RF TEST REPORT

Applicant	Quectel Wireless Solutions Company Limited
FCC ID	XMR201808EC25AF
Product	LTE Module
Brand	Quectel
Model	EC25-AF; EC25-AF MINIPCIE
Report No.	EFTA25080400-IE-02-R1
Issue Date	October 14, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2024)/ FCC CFR 47 Part 22H (2024)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Xu Ying *Approved by: Xu Kai*

Eurofins TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
TEL: +86-021-50791141/2/3
FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1. Test Laboratory 5
1.1. Notes of the Test Report 5
1.2. Test Facility 5
1.3. Testing Location 5
2. General Description of Equipment Under Test 6
2.1. Applicant and Manufacturer Information 6
2.2. General Information 6
3. Applied Standards 8
4. Test Configuration 9
5. Test Case 10
5.1. RF Power Output and Effective Radiated Power 10
5.2. Occupied Bandwidth 11
5.3. Band Edge Compliance 12
5.4. Peak-to-Average Power Ratio (PAPR) 13
5.5. Frequency Stability 14
5.6. Spurious Emissions at Antenna Terminals 16
5.7. Radiated Spurious Emission 17
6. Test Result 20
6.1. RF Power Output and Effective Radiated Power 20
6.2. Occupied Bandwidth 25
6.3. Band Edge Compliance 31
6.4. Peak-to-Average Power Ratio (PAPR) 48
6.5. Frequency Stability 49
6.6. Spurious Emissions at Antenna Terminals 51
6.7. Radiated Spurious Emission 56
7. Main Test Instruments 62
8. The EUT Appearance 64
9. Test Setup Photos 65
10. Product Change Description 66

Summary of Measurement Results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Radiated Power	2.1046 22.913(a)(5)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 / 22.917(a)	PASS
4	Peak-to-Average Power Ratio	22.913(d) KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 22.355	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
7	Radiated Spurious Emission	2.1053 / 22.917 (a)	PASS
Date of Testing: (Original): June 29, 2018~ July 16, 2018 and July 30, 2018~ July 31, 2018 (Variant): September 3, 2025 ~ September 11, 2025 Date of Sample Received: (Variant): August 28, 2025			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

EC25-AF; EC25-AF MINIPCIE (Report No.: EFTA25080400-IE-02-R1) is a variant model of EC25-AF; EC25-AF MINIPCIE (Report No.: R1806A0301-R1V1).

The detailed product change description please refers to following table:

The new version and original version both use Qualcomm 9x07 chipset, share the same chipset baseline, software and hardware design, the difference is some RF related components.

Module	Chipset	Frequency
EC25-AF, EC25-AF MINIPCIE (Original)	MDM9207	LTE Cat 4: B2/4/5/12/13/14/66/71 WCDMA: B2/4/5 *GPS/GLONASS/BDS/Galileo/QZSS
EC25-AF, EC25-AF MINIPCIE (New)		

According to customer requirements the detailed standard upgrade please refers to following table:

Old Standard(s)	New Standard(s)
ANSI/TIA-603-E (2016)	ANSI C63.26-2015

Tested Cases refer to the following table.

Test Cases	Original	Variant
RF Power Output and Effective Radiated Power	PASS	PASS
Occupied Bandwidth	PASS	-
Band Edge Compliance	PASS	PASS
Peak-to-Average Power Ratio	PASS	-
Frequency Stability	PASS	PASS
Spurious Emissions at Antenna Terminals	PASS	-
Radiated Spurious Emission	PASS	-

The detailed product change description please refers to the *Difference Declaration Letter*.

1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3. Testing Location

Company:	Eurofins TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	https://www.eurofins.com/electrical-and-electronics
E-mail:	Kain.Xu@cpt.eurofinscn.com

2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	Quectel Wireless Solutions Company Limited
Applicant address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China, 200233
Manufacturer	Quectel Wireless Solutions Company Limited
Manufacturer address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China, 200233

2.2. General Information

EUT Description			
Model	EC25-AF; EC25-AF MINIPCIE		
IMEI	EC25-AF :866834040000767 EC25-AF MINIPCIE: 866834040002375		
Hardware Version	R1.0		
Software Version	EC25AFFAR07A14M4G		
Power Supply	External Power Supply		
Antenna Type	The EUT don't have standard Antenna, The Antenna used for testing in this report is the after-market accessory (Dipole Antenna)		
Antenna Gain	2.53 dBi		
Test Mode(s)	WCDMA Band V; LTE Band 5		
Test Modulation	(WCDMA)QPSK; (LTE)QPSK 16QAM;		
HSDPA UE Category	24		
HSUPA UE Category	6		
LTE Category	4		
Maximum E.R.P.	WCDMA Band V	23.42 dBm	
	LTE Band 5	23.58 dBm	
Rated Power Supply Voltage	3.8V		
Extreme Voltage	Minimum: 3.3V Maximum: 4.3V		
Extreme Temperature	Lowest: -40°C Highest: +85°C		
Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 5	824 ~ 849	869 ~ 894
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.			

Accessory equipment	
Evaluation Board	RF Cable
RS232-to-USB Cable	Antenna: Dipole Antenna
Headset	DC 5V Adaptor

EC25-AF and EC25-AF MINIPCIE are all LTE modules. They support the same frequency bands, use the same chipset and share the same software & hardware design. The main difference is on the carrier board.
EC25-AF MINIPCIE makes up of EC25-AF module and PCIe transferred board.
The transferred board switches EC25-AF module to follow PCI Express Mini Card 1.2 standard connector protocol. No any other internal changes in EC25-AF module.
Two models are identical in interior structure and components, and just connector interface is different for the marketing requirement.

3. Applied Standards

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

Test standards:
FCC CFR 47 Part 22H (2024)

FCC CFR47 Part 2 (2024)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

All mode and data rates and positions and RB size and modulations were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in WCDMA/LTE is set based on the maximum RF Output Power.
Test modes are chosen to be reported as the worst case configuration below:

Test items	Modes/Modulation
	WCDMA Band V
RF Power Output and Effective Radiated power	RMC HSDPA/HSUPA DC-HSDPA
Occupied Bandwidth	RMC
Band Edge Compliance	RMC
Peak-to-Average Power Ratio	RMC
Frequency Stability	RMC
Spurious Emissions at Antenna Terminals	RMC
Radiated Spurious Emission	RMC

Test modes are chosen as the worst case configuration below for LTE Band 5.

Test items	Bandwidth (MHz)				Modulation		RB			Test Channel		
	1.4	3	5	10	QPSK	16QAM	1	50%	100%	L	M	H
RF power output and Effective Radiated power	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	O	O	O	O	O	-	O	-	-	O	O	O
Radiated Spurious Emission	O	-	O	O	O	-	O	-	-	-	O	-
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing.											

5. Test Case

5.1. RF Power Output and Effective Radiated Power

Ambient Condition

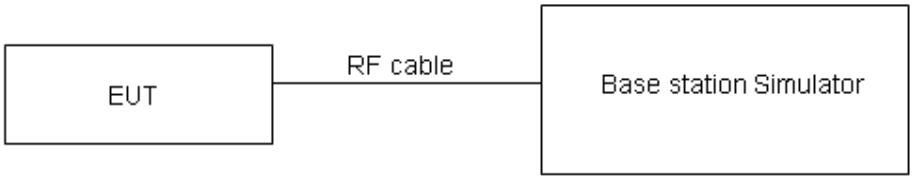
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:
EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)
EIRP (dBm) = ERP (dBm) + 2.15 (dB).

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 22.913(a)(5) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	≤ 7 W (38.45 dBm)

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB for RF power output, *k* = 2, *U*= 1.19 dB for ERP.

Test Results

Refer to the section 6.1 of this report for test data.

5.2. Occupied Bandwidth

Ambient Condition

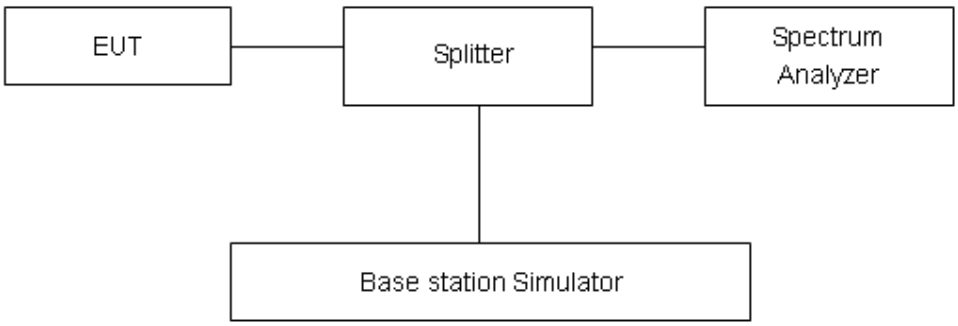
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to ≥1%EBW, VBW is set to 3x RBW.

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 624Hz.

Test Results

Refer to the section 6.2 of this report for test data.

5.3. Band Edge Compliance

Ambient Condition

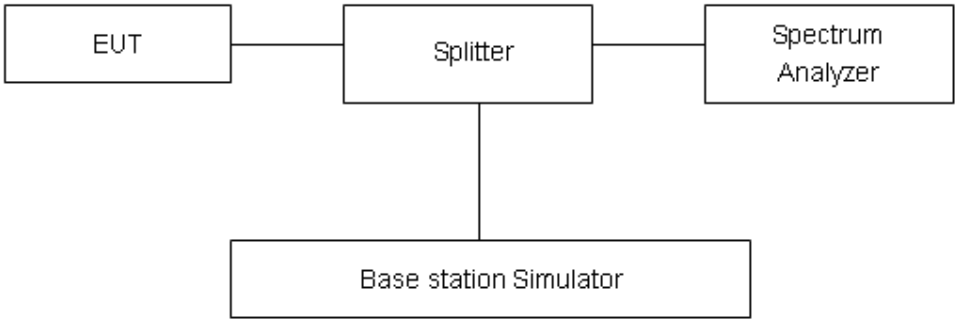
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The average detector is used.
RBW is set to ≥1%EBW, VBW is set to 3x RBW.

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 22.917(a) specifies that “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.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

Test Results

Refer to the section 6.3 of this report for test data.

5.4. Peak-to-Average Power Ratio (PAPR)

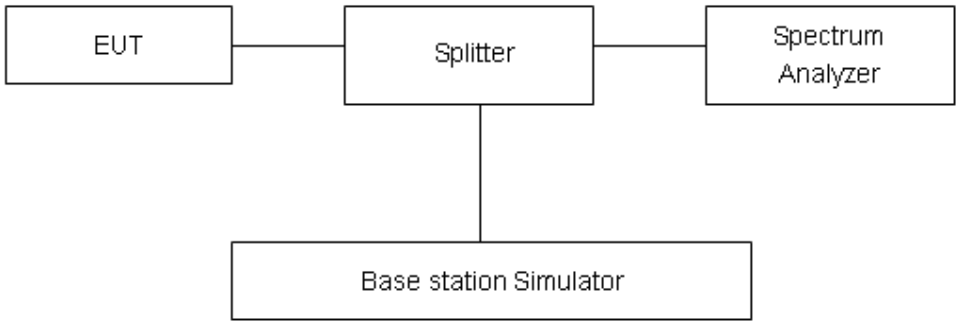
Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

Measure the total peak power and record as P_{Pk}. And measure the total average power and record as P_{Avg}. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).

Test Setup



Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

Refer to the section 6.4 of this report for test data.

5.5. Frequency Stability

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

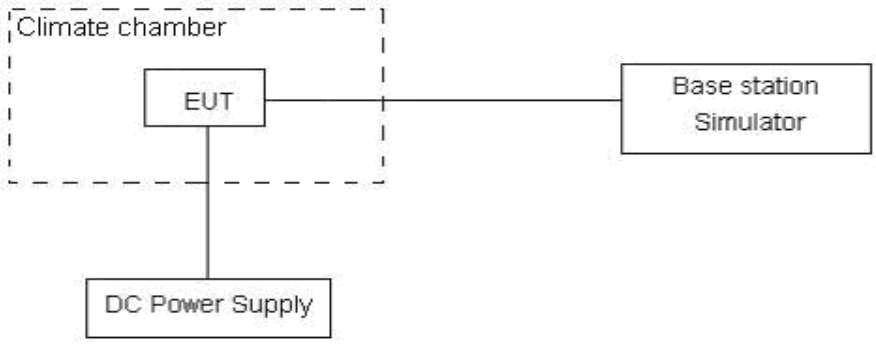
(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.3 V and 4.3 V, with a nominal voltage of 3.8V.

Test Setup



Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor k = 3, U= 0.01ppm.

Test Results

Refer to the section 6.5 of this report for test data.

5.6. Spurious Emissions at Antenna Terminals

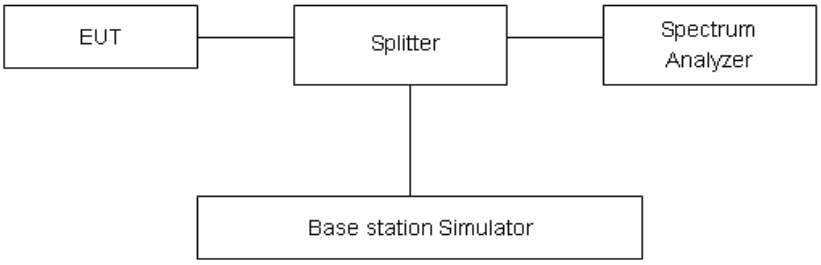
Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier.
The peak detector is used.
RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)
RBW is set to 100 kHz (30MHz~1000 MHz)
RBW is set to 1000 kHz (above 1000MHz)
Sweep is set to AUTO.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup



Limits

Rule Part 22.917(a) specifies that “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.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor k = 1.96.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-9 GHz	1.407 dB

Test Results

Refer to the section 6.6 of this report for test data.

5.7. Radiated Spurious Emission

Ambient Condition

Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

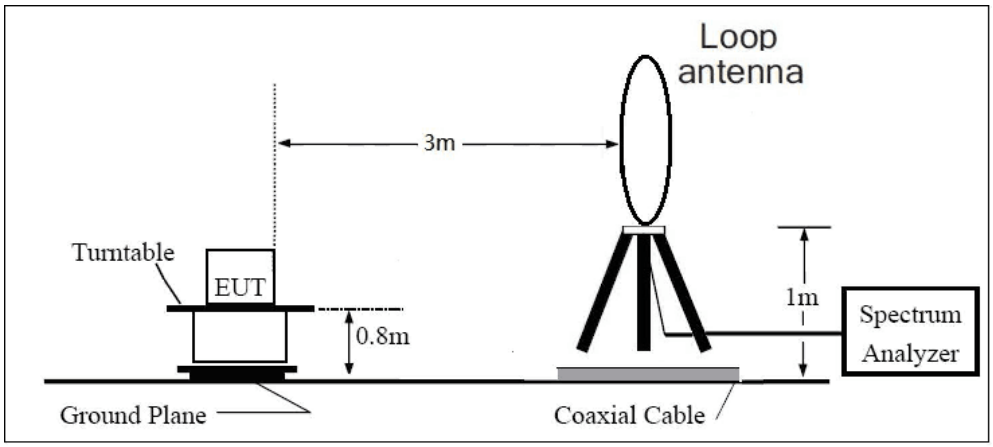
Method of Measurement

1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26-2015.
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power (EIRP) = PMea - PAg - Pcl + Ga
The measurement results are amend as described below:
Power (EIRP) = PMea - Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dB.

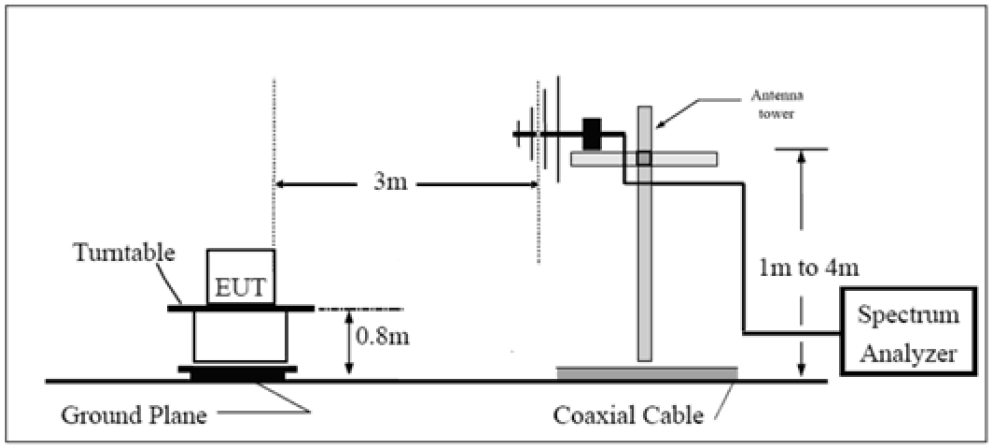
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup

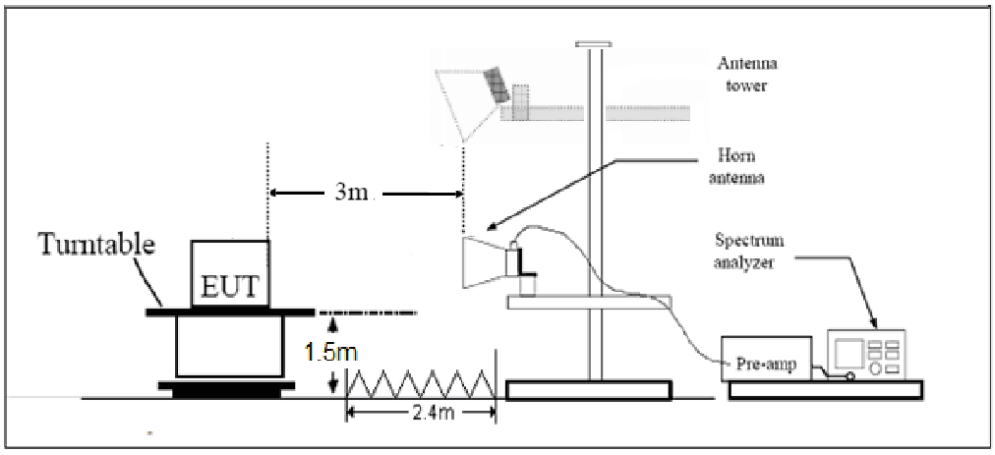
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 22.917(a) specifies that “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.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor *k* = 1.96, *U*= 3.55 Db.

Test Results

Refer to the section 6.7 of this report for test data.

6. Test Result

6.1. RF Power Output and Effective Radiated Power

WCDMA Band V		Maximum Output Power (dBm)			ERP (dBm)		
		Channel 4132	Channel 4183	Channel 4233	Channel 4132	Channel 4183	Channel 4233
		826.4 (MHz)	836.6 (MHz)	846.6 (MHz)	826.4 (MHz)	836.6 (MHz)	846.6 (MHz)
RMC		22.97	23.04	22.94	23.35	23.42	23.32
HSDPA	Sub - Test 1	22.43	22.46	22.38	22.81	22.84	22.76
	Sub - Test 2	22.42	22.48	22.35	22.8	22.86	22.73
	Sub - Test 3	21.89	21.98	21.87	22.27	22.36	22.25
	Sub - Test 4	21.90	21.99	21.85	22.28	22.37	22.23
HSUPA	Sub - Test 1	22.39	22.45	22.33	22.77	22.83	22.71
	Sub - Test 2	21.38	21.43	21.32	21.76	21.81	21.7
	Sub - Test 3	21.85	21.91	21.81	22.23	22.29	22.19
	Sub - Test 4	21.31	21.40	21.29	21.69	21.78	21.67
	Sub - Test 5	22.32	22.38	22.27	22.7	22.76	22.65
DC-HSDPA	Sub - Test 1	22.31	22.40	22.28	22.69	22.78	22.66
	Sub - Test 2	22.30	22.39	22.27	22.68	22.77	22.65
	Sub - Test 3	21.88	21.88	21.78	22.26	22.26	22.16
	Sub - Test 4	21.87	21.87	21.77	22.25	22.25	22.15

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	ERP (dBm)
Band5	1.4	20407	1	#0	QPSK	23.11	21.45
Band5	1.4	20407	1	#Mid	QPSK	23.30	21.36
Band5	1.4	20407	1	#Max	QPSK	23.16	21.46
Band5	1.4	20407	3	#0	QPSK	23.18	21.34
Band5	1.4	20407	3	#Mid	QPSK	23.20	23.50
Band5	1.4	20407	3	#Max	QPSK	23.27	23.43
Band5	1.4	20407	6	#0	QPSK	22.17	23.42
Band5	1.4	20407	1	#0	16QAM	22.08	22.53
Band5	1.4	20407	1	#Mid	16QAM	22.19	22.43
Band5	1.4	20407	1	#Max	16QAM	22.03	22.36
Band5	1.4	20407	3	#0	16QAM	22.09	22.41
Band5	1.4	20407	3	#Mid	16QAM	22.16	22.31
Band5	1.4	20407	3	#Max	16QAM	22.15	22.09
Band5	1.4	20407	6	#0	16QAM	21.13	21.83
Band5	1.4	20525	1	#0	QPSK	22.84	21.33
Band5	1.4	20525	1	#Mid	QPSK	23.12	21.45
Band5	1.4	20525	1	#Max	QPSK	22.97	21.37
Band5	1.4	20525	3	#0	QPSK	22.97	21.49
Band5	1.4	20525	3	#Mid	QPSK	23.09	23.21
Band5	1.4	20525	3	#Max	QPSK	23.05	23.34
Band5	1.4	20525	6	#0	QPSK	22.03	23.45
Band5	1.4	20525	1	#0	16QAM	21.78	22.45
Band5	1.4	20525	1	#Mid	16QAM	21.96	22.46
Band5	1.4	20525	1	#Max	16QAM	21.86	22.49
Band5	1.4	20525	3	#0	16QAM	21.77	22.43
Band5	1.4	20525	3	#Mid	16QAM	21.81	22.48
Band5	1.4	20525	3	#Max	16QAM	21.86	22.06
Band5	1.4	20525	6	#0	16QAM	21.06	22.12
Band5	1.4	20643	1	#0	QPSK	22.85	21.30
Band5	1.4	20643	1	#Mid	QPSK	23.08	21.28
Band5	1.4	20643	1	#Max	QPSK	22.92	21.34
Band5	1.4	20643	3	#0	QPSK	23.05	21.43
Band5	1.4	20643	3	#Mid	QPSK	22.94	23.33
Band5	1.4	20643	3	#Max	QPSK	22.92	23.39
Band5	1.4	20643	6	#0	QPSK	21.98	23.22
Band5	1.4	20643	1	#0	16QAM	21.91	22.44
Band5	1.4	20643	1	#Mid	16QAM	21.98	22.34
Band5	1.4	20643	1	#Max	16QAM	21.59	22.29
Band5	1.4	20643	3	#0	16QAM	21.89	22.50
Band5	1.4	20643	3	#Mid	16QAM	21.97	22.07
Band5	1.4	20643	3	#Max	16QAM	21.89	21.98

