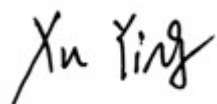


RF TEST REPORT

Applicant	COOSEA GROUP (HK) COMPANY LIMITED
FCC ID	2A28USL112
Product	Smart Phone
Model	SL112A; SL112C
Report No.	R2212A1312-R1
Issue Date	March 16, 2023

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2022)/ FCC CFR 47 Part 22H (2022)**. 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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TABLE OF CONTENT

1. Test Laboratory	4
1.1. Notes of the Test Report	4
1.2. Test Facility	4
1.3. Testing Location	4
2. General Description of Equipment Under Test	5
2.1. Applicant and Manufacturer Information	5
2.2. General Information	5
3. Applied Standards	7
4. Test Configuration	8
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	27
6.3. Band Edge Compliance	36
6.4. Peak-to-Average Power Ratio (PAPR)	45
6.5. Frequency Stability	47
6.6. Spurious Emissions at Antenna Terminals	49
6.7. Radiated Spurious Emission	52
7. Main Test Instruments	54
ANNEX A: The EUT Appearance	55
ANNEX B: Test Setup Photos	56

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: January 18, 2023 ~ February 6, 2023 Date of Sample Received: January 11, 2023			
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 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.			

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 **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)

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)

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

1.3. Testing Location

Company: 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
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Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	COOSEA GROUP (HK) COMPANY LIMITED
Applicant address	UNIT 5-6 16/F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIMSHATSUI KL, HONG KONG, CHINA
Manufacturer	COOSEA GROUP (HK) COMPANY LIMITED
Manufacturer address	UNIT 5-6 16/F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIMSHATSUI KL, HONG KONG, CHINA

2.2. General Information

EUT Description			
Model	SL112A; SL112C		
IMEI	351384680004663		
Hardware Version	1.0		
Software Version	SL112A10010		
Power Supply	Battery / AC adapter		
Antenna Type	PIFA Antenna		
Antenna Gain	Band	Frequency (MHz)	Gain (dBi)
	WCDMA Band V/ LTE Band 5	820	-2.12
		830	-2.05
		840	-1.93
		850	-2.25
Test Mode(s)	WCDMA Band V; LTE Band 5		
Test Modulation	(WCDMA) BPSK, QPSK, 16QAM; (LTE) QPSK, 16QAM, 64QAM;		
HSDPA UE Category	10		
HSUPA UE Category	6		
DC-HSDPA UE Category	24		
HSPA+ UE Category	7		
LTE Category	5		
Maximum E.R.P.	WCDMA Band V:	19.55 dBm	
	LTE Band 5:	20.72 dBm	
Rated Power Supply Voltage	3.85V		
Operating Voltage	Minimum: 3.6V Maximum: 4.4V		
Operating Temperature	Lowest:-10C Highest: +55°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 5	824 ~ 849	869 ~ 894

EUT Accessory	
Adapter	Manufacturer: ShenZhen BaiJunDa Electronic Co., Ltd Model: UT-592A-5200ZY
Battery	Manufacturer: Huizhou Highpower Technology Co., Ltd Model: BL-A50CT
USB Cable	Manufacturer: Shenzhen Yihuaxing Electronics Co.Ltd.. Model: K342-002
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. The customer claims that SL112A and SL112C are only different in model, and the others are the same. This report only tests SL112A.	

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 (2022)

FCC CFR47 Part 2 (2022)

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 (Y axis, vertical polarization for WCDMA; X axis, horizontal polarization for LTE) 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 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/HSPA+
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/ 64QAM	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
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

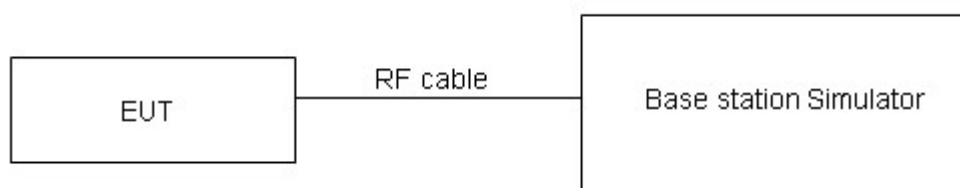
During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:

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

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

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
23°C ~25°C	45%~50%	101.5kPa

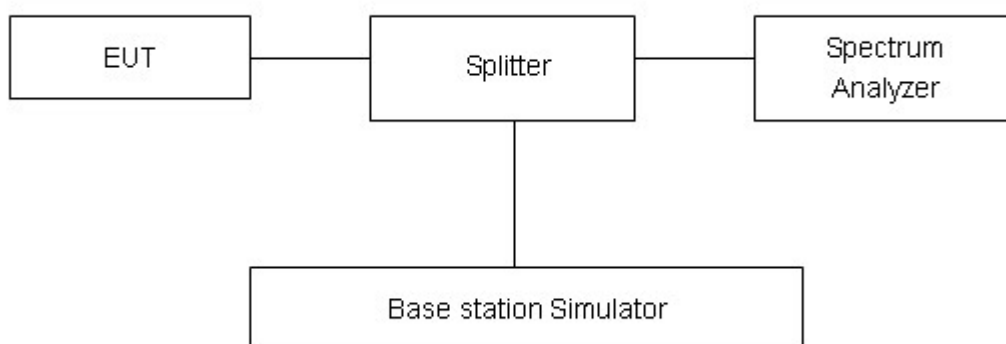
Method of Measurement

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

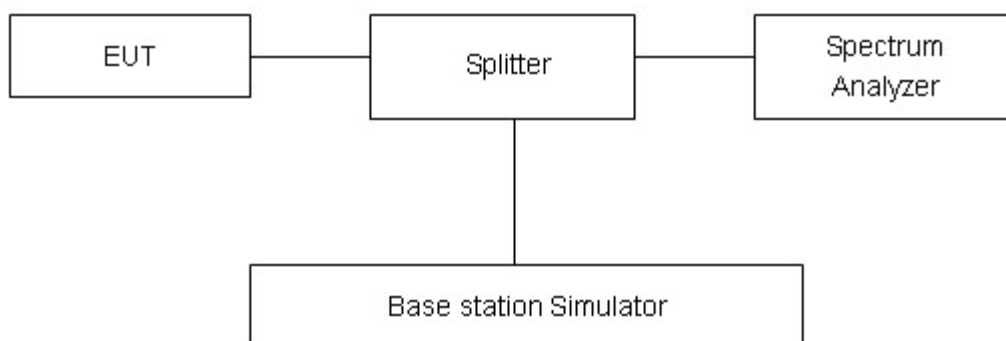
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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
-------	---------

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

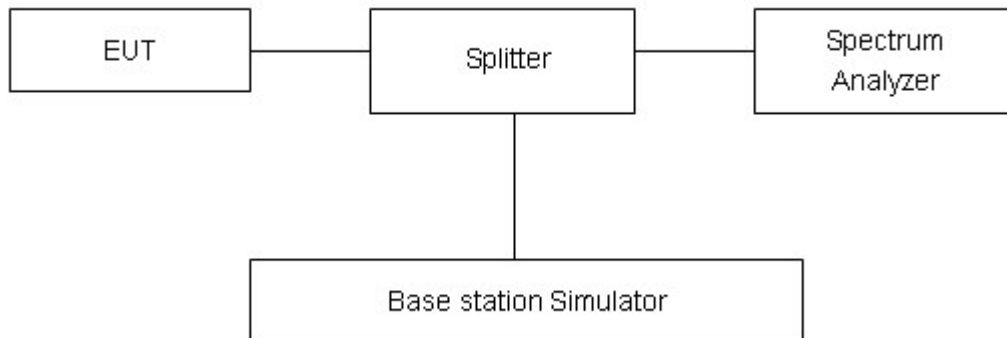
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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
23°C ~25°C	45%~50%	101.5kPa

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.

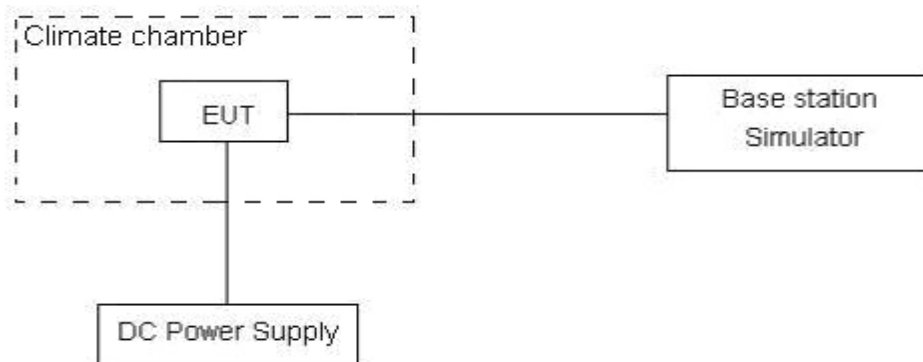
Frequency Stability (Voltage Variation)

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 3.6 V and 4.4 V, with a nominal voltage of 3.85V.

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 $k = 3$, $U = 0.01\text{ppm}$.

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
23°C ~25°C	45%~50%	101.5kPa

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)

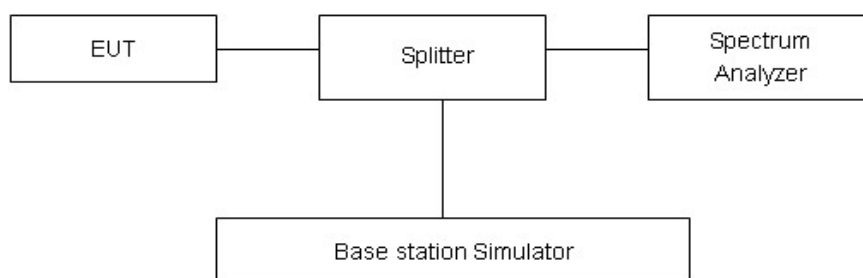
RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

Sweep is set to ATUO.

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-20GHz	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
23°C ~25°C	45%~50%	101.5kPa

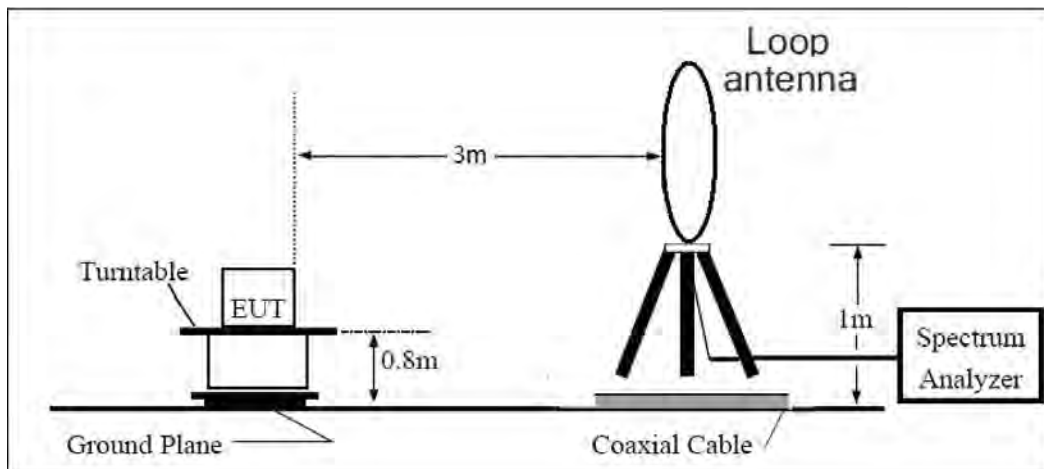
Method of Measurement

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.

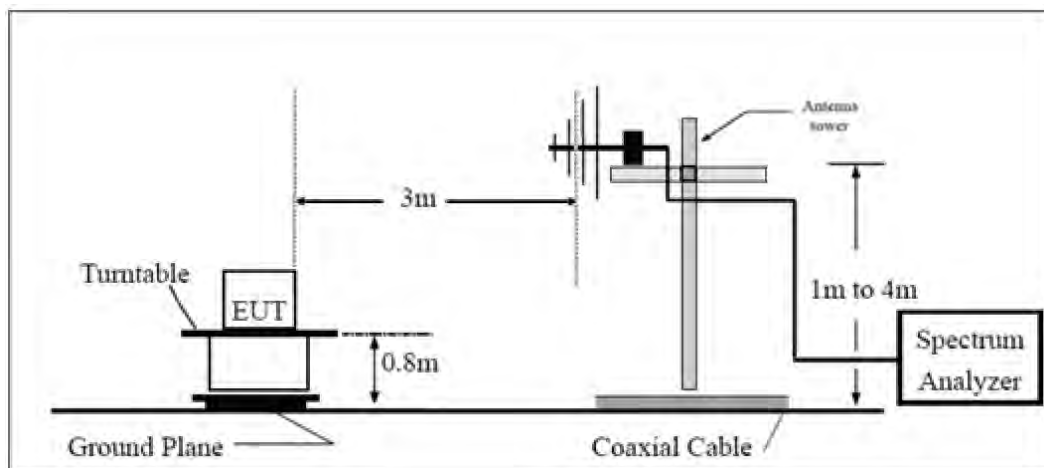
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup

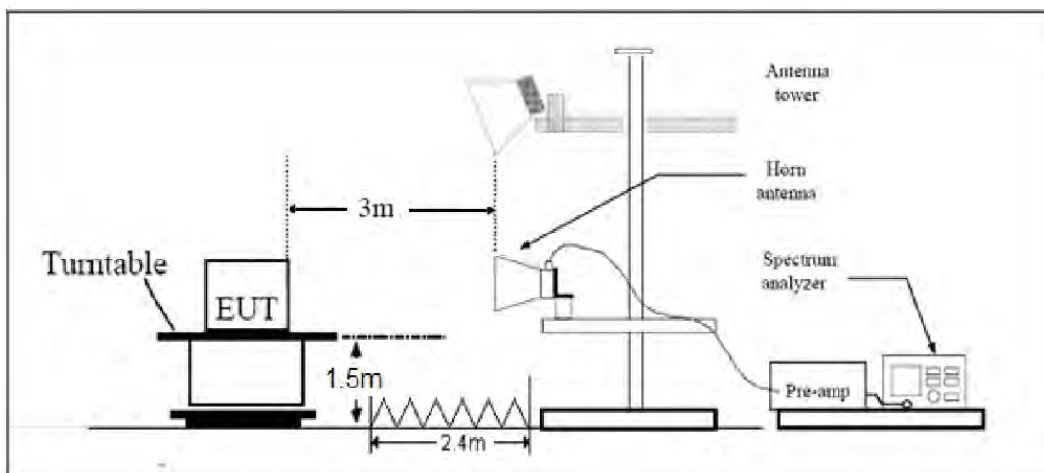
9KHz~ 30MHz



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		23.75	23.63	23.73	19.55	19.55	19.33
HSDPA	Sub - Test 1	23.17	23.05	23.15	18.97	18.85	18.95
	Sub - Test 2	23.16	23.04	23.14	18.96	18.84	18.94
	Sub - Test 3	22.65	22.53	22.63	18.45	18.33	18.43
	Sub - Test 4	22.64	22.52	22.62	18.44	18.32	18.42
HSUPA	Sub - Test 1	22.13	22.01	22.11	17.93	17.81	17.91
	Sub - Test 2	20.12	20.00	20.10	15.92	15.8	15.9
	Sub - Test 3	21.10	20.99	21.09	16.9	16.79	16.89
	Sub - Test 4	20.09	19.98	20.08	15.89	15.78	15.88
	Sub - Test 5	23.58	23.47	23.57	19.38	19.27	19.37
DC-HSDPA	Sub - Test 1	23.09	22.99	23.07	18.89	18.79	18.87
	Sub - Test 2	23.08	22.98	23.06	18.88	18.78	18.86
	Sub - Test 3	22.66	22.47	22.57	18.46	18.27	18.37
	Sub - Test 4	22.65	22.46	22.56	18.45	18.26	18.36
HSPA+	16QAM	21.24	21.14	21.24	17.04	16.94	17.04

