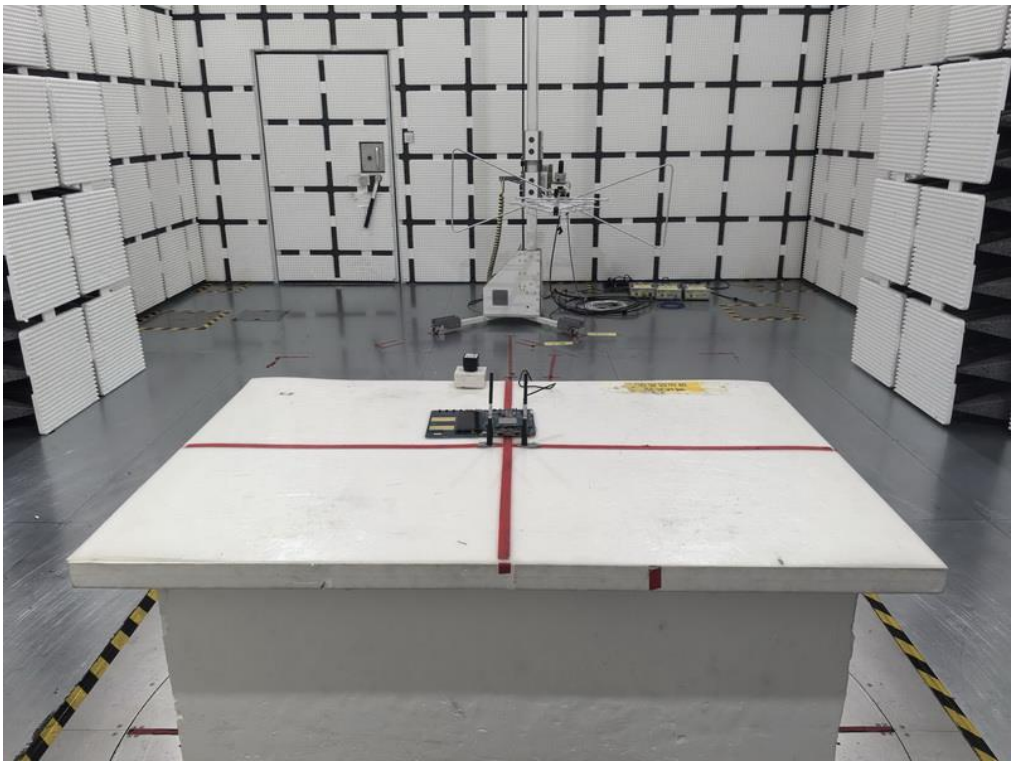
9 kHz to 30 MHz

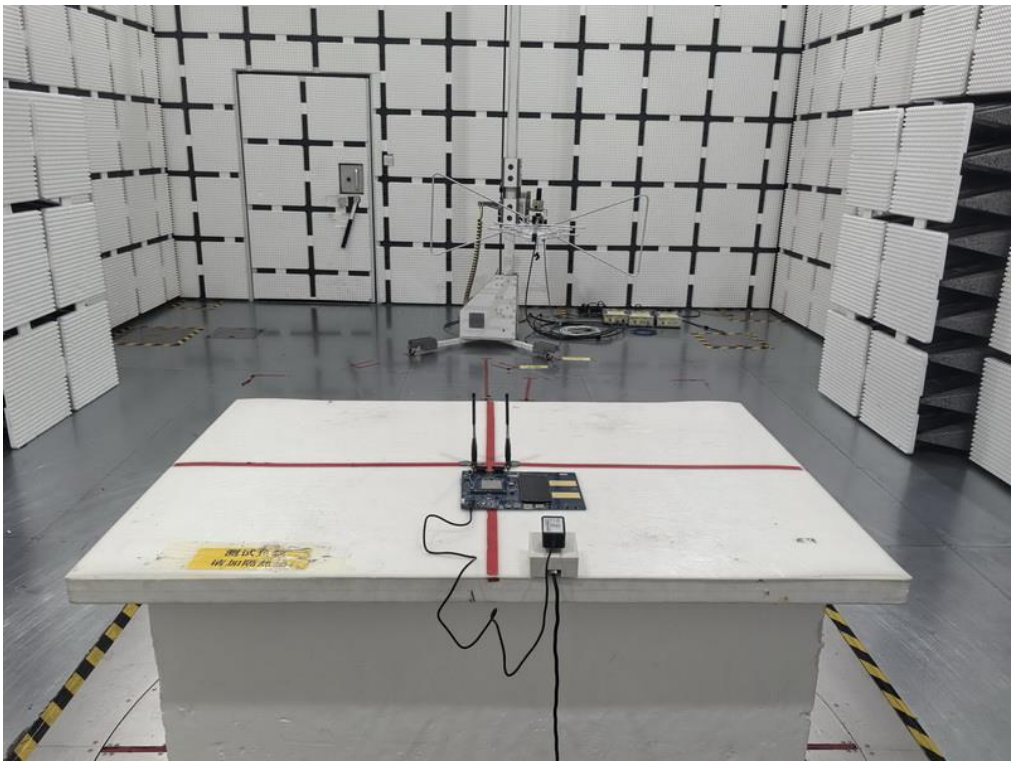




Radiated Emissions Test Photos

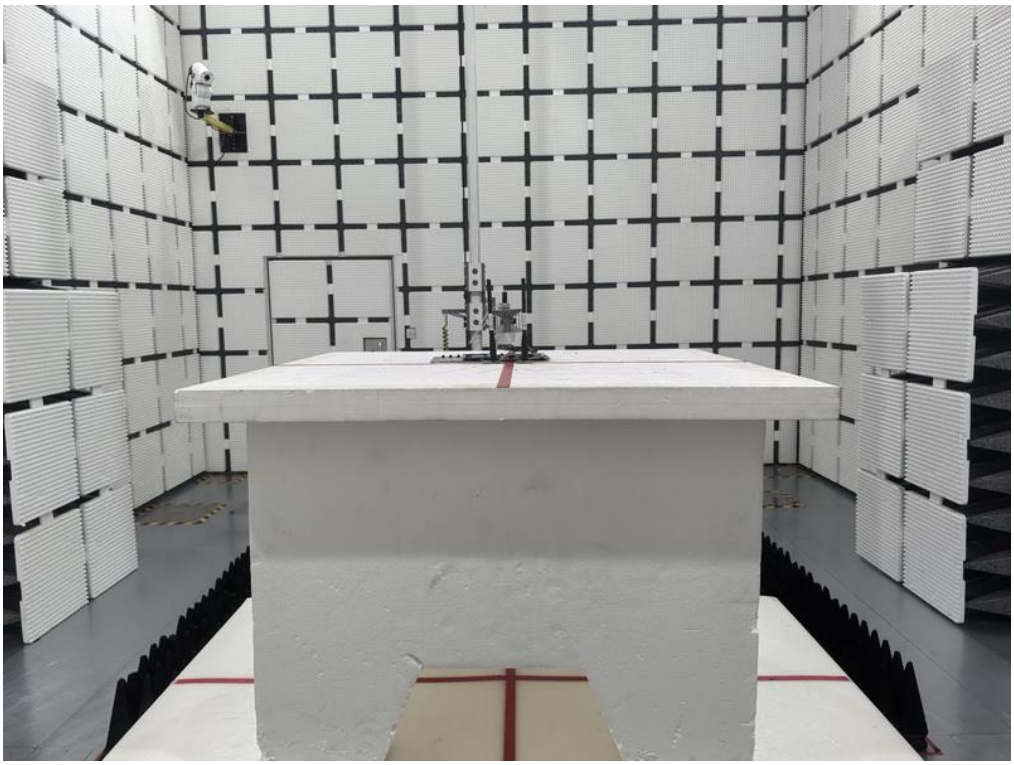
30 MHz to 1 GHz

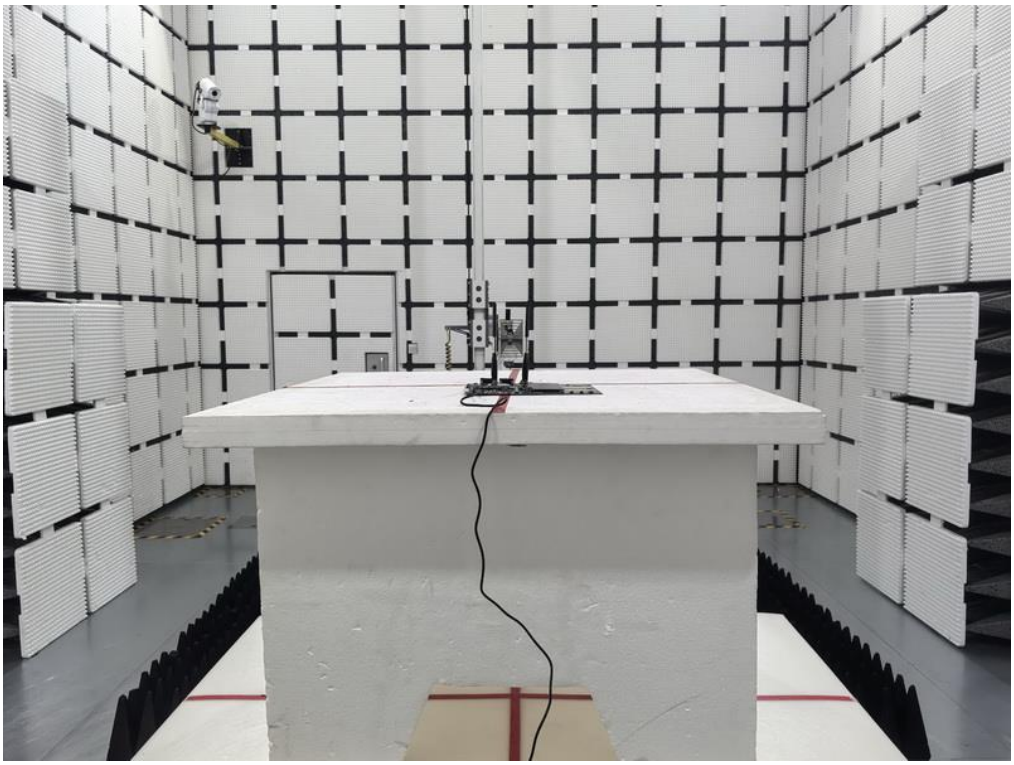




Radiated Emissions Test Photos

Above 1 GHz





APPENDIX A - OUTPUT POWER

Bandwidth	Modulation	RB size	RB offset	CH26697	CH26740	CH26783	ERP		
				814.7MHz	819MHz	823.3MHz			
1.4MHz	QPSK	1	0	23.22	23.16	22.94	21.37	21.31	21.09
		1	2	23.18	23.20	23.30	21.33	21.35	21.45
		1	5	23.21	23.12	23.21	21.36	21.27	21.36
		3	0	23.23	23.10	23.20	21.38	21.25	21.35
		3	1	23.23	23.25	23.23	21.38	21.40	21.38
		3	2	23.17	23.30	23.17	21.32	21.45	21.32
		6	0	22.25	22.18	22.25	20.40	20.33	20.40
	16QAM	1	0	22.34	21.99	22.25	20.49	20.14	20.40
		1	2	22.30	22.01	22.32	20.45	20.16	20.47
		1	5	22.34	21.94	22.29	20.49	20.09	20.44
		3	0	22.40	21.83	22.42	20.55	19.98	20.57
		3	1	22.56	21.80	22.45	20.71	19.95	20.60
		3	2	22.43	22.03	22.40	20.58	20.18	20.55
		6	0	21.34	20.94	21.20	19.49	19.09	19.35

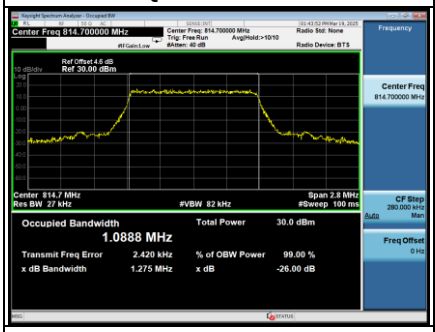
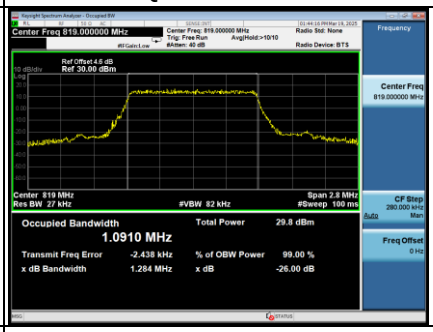
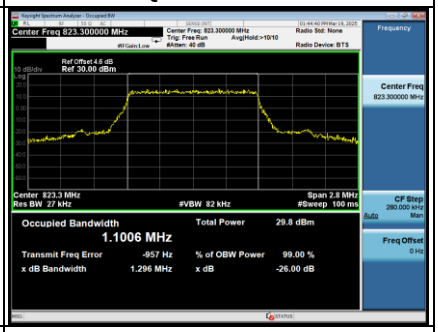
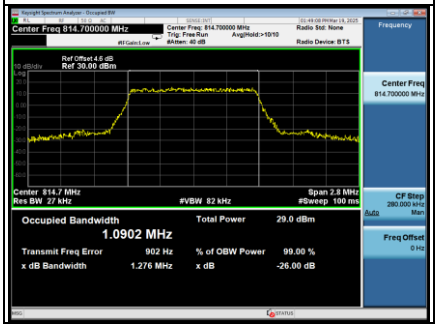
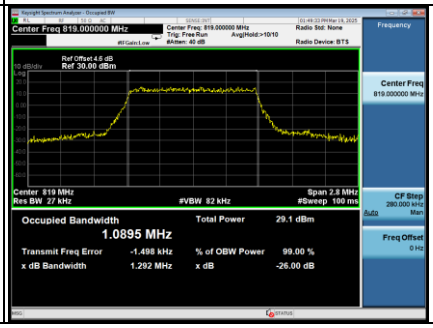
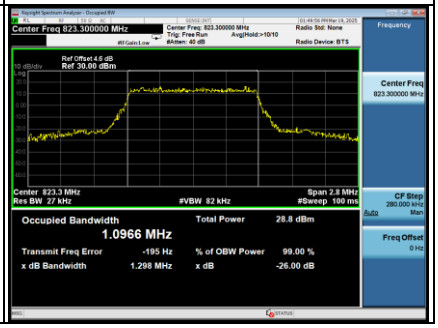
Bandwidth	Modulation	RB size	RB offset	CH26705	CH26740	CH26775	ERP		
