

RF TEST REPORT

Applicant	Quectel Wireless Solutions Company Limited
FCC ID	XMR202012EC25T
Product	LTE Module
Brand	Quectel
Model	EC25-T
Marketing	Quectel EC25-T
Report No.	R2408A1028-R1V1
Issue Date	September 13, 2024

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2023)/ FCC CFR 47 Part 22H (2023)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Version	Revision Description	Issue Date
Rev.0	Initial issue of report.	September 10, 2024
Rev.1	Updated information.	September 13, 2024
Note: This revised report (Report No.: R2408A1028-R1V1) supersedes and replaces the previously issued report (Report No.: R2408A1028-R1). Please discard or destroy the previously issued report and dispose of it accordingly.		

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 1) November 26, 2020 ~ December 7, 2020 Date of Sample Received: (Variant 1) November 25, 2020			
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.			

Variant 2

EC25-T (Report No.: R2408A1028-R1V1) is a variant model (Variant 2) of EC25-T, EC25-T MINIPCIE (Report No.: R2011A0762-R1).

This report tests Radiated Spurious Emission (LTE Band 5, 1.4MHz), and did not worsen, so they were not recorded in the report.

This report also verifies Output Power, powers of new variant are varied due to measurement uncertainty, and sample tolerance of the acceptance range, so they were not recorded in the report.

The detailed product change description please refers to the *Difference Declaration Letter (Variant 2)*.

Variant 1

EC25-T, EC25-T MINIPCIE (Report No.: R2011A0762-R1) is a variant model (Variant 1) of EC25-AF, EC25-AF MINIPCIE (Report No.: R1806A0301-R1V1).

There is only tested RF Power Output and Effective Radiated Power, Occupied Bandwidth, Band Edge Compliance and Radiates Spurious Emission for variant in this report.

Other test items please refer to the model of EC25-AF, EC25-AF MINIPCIE (Report No.: R1806A0301-R1V1).

The detailed product change description please refers to the *Difference Declaration Letter (Variant 1)*.

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
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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-T		
IMEI	861041050000597		
Hardware Version	R1.1		
Software Version	EC25TFAR11A01M4G		
Power Supply	External power supply		
Antenna Type	Dipole Antenna		
Antenna Gain	Frequency (MHz)	Antenna Gain (dBi)	
	820	2.53	
	830	2.13	
	840	1.89	
	850	2.29	
Test Mode(s)	LTE Band 5;		
Test Modulation	QPSK 16QAM;		
LTE Category	4		
Maximum E.R.P.	LTE Band 5:	23.79dBm	
Rated Power Supply Voltage	3.8V		
Operating Voltage	Minimum: 3.3V Maximum: 4.3V		
Operating Temperature	Lowest: -40°C Highest: +85°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	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.			

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 (2023)

FCC CFR47 Part 2 (2023)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, horizontal polarization) and the worst case was recorded.

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 LTE is set based on the maximum RF Output Power.

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

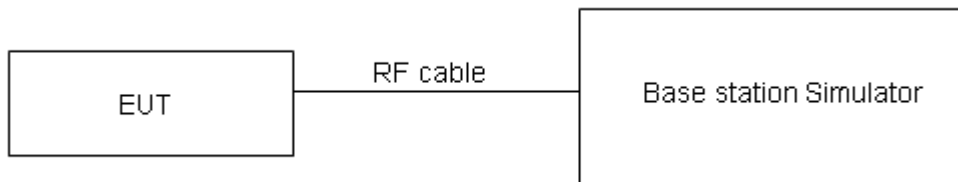
During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:

$\text{EIRP (dBm)} = \text{Output Power (dBm)} + \text{Antenna Gain (dBi)}$

$\text{EIRP (dBm)} = \text{ERP (dBm)} + 2.15 \text{ (dB)}$.

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	$\leq 7 \text{ W}$ (38.45 dBm)
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4 \text{ dB}$ for RF power output, $k = 2$, $U = 1.19 \text{ dB}$ 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

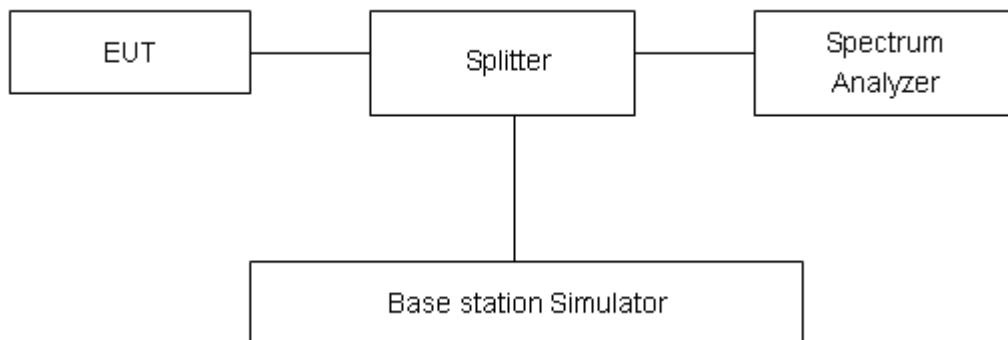
Method of Measurement

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 $\geq 1\%$ 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 $k = 2$, $U = 624\text{Hz}$.

Test Results

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

5.3. Band Edge Compliance

Ambient Condition

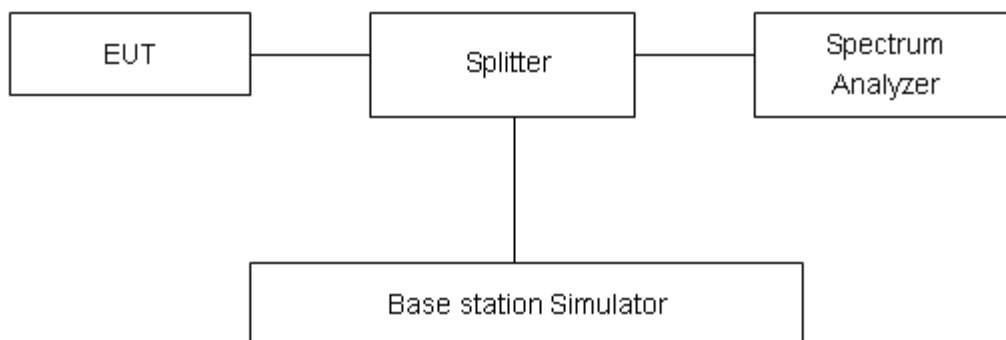
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

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 $\geq 1\%EBW$, 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
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Measurement Uncertainty

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

Test Results

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

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

Ambient Condition

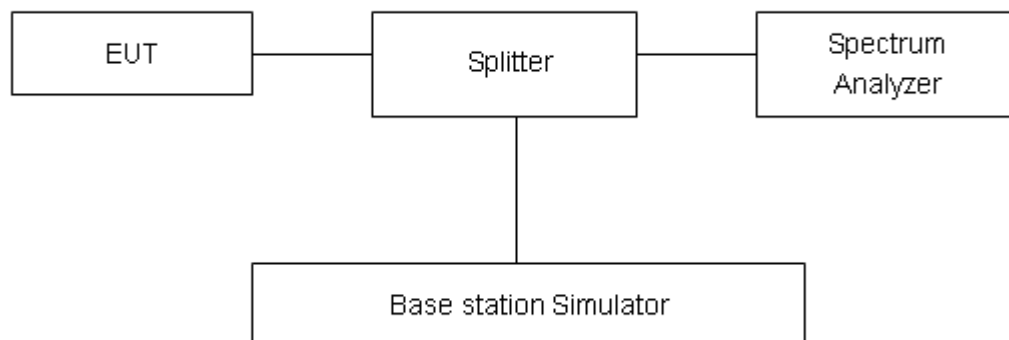
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

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 -40°C to +85°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 -40°C to +85°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

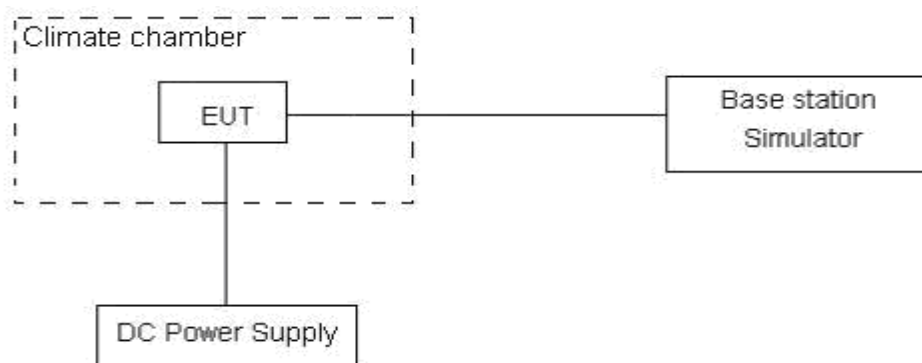
Frequency Stability (Voltage Variation)

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
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Measurement Uncertainty

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

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)

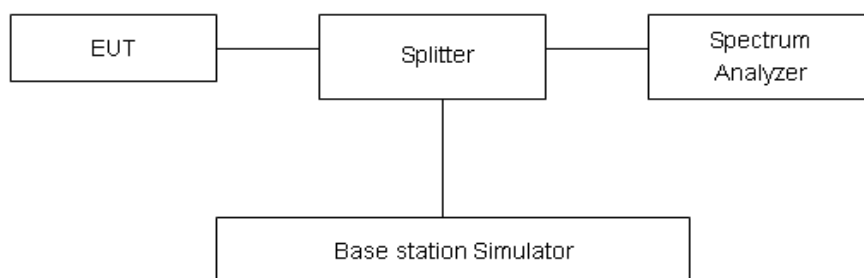
RBW is set to 100 kHz (30MHz~1000 MHz)

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
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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-9GHz	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

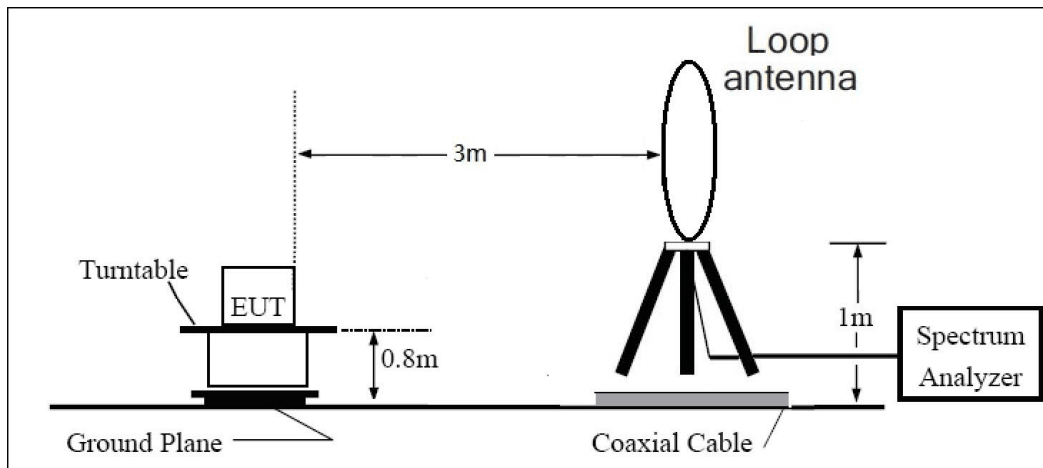
Method of Measurement

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.

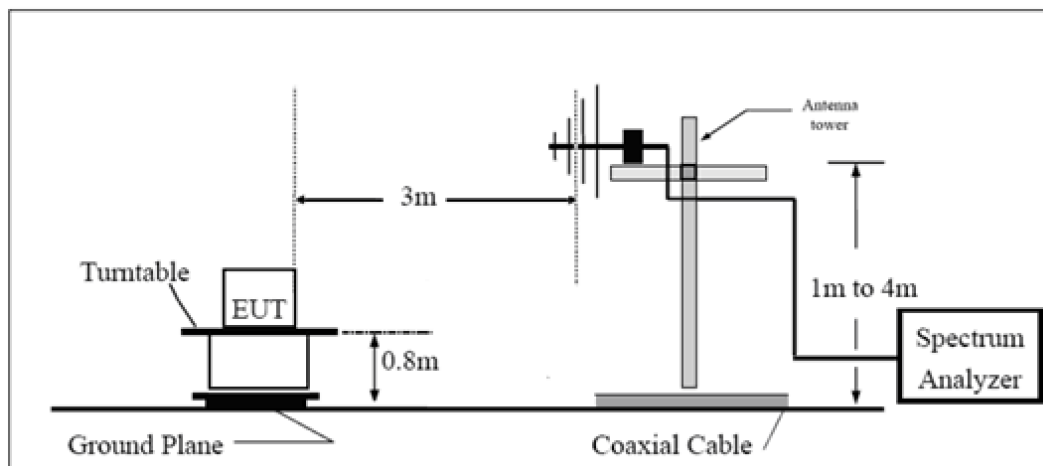
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup

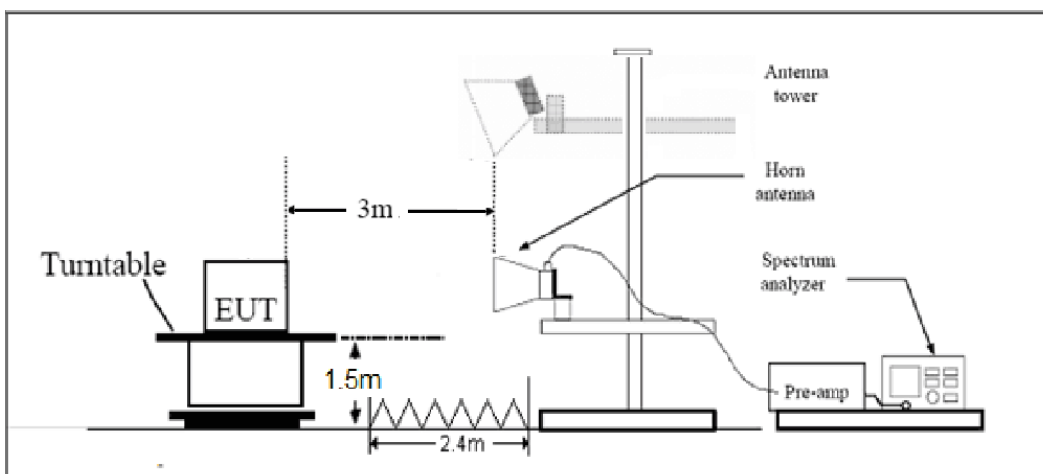
9KHz~ 30MHz



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
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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