Band5	1.4	20643	6	#0	16QAM	21.01	21.99
Band5	3	20415	1	#0	QPSK	23.11	21.44
Band5	3	20415	1	#Mid	QPSK	23.04	21.39
Band5	3	20415	1	#Max	QPSK	23.12	21.25
Band5	3	20415	8	#0	QPSK	22.13	21.53
Band5	3	20415	8	#Mid	QPSK	22.20	23.58
Band5	3	20415	8	#Max	QPSK	22.04	23.47
Band5	3	20415	15	#0	QPSK	22.10	23.47
Band5	3	20415	1	#0	16QAM	21.78	22.49
Band5	3	20415	1	#Mid	16QAM	21.78	22.37
Band5	3	20415	1	#Max	16QAM	21.75	22.41
Band5	3	20415	8	#0	16QAM	20.77	22.46
Band5	3	20415	8	#Mid	16QAM	20.84	22.34
Band5	3	20415	8	#Max	16QAM	21.06	22.39
Band5	3	20415	15	#0	16QAM	21.00	22.08
Band5	3	20525	1	#0	QPSK	23.08	21.47
Band5	3	20525	1	#Mid	QPSK	23.00	21.27
Band5	3	20525	1	#Max	QPSK	23.05	21.41
Band5	3	20525	8	#0	QPSK	22.10	21.46
Band5	3	20525	8	#Mid	QPSK	22.04	23.36
Band5	3	20525	8	#Max	QPSK	21.99	23.51
Band5	3	20525	15	#0	QPSK	22.01	23.52
Band5	3	20525	1	#0	16QAM	21.71	22.40
Band5	3	20525	1	#Mid	16QAM	21.63	22.47
Band5	3	20525	1	#Max	16QAM	22.00	22.51
Band5	3	20525	8	#0	16QAM	21.08	22.45
Band5	3	20525	8	#Mid	16QAM	21.08	22.17
Band5	3	20525	8	#Max	16QAM	21.14	22.34
Band5	3	20525	15	#0	16QAM	21.14	22.03
Band5	3	20635	1	#0	QPSK	22.99	21.43
Band5	3	20635	1	#Mid	QPSK	22.94	21.56
Band5	3	20635	1	#Max	QPSK	22.92	21.52
Band5	3	20635	8	#0	QPSK	22.13	21.38
Band5	3	20635	8	#Mid	QPSK	22.02	23.45
Band5	3	20635	8	#Max	QPSK	21.98	23.53
Band5	3	20635	15	#0	QPSK	21.95	23.31
Band5	3	20635	1	#0	16QAM	21.88	22.51
Band5	3	20635	1	#Mid	16QAM	21.73	22.38
Band5	3	20635	1	#Max	16QAM	21.65	22.34
Band5	3	20635	8	#0	16QAM	21.07	22.45
Band5	3	20635	8	#Mid	16QAM	20.98	22.35
Band5	3	20635	8	#Max	16QAM	21.08	22.36
Band5	3	20635	15	#0	16QAM	20.96	22.11
Band5	5	20425	1	#0	QPSK	23.12	21.59

Band5	5	20425	1	#Mid	QPSK	23.05	21.47
Band5	5	20425	1	#Max	QPSK	23.04	21.28
Band5	5	20425	12	#0	QPSK	22.15	21.45
Band5	5	20425	12	#Mid	QPSK	22.05	22.43
Band5	5	20425	12	#Max	QPSK	21.98	22.36
Band5	5	20425	25	#0	QPSK	22.03	22.41
Band5	5	20425	1	#0	16QAM	21.93	22.31
Band5	5	20425	1	#Mid	16QAM	21.71	22.09
Band5	5	20425	1	#Max	16QAM	21.45	21.83
Band5	5	20425	12	#0	16QAM	20.95	21.33
Band5	5	20425	12	#Mid	16QAM	21.07	21.45
Band5	5	20425	12	#Max	16QAM	20.99	21.37
Band5	5	20425	25	#0	16QAM	21.11	21.49
Band5	5	20525	1	#0	QPSK	22.83	23.21
Band5	5	20525	1	#Mid	QPSK	22.96	23.34
Band5	5	20525	1	#Max	QPSK	23.07	23.45
Band5	5	20525	12	#0	QPSK	22.07	22.45
Band5	5	20525	12	#Mid	QPSK	22.08	22.46
Band5	5	20525	12	#Max	QPSK	22.11	22.49
Band5	5	20525	25	#0	QPSK	22.05	22.43
Band5	5	20525	1	#0	16QAM	22.10	22.48
Band5	5	20525	1	#Mid	16QAM	21.68	22.06
Band5	5	20525	1	#Max	16QAM	21.74	22.12
Band5	5	20525	12	#0	16QAM	20.92	21.30
Band5	5	20525	12	#Mid	16QAM	20.90	21.28
Band5	5	20525	12	#Max	16QAM	20.96	21.34
Band5	5	20525	25	#0	16QAM	21.05	21.43
Band5	5	20625	1	#0	QPSK	22.95	23.33
Band5	5	20625	1	#Mid	QPSK	23.01	23.39
Band5	5	20625	1	#Max	QPSK	22.84	23.22
Band5	5	20625	12	#0	QPSK	22.06	22.44
Band5	5	20625	12	#Mid	QPSK	21.96	22.34
Band5	5	20625	12	#Max	QPSK	21.91	22.29
Band5	5	20625	25	#0	QPSK	22.12	22.50
Band5	5	20625	1	#0	16QAM	21.69	22.07
Band5	5	20625	1	#Mid	16QAM	21.60	21.98
Band5	5	20625	1	#Max	16QAM	21.61	21.99
Band5	5	20625	12	#0	16QAM	21.06	21.44
Band5	5	20625	12	#Mid	16QAM	21.01	21.39
Band5	5	20625	12	#Max	16QAM	20.87	21.25
Band5	5	20625	25	#0	16QAM	21.15	21.53
Band5	10	20450	1	#0	QPSK	23.20	23.58
Band5	10	20450	1	#Mid	QPSK	23.09	23.47
Band5	10	20450	1	#Max	QPSK	23.09	23.47

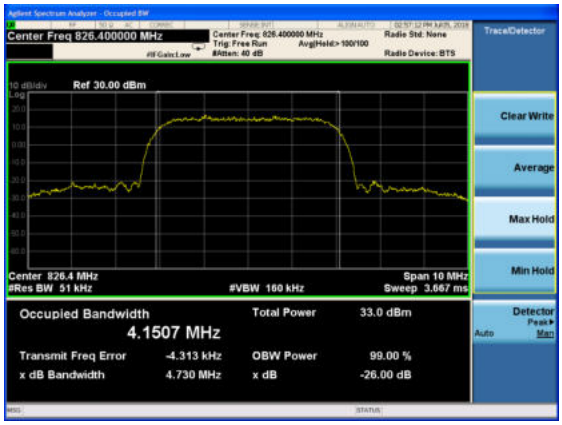
Band5	10	20450	25	#0	QPSK	22.11	22.49
Band5	10	20450	25	#Mid	QPSK	21.99	22.37
Band5	10	20450	25	#Max	QPSK	22.03	22.41
Band5	10	20450	50	#0	QPSK	22.08	22.46
Band5	10	20450	1	#0	16QAM	21.96	22.34
Band5	10	20450	1	#Mid	16QAM	22.01	22.39
Band5	10	20450	1	#Max	16QAM	21.70	22.08
Band5	10	20450	25	#0	16QAM	21.09	21.47
Band5	10	20450	25	#Mid	16QAM	20.89	21.27
Band5	10	20450	25	#Max	16QAM	21.03	21.41
Band5	10	20450	50	#0	16QAM	21.08	21.46
Band5	10	20525	1	#0	QPSK	22.98	23.36
Band5	10	20525	1	#Mid	QPSK	23.13	23.51
Band5	10	20525	1	#Max	QPSK	23.14	23.52
Band5	10	20525	25	#0	QPSK	22.02	22.40
Band5	10	20525	25	#Mid	QPSK	22.09	22.47
Band5	10	20525	25	#Max	QPSK	22.13	22.51
Band5	10	20525	50	#0	QPSK	22.07	22.45
Band5	10	20525	1	#0	16QAM	21.79	22.17
Band5	10	20525	1	#Mid	16QAM	21.96	22.34
Band5	10	20525	1	#Max	16QAM	21.65	22.03
Band5	10	20525	25	#0	16QAM	21.05	21.43
Band5	10	20525	25	#Mid	16QAM	21.18	21.56
Band5	10	20525	25	#Max	16QAM	21.14	21.52
Band5	10	20525	50	#0	16QAM	21.00	21.38
Band5	10	20600	1	#0	QPSK	23.07	23.45
Band5	10	20600	1	#Mid	QPSK	23.15	23.53
Band5	10	20600	1	#Max	QPSK	22.93	23.31
Band5	10	20600	25	#0	QPSK	22.13	22.51
Band5	10	20600	25	#Mid	QPSK	22.00	22.38
Band5	10	20600	25	#Max	QPSK	21.96	22.34
Band5	10	20600	50	#0	QPSK	22.07	22.45
Band5	10	20600	1	#0	16QAM	21.97	22.35
Band5	10	20600	1	#Mid	16QAM	21.98	22.36
Band5	10	20600	1	#Max	16QAM	21.73	22.11
Band5	10	20600	25	#0	16QAM	21.21	21.59
Band5	10	20600	25	#Mid	16QAM	21.09	21.47
Band5	10	20600	25	#Max	16QAM	20.90	21.28
Band5	10	20600	50	#0	16QAM	21.07	21.45

6.2. Occupied Bandwidth

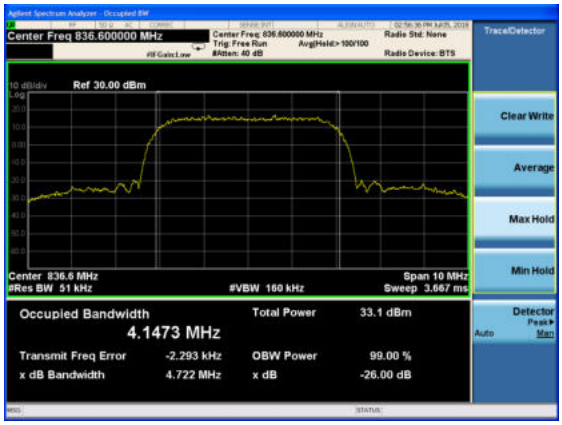
Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
WCDMA Band V (RMC)	4132	826.4	4.1507	4.730
	4183	836.6	4.1473	4.722
	4233	846.6	4.1216	4.712

LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.1259	1.371
			20525	836.5	1.1226	1.347
			20643	848.3	1.1387	1.347
		3	20415	825.5	2.7494	3.070
			20525	836.5	2.7414	3.076
			20635	847.5	2.7424	3.074
		5	20425	826.5	4.5124	5.045
			20525	836.5	4.5279	5.027
			20625	846.5	4.5026	5.017
		10	20450	829	9.0230	10.140
			20525	836.5	9.0219	10.110
			20600	844	9.0364	10.090
	16QAM	1.4	20407	824.7	1.1200	1.326
			20525	836.5	1.1296	1.341
			20643	848.3	1.1212	1.356
		3	20415	825.5	2.7306	3.061
			20525	836.5	2.7577	3.079
			20635	847.5	2.7358	3.065
		5	20425	826.5	4.5337	5.038
			20525	836.5	4.5059	5.034
			20625	846.5	4.5277	5.043
		10	20450	829	9.0200	10.060
			20525	836.5	9.0306	9.992
			20600	844	9.0356	10.070

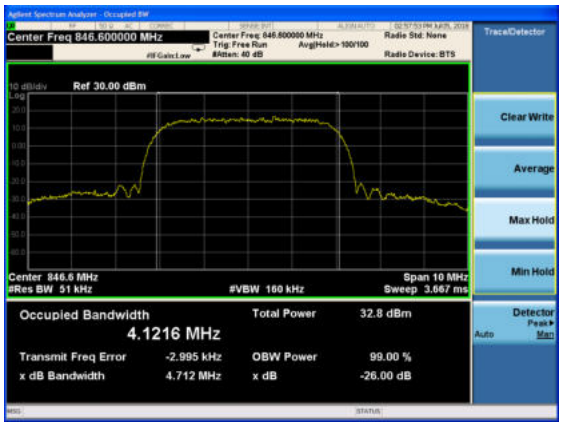
WCDMA Band V CH-Low



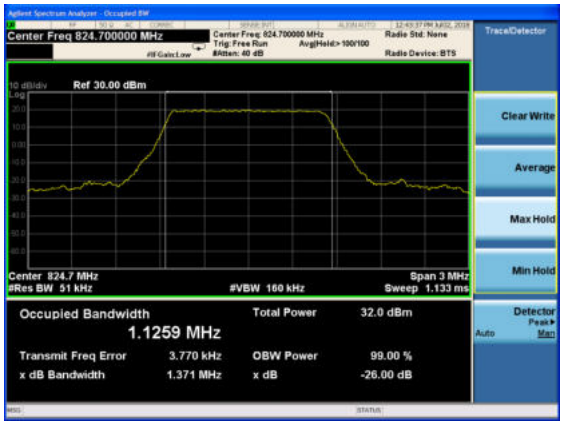
WCDMA Band V CH-Middle



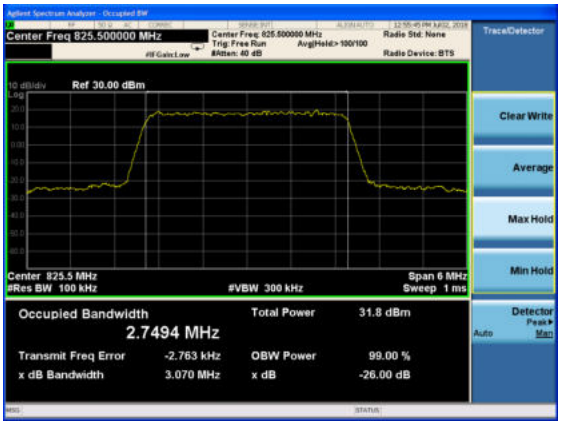
WCDMA Band V CH-High



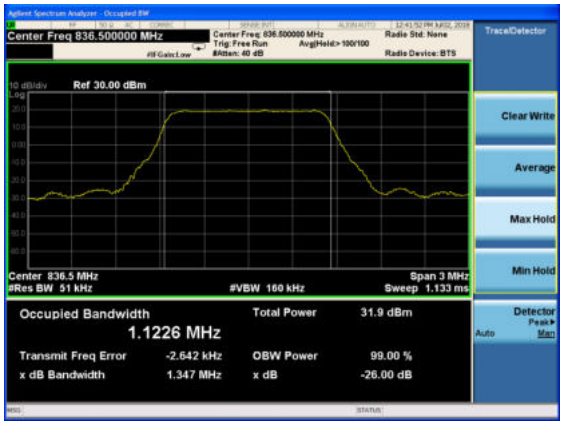
LTE Band 5 QPSK 1.4MHz CH-Low



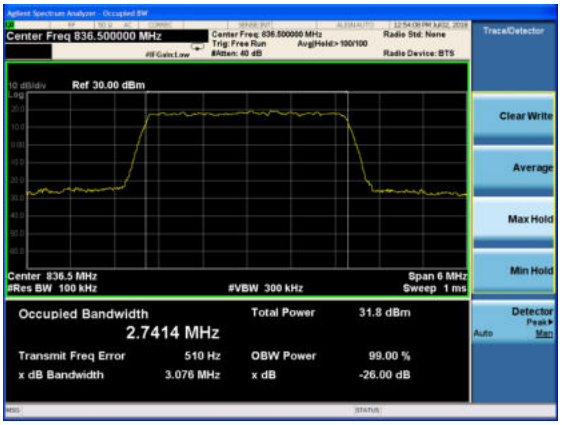
LTE Band 5 QPSK 3MHz CH-Low



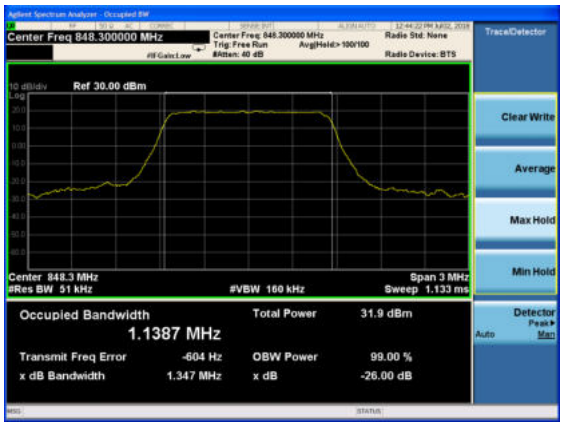
LTE Band 5 QPSK 1.4MHz CH-Middle



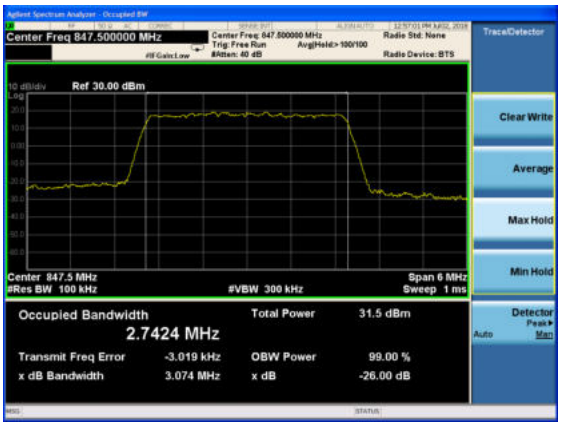
LTE Band 5 QPSK 3MHz CH-Middle

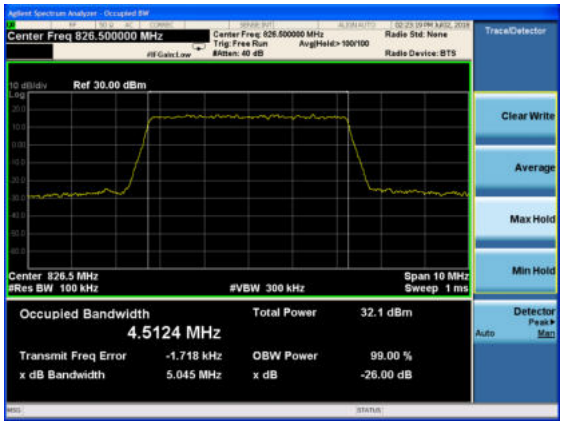
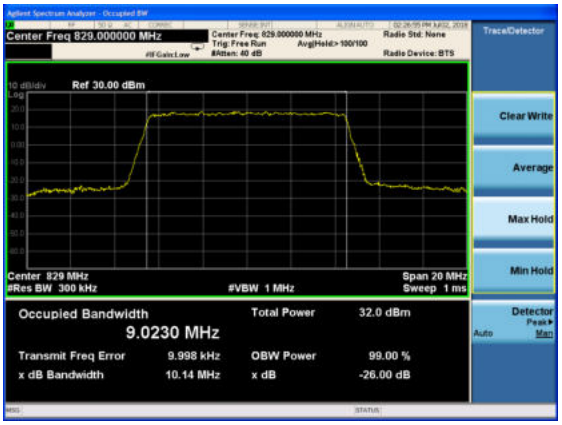
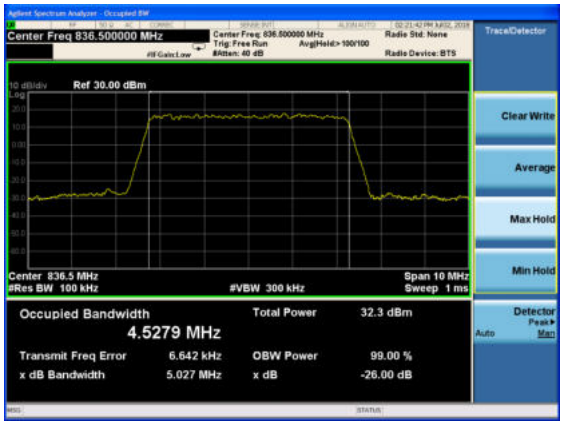
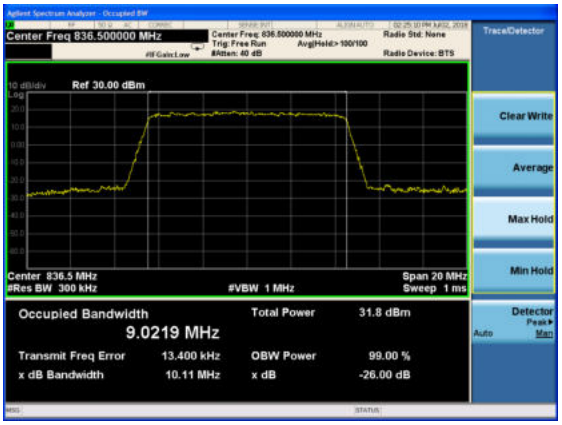