				815.5MHz	819MHz	822.5MHz			
3MHz	QPSK	1	0	23.06	23.11	23.00	21.21	21.26	21.15
		1	7	23.48	23.14	23.57	21.63	21.29	21.72
		1	14	23.25	23.07	23.42	21.40	21.22	21.57
		8	0	22.28	22.27	22.25	20.43	20.42	20.40
		8	4	22.26	22.24	22.23	20.41	20.39	20.38
		8	7	22.29	22.26	22.32	20.44	20.41	20.47
		15	0	22.25	22.16	22.26	20.40	20.31	20.41
	16QAM	1	0	22.28	22.02	21.98	20.43	20.17	20.13
		1	7	22.52	22.14	22.44	20.67	20.29	20.59
		1	14	21.94	21.95	22.23	20.09	20.10	20.38
		8	0	21.37	21.19	21.65	19.52	19.34	19.80
		8	4	21.43	21.19	21.58	19.58	19.34	19.73
		8	7	21.37	21.09	21.64	19.52	19.24	19.79
		15	0	21.29	21.02	21.21	19.44	19.17	19.36

Bandwidth	Modulation	RB size	RB offset	CH26715	CH26740	CH26765	ERP		
				816.5MHz	819MHz	821.5MHz			
5MHz	QPSK	1	0	22.89	22.91	23.02	21.04	21.06	21.17
		1	13	23.01	23.00	23.25	21.16	21.15	21.40
		1	24	22.68	22.92	23.01	20.83	21.07	21.16
		12	0	22.22	22.22	22.16	20.37	20.37	20.31
		12	6	22.21	22.28	22.26	20.36	20.43	20.41
		12	11	22.35	22.33	22.33	20.50	20.48	20.48
		25	0	22.25	22.23	22.20	20.40	20.38	20.35
	16QAM	1	0	21.93	21.98	21.77	20.08	20.13	19.92
		1	13	22.25	21.96	22.14	20.40	20.11	20.29
		1	24	21.72	21.72	21.62	19.87	19.87	19.77
		12	0	21.22	21.32	21.17	19.37	19.47	19.32
		12	6	21.20	21.37	21.02	19.35	19.52	19.17
		12	11	21.21	21.43	20.99	19.36	19.58	19.14
		25	0	21.27	21.06	21.31	19.42	19.21	19.46

