



RF TEST REPORT

Applicant XCHENG TECH CO.,LIMITED

FCC ID 2AZ4F-D1

Product Smart Desktop Terminal

Brand Kobile;Kripto;Clip;Nextep;Ecline;SAT;Qian;Ghia;
CBX;Solux;Dejavoo;slimrate

Model D1

Report No. R2206A0595-R2V1

Issue Date August 17, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2021)/ FCC CFR 47 Part 24E (2021)**. 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.	August 16, 2022
Rev.1	Update description.	August 17, 2022
Note: This revised report (Report No. R2206A0595-R2V1) supersedes and replaces the previously issued report (Report No. R2206A0595-R2). 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 Isotropic Radiated Power	2.1046 24.232(c)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 /24.238(a)	PASS
4	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 24.235	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 24.238(a)	PASS
7	Radiates Spurious Emission	2.1053 / 24.238(a)	PASS
Date of Testing: June 28, 2022 ~July 19, 2022 Date of Sample Received: June 28, 2022			
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.
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City: Shanghai
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E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1.Applicant and Manufacturer Information

Applicant	XCHENG TECH CO.,LIMITED
Applicant address	ROOM 401F,Building 5,No.2000 LONG DONG Avenue,Pudong New District
Manufacturer	XCHENG TECH CO.,LIMITED
Manufacturer address	ROOM 401F,Building 5,No.2000 LONG DONG Avenue,Pudong New District

2.2.General information

EUT Description			
Model	D1		
IMEI	864084060007894		
Hardware Version	V1.0		
Software Version	V1.0		
Power Supply	Battery / AC adapter		
Antenna Type	Internal Antenna		
Antenna Gain	2.0 dBi		
Test Mode(s)	GSM1900; WCDMA Band II; LTE Band 2;		
Test Modulation	(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) BPSK, QPSK,16QAM; (LTE)QPSK,16QAM		
GPRS Multislot Class	12		
EGPRS Multislot Class	12		
HSDPA UE Category	7		
HSUPA UE Category	7		
LTE Category	4		
Maximum E.I.R.P	GSM 1900:	31.40 dBm	
	WCDMA Band II:	24.34 dBm	
	LTE Band 2:	25.72 dBm	
Rated Power Supply Voltage	7.2V		
Operating Voltage	Minimum: 6.9V Maximum: 8.4V		
Operating Temperature	Lowest: -10°C Highest: +50°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	LTE Band 2	1850 ~ 1910	1930 ~ 1990



EUT Accessory	
Adapter	Manufacturer: Shenzhen Flypower Technology Co., LTD Model: FLY0222052501
Button batteries	Manufacturer: SHENZHEN M&LAK INDUSTRY CO.,LTD Model: CR2032
RJ45&DB9_wire	Manufacturer: Shenzhen Flypower Technology Co., LTD Model: C393-210302-002
Note: 1. The EUT is sent from the applicant to 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 24E (2021)

FCC CFR47 Part 2 (2021)

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 (Z axis, vertical 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 GSM/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	
	GSM 1900	WCDMA Band II
RF Power Output and Effective Isotropic Radiated Power	GSM GPRS EGPRS	RMC HSDPA/HSUPA
Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Peak-to-Average Power Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Frequency Stability	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Spurious Emissions at Antenna Terminals	GSM	RMC
Radiates Spurious Emission	GSM	RMC



Test modes are chosen to be reported as the worst case configuration below for LTE Band 2:

Test items	Bandwidth (MHz)						Modulation		RB			Test Channel		
	1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF Power Output and Effective Isotropic Radiated Power	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	O	O	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	O	O
Frequency Stability	O	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	O	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates 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 Isotropic 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.

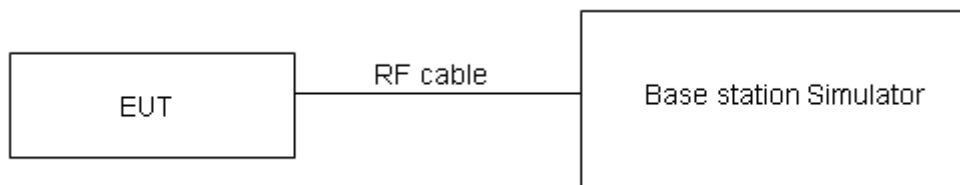
ERP can then be calculated as follows:

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

where:dBd refers to gain relative to an ideal dipole.

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

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 24.232(c) Mobile and portable stations are limited to 2 watts EIRP.

Rule Part 24.232(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Limit	$\leq 2 \text{ W}$ (33 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 EIRP.

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

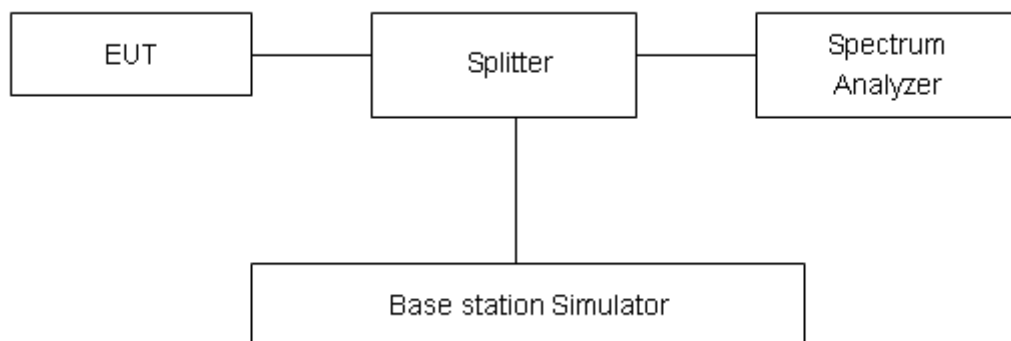
Method of Measurement

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

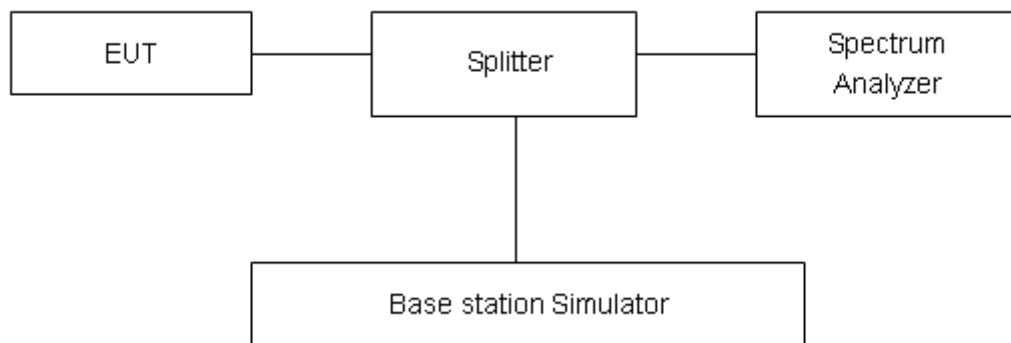
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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 and 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 24.238(a) specifies that “on any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ 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

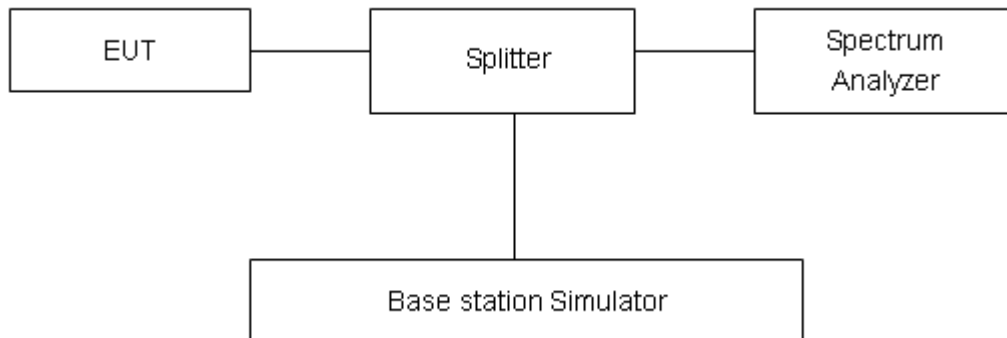
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as PPK. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$\text{PAPR (dB)} = \text{PPk (dBm)} - \text{PAvg (dBm)}.$$

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

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.

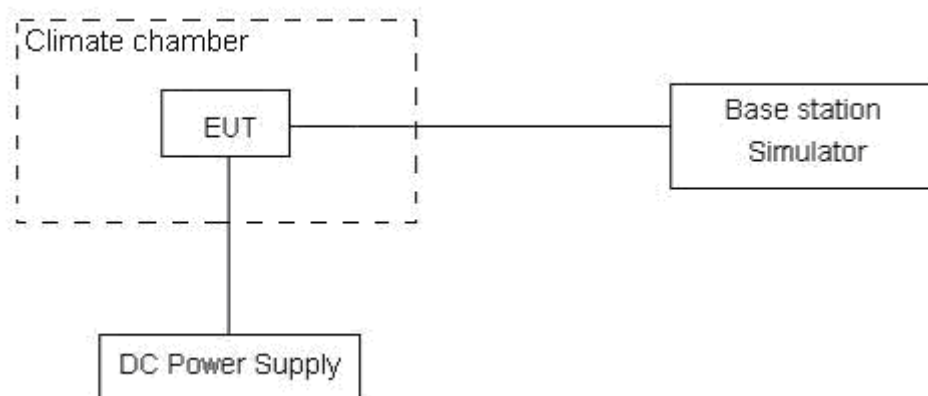
Frequency Stability (Voltage Variation)

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 6.9 V and 8.4 V, with a nominal voltage of 7.2V.

Test setup



Limits

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block

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 100kHz, VBW is set to 300kHz for 30MHz~1GHz

RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

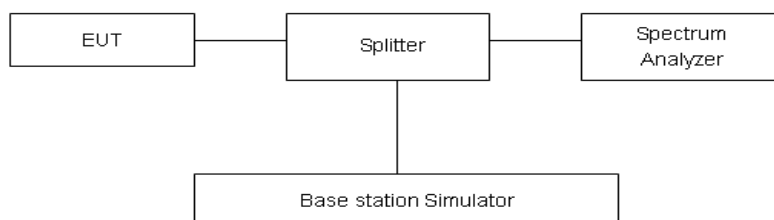
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

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

RBW is set to 1000 kHz (above 1000MHz)

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

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ 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-20GHz	1.407 dB

Test Results

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

5.7. Radiates 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=1MHz, VBW=3MHz, 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:

$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$
The measurement results are amend as described below:

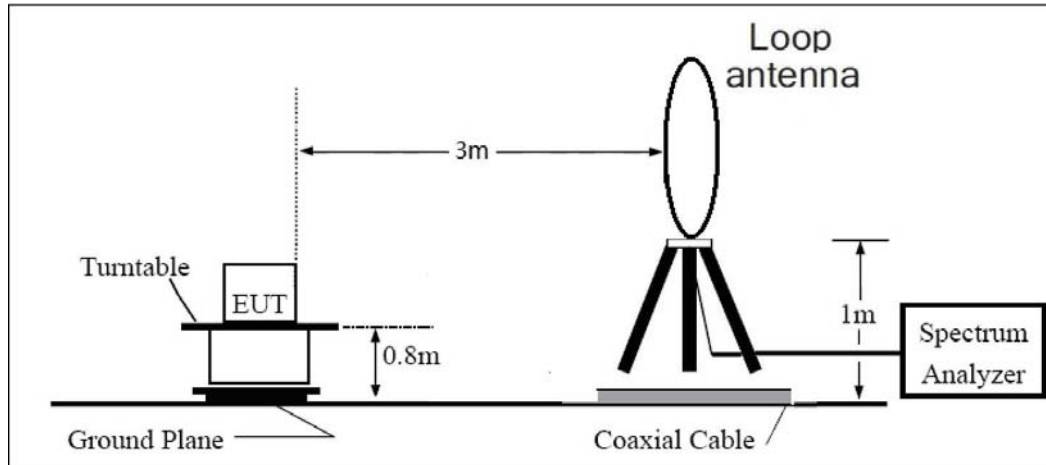
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP

= EIRP-2.15dB.