LTE Band 5 QPSK 1.4MHz CH-High

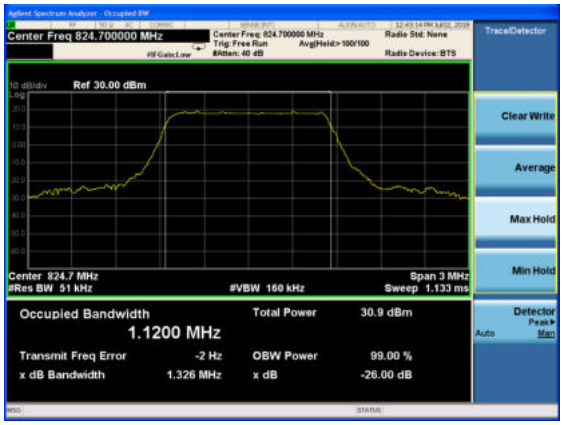


LTE Band 5 QPSK 3MHz CH-High

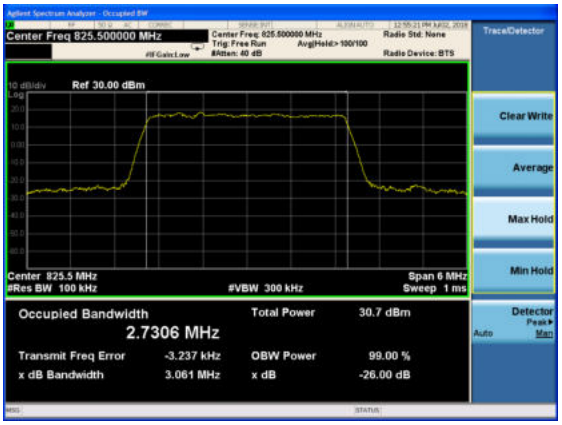


LTE Band 5 QPSK 5MHz CH-Low	LTE Band 5 QPSK 10MHz CH-Low
	
LTE Band 5 QPSK 5MHz CH-Middle	LTE Band 5 QPSK 10MHz CH-Middle
	
LTE Band 5 QPSK 5MHz CH-High	LTE Band 5 QPSK 10MHz CH-High
	

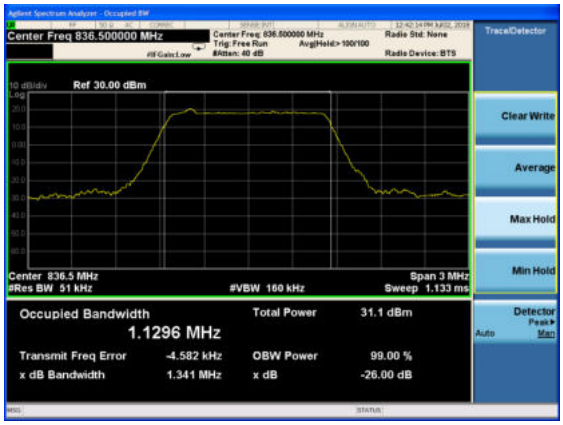
LTE Band 5 16QAM 1.4MHz CH-Low



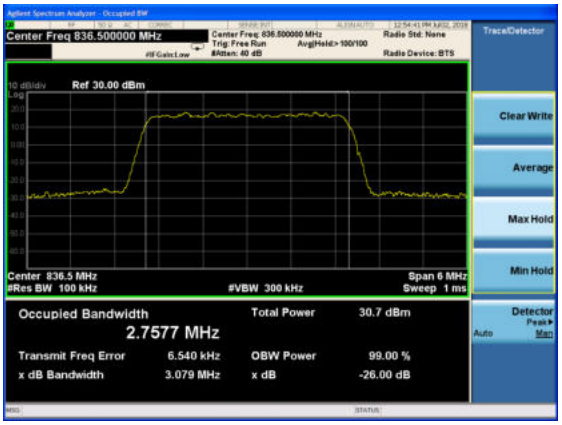
LTE Band 5 16QAM 3MHz CH-Low



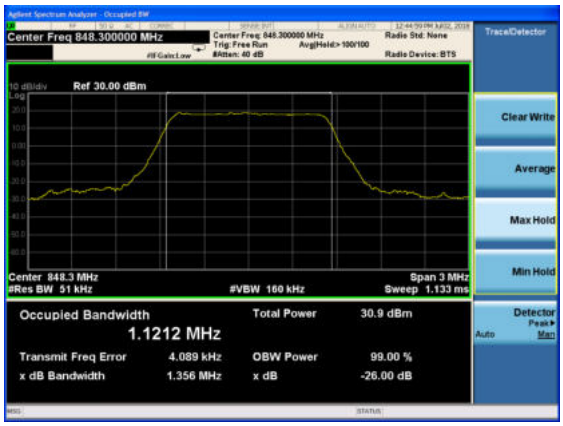
LTE Band 5 16QAM 1.4MHz CH-Middle



LTE Band 5 16QAM 3MHz CH-Middle

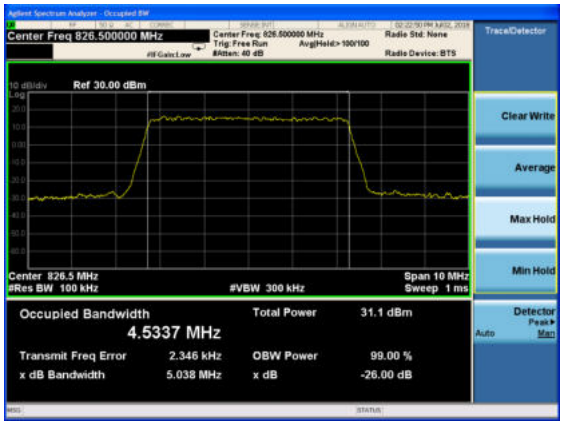


LTE Band 5 16QAM 1.4MHz CH-High

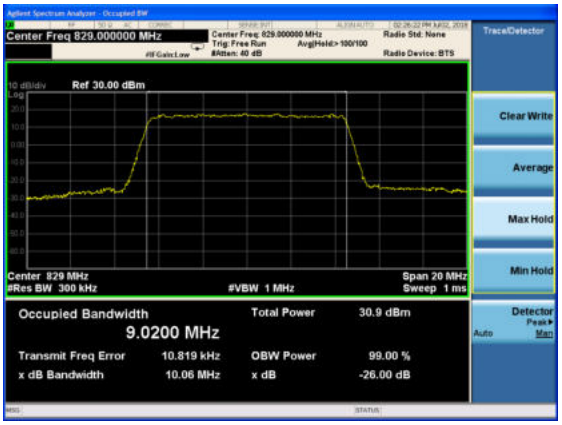


LTE Band 5 16QAM 3MHz CH-High

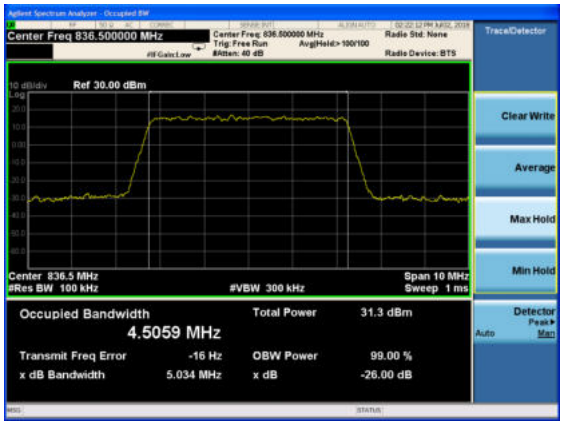
LTE Band 5 16QAM 5MHz CH-Low



LTE Band 5 16QAM 10MHz CH-Low

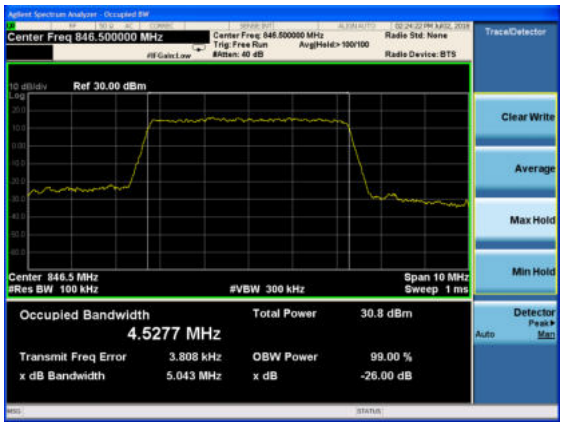


LTE Band 5 16QAM 5MHz CH-Middle



LTE Band 5 16QAM 10MHz CH-Middle

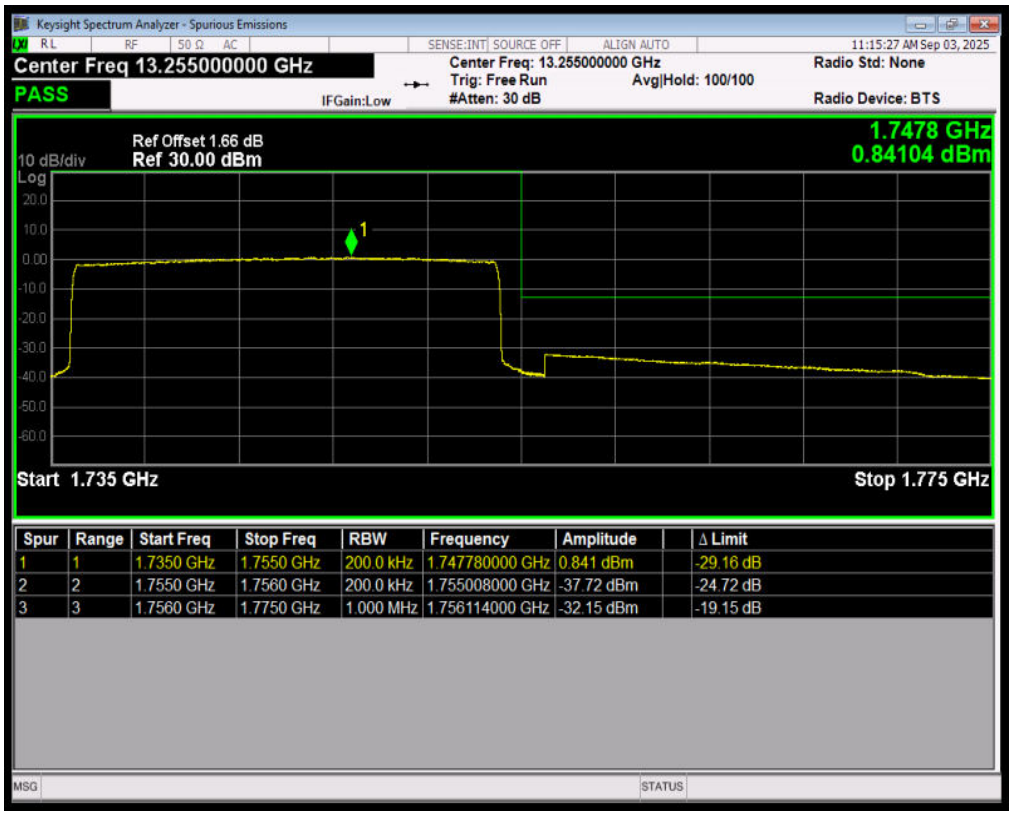
LTE Band 5 16QAM 5MHz CH-High



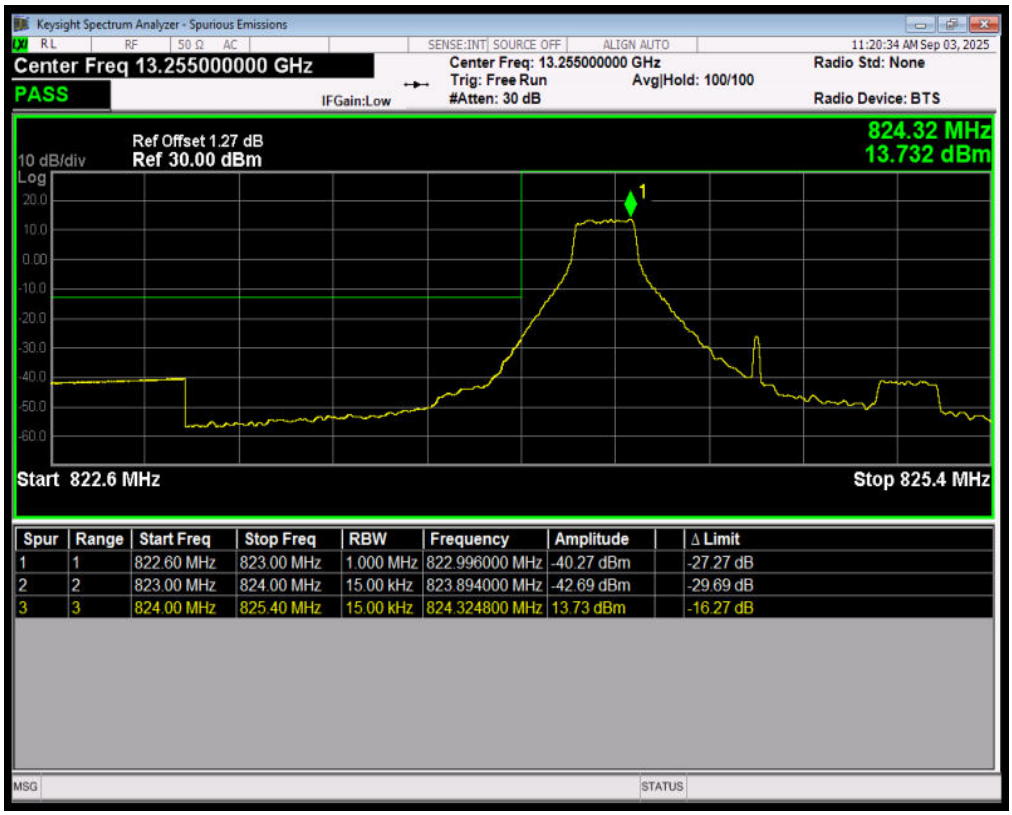
LTE Band 5 16QAM 10MHz CH-High

6.3. Band Edge Compliance

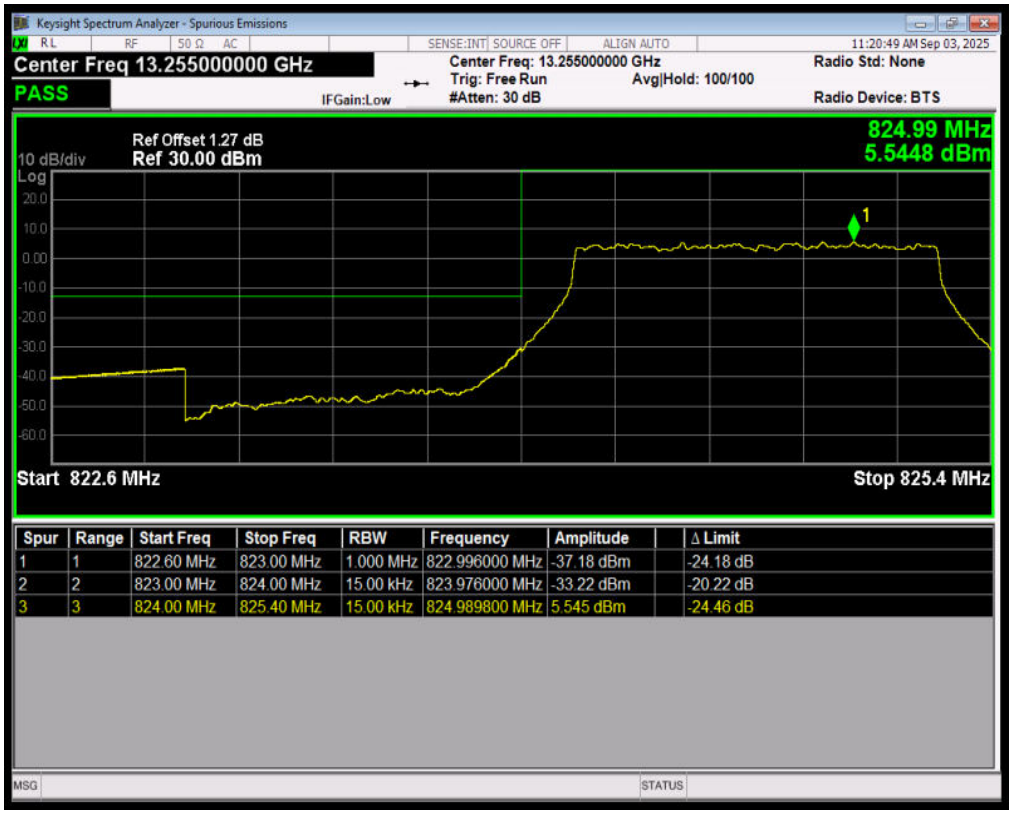
WCDMA Band V CH-Low	WCDMA Band V CH-High
	



Band5 QPSK BW=1.4MHz LowChannel=20407 RB Size=1 Position=#0

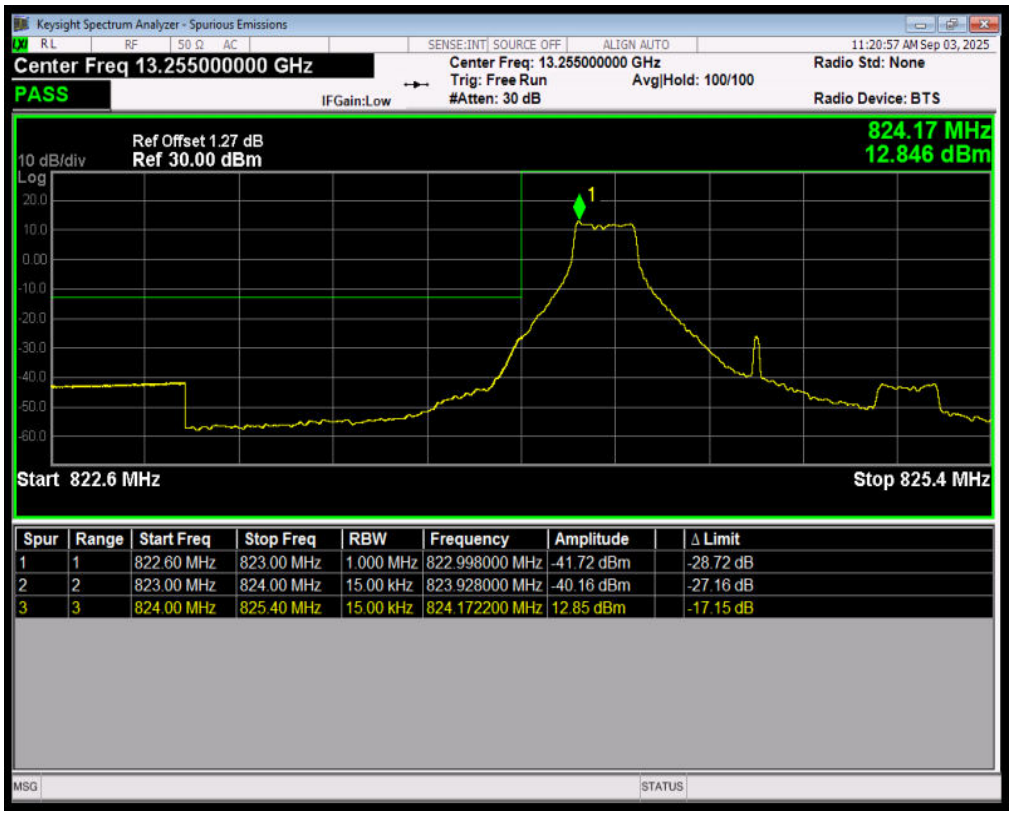


Band5 QPSK BW=1.4MHz LowChannel=20407 RB Size=6 Position=#0



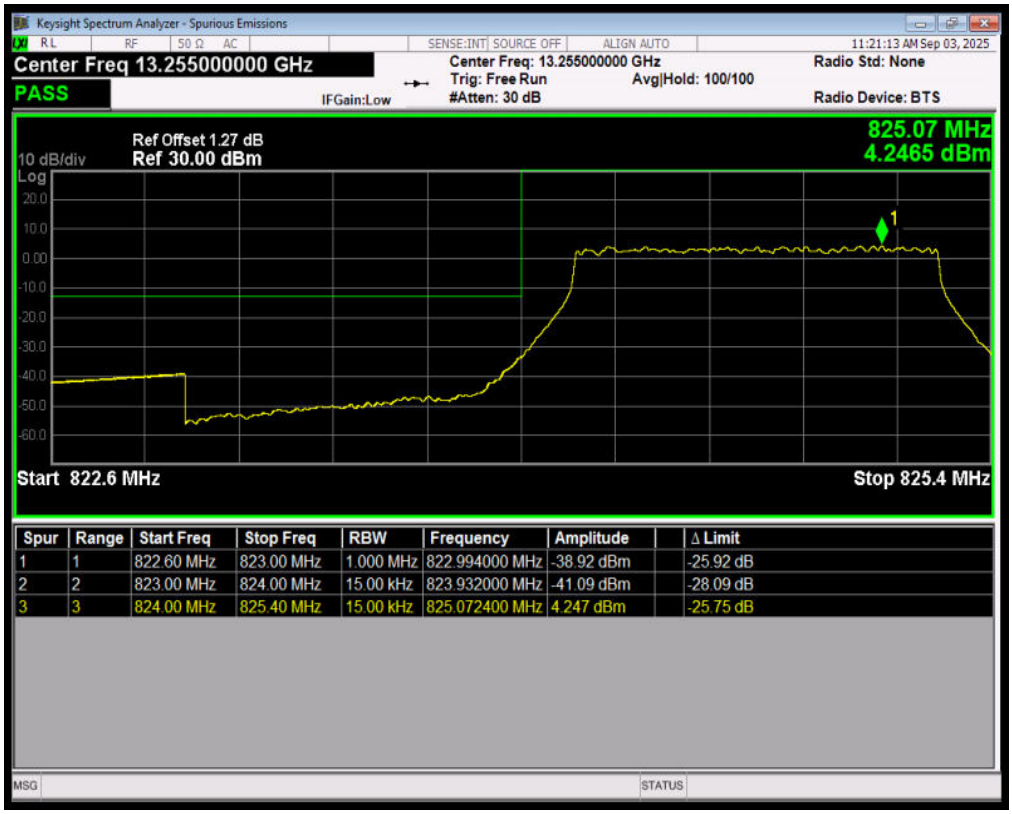
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	822.60 MHz	823.00 MHz	1.000 MHz	822.996000 MHz	-37.18 dBm	-24.18 dB
2	2	823.00 MHz	824.00 MHz	15.00 kHz	823.976000 MHz	-33.22 dBm	-20.22 dB
3	3	824.00 MHz	825.40 MHz	15.00 kHz	824.989800 MHz	5.545 dBm	-24.46 dB

Band5 16QAM BW=1.4MHz LowChannel=20407 RB Size=1 Position=#0

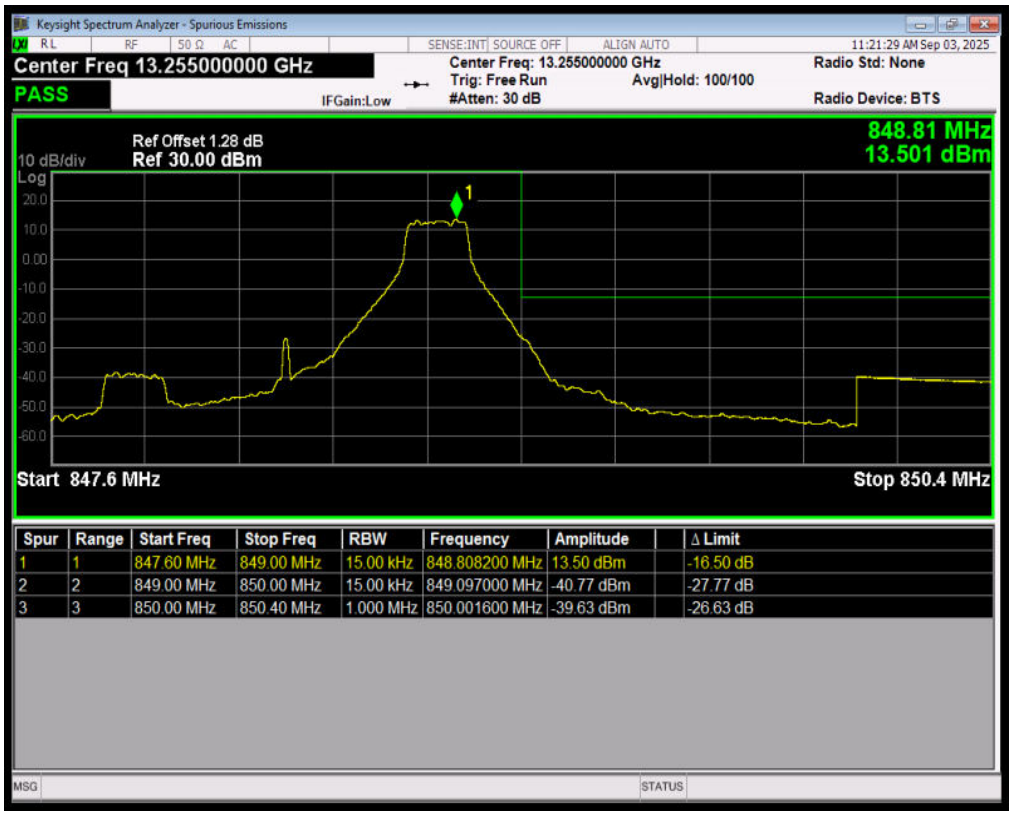


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	822.60 MHz	823.00 MHz	1.000 MHz	822.998000 MHz	-41.72 dBm	-28.72 dB
2	2	823.00 MHz	824.00 MHz	15.00 kHz	823.928000 MHz	-40.16 dBm	-27.16 dB
3	3	824.00 MHz	825.40 MHz	15.00 kHz	824.172200 MHz	12.85 dBm	-17.15 dB