Band	Bandwidth (MHz)	Modulation	Channel	RB Configuration	Maximum Output Power (dBm)	ERP (dBm)	Verdict
LTE Band 5	1.4	QPSK	20407	1RB#0	23.61	23.59	PASS
LTE Band 5	1.4	QPSK	20407	1RB#2	23.80	23.78	PASS
LTE Band 5	1.4	QPSK	20407	1RB#5	23.63	23.61	PASS
LTE Band 5	1.4	QPSK	20407	3RB#0	22.67	22.65	PASS
LTE Band 5	1.4	QPSK	20407	3RB#2	22.66	22.64	PASS
LTE Band 5	1.4	QPSK	20407	3RB#3	22.62	22.60	PASS
LTE Band 5	1.4	QPSK	20407	6RB#0	22.61	22.59	PASS
LTE Band 5	1.4	QPSK	20525	1RB#0	23.58	23.32	PASS
LTE Band 5	1.4	QPSK	20525	1RB#2	23.82	23.56	PASS
LTE Band 5	1.4	QPSK	20525	1RB#5	23.42	23.16	PASS
LTE Band 5	1.4	QPSK	20525	3RB#0	22.64	22.38	PASS
LTE Band 5	1.4	QPSK	20525	3RB#2	22.62	22.36	PASS
LTE Band 5	1.4	QPSK	20525	3RB#3	22.62	22.36	PASS
LTE Band 5	1.4	QPSK	20525	6RB#0	22.65	22.39	PASS
LTE Band 5	1.4	QPSK	20643	1RB#0	23.65	23.79	PASS
LTE Band 5	1.4	QPSK	20643	1RB#2	23.52	23.66	PASS
LTE Band 5	1.4	QPSK	20643	1RB#5	23.49	23.63	PASS
LTE Band 5	1.4	QPSK	20643	3RB#0	22.60	22.74	PASS
LTE Band 5	1.4	QPSK	20643	3RB#2	22.51	22.65	PASS
LTE Band 5	1.4	QPSK	20643	3RB#3	22.58	22.72	PASS
LTE Band 5	1.4	QPSK	20643	6RB#0	22.54	22.68	PASS
LTE Band 5	1.4	16QAM	20407	1RB#0	22.48	22.46	PASS
LTE Band 5	1.4	16QAM	20407	1RB#2	22.61	22.59	PASS
LTE Band 5	1.4	16QAM	20407	1RB#5	22.44	22.42	PASS
LTE Band 5	1.4	16QAM	20407	3RB#0	21.67	21.65	PASS
LTE Band 5	1.4	16QAM	20407	3RB#2	21.62	21.60	PASS
LTE Band 5	1.4	16QAM	20407	3RB#3	21.58	21.56	PASS
LTE Band 5	1.4	16QAM	20407	6RB#0	21.60	21.58	PASS
LTE Band 5	1.4	16QAM	20525	1RB#0	22.54	22.28	PASS
LTE Band 5	1.4	16QAM	20525	1RB#2	22.52	22.26	PASS
LTE Band 5	1.4	16QAM	20525	1RB#5	22.51	22.25	PASS
LTE Band 5	1.4	16QAM	20525	3RB#0	21.48	21.22	PASS
LTE Band 5	1.4	16QAM	20525	3RB#2	21.78	21.52	PASS
LTE Band 5	1.4	16QAM	20525	3RB#3	21.56	21.30	PASS
LTE Band 5	1.4	16QAM	20525	6RB#0	21.65	21.39	PASS

LTE Band 5	1.4	16QAM	20643	1RB#0	22.28	22.42	PASS
LTE Band 5	1.4	16QAM	20643	1RB#2	22.45	22.59	PASS
LTE Band 5	1.4	16QAM	20643	1RB#5	22.53	22.67	PASS
LTE Band 5	1.4	16QAM	20643	3RB#0	21.55	21.69	PASS
LTE Band 5	1.4	16QAM	20643	3RB#2	21.64	21.78	PASS
LTE Band 5	1.4	16QAM	20643	3RB#3	21.57	21.71	PASS
LTE Band 5	1.4	16QAM	20643	6RB#0	21.47	21.61	PASS
LTE Band 5	3	QPSK	20415	1RB#0	23.56	23.54	PASS
LTE Band 5	3	QPSK	20415	1RB#7	23.74	23.72	PASS
LTE Band 5	3	QPSK	20415	1RB#14	23.56	23.54	PASS
LTE Band 5	3	QPSK	20415	8RB#0	22.60	22.58	PASS
LTE Band 5	3	QPSK	20415	8RB#4	22.62	22.60	PASS
LTE Band 5	3	QPSK	20415	8RB#7	22.55	22.53	PASS
LTE Band 5	3	QPSK	20415	15RB#0	22.59	22.57	PASS
LTE Band 5	3	QPSK	20525	1RB#0	23.45	23.19	PASS
LTE Band 5	3	QPSK	20525	1RB#7	23.78	23.52	PASS
LTE Band 5	3	QPSK	20525	1RB#14	23.34	23.08	PASS
LTE Band 5	3	QPSK	20525	8RB#0	22.60	22.34	PASS
LTE Band 5	3	QPSK	20525	8RB#4	22.58	22.32	PASS
LTE Band 5	3	QPSK	20525	8RB#7	22.54	22.28	PASS
LTE Band 5	3	QPSK	20525	15RB#0	22.57	22.31	PASS
LTE Band 5	3	QPSK	20635	1RB#0	23.59	23.73	PASS
LTE Band 5	3	QPSK	20635	1RB#7	23.46	23.60	PASS
LTE Band 5	3	QPSK	20635	1RB#14	23.39	23.53	PASS
LTE Band 5	3	QPSK	20635	8RB#0	22.54	22.68	PASS
LTE Band 5	3	QPSK	20635	8RB#4	22.46	22.60	PASS
LTE Band 5	3	QPSK	20635	8RB#7	22.59	22.73	PASS
LTE Band 5	3	QPSK	20635	15RB#0	22.55	22.69	PASS
LTE Band 5	3	16QAM	20415	1RB#0	22.45	22.43	PASS
LTE Band 5	3	16QAM	20415	1RB#7	22.59	22.57	PASS
LTE Band 5	3	16QAM	20415	1RB#14	22.42	22.40	PASS
LTE Band 5	3	16QAM	20415	8RB#0	21.64	21.62	PASS
LTE Band 5	3	16QAM	20415	8RB#4	21.59	21.57	PASS
LTE Band 5	3	16QAM	20415	8RB#7	21.53	21.51	PASS
LTE Band 5	3	16QAM	20415	15RB#0	21.58	21.56	PASS
LTE Band 5	3	16QAM	20525	1RB#0	22.51	22.25	PASS
LTE Band 5	3	16QAM	20525	1RB#7	22.47	22.21	PASS
LTE Band 5	3	16QAM	20525	1RB#14	22.44	22.18	PASS
LTE Band 5	3	16QAM	20525	8RB#0	21.45	21.19	PASS
LTE Band 5	3	16QAM	20525	8RB#4	21.73	21.47	PASS
LTE Band 5	3	16QAM	20525	8RB#7	21.56	21.30	PASS
LTE Band 5	3	16QAM	20525	15RB#0	21.65	21.39	PASS
LTE Band 5	3	16QAM	20635	1RB#0	22.23	22.37	PASS

LTE Band 5	3	16QAM	20635	1RB#7	22.41	22.55	PASS
LTE Band 5	3	16QAM	20635	1RB#14	22.49	22.63	PASS
LTE Band 5	3	16QAM	20635	8RB#0	21.51	21.65	PASS
LTE Band 5	3	16QAM	20635	8RB#4	21.58	21.72	PASS
LTE Band 5	3	16QAM	20635	8RB#7	21.54	21.68	PASS
LTE Band 5	3	16QAM	20635	15RB#0	21.45	21.59	PASS
LTE Band 5	5	QPSK	20425	1RB#0	23.55	23.53	PASS
LTE Band 5	5	QPSK	20425	1RB#13	23.72	23.70	PASS
LTE Band 5	5	QPSK	20425	1RB#24	23.53	23.51	PASS
LTE Band 5	5	QPSK	20425	12RB#0	22.58	22.56	PASS
LTE Band 5	5	QPSK	20425	12RB#6	22.59	22.57	PASS
LTE Band 5	5	QPSK	20425	12RB#13	22.52	22.50	PASS
LTE Band 5	5	QPSK	20425	25RB#0	22.57	22.55	PASS
LTE Band 5	5	QPSK	20525	1RB#0	23.41	23.15	PASS
LTE Band 5	5	QPSK	20525	1RB#13	23.77	23.51	PASS
LTE Band 5	5	QPSK	20525	1RB#24	23.29	23.03	PASS
LTE Band 5	5	QPSK	20525	12RB#0	22.56	22.30	PASS
LTE Band 5	5	QPSK	20525	12RB#6	22.53	22.27	PASS
LTE Band 5	5	QPSK	20525	12RB#13	22.51	22.25	PASS
LTE Band 5	5	QPSK	20525	25RB#0	22.53	22.27	PASS
LTE Band 5	5	QPSK	20625	1RB#0	23.57	23.71	PASS
LTE Band 5	5	QPSK	20625	1RB#13	23.43	23.57	PASS
LTE Band 5	5	QPSK	20625	1RB#24	23.35	23.49	PASS
LTE Band 5	5	QPSK	20625	12RB#0	22.51	22.65	PASS
LTE Band 5	5	QPSK	20625	12RB#6	22.42	22.56	PASS
LTE Band 5	5	QPSK	20625	12RB#13	22.55	22.69	PASS
LTE Band 5	5	QPSK	20625	25RB#0	22.50	22.64	PASS
LTE Band 5	5	16QAM	20425	1RB#0	22.40	22.38	PASS
LTE Band 5	5	16QAM	20425	1RB#13	22.57	22.55	PASS
LTE Band 5	5	16QAM	20425	1RB#24	22.39	22.37	PASS
LTE Band 5	5	16QAM	20425	12RB#0	21.61	21.59	PASS
LTE Band 5	5	16QAM	20425	12RB#6	21.56	21.54	PASS
LTE Band 5	5	16QAM	20425	12RB#13	21.51	21.49	PASS
LTE Band 5	5	16QAM	20425	25RB#0	21.55	21.53	PASS
LTE Band 5	5	16QAM	20525	1RB#0	22.49	22.23	PASS
LTE Band 5	5	16QAM	20525	1RB#13	22.44	22.18	PASS
LTE Band 5	5	16QAM	20525	1RB#24	22.40	22.14	PASS
LTE Band 5	5	16QAM	20525	12RB#0	21.43	21.17	PASS
LTE Band 5	5	16QAM	20525	12RB#6	21.68	21.42	PASS
LTE Band 5	5	16QAM	20525	12RB#13	21.52	21.26	PASS
LTE Band 5	5	16QAM	20525	25RB#0	21.60	21.34	PASS
LTE Band 5	5	16QAM	20625	1RB#0	22.21	22.35	PASS
LTE Band 5	5	16QAM	20625	1RB#13	22.39	22.53	PASS

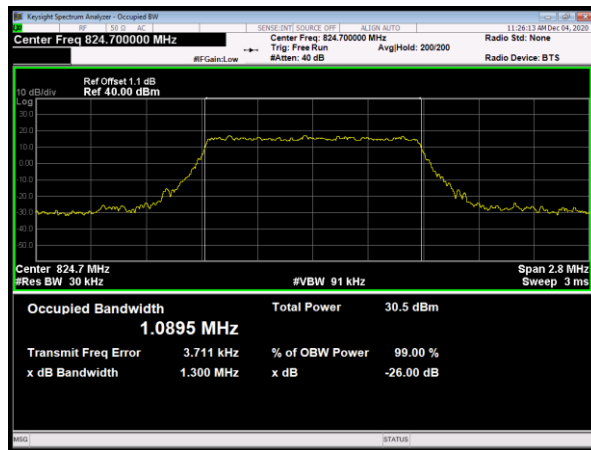
LTE Band 5	5	16QAM	20625	1RB#24	22.46	22.60	PASS
LTE Band 5	5	16QAM	20625	12RB#0	21.48	21.62	PASS
LTE Band 5	5	16QAM	20625	12RB#6	21.54	21.68	PASS
LTE Band 5	5	16QAM	20625	12RB#13	21.51	21.65	PASS
LTE Band 5	5	16QAM	20625	25RB#0	21.41	21.55	PASS
LTE Band 5	10	QPSK	20450	1RB#0	23.52	23.50	PASS
LTE Band 5	10	QPSK	20450	1RB#25	23.71	23.69	PASS
LTE Band 5	10	QPSK	20450	1RB#49	23.51	23.49	PASS
LTE Band 5	10	QPSK	20450	25RB#0	22.55	22.53	PASS
LTE Band 5	10	QPSK	20450	25RB#13	22.57	22.55	PASS
LTE Band 5	10	QPSK	20450	25RB#25	22.49	22.47	PASS
LTE Band 5	10	QPSK	20450	50RB#0	22.54	22.52	PASS
LTE Band 5	10	QPSK	20525	1RB#0	23.37	23.11	PASS
LTE Band 5	10	QPSK	20525	1RB#25	23.73	23.47	PASS
LTE Band 5	10	QPSK	20525	1RB#49	23.28	23.02	PASS
LTE Band 5	10	QPSK	20525	25RB#0	22.51	22.25	PASS
LTE Band 5	10	QPSK	20525	25RB#13	22.49	22.23	PASS
LTE Band 5	10	QPSK	20525	25RB#25	22.46	22.20	PASS
LTE Band 5	10	QPSK	20525	50RB#0	22.48	22.22	PASS
LTE Band 5	10	QPSK	20600	1RB#0	23.54	23.68	PASS
LTE Band 5	10	QPSK	20600	1RB#25	23.41	23.55	PASS
LTE Band 5	10	QPSK	20600	1RB#49	23.32	23.46	PASS
LTE Band 5	10	QPSK	20600	25RB#0	22.47	22.61	PASS
LTE Band 5	10	QPSK	20600	25RB#13	22.39	22.53	PASS
LTE Band 5	10	QPSK	20600	25RB#25	22.51	22.65	PASS
LTE Band 5	10	QPSK	20600	50RB#0	22.46	22.60	PASS
LTE Band 5	10	16QAM	20450	1RB#0	22.38	22.36	PASS
LTE Band 5	10	16QAM	20450	1RB#25	22.53	22.51	PASS
LTE Band 5	10	16QAM	20450	1RB#49	22.37	22.35	PASS
LTE Band 5	10	16QAM	20450	25RB#0	21.58	21.56	PASS
LTE Band 5	10	16QAM	20450	25RB#13	21.53	21.51	PASS
LTE Band 5	10	16QAM	20450	25RB#25	21.48	21.46	PASS
LTE Band 5	10	16QAM	20450	50RB#0	21.53	21.51	PASS
LTE Band 5	10	16QAM	20525	1RB#0	22.45	22.19	PASS
LTE Band 5	10	16QAM	20525	1RB#25	22.42	22.16	PASS
LTE Band 5	10	16QAM	20525	1RB#49	22.37	22.11	PASS
LTE Band 5	10	16QAM	20525	25RB#0	21.39	21.13	PASS
LTE Band 5	10	16QAM	20525	25RB#13	21.66	21.40	PASS
LTE Band 5	10	16QAM	20525	25RB#25	21.47	21.21	PASS
LTE Band 5	10	16QAM	20525	50RB#0	21.56	21.30	PASS
LTE Band 5	10	16QAM	20600	1RB#0	22.16	22.30	PASS
LTE Band 5	10	16QAM	20600	1RB#25	22.35	22.49	PASS
LTE Band 5	10	16QAM	20600	1RB#49	22.44	22.58	PASS