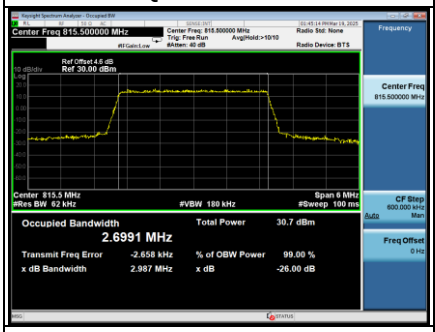
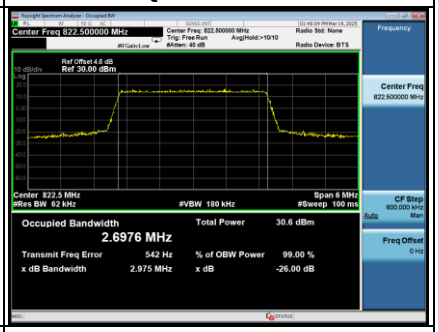
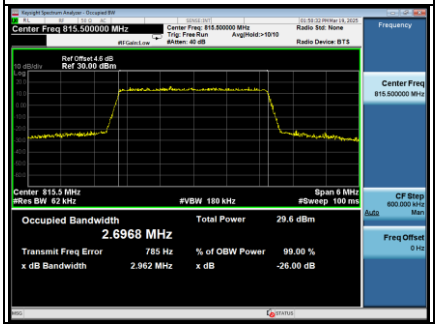
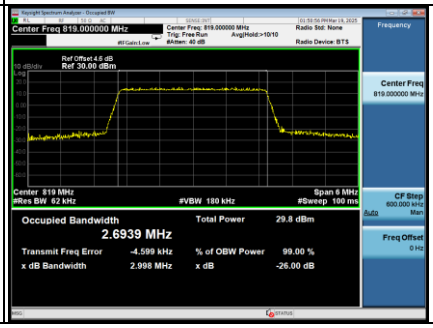
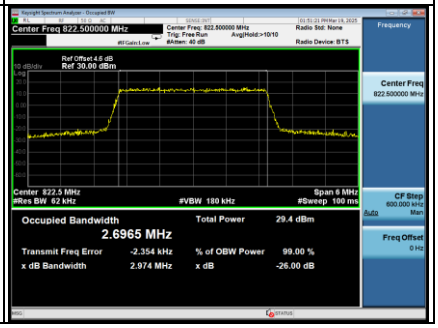
Bandwidth	Modulation	RB size	RB offset	-	CH26740	-	ERP		
				-	819MHz	-			
10MHz	QPSK	1	0	-	23.19	-	-	21.34	-
		1	25	-	23.37	-	-	21.52	-
		1	49	-	23.07	-	-	21.22	-
		25	0	-	22.24	-	-	20.39	-
		25	13	-	22.24	-	-	20.39	-
		25	25	-	22.27	-	-	20.42	-
		50	0	-	22.26	-	-	20.41	-
	16QAM	1	0	-	22.38	-	-	20.53	-
		1	25	-	22.29	-	-	20.44	-
		1	49	-	21.62	-	-	19.77	-
		25	0	-	21.23	-	-	19.38	-
		25	13	-	21.43	-	-	19.58	-
		25	25	-	21.46	-	-	19.61	-
		50	0	-	21.33	-	-	19.48	-

APPENDIX B - OCCUPIED BANDWIDTH

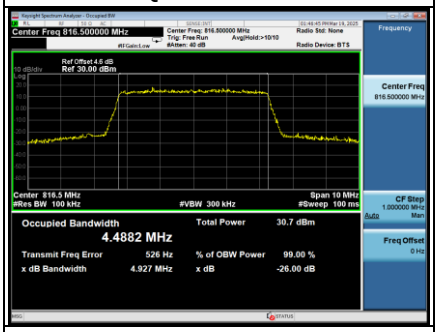
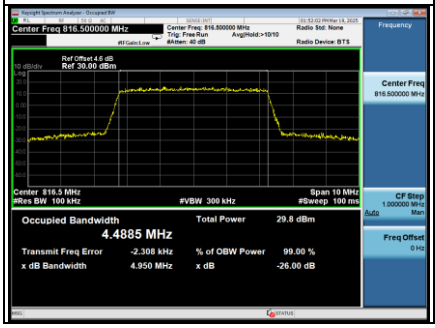
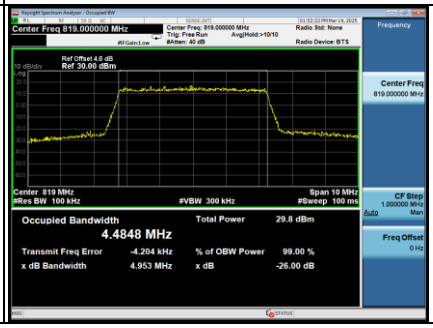
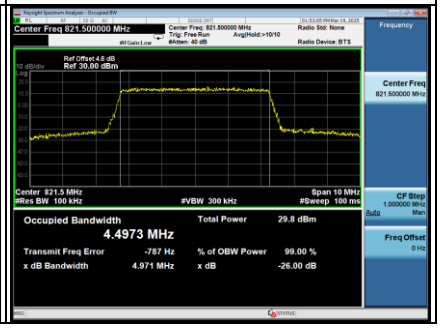
LTE Band 26_1.4MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26697	814.7	1.0888	1.0902	1.275	1.276
26740	819	1.0910	1.0895	1.284	1.292
26783	823.3	1.1006	1.0966	1.296	1.298

Spectrum Plot		
QPSK-26697	QPSK-26740	QPSK-26783
		
16QAM-26697	16QAM-26740	16QAM-26783
		

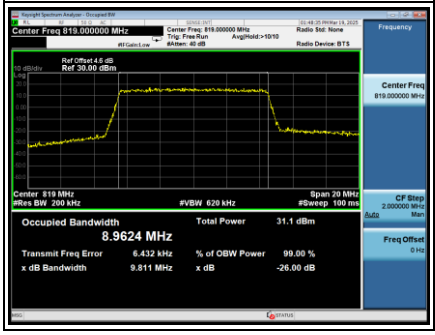
LTE Band 26_3MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26705	815.5	2.6991	2.6968	2.987	2.962
26740	819	2.6995	2.6939	2.976	2.998
26775	822.5	2.6976	2.6965	2.975	2.974

Spectrum Plot		
QPSK-26705	QPSK-26740	QPSK-26775
		
16QAM-26705	16QAM-26740	16QAM-26775
		

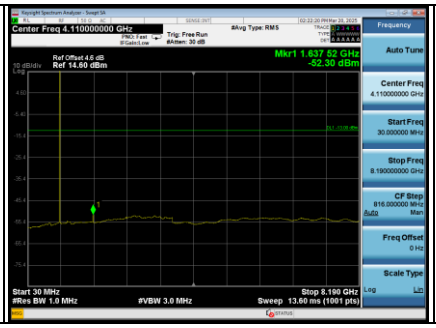
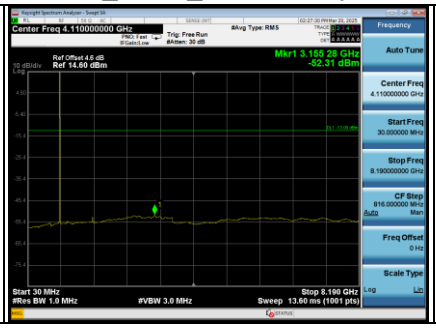
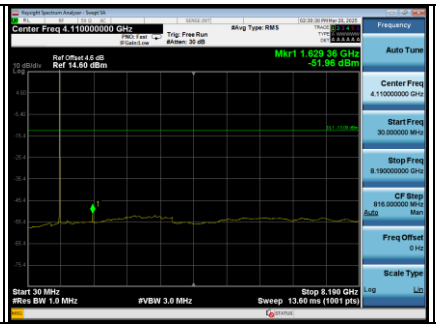
LTE Band 26_5MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26715	816.5	4.4882	4.4885	4.927	4.950
26740	819	4.5030	4.4848	4.975	4.953
26765	821.5	4.4956	4.4973	4.989	4.971

Spectrum Plot		
QPSK-26715	QPSK-26740	QPSK-26765
		
16QAM-26715	16QAM-26740	16QAM-26765
		

LTE Band 26_10MHz					
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)		26dB Bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
26740	819	8.9624	8.9460	9.811	9.852