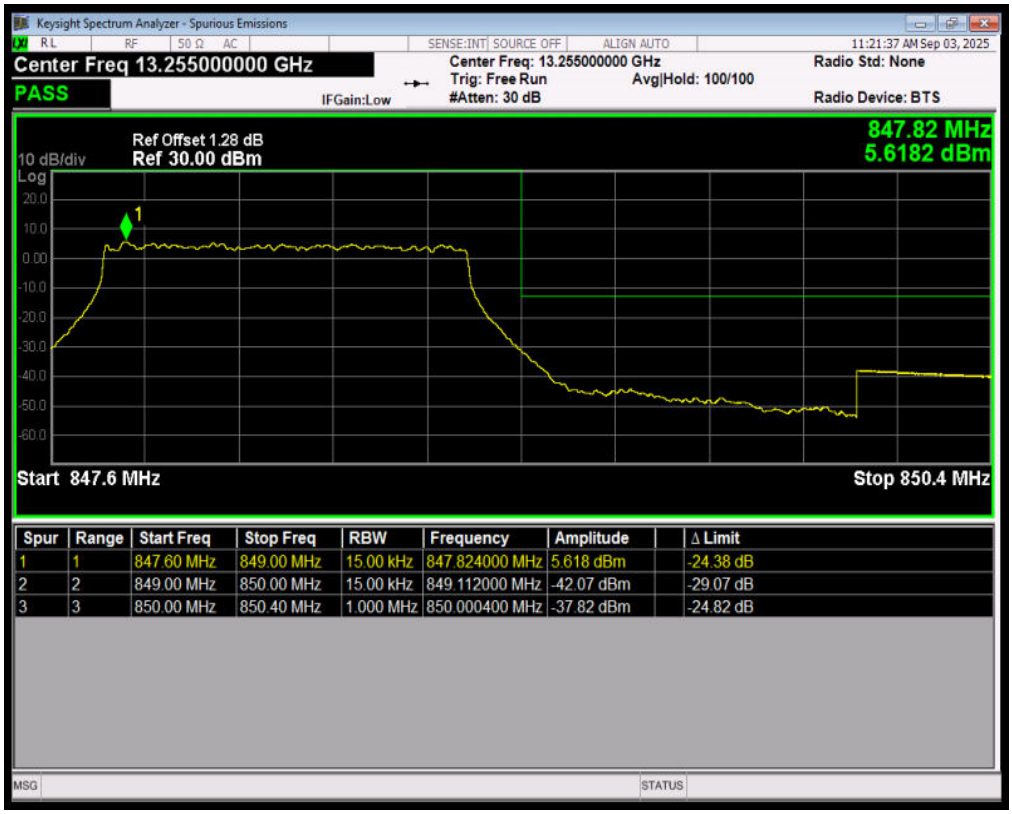
Band5 16QAM BW=1.4MHz LowChannel=20407 RB Size=6 Position=#0



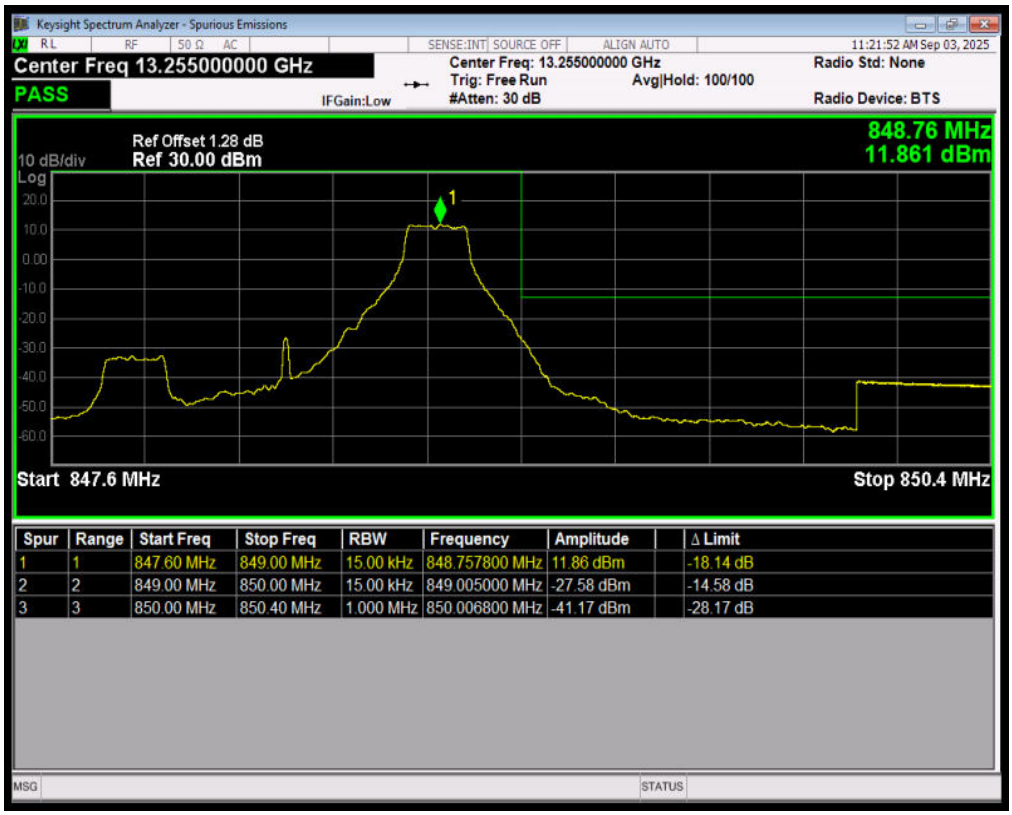
Band5 QPSK BW=1.4MHz HighChannel=20643 RB Size=1 Position=#Max



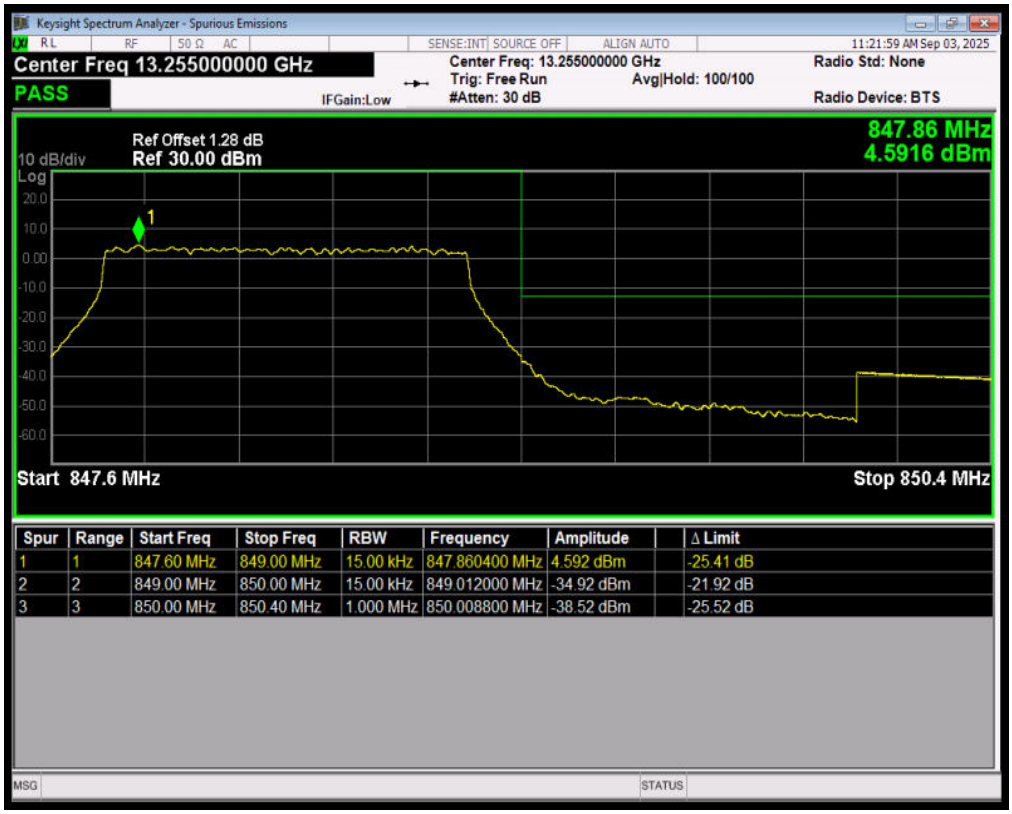
Band5 QPSK BW=1.4MHz HighChannel=20643 RB Size=6 Position=#0



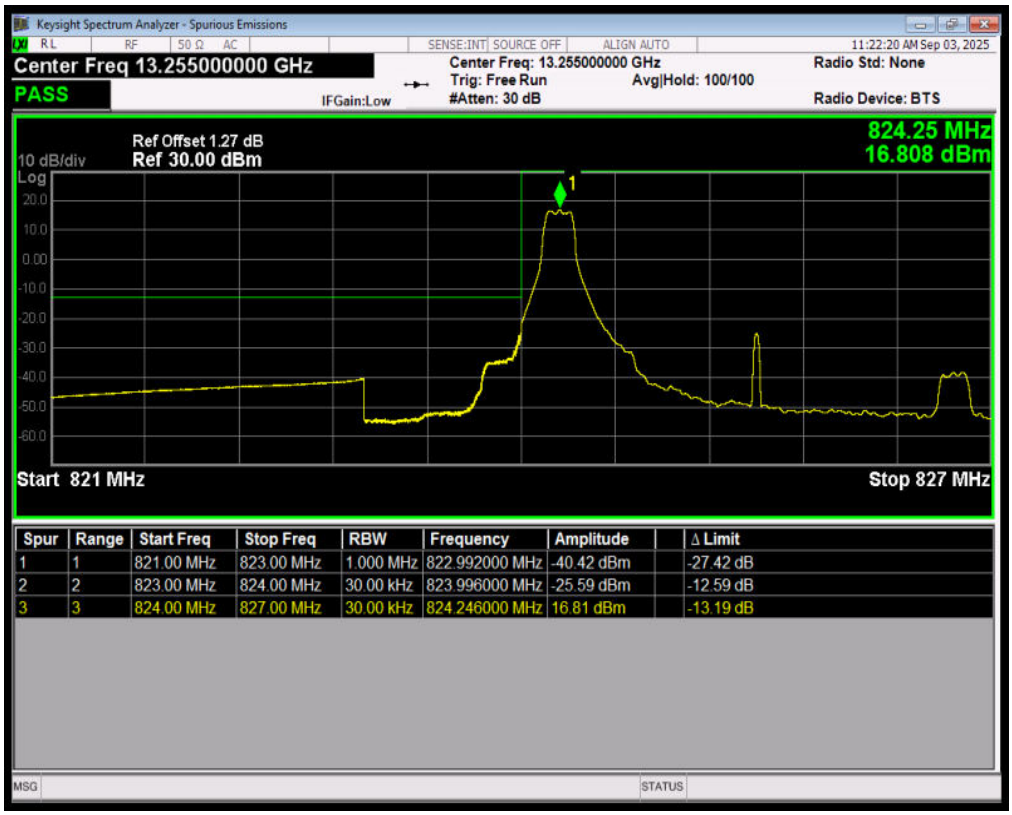
Band5 16QAM BW=1.4MHz HighChannel=20643 RB Size=1 Position=#Max



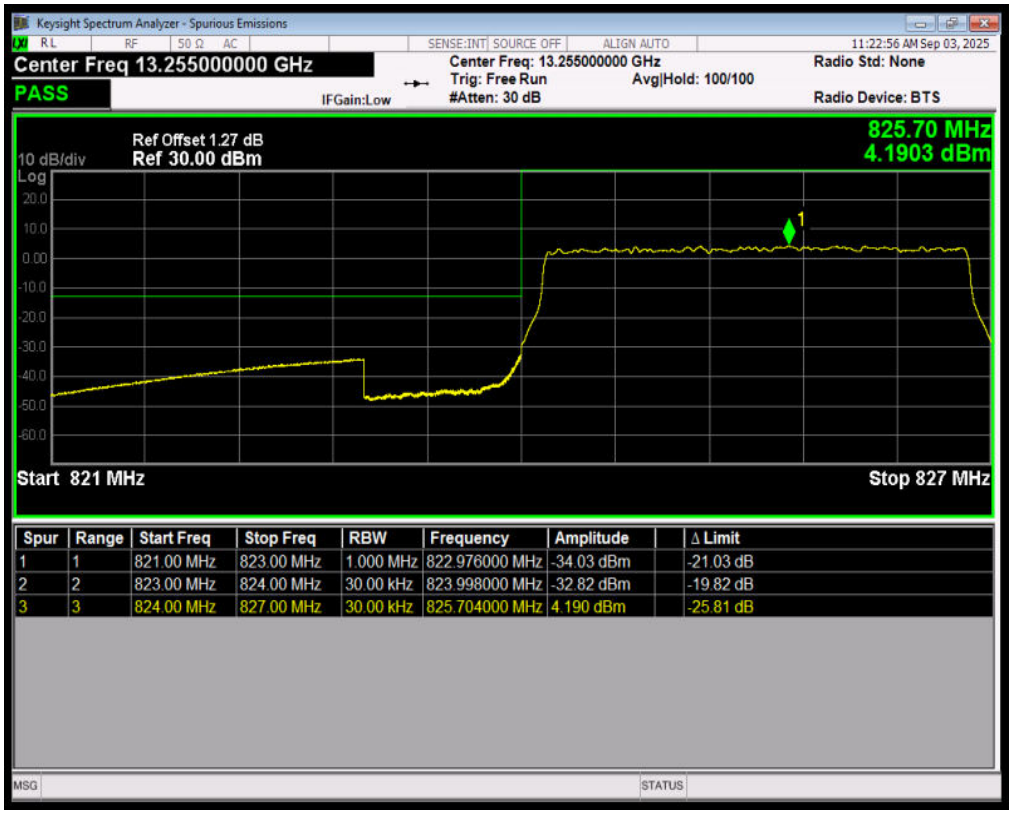
Band5 16QAM BW=1.4MHz HighChannel=20643 RB Size=6 Position=#0



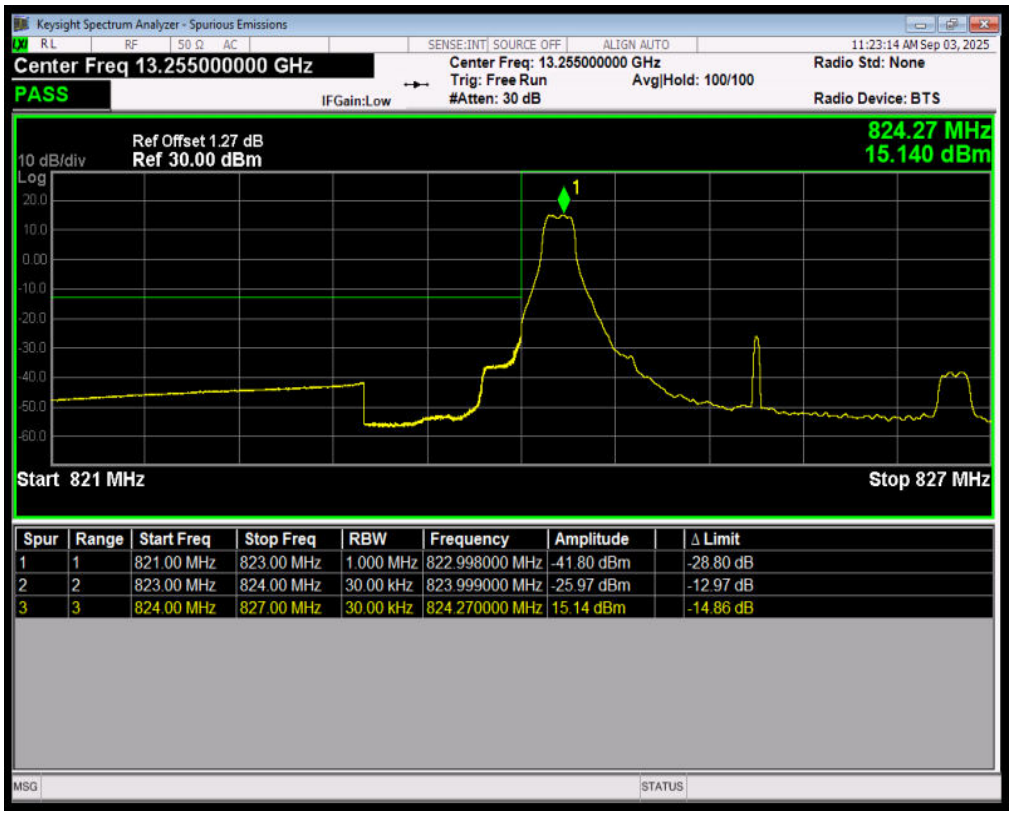
Band5 QPSK BW=3MHz LowChannel=20415 RB Size=1 Position=#0



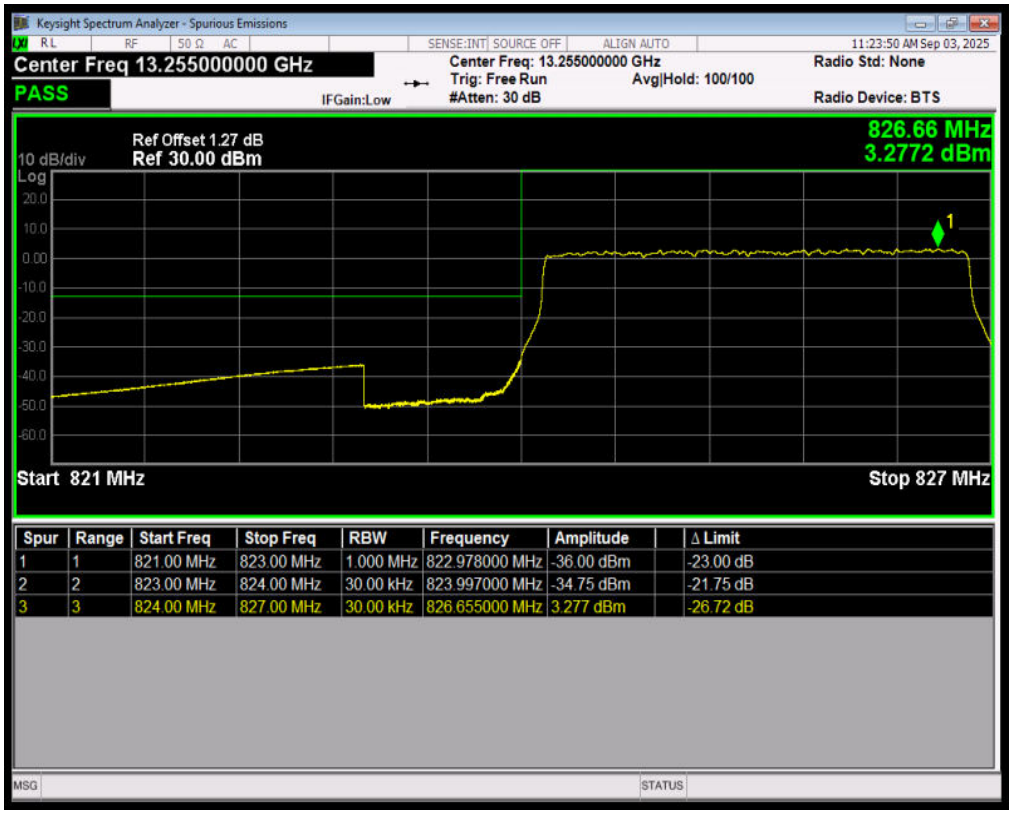
Band5 QPSK BW=3MHz LowChannel=20415 RB Size=15 Position=#0



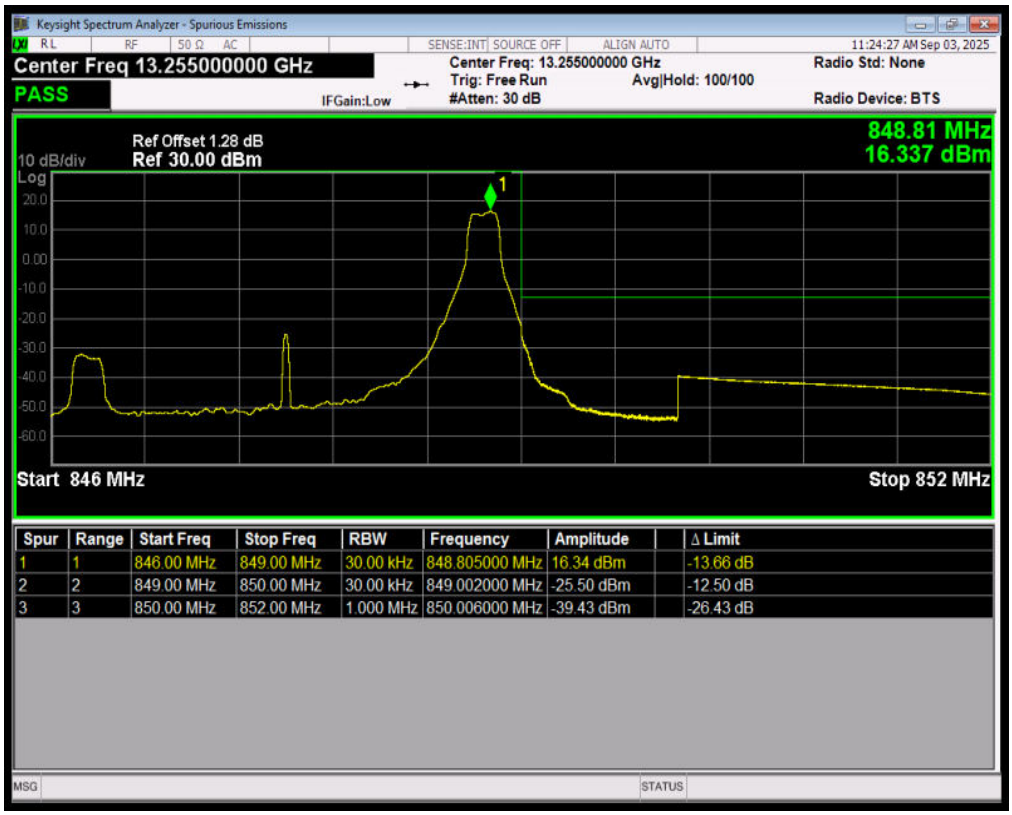
Band5 16QAM BW=3MHz LowChannel=20415 RB Size=1 Position=#0