LTE Band 5	10	16QAM	20600	25RB#0	21.45	21.59	PASS
LTE Band 5	10	16QAM	20600	25RB#13	21.51	21.65	PASS
LTE Band 5	10	16QAM	20600	25RB#25	21.47	21.61	PASS
LTE Band 5	10	16QAM	20600	50RB#0	21.38	21.52	PASS

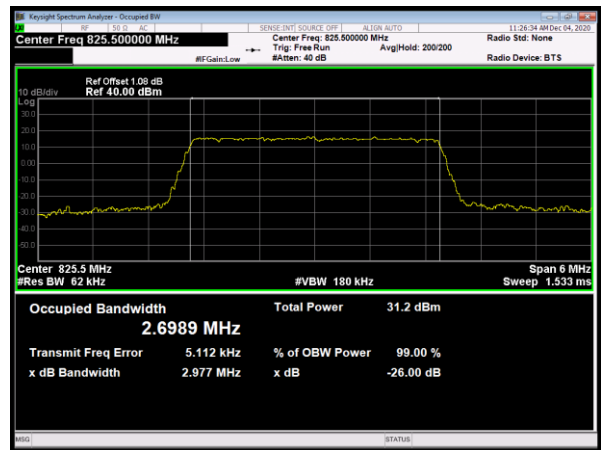
6.2. Occupied Bandwidth

LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.0895	1.300
			20525	836.5	1.0958	1.289
			20643	848.3	1.1042	1.275
		3	20415	825.5	2.6989	2.977
			20525	836.5	2.7106	2.989
			20635	847.5	2.7109	2.991
		5	20425	826.5	4.5099	4.989
			20525	836.5	4.5181	4.938
			20625	846.5	4.5064	4.993
		10	20450	829	8.9767	9.844
			20525	836.5	8.9663	9.952
			20600	844	8.9567	9.862
	16QAM	1.4	20407	824.7	1.0972	1.294
			20525	836.5	1.0923	1.266
			20643	848.3	1.0936	1.289
		3	20415	825.5	2.6899	2.992
			20525	836.5	2.6901	2.962
			20635	847.5	2.7066	3.016
		5	20425	826.5	4.5048	4.987
			20525	836.5	4.5200	5.015
			20625	846.5	4.5246	4.976
		10	20450	829	8.9723	9.806
			20525	836.5	8.9737	9.810
			20600	844	8.9835	9.808