Spectrum Plot		
QPSK-26740	16QAM-26740	-
		-

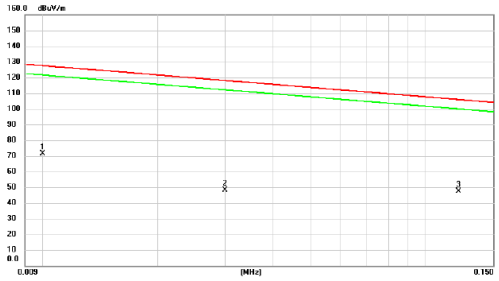
APPENDIX C - CONDUCTED SPURIOUS EMISSIONS

LTE Band 26_1.4MHz_CH26740 Spectrum Plot		
-		-
LTE Band 26_5MHz_CH26740 Spectrum Plot		
-		-
LTE Band 26_10MHz_CH26740 Spectrum Plot		
-		-

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

Test Mode :	TX Mode

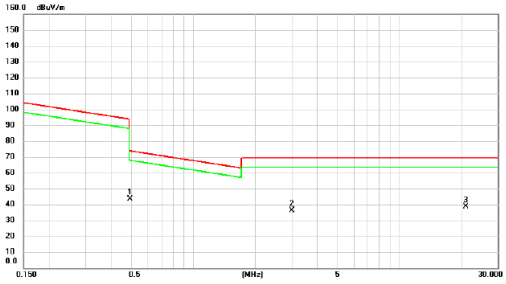
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0100	50.86	20.53	71.39	127.60	-56.21	peak	
2		0.0300	28.12	20.13	48.25	118.06	-69.81	peak	
3		0.1220	27.40	20.09	47.49	105.88	-58.39	peak	

Test Mode :	TX Mode

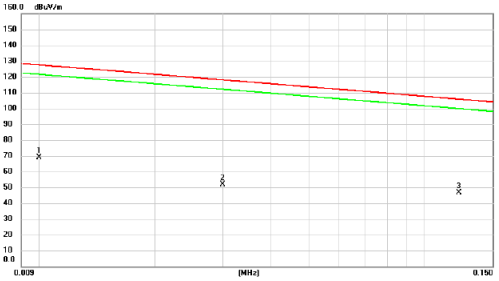
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.4941	23.55	20.02	43.57	73.73	-30.16	peak	
2		3.0156	16.30	20.09	36.39	69.54	-33.15	peak	
3		20.9553	17.95	20.78	38.73	69.54	-30.81	peak	

Test Mode :	TX Mode

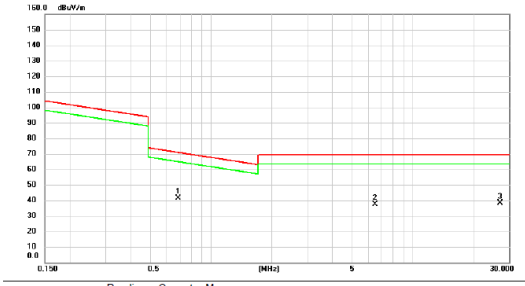
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0100	48.53	20.53	69.06	127.60	-58.54	peak	
2		0.0300	31.78	20.13	51.91	118.06	-66.15	peak	
3		0.1228	26.47	20.08	46.55	105.82	-59.27	peak	

Test Mode :	TX Mode

Ant 90°

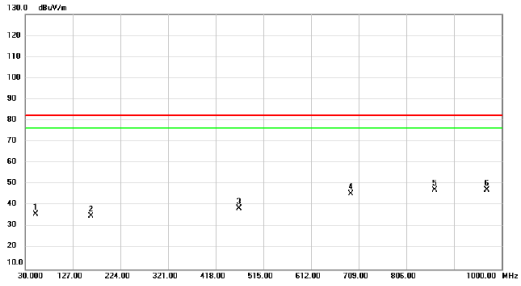


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.6873	21.52	19.99	41.51	70.86	-29.35	peak	
2		6.5080	16.95	20.34	37.29	69.54	-32.25	peak	
3		27.0747	17.16	21.09	38.25	69.54	-31.29	peak	

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

Test Mode :	LTE Band 26_TX CH26740_1.4MHz

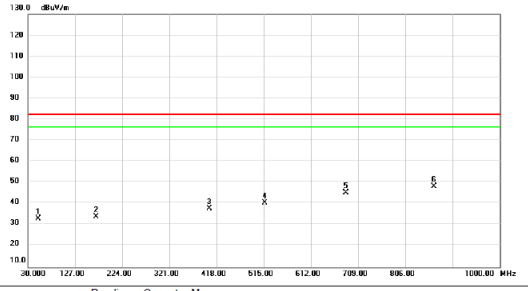
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		51.3400	37.41	-1.58	35.83	82.30	-46.47	peak	
2		163.8600	36.43	-1.33	35.10	82.30	-47.20	peak	
3		465.0450	34.85	3.84	38.69	82.30	-43.61	peak	
4		692.5100	36.95	8.54	45.49	82.30	-36.81	peak	
5		863.7150	36.62	10.84	47.46	82.30	-34.84	peak	
6	*	969.9300	35.29	12.21	47.50	82.30	-34.80	peak	

Test Mode :	LTE Band 26_TX CH26740_1.4MHz

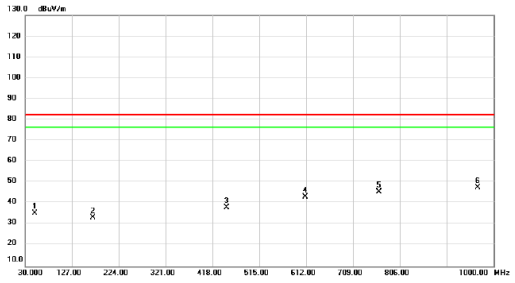
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		51.8250	34.60	-1.59	33.01	82.30	-49.29	peak	
2		169.6800	35.51	-1.54	33.97	82.30	-48.33	peak	
3		403.4500	35.60	2.02	37.62	82.30	-44.68	peak	
4		516.4550	35.60	4.79	40.39	82.30	-41.91	peak	
5		683.7800	36.77	8.42	45.19	82.30	-37.11	peak	
6	*	864.6850	37.42	10.85	48.27	82.30	-34.03	peak	

Test Mode :	LTE Band 26_TX CH26740_5MHz

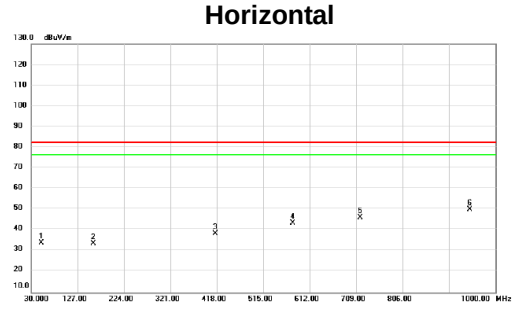
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		50.3700	36.97	-1.55	35.42	82.30	-46.88	peak	
2		170.6500	34.86	-1.62	33.24	82.30	-49.06	peak	
3		447.5850	34.69	3.50	38.19	82.30	-44.11	peak	
4		610.0600	35.90	7.25	43.15	82.30	-39.15	peak	
5		762.8350	35.63	9.98	45.61	82.30	-36.69	peak	
6	*	967.0200	35.34	12.21	47.55	82.30	-34.75	peak	

Test Mode :	LTE Band 26_TX CH26740_5MHz

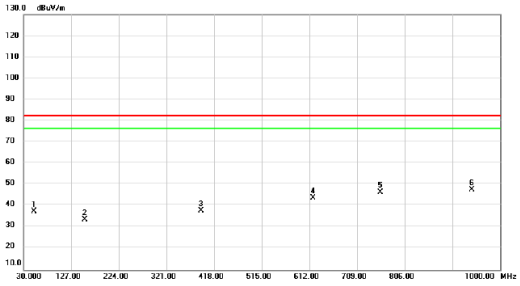
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		50.8550	35.30	-1.56	33.74	82.30	-48.56	peak	
2		159.4950	34.82	-1.19	33.63	82.30	-48.67	peak	
3		414.1200	35.88	2.37	38.25	82.30	-44.05	peak	
4		576.5950	37.18	6.34	43.52	82.30	-38.78	peak	
5		717.2450	37.07	9.03	46.10	82.30	-36.20	peak	
6	*	945.6800	37.92	12.08	50.00	82.30	-32.30	peak	