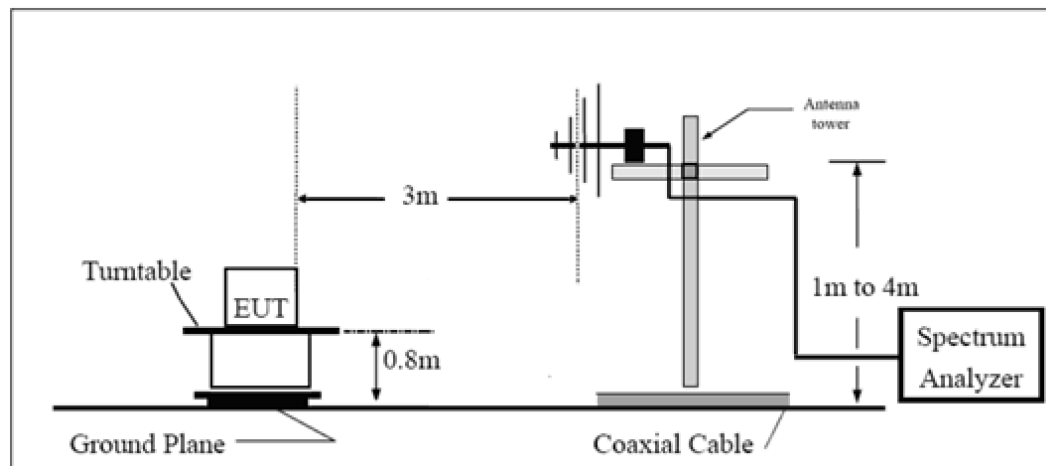
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

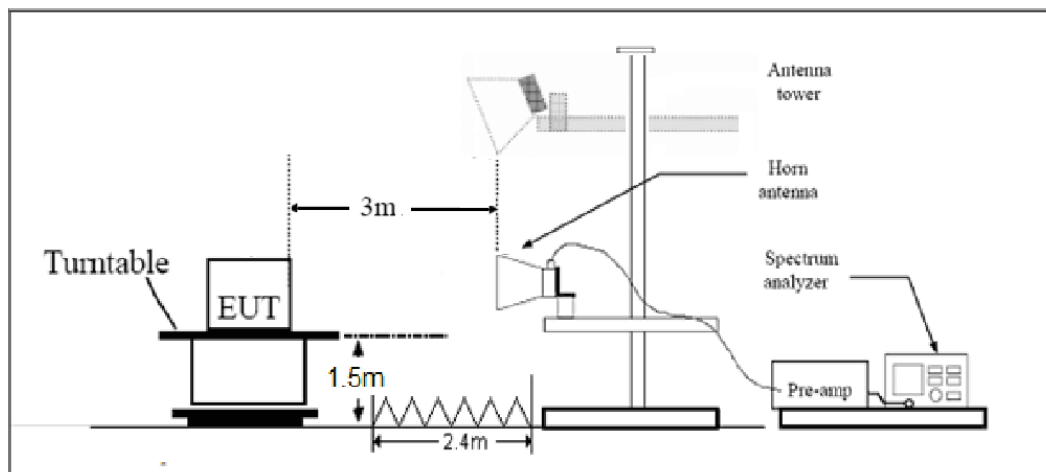
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

**Limits**

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ 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 Results

6.1.RF Power Output and Effective Isotropic Radiated Power

GSM 1900		Maximum Output Power (dBm)			EIRP (dBm)		
		Channel 512	Channel 661	Channel 810	Channel 512	Channel 661	Channel 810
		1850.2 (MHz)	1880 (MHz)	1909.8 (MHz)	1850.2 (MHz)	1880 (MHz)	1909.8 (MHz)
GSM(GMSK)	Results	29.40	29.01	28.61	31.40	31.01	30.61
GPRS (GMSK)	1TXslot	29.39	29.00	28.61	31.39	31.00	30.61
	2TXslots	28.85	28.45	28.05	30.85	30.45	30.05
	3TXslots	27.31	26.86	26.49	29.31	28.86	28.49
	4TXslots	26.26	25.83	25.44	28.26	27.83	27.44
EGPRS	1TXslot	26.06	25.65	25.28	28.06	27.65	27.28
	2TXslots	25.22	24.78	24.33	27.22	26.78	26.33
	3TXslots	23.47	22.83	22.24	25.47	24.83	24.24
	4TXslots	22.38	21.68	21.05	24.38	23.68	23.05

WCDMA Band II		Maximum Output Power (dBm)			EIRP (dBm)		
		Channel 9262	Channel 9400	Channel 9538	Channel 9262	Channel 9400	Channel 9538
		1852.4 (MHz)	1880 (MHz)	1907.6 (MHz)	1852.4 (MHz)	1880 (MHz)	1907.6 (MHz)
RMC		21.87	22.07	22.34	23.87	24.07	24.34
HSDPA	Sub - Test 1	21.33	21.49	21.78	23.33	23.49	23.78
	Sub - Test 2	21.32	21.51	21.75	23.32	23.51	23.75
	Sub - Test 3	20.79	21.01	21.27	22.79	23.01	23.27
	Sub - Test 4	20.80	21.02	21.25	22.80	23.02	23.25
HSUPA	Sub - Test 1	21.29	21.48	21.73	23.29	23.48	23.73
	Sub - Test 2	20.28	20.46	20.72	22.28	22.46	22.72
	Sub - Test 3	20.75	20.94	21.21	22.75	22.94	23.21
	Sub - Test 4	20.21	20.43	20.69	22.21	22.43	22.69
	Sub - Test 5	21.22	21.41	21.67	23.22	23.41	23.67

LTE Band 2						
Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)
1.4	18607	1	#0	QPSK	22.92	24.92
1.4	18607	1	#Mid	QPSK	23.33	25.33
1.4	18607	1	#Max	QPSK	22.89	24.89
1.4	18607	3	#0	QPSK	22.98	24.98
1.4	18607	3	#Mid	QPSK	23.04	25.04
1.4	18607	3	#Max	QPSK	22.89	24.89
1.4	18607	6	#0	QPSK	21.98	23.98
1.4	18607	1	#0	QAM16	21.78	23.78
1.4	18607	1	#Mid	QAM16	21.86	23.86
1.4	18607	1	#Max	QAM16	21.77	23.77
1.4	18607	3	#0	QAM16	22.15	24.15
1.4	18607	3	#Mid	QAM16	22.11	24.11
1.4	18607	3	#Max	QAM16	22.01	24.01
1.4	18607	6	#0	QAM16	20.96	22.96
1.4	18900	1	#0	QPSK	22.74	24.74
1.4	18900	1	#Mid	QPSK	23.03	25.03
1.4	18900	1	#Max	QPSK	22.79	24.79
1.4	18900	3	#0	QPSK	22.84	24.84
1.4	18900	3	#Mid	QPSK	22.92	24.92
1.4	18900	3	#Max	QPSK	22.92	24.92
1.4	18900	6	#0	QPSK	21.91	23.91
1.4	18900	1	#0	QAM16	21.88	23.88
1.4	18900	1	#Mid	QAM16	21.95	23.95
1.4	18900	1	#Max	QAM16	21.80	23.80
1.4	18900	3	#0	QAM16	21.86	23.86
1.4	18900	3	#Mid	QAM16	21.89	23.89
1.4	18900	3	#Max	QAM16	21.85	23.85
1.4	18900	6	#0	QAM16	20.77	22.77
1.4	19193	1	#0	QPSK	23.29	25.29
1.4	19193	1	#Mid	QPSK	23.72	25.72
1.4	19193	1	#Max	QPSK	23.43	25.43
1.4	19193	3	#0	QPSK	23.38	25.38
1.4	19193	3	#Mid	QPSK	23.51	25.51
1.4	19193	3	#Max	QPSK	23.42	25.42
1.4	19193	6	#0	QPSK	22.38	24.38
1.4	19193	1	#0	QAM16	22.44	24.44
1.4	19193	1	#Mid	QAM16	22.44	24.44
1.4	19193	1	#Max	QAM16	22.39	24.39
1.4	19193	3	#0	QAM16	22.34	24.34



1.4	19193	3	#Mid	QAM16	22.37	24.37
1.4	19193	3	#Max	QAM16	22.43	24.43
1.4	19193	6	#0	QAM16	21.27	23.27
3	18615	1	#0	QPSK	22.90	24.90
3	18615	1	#Mid	QPSK	22.89	24.89
3	18615	1	#Max	QPSK	22.86	24.86
3	18615	8	#0	QPSK	21.92	23.92
3	18615	8	#Mid	QPSK	21.98	23.98
3	18615	8	#Max	QPSK	21.96	23.96
3	18615	15	#0	QPSK	21.93	23.93
3	18615	1	#0	QAM16	21.94	23.94
3	18615	1	#Mid	QAM16	21.83	23.83
3	18615	1	#Max	QAM16	21.91	23.91
3	18615	8	#0	QAM16	20.95	22.95
3	18615	8	#Mid	QAM16	20.95	22.95
3	18615	8	#Max	QAM16	20.88	22.88
3	18615	15	#0	QAM16	20.78	22.78
3	18900	1	#0	QPSK	22.88	24.88
3	18900	1	#Mid	QPSK	22.84	24.84
3	18900	1	#Max	QPSK	22.95	24.95
3	18900	8	#0	QPSK	21.77	23.77
3	18900	8	#Mid	QPSK	21.76	23.76
3	18900	8	#Max	QPSK	21.93	23.93
3	18900	15	#0	QPSK	21.88	23.88
3	18900	1	#0	QAM16	22.06	24.06
3	18900	1	#Mid	QAM16	22.06	24.06
3	18900	1	#Max	QAM16	22.14	24.14
3	18900	8	#0	QAM16	20.77	22.77
3	18900	8	#Mid	QAM16	20.93	22.93
3	18900	8	#Max	QAM16	20.86	22.86
3	18900	15	#0	QAM16	20.69	22.69
3	19185	1	#0	QPSK	23.19	25.19
3	19185	1	#Mid	QPSK	23.32	25.32
3	19185	1	#Max	QPSK	23.32	25.32
3	19185	8	#0	QPSK	22.44	24.44
3	19185	8	#Mid	QPSK	22.39	24.39
3	19185	8	#Max	QPSK	22.39	24.39
3	19185	15	#0	QPSK	22.29	24.29
3	19185	1	#0	QAM16	22.42	24.42
3	19185	1	#Mid	QAM16	22.43	24.43
3	19185	1	#Max	QAM16	22.47	24.47
3	19185	8	#0	QAM16	21.34	23.34
3	19185	8	#Mid	QAM16	21.30	23.30



3	19185	8	#Max	QAM16	21.38	23.38
3	19185	15	#0	QAM16	21.25	23.25
5	18625	1	#0	QPSK	22.80	24.80
5	18625	1	#Mid	QPSK	22.90	24.90
5	18625	1	#Max	QPSK	22.78	24.78
5	18625	12	#0	QPSK	21.97	23.97
5	18625	12	#Mid	QPSK	21.99	23.99
5	18625	12	#Max	QPSK	21.89	23.89
5	18625	25	#0	QPSK	21.95	23.95
5	18625	1	#0	QAM16	21.98	23.98
5	18625	1	#Mid	QAM16	21.96	23.96
5	18625	1	#Max	QAM16	21.93	23.93
5	18625	12	#0	QAM16	20.91	22.91
5	18625	12	#Mid	QAM16	20.94	22.94
5	18625	12	#Max	QAM16	20.86	22.86
5	18625	25	#0	QAM16	20.89	22.89
5	18900	1	#0	QPSK	22.81	24.81
5	18900	1	#Mid	QPSK	22.92	24.92
5	18900	1	#Max	QPSK	22.80	24.80
5	18900	12	#0	QPSK	21.88	23.88
5	18900	12	#Mid	QPSK	21.85	23.85
5	18900	12	#Max	QPSK	21.90	23.90
5	18900	25	#0	QPSK	21.87	23.87
5	18900	1	#0	QAM16	22.17	24.17
5	18900	1	#Mid	QAM16	22.26	24.26
5	18900	1	#Max	QAM16	22.10	24.10
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5	18900	12	#Mid	QAM16	20.80	22.80
5	18900	12	#Max	QAM16	20.84	22.84
5	18900	25	#0	QAM16	20.90	22.90
5	19175	1	#0	QPSK	23.11	25.11
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5	19175	1	#Max	QPSK	23.23	25.23
5	19175	12	#0	QPSK	22.34	24.34
5	19175	12	#Mid	QPSK	22.36	24.36
5	19175	12	#Max	QPSK	22.35	24.35
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5	19175	1	#0	QAM16	22.59	24.59
5	19175	1	#Mid	QAM16	22.75	24.75
5	19175	1	#Max	QAM16	22.68	24.68
5	19175	12	#0	QAM16	21.33	23.33
5	19175	12	#Mid	QAM16	21.32	23.32
5	19175	12	#Max	QAM16	21.18	23.18