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Maximum Output Power (dBm)	ERP (dBm)
LTE Band5	1.4	20407	1	#0	QPSK	24.68	20.41
LTE Band5	1.4	20407	1	#Mid	QPSK	24.84	20.57
LTE Band5	1.4	20407	1	#Max	QPSK	24.64	20.37
LTE Band5	1.4	20407	3	#0	QPSK	24.62	20.35
LTE Band5	1.4	20407	3	#Mid	QPSK	24.64	20.37
LTE Band5	1.4	20407	3	#Max	QPSK	24.65	20.38
LTE Band5	1.4	20407	6	#0	QPSK	23.67	19.40
LTE Band5	1.4	20407	1	#0	16QAM	23.45	19.18
LTE Band5	1.4	20407	1	#Mid	16QAM	23.62	19.35
LTE Band5	1.4	20407	1	#Max	16QAM	23.50	19.23
LTE Band5	1.4	20407	3	#0	16QAM	23.55	19.28
LTE Band5	1.4	20407	3	#Mid	16QAM	23.54	19.27
LTE Band5	1.4	20407	3	#Max	16QAM	23.57	19.30

LTE Band5	1.4	20407	6	#0	16QAM	22.66	18.39
LTE Band5	1.4	20525	1	#0	QPSK	24.56	20.48
LTE Band5	1.4	20525	1	#Mid	QPSK	24.80	20.72
LTE Band5	1.4	20525	1	#Max	QPSK	24.58	20.50
LTE Band5	1.4	20525	3	#0	QPSK	24.51	20.43
LTE Band5	1.4	20525	3	#Mid	QPSK	24.51	20.43
LTE Band5	1.4	20525	3	#Max	QPSK	24.55	20.47
LTE Band5	1.4	20525	6	#0	QPSK	23.56	19.48
LTE Band5	1.4	20525	1	#0	16QAM	23.44	19.36
LTE Band5	1.4	20525	1	#Mid	16QAM	23.65	19.57
LTE Band5	1.4	20525	1	#Max	16QAM	23.43	19.35
LTE Band5	1.4	20525	3	#0	16QAM	23.59	19.51
LTE Band5	1.4	20525	3	#Mid	16QAM	23.59	19.51
LTE Band5	1.4	20525	3	#Max	16QAM	23.63	19.55
LTE Band5	1.4	20525	6	#0	16QAM	22.55	18.47
LTE Band5	1.4	20643	1	#0	QPSK	24.43	20.03
LTE Band5	1.4	20643	1	#Mid	QPSK	24.50	20.10
LTE Band5	1.4	20643	1	#Max	QPSK	24.39	19.99
LTE Band5	1.4	20643	3	#0	QPSK	24.47	20.07
LTE Band5	1.4	20643	3	#Mid	QPSK	24.45	20.05
LTE Band5	1.4	20643	3	#Max	QPSK	24.44	20.04
LTE Band5	1.4	20643	6	#0	QPSK	23.52	19.12
LTE Band5	1.4	20643	1	#0	16QAM	23.56	19.16
LTE Band5	1.4	20643	1	#Mid	16QAM	23.79	19.39
LTE Band5	1.4	20643	1	#Max	16QAM	23.55	19.15
LTE Band5	1.4	20643	3	#0	16QAM	23.41	19.01
LTE Band5	1.4	20643	3	#Mid	16QAM	23.41	19.01
LTE Band5	1.4	20643	3	#Max	16QAM	23.42	19.02
LTE Band5	1.4	20643	6	#0	16QAM	22.48	18.08
LTE Band5	3	20415	1	#0	QPSK	24.71	20.51
LTE Band5	3	20415	1	#Mid	QPSK	24.71	20.51
LTE Band5	3	20415	1	#Max	QPSK	24.73	20.53
LTE Band5	3	20415	8	#0	QPSK	23.67	19.47
LTE Band5	3	20415	8	#Mid	QPSK	23.69	19.49
LTE Band5	3	20415	8	#Max	QPSK	23.66	19.46
LTE Band5	3	20415	15	#0	QPSK	23.62	19.42
LTE Band5	3	20415	1	#0	16QAM	23.50	19.30
LTE Band5	3	20415	1	#Mid	16QAM	23.54	19.34
LTE Band5	3	20415	1	#Max	16QAM	23.50	19.30
LTE Band5	3	20415	8	#0	16QAM	22.67	18.47
LTE Band5	3	20415	8	#Mid	16QAM	22.68	18.48
LTE Band5	3	20415	8	#Max	16QAM	22.68	18.48
LTE Band5	3	20415	15	#0	16QAM	22.66	18.46
LTE Band5	3	20525	1	#0	QPSK	24.51	20.43

LTE Band5	3	20525	1	#Mid	QPSK	24.47	20.39
LTE Band5	3	20525	1	#Max	QPSK	24.50	20.42
LTE Band5	3	20525	8	#0	QPSK	23.57	19.49
LTE Band5	3	20525	8	#Mid	QPSK	23.57	19.49
LTE Band5	3	20525	8	#Max	QPSK	23.59	19.51
LTE Band5	3	20525	15	#0	QPSK	23.54	19.46
LTE Band5	3	20525	1	#0	16QAM	23.71	19.63
LTE Band5	3	20525	1	#Mid	16QAM	23.67	19.59
LTE Band5	3	20525	1	#Max	16QAM	23.71	19.63
LTE Band5	3	20525	8	#0	16QAM	22.55	18.47
LTE Band5	3	20525	8	#Mid	16QAM	22.57	18.49
LTE Band5	3	20525	8	#Max	16QAM	22.58	18.50
LTE Band5	3	20525	15	#0	16QAM	22.49	18.41
LTE Band5	3	20635	1	#0	QPSK	24.48	20.08
LTE Band5	3	20635	1	#Mid	QPSK	24.49	20.09
LTE Band5	3	20635	1	#Max	QPSK	24.47	20.07
LTE Band5	3	20635	8	#0	QPSK	23.58	19.18
LTE Band5	3	20635	8	#Mid	QPSK	23.56	19.16
LTE Band5	3	20635	8	#Max	QPSK	23.56	19.16
LTE Band5	3	20635	15	#0	QPSK	23.48	19.08
LTE Band5	3	20635	1	#0	16QAM	23.66	19.26
LTE Band5	3	20635	1	#Mid	16QAM	23.63	19.23
LTE Band5	3	20635	1	#Max	16QAM	23.59	19.19
LTE Band5	3	20635	8	#0	16QAM	22.56	18.16
LTE Band5	3	20635	8	#Mid	16QAM	22.54	18.14
LTE Band5	3	20635	8	#Max	16QAM	22.53	18.13
LTE Band5	3	20635	15	#0	16QAM	22.42	18.02
LTE Band5	5	20425	1	#0	QPSK	24.49	20.29
LTE Band5	5	20425	1	#Mid	QPSK	24.58	20.38
LTE Band5	5	20425	1	#Max	QPSK	24.50	20.30
LTE Band5	5	20425	12	#0	QPSK	23.59	19.39
LTE Band5	5	20425	12	#Mid	QPSK	23.60	19.40
LTE Band5	5	20425	12	#Max	QPSK	23.59	19.39
LTE Band5	5	20425	25	#0	QPSK	23.61	19.41
LTE Band5	5	20425	1	#0	16QAM	23.79	19.59
LTE Band5	5	20425	1	#Mid	16QAM	23.87	19.67
LTE Band5	5	20425	1	#Max	16QAM	23.75	19.55
LTE Band5	5	20425	12	#0	16QAM	22.63	18.43
LTE Band5	5	20425	12	#Mid	16QAM	22.65	18.45
LTE Band5	5	20425	12	#Max	16QAM	22.70	18.50
LTE Band5	5	20425	25	#0	16QAM	22.63	18.43
LTE Band5	5	20525	1	#0	QPSK	24.46	20.38
LTE Band5	5	20525	1	#Mid	QPSK	24.56	20.48
LTE Band5	5	20525	1	#Max	QPSK	24.48	20.40

LTE Band5	5	20525	12	#0	QPSK	23.55	19.47
LTE Band5	5	20525	12	#Mid	QPSK	23.55	19.47
LTE Band5	5	20525	12	#Max	QPSK	23.57	19.49
LTE Band5	5	20525	25	#0	QPSK	23.59	19.51
LTE Band5	5	20525	1	#0	16QAM	23.69	19.61
LTE Band5	5	20525	1	#Mid	16QAM	23.79	19.71
LTE Band5	5	20525	1	#Max	16QAM	23.66	19.58
LTE Band5	5	20525	12	#0	16QAM	22.55	18.47
LTE Band5	5	20525	12	#Mid	16QAM	22.53	18.45
LTE Band5	5	20525	12	#Max	16QAM	22.52	18.44
LTE Band5	5	20525	25	#0	16QAM	22.63	18.55
LTE Band5	5	20625	1	#0	QPSK	24.49	20.09
LTE Band5	5	20625	1	#Mid	QPSK	24.57	20.17
LTE Band5	5	20625	1	#Max	QPSK	24.45	20.05
LTE Band5	5	20625	12	#0	QPSK	23.56	19.16
LTE Band5	5	20625	12	#Mid	QPSK	23.54	19.14
LTE Band5	5	20625	12	#Max	QPSK	23.51	19.11
LTE Band5	5	20625	25	#0	QPSK	23.56	19.16
LTE Band5	5	20625	1	#0	16QAM	23.61	19.21
LTE Band5	5	20625	1	#Mid	16QAM	23.71	19.31
LTE Band5	5	20625	1	#Max	16QAM	23.59	19.19
LTE Band5	5	20625	12	#0	16QAM	22.46	18.06
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LTE Band5	5	20625	12	#Max	16QAM	22.44	18.04
LTE Band5	5	20625	25	#0	16QAM	22.50	18.10
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LTE Band5	10	20450	1	#Mid	QPSK	24.75	20.55
LTE Band5	10	20450	1	#Max	QPSK	24.55	20.35
LTE Band5	10	20450	25	#0	QPSK	23.63	19.43
LTE Band5	10	20450	25	#Mid	QPSK	23.61	19.41
LTE Band5	10	20450	25	#Max	QPSK	23.67	19.47
LTE Band5	10	20450	50	#0	QPSK	23.62	19.42
LTE Band5	10	20450	1	#0	16QAM	23.83	19.63
LTE Band5	10	20450	1	#Mid	16QAM	24.01	19.81
LTE Band5	10	20450	1	#Max	16QAM	23.81	19.61
LTE Band5	10	20450	25	#0	16QAM	22.69	18.49
LTE Band5	10	20450	25	#Mid	16QAM	22.67	18.47
LTE Band5	10	20450	25	#Max	16QAM	22.73	18.53
LTE Band5	10	20450	50	#0	16QAM	22.67	18.47
LTE Band5	10	20525	1	#0	QPSK	24.60	20.52
LTE Band5	10	20525	1	#Mid	QPSK	24.68	20.60
LTE Band5	10	20525	1	#Max	QPSK	24.52	20.44
LTE Band5	10	20525	25	#0	QPSK	23.64	19.56
LTE Band5	10	20525	25	#Mid	QPSK	23.61	19.53

LTE Band5	10	20525	25	#Max	QPSK	23.62	19.54
LTE Band5	10	20525	50	#0	QPSK	23.63	19.55
LTE Band5	10	20525	1	#0	16QAM	23.75	19.67
LTE Band5	10	20525	1	#Mid	16QAM	23.76	19.68
LTE Band5	10	20525	1	#Max	16QAM	23.66	19.58
LTE Band5	10	20525	25	#0	16QAM	22.66	18.58
LTE Band5	10	20525	25	#Mid	16QAM	22.68	18.60
LTE Band5	10	20525	25	#Max	16QAM	22.65	18.57
LTE Band5	10	20525	50	#0	16QAM	22.61	18.53
LTE Band5	10	20600	1	#0	QPSK	24.62	20.54
LTE Band5	10	20600	1	#Mid	QPSK	24.76	20.68
LTE Band5	10	20600	1	#Max	QPSK	24.61	20.53
LTE Band5	10	20600	25	#0	QPSK	23.53	19.45
LTE Band5	10	20600	25	#Mid	QPSK	23.51	19.43
LTE Band5	10	20600	25	#Max	QPSK	23.57	19.49
LTE Band5	10	20600	50	#0	QPSK	23.51	19.43
LTE Band5	10	20600	1	#0	16QAM	23.38	19.30
LTE Band5	10	20600	1	#Mid	16QAM	23.51	19.43
LTE Band5	10	20600	1	#Max	16QAM	23.39	19.31
LTE Band5	10	20600	25	#0	16QAM	22.50	18.42
LTE Band5	10	20600	25	#Mid	16QAM	22.52	18.44
LTE Band5	10	20600	25	#Max	16QAM	22.57	18.49
LTE Band5	10	20600	50	#0	16QAM	22.55	18.47
LTE Band5	1.4	20407	1	#0	64QAM	23.38	19.11
LTE Band5	1.4	20407	1	#Mid	64QAM	23.58	19.31
LTE Band5	1.4	20407	1	#Max	64QAM	23.41	19.14
LTE Band5	1.4	20407	3	#0	64QAM	23.51	19.24
LTE Band5	1.4	20407	3	#Mid	64QAM	23.52	19.25
LTE Band5	1.4	20407	3	#Max	64QAM	23.51	19.24
LTE Band5	1.4	20407	6	#0	64QAM	22.47	18.20
LTE Band5	1.4	20525	1	#0	64QAM	23.38	19.30
LTE Band5	1.4	20525	1	#Mid	64QAM	23.53	19.45
LTE Band5	1.4	20525	1	#Max	64QAM	23.35	19.27
LTE Band5	1.4	20525	3	#0	64QAM	23.21	19.13
LTE Band5	1.4	20525	3	#Mid	64QAM	23.23	19.15
LTE Band5	1.4	20525	3	#Max	64QAM	23.24	19.16
LTE Band5	1.4	20525	6	#0	64QAM	22.27	18.19
LTE Band5	1.4	20643	1	#0	64QAM	23.11	18.71
LTE Band5	1.4	20643	1	#Mid	64QAM	23.23	18.83
LTE Band5	1.4	20643	1	#Max	64QAM	23.09	18.69
LTE Band5	1.4	20643	3	#0	64QAM	23.18	18.78
LTE Band5	1.4	20643	3	#Mid	64QAM	23.17	18.77
LTE Band5	1.4	20643	3	#Max	64QAM	23.17	18.77
LTE Band5	1.4	20643	6	#0	64QAM	22.27	17.87