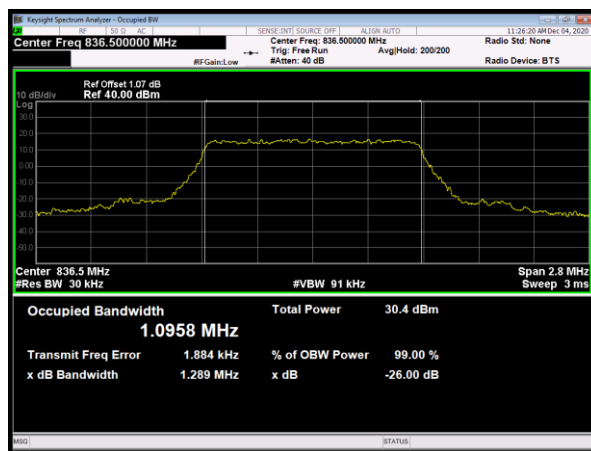
LTE Band 5 QPSK 1.4MHz CH-Low



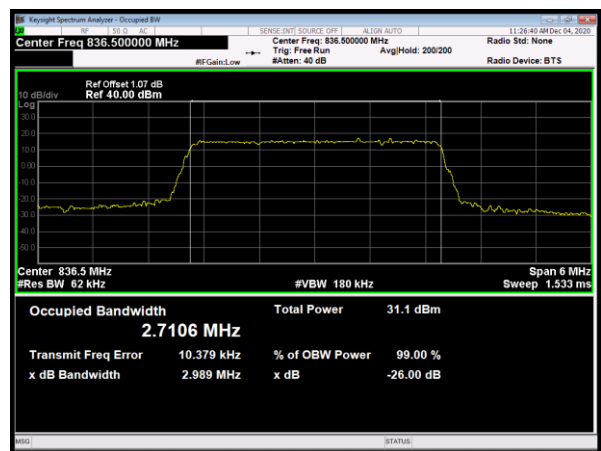
LTE Band 5 QPSK 3MHz CH-Low



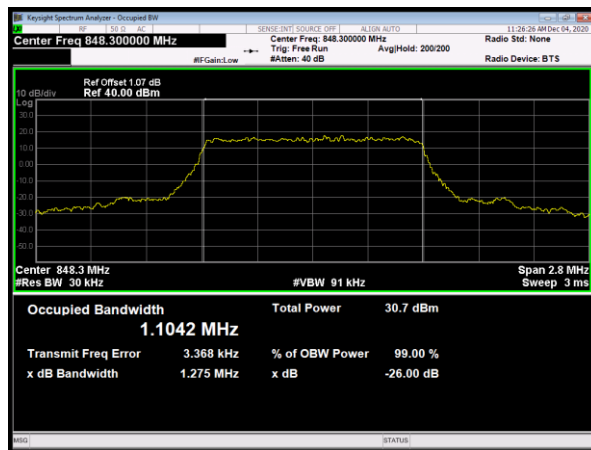
LTE Band 5 QPSK 1.4MHz CH-Middle



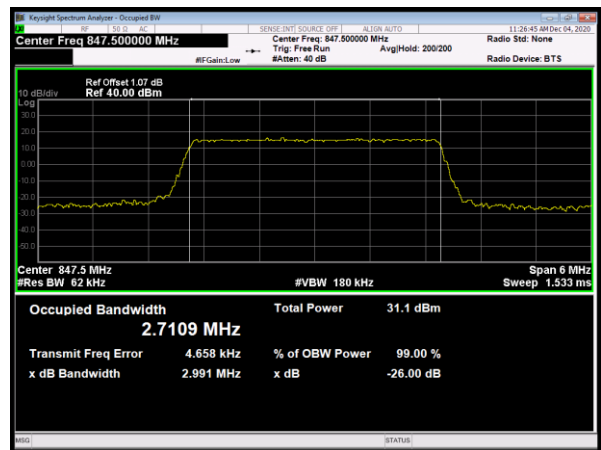
LTE Band 5 QPSK 3MHz CH-Middle



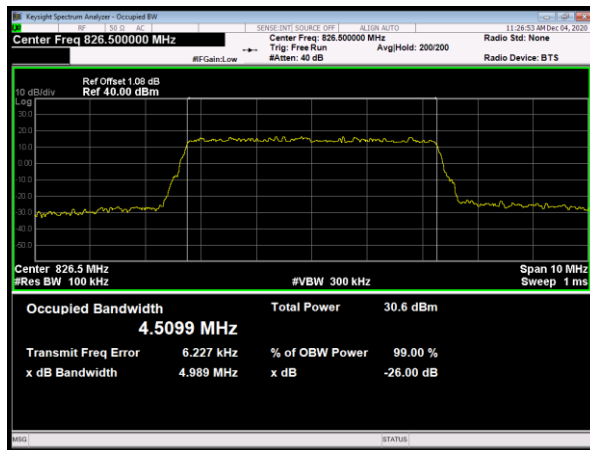
LTE Band 5 QPSK 1.4MHz CH-High



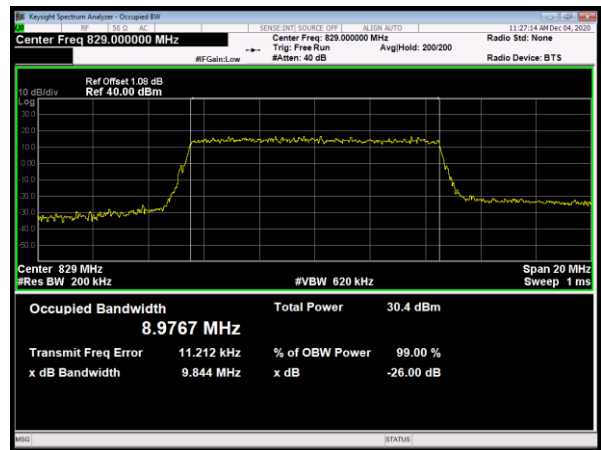
LTE Band 5 QPSK 3MHz CH-High



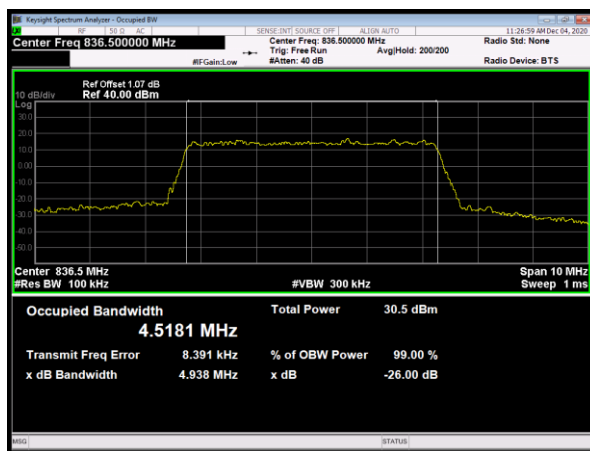
LTE Band 5 QPSK 5MHz CH-Low



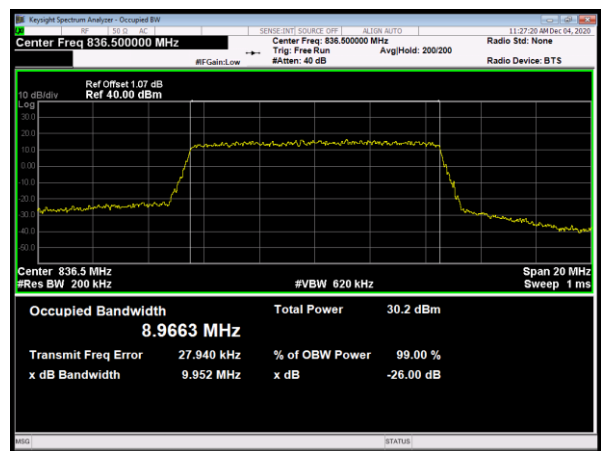
LTE Band 5 QPSK 10MHz CH-Low



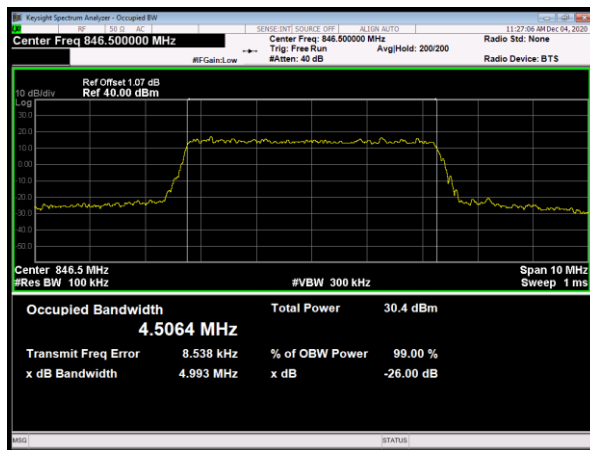
LTE Band 5 QPSK 5MHz CH-Middle



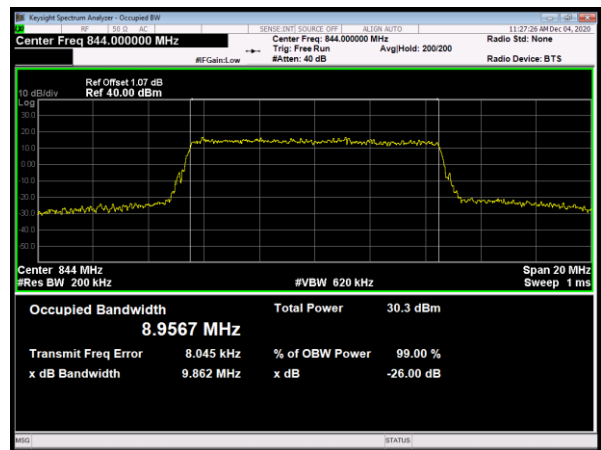
LTE Band 5 QPSK 10MHz CH-Middle



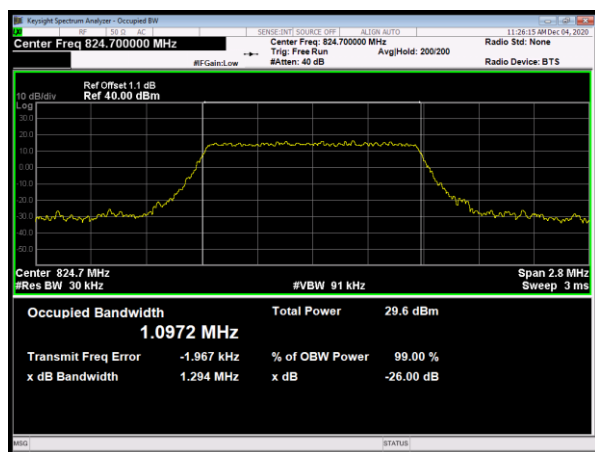
LTE Band 5 QPSK 5MHz CH-High



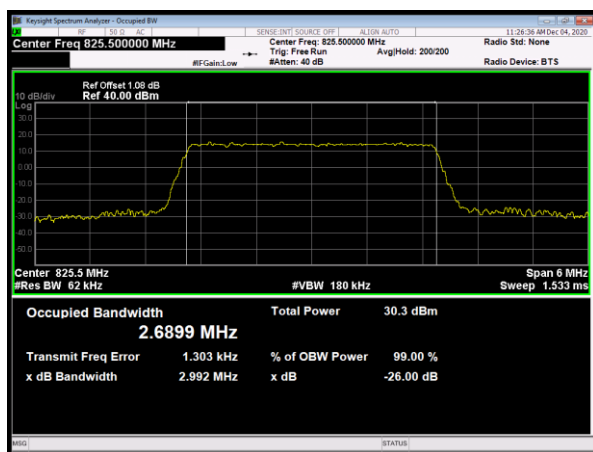
LTE Band 5 QPSK 10MHz CH-High



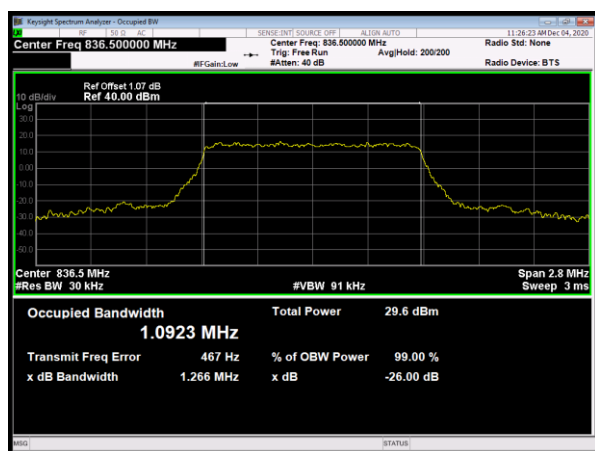
LTE Band 5 16QAM 1.4MHz CH-Low



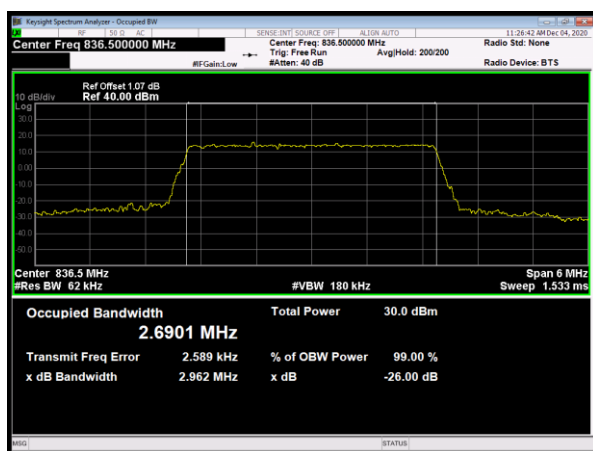
LTE Band 5 16QAM 3MHz CH-Low



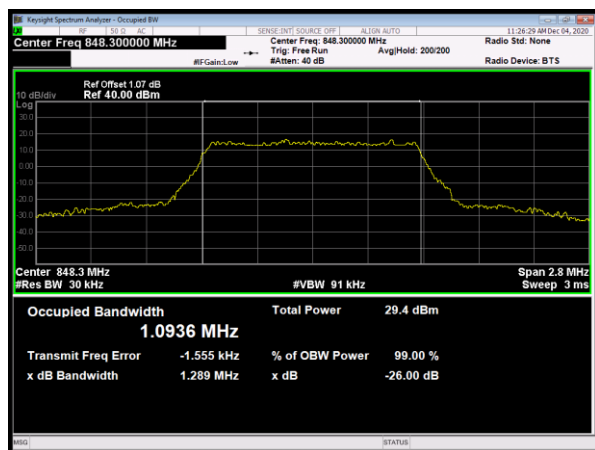
LTE Band 5 16QAM 1.4MHz CH-Middle



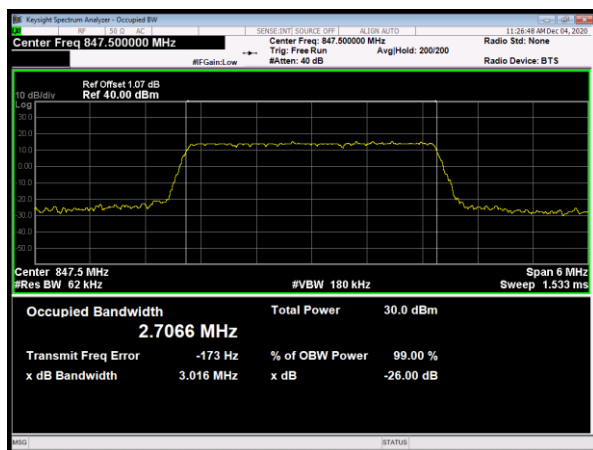
LTE Band 5 16QAM 3MHz CH-Middle



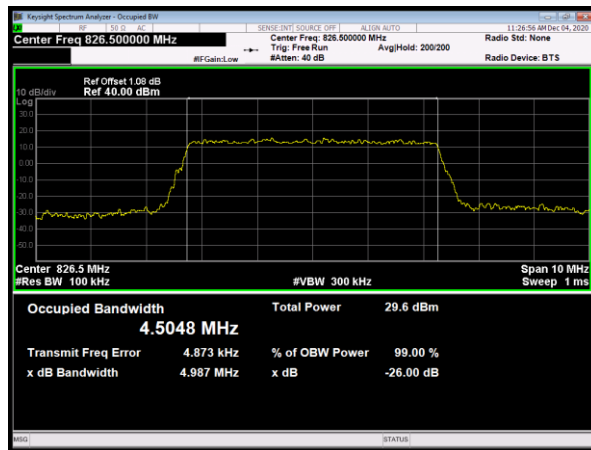
LTE Band 5 16QAM 1.4MHz CH-High



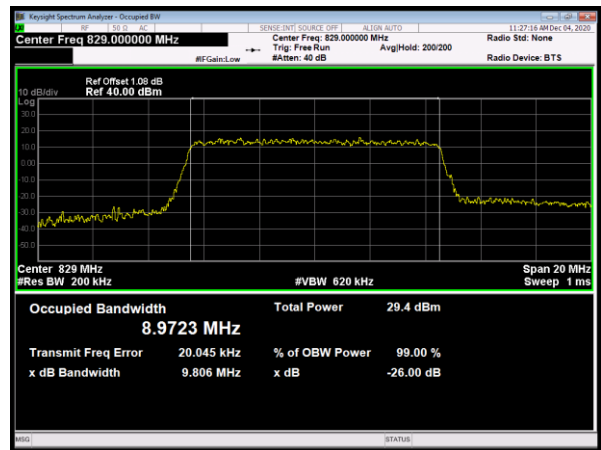
LTE Band 5 16QAM 3MHz CH-High



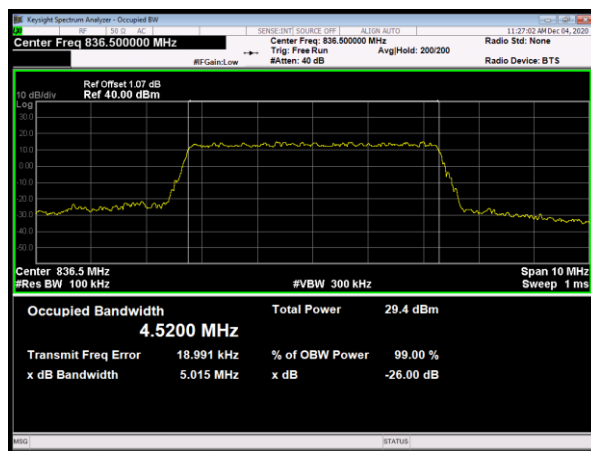
LTE Band 5 16QAM 5MHz CH-Low



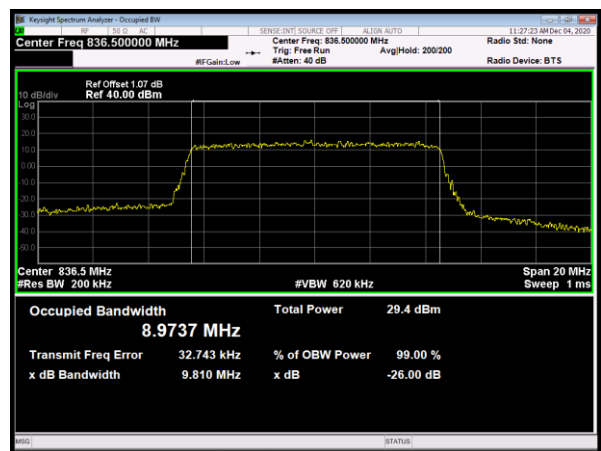
LTE Band 5 16QAM 10MHz CH-Low



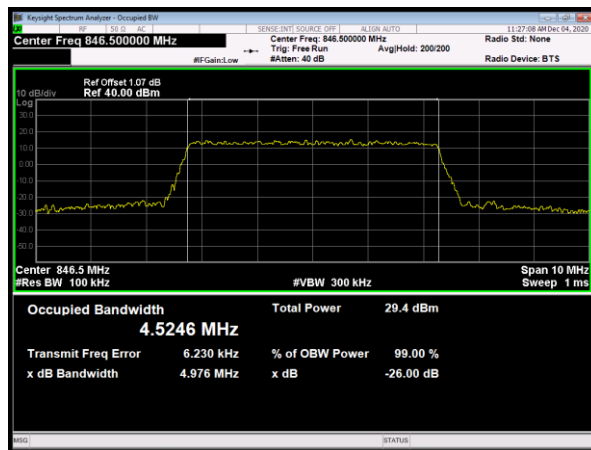
LTE Band 5 16QAM 5MHz CH-Middle



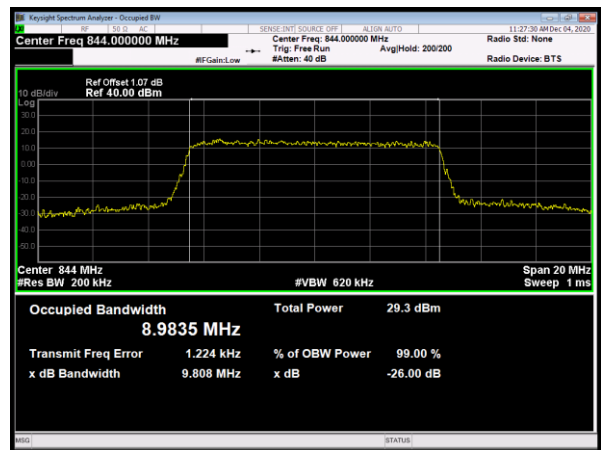
LTE Band 5 16QAM 10MHz CH-Middle



LTE Band 5 16QAM 5MHz CH-High

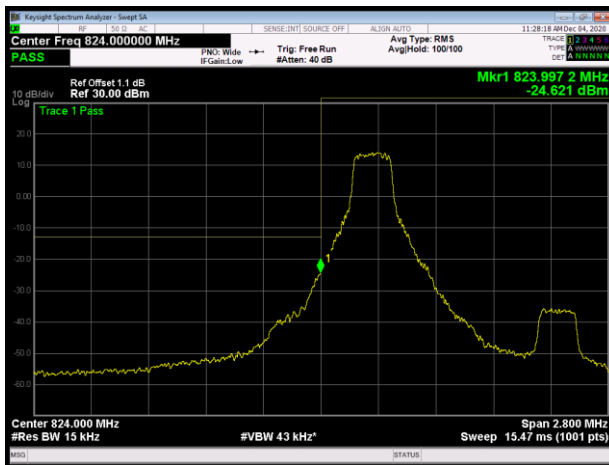


LTE Band 5 16QAM 10MHz CH-High

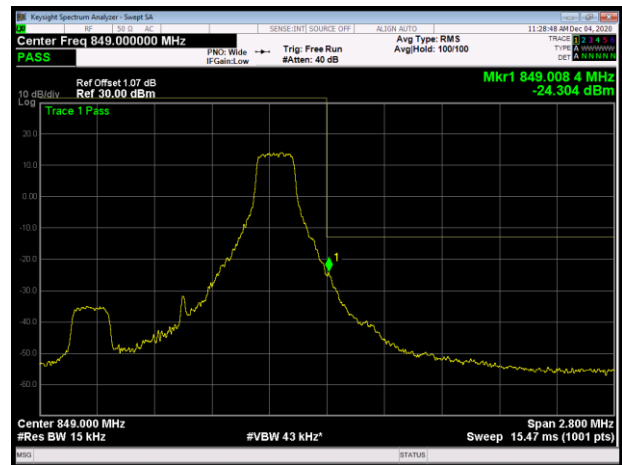


6.3. Band Edge Compliance

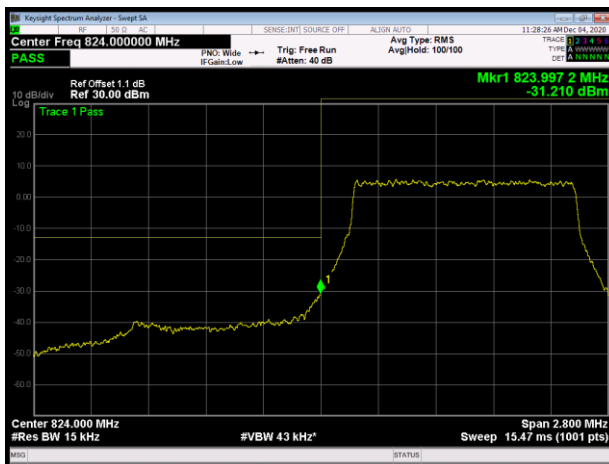
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