5	19175	25	#0	QAM16	21.29	23.29
10	18650	1	#0	QPSK	22.86	24.86
10	18650	1	#Mid	QPSK	22.97	24.97
10	18650	1	#Max	QPSK	22.75	24.75
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10	18650	25	#Mid	QPSK	21.99	23.99
10	18650	25	#Max	QPSK	21.87	23.87
10	18650	50	#0	QPSK	21.88	23.88
10	18650	1	#0	QAM16	22.18	24.18
10	18650	1	#Mid	QAM16	22.31	24.31
10	18650	1	#Max	QAM16	22.00	24.00
10	18650	25	#0	QAM16	20.89	22.89
10	18650	25	#Mid	QAM16	20.90	22.90
10	18650	25	#Max	QAM16	20.97	22.97
10	18650	50	#0	QAM16	20.83	22.83
10	18900	1	#0	QPSK	22.87	24.87
10	18900	1	#Mid	QPSK	22.94	24.94
10	18900	1	#Max	QPSK	22.89	24.89
10	18900	25	#0	QPSK	21.85	23.85
10	18900	25	#Mid	QPSK	21.86	23.86
10	18900	25	#Max	QPSK	21.97	23.97
10	18900	50	#0	QPSK	21.90	23.90
10	18900	1	#0	QAM16	21.85	23.85
10	18900	1	#Mid	QAM16	22.15	24.15
10	18900	1	#Max	QAM16	21.83	23.83
10	18900	25	#0	QAM16	20.96	22.96
10	18900	25	#Mid	QAM16	20.92	22.92
10	18900	25	#Max	QAM16	20.96	22.96
10	18900	50	#0	QAM16	20.90	22.90
10	19150	1	#0	QPSK	23.32	25.32
10	19150	1	#Mid	QPSK	23.55	25.55
10	19150	1	#Max	QPSK	23.40	25.40
10	19150	25	#0	QPSK	22.46	24.46
10	19150	25	#Mid	QPSK	22.39	24.39
10	19150	25	#Max	QPSK	22.33	24.33
10	19150	50	#0	QPSK	22.37	24.37
10	19150	1	#0	QAM16	22.31	24.31
10	19150	1	#Mid	QAM16	22.70	24.70
10	19150	1	#Max	QAM16	22.45	24.45
10	19150	25	#0	QAM16	21.24	23.24
10	19150	25	#Mid	QAM16	21.36	23.36
10	19150	25	#Max	QAM16	21.28	23.28
10	19150	50	#0	QAM16	21.34	23.34



15	18675	1	#0	QPSK	22.75	24.75
15	18675	1	#Mid	QPSK	22.90	24.90
15	18675	1	#Max	QPSK	22.67	24.67
15	18675	36	#0	QPSK	21.99	23.99
15	18675	36	#Mid	QPSK	21.98	23.98
15	18675	36	#Max	QPSK	21.89	23.89
15	18675	75	#0	QPSK	21.89	23.89
15	18675	1	#0	QAM16	22.02	24.02
15	18675	1	#Mid	QAM16	22.05	24.05
15	18675	1	#Max	QAM16	21.89	23.89
15	18675	36	#0	QAM16	20.93	22.93
15	18675	36	#Mid	QAM16	21.04	23.04
15	18675	36	#Max	QAM16	20.88	22.88
15	18675	75	#0	QAM16	20.87	22.87
15	18900	1	#0	QPSK	22.60	24.60
15	18900	1	#Mid	QPSK	22.77	24.77
15	18900	1	#Max	QPSK	22.91	24.91
15	18900	36	#0	QPSK	21.89	23.89
15	18900	36	#Mid	QPSK	22.00	24.00
15	18900	36	#Max	QPSK	21.99	23.99
15	18900	75	#0	QPSK	22.01	24.01
15	18900	1	#0	QAM16	21.67	23.67
15	18900	1	#Mid	QAM16	21.89	23.89
15	18900	1	#Max	QAM16	21.81	23.81
15	18900	36	#0	QAM16	20.87	22.87
15	18900	36	#Mid	QAM16	20.90	22.90
15	18900	36	#Max	QAM16	20.97	22.97
15	18900	75	#0	QAM16	20.89	22.89
15	19125	1	#0	QPSK	23.14	25.14
15	19125	1	#Mid	QPSK	23.38	25.38
15	19125	1	#Max	QPSK	23.41	25.41
15	19125	36	#0	QPSK	22.28	24.28
15	19125	36	#Mid	QPSK	22.32	24.32
15	19125	36	#Max	QPSK	22.40	24.40
15	19125	75	#0	QPSK	22.33	24.33
15	19125	1	#0	QAM16	21.75	23.75
15	19125	1	#Mid	QAM16	22.01	24.01
15	19125	1	#Max	QAM16	22.05	24.05
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15	19125	36	#Mid	QAM16	21.18	23.18
15	19125	36	#Max	QAM16	21.25	23.25
15	19125	75	#0	QAM16	21.37	23.37
20	18700	1	#0	QPSK	22.59	24.59



20	18700	1	#Mid	QPSK	22.89	24.89
20	18700	1	#Max	QPSK	22.42	24.42
20	18700	50	#0	QPSK	21.80	23.80
20	18700	50	#Mid	QPSK	21.89	23.89
20	18700	50	#Max	QPSK	21.92	23.92
20	18700	100	#0	QPSK	21.83	23.83
20	18700	1	#0	QAM16	21.22	23.22
20	18700	1	#Mid	QAM16	21.57	23.57
20	18700	1	#Max	QAM16	21.01	23.01
20	18700	50	#0	QAM16	20.92	22.92
20	18700	50	#Mid	QAM16	20.88	22.88
20	18700	50	#Max	QAM16	20.93	22.93
20	18700	100	#0	QAM16	20.80	22.80
20	18900	1	#0	QPSK	22.64	24.64
20	18900	1	#Mid	QPSK	23.08	25.08
20	18900	1	#Max	QPSK	22.71	24.71
20	18900	50	#0	QPSK	22.04	24.04
20	18900	50	#Mid	QPSK	22.00	24.00
20	18900	50	#Max	QPSK	21.88	23.88
20	18900	100	#0	QPSK	21.87	23.87
20	18900	1	#0	QAM16	21.66	23.66
20	18900	1	#Mid	QAM16	22.07	24.07
20	18900	1	#Max	QAM16	21.46	23.46
20	18900	50	#0	QAM16	20.95	22.95
20	18900	50	#Mid	QAM16	20.98	22.98
20	18900	50	#Max	QAM16	20.95	22.95
20	18900	100	#0	QAM16	20.99	22.99
20	19100	1	#0	QPSK	22.88	24.88
20	19100	1	#Mid	QPSK	23.43	25.43
20	19100	1	#Max	QPSK	23.15	25.15
20	19100	50	#0	QPSK	22.09	24.09
20	19100	50	#Mid	QPSK	22.10	24.10
20	19100	50	#Max	QPSK	22.18	24.18
20	19100	100	#0	QPSK	22.21	24.21
20	19100	1	#0	QAM16	22.03	24.03
20	19100	1	#Mid	QAM16	22.44	24.44
20	19100	1	#Max	QAM16	22.19	24.19
20	19100	50	#0	QAM16	21.13	23.13
20	19100	50	#Mid	QAM16	21.05	23.05
20	19100	50	#Max	QAM16	21.21	23.21
20	19100	100	#0	QAM16	21.09	23.09

6.2.Occupied Bandwidth

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 1900 (GMSK)	512	1850.2	0.244	0.329
	661	1880.0	0.245	0.314
	810	1909.8	0.244	0.316
GPRS 1900 (GMSK)	512	1850.2	0.244	0.310
	661	1880.0	0.250	0.316
	810	1909.8	0.248	0.320
EGPRS 1900 (8PSK)	512	1850.2	0.260	0.335
	661	1880.0	0.257	0.329
	810	1909.8	0.256	0.326
WCDMA Band II (RMC)	9262	1852.4	4.168	4.694
	9400	1880	4.176	4.694
	9538	1907.6	4.161	4.678

LTE Band 2						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	18607	1850.7	1.103	1.282
			18900	1880.0	1.091	1.284
			19193	1909.3	1.092	1.287
		3	18615	1851.5	2.684	2.919
			18900	1880	2.703	2.911
			19185	1908.5	2.689	2.934
		5	18625	1852.5	4.504	4.891
			18900	1880	4.498	4.927
			19175	1907.5	4.509	4.946
		10	18650	1855	8.987	9.686
			18900	1880	8.990	9.685
			19150	1905	9.016	9.638
		15	18675	1857.5	13.433	14.399
			18900	1880	13.480	14.477
			19125	1902.5	13.485	14.448
		20	18700	1860	18.015	19.191
			18900	1880	17.980	19.162



	16QAM	1.4	19100	1900	17.920	19.169
			18607	1850.7	1.091	1.286
			18900	1880.0	1.095	1.279
			19193	1909.3	1.092	1.266
		3	18615	1851.5	2.684	2.924
			18900	1880	2.691	2.930
			19185	1908.5	2.690	2.929
		5	18625	1852.5	4.526	4.882
			18900	1880	4.498	4.906
			19175	1907.5	4.502	4.936
		10	18650	1855	8.980	9.684
			18900	1880	8.987	9.641
			19150	1905	8.991	9.584
		15	18675	1857.5	13.486	14.587
			18900	1880	13.497	14.409
			19125	1902.5	13.430	14.448
		20	18700	1860	17.957	19.285
			18900	1880	18.023	19.238
			19100	1900	17.932	19.292