Test Mode :	LTE Band 26_TX CH26740_10MHz

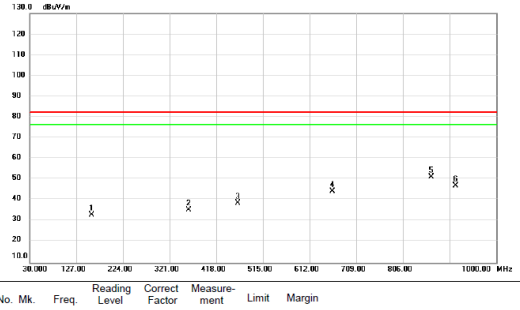
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		51.3400	38.94	-1.58	37.36	82.30	-44.94	peak	
2		155.1300	34.90	-1.23	33.67	82.30	-48.63	peak	
3		391.8100	35.88	1.72	37.60	82.30	-44.70	peak	
4		619.2750	36.30	7.43	43.73	82.30	-38.57	peak	
5		756.5300	36.59	9.89	46.48	82.30	-35.82	peak	
6	*	941.8000	35.77	12.01	47.78	82.30	-34.52	peak	

Test Mode :	LTE Band 26_TX CH26740_10MHz

Horizontal

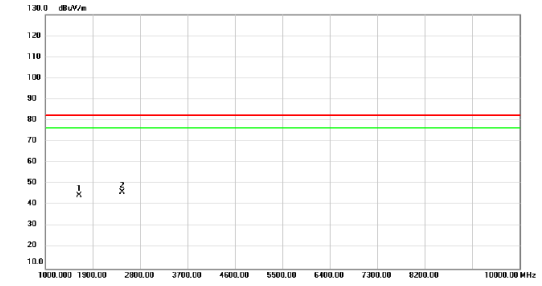


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		158.5250	34.29	-1.20	33.09	82.30	-49.21	peak	
2		359.8000	34.76	0.74	35.50	82.30	-46.80	peak	
3		463.1050	34.91	3.80	38.71	82.30	-43.59	peak	
4		658.5600	36.35	8.09	44.44	82.30	-37.86	peak	
5	*	865.1700	40.50	10.85	51.35	82.30	-30.95	peak	
6		914.6400	35.60	11.48	47.08	82.30	-35.22	peak	

APPENDIX F - RADIATED SPURIOUS EMISSIONS (ABOVE 1000MHZ)

Test Mode :	LTE Band 26_TX CH26740_1.4MHz

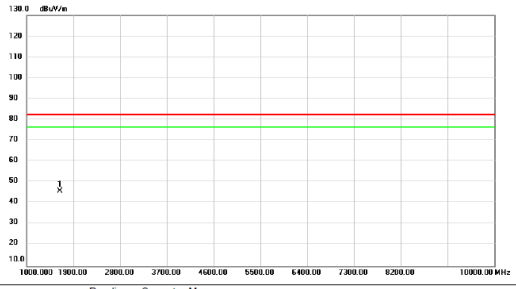
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		1639.000	50.00	-5.46	44.54	82.30	-37.76	peak	
2	*	2453.500	49.41	-3.33	46.08	82.30	-36.22	peak	

Test Mode :	LTE Band 26_TX CH26740_1.4MHz

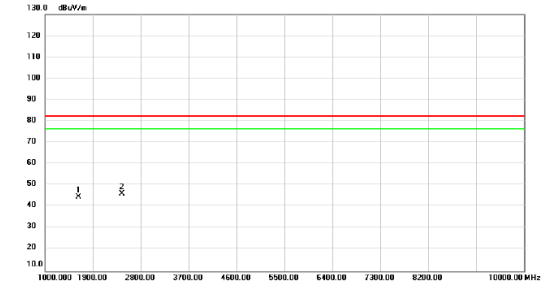
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	1639.000	51.33	-5.46	45.87	82.30	-36.43	peak	

Test Mode :	LTE Band 26_TX CH26740_5M

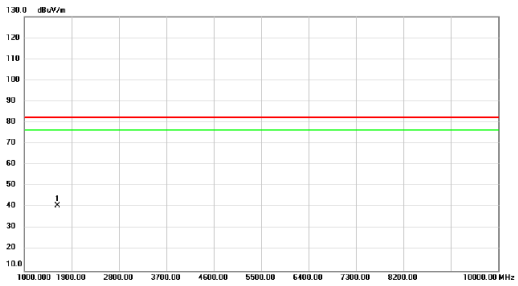
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		1634.500	50.03	-5.47	44.56	82.30	-37.74	peak	
2	*	2449.000	49.38	-3.34	46.04	82.30	-36.26	peak	

Test Mode :	LTE Band 26_TX CH26740_5M

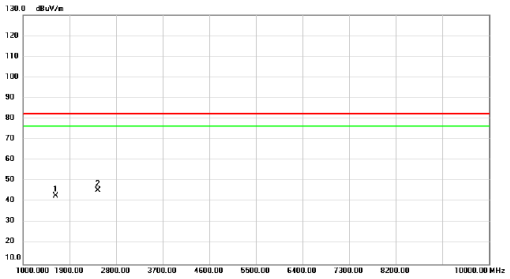
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	1634.500	46.21	-5.47	40.74	82.30	-41.56	peak	

Test Mode :	LTE Band 26_TX CH26740_10MHz

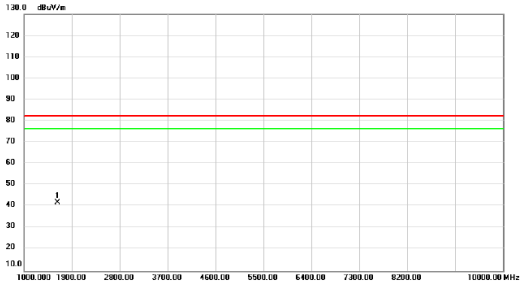
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		1630.000	48.20	-5.48	42.72	82.30	-39.58	peak	
2	*	2444.500	48.86	-3.35	45.51	82.30	-36.79	peak	

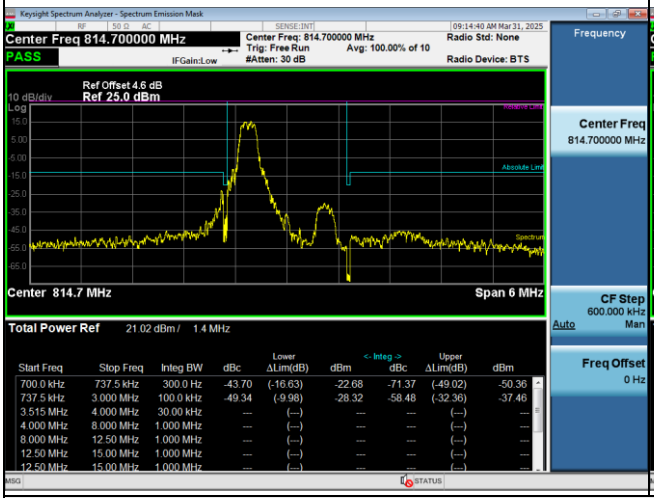
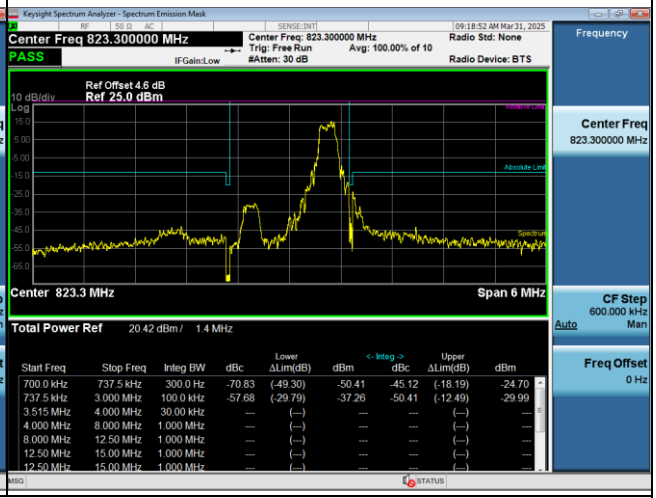
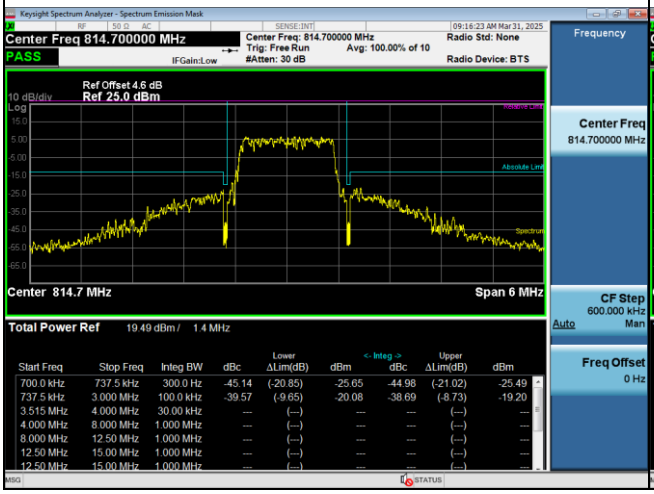
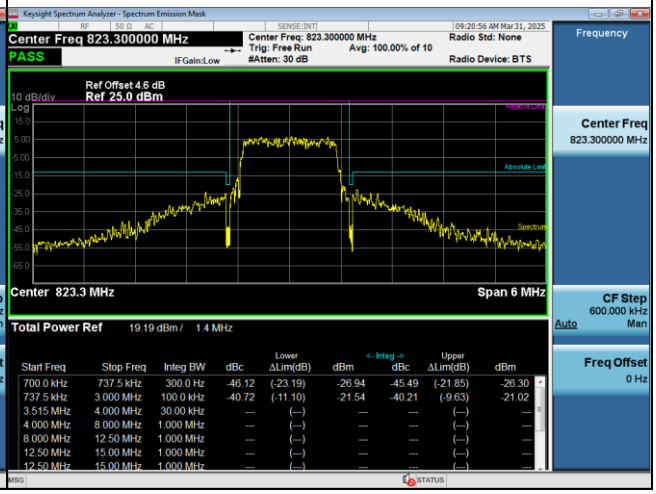
Test Mode :	LTE Band 26_TX CH26740_10MHz