LTE Band5	3	20415	1	#0	64QAM	23.29	19.09
LTE Band5	3	20415	1	#Mid	64QAM	23.32	19.12
LTE Band5	3	20415	1	#Max	64QAM	23.27	19.07
LTE Band5	3	20415	8	#0	64QAM	22.44	18.24
LTE Band5	3	20415	8	#Mid	64QAM	22.45	18.25
LTE Band5	3	20415	8	#Max	64QAM	22.40	18.20
LTE Band5	3	20415	15	#0	64QAM	22.46	18.26
LTE Band5	3	20525	1	#0	64QAM	23.52	19.44
LTE Band5	3	20525	1	#Mid	64QAM	23.47	19.39
LTE Band5	3	20525	1	#Max	64QAM	23.52	19.44
LTE Band5	3	20525	8	#0	64QAM	22.33	18.25
LTE Band5	3	20525	8	#Mid	64QAM	22.34	18.26
LTE Band5	3	20525	8	#Max	64QAM	22.36	18.28
LTE Band5	3	20525	15	#0	64QAM	22.28	18.20
LTE Band5	3	20635	1	#0	64QAM	23.45	19.05
LTE Band5	3	20635	1	#Mid	64QAM	23.39	18.99
LTE Band5	3	20635	1	#Max	64QAM	23.39	18.99
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LTE Band5	3	20635	8	#Mid	64QAM	22.30	17.90
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LTE Band5	3	20635	15	#0	64QAM	22.18	17.78
LTE Band5	5	20425	1	#0	64QAM	23.54	19.34
LTE Band5	5	20425	1	#Mid	64QAM	23.58	19.38
LTE Band5	5	20425	1	#Max	64QAM	23.52	19.32
LTE Band5	5	20425	12	#0	64QAM	22.35	18.15
LTE Band5	5	20425	12	#Mid	64QAM	22.33	18.13
LTE Band5	5	20425	12	#Max	64QAM	22.33	18.13
LTE Band5	5	20425	25	#0	64QAM	22.40	18.20
LTE Band5	5	20525	1	#0	64QAM	23.43	19.35
LTE Band5	5	20525	1	#Mid	64QAM	23.46	19.38
LTE Band5	5	20525	1	#Max	64QAM	23.40	19.32
LTE Band5	5	20525	12	#0	64QAM	22.32	18.24
LTE Band5	5	20525	12	#Mid	64QAM	22.34	18.26
LTE Band5	5	20525	12	#Max	64QAM	22.33	18.25
LTE Band5	5	20525	25	#0	64QAM	22.38	18.30
LTE Band5	5	20625	1	#0	64QAM	23.50	19.10
LTE Band5	5	20625	1	#Mid	64QAM	23.59	19.19
LTE Band5	5	20625	1	#Max	64QAM	23.42	19.02
LTE Band5	5	20625	12	#0	64QAM	22.31	17.91
LTE Band5	5	20625	12	#Mid	64QAM	22.26	17.86
LTE Band5	5	20625	12	#Max	64QAM	22.23	17.83
LTE Band5	5	20625	25	#0	64QAM	22.33	17.93
LTE Band5	10	20450	1	#0	64QAM	23.57	19.37
LTE Band5	10	20450	1	#Mid	64QAM	23.66	19.46

LTE Band5	10	20450	1	#Max	64QAM	23.53	19.33
LTE Band5	10	20450	25	#0	64QAM	22.42	18.22
LTE Band5	10	20450	25	#Mid	64QAM	22.44	18.24
LTE Band5	10	20450	25	#Max	64QAM	22.47	18.27
LTE Band5	10	20450	50	#0	64QAM	22.40	18.20
LTE Band5	10	20525	1	#0	64QAM	23.24	19.16
LTE Band5	10	20525	1	#Mid	64QAM	23.29	19.21
LTE Band5	10	20525	1	#Max	64QAM	23.16	19.08
LTE Band5	10	20525	25	#0	64QAM	22.43	18.35
LTE Band5	10	20525	25	#Mid	64QAM	22.40	18.32
LTE Band5	10	20525	25	#Max	64QAM	22.37	18.29
LTE Band5	10	20525	50	#0	64QAM	22.43	18.35
LTE Band5	10	20600	1	#0	64QAM	23.48	19.40
LTE Band5	10	20600	1	#Mid	64QAM	23.73	19.65
LTE Band5	10	20600	1	#Max	64QAM	23.49	19.41
LTE Band5	10	20600	25	#0	64QAM	22.36	18.28
LTE Band5	10	20600	25	#Mid	64QAM	22.39	18.31
LTE Band5	10	20600	25	#Max	64QAM	22.45	18.37
LTE Band5	10	20600	50	#0	64QAM	22.29	18.21

6.2. Occupied Bandwidth

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
WCDMA Band V (RMC)	4132	826.4	4.1788	4.691
	4183	836.6	4.1840	4.686
	4233	846.6	4.1853	4.676

LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.098	1.273
			20525	836.5	1.090	1.293
			20643	848.3	1.091	1.301
		3	20415	825.5	2.694	2.933
			20525	836.5	2.693	2.901
			20635	847.5	2.683	2.938
		5	20425	826.5	4.499	4.859
			20525	836.5	4.524	4.927
			20625	846.5	4.501	4.933
		10	20450	829	8.973	9.727
			20525	836.5	8.985	9.688
			20600	844	8.972	9.609
	16QAM	1.4	20407	824.7	1.096	1.288
			20525	836.5	1.100	1.299
			20643	848.3	1.094	1.260
		3	20415	825.5	2.686	2.943
			20525	836.5	2.687	2.896
			20635	847.5	2.684	2.914
		5	20425	826.5	4.501	4.961
			20525	836.5	4.498	4.890
			20625	846.5	4.512	4.926
		10	20450	829	9.001	9.634
			20525	836.5	8.990	9.718
			20600	844	8.985	9.653

	64QAM	1.4	20407	824.7	1.094	1.286
			20525	836.5	1.098	1.293
			20643	848.3	1.093	1.273
		3	20415	825.5	2.697	2.917
			20525	836.5	2.691	2.933
			20635	847.5	2.692	2.921
		5	20425	826.5	4.520	4.914
			20525	836.5	4.504	4.915
			20625	846.5	4.506	4.902
		10	20450	829	8.972	9.747
			20525	836.5	8.986	9.607
			20600	844	8.995	9.605

WCDMA Band V CH-Low



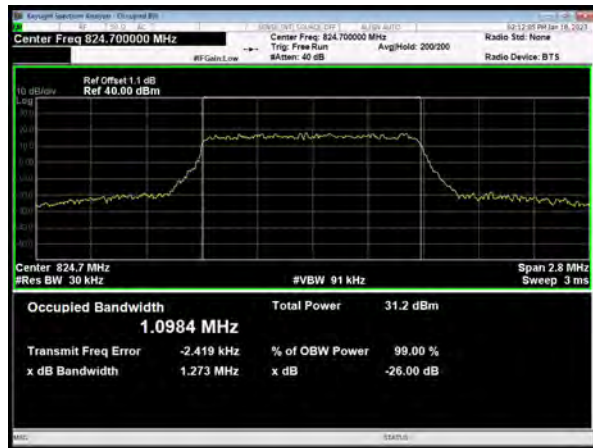
WCDMA Band V CH-Middle



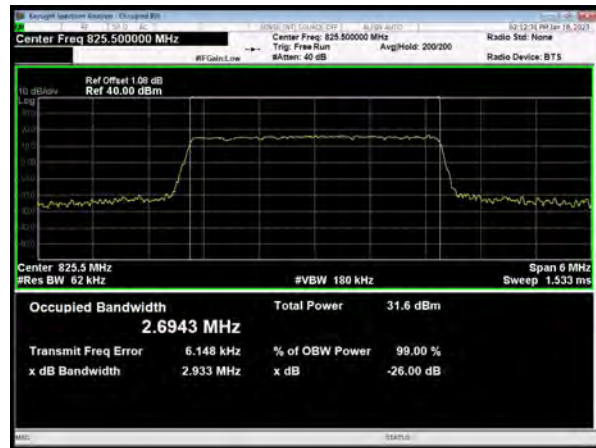
WCDMA Band V CH-High



LTE Band 5 QPSK 1.4MHz CH-Low



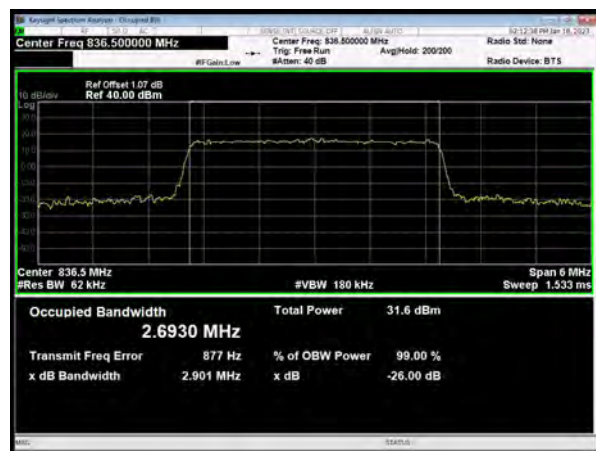
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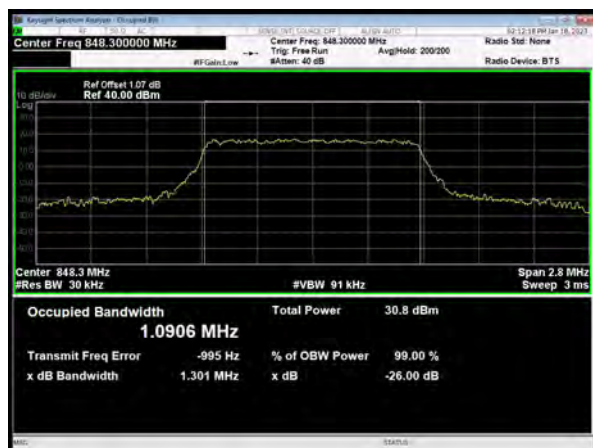
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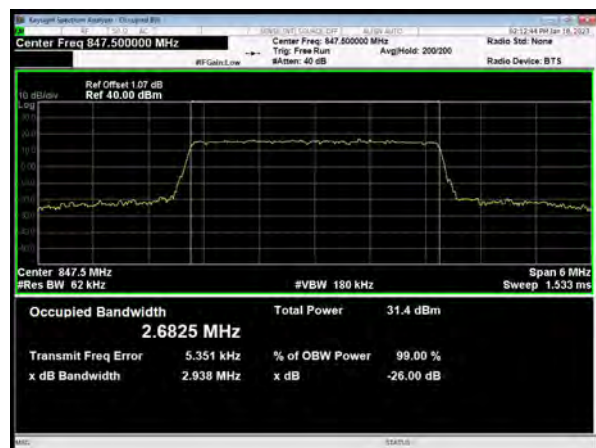
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LTE Band 5 QPSK 1.4MHz CH-High



LTE Band 5 QPSK 3MHz CH-High



LTE Band 5 QPSK 5MHz CH-Low



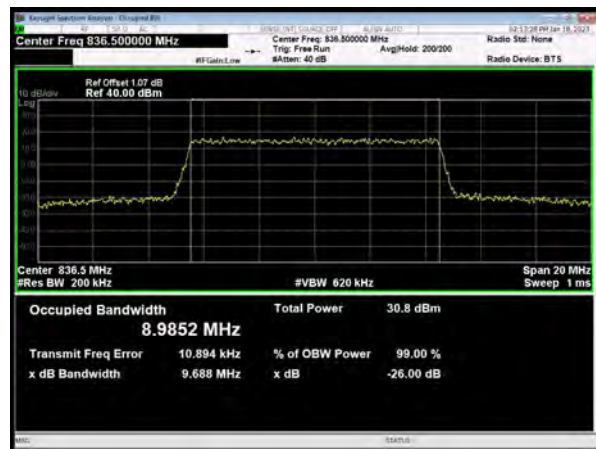
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LTE Band 5 QPSK 5MHz CH-Middle



LTE Band 5 QPSK 10MHz CH-Middle



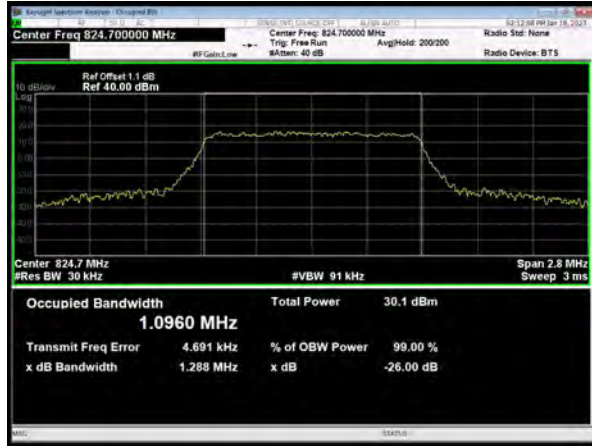
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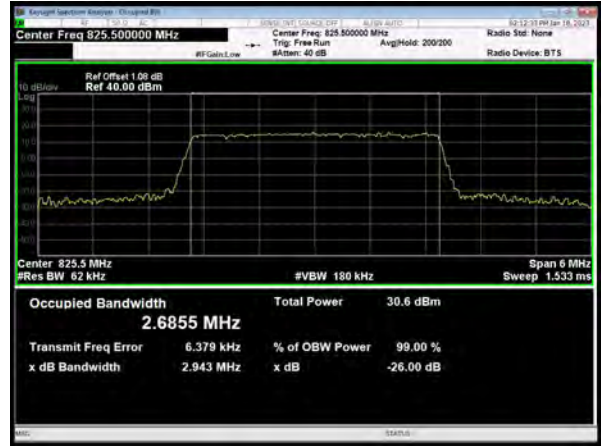
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LTE Band 5 16QAM 1.4MHz CH-Low