GSM1900 GSM CH-Low



GSM1900 GPRS CH-Low



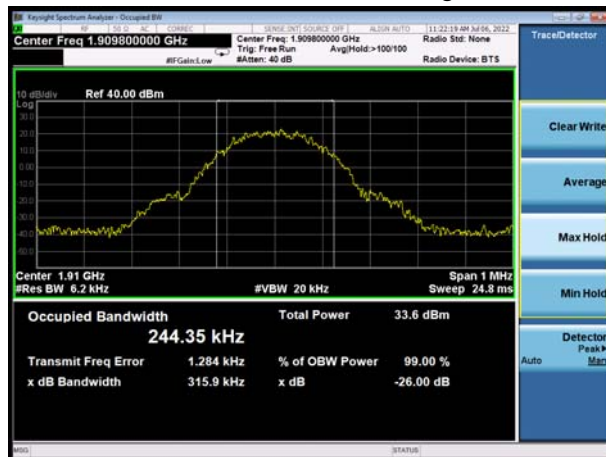
GSM 1900 GSM CH-Middle



GSM 1900 GPRS CH-Middle



GSM 1900 GSM CH-High



GSM 1900 GPRS CH-High



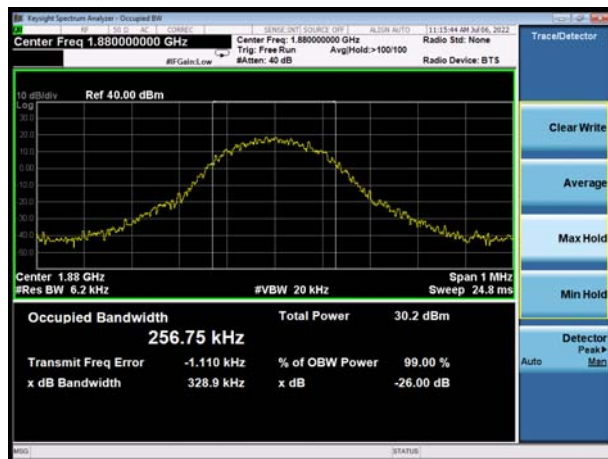
GSM1900 EGPRS CH-Low



WCDMA Band II RMC CH- Low



GSM 1900 EGPRS CH-Middle



WCDMA Band II RMC CH-Middle



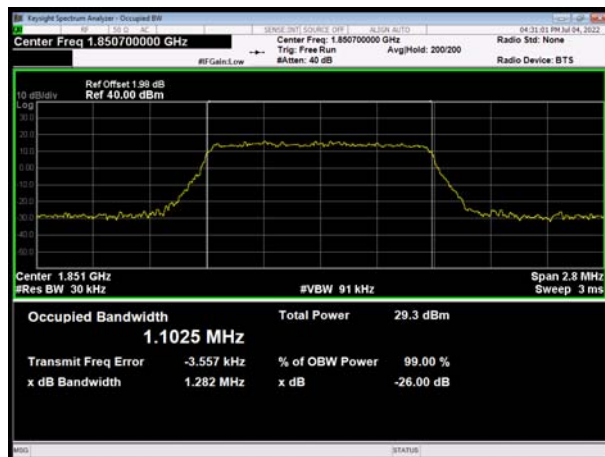
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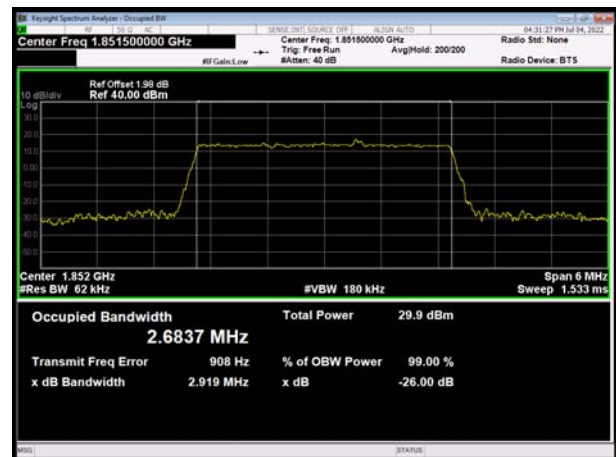
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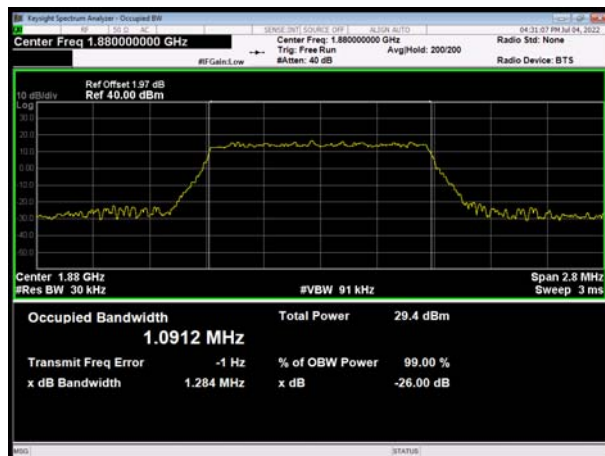
LTE Band 2 1.4MHz QPSK CH-Low



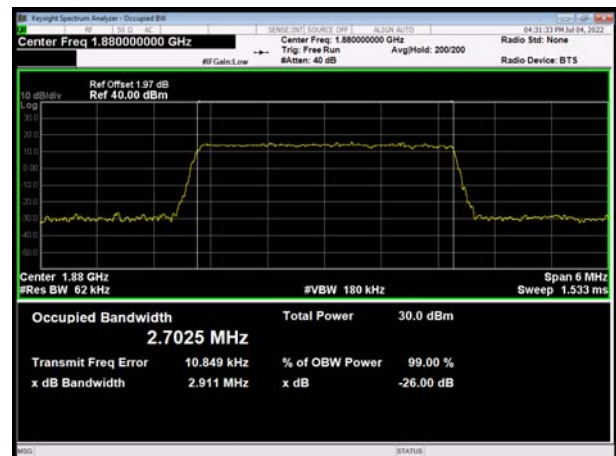
LTE Band 2 3MHz QPSK CH-Low



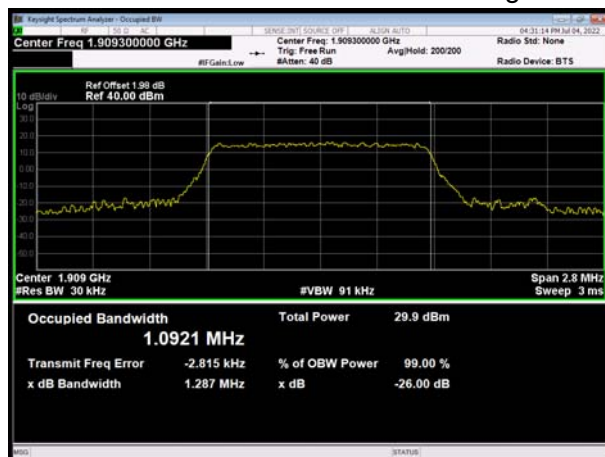
LTE Band 2 1.4MHz QPSK CH-Middle



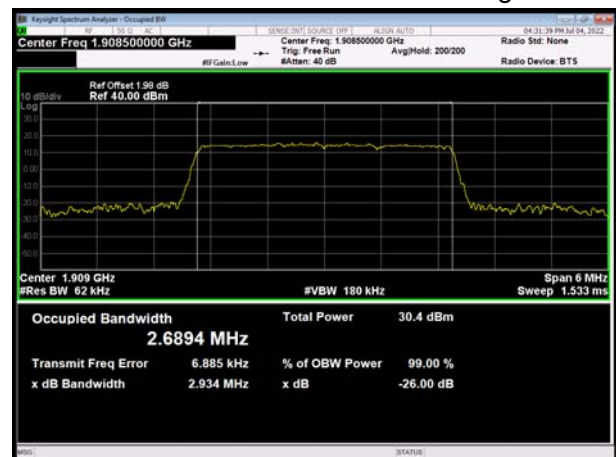
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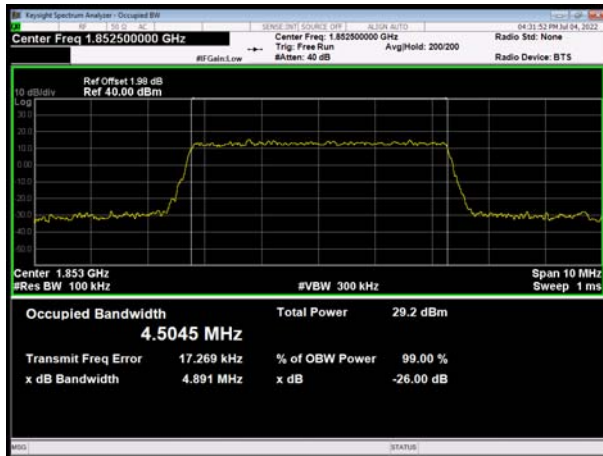
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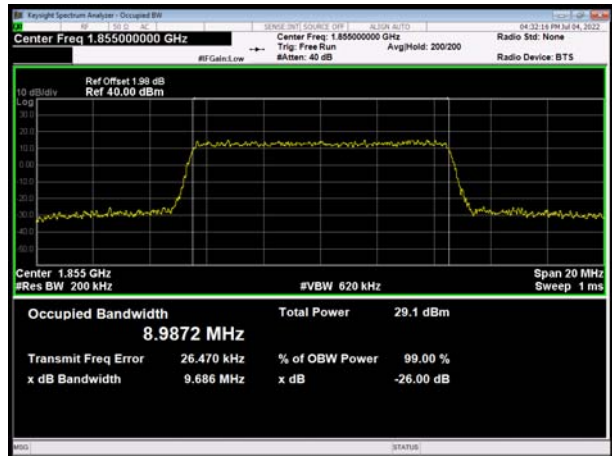
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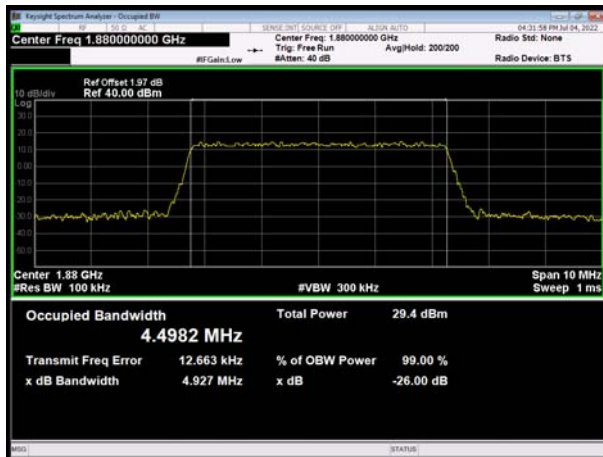
LTE Band 2 5MHz QPSK CH-Low



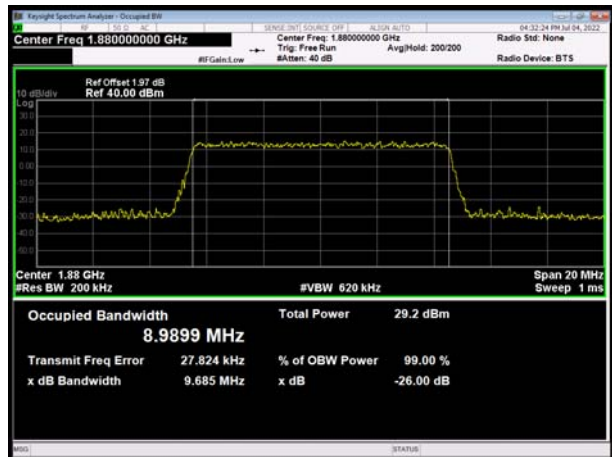
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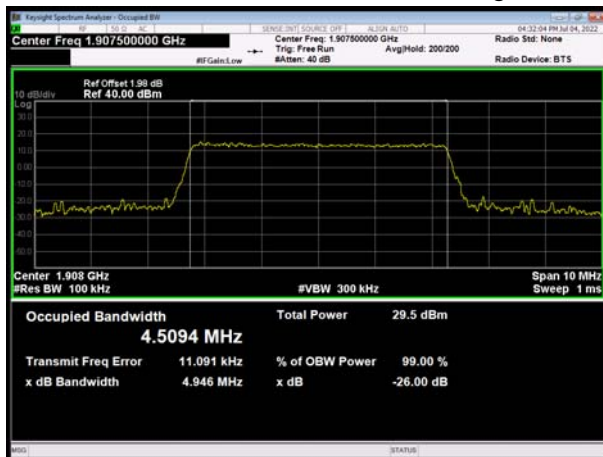
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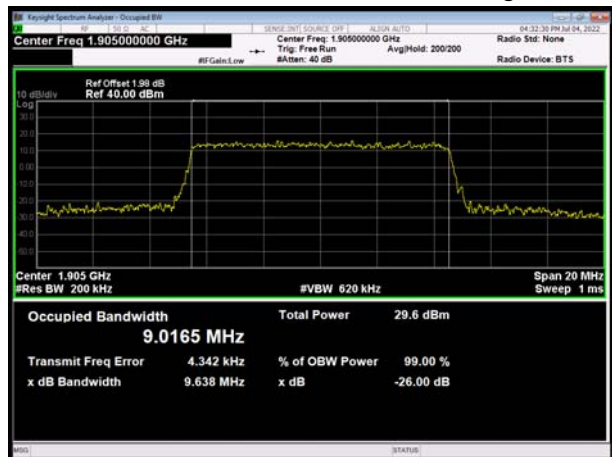
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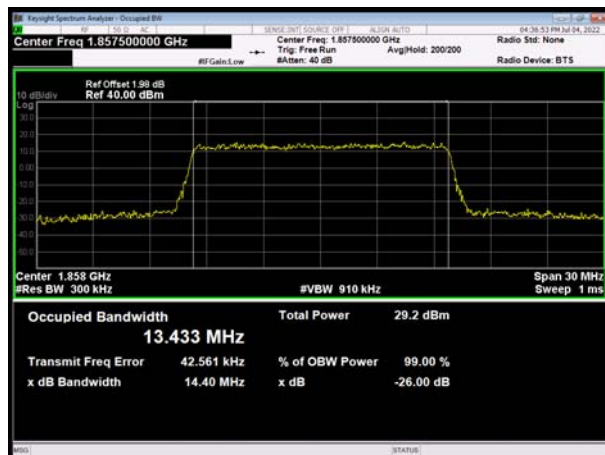
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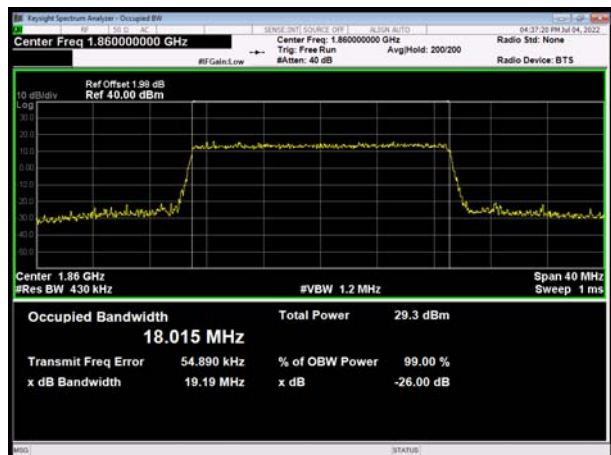
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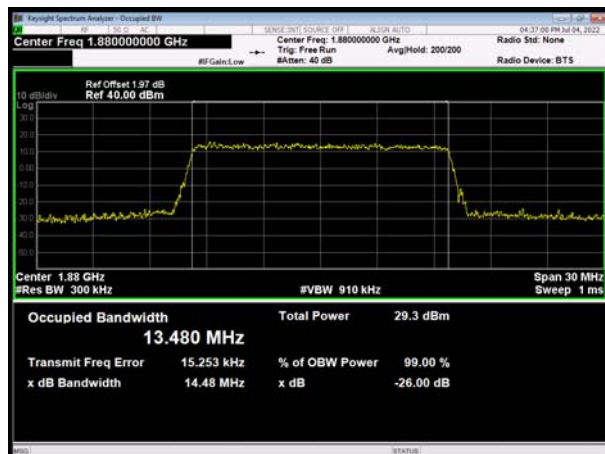
LTE Band 2 15MHz QPSK CH-Low