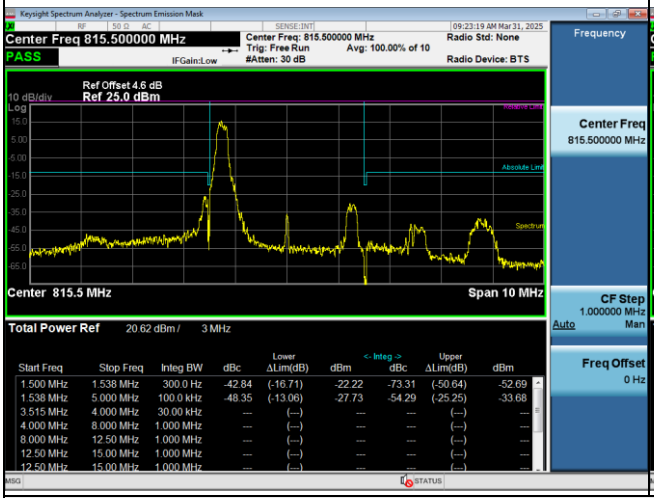
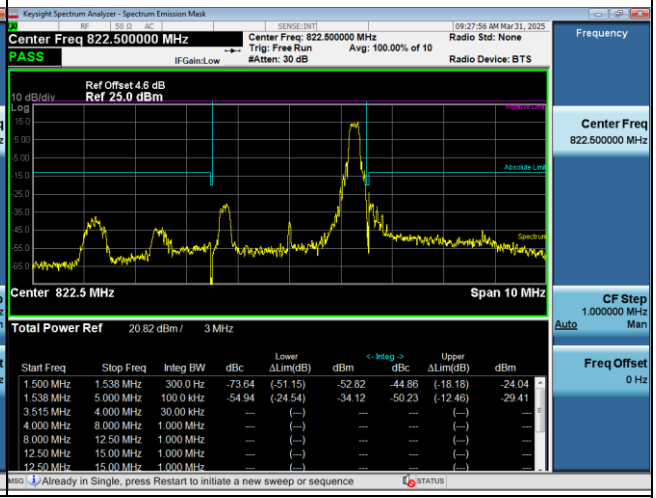
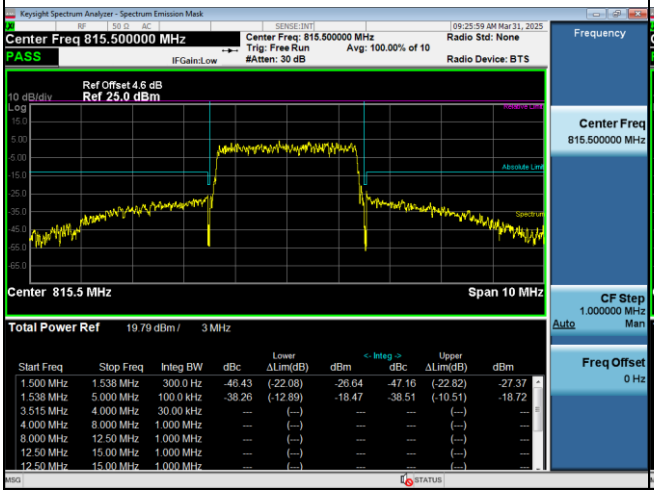
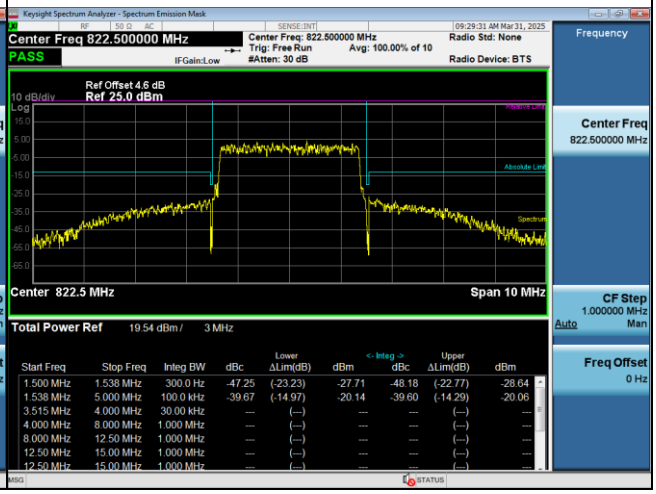
Horizontal

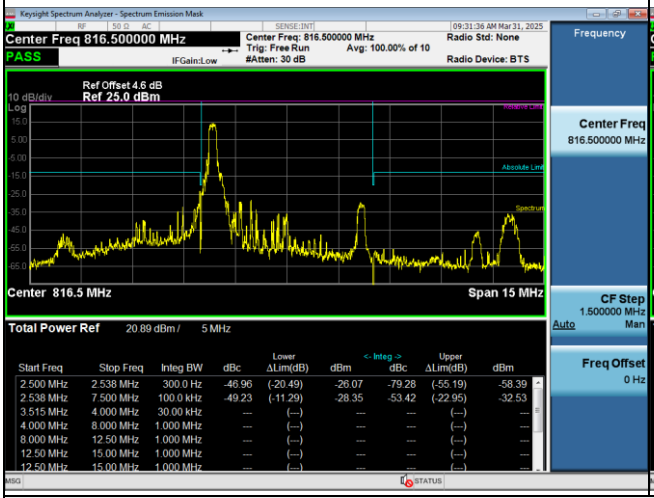
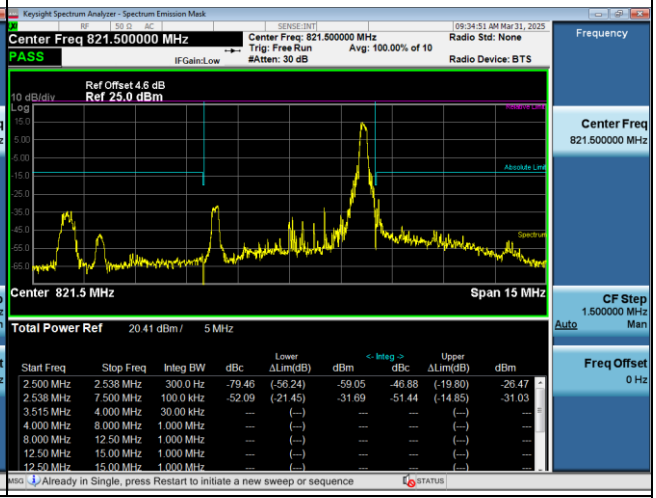
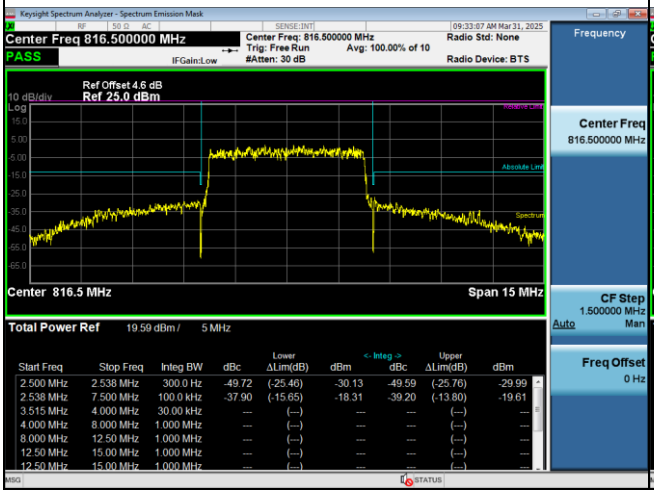
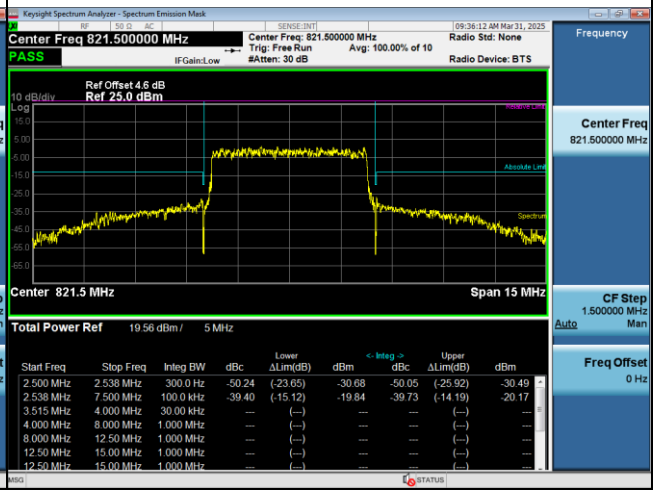