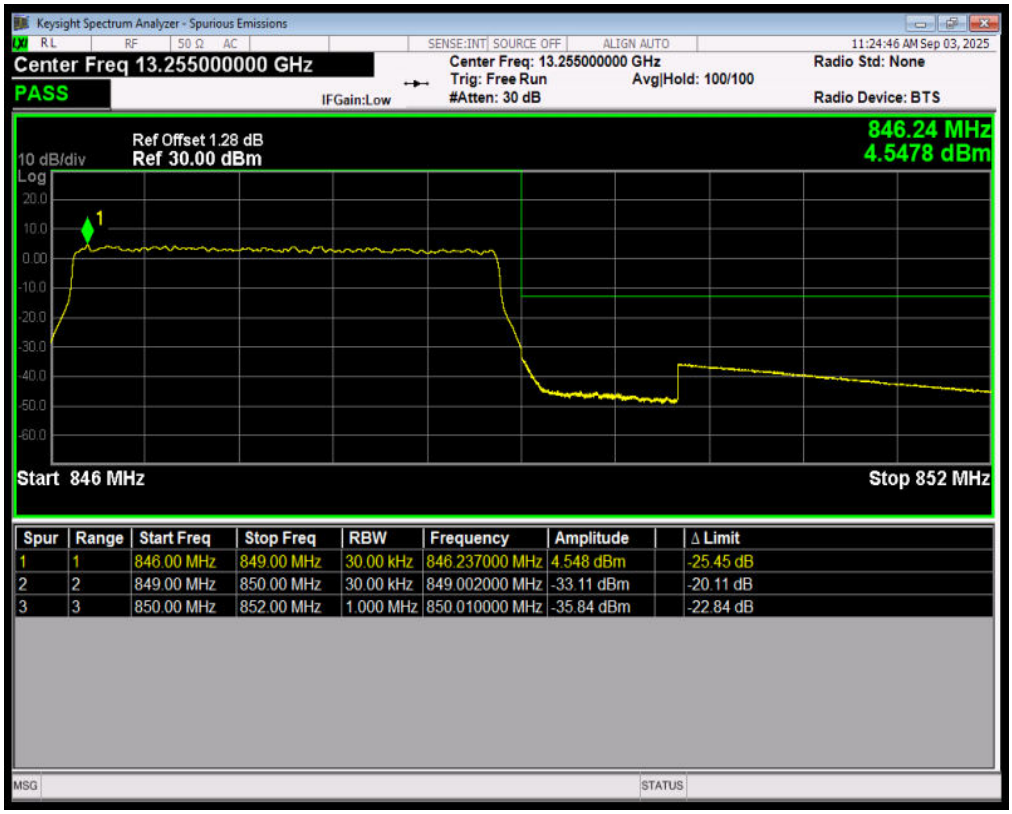
Band5 16QAM BW=3MHz LowChannel=20415 RB Size=15 Position=#0



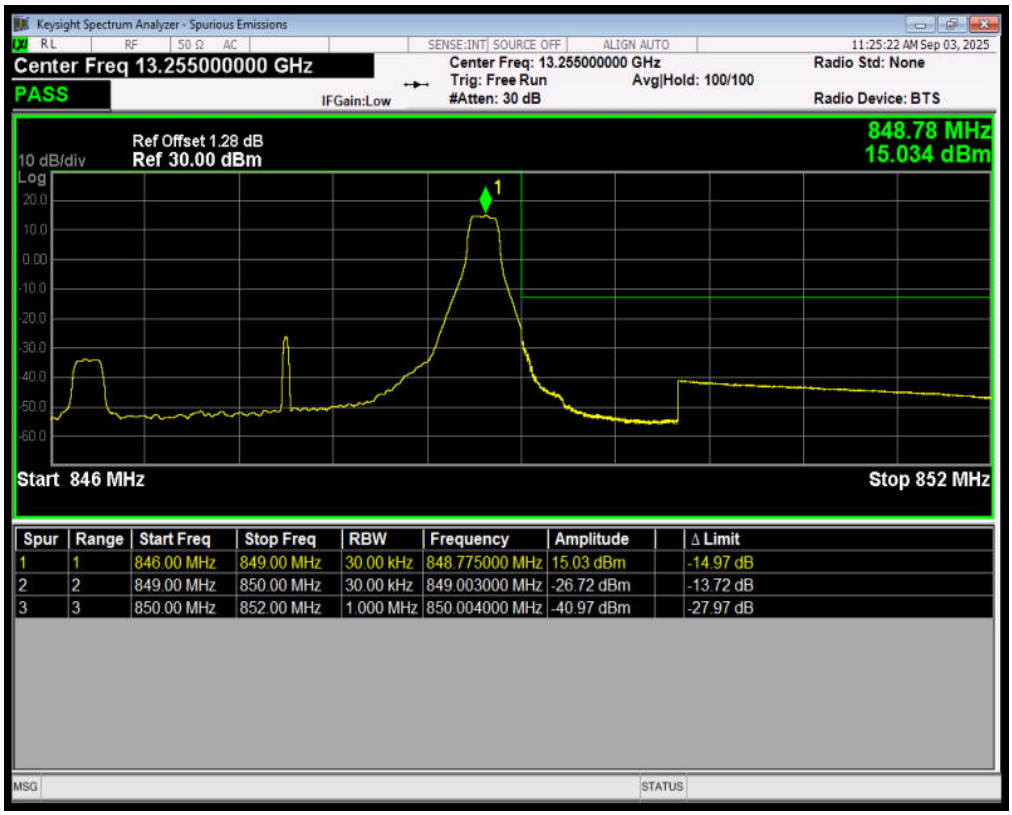
Band5 QPSK BW=3MHz HighChannel=20635 RB Size=1 Position=#Max



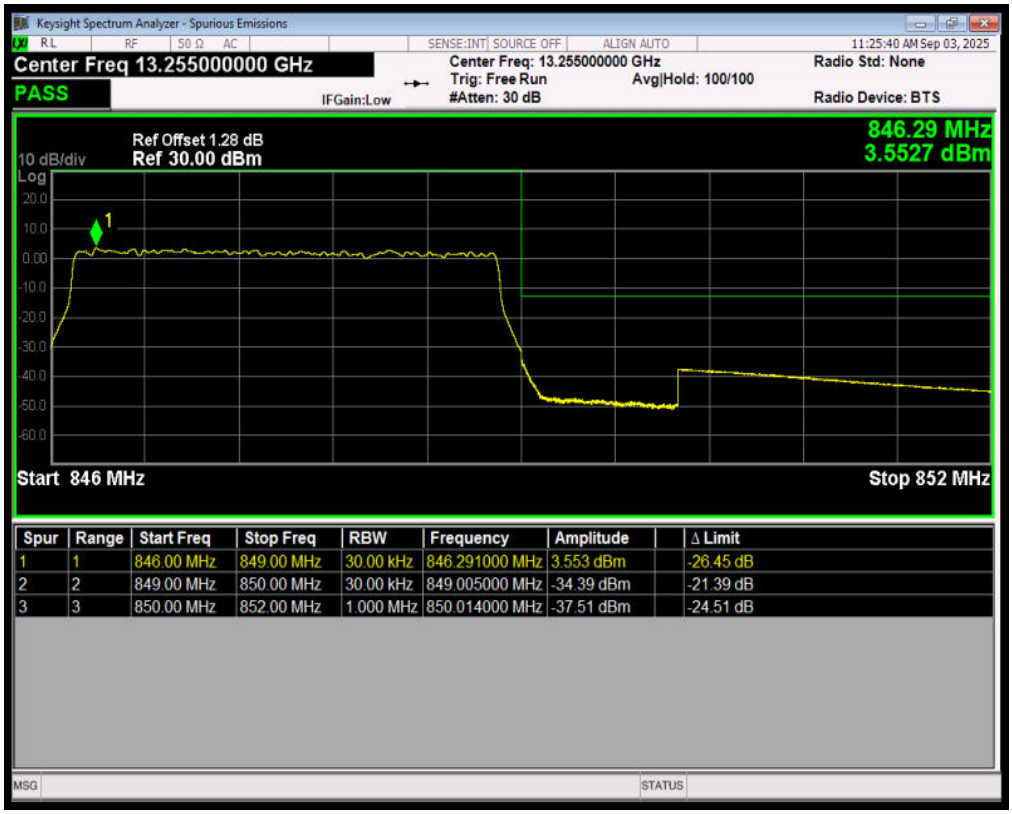
Band5 QPSK BW=3MHz HighChannel=20635 RB Size=15 Position=#0



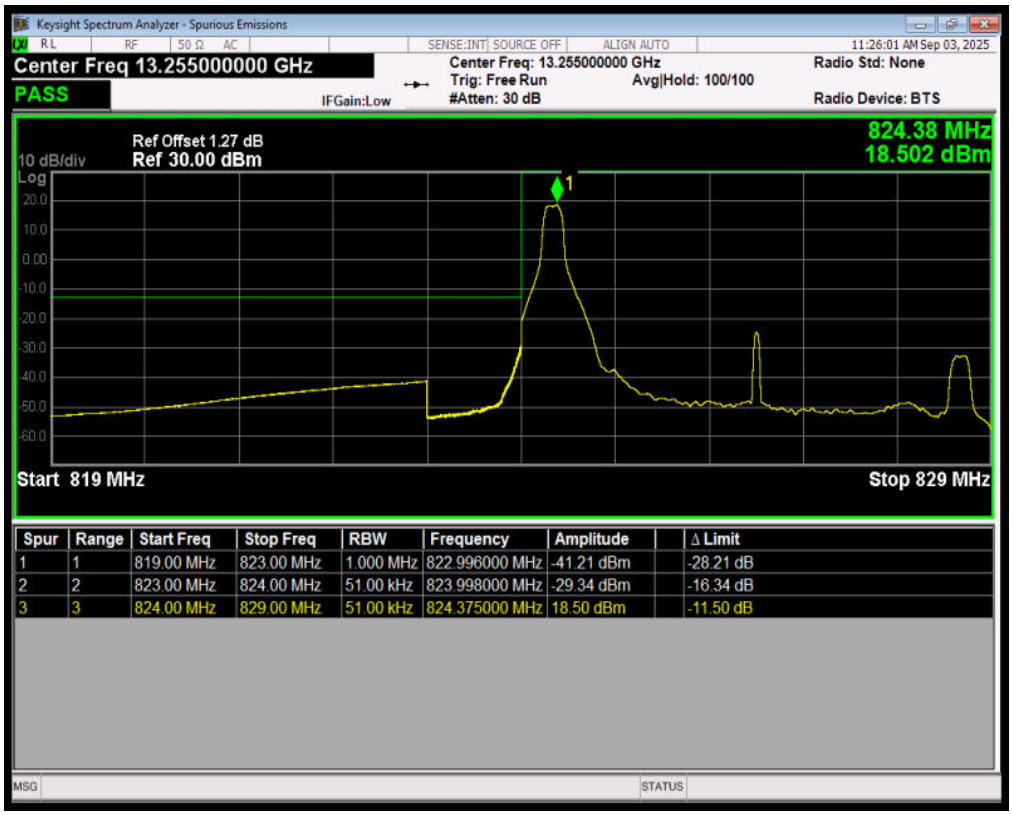
Band5 16QAM BW=3MHz HighChannel=20635 RB Size=1 Position=#Max



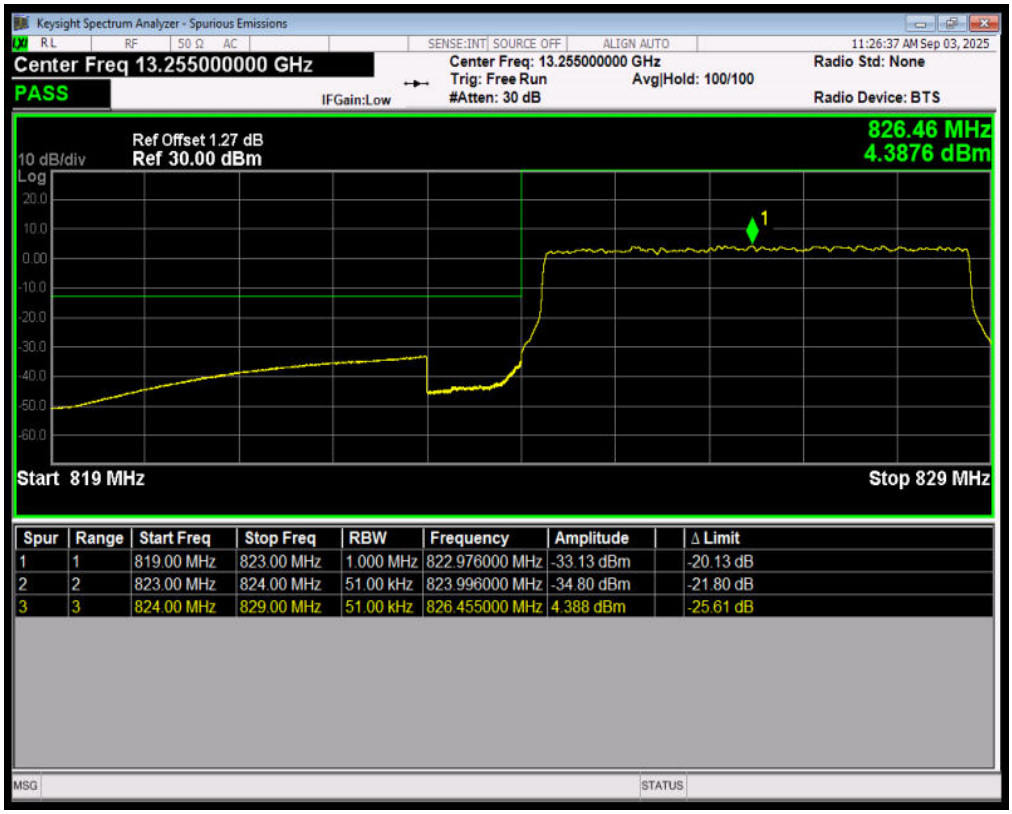
Band5 16QAM BW=3MHz HighChannel=20635 RB Size=15 Position=#0



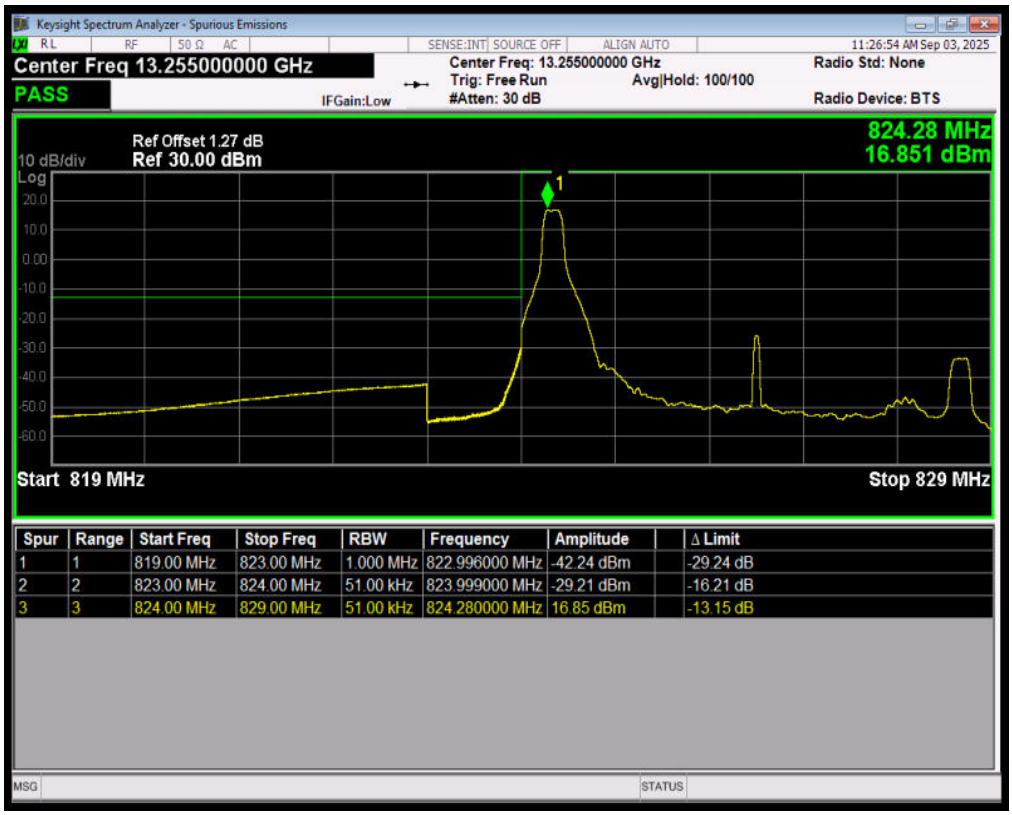
Band5 QPSK BW=5MHz LowChannel=20425 RB Size=1 Position=#0



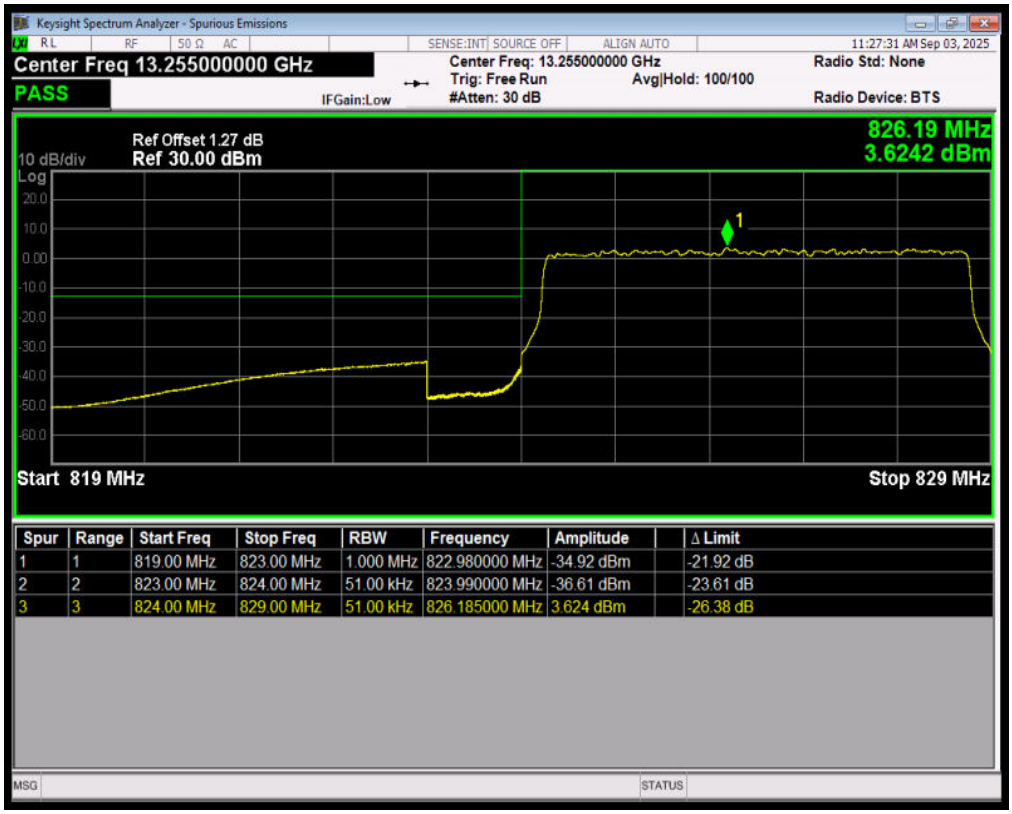
Band5 QPSK BW=5MHz LowChannel=20425 RB Size=25 Position=#0



Band5 16QAM BW=5MHz LowChannel=20425 RB Size=1 Position=#0

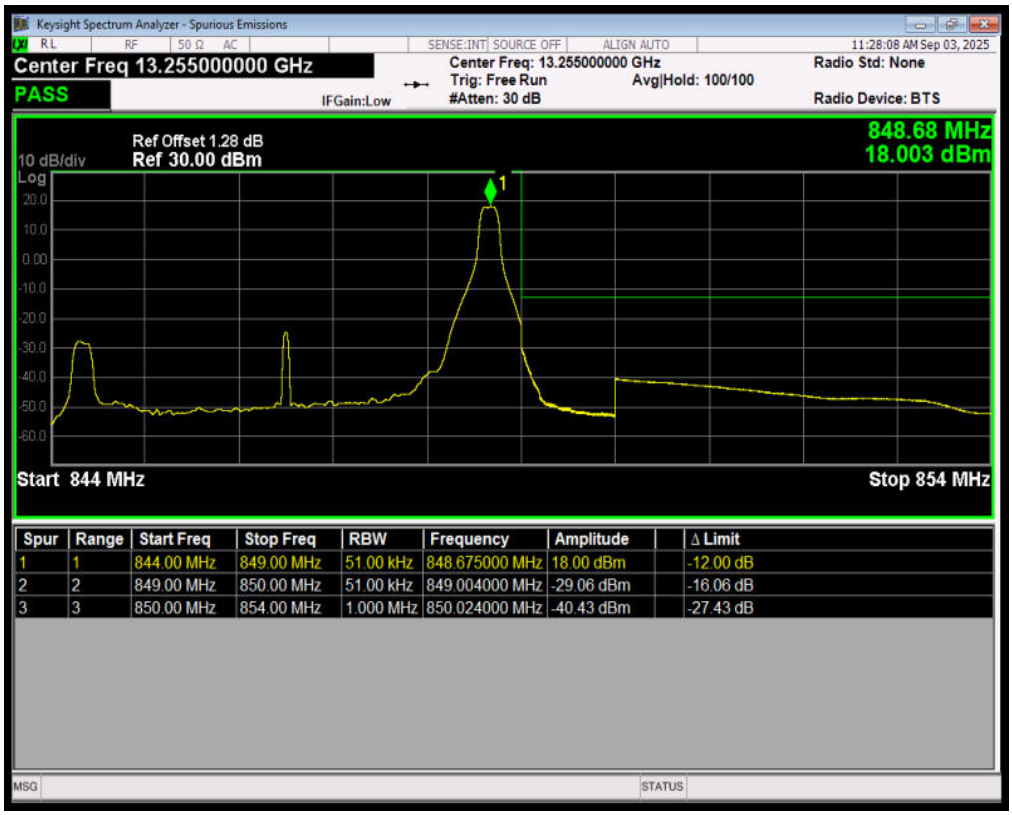


Band5 16QAM BW=5MHz LowChannel=20425 RB Size=25 Position=#0



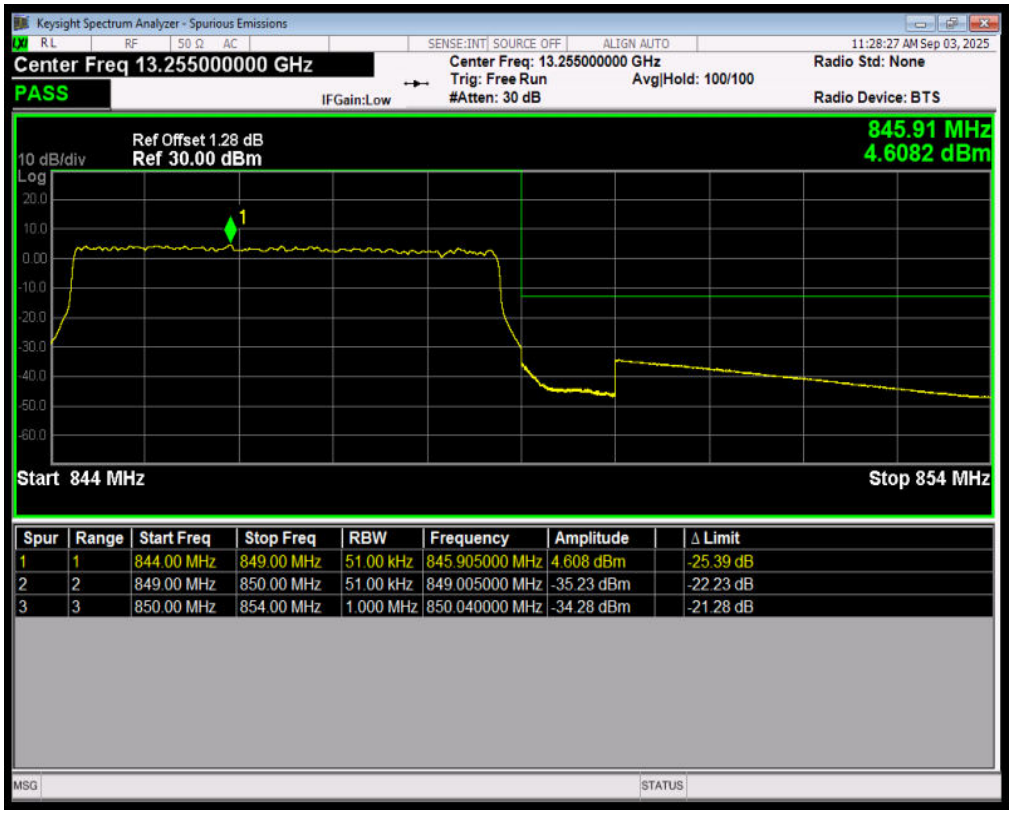
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	819.00 MHz	823.00 MHz	1.000 MHz	822.980000 MHz	-34.92 dBm	-21.92 dB
2	2	823.00 MHz	824.00 MHz	51.00 kHz	823.990000 MHz	-36.61 dBm	-23.61 dB
3	3	824.00 MHz	829.00 MHz	51.00 kHz	826.185000 MHz	3.624 dBm	-26.38 dB