LTE Band 2 20MHz QPSK CH-Low



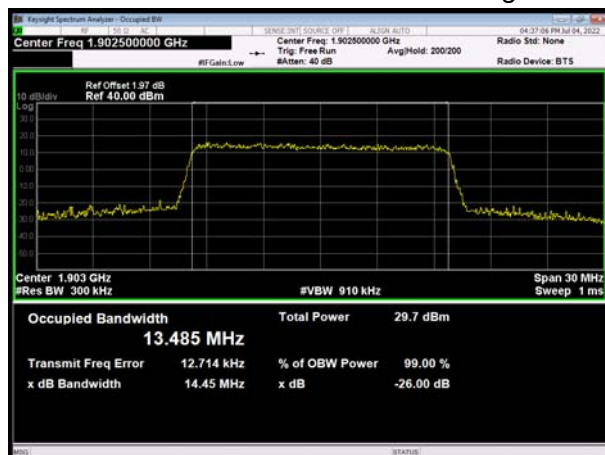
LTE Band 2 15MHz QPSK CH-Middle



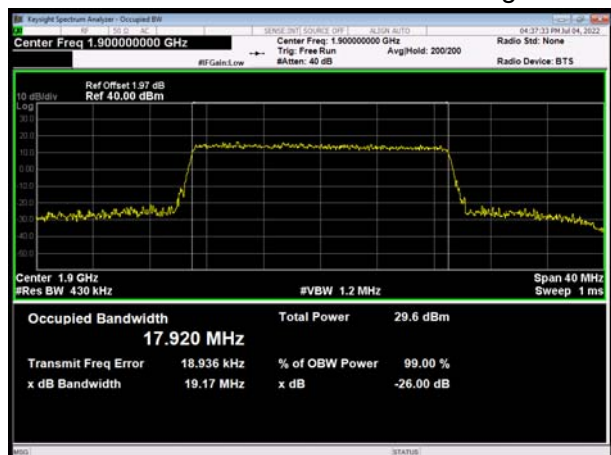
LTE Band 2 20MHz QPSK CH-Middle



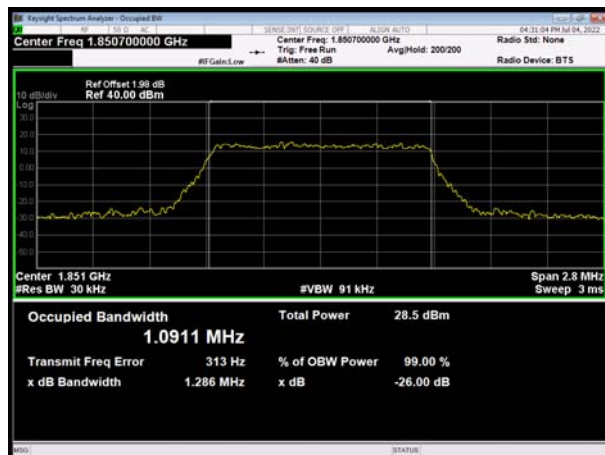
LTE Band 2 15MHz QPSK CH-High



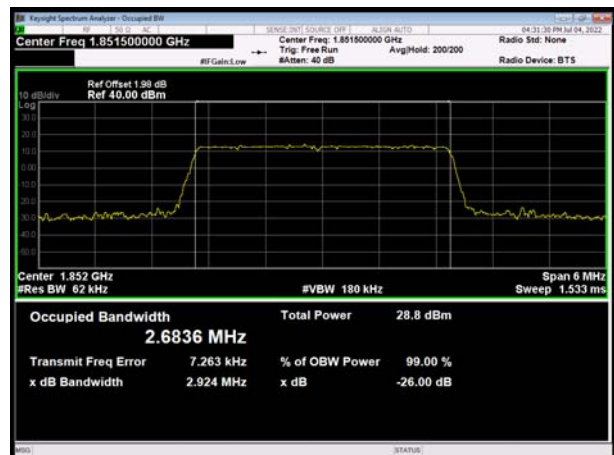
LTE Band 2 20MHz QPSK CH-High



LTE Band 2 1.4MHz 16QAM CH-Low



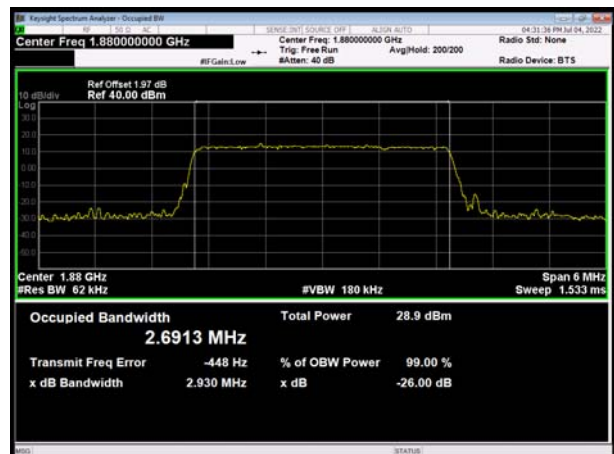
LTE Band 2 3MHz 16QAM CH-Low



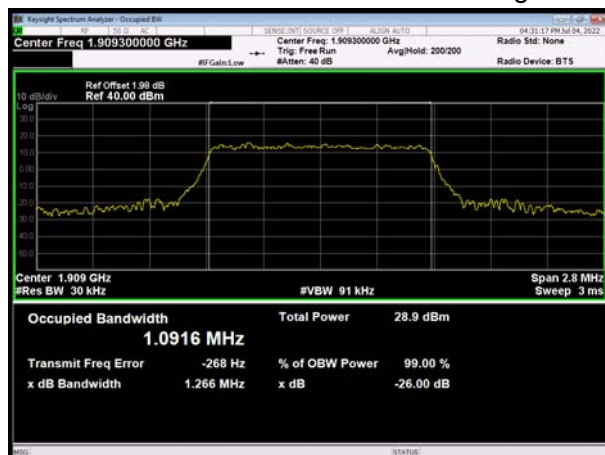
LTE Band 2 1.4MHz 16QAM CH-Middle



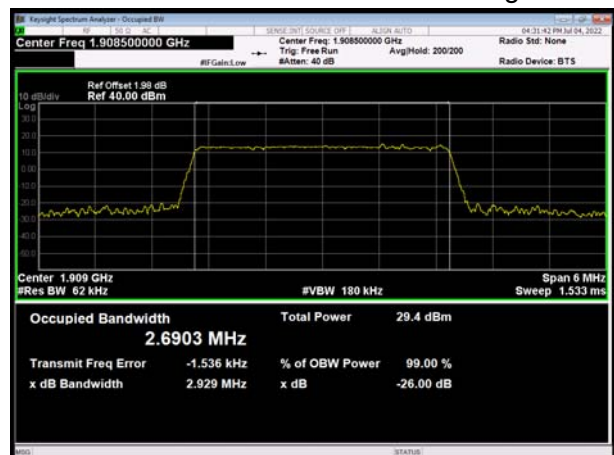
LTE Band 2 3MHz 16QAM CH-Middle



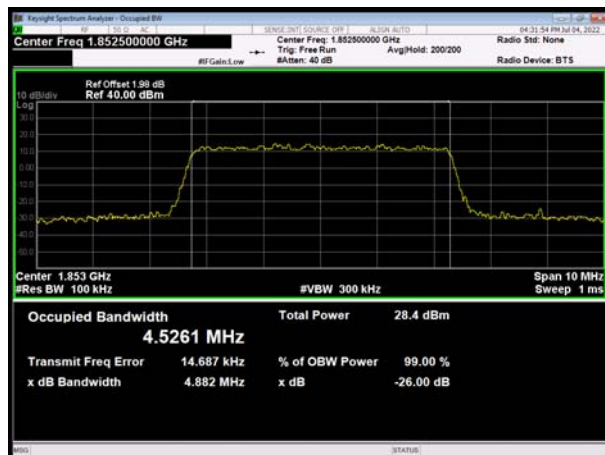
LTE Band 2 1.4MHz 16QAM CH-High



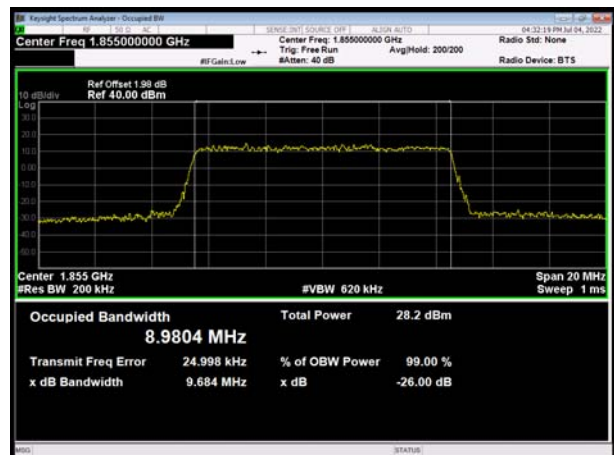
LTE Band 2 3MHz 16QAM CH-High