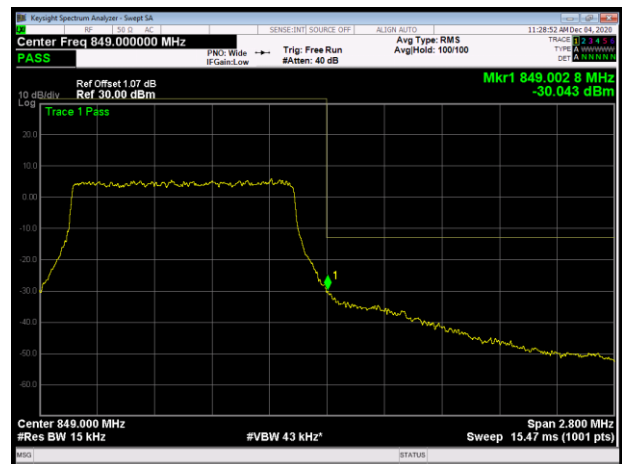
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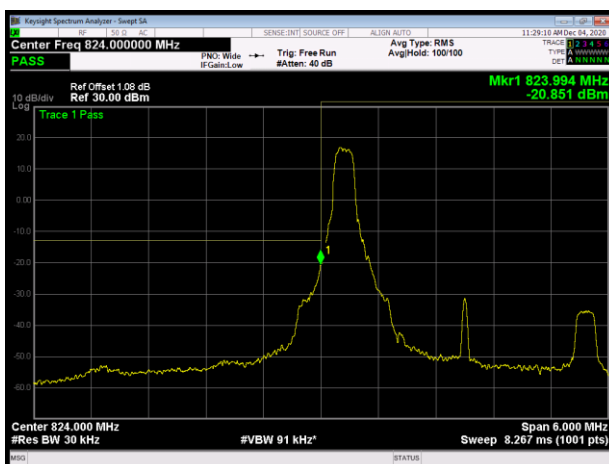
LTE Band 5 QPSK 1.4MHz CH-Low 100%RB



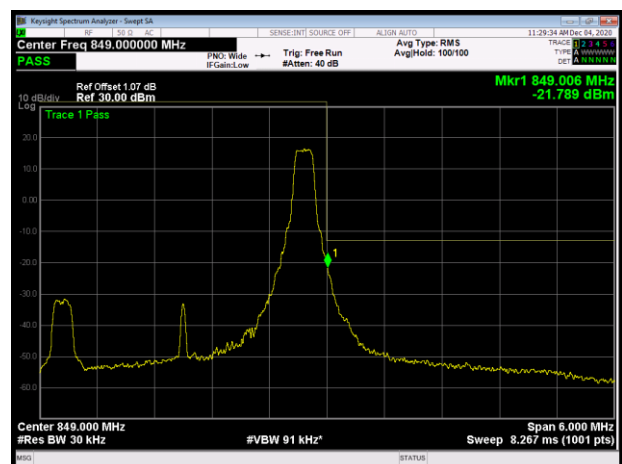
LTE Band 5 QPSK 1.4MHz CH-High 100%RB



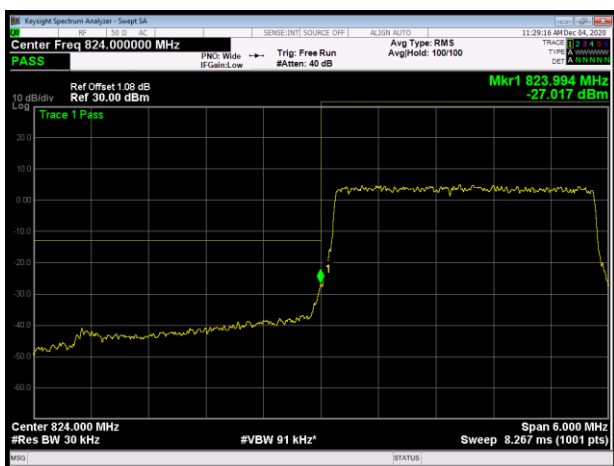
LTE Band 5 QPSK 3MHz CH-Low 1RB



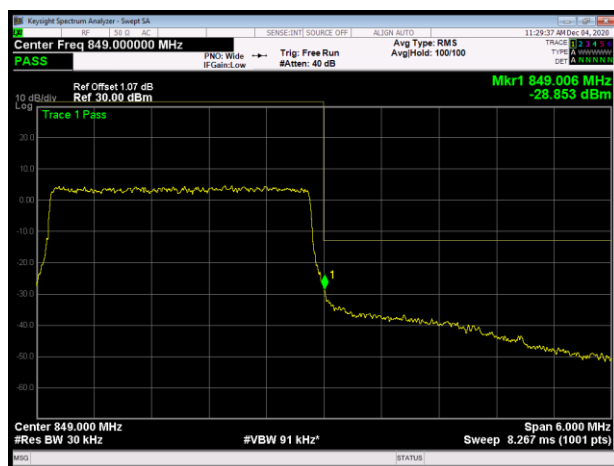
LTE Band 5 QPSK 3MHz CH-High 1RB



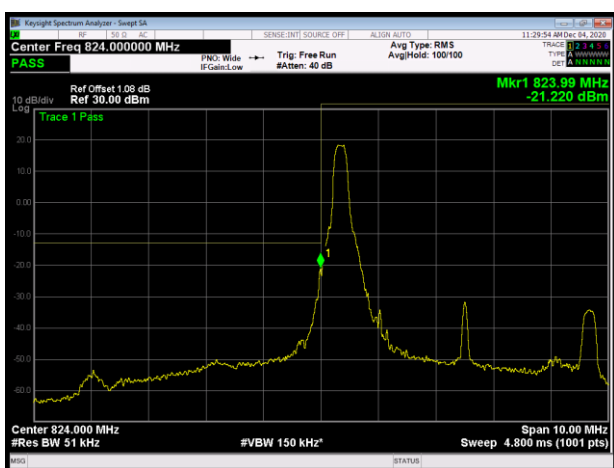
LTE Band 5 QPSK 3MHz CH-Low 100%RB



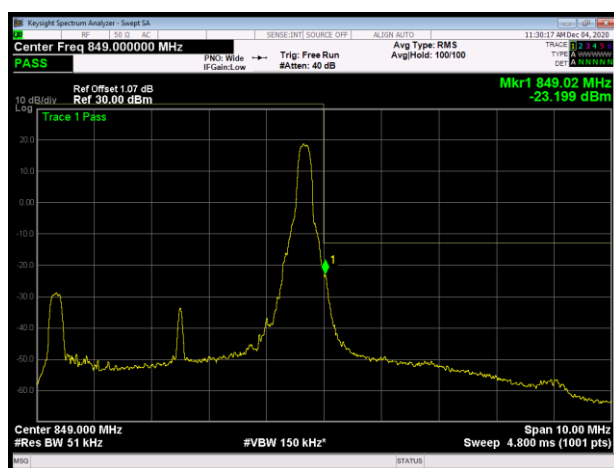
LTE Band 5 QPSK 3MHz CH-High 100%RB



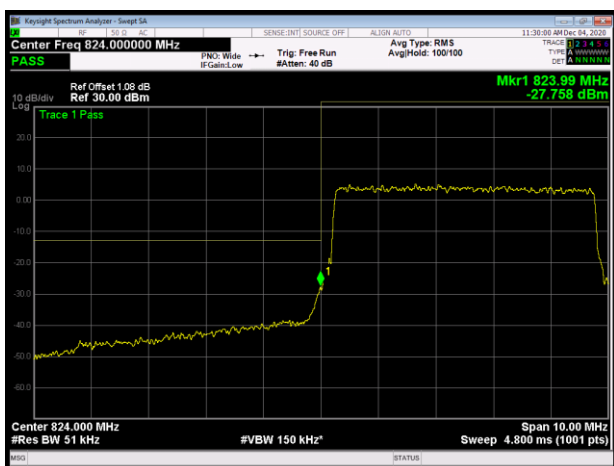
LTE Band 5 QPSK 5MHz CH-Low 1RB



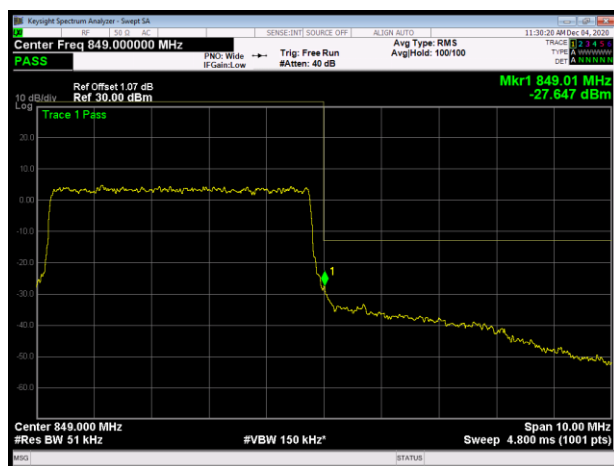
LTE Band 5 QPSK 5MHz CH-High 1RB



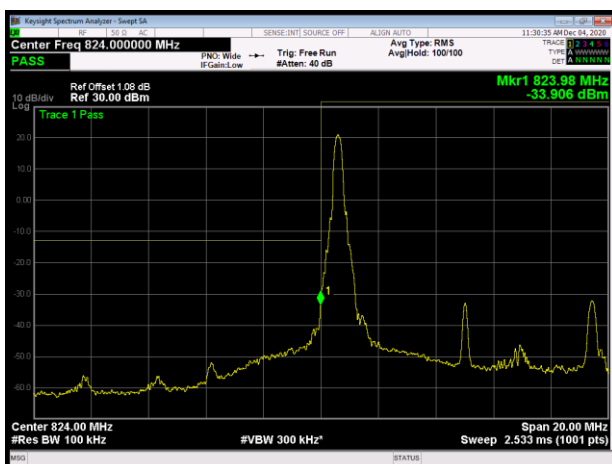
LTE Band 5 QPSK 5MHz CH-Low 100%RB



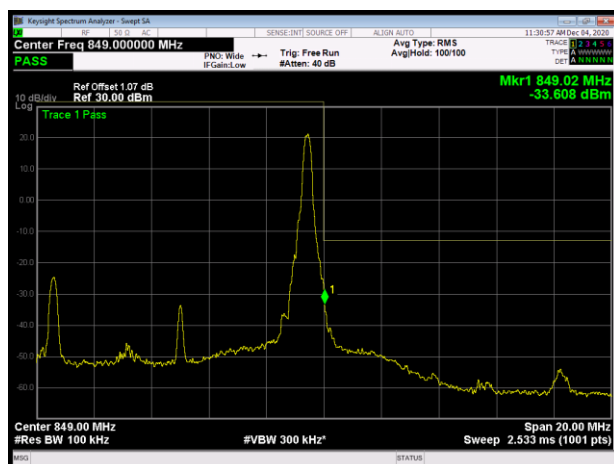
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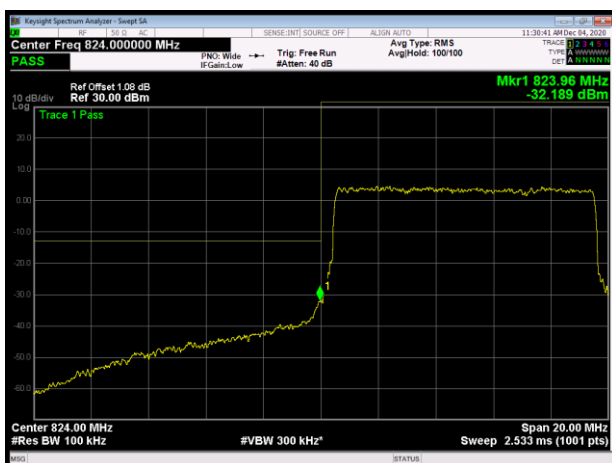
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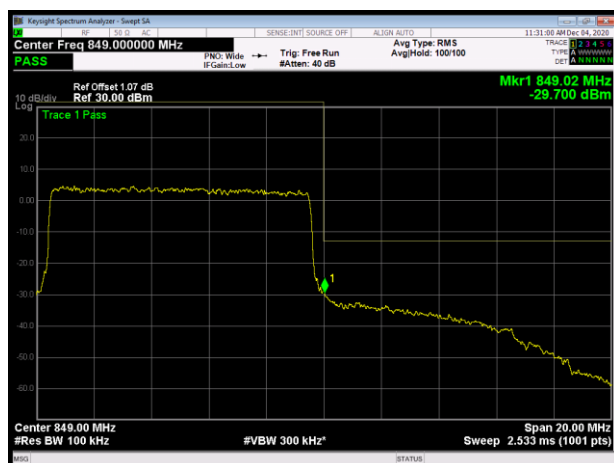
LTE Band 5 QPSK 10MHz CH-High 1RB