Band5 QPSK BW=5MHz HighChannel=20625 RB Size=1 Position=#Max

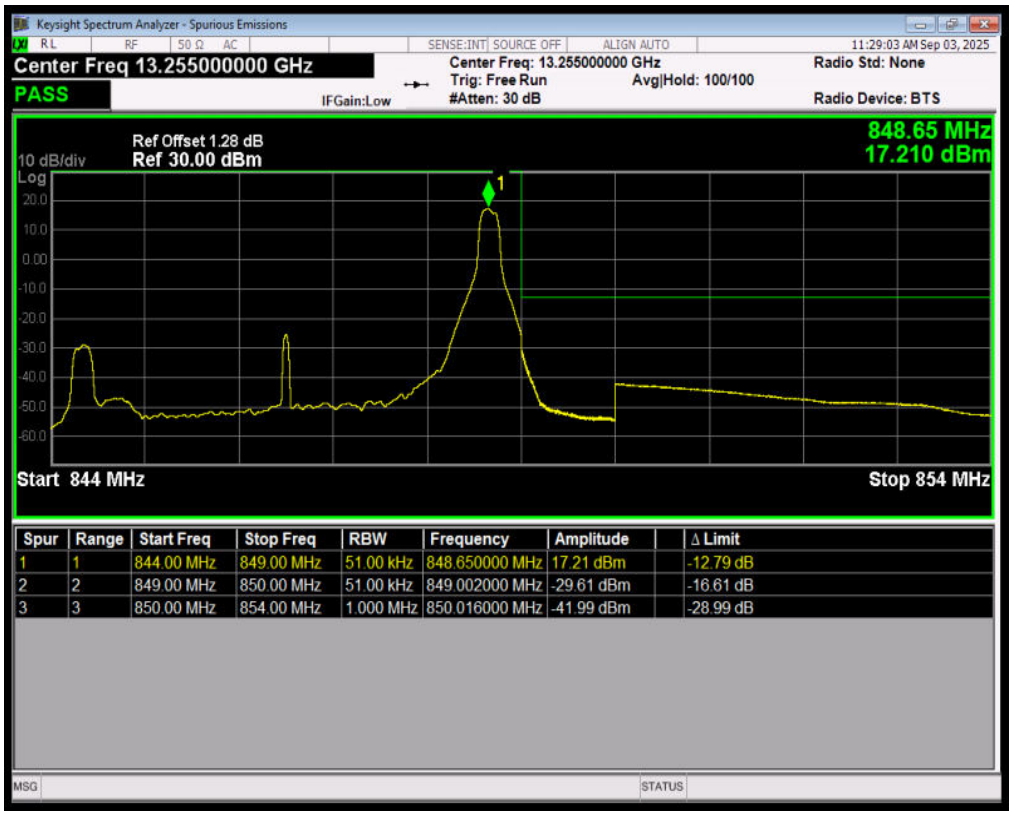


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	844.00 MHz	849.00 MHz	51.00 kHz	848.675000 MHz	18.00 dBm	-12.00 dB
2	2	849.00 MHz	850.00 MHz	51.00 kHz	849.004000 MHz	-29.06 dBm	-16.06 dB
3	3	850.00 MHz	854.00 MHz	1.000 MHz	850.024000 MHz	-40.43 dBm	-27.43 dB

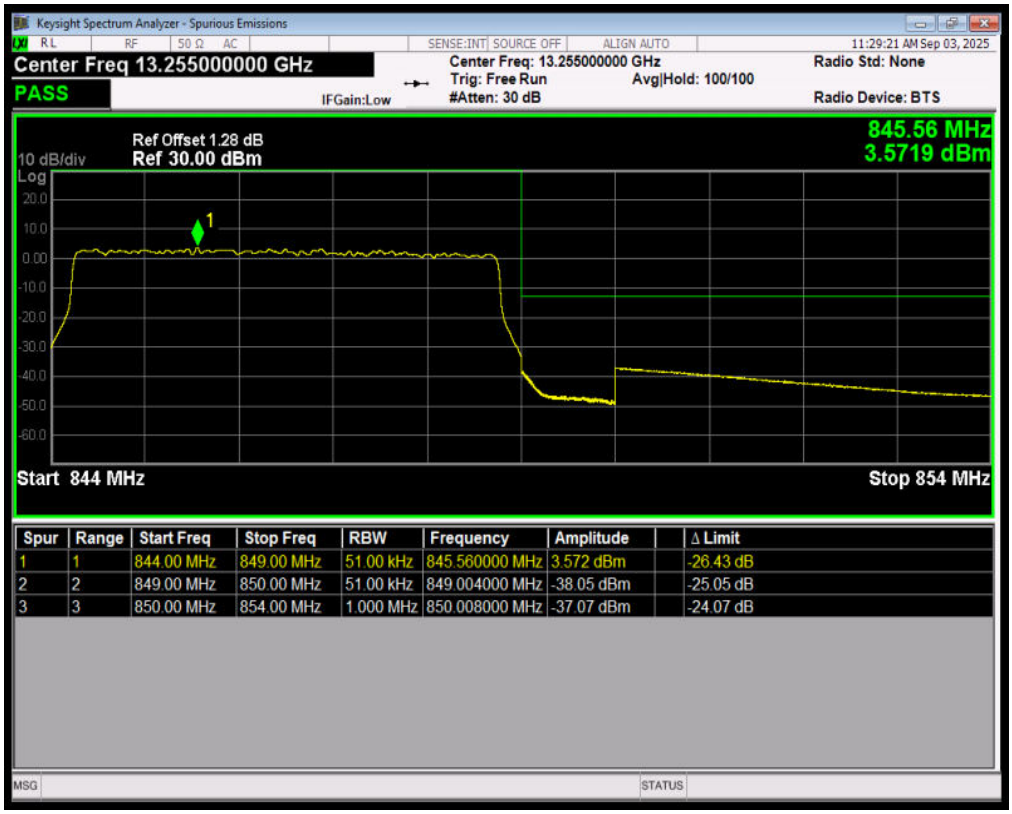
Band5 QPSK BW=5MHz HighChannel=20625 RB Size=25 Position=#0



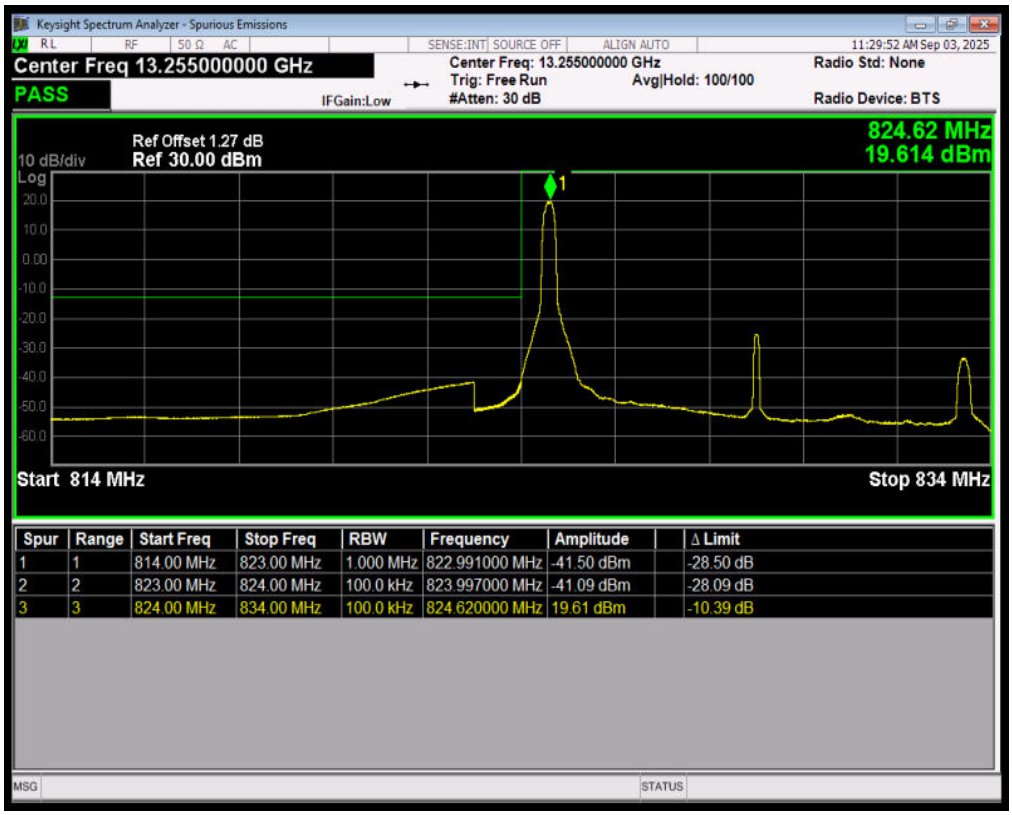
Band5 16QAM BW=5MHz HighChannel=20625 RB Size=1 Position=#Max



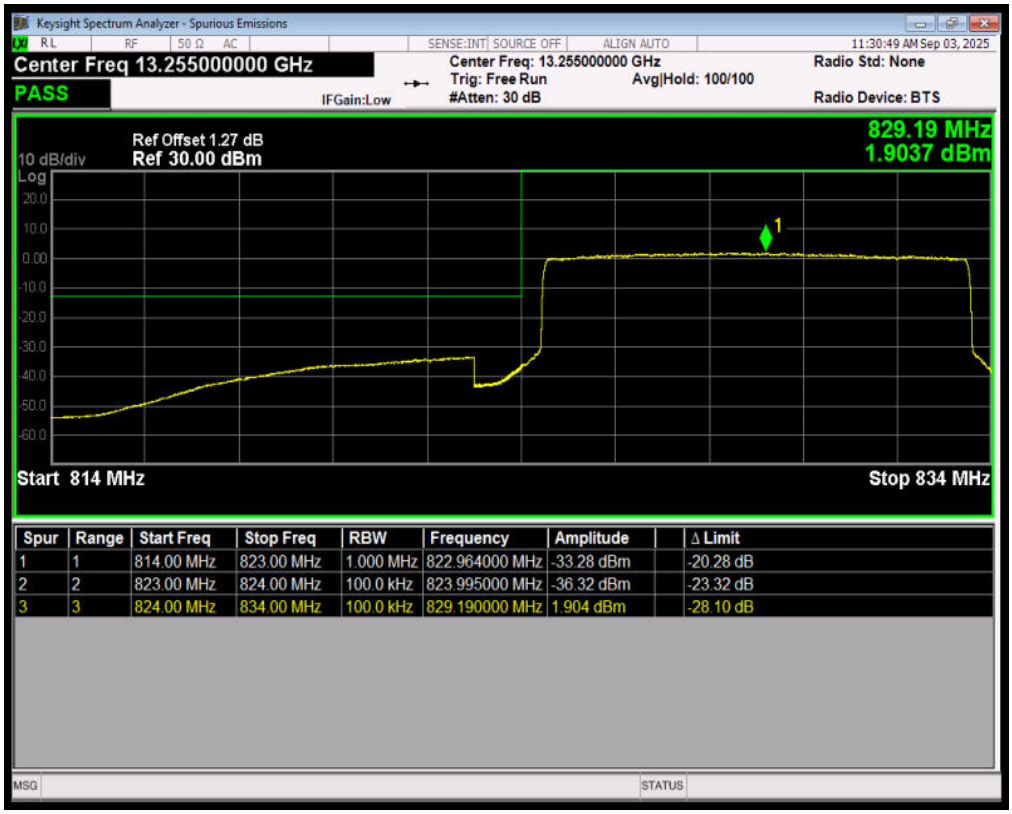
Band5 16QAM BW=5MHz HighChannel=20625 RB Size=25 Position=#0



Band5 QPSK BW=10MHz LowChannel=20450 RB Size=1 Position=#0

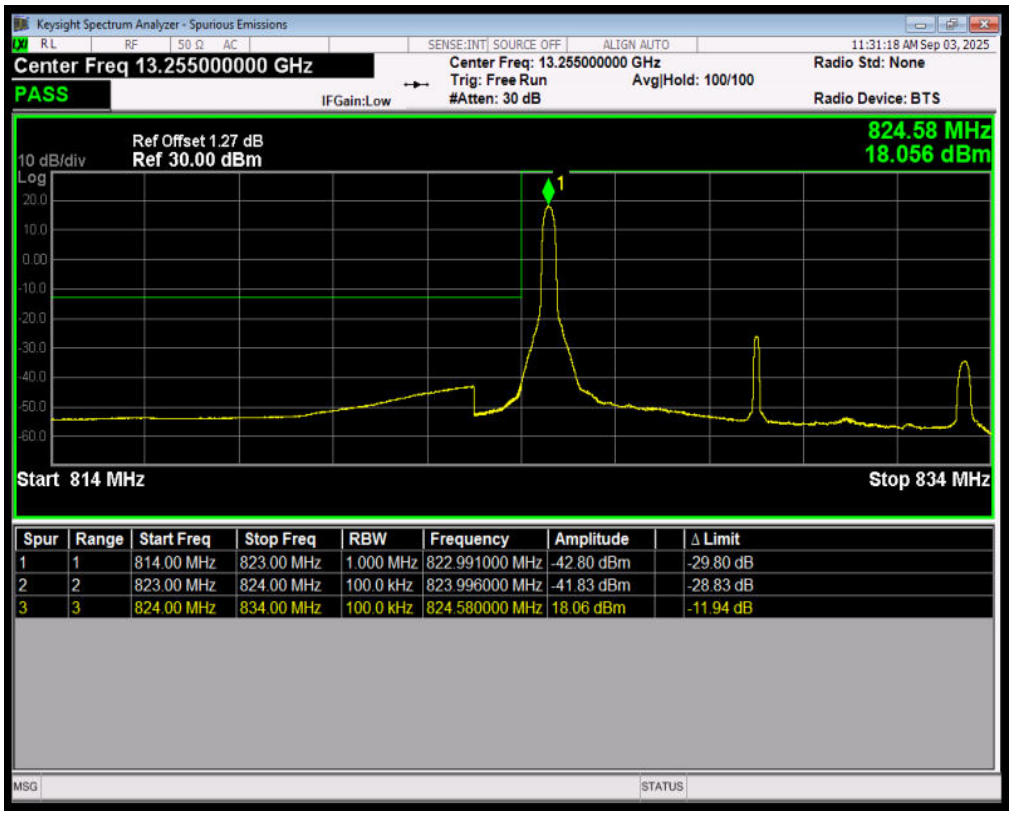


Band5 QPSK BW=10MHz LowChannel=20450 RB Size=50 Position=#0



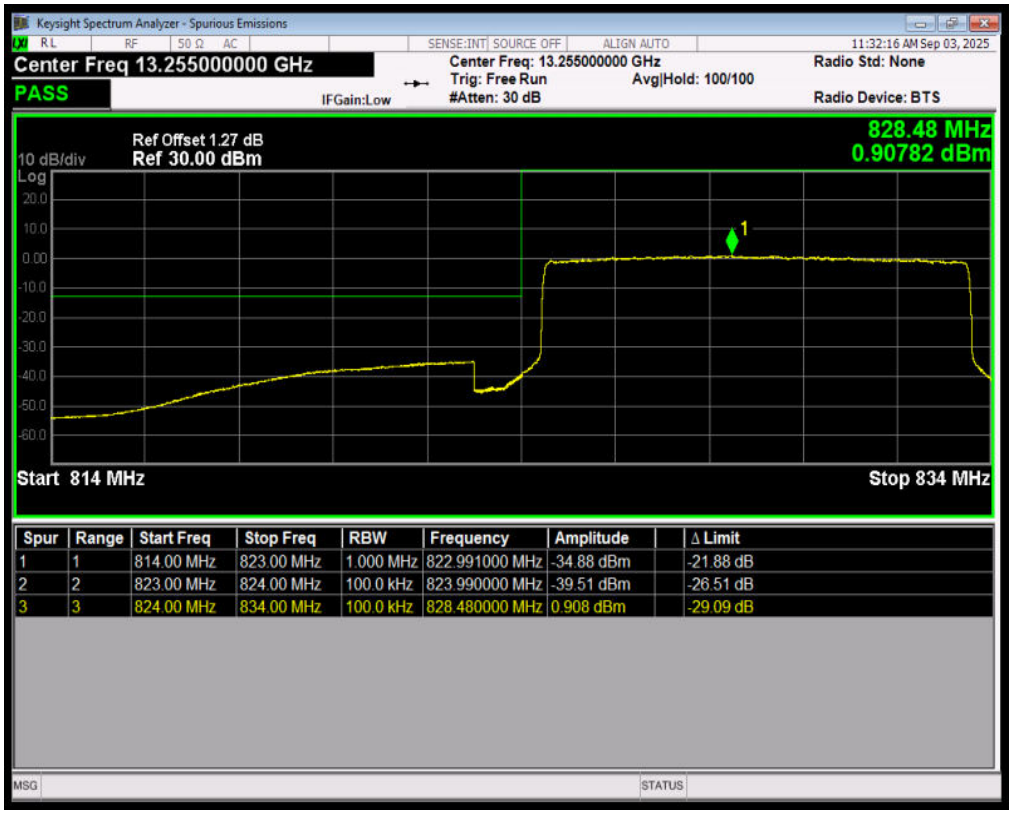
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	814.00 MHz	823.00 MHz	1.000 MHz	822.964000 MHz	-33.28 dBm	-20.28 dB
2	2	823.00 MHz	824.00 MHz	100.0 kHz	823.995000 MHz	-36.32 dBm	-23.32 dB
3	3	824.00 MHz	834.00 MHz	100.0 kHz	829.190000 MHz	1.904 dBm	-28.10 dB

Band5 16QAM BW=10MHz LowChannel=20450 RB Size=1 Position=#0

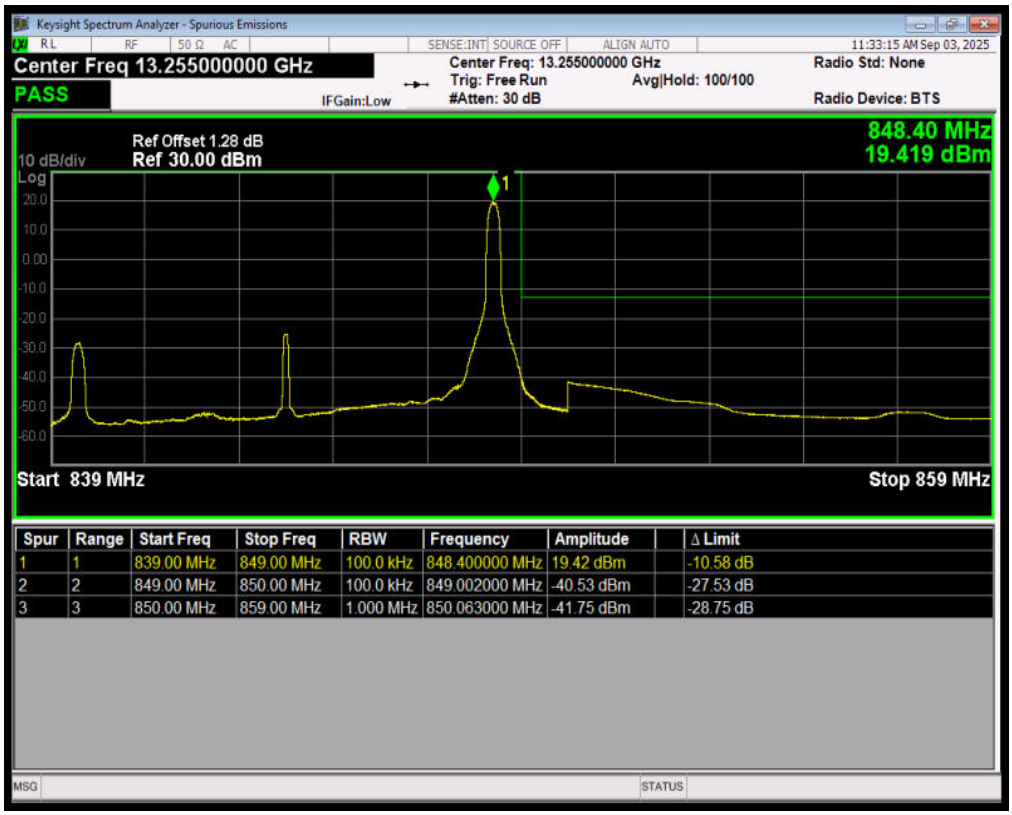


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	814.00 MHz	823.00 MHz	1.000 MHz	822.991000 MHz	-42.80 dBm	-29.80 dB
2	2	823.00 MHz	824.00 MHz	100.0 kHz	823.996000 MHz	-41.83 dBm	-28.83 dB
3	3	824.00 MHz	834.00 MHz	100.0 kHz	824.580000 MHz	18.06 dBm	-11.94 dB