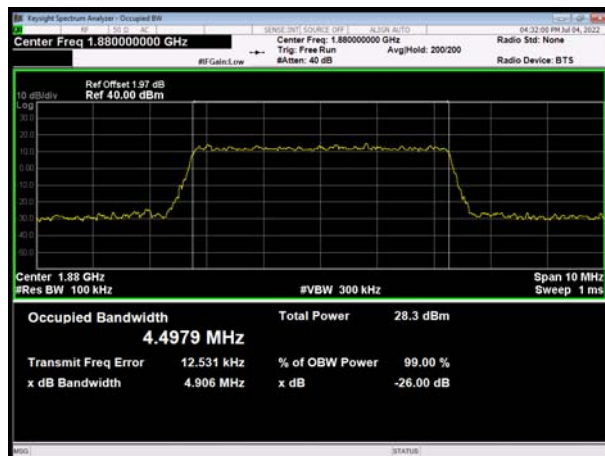
LTE Band 2 5MHz 16QAM CH-Low



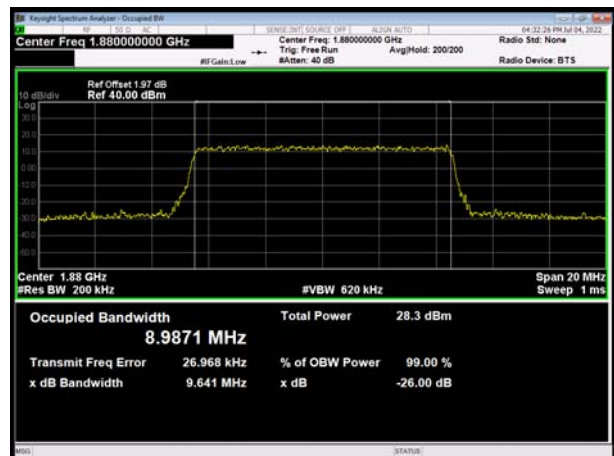
LTE Band 2 10MHz 16QAM CH-Low



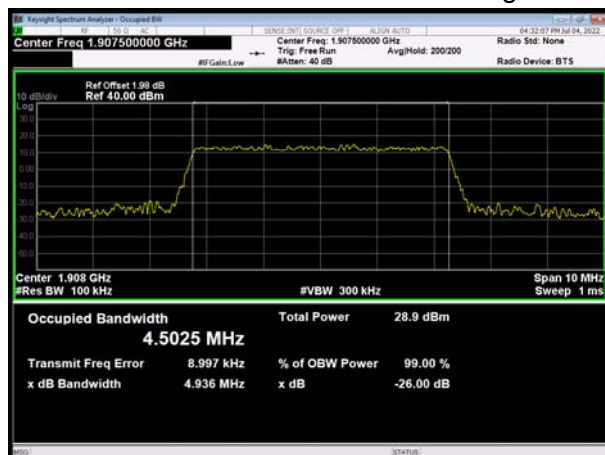
LTE Band 2 5MHz 16QAM CH-Middle



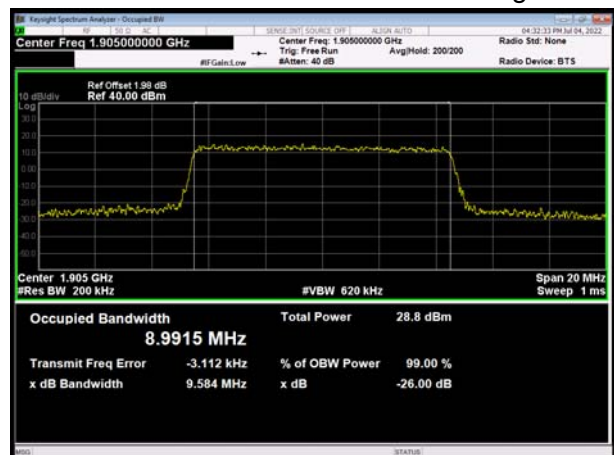
LTE Band 2 10MHz 16QAM CH-Middle



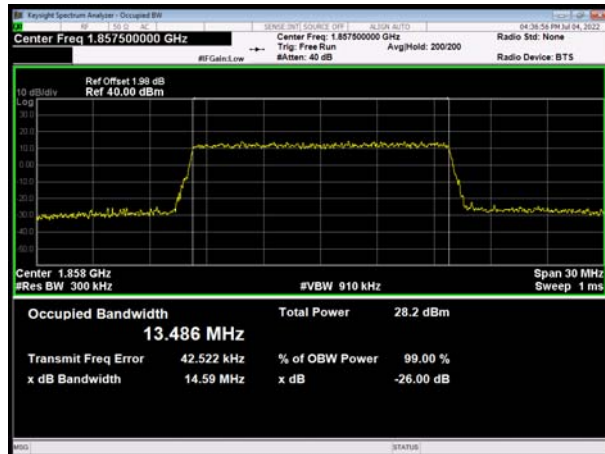
LTE Band 2 5MHz 16QAM CH-High



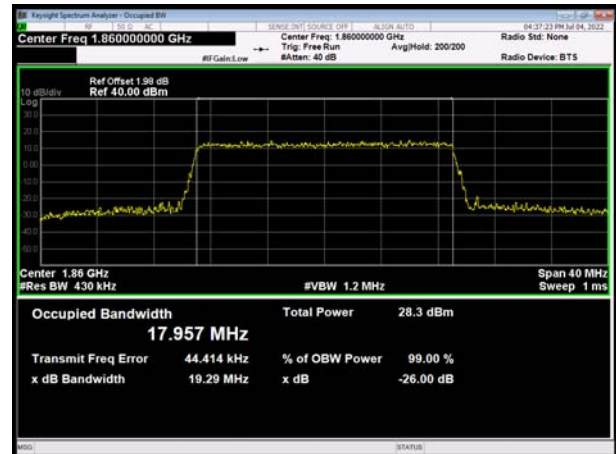
LTE Band 2 10MHz 16QAM CH-High



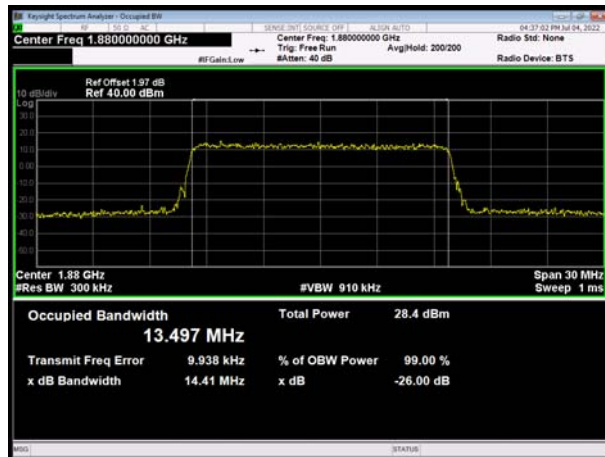
LTE Band 2 15MHz 16QAM CH-Low



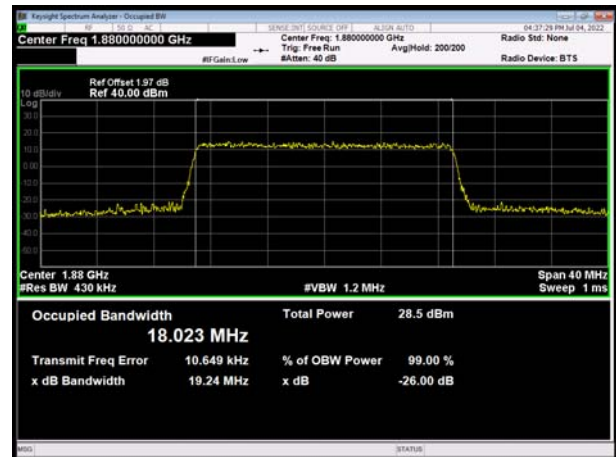
LTE Band 2 20MHz 16QAM CH-Low



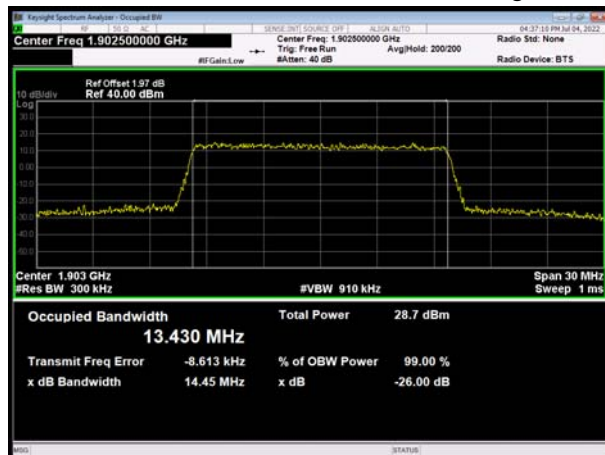
LTE Band 2 15MHz 16QAM CH-Middle



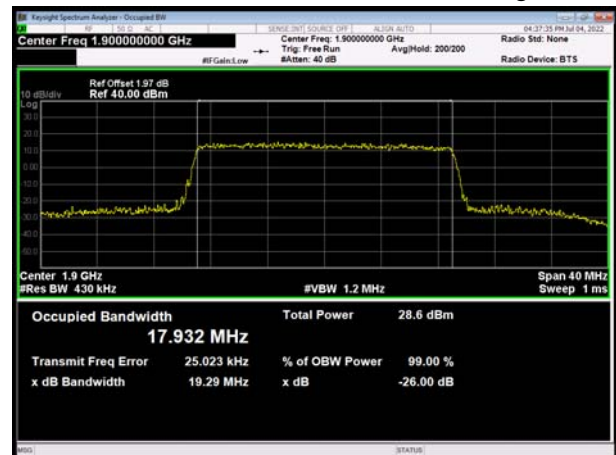
LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High