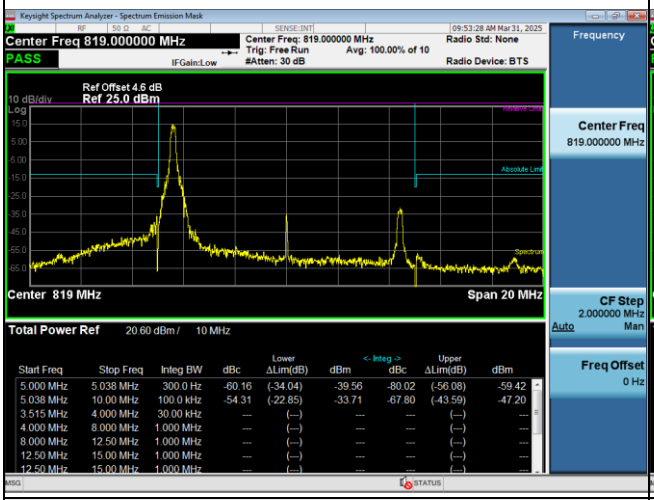
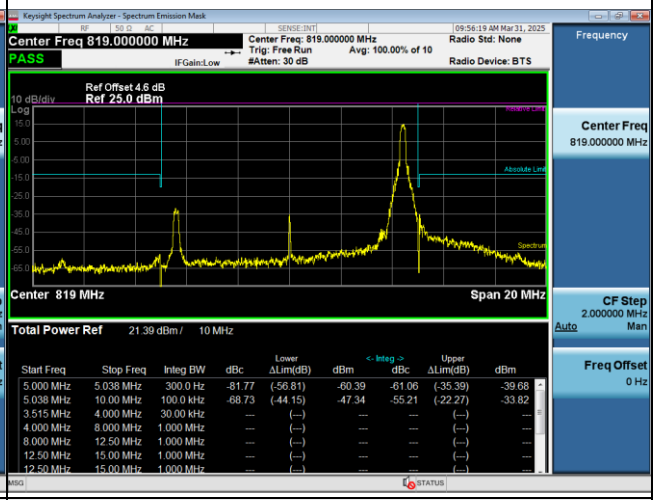
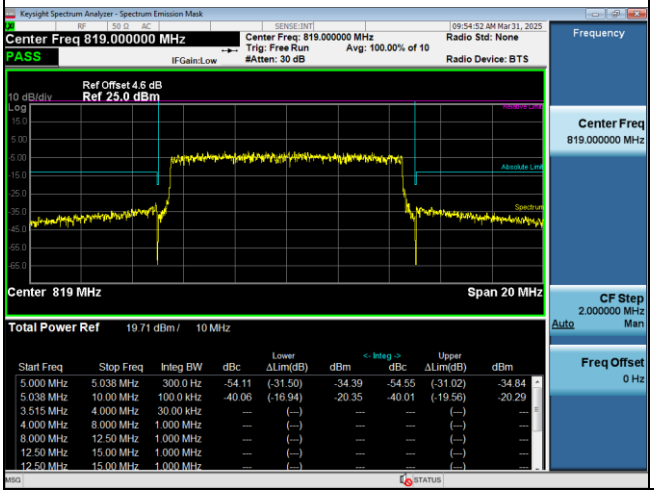
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	1630.000	47.52	-5.48	42.04	82.30	-40.26	peak	

APPENDIX G - MASK

LTE Band 26_1.4MHz			
1RB#0		1RB#5	
Channel	26697	Channel	26783
			
6RB#0			
Channel	26697	Channel	26783
			

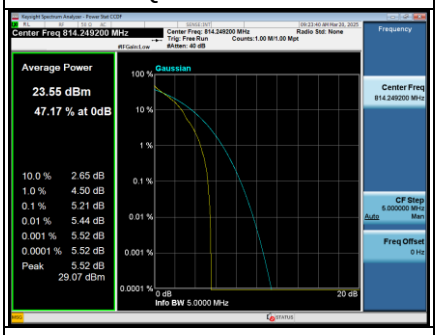
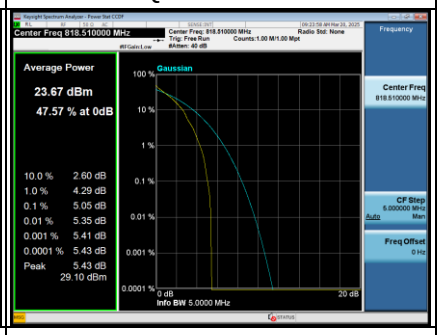
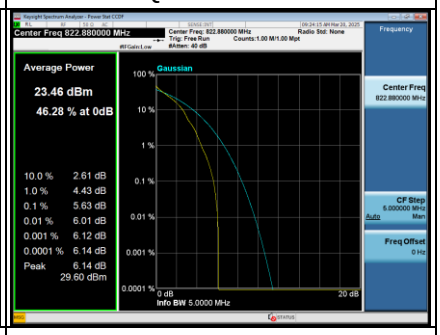
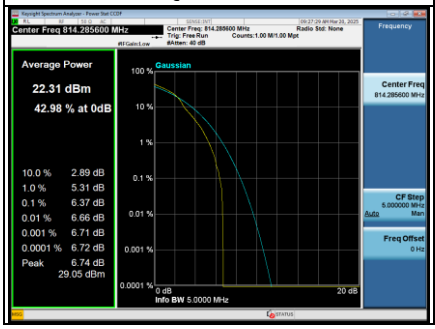
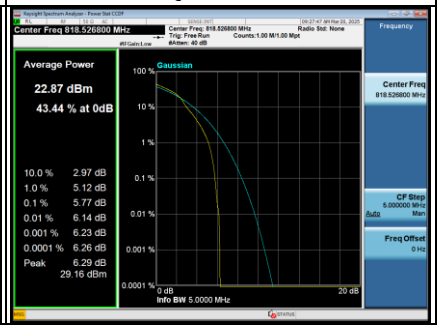
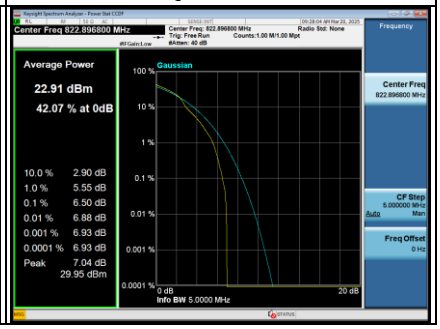
LTE Band 26_3MHz			
1RB#0		1RB#14	
Channel	26705	Channel	26775
			