LTE Band 5 16QAM 3MHz CH-Low



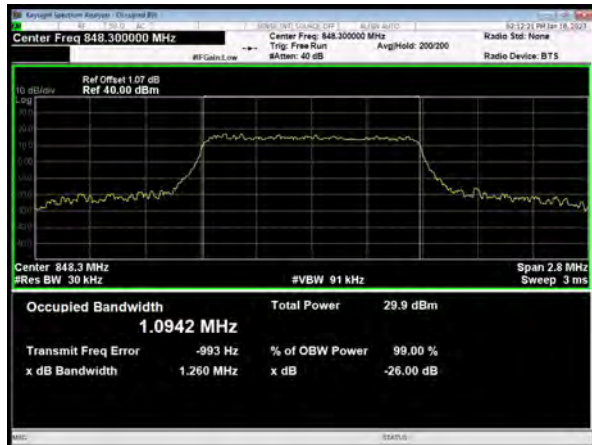
LTE Band 5 16QAM 1.4MHz CH-Middle



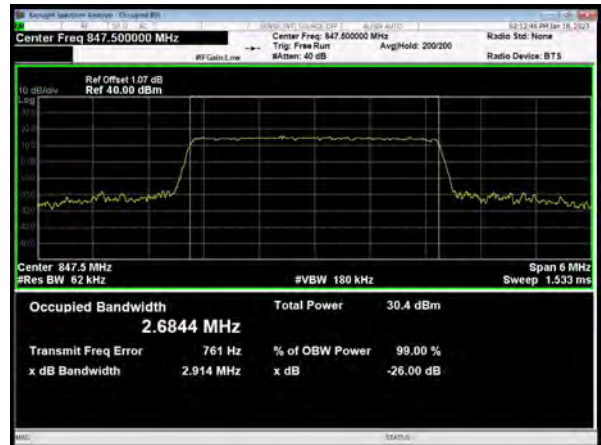
LTE Band 5 16QAM 3MHz CH-Middle



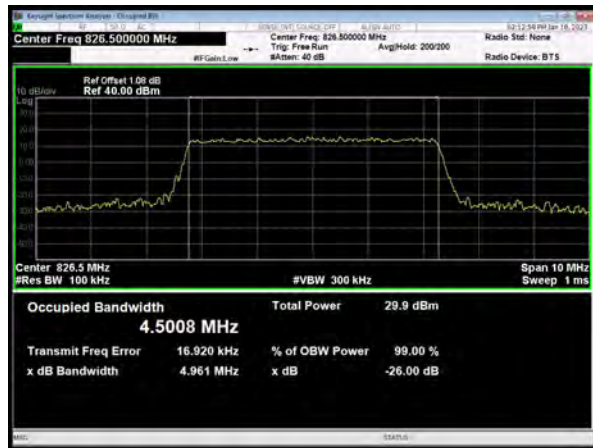
LTE Band 5 16QAM 1.4MHz CH-High



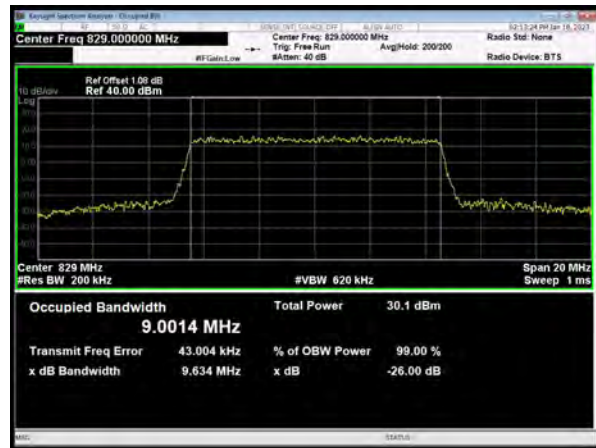
LTE Band 5 16QAM 3MHz CH-High



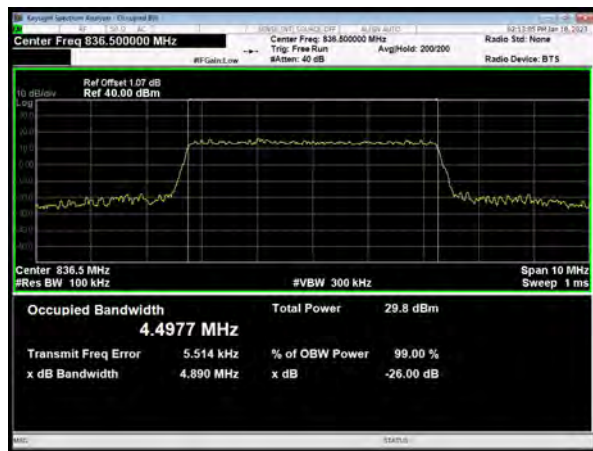
LTE Band 5 16QAM 5MHz CH-Low



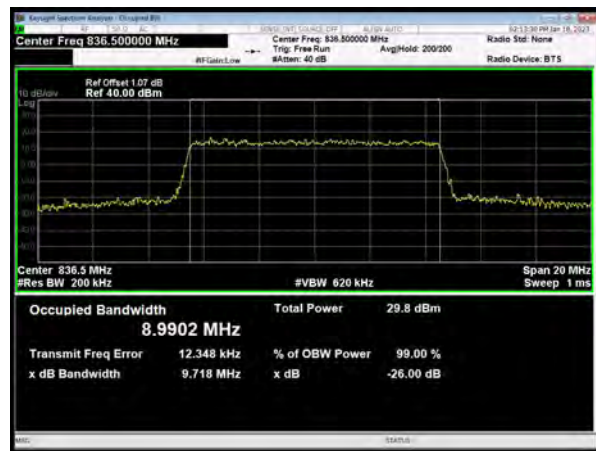
LTE Band 5 16QAM 10MHz CH-Low



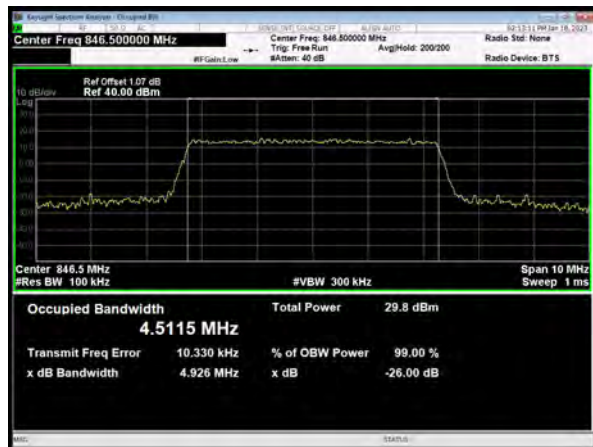
LTE Band 5 16QAM 5MHz CH-Middle



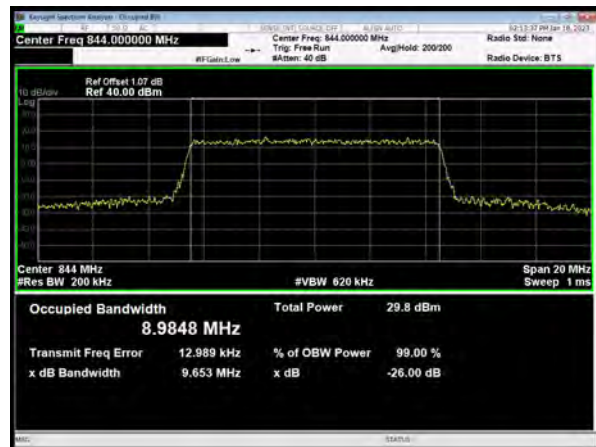
LTE Band 5 16QAM 10MHz CH-Middle



LTE Band 5 16QAM 5MHz CH-High



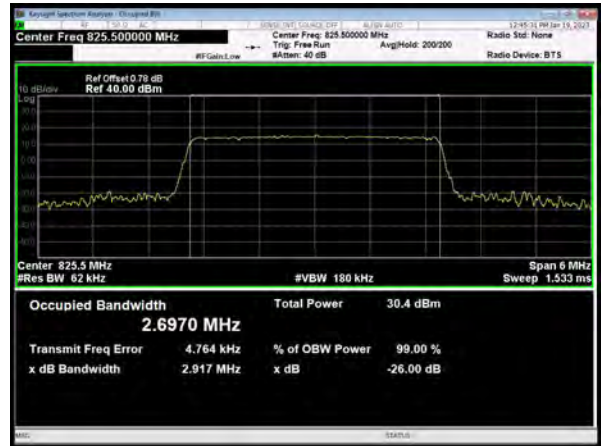
LTE Band 5 16QAM 10MHz CH-High



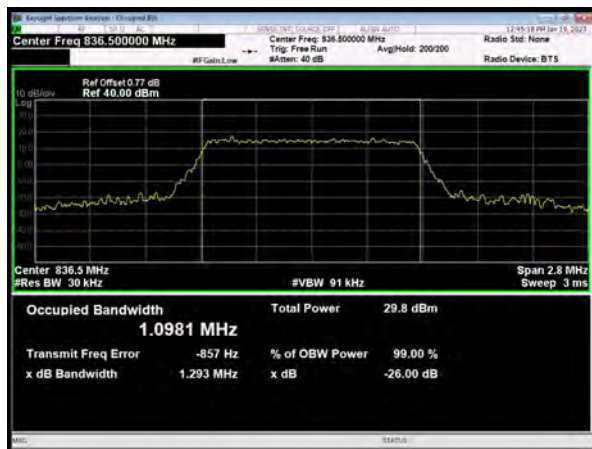
LTE Band 5 64QAM 1.4MHz CH-Low



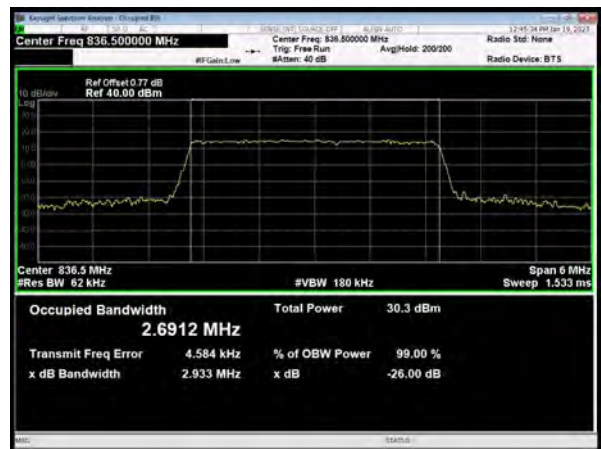
LTE Band 5 64QAM 3MHz CH-Low



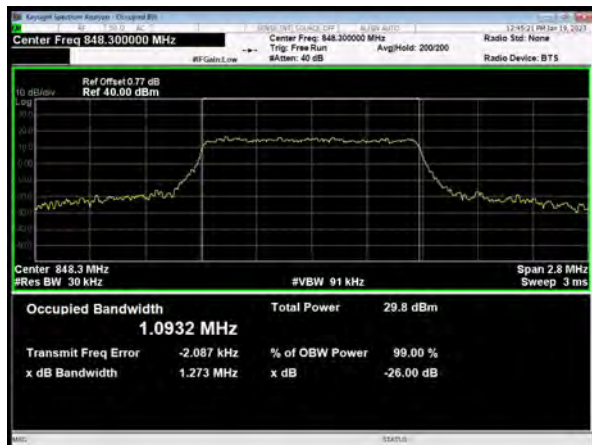
LTE Band 5 64QAM 1.4MHz CH-Middle



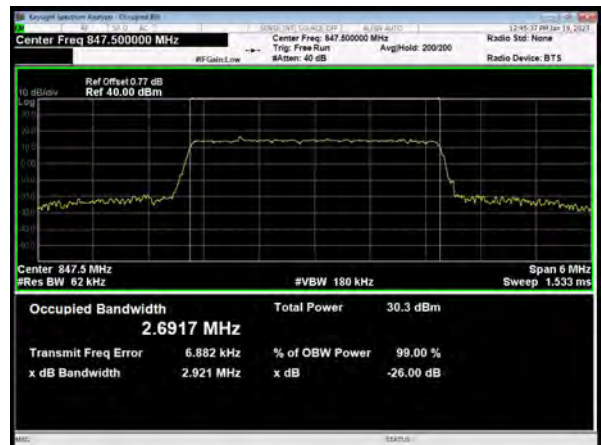
LTE Band 5 64QAM 3MHz CH-Middle



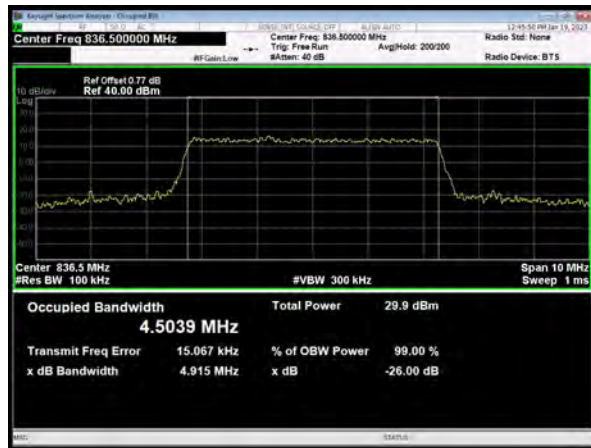
LTE Band 5 64QAM 1.4MHz CH-High



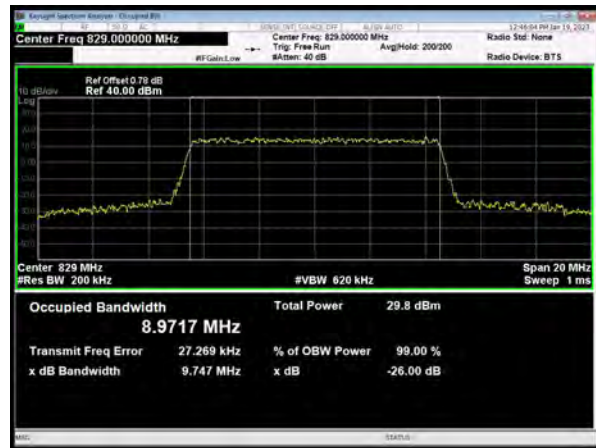
LTE Band 5 64QAM 3MHz CH-High



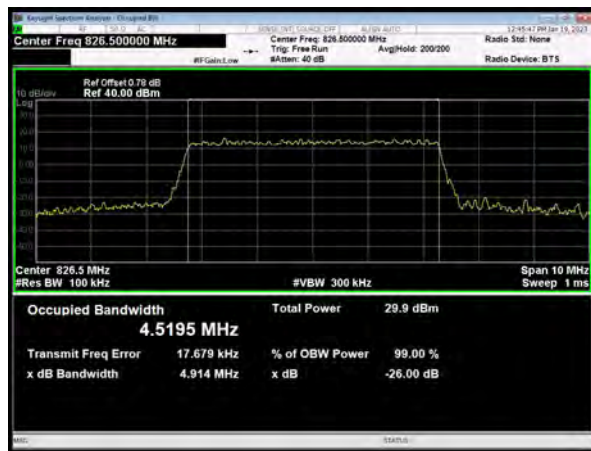
LTE Band 5 64QAM 5MHz CH-Low



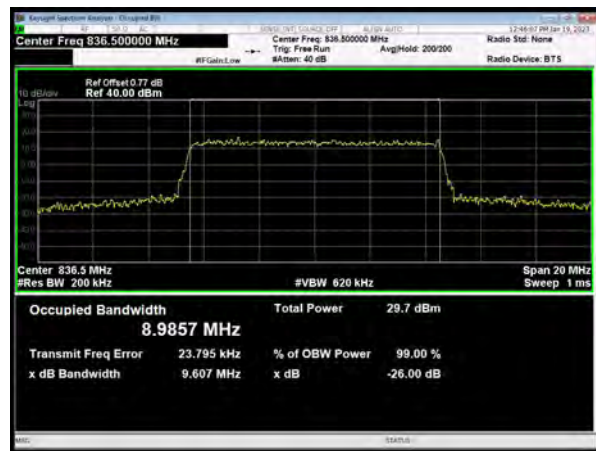
LTE Band 5 64QAM 10MHz CH-Low



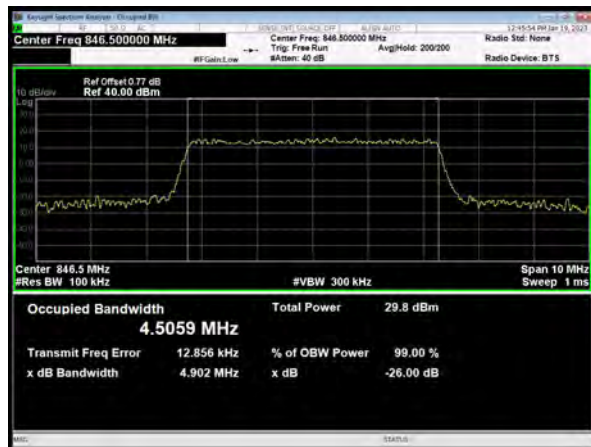
LTE Band 5 64QAM 5MHz CH-Middle



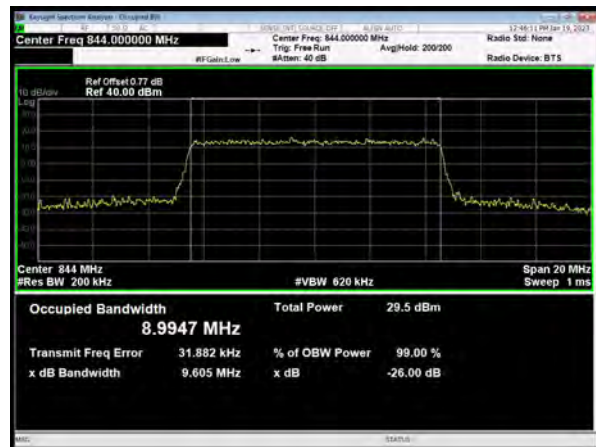
LTE Band 5 64QAM 10MHz CH-Middle



LTE Band 5 64QAM 5MHz CH-High



LTE Band 5 64QAM 10MHz CH-High



6.3. Band Edge Compliance

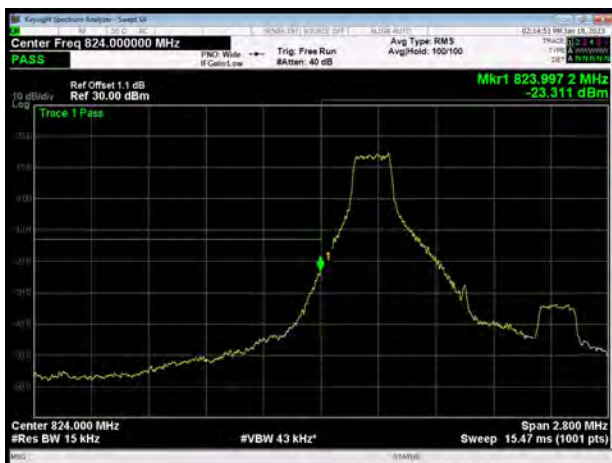
WCDMA Band V CH-Low



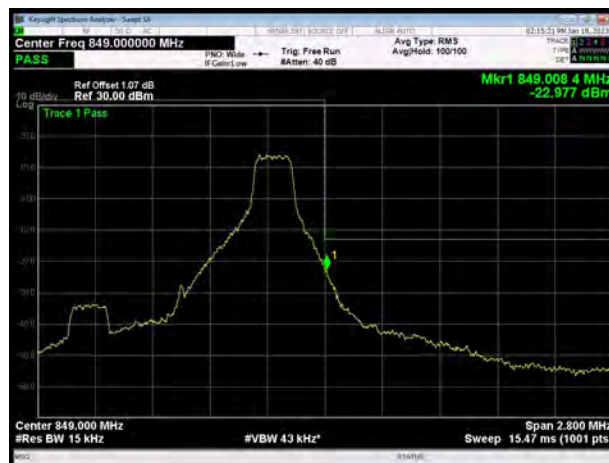
WCDMA Band V CH-High



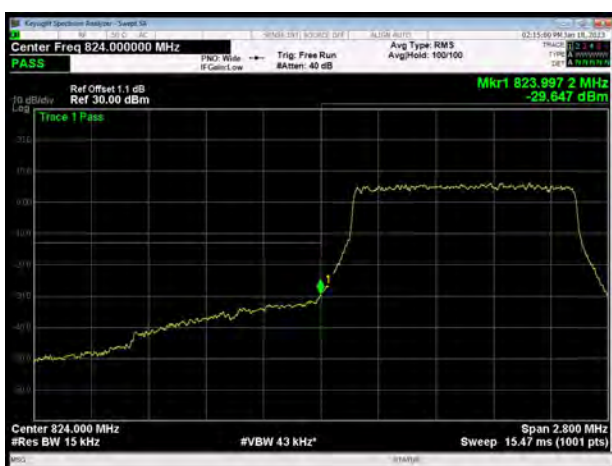
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