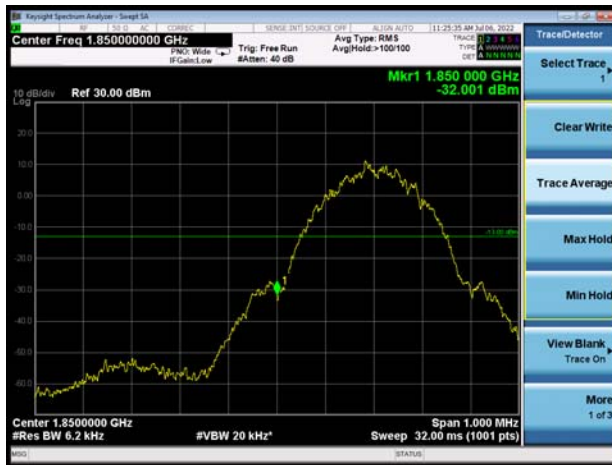


LTE Band 2 20MHz 16QAM CH-High



6.3. Band Edge Compliance

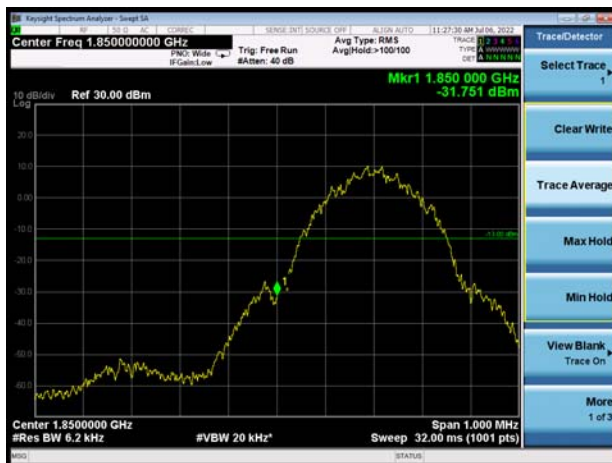
GSM1900 GSM CH-Low



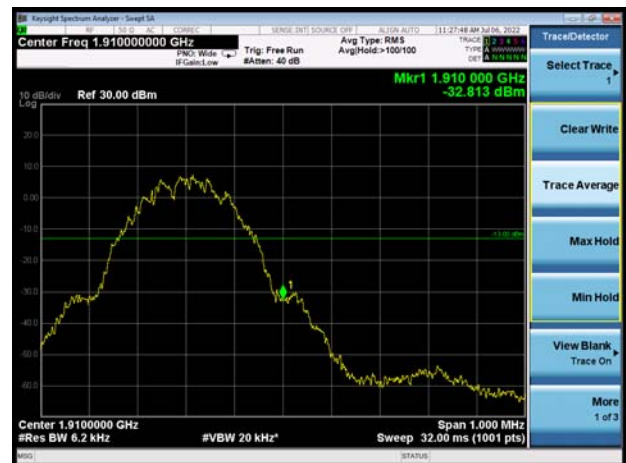
GSM 1900 GSM CH-High



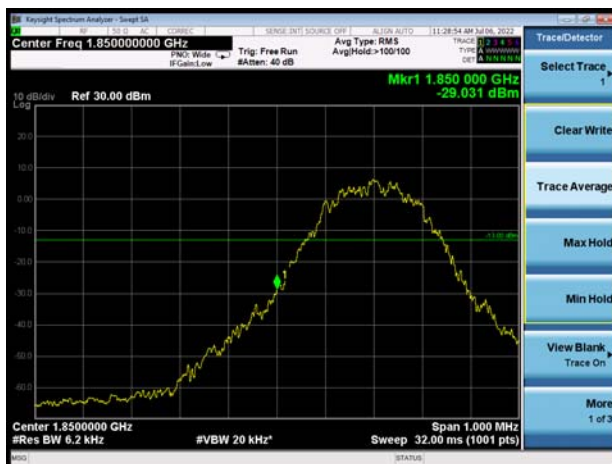
GSM1900 GPRS CH-Low



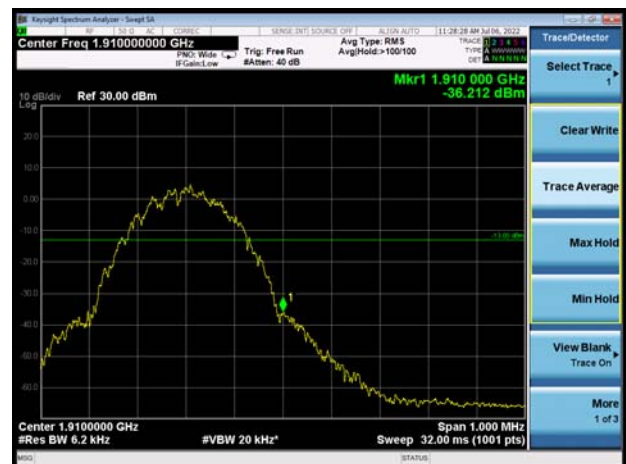
GSM 1900 GPRS CH-High



GSM1900 EGPRS CH-Low

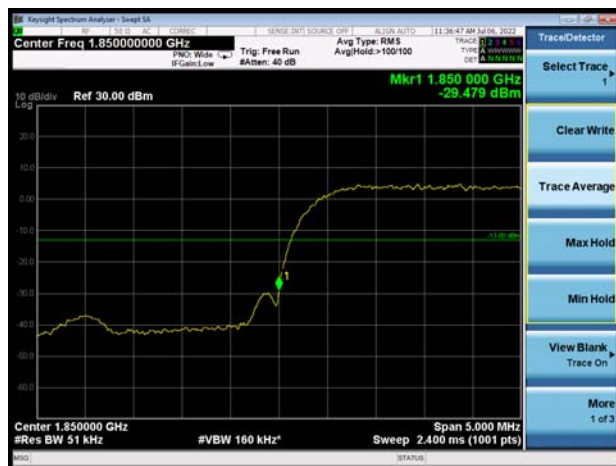


GSM 1900 EGPRS CH-High





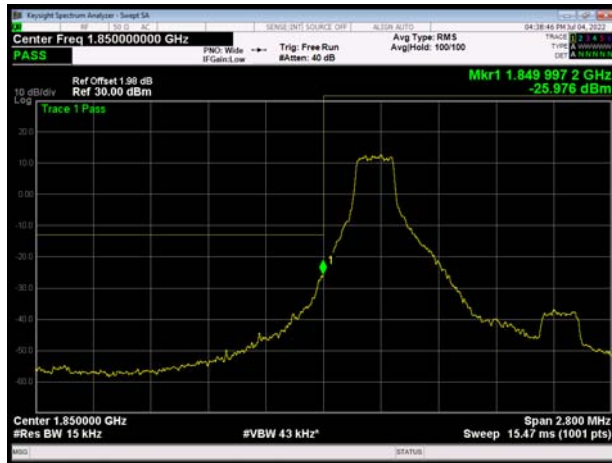
WCDMA Band II RMC CH-Low



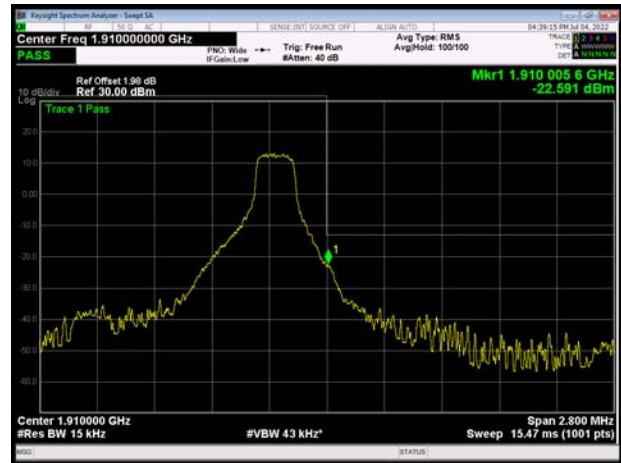
WCDMA Band II RMC CH-High



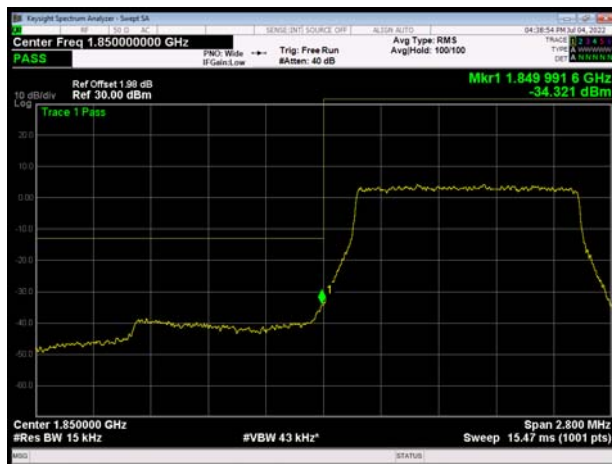
LTE Band 2 1.4MHz QPSK 1RB CH-Low



LTE Band 2 1.4MHz QPSK 1RB CH-High



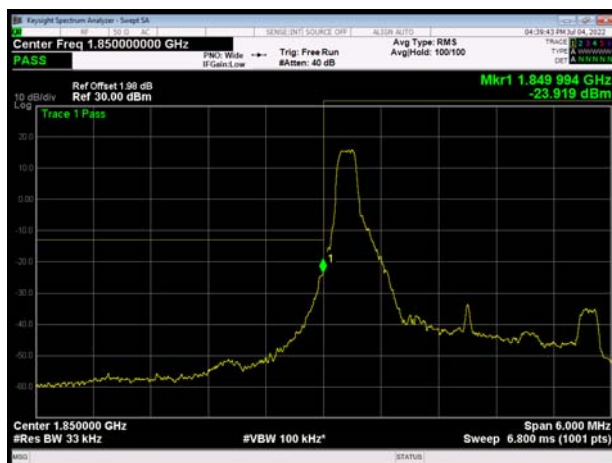
LTE Band 2 1.4MHz QPSK 100%RB CH-Low



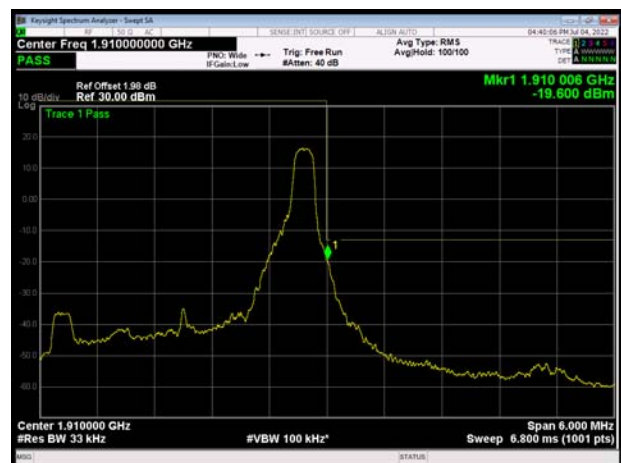
LTE Band 2 1.4MHz QPSK 100%RB CH-High



LTE Band 2 3MHz QPSK 1RB CH-Low

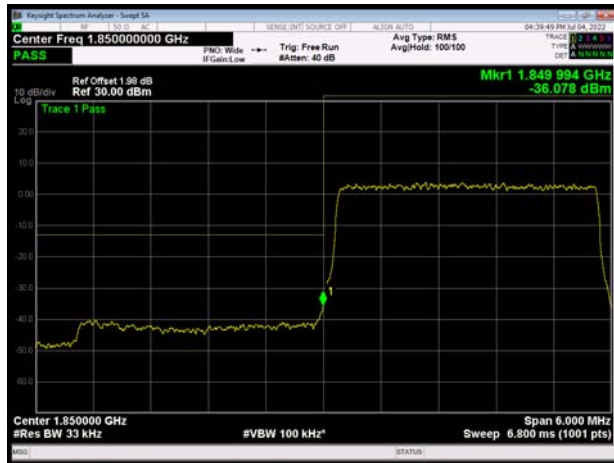


LTE Band 2 3MHz QPSK 1RB CH-High





LTE Band 2 3MHz QPSK 100%RB CH-Low



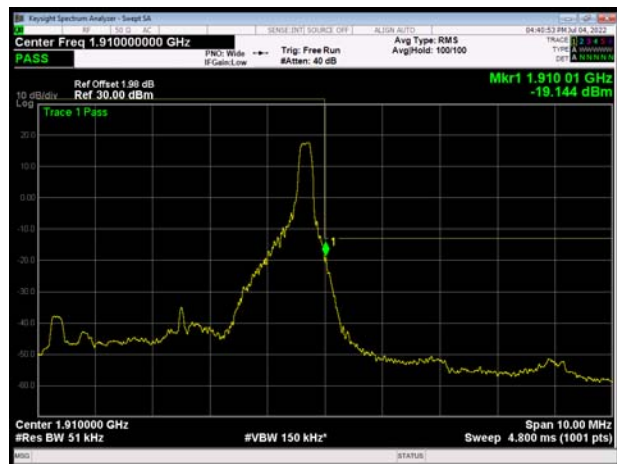
LTE Band 2 3MHz QPSK 100%RB CH-High



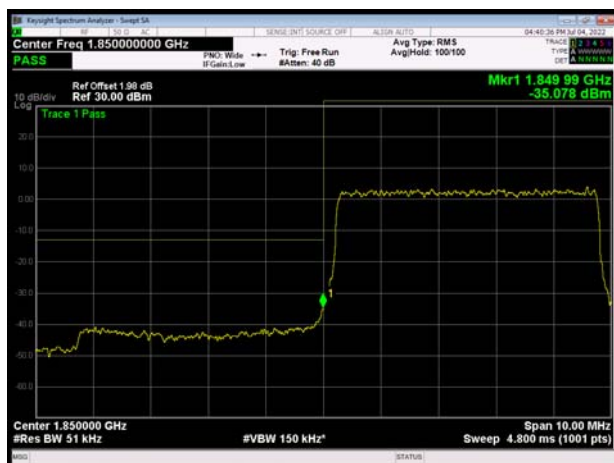
LTE Band 2 5MHz QPSK 1RB CH-Low



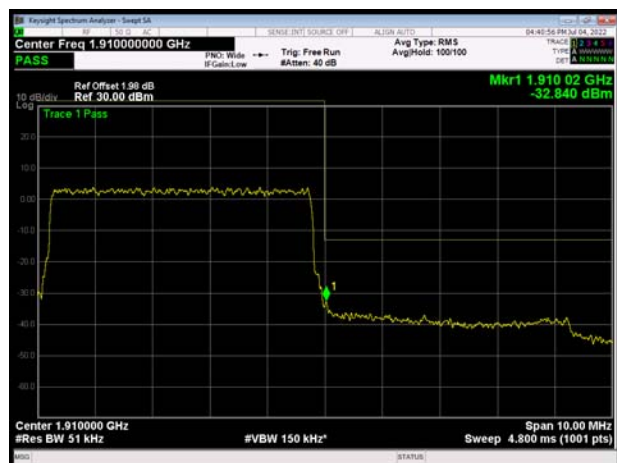
LTE Band 2 5MHz QPSK 1RB CH-High



LTE Band 2 5MHz QPSK 100%RB CH-Low



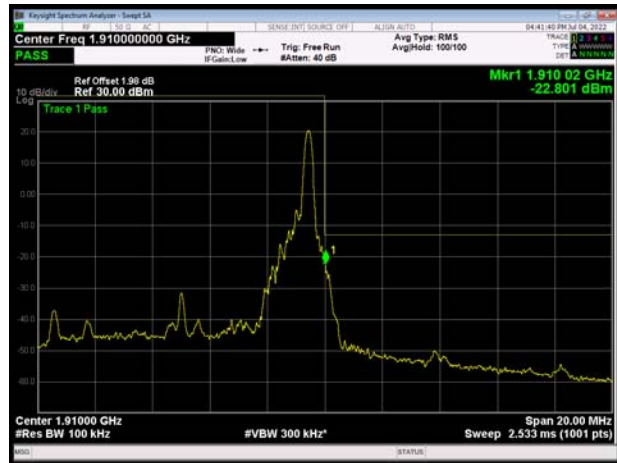
LTE Band 2 5MHz QPSK 100%RB CH-High