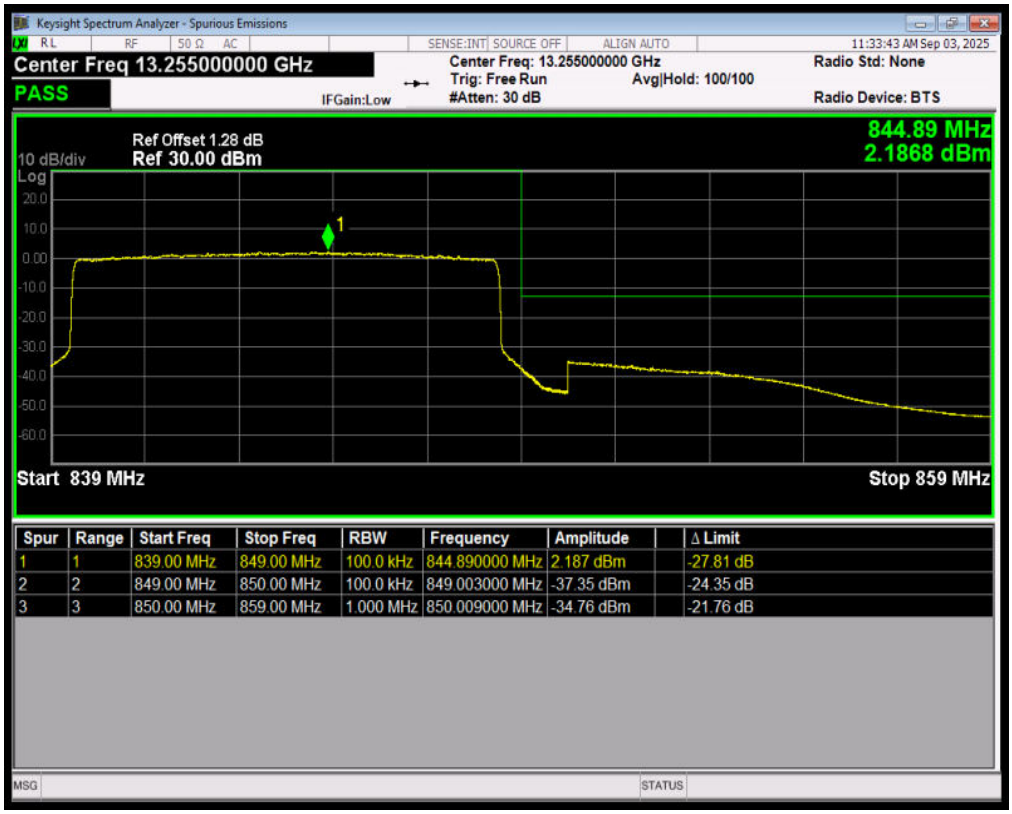
Band5 16QAM BW=10MHz LowChannel=20450 RB Size=50 Position=#0



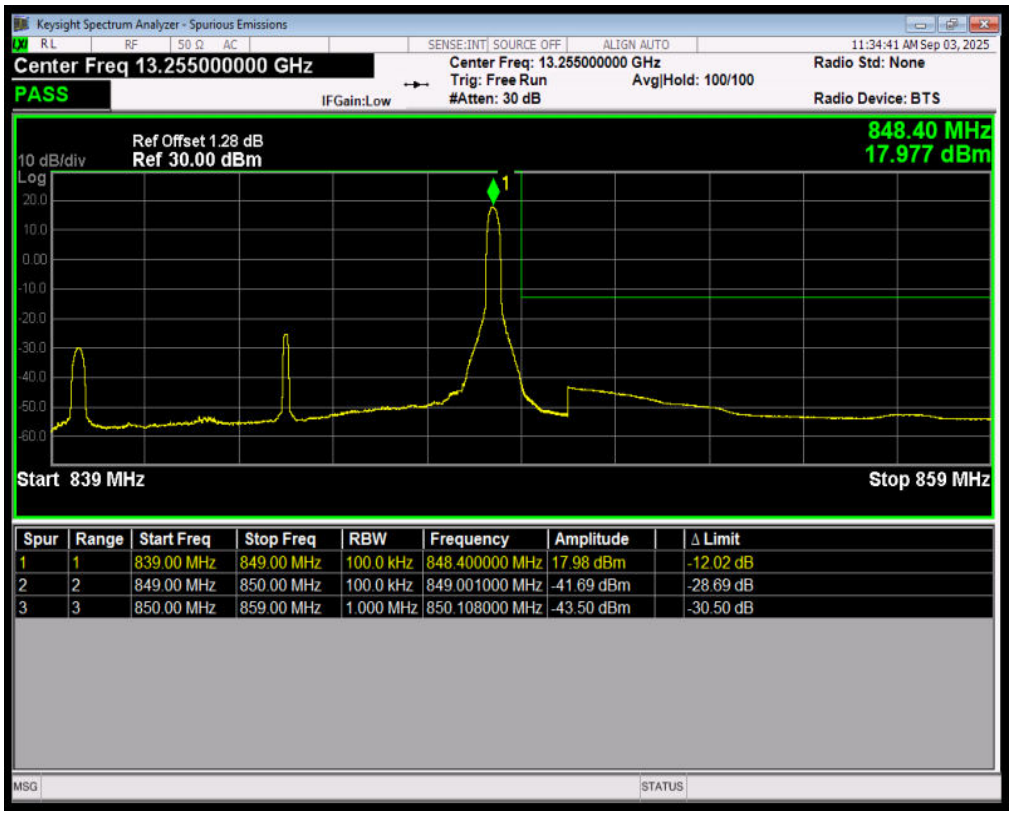
Band5 QPSK BW=10MHz HighChannel=20600 RB Size=1 Position=#Max



Band5 QPSK BW=10MHz HighChannel=20600 RB Size=50 Position=#0



Band5 16QAM BW=10MHz HighChannel=20600 RB Size=1 Position=#Max



Band5 16QAM BW=10MHz HighChannel=20600 RB Size=50 Position=#0

6.4. Peak-to-Average Power Ratio (PAPR)

Mode	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
WCDMA Band V (RMC)	4132	826.4	25.96	23.21	2.75	≤13	PASS
	4183	836.6	25.99	23.19	2.80	≤13	PASS
	4233	846.6	26.08	23.19	2.89	≤13	PASS

LTE Band 5								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	20407	824.7	27.59	22.80	4.79	≤13	PASS
		20525	836.5	27.89	22.89	5.00	≤13	PASS
		20643	848.3	27.80	22.87	4.93	≤13	PASS
	3	20415	825.5	27.79	22.83	4.96	≤13	PASS
		20525	836.5	28.00	22.93	5.07	≤13	PASS
		20635	847.5	27.99	22.90	5.09	≤13	PASS
	5	20425	826.5	27.91	22.87	5.04	≤13	PASS
		20525	836.5	27.94	22.90	5.04	≤13	PASS
		20625	846.5	27.88	22.87	5.01	≤13	PASS
	10	20450	829	27.99	22.84	5.15	≤13	PASS
		20525	836.5	27.79	22.85	4.94	≤13	PASS
		20600	844	27.78	22.83	4.95	≤13	PASS
16QAM	1.4	20407	824.7	27.29	21.68	5.61	≤13	PASS
		20525	836.5	27.59	21.75	5.84	≤13	PASS
		20643	848.3	27.53	21.71	5.82	≤13	PASS
	3	20415	825.5	27.53	21.71	5.82	≤13	PASS
		20525	836.5	27.71	21.79	5.92	≤13	PASS
		20635	847.5	27.66	21.74	5.92	≤13	PASS
	5	20425	826.5	27.54	21.69	5.85	≤13	PASS
		20525	836.5	27.60	21.75	5.85	≤13	PASS
		20625	846.5	27.54	21.69	5.85	≤13	PASS
	10	20450	829	27.63	21.67	5.96	≤13	PASS
		20525	836.5	27.50	21.71	5.79	≤13	PASS
		20600	844	27.42	21.66	5.76	≤13	PASS

6.5. Frequency Stability

	Condition		Freq.Error (Hz)	Frequency Stability （ppm）	Verdict
	Temperature	Voltage	QPSK	QPSK	
WCDMA B5	Extreme（50℃）	NV	4.54	0.00542	PASS
	Extreme（40℃）		11.18	0.01336	PASS
	Extreme（30℃）		2.81	0.00336	PASS
	Extreme（20℃）		7.20	0.00860	PASS
	Extreme（10℃）		4.75	0.00568	PASS
	Extreme（0℃）		2.18	0.00261	PASS
	Extreme（-10℃）		6.57	0.00785	PASS
	Extreme（-20℃）		3.37	0.00403	PASS
	Extreme（-30℃）		14.83	0.01773	PASS
	25℃	LV	16.50	0.01973	PASS
		HV	8.45	0.01010	PASS

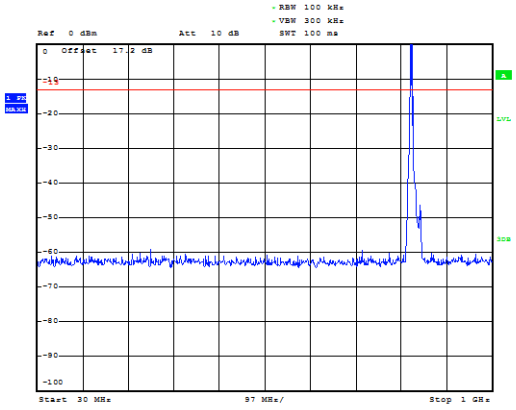
	Condition		Freq.Error (Hz)	Frequency Stability （ppm）	Verdict
	BANDWIDTH	1.4MHz			
	Temperature	Voltage	QPSK	QPSK	
BAND5	Extreme（50℃）	NV	15.52	0.01856	PASS
	Extreme（40℃）		1.32	0.00158	PASS
	Extreme（30℃）		5.61	0.00670	PASS
	Extreme（20℃）		5.49	0.00656	PASS
	Extreme（10℃）		14.87	0.01777	PASS
	Extreme（0℃）		15.05	0.01799	PASS
	Extreme（-10℃）		8.54	0.01021	PASS
	Extreme（-20℃）		11.90	0.01423	PASS
	Extreme（-30℃）		12.37	0.01478	PASS
	25℃	LV	5.06	0.00605	PASS
		HV	13.85	0.01656	PASS
	Condition		Freq.Error (Hz)	Frequency Stability （ppm）	Verdict
BAND5	BANDWIDTH	3MHz			
	Temperature	Voltage	QPSK	QPSK	
	Extreme（50℃）	NV	7.19	0.00860	PASS
	Extreme（40℃）		3.39	0.00406	PASS

	Extreme（30℃）		12.56	0.01502	PASS
	Extreme（20℃）		11.79	0.01410	PASS
	Extreme（10℃）		9.14	0.01092	PASS
	Extreme（0℃）		5.25	0.00628	PASS
	Extreme（-10℃）		10.37	0.01239	PASS
	Extreme（-20℃）		16.92	0.02023	PASS
	Extreme（-30℃）		4.92	0.00589	PASS
	25℃	LV	7.76	0.00928	PASS
		HV	1.61	0.00193	PASS
BAND5	Condition		Freq.Error (Hz)	Frequency Stability（ppm）	Verdict
	BANDWIDTH	5MHz			
	Temperature	Voltage	QPSK	QPSK	
	Extreme（50℃）	NV	5.95	0.00711	PASS
	Extreme（40℃）		9.29	0.01111	PASS
	Extreme（30℃）		15.96	0.01908	PASS
	Extreme（20℃）		11.29	0.01350	PASS
	Extreme（10℃）		4.69	0.00560	PASS
	Extreme（0℃）		13.12	0.01569	PASS
	Extreme（-10℃）		17.99	0.02150	PASS
	Extreme（-20℃）		3.72	0.00444	PASS
	Extreme（-30℃）		8.29	0.00992	PASS
	25℃	LV	10.67	0.01275	PASS
		HV	3.50	0.00419	PASS
BAND5	Condition		Freq.Error (Hz)	Frequency Stability（ppm）	Verdict
	BANDWIDTH	10MHz			
	Temperature	Voltage	QPSK	QPSK	
	Extreme（50℃）	NV	1.16	0.00138	PASS
	Extreme（40℃）		15.61	0.01867	PASS
	Extreme（30℃）		6.09	0.00728	PASS
	Extreme（20℃）		17.00	0.02032	PASS
	Extreme（10℃）		10.81	0.01293	PASS
	Extreme（0℃）		16.90	0.02020	PASS
	Extreme（-10℃）		11.04	0.01319	PASS
	Extreme（-20℃）		1.89	0.00226	PASS
	Extreme（-30℃）		11.17	0.01335	PASS
	25℃	LV	12.12	0.01449	PASS
		HV	8.20	0.00981	PASS

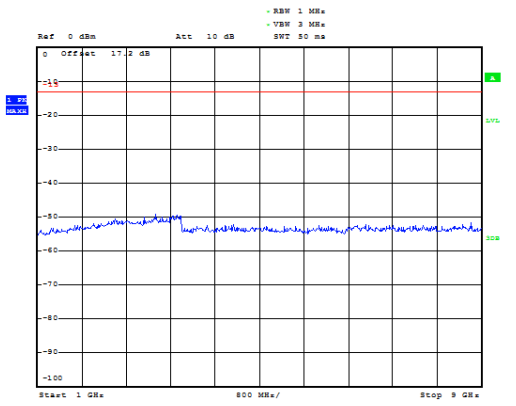
6.6. Spurious Emissions at Antenna Terminals

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.
The signal beyond the limit is carrier.