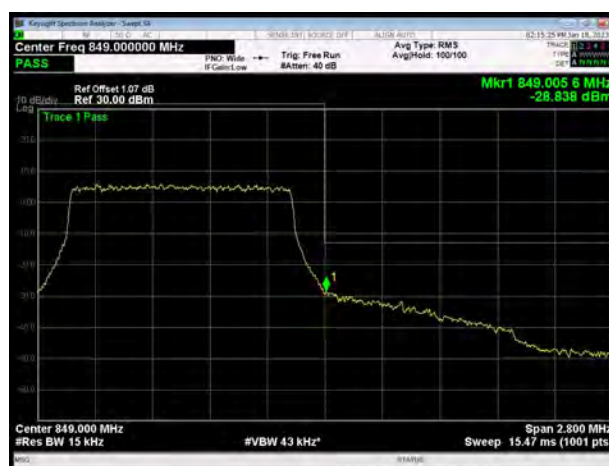
LTE Band 5 QPSK 1.4MHz CH-High 1RB



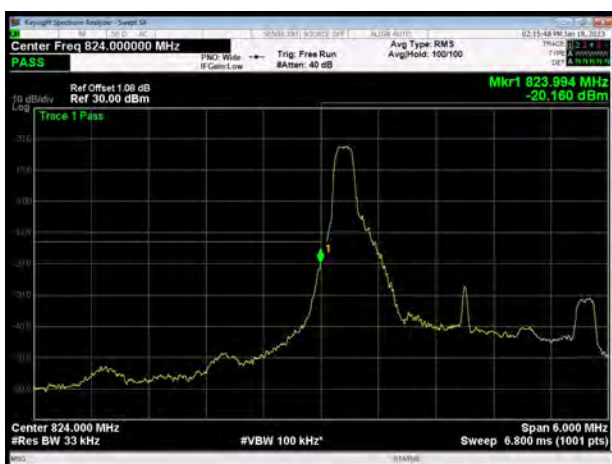
LTE Band 5 QPSK 1.4MHz CH-Low 100%RB



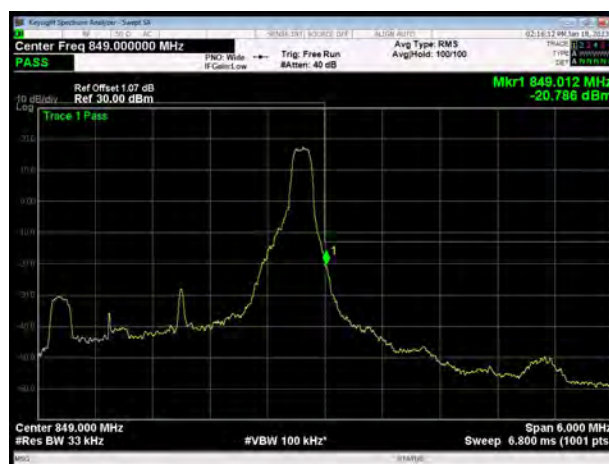
LTE Band 5 QPSK 1.4MHz CH-High 100%RB



LTE Band 5 QPSK 3MHz CH-Low 1RB



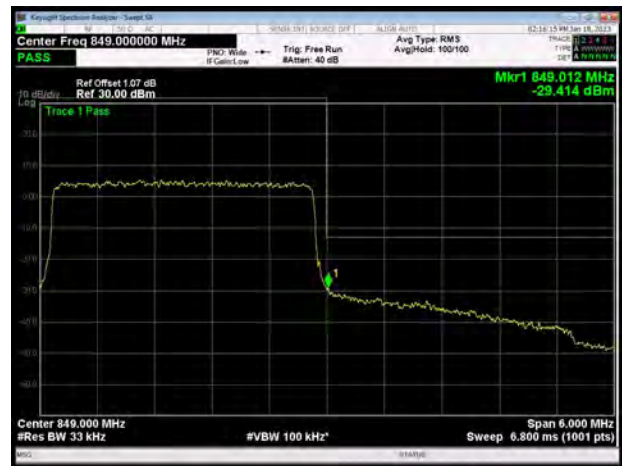
LTE Band 5 QPSK 3MHz CH-High 1RB



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



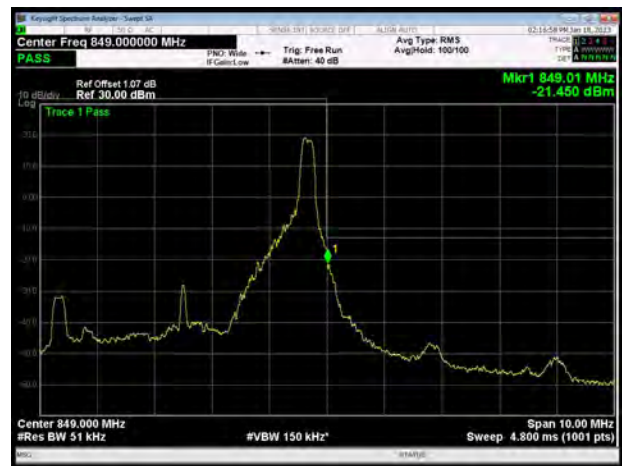
LTE Band 5 QPSK 3MHz CH-High 100%RB



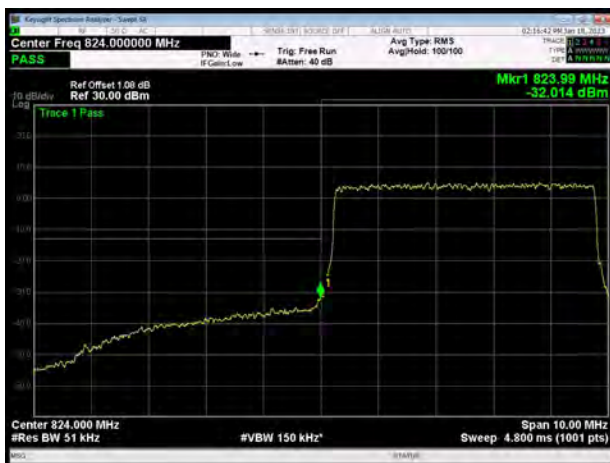
LTE Band 5 QPSK 5MHz CH-Low 1RB



LTE Band 5 QPSK 5MHz CH-High 1RB



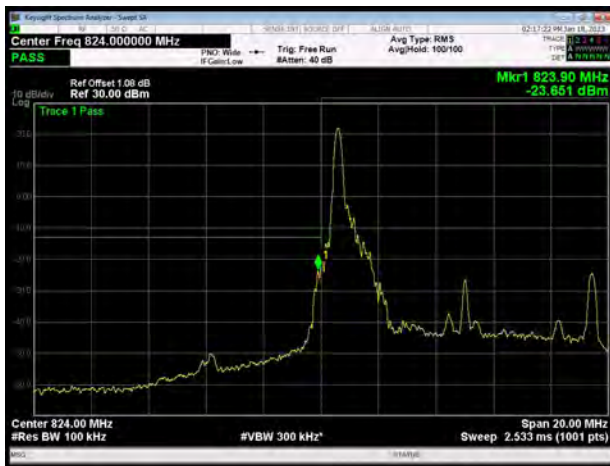
LTE Band 5 QPSK 5MHz CH-Low 100%RB



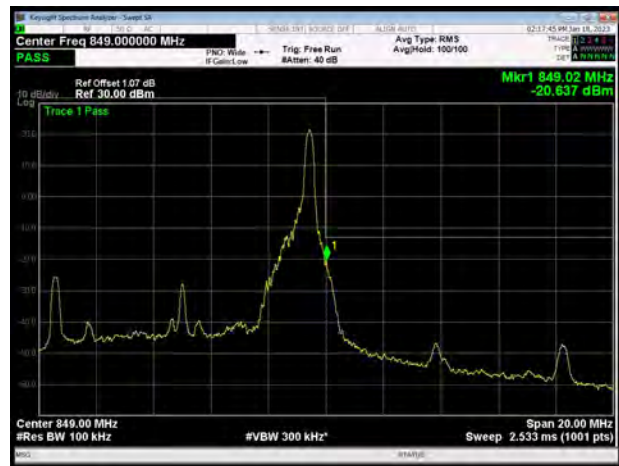
LTE Band 5 QPSK 5MHz CH-High 100%RB



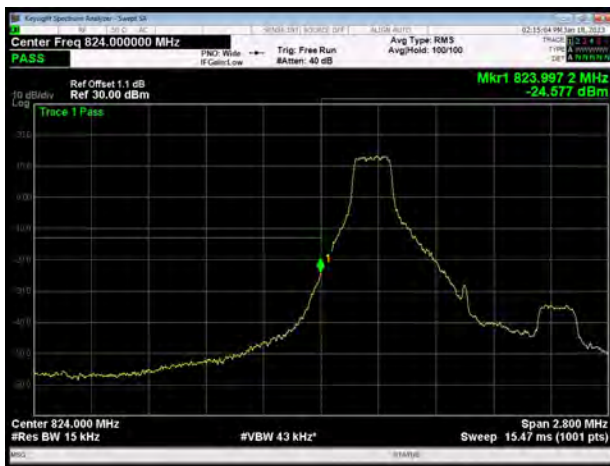
LTE Band 5 QPSK 10MHz CH-Low 1RB



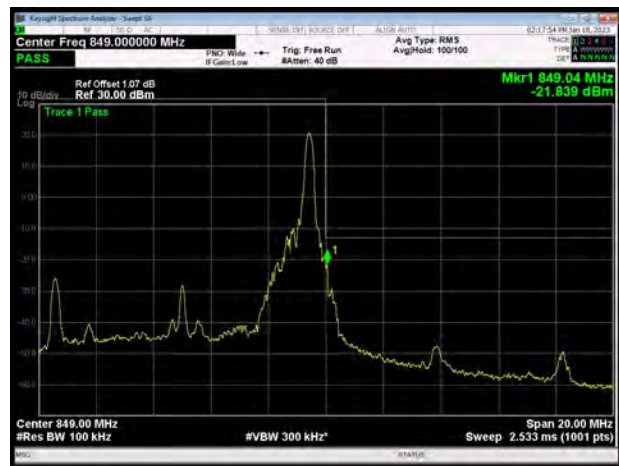
LTE Band 5 QPSK 10MHz CH-High 1RB



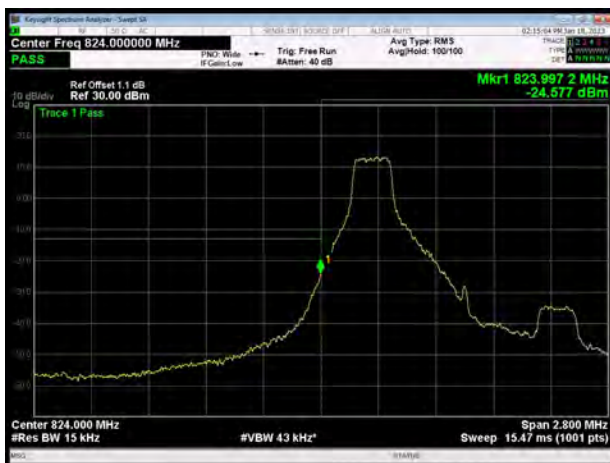
LTE Band 5 QPSK 10MHz CH-Low 100%RB



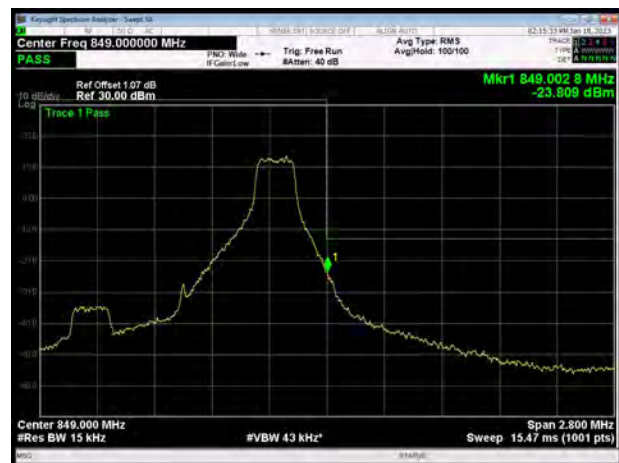
LTE Band 5 QPSK 10MHz CH-High 100%RB



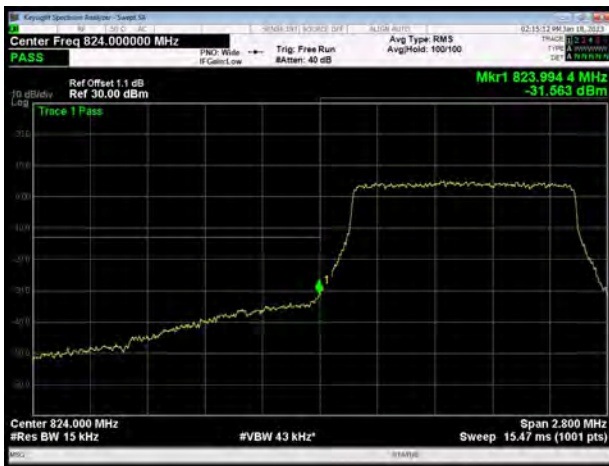
LTE Band 5 16QAM 1.4MHz CH-Low 1RB



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



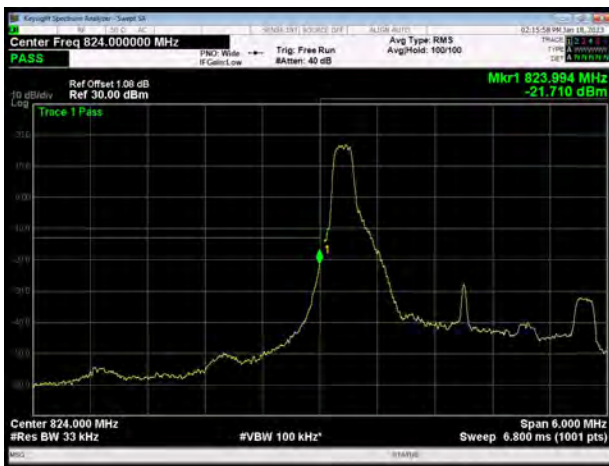
LTE Band 5 16QAM 1.4MHz CH-Low 100%RB



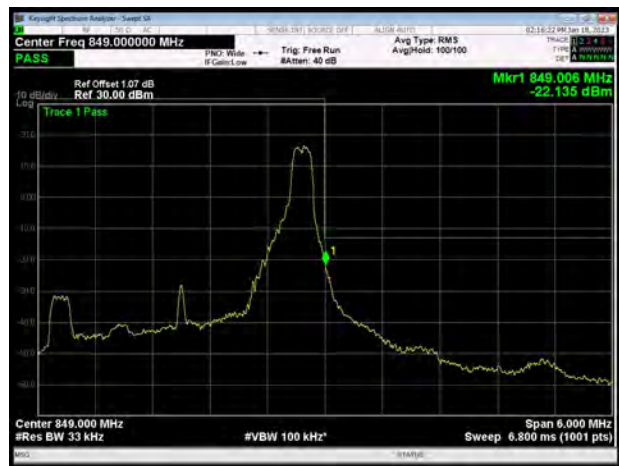
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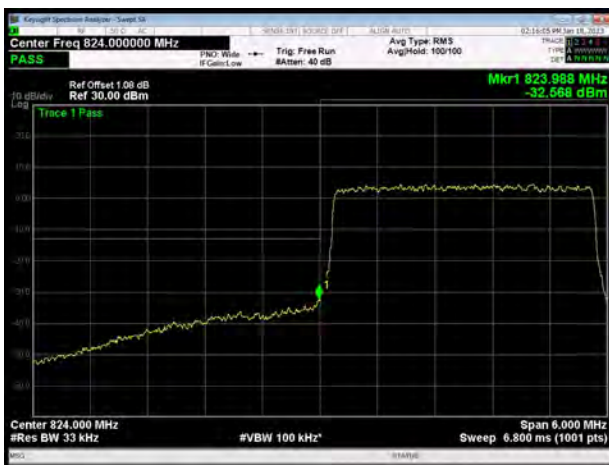
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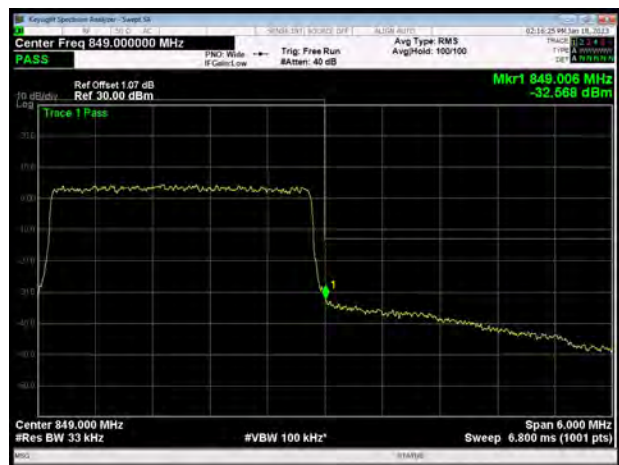