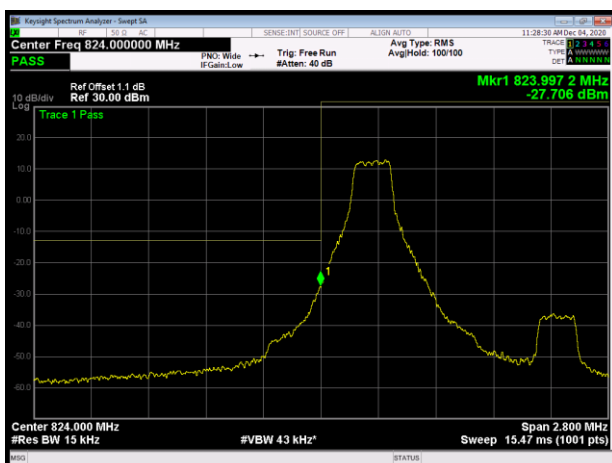
LTE Band 5 QPSK 10MHz CH-Low 100%RB



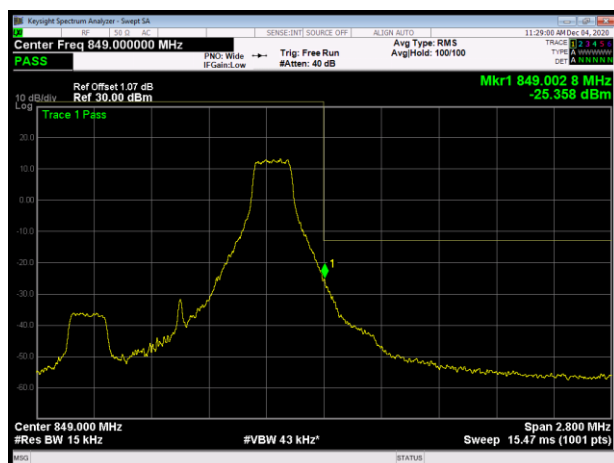
LTE Band 5 QPSK 10MHz CH-High 100%RB



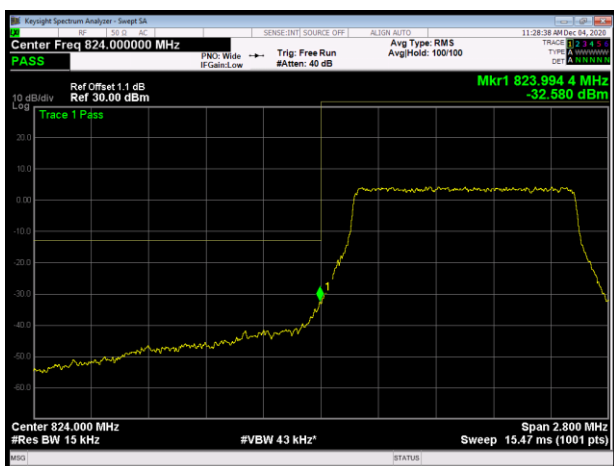
LTE Band 5 16QAM 1.4MHz CH-Low 1RB



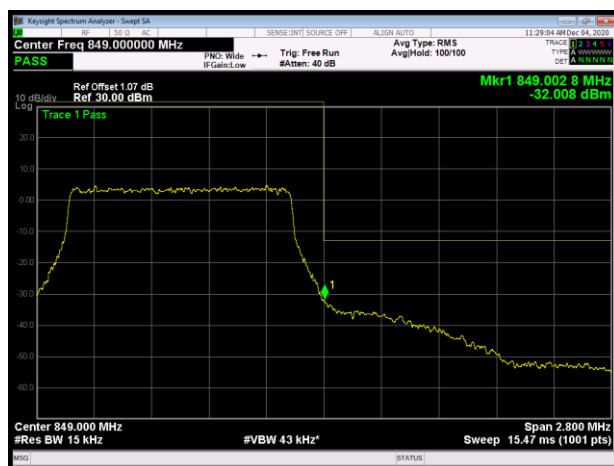
LTE Band 5 16QAM 1.4MHz CH-High 1RB



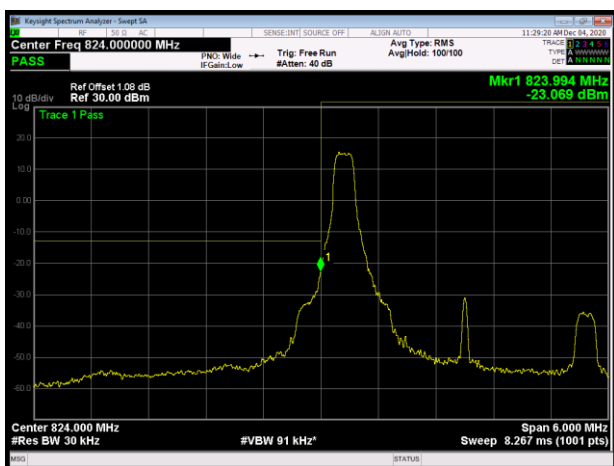
LTE Band 5 16QAM 1.4MHz CH-Low 100%RB



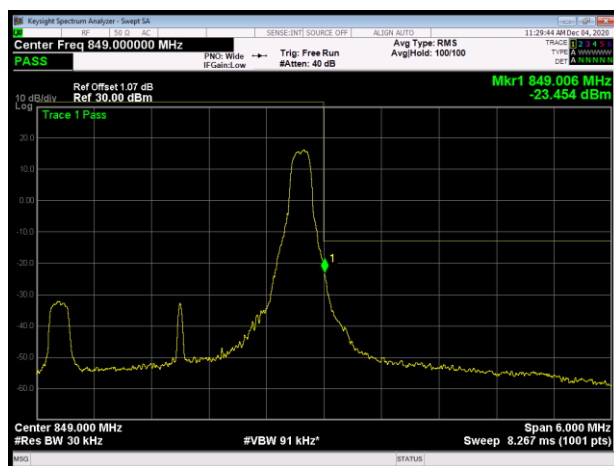
LTE Band 5 16QAM 1.4MHz CH-High 100%RB



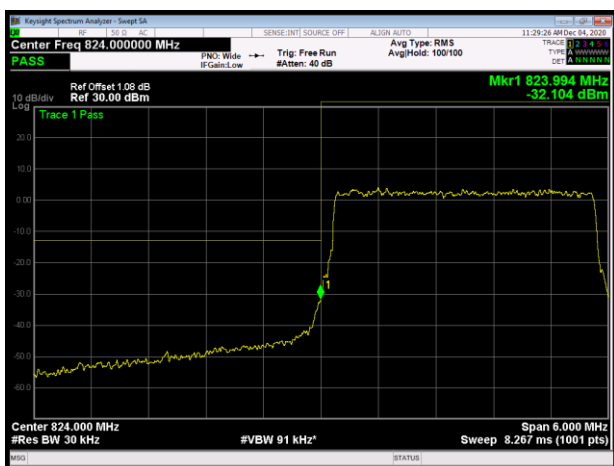
LTE Band 5 16QAM 3MHz CH-Low 1RB



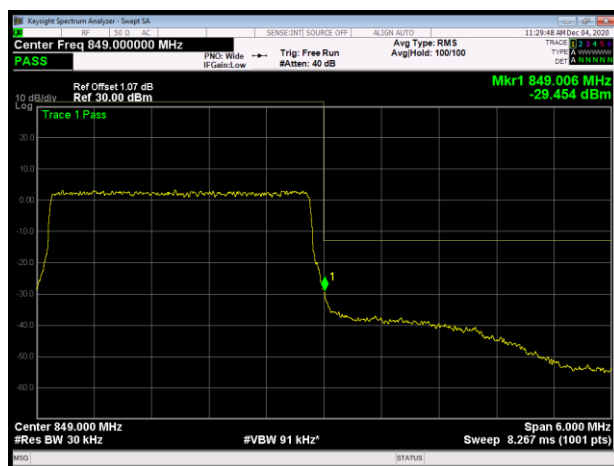
LTE Band 5 16QAM 3MHz CH-High 1RB



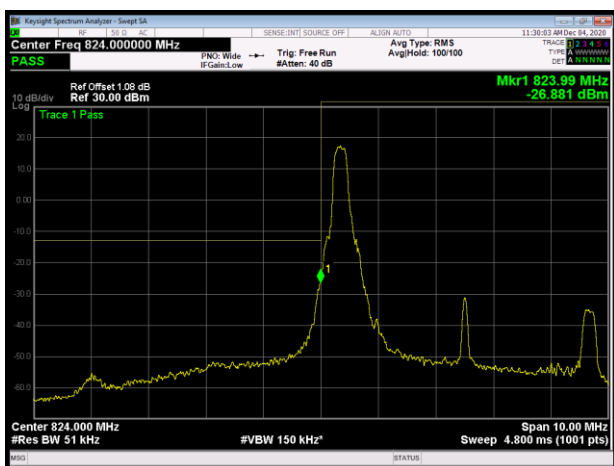
LTE Band 5 16QAM 3MHz CH-Low 100%RB



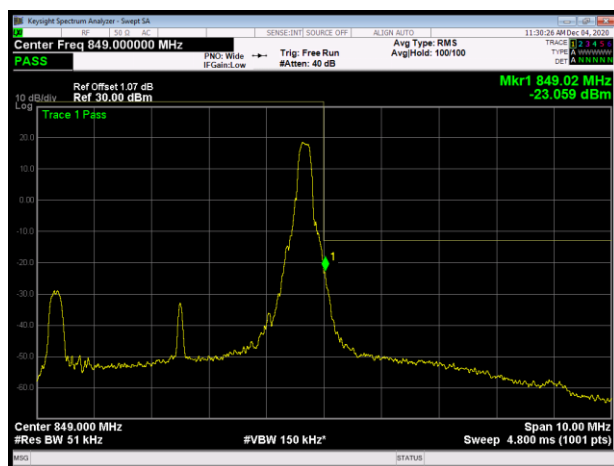
LTE Band 5 16QAM 3MHz CH-High 100%RB



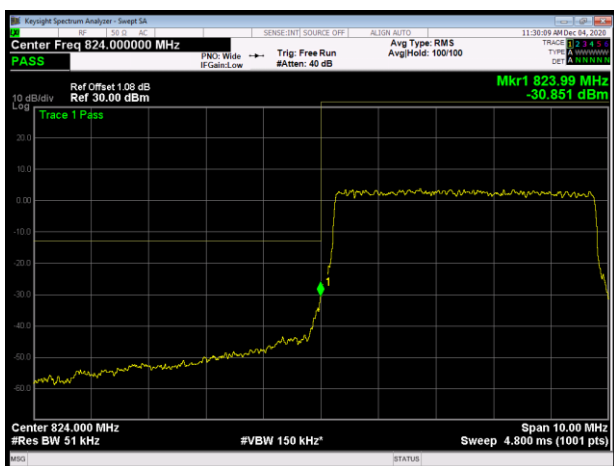
LTE Band 5 16QAM 5MHz CH-Low 1RB



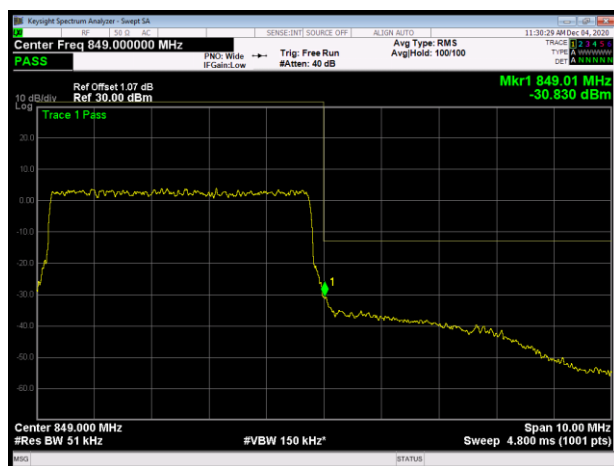
LTE Band 5 16QAM 5MHz CH-High 1RB



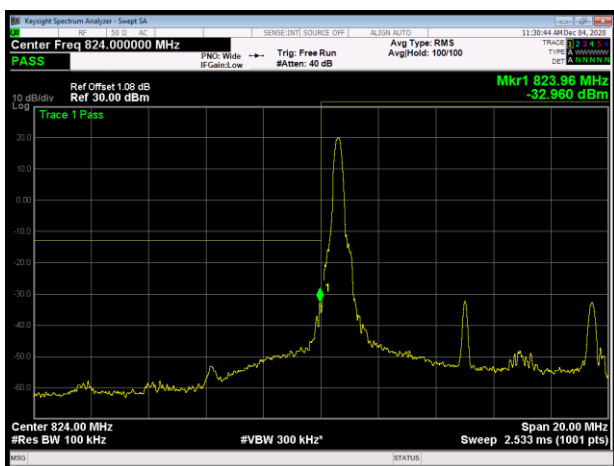
LTE Band 5 16QAM 5MHz CH-Low 100%RB



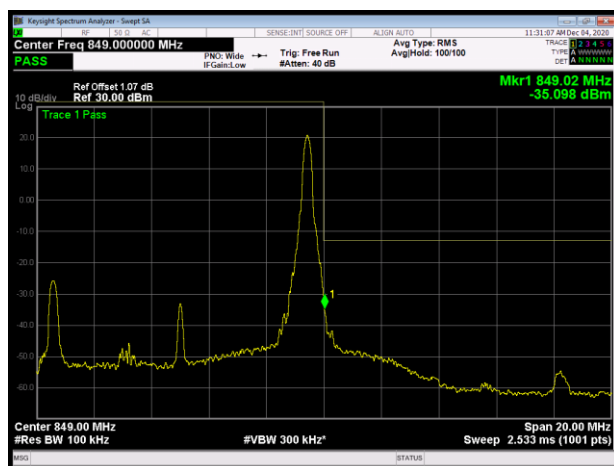
LTE Band 5 16QAM 5MHz CH-High 100%RB



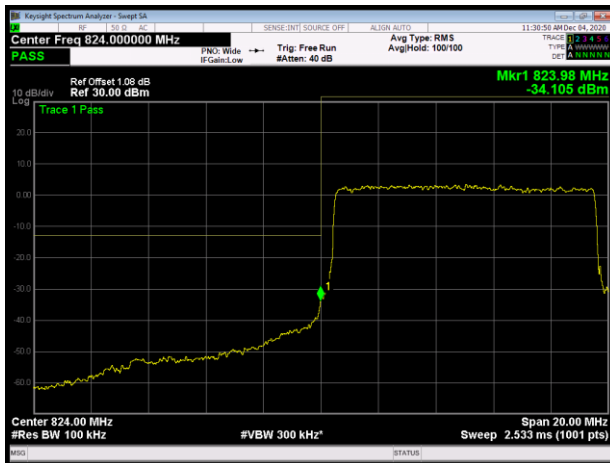
LTE Band 5 16QAM 10MHz CH-Low 1RB



LTE Band 5 16QAM 10MHz CH-High 1RB



LTE Band 5 16QAM 10MHz CH-Low 100%RB



LTE Band 5 16QAM 10MHz CH-High 100%RB



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

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

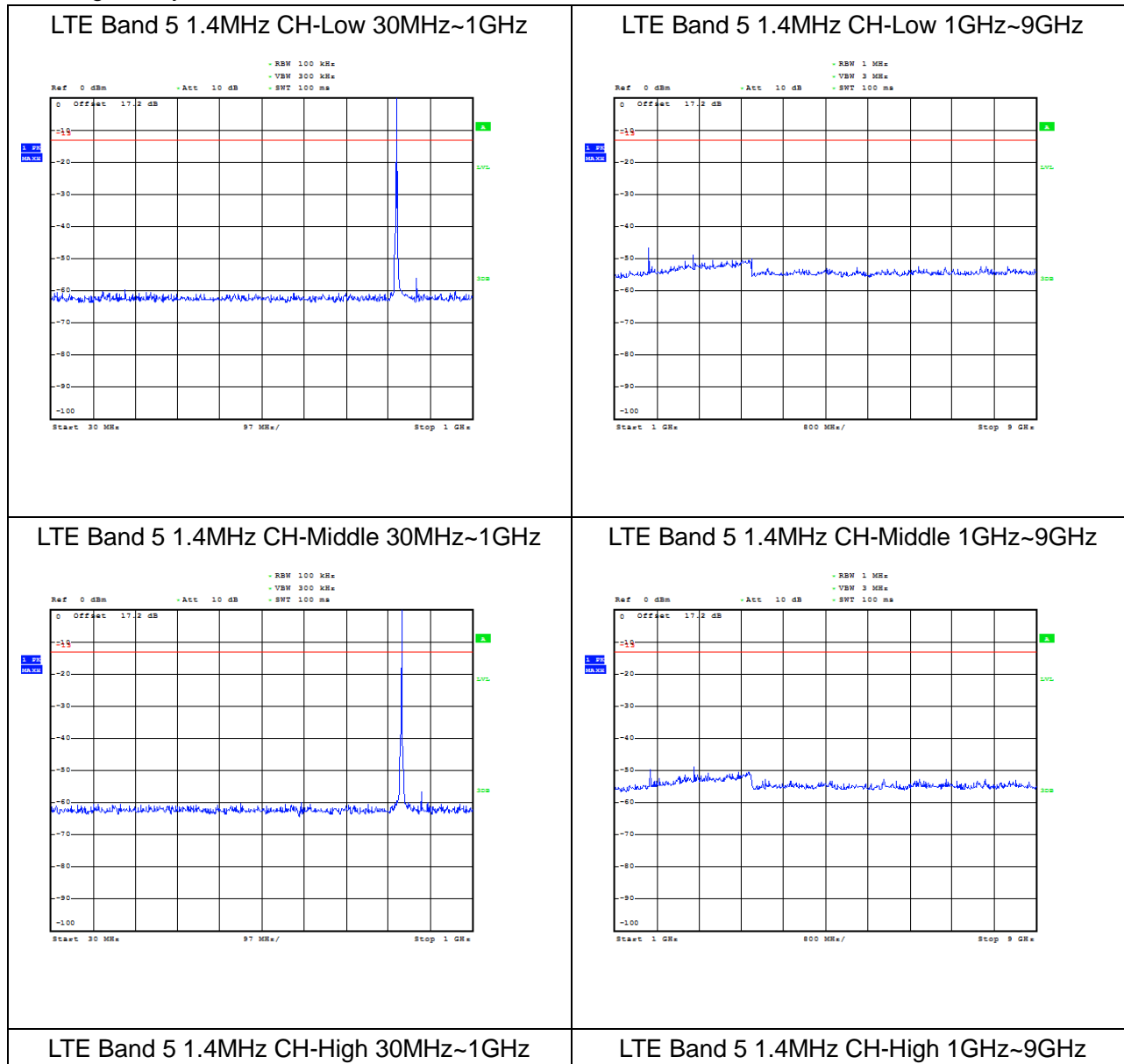
LTE Band 5					
(QPSK, 10MHz BANDWIDTH)					
Condition		824	849	Delta	Frequency
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)	(Hz)	Stability(ppm)
Normal (25°C)	Normal	824.2278	848.7882	-1.43	-0.00171
Extreme (85°C)		824.2267	848.7869	-2.41	-0.00288
Extreme (80°C)		824.2306	848.7908	-2.50	-0.00299