15RB#0			
Channel	26705	Channel	26775
			

LTE Band 26_5MHz			
1RB#0		1RB#24	
Channel	26715	Channel	26765
			
25RB#0			
Channel	26715	Channel	26765
			

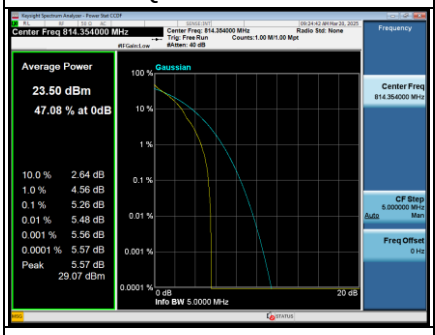
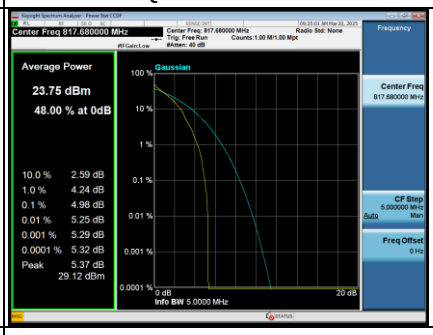
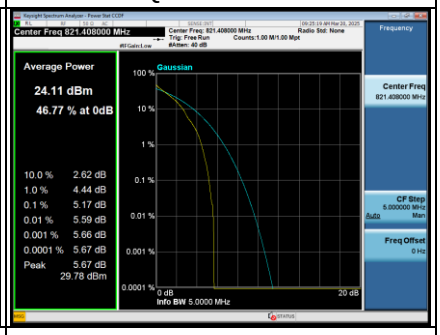
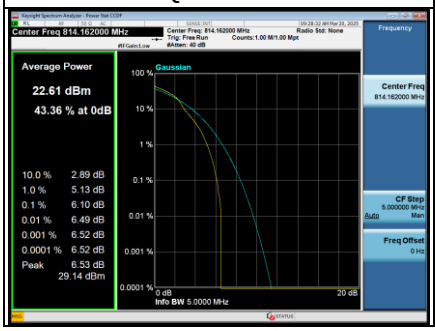
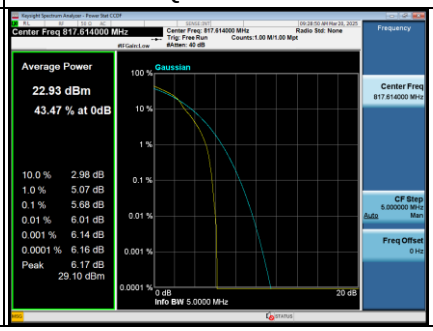
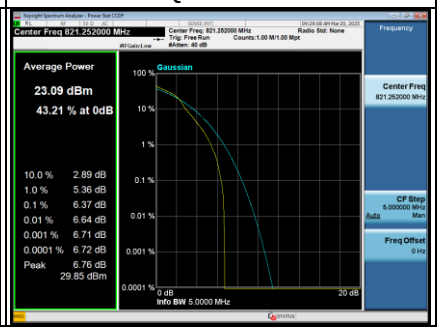
LTE Band 26_10MHz			
1RB#0		1RB#49	
Channel	26740	Channel	26740
			
50RB#0		-	
Channel	26740	-	
		-	

APPENDIX H - PEAK TO AVERAGE RATIO

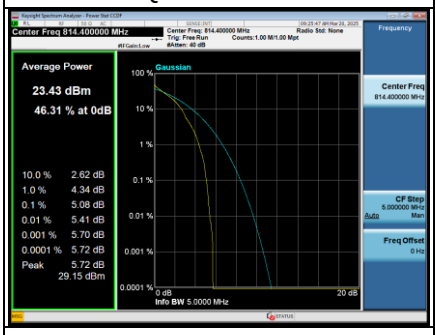
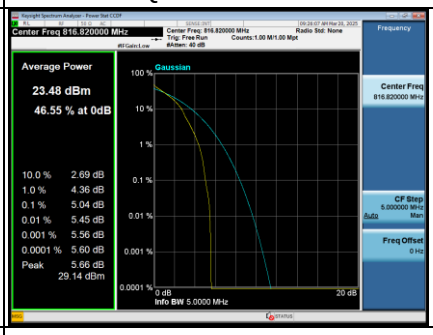
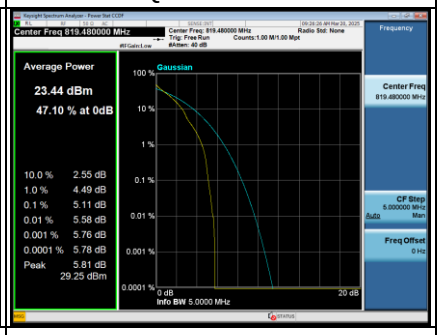
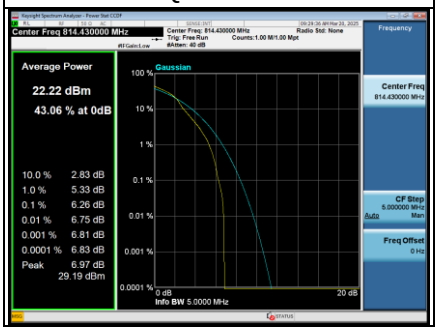
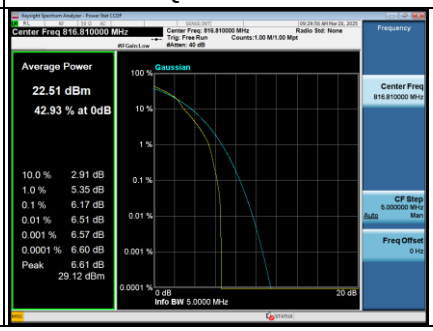
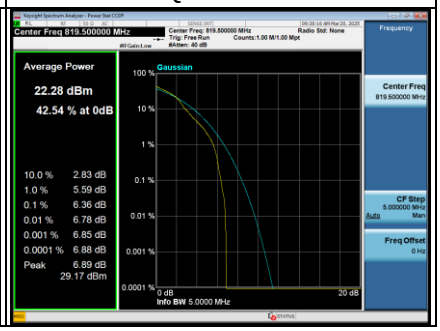
LTE Band 26_1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
26697	814.7	5.21	6.37	13	Pass
26740	819	5.05	5.77	13	Pass
26783	823.3	5.63	6.50	13	Pass

Spectrum Plot		
QPSK-26697	QPSK-26740	QPSK-26783
		
16QAM-26697	16QAM-26740	16QAM-26783
		

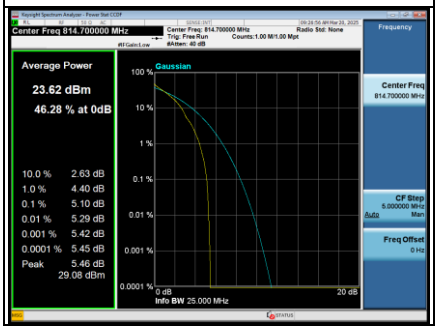
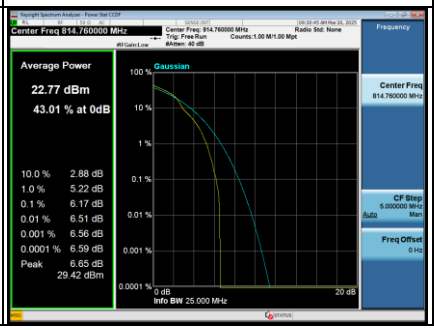
LTE Band 26_3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
26705	815.5	5.26	6.10	13	Pass
26740	819	4.98	5.68	13	Pass
26775	822.5	5.17	6.37	13	Pass

Spectrum Plot		
QPSK-26705	QPSK-26740	QPSK-26775
		
16QAM-26705	16QAM-26740	16QAM-26775
		

LTE Band 26_5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
26715	816.5	5.08	6.26	13	Pass
26740	819	5.04	6.17	13	Pass
26765	821.5	5.11	6.36	13	Pass

Spectrum Plot		
QPSK-26715	QPSK-26740	QPSK-26765
		
16QAM-26715	16QAM-26740	16QAM-26765
		

LTE Band 26_10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)		Max. Limit (dB)	Result
		QPSK	16QAM		
26740	819	5.10	6.17	13	Pass

Spectrum Plot		
QPSK-26740	16QAM-26740	-
		-

APPENDIX I - FREQUENCY STABILITY

Test Mode	LTE Band 26 _10MHz

Frequency error versus temperature and supply voltage			
Temperature (°C)	Frequency error (Hz)	ppm	Limit
50	-5.54	-0.0068	±2.5ppm
40	-6.23	-0.0076	
30	4.65	0.0057	
20	4.21	0.0051	
10	12.42	0.0152	
0	-6.54	-0.0080	
−10	3.63	0.0044	
−20	-4.36	-0.0053	
−30	-5.21	-0.0064	
Minimun Voltage	5.89	0.0072	
Maximun Voltage	-5.12	-0.0063	
Normal Voltage	5.64	0.0069	

Note: Nominal voltage= 3.8V, Maximum voltage= 4.4V, Minimum voltage= 3.55V.

End of Test Report