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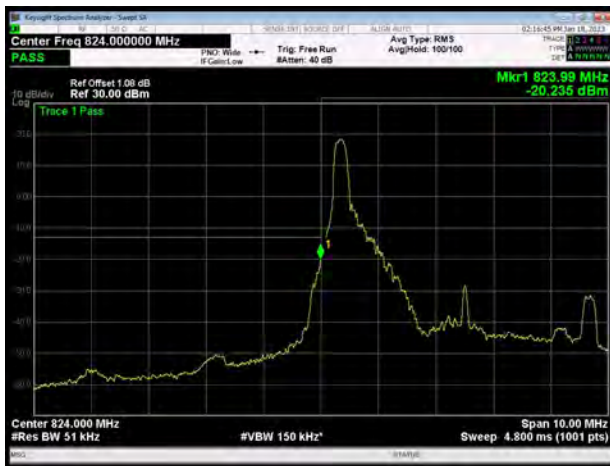
LTE Band 5 16QAM 3MHz CH-Low 100%RB



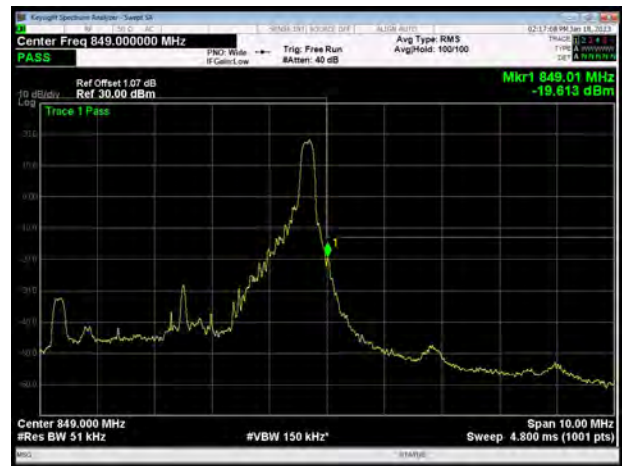
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LTE Band 5 16QAM 5MHz CH-Low 1RB



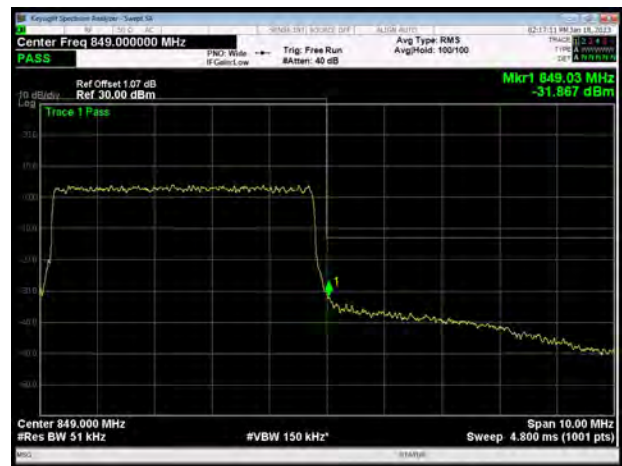
LTE Band 5 16QAM 5MHz CH-High 1RB



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



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



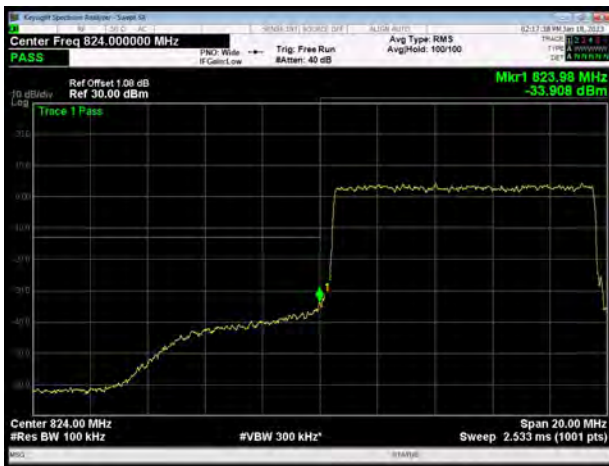
LTE Band 5 16QAM 10MHz CH-Low 1RB



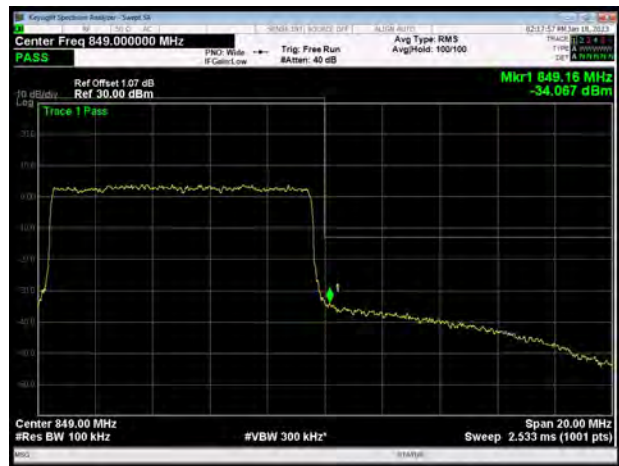
LTE Band 5 16QAM 10MHz CH-High 1RB



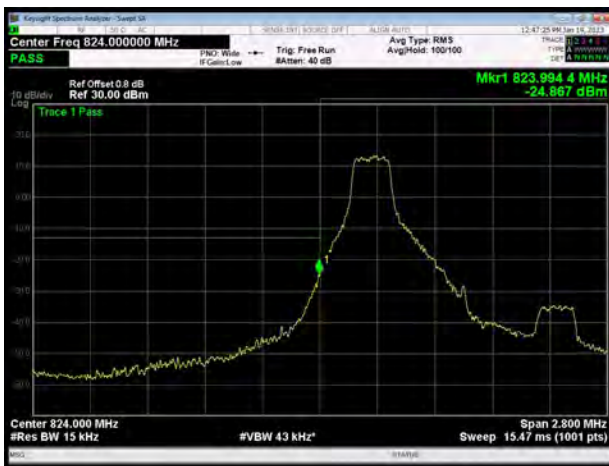
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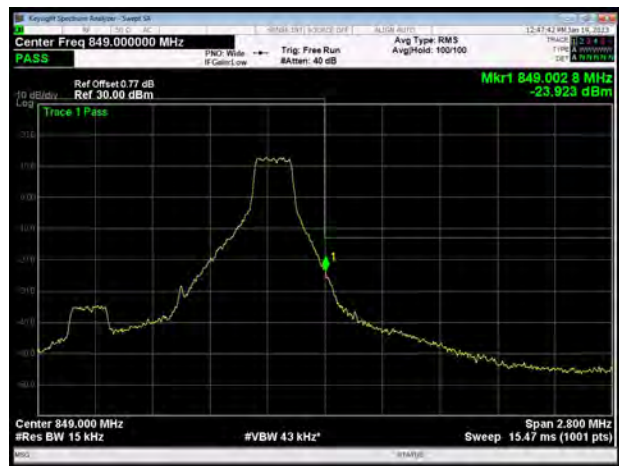
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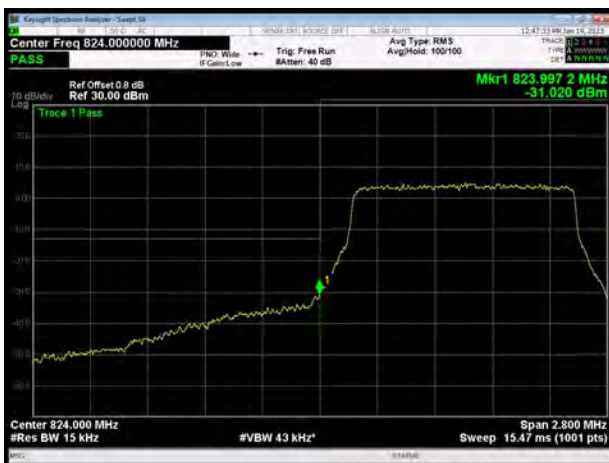
LTE Band 5 64QAM 1.4MHz CH-Low 1RB



LTE Band 5 64QAM 1.4MHz CH-High 1RB



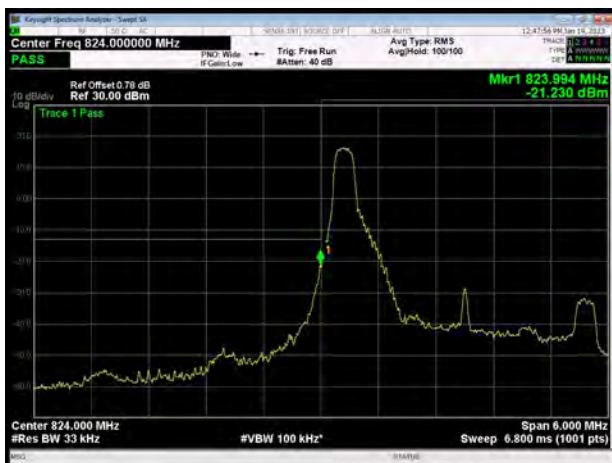
LTE Band 5 64QAM 1.4MHz CH-Low 100%RB



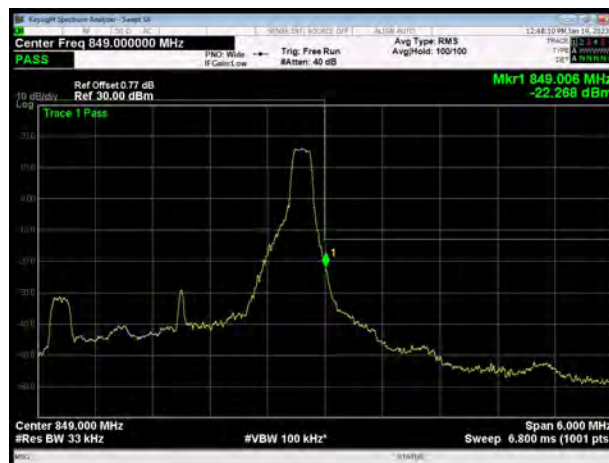
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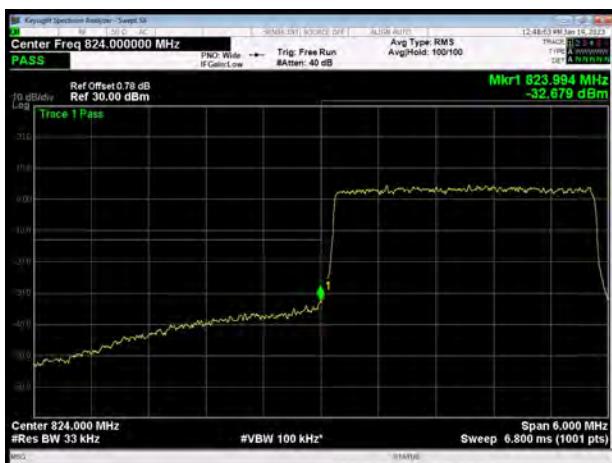
LTE Band 5 64QAM 3MHz CH-Low 1RB



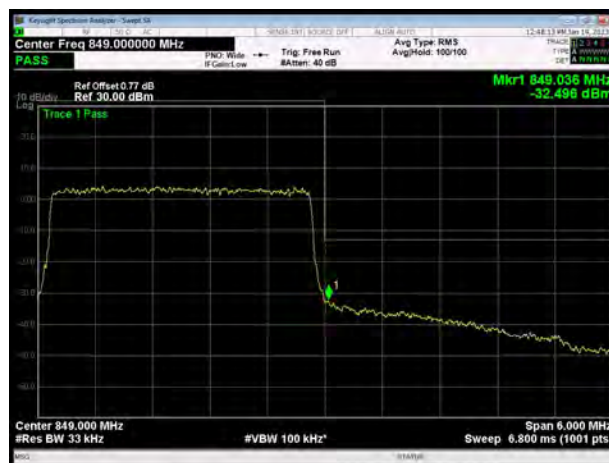
LTE Band 5 64QAM 3MHz CH-High 1RB



LTE Band 5 64QAM 3MHz CH-Low 100%RB



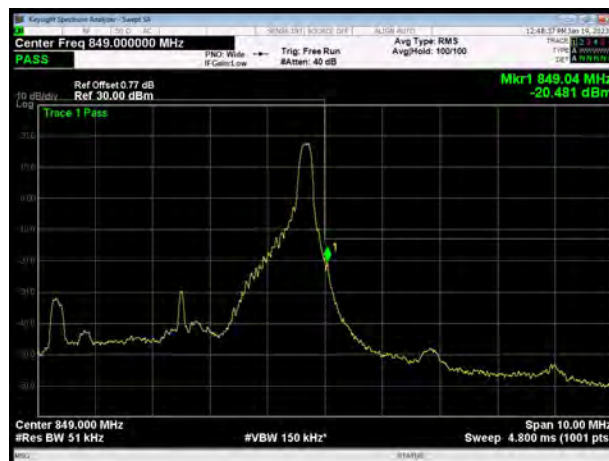
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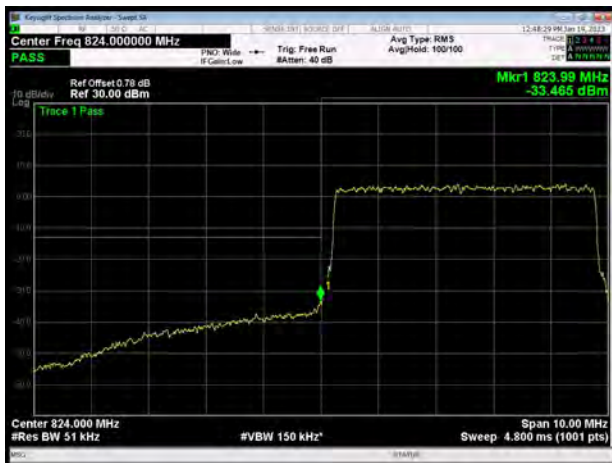
LTE Band 5 64QAM 5MHz CH-Low 1RB