Extreme (70°C)		824.2287	848.7889	0.82	0.00098
Extreme (60°C)		824.2301	848.7903	-1.43	-0.00171
Extreme (50°C)		824.2295	848.7897	2.92	0.00349
Extreme (40°C)		824.2282	848.7884	-1.20	-0.00143
Extreme (30°C)		824.2275	848.7877	2.21	0.00264
Extreme (20°C)		824.2296	848.7898	0.38	0.00045
Extreme (10C)		824.2284	848.7886	3.45	0.00412
Extreme (0°C)		824.2297	848.7899	-1.44	-0.00172
Extreme (-10°C)		824.2302	848.7904	6.79	0.00812
Extreme (-20°C)		824.2291	848.7893	2.71	0.00324
Extreme (-30°C)		824.2258	848.7863	0.29	0.00035
Extreme (-40°C)		824.2246	848.7848	2.69	0.00322
25°C	LV	824.2294	848.7896	3.32	0.00397
	HV	824.2288	848.7896	2.46	0.00294
(16QAM,10MHz BANDWIDTH)					
Condition		824	849	Delta	Frequency
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)	(Hz)	Stability(ppm)
Normal (25°C)	Normal	824.3662	848.7284	-0.53	-0.00063
Extreme (85°C)		824.3673	848.7295	3.08	0.00368
Extreme (80°C)		824.3634	848.7256	0.09	0.00011
Extreme (70°C)		824.3653	848.7275	3.02	0.00361
Extreme (60°C)		824.3639	848.7261	1.81	0.00216
Extreme (50°C)		824.3645	848.7267	2.46	0.00294
Extreme (40°C)		824.3658	848.7283	2.02	0.00241
Extreme (30°C)		824.3665	848.7287	4.48	0.00536
Extreme (20°C)		824.3644	848.7266	-0.03	-0.00004
Extreme (10C)		824.3656	848.7278	2.03	0.00243
Extreme (0°C)		824.3643	848.7265	4.04	0.00483
Extreme (-10°C)		824.3638	848.7262	-1.67	-0.00200
Extreme (-20°C)		824.3649	848.7271	0.89	0.00106

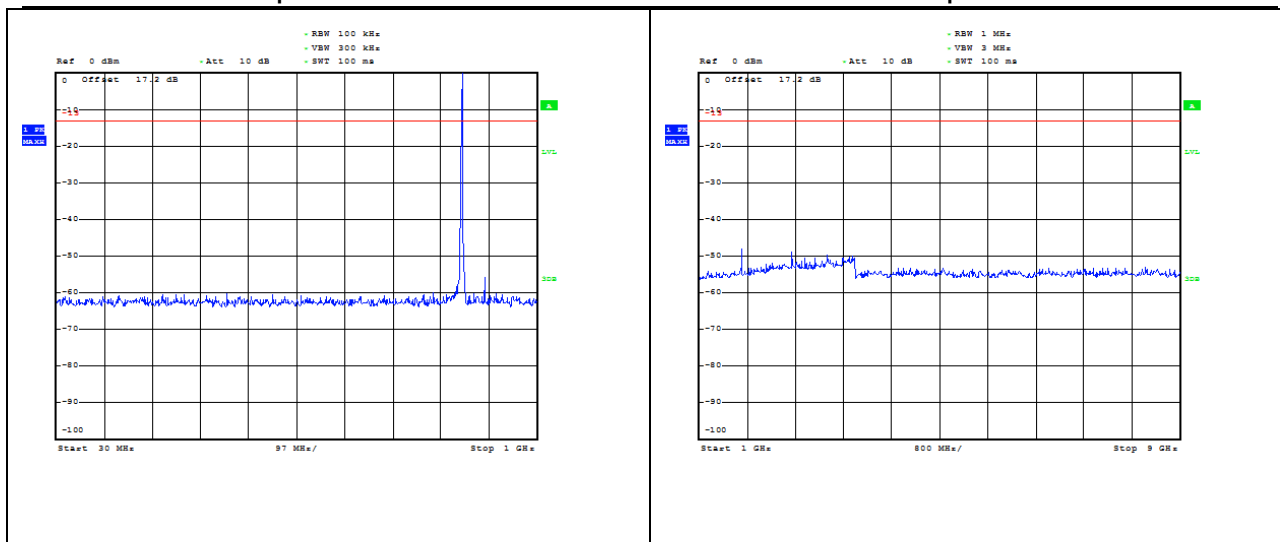
Extreme (-30°C)		824.3682	848.7304	1.83	0.00219
Extreme (-40°C)		824.3694	848.7316	2.92	0.00349
25°C	LV	824.3646	848.7268	-0.65	-0.00078
	HV	824.3652	848.7274	1.21	0.00145

6.6. Spurious Emissions at Antenna Terminals

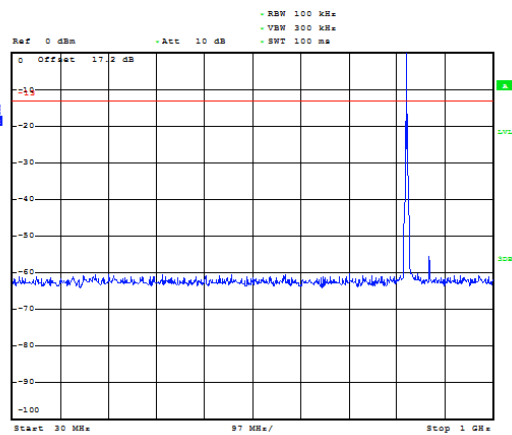
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