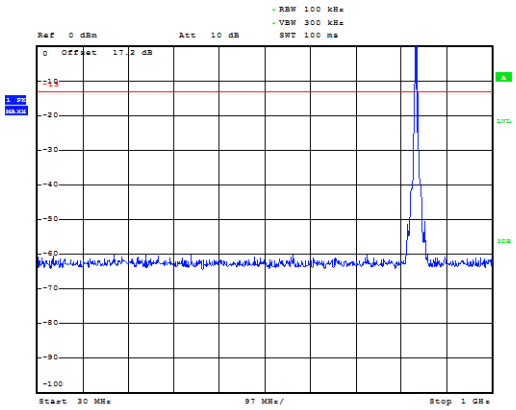
WCDMA Band V CH-Low 30MHz ~ 1GHz



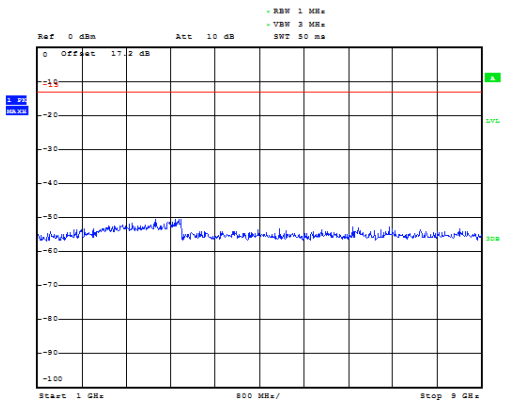
WCDMA Band V CH-Low 1GHz ~ 9GHz



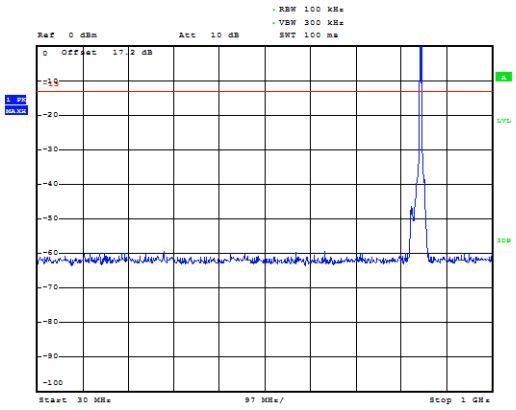
WCDMA Band V CH-Middle 30MHz ~ 1GHz



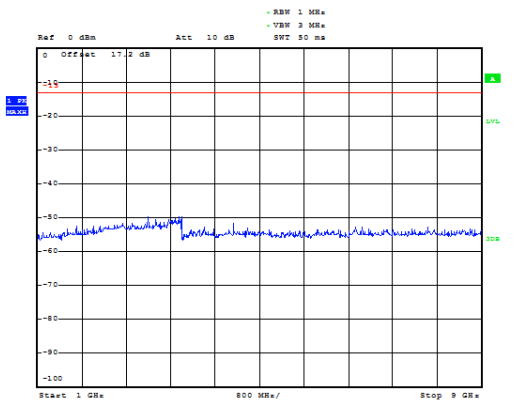
WCDMA Band V CH-Middle 1GHz ~ 9GHz



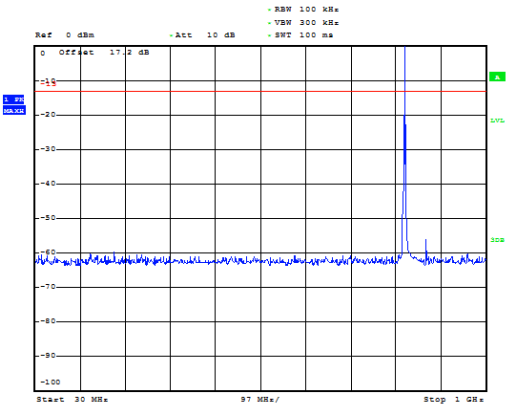
WCDMA Band V CH-High 30MHz ~ 1GHz



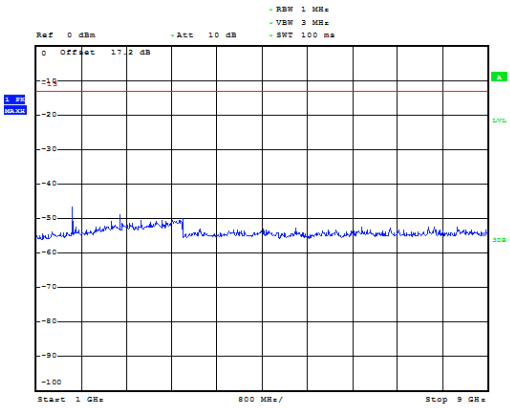
WCDMA Band V CH-High 1GHz ~ 9GHz



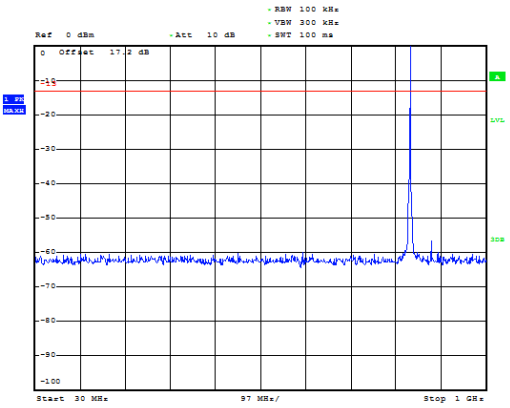
LTE Band 5 1.4MHz CH-Low 30MHz~1GHz



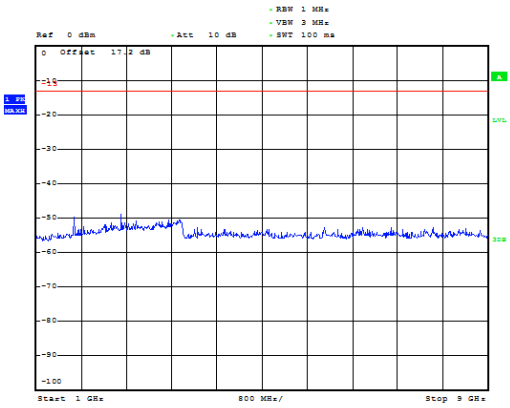
LTE Band 5 1.4MHz CH-Low 1GHz~9GHz



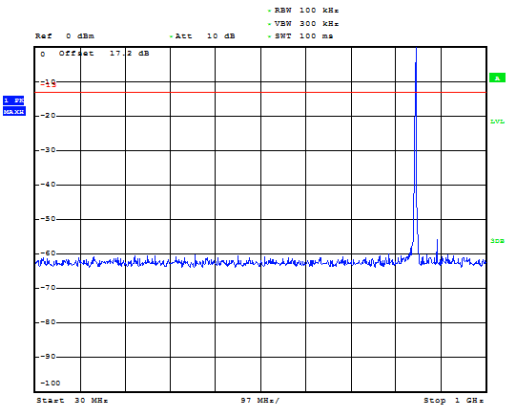
LTE Band 5 1.4MHz CH-Middle 30MHz~1GHz



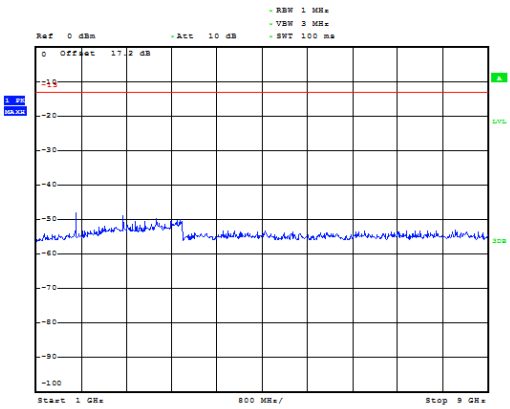
LTE Band 5 1.4MHz CH-Middle 1GHz~9GHz



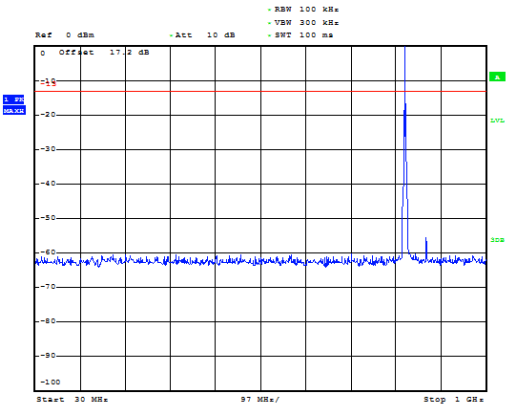
LTE Band 5 1.4MHz CH-High 30MHz~1GHz



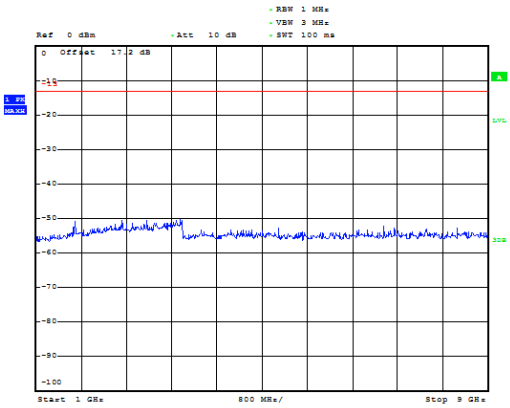
LTE Band 5 1.4MHz CH-High 1GHz~9GHz



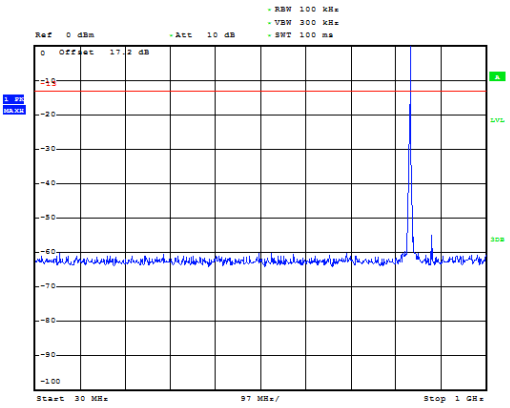
LTE Band 5 3MHz CH-Low 30MHz~1GHz



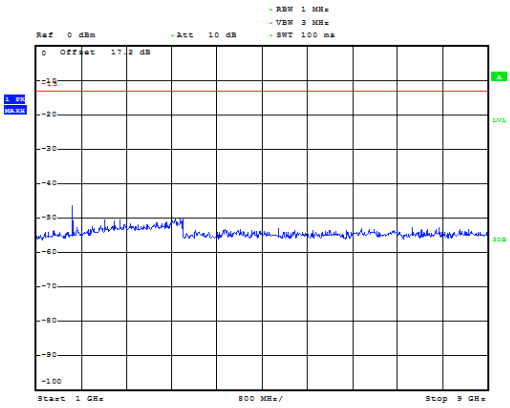
LTE Band 5 3MHz CH-Low 1GHz~9GHz



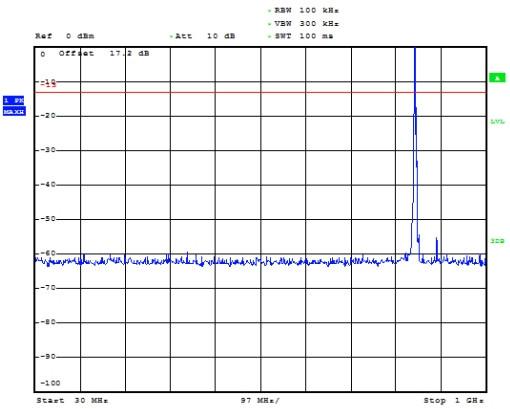
LTE Band 5 3MHz CH-Middle 30MHz~1GHz



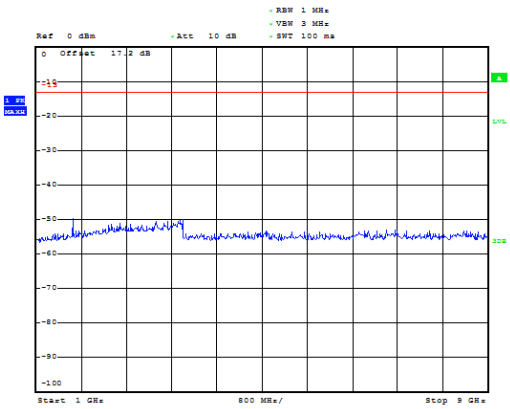
LTE Band 5 3MHz CH-Middle 1GHz~9GHz



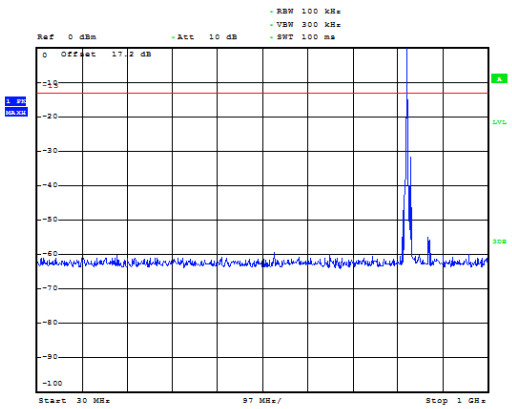
LTE Band 5 3MHz CH-High 30MHz~1GHz



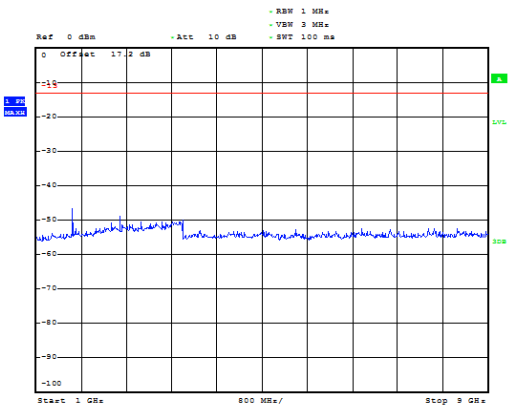
LTE Band 5 3MHz CH-High 1GHz~9GHz



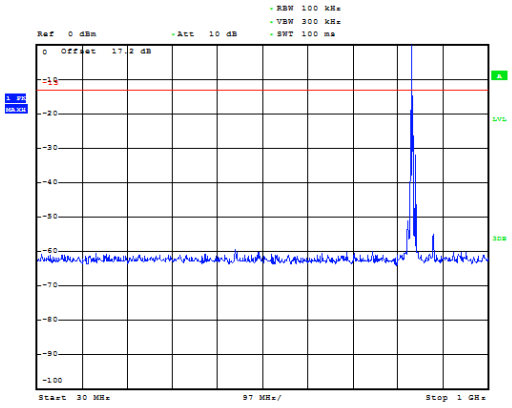
LTE Band 5 5MHz CH-Low 30MHz~1GHz



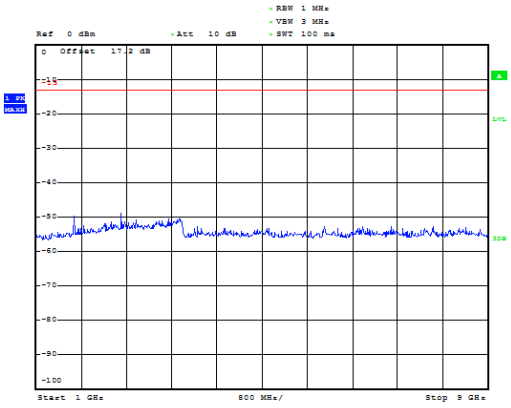
LTE Band 5 5MHz CH-Low 1GHz~9GHz



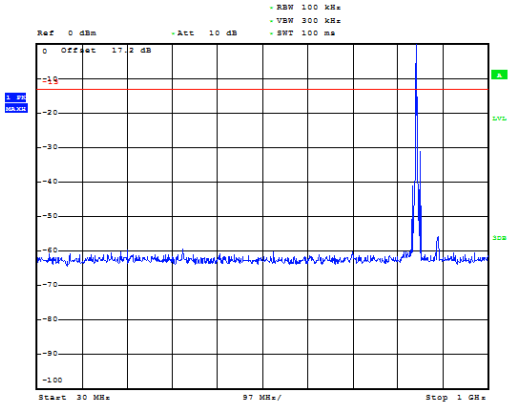
LTE Band 5 5MHz CH-Middle 30MHz~1GHz



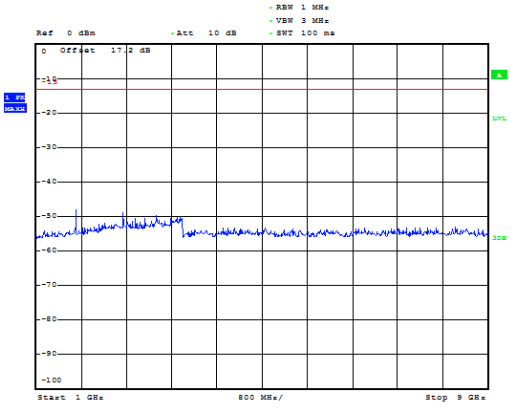
LTE Band 5 5MHz CH-Middle 1GHz~9GHz



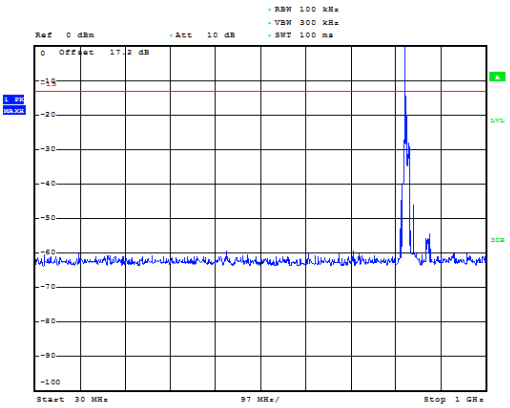
LTE Band 5 5MHz CH-High 30MHz~1GHz



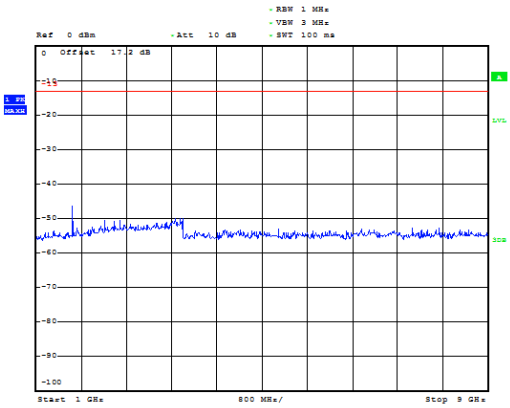
LTE Band 5 5MHz CH-High 1GHz~9GHz



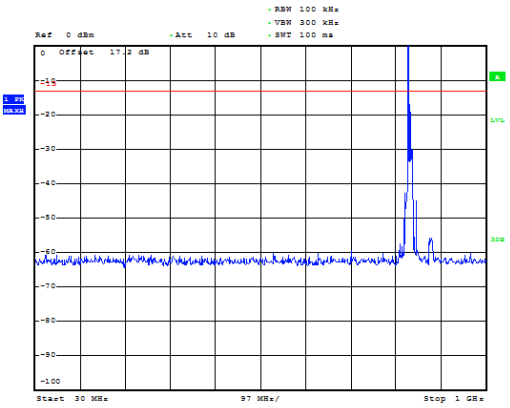
LTE Band 5 10MHz CH-Low 30MHz~1GHz



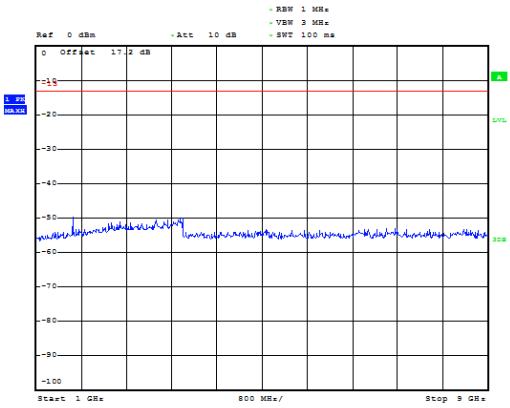
LTE Band 5 10MHz CH-Low 1GHz~9GHz



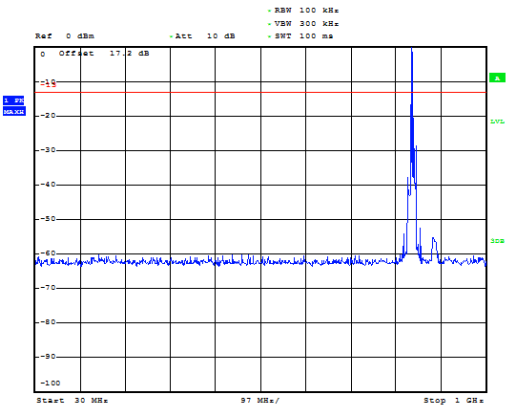
LTE Band 5 10MHz CH-Middle 30MHz~1GHz



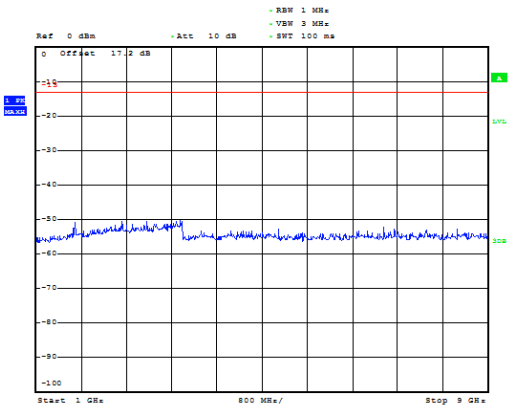
LTE Band 5 10MHz CH-Middle 1GHz~9GHz



LTE Band 5 10MHz CH-High 30MHz~1GHz



LTE Band 5 10MHz CH-High 1GHz~9GHz



6.7. Radiated Spurious Emission

Sweep the whole frequency band through the range from 30MHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

WCDMA Band V CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1652.8	-65.63	2	10.15	Horizontal	-59.63	-13.00	46.63	180
3	2479.2	-61.67	2.51	11.35	Horizontal	-54.98	-13.00	41.98	135
4	3305.6	-61.89	4.2	10.85	Horizontal	-57.39	-13.00	44.39	315
5	4132.0	-59.25	5.2	11.35	Horizontal	-55.25	-13.00	42.25	315
6	4958.4	-57.38	5.5	11.95	Horizontal	-53.08	-13.00	40.08	270
7	5784.8	-58.27	5.7	13.55	Horizontal	-52.57	-13.00	39.57	45
8	6611.2	-56.50	6.3	13.75	Horizontal	-51.20	-13.00	38.20	90
9	7437.6	-50.74	6.8	13.85	Horizontal	-45.84	-13.00	32.84	315
10	8264.0	-52.33	6.9	14.25	Horizontal	-47.13	-13.00	34.13	270
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.2	-66.21	2	10.75	Horizontal	-59.61	-13.00	46.61	90
3	2509.8	-61.79	2.51	11.05	Horizontal	-55.40	-13.00	42.40	135
4	3346.4	-62.86	4.2	11.15	Horizontal	-58.06	-13.00	45.06	225
5	4183.0	-58.01	5.2	11.15	Horizontal	-54.21	-13.00	41.21	45
6	5019.6	-57.34	5.5	11.95	Horizontal	-53.04	-13.00	40.04	90
7	5856.2	-58.35	5.7	13.55	Horizontal	-52.65	-13.00	39.65	180
8	6692.8	-55.20	6.3	13.75	Horizontal	-49.90	-13.00	36.90	315
9	7529.4	-51.57	6.8	13.85	Horizontal	-46.67	-13.00	33.67	90
10	8366.0	-53.19	6.9	14.25	Horizontal	-47.99	-13.00	34.99	270
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

WCDMA Band V CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1693.2	-64.48	2	10.15	Horizontal	-58.48	-13.00	45.48	225
3	2539.8	-62.24	2.51	11.05	Horizontal	-55.85	-13.00	42.85	270
4	3386.4	-61.98	4.2	11.15	Horizontal	-57.18	-13.00	44.18	180
5	4233.0	-58.41	5.2	11.15	Horizontal	-54.61	-13.00	41.61	135
6	5079.6	-55.29	5.5	11.95	Horizontal	-50.99	-13.00	37.99	90
7	5926.2	-57.71	5.7	13.55	Horizontal	-52.01	-13.00	39.01	45
8	6772.8	-55.36	6.3	13.75	Horizontal	-50.06	-13.00	37.06	180
9	7619.4	-52.75	6.8	13.85	Horizontal	-47.85	-13.00	34.85	135
10	8466.0	-52.67	6.9	14.25	Horizontal	-47.47	-13.00	34.47	90
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 1.4MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1649.4	-60.80	2.00	10.75	Horizontal	-54.20	-13.00	41.20	225
3	2474.1	-59.85	2.51	11.05	Horizontal	-53.46	-13.00	40.46	180
4	3298.8	-59.00	4.20	11.15	Horizontal	-54.20	-13.00	41.20	90
5	4123.5	-57.27	5.20	11.15	Horizontal	-53.47	-13.00	40.47	270
6	4948.2	-57.48	5.50	11.95	Horizontal	-53.18	-13.00	40.18	45
7	5772.9	-57.27	5.70	13.55	Horizontal	-51.57	-13.00	38.57	315
8	6597.6	-54.74	6.30	13.75	Horizontal	-49.44	-13.00	36.44	90
9	7422.3	-51.02	6.80	13.85	Horizontal	-46.12	-13.00	33.12	135
10	8247.0	-50.47	6.90	14.25	Horizontal	-45.27	-13.00	32.27	135
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-62.86	2.00	10.75	Horizontal	-56.26	-13.00	43.26	225
3	2509.5	-57.37	2.51	11.05	Horizontal	-50.98	-13.00	37.98	225
4	3346.0	-59.56	4.20	11.15	Horizontal	-54.76	-13.00	41.76	270
5	4182.5	-56.75	5.20	11.15	Horizontal	-52.95	-13.00	39.95	225
6	5019.0	-56.12	5.50	11.95	Horizontal	-51.82	-13.00	38.82	180
7	5855.5	-57.88	5.70	13.55	Horizontal	-52.18	-13.00	39.18	90
8	6692.0	-55.15	6.30	13.75	Horizontal	-49.85	-13.00	36.85	90
9	7528.5	-50.43	6.80	13.85	Horizontal	-45.53	-13.00	32.53	315
10	8365.0	-53.30	6.90	14.25	Horizontal	-48.10	-13.00	35.10	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 1.4MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1696.6	-63.04	2.00	10.75	Horizontal	-56.44	-13.00	43.44	180
3	2544.9	-59.81	2.51	11.05	Horizontal	-53.42	-13.00	40.42	90
4	3393.2	-58.68	4.20	11.15	Horizontal	-53.88	-13.00	40.88	135
5	4241.5	-55.25	5.20	11.15	Horizontal	-51.45	-13.00	38.45	135
6	5089.8	-54.91	5.50	11.95	Horizontal	-50.61	-13.00	37.61	225
7	5938.1	-56.36	5.70	13.55	Horizontal	-50.66	-13.00	37.66	90
8	6786.4	-55.93	6.30	13.75	Horizontal	-50.63	-13.00	37.63	135
9	7634.7	-52.10	6.80	13.85	Horizontal	-47.20	-13.00	34.20	315
10	8483.0	-52.77	6.90	14.25	Horizontal	-47.57	-13.00	34.57	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 5MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1653.0	-60.15	2.00	10.75	Horizontal	-53.55	-13.00	40.55	225
3	2479.5	-59.95	2.51	11.05	Horizontal	-53.56	-13.00	40.56	315
4	3356.3	-62.93	4.20	11.15	Horizontal	-58.13	-13.00	45.13	0
5	4132.5	-59.08	5.20	11.15	Horizontal	-55.28	-13.00	42.28	90
6	4994.3	-56.91	5.50	11.95	Horizontal	-52.61	-13.00	39.61	270
7	5961.8	-56.69	5.70	13.55	Horizontal	-50.99	-13.00	37.99	45
8	6796.8	-55.95	6.30	13.75	Horizontal	-50.65	-13.00	37.65	315
9	7631.8	-53.22	6.80	13.85	Horizontal	-48.32	-13.00	35.32	45
10	8466.8	-52.70	6.90	14.25	Horizontal	-47.50	-13.00	34.50	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-60.30	2.00	10.75	Horizontal	-53.70	-13.00	40.70	0
3	2509.5	-59.58	2.51	11.05	Horizontal	-53.19	-13.00	40.19	225
4	3466.2	-62.12	4.20	11.15	Horizontal	-57.32	-13.00	44.32	90
5	4215.9	-57.55	5.20	11.15	Horizontal	-53.75	-13.00	40.75	135
6	5165.6	-56.17	5.50	11.95	Horizontal	-51.87	-13.00	38.87	135
7	5815.3	-57.44	5.70	13.55	Horizontal	-51.74	-13.00	38.74	270
8	6765.0	-55.71	6.30	13.75	Horizontal	-50.41	-13.00	37.41	225
9	7614.7	-51.50	6.80	13.85	Horizontal	-46.60	-13.00	33.60	180
10	8464.4	-52.96	6.90	14.25	Horizontal	-47.76	-13.00	34.76	90
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 5MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1693.0	-59.47	2.00	10.75	Horizontal	-52.87	-13.00	39.87	225
3	2539.5	-61.44	2.51	11.05	Horizontal	-55.05	-13.00	42.05	135
4	3386.0	-59.92	4.20	11.15	Horizontal	-55.12	-13.00	42.12	90
5	4232.5	-57.05	5.20	11.15	Horizontal	-53.25	-13.00	40.25	135
6	5079.0	-55.78	5.50	11.95	Horizontal	-51.48	-13.00	38.48	315
7	5925.5	-55.26	5.70	13.55	Horizontal	-49.56	-13.00	36.56	225
8	6772.0	-55.70	6.30	13.75	Horizontal	-50.40	-13.00	37.40	0
9	7618.5	-52.22	6.80	13.85	Horizontal	-47.32	-13.00	34.32	90
10	8465.0	-53.22	6.90	14.25	Horizontal	-48.02	-13.00	35.02	270
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 10MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1658.0	-59.92	2.00	10.75	Horizontal	-53.32	-13.00	40.32	225
3	2487.0	-59.94	2.51	11.05	Horizontal	-53.55	-13.00	40.55	180
4	3316.0	-62.21	4.20	11.15	Horizontal	-57.41	-13.00	44.41	45
5	4145.0	-59.09	5.20	11.15	Horizontal	-55.29	-13.00	42.29	0
6	4974.0	-56.97	5.50	11.95	Horizontal	-52.67	-13.00	39.67	90
7	5803.0	-57.19	5.70	13.55	Horizontal	-51.49	-13.00	38.49	270
8	6632.0	-54.36	6.30	13.75	Horizontal	-49.06	-13.00	36.06	45
9	7461.0	-50.90	6.80	13.85	Horizontal	-46.00	-13.00	33.00	315
10	8290.0	-52.60	6.90	14.25	Horizontal	-47.40	-13.00	34.40	45
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-65.58	2.00	10.75	Horizontal	-58.98	-13.00	45.98	135
3	2509.5	-61.82	2.51	11.05	Horizontal	-55.43	-13.00	42.43	315
4	3346.0	-61.95	4.20	11.15	Horizontal	-57.15	-13.00	44.15	315
5	4182.5	-55.53	5.20	11.15	Horizontal	-51.73	-13.00	38.73	90
6	5019.0	-56.13	5.50	11.95	Horizontal	-51.83	-13.00	38.83	135
7	5855.5	-57.78	5.70	13.55	Horizontal	-52.08	-13.00	39.08	135
8	6692.0	-53.88	6.30	13.75	Horizontal	-48.58	-13.00	35.58	315
9	7528.5	-51.51	6.80	13.85	Horizontal	-46.61	-13.00	33.61	225
10	8365.0	-53.45	6.90	14.25	Horizontal	-48.25	-13.00	35.25	0
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 10MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1688.0	-62.69	2.00	10.75	Horizontal	-56.09	-13.00	43.09	225
3	2532.0	-62.19	2.51	11.05	Horizontal	-55.80	-13.00	42.80	0
4	3376.0	-50.84	4.20	11.15	Horizontal	-46.04	-13.00	33.04	90
5	4220.0	-57.69	5.20	11.15	Horizontal	-53.89	-13.00	40.89	270
6	5064.0	-55.45	5.50	11.95	Horizontal	-51.15	-13.00	38.15	45
7	5908.0	-56.77	5.70	13.55	Horizontal	-51.07	-13.00	38.07	0
8	6752.0	-54.47	6.30	13.75	Horizontal	-49.17	-13.00	36.17	90
9	7596.0	-50.53	6.80	13.85	Horizontal	-45.63	-13.00	32.63	270
10	8440.0	-52.31	6.90	14.25	Horizontal	-47.11	-13.00	34.11	45
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

7. Main Test Instruments

Date of Testing: June 29, 2018~ July 16, 2018 and July 30, 2018~ July 31, 2018

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2018-05-20	2019-05-19
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Agilent	N9010A	MY47191109	2018-05-20	2019-05-19
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2018-05-20	2019-05-19
Signal Analyzer	R&S	FSV30	100815	2017-12-17	2018-12-16
EMI Test Receiver	R&S	ESCI	100948	2018-05-20	2019-05-19
Signal generator	R&S	SMB 100A	102594	2018-05-13	2019-05-12
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2014-12-06	2019-12-05
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2014-12-06	2019-12-05
Horn Antenna	ETS-Lindgren	3160-09	00102644	2015-01-30	2020-01-29
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
RF Cable	Agilent	SMA 15cm	0001	2018-02-03	2018-08-02
Preampflier	R&S	SCU18	102327	2018-05-20	2019-05-19
Software	R&S	EMC32	V9.26.0	/	/
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2018-05-07	2019-05-06

Date of Testing: September 3, 2025 ~ September 11, 2025

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Wireless Communication Tester	Anritsu	MT8821C	6201538758	2025-05-06	2026-05-05
Climate Chamber	WEISS	VT 4002	58226119450010	2025-05-06	2026-05-05
Spectrum Analyzer	Keysight	N9020A	MY52330084	2025-05-06	2026-05-05
DC Power Supply	UNI-T	UTP1310+	C220795889	2025-05-06	2026-05-05

8. The EUT Appearance

Refer to *EUT Appearance*.

9. Test Setup Photos

Refer to *Part22 Test Setup.*

10. Product Change Description

The Product Change Description are submitted separately.

******** END OF REPORT ********