LTE Band 5 64QAM 5MHz CH-High 1RB



LTE Band 5 64QAM 5MHz CH-Low 100%RB



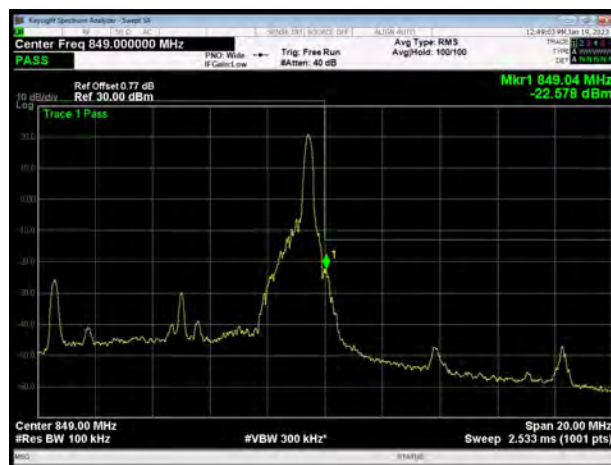
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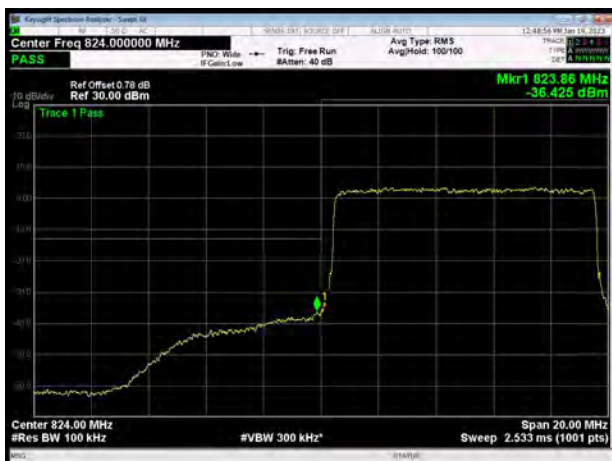
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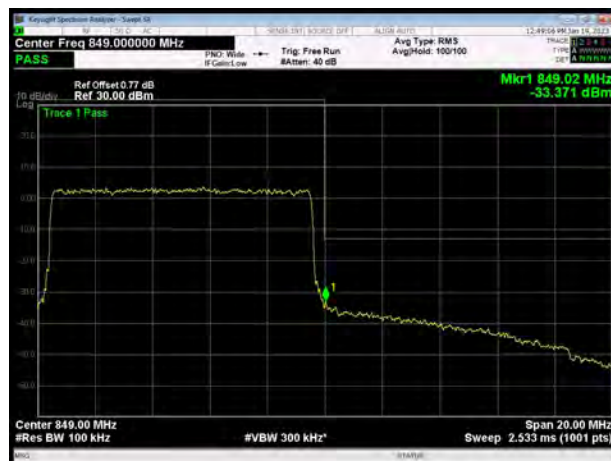
LTE Band 5 64QAM 10MHz CH-High 1RB



LTE Band 5 64QAM 10MHz CH-Low 100%RB



LTE Band 5 64QAM 10MHz CH-High 100%RB



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	26.51	23.58	2.93	≤13	PASS
	4183	836.6	26.21	23.37	2.84	≤13	PASS
	4233	846.6	26.30	23.47	2.83	≤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	27.91	23.11	4.80	≤13	PASS
		20525	836.5	27.49	22.95	4.54	≤13	PASS
		20643	848.3	27.52	22.94	4.58	≤13	PASS
	3	20415	825.5	28.03	23.05	4.98	≤13	PASS
		20525	836.5	27.53	22.93	4.60	≤13	PASS
		20635	847.5	27.61	22.89	4.72	≤13	PASS
	5	20425	826.5	28.11	23.00	5.11	≤13	PASS
		20525	836.5	27.61	22.95	4.66	≤13	PASS
		20625	846.5	27.72	22.91	4.81	≤13	PASS
	10	20450	829	28.18	23.04	5.14	≤13	PASS
		20525	836.5	27.75	22.99	4.76	≤13	PASS
		20600	844	27.68	22.88	4.80	≤13	PASS
16QAM	1.4	20407	824.7	27.71	22.08	5.63	≤13	PASS
		20525	836.5	27.36	21.99	5.37	≤13	PASS
		20643	848.3	27.38	21.95	5.43	≤13	PASS
	3	20415	825.5	27.90	22.09	5.81	≤13	PASS
		20525	836.5	27.40	21.94	5.46	≤13	PASS
		20635	847.5	27.49	21.91	5.58	≤13	PASS
	5	20425	826.5	27.95	22.05	5.90	≤13	PASS
		20525	836.5	27.46	21.99	5.47	≤13	PASS
		20625	846.5	27.52	21.90	5.62	≤13	PASS
	10	20450	829	28.03	22.06	5.97	≤13	PASS
		20525	836.5	27.57	22.01	5.56	≤13	PASS
		20600	844	27.54	21.93	5.61	≤13	PASS
64QAM	1.4	20407	824.7	27.41	21.82	5.59	≤13	PASS
		20525	836.5	27.07	21.70	5.37	≤13	PASS
		20643	848.3	27.22	21.74	5.48	≤13	PASS
	3	20415	825.5	27.65	21.90	5.75	≤13	PASS

		20525	836.5	27.18	21.69	5.49	≤13	PASS
		20635	847.5	27.23	21.60	5.63	≤13	PASS
	5	20425	826.5	27.69	21.83	5.86	≤13	PASS
		20525	836.5	27.24	21.74	5.50	≤13	PASS
		20625	846.5	27.28	21.68	5.60	≤13	PASS
	10	20450	829	27.73	21.80	5.93	≤13	PASS
		20525	836.5	27.36	21.78	5.58	≤13	PASS
		20600	844	27.29	21.67	5.62	≤13	PASS

6.5. Frequency Stability

WCDMA Band V						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	QPSK	BPSK	QPSK	BPSK	
Normal (25°C)	Normal	7.87	6.49	0.00941	0.00776	PASS
Extreme (50°C)		3.46	13.56	0.00413	0.01620	PASS
Extreme (40°C)		4.62	14.40	0.00552	0.01721	PASS
Extreme (30°C)		8.59	12.70	0.01027	0.01518	PASS
Extreme (20°C)		9.88	11.68	0.01182	0.01396	PASS
Extreme (10°C)		14.00	10.31	0.01674	0.01232	PASS
Extreme (0°C)		2.57	14.52	0.00307	0.01736	PASS
Extreme (-10°C)		15.65	17.18	0.01871	0.02053	PASS
Extreme (-20°C)		14.89	6.39	0.01780	0.00764	PASS
Extreme (-30°C)		4.53	1.04	0.00541	0.00125	PASS
25°C	LV	16.93	16.83	0.02024	0.02012	PASS
	HV	4.28	2.41	0.00511	0.00288	PASS

LTE Band 5								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	9.21	15.82	7.42	0.01101	0.01891	0.00887	PASS
Extreme (50°C)		5.48	7.97	7.98	0.00656	0.00953	0.00954	PASS
Extreme (40°C)		11.07	2.56	17.78	0.01323	0.00306	0.02125	PASS
Extreme (30°C)		16.90	10.81	13.10	0.02020	0.01292	0.01567	PASS
Extreme (20°C)		14.19	4.98	16.57	0.01696	0.00595	0.01981	PASS
Extreme (10°C)		10.96	5.97	2.17	0.01310	0.00713	0.00260	PASS
Extreme (0°C)		15.23	17.48	16.34	0.01821	0.02089	0.01953	PASS
Extreme (-10°C)		3.27	11.26	17.59	0.00390	0.01346	0.02103	PASS
Extreme (-20°C)		9.76	6.63	4.42	0.01167	0.00793	0.00529	PASS
Extreme (-30°C)		16.37	6.97	6.60	0.01957	0.00833	0.00789	PASS
25°C	LV	8.38	6.30	2.90	0.01002	0.00753	0.00347	PASS
	HV	5.21	5.79	17.60	0.00622	0.00692	0.02104	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	8.60	2.99	2.48	0.01028	0.00357	0.00296	PASS

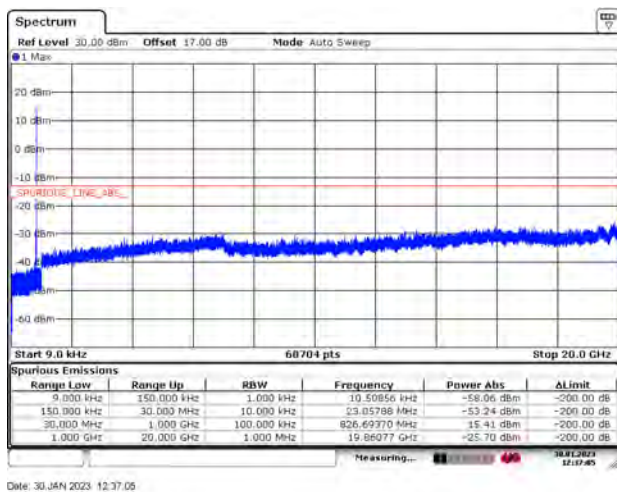
Extreme (50℃)		8.20	7.03	7.04	0.00980	0.00841	0.00842	PASS
Extreme (40℃)		14.54	6.29	9.97	0.01738	0.00752	0.01192	PASS
Extreme (30℃)		3.97	17.41	16.18	0.00475	0.02081	0.01934	PASS
Extreme (20℃)		15.72	9.14	7.25	0.01879	0.01093	0.00866	PASS
Extreme (10℃)		6.31	8.39	16.53	0.00754	0.01003	0.01977	PASS
Extreme (0℃)		8.57	10.46	17.60	0.01024	0.01250	0.02103	PASS
Extreme (-10℃)		12.57	16.07	16.50	0.01503	0.01921	0.01972	PASS
Extreme (-20℃)		1.59	15.62	8.68	0.00190	0.01867	0.01037	PASS
Extreme (-30℃)		8.55	17.52	15.87	0.01022	0.02095	0.01897	PASS
25℃	LV	15.53	12.57	5.91	0.01856	0.01503	0.00706	PASS
	HV	8.11	1.39	4.58	0.00969	0.00166	0.00547	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	8.54	10.46	10.06	0.01021	0.01250	0.01203	PASS
Extreme (50℃)		7.03	8.86	5.47	0.00841	0.01059	0.00653	PASS
Extreme (40℃)		17.37	8.45	11.75	0.02077	0.01010	0.01405	PASS
Extreme (30℃)		3.36	2.20	9.43	0.00401	0.00263	0.01127	PASS
Extreme (20℃)		7.66	4.94	15.97	0.00916	0.00590	0.01909	PASS
Extreme (10℃)		3.60	7.31	10.50	0.00431	0.00874	0.01255	PASS
Extreme (0℃)		11.39	17.72	12.87	0.01361	0.02119	0.01539	PASS
Extreme (-10℃)		1.76	3.81	3.78	0.00211	0.00455	0.00452	PASS
Extreme (-20℃)		2.93	3.29	4.49	0.00350	0.00394	0.00537	PASS
Extreme (-30℃)		5.57	5.44	13.76	0.00666	0.00651	0.01644	PASS
25℃	LV	5.25	10.89	16.73	0.00628	0.01302	0.02000	PASS
	HV	3.30	1.62	14.33	0.00394	0.00194	0.01714	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal (25℃)	Normal	3.72	10.08	11.16	0.00445	0.01205	0.01334	PASS
Extreme (50℃)		7.97	8.80	2.43	0.00952	0.01052	0.00290	PASS
Extreme (40℃)		1.18	1.60	10.74	0.00141	0.00192	0.01284	PASS
Extreme (30℃)		15.15	6.90	17.37	0.01811	0.00824	0.02076	PASS
Extreme (20℃)		8.70	12.38	5.34	0.01040	0.01480	0.00638	PASS
Extreme (10℃)		15.30	5.67	3.28	0.01829	0.00678	0.00392	PASS
Extreme (0℃)		6.17	6.11	13.62	0.00737	0.00730	0.01628	PASS
Extreme (-10℃)		11.81	3.53	2.32	0.01412	0.00422	0.00277	PASS
Extreme (-20℃)		16.69	4.82	7.98	0.01995	0.00576	0.00954	PASS
Extreme (-30℃)		12.04	8.26	11.48	0.01439	0.00987	0.01373	PASS
25℃	LV	16.07	5.27	9.79	0.01921	0.00630	0.01171	PASS
	HV	17.39	2.20	10.90	0.02079	0.00263	0.01303	PASS

6.6. Spurious Emissions at Antenna Terminals

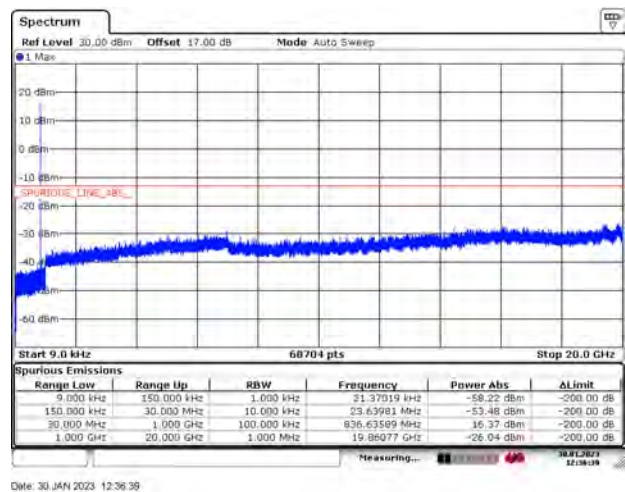
Sweep the whole frequency band through the range from 9kHz to the 20th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