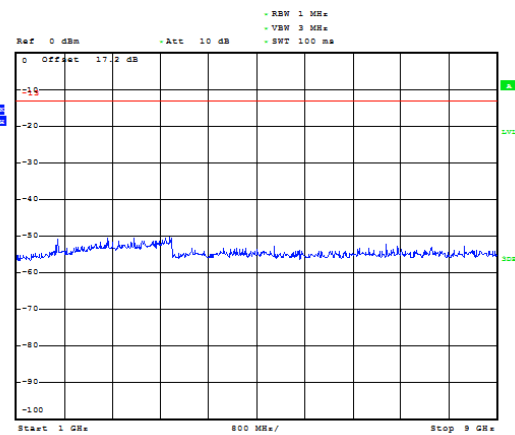




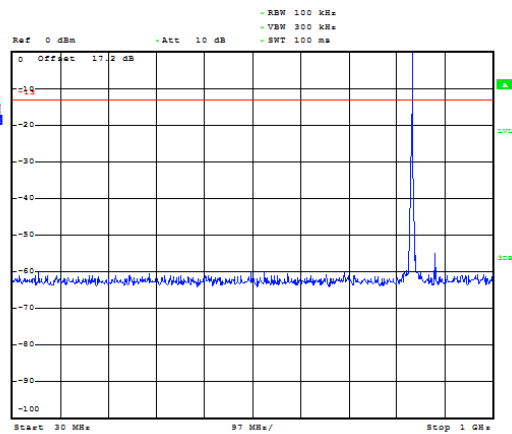
LTE Band 5 3MHz CH-Low 30MHz~1GHz



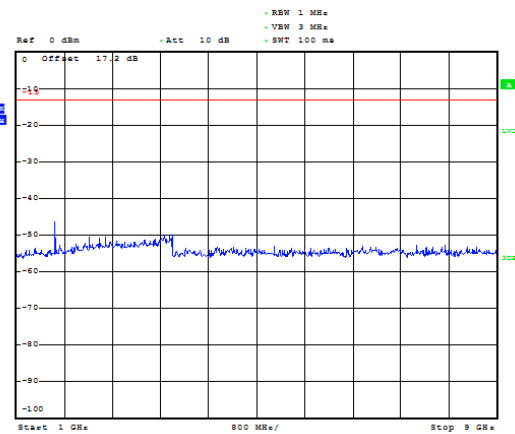
LTE Band 5 3MHz CH-Low 1GHz~9GHz



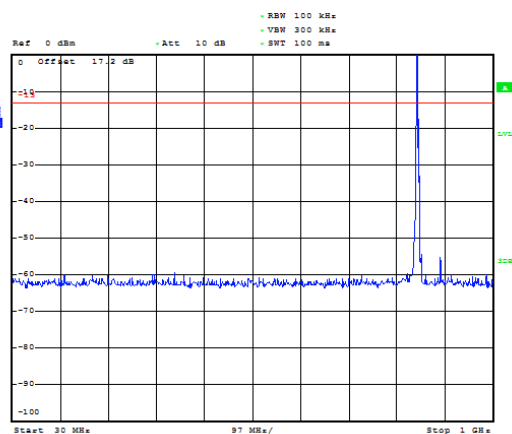
LTE Band 5 3MHz CH-Middle 30MHz~1GHz



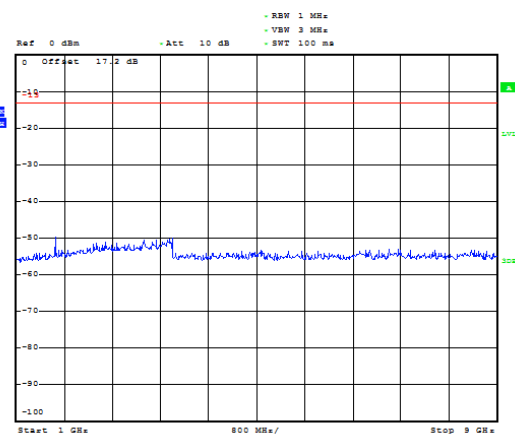
LTE Band 5 3MHz CH-Middle 1GHz~9GHz



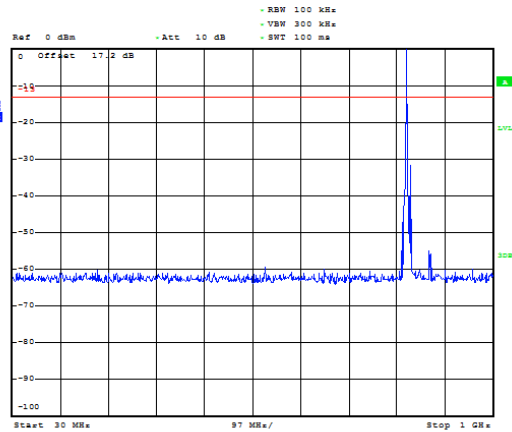
LTE Band 5 3MHz CH-High 30MHz~1GHz



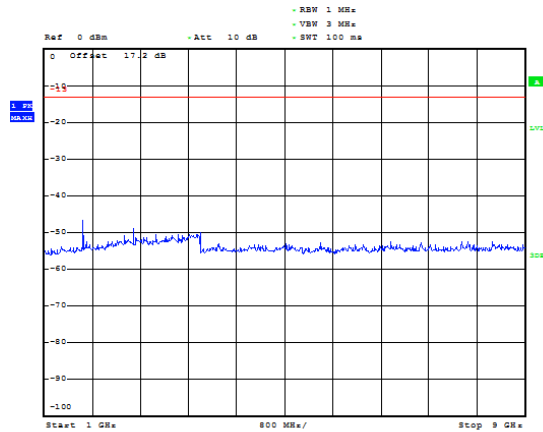
LTE Band 5 3MHz CH-High 1GHz~9GHz



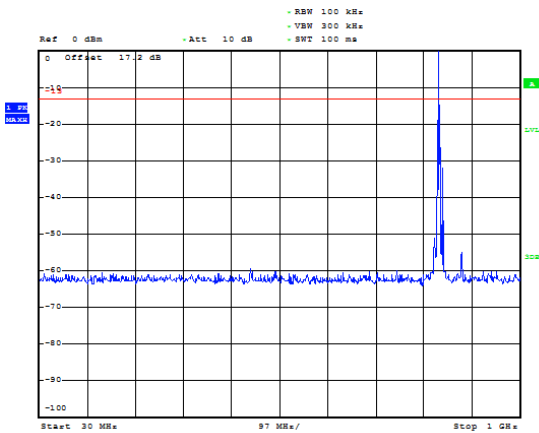
LTE Band 5 5MHz CH-Low 30MHz~1GHz



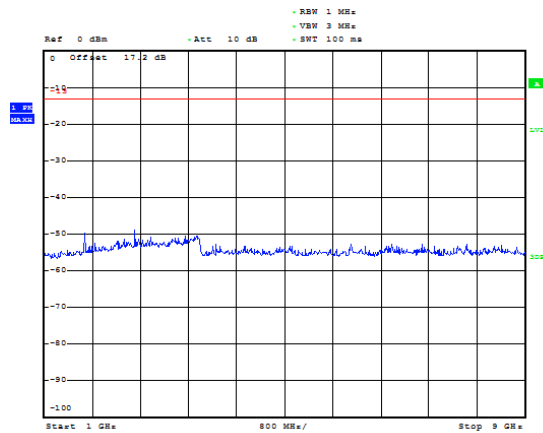
LTE Band 5 5MHz CH-Low 1GHz~9GHz



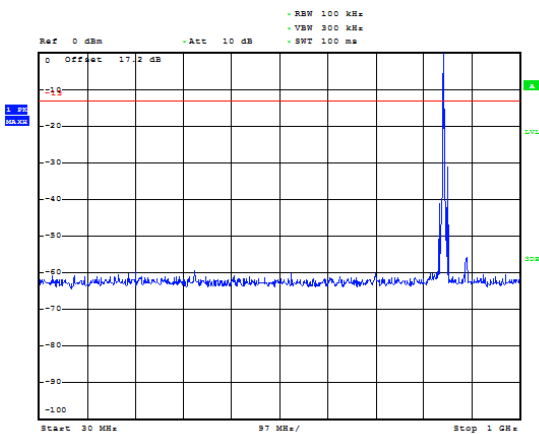
LTE Band 5 5MHz CH-Middle 30MHz~1GHz



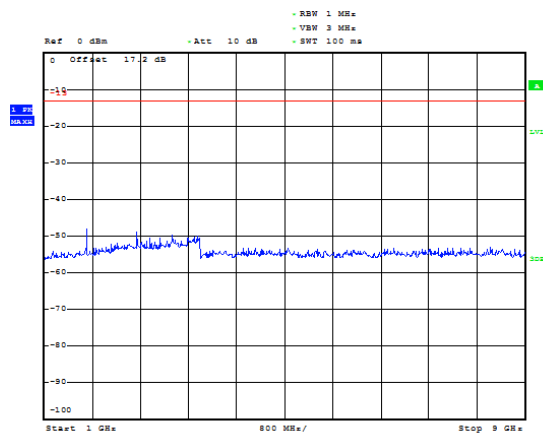
LTE Band 5 5MHz CH-Middle 1GHz~9GHz



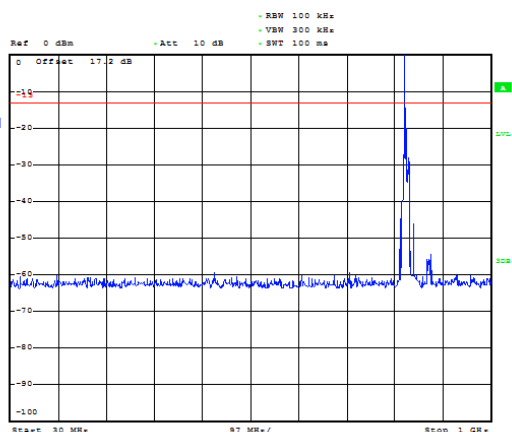
LTE Band 5 5MHz CH-High 30MHz~1GHz



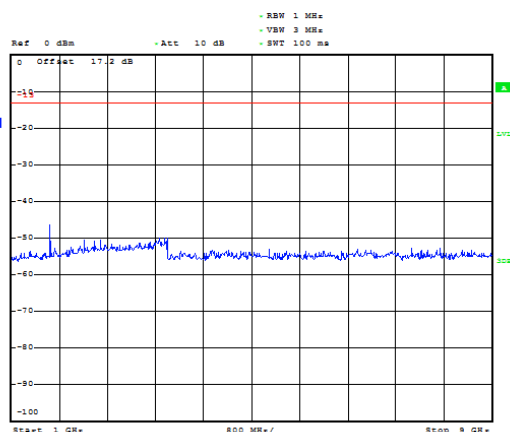
LTE Band 5 5MHz CH-High 1GHz~9GHz



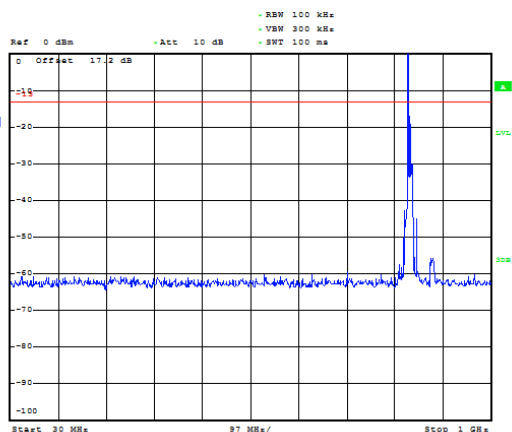
LTE Band 5 10MHz CH-Low 30MHz~1GHz



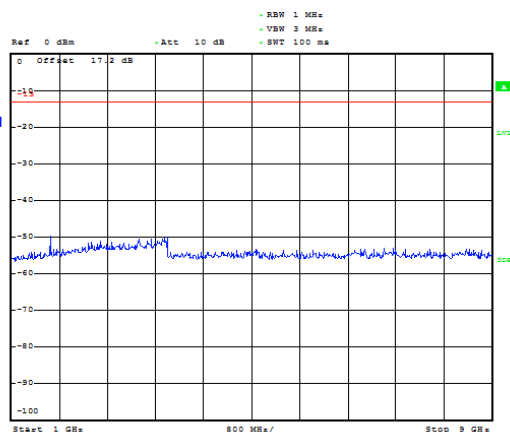
LTE Band 5 10MHz CH-Low 1GHz~9GHz



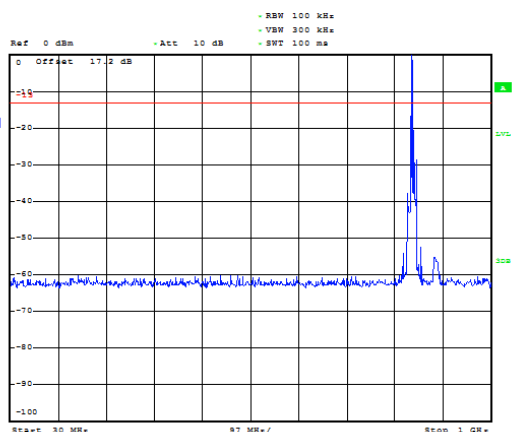
LTE Band 5 10MHz CH-Middle 30MHz~1GHz



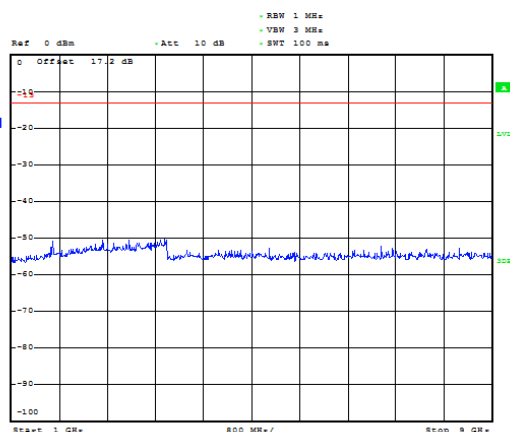
LTE Band 5 10MHz CH-Middle 1GHz~9GHz



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 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-46.18	1.70	8.70	Horizontal	-41.33	-13.00	28.33	225
3	2509.5	-51.30	2.30	12.00	Horizontal	-43.75	-13.00	30.75	45
4	3346.0	-58.37	2.70	12.70	Horizontal	-50.52	-13.00	37.52	45
5	4182.5	-63.70	3.00	12.50	Horizontal	-56.35	-13.00	43.35	270
6	5019.0	-57.72	3.40	12.50	Horizontal	-50.77	-13.00	37.77	180
7	5855.5	-61.44	3.40	12.80	Horizontal	-54.19	-13.00	41.19	90
8	6692.0	-57.62	4.10	11.50	Horizontal	-52.37	-13.00	39.37	315
9	7528.5	-55.31	4.20	12.20	Horizontal	-49.46	-13.00	36.46	45
10	8365.0	-55.14	4.30	12.50	Horizontal	-49.09	-13.00	36.09	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 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-52.33	1.70	8.70	Horizontal	-47.48	-13.00	34.48	0
3	2509.5	-52.00	2.30	12.00	Horizontal	-44.45	-13.00	31.45	315
4	3337.5	-58.37	2.70	12.70	Horizontal	-50.52	-13.00	37.52	45
5	4171.9	-64.04	3.00	12.50	Horizontal	-56.69	-13.00	43.69	270
6	5006.3	-57.92	3.40	12.50	Horizontal	-50.97	-13.00	37.97	180
7	5840.6	-62.36	3.40	12.80	Horizontal	-55.11	-13.00	42.11	0
8	6675.0	-58.12	4.10	11.50	Horizontal	-52.87	-13.00	39.87	45
9	7509.4	-55.49	4.20	12.20	Horizontal	-49.64	-13.00	36.64	315
10	8343.8	-55.68	4.30	12.50	Horizontal	-49.63	-13.00	36.63	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-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-53.62	1.70	8.70	Horizontal	-48.77	-13.00	35.77	0
3	2509.5	-52.83	2.30	12.00	Horizontal	-45.28	-13.00	32.28	180
4	3346.0	-59.61	2.70	12.70	Horizontal	-51.76	-13.00	38.76	180
5	4182.5	-63.21	3.00	12.50	Horizontal	-55.86	-13.00	42.86	45
6	5019.0	-60.82	3.40	12.50	Horizontal	-53.87	-13.00	40.87	270
7	5855.5	-62.73	3.40	12.80	Horizontal	-55.48	-13.00	42.48	180
8	6692.0	-58.72	4.10	11.50	Horizontal	-53.47	-13.00	40.47	0
9	7528.5	-56.54	4.20	12.20	Horizontal	-50.69	-13.00	37.69	45
10	8365.0	-55.97	4.30	12.50	Horizontal	-49.92	-13.00	36.92	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.

7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2020-05-18	2021-05-17
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2020-05-27	2021-05-26
Signal Analyzer	R&S	FSV30	100815	2019-12-15	2020-12-14
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2019-12-16	2021-12-15
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preamplifier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-06-12	2020-12-11
Software	R&S	EMC32	9.26.0	/	/

ANNEX A: The EUT Appearance

The EUT Appearance is submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos is submitted separately.

ANNEX C: Product Change Description (Variant 1)

The Product Change Description are submitted separately.

ANNEX D: Product Change Description (Variant 2)

The Product Change Description are submitted separately.

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