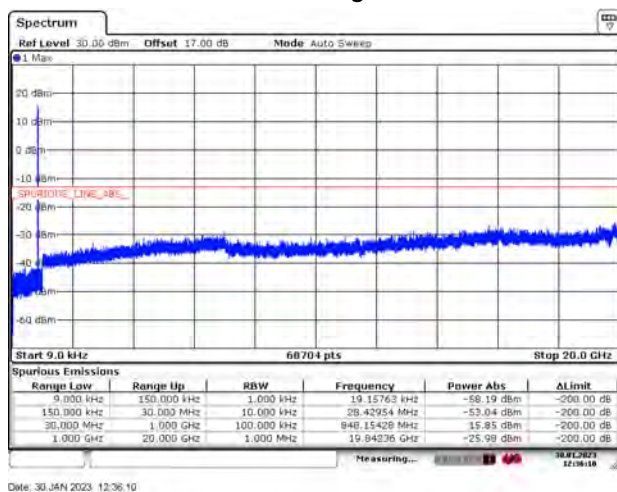
WCDMA Band V CH-Low 9kHz ~ 20GHz



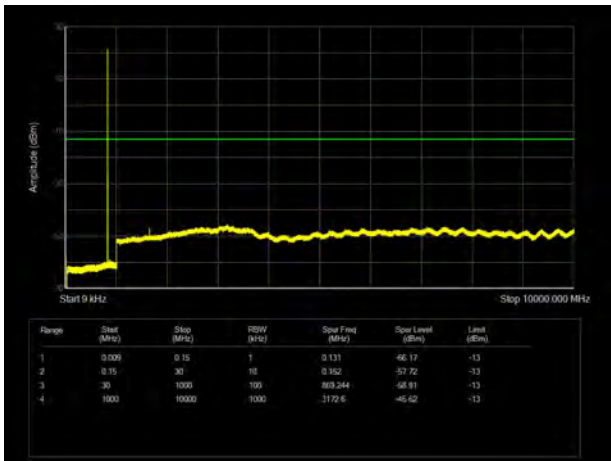
WCDMA Band V CH-Middle 9kHz ~ 20GHz



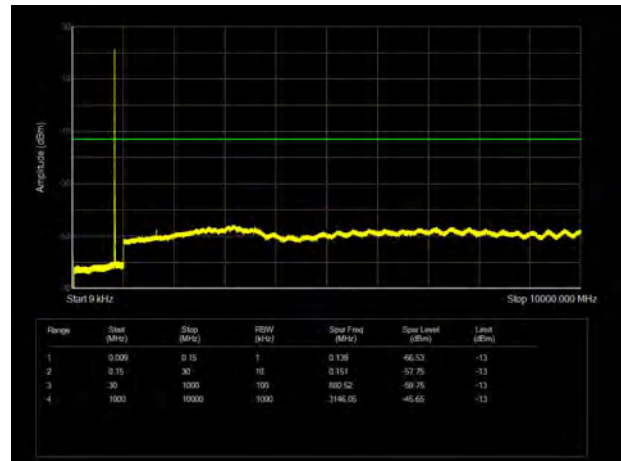
WCDMA Band V CH-High 9kHz ~ 20GHz



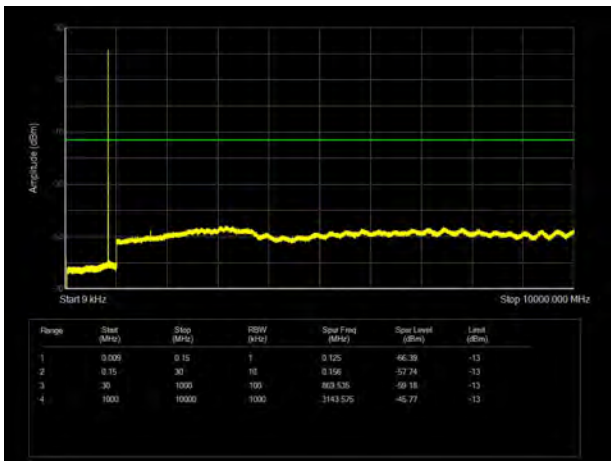
LTE Band 5 1.4MHz CH-Low 9kHz~10GHz



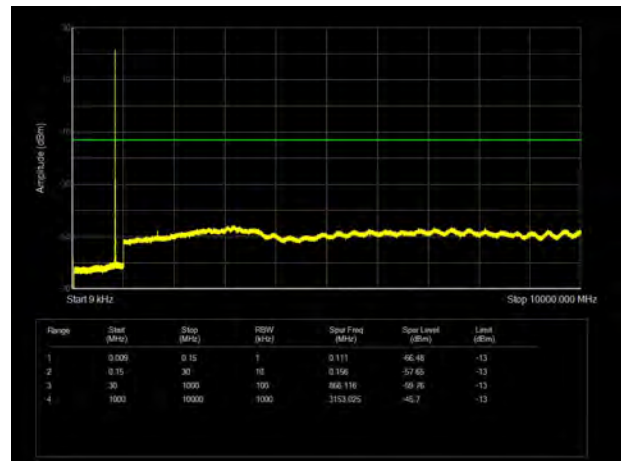
LTE Band 5 3MHz CH-Low 9kHz~10GHz



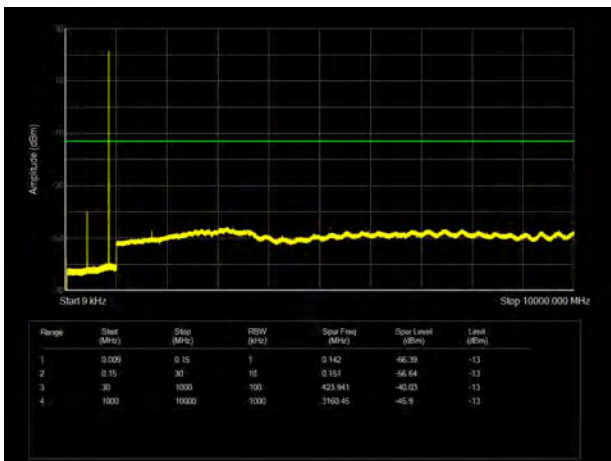
LTE Band 5 1.4MHz CH-Middle 9kHz~10GHz



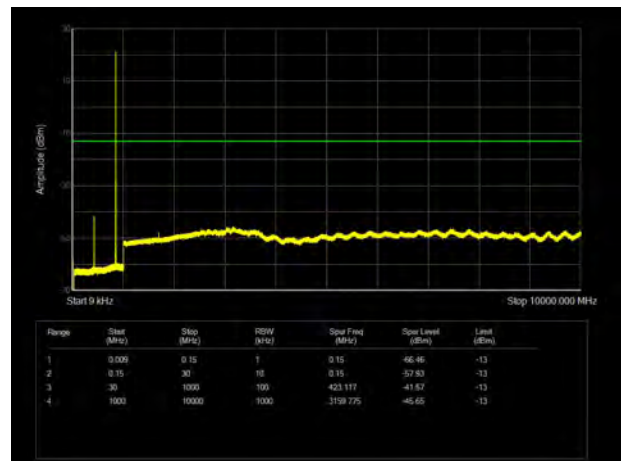
LTE Band 5 3MHz CH-Middle 9kHz~10GHz



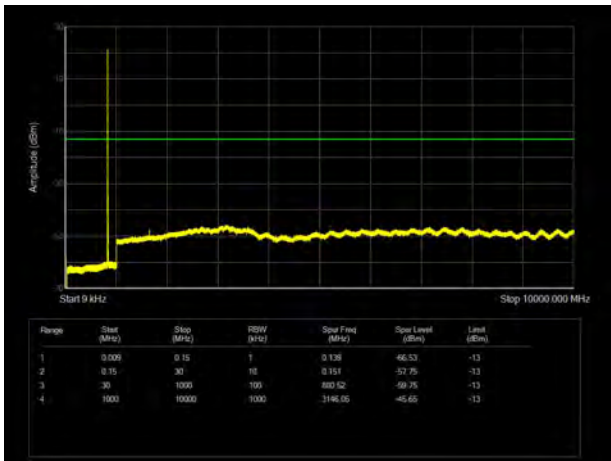
LTE Band 5 1.4MHz CH-High 9kHz~10GHz



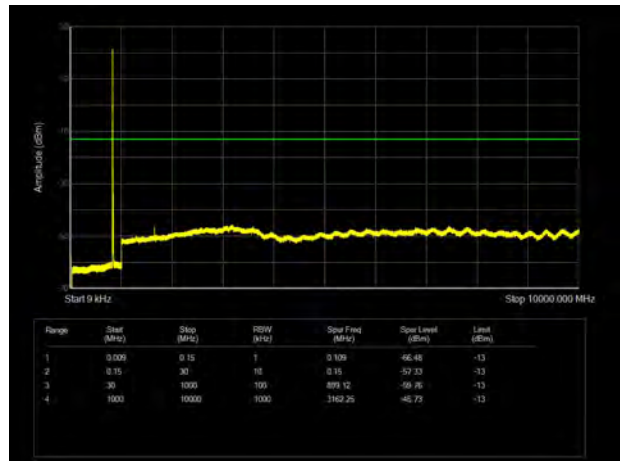
LTE Band 5 3MHz CH-High 9kHz~10GHz



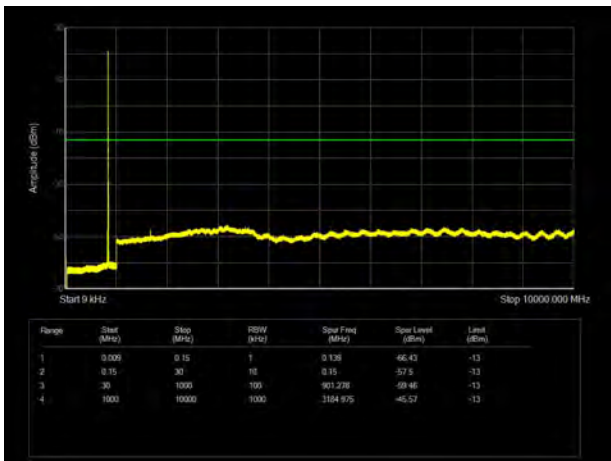
LTE Band 5 5MHz CH-Low 9kHz~10GHz



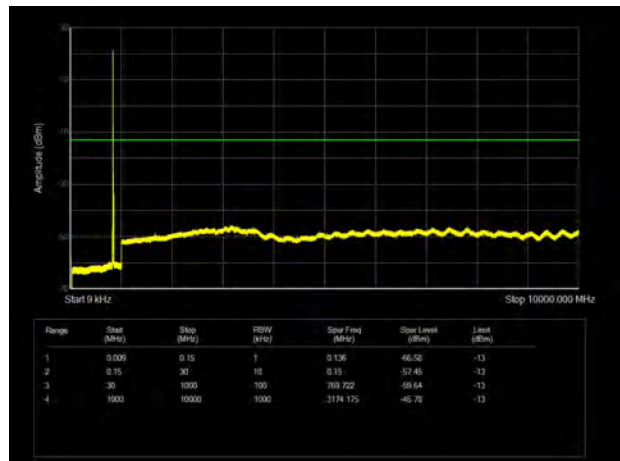
LTE Band 5 10MHz CH-Low 9kHz~10GHz



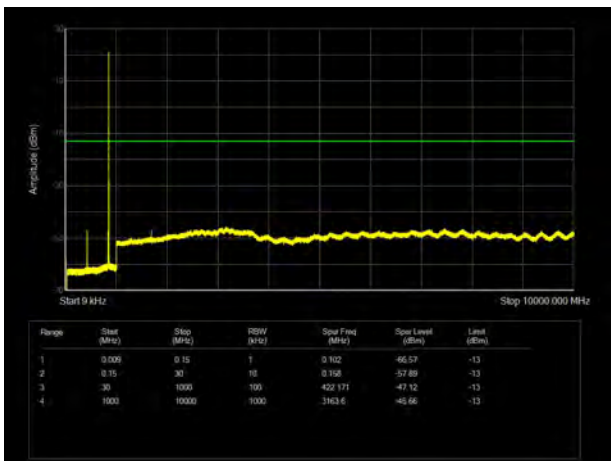
LTE Band 5 5MHz CH-Middle 9kHz~10GHz



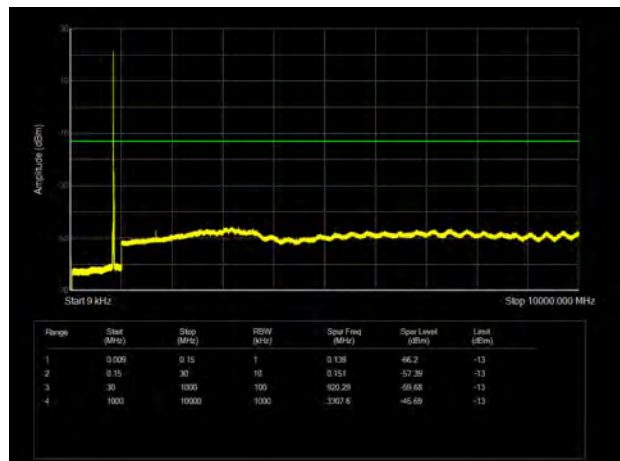
LTE Band 5 10MHz CH-Middle 9kHz~10GHz



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



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



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.

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	1671.20	-67.57	1.70	8.70	Horizontal	-62.72	-13.00	49.72	45
3	2510.40	-65.83	2.30	12.00	Horizontal	-58.28	-13.00	45.28	225
4	3346.40	-65.68	2.70	12.70	Horizontal	-57.83	-13.00	44.83	90
5	4183.00	-62.80	3.00	12.50	Horizontal	-55.45	-13.00	42.45	135
6	5019.60	-59.11	3.40	12.50	Horizontal	-52.16	-13.00	39.16	315
7	5856.20	-59.47	3.40	12.80	Horizontal	-52.22	-13.00	39.22	270
8	6692.80	-59.07	4.10	11.50	Horizontal	-53.82	-13.00	40.82	0
9	7529.40	-58.31	4.20	12.20	Horizontal	-52.46	-13.00	39.46	315
10	8366.00	-57.36	4.30	12.50	Horizontal	-51.31	-13.00	38.31	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 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	1673.00	-64.56	1.70	8.70	Horizontal	-59.71	-13.00	46.71	315
3	2509.50	-46.99	2.30	12.00	Horizontal	-39.44	-13.00	26.44	225
4	3346.00	-62.39	2.70	12.70	Horizontal	-54.54	-13.00	41.54	90
5	4182.50	-55.82	3.00	12.50	Horizontal	-48.47	-13.00	35.47	0
6	5019.00	-59.42	3.40	12.50	Horizontal	-52.47	-13.00	39.47	135
7	5855.50	-60.05	3.40	12.80	Horizontal	-52.80	-13.00	39.80	0
8	6692.00	-58.70	4.10	11.50	Horizontal	-53.45	-13.00	40.45	45
9	7528.50	-58.94	4.20	12.20	Horizontal	-53.09	-13.00	40.09	0
10	8365.00	-58.13	4.30	12.50	Horizontal	-52.08	-13.00	39.08	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-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.60	-62.10	1.70	8.70	Horizontal	-57.25	-13.00	44.25	315
3	2503.30	-49.05	2.30	12.00	Horizontal	-41.50	-13.00	28.50	135
4	3337.50	-63.70	2.70	12.70	Horizontal	-55.85	-13.00	42.85	135
5	4171.88	-56.38	3.00	12.50	Horizontal	-49.03	-13.00	36.03	45
6	5006.25	-59.77	3.40	12.50	Horizontal	-52.82	-13.00	39.82	135
7	5840.63	-58.76	3.40	12.80	Horizontal	-51.51	-13.00	38.51	90
8	6675.00	-59.29	4.10	11.50	Horizontal	-54.04	-13.00	41.04	135
9	7509.38	-58.36	4.20	12.20	Horizontal	-52.51	-13.00	39.51	45
10	8343.75	-57.90	4.30	12.50	Horizontal	-51.85	-13.00	38.85	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	1664.40	-62.61	1.70	8.70	Horizontal	-57.76	-13.00	44.76	180
3	2496.60	-48.15	2.30	12.00	Horizontal	-40.60	-13.00	27.60	135
4	3346.00	-63.39	2.70	12.70	Horizontal	-55.54	-13.00	42.54	135
5	4182.50	-59.92	3.00	12.50	Horizontal	-52.57	-13.00	39.57	45
6	5019.00	-59.09	3.40	12.50	Horizontal	-52.14	-13.00	39.14	0
7	5855.50	-59.75	3.40	12.80	Horizontal	-52.50	-13.00	39.50	45
8	6692.00	-58.48	4.10	11.50	Horizontal	-53.23	-13.00	40.23	225
9	7528.50	-58.79	4.20	12.20	Horizontal	-52.94	-13.00	39.94	135
10	8365.00	-58.24	4.30	12.50	Horizontal	-52.19	-13.00	39.19	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

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Climatic Chamber	WEISS	VT 4002	58226119450 010	2022-05-14	2023-05-13
Base Station Simulator	R&S	CMW500	150415	2022-05-14	2023-05-13
Spectrum Analyzer	Keysight	N9020A	MY50510203	2022-05-14	2023-05-13
Signal Analyzer	R&S	FSV30	103591	2022-05-14	2023-05-13
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2022-05-14	2023-05-13
Signal Analyzer	R&S	FSV30	100815	2022-12-10	2023-12-09
Loop antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01439	2021-06-30	2024-06-29
Horn Antenna	Schwarzbeck	BBHA 9120D	01799	2022-09-01	2025-08-31
Software	R&S	EMC32	10.35.10	/	/

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

ANNEX A: The EUT Appearance

The EUT Appearance is submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos is submitted separately.