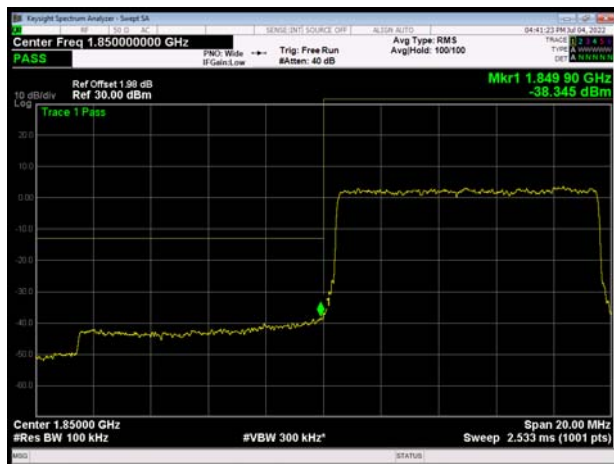
LTE Band 2 10MHz QPSK 1RB CH-Low



LTE Band 2 10MHz QPSK 1RB CH-High



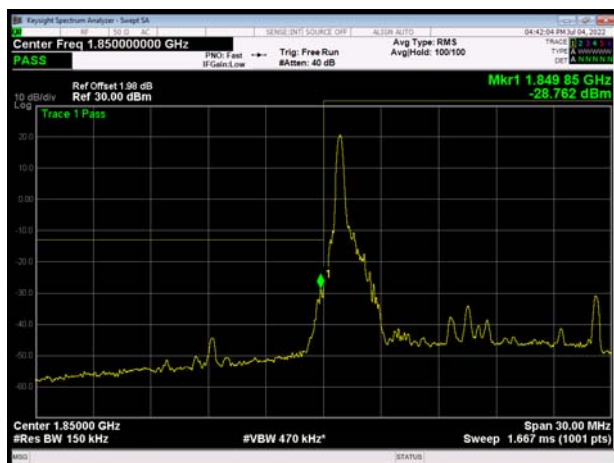
LTE Band 2 10MHz QPSK 100%RB CH-Low



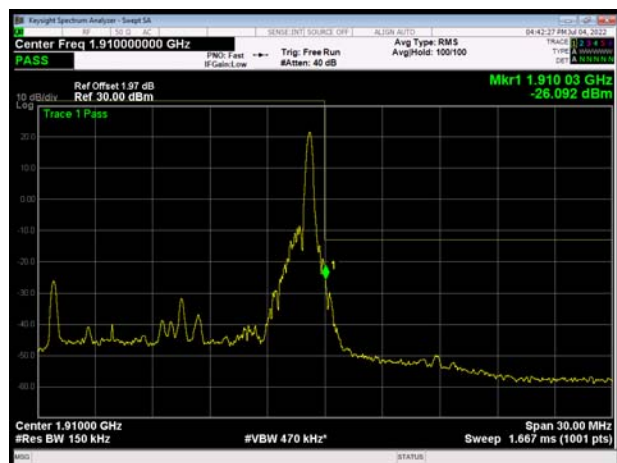
LTE Band 2 10MHz QPSK 100%RB CH-High



LTE Band 2 15MHz QPSK 1RB CH-Low

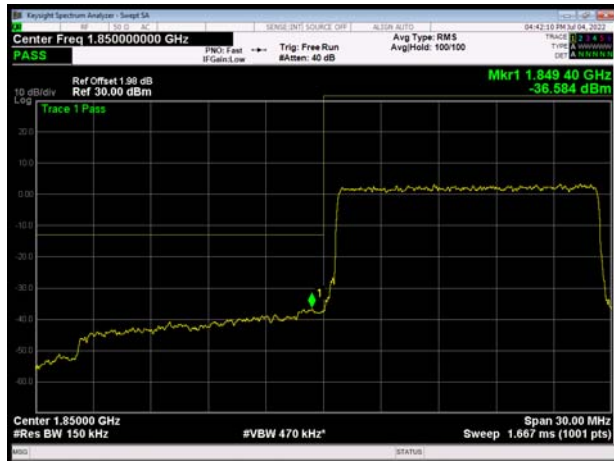


LTE Band 2 15MHz QPSK 1RB CH-High





LTE Band 2 15MHz QPSK 100%RB CH-Low



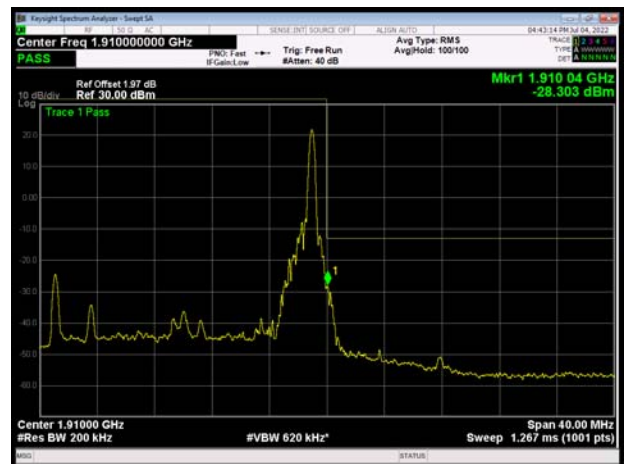
LTE Band 2 15MHz QPSK 100%RB CH-High



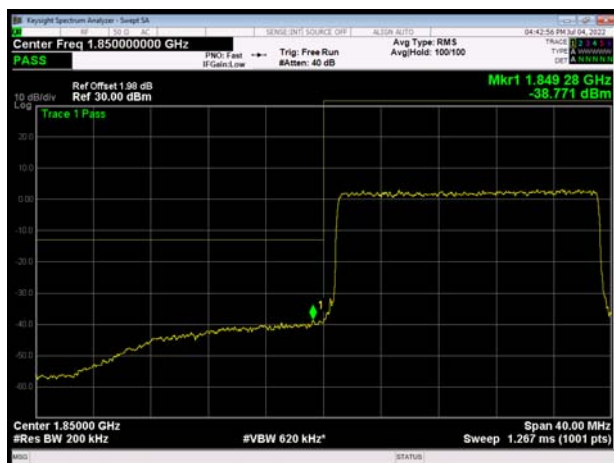
LTE Band 2 20MHz QPSK 1RB CH-Low



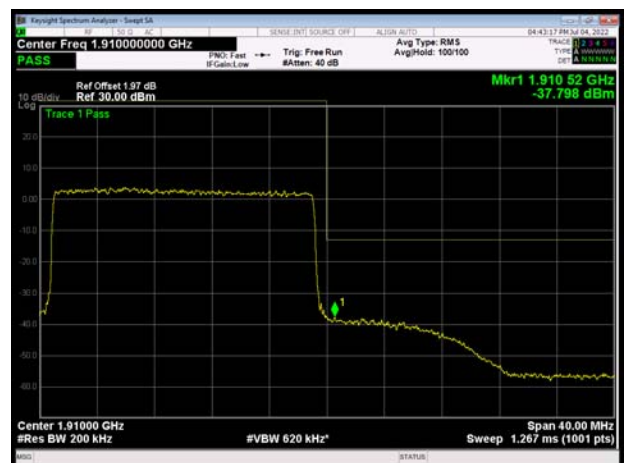
LTE Band 2 20MHz QPSK 1RB CH-High



LTE Band 2 20MHz QPSK 100%RB CH-Low

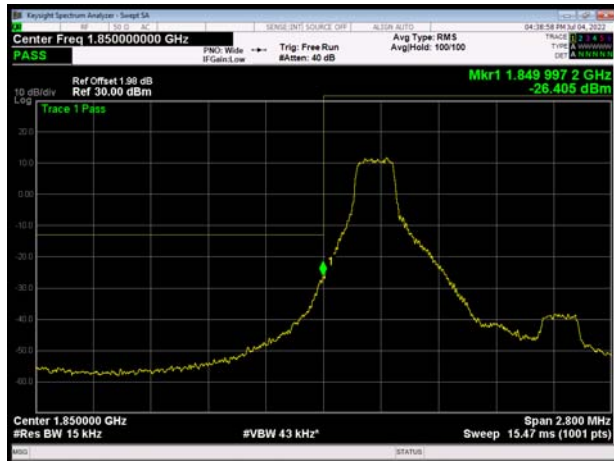


LTE Band 2 20MHz QPSK 100%RB CH-High





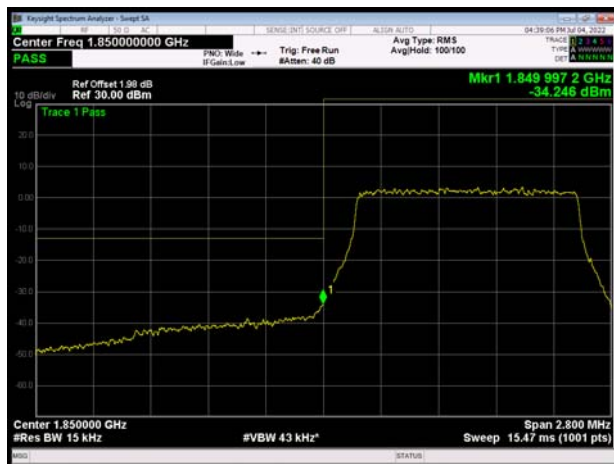
LTE Band 2 1.4MHz 16QAM 1RB CH-Low



LTE Band 2 1.4MHz 16QAM 1RB CH-High



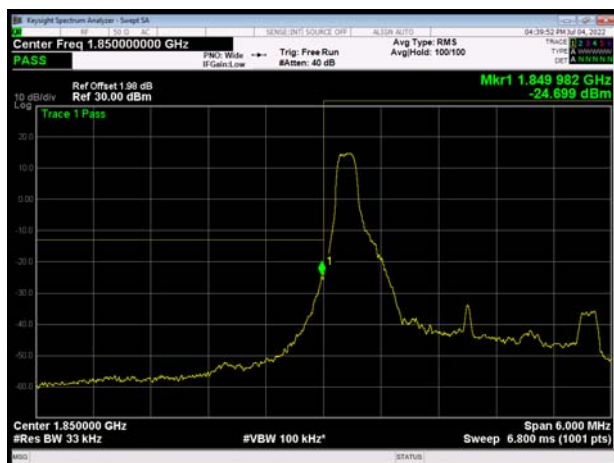
LTE Band 2 1.4MHz 16QAM 100%RB CH-Low



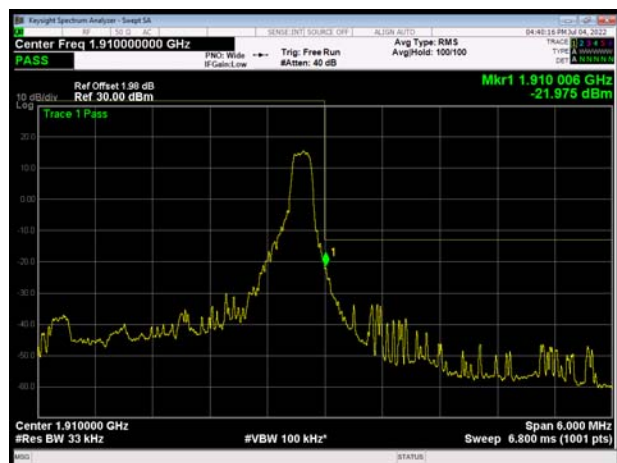
LTE Band 2 1.4MHz 16QAM 100%RB CH-High



LTE Band 2 3MHz 16QAM 1RB CH-Low

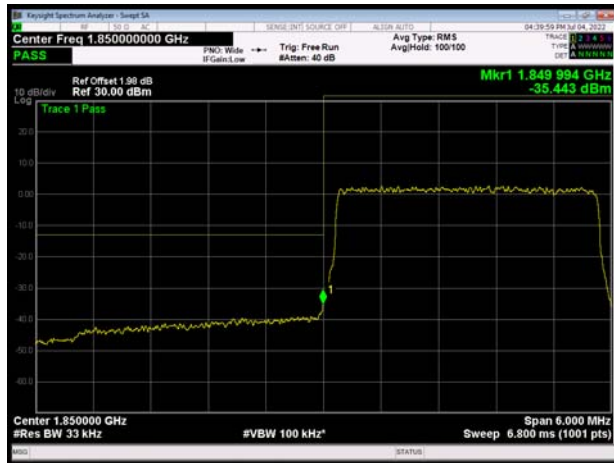


LTE Band 2 3MHz 16QAM 1RB CH-High





LTE Band 2 3MHz 16QAM 100%RB CH-Low



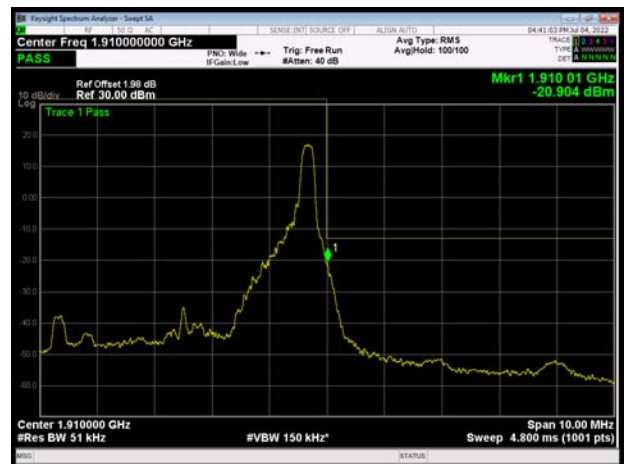
LTE Band 2 3MHz 16QAM 100%RB CH-High



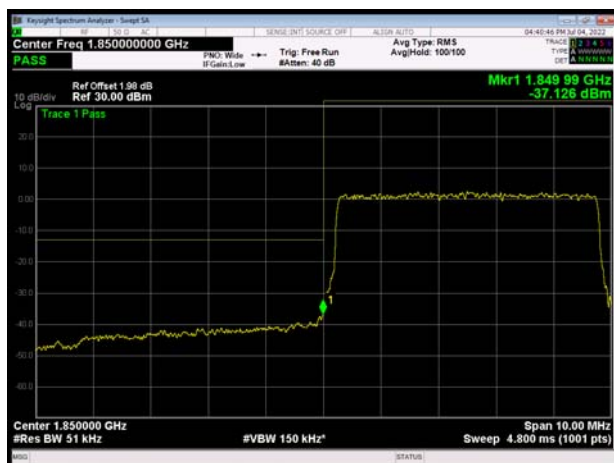
LTE Band 2 5MHz 16QAM 1RB CH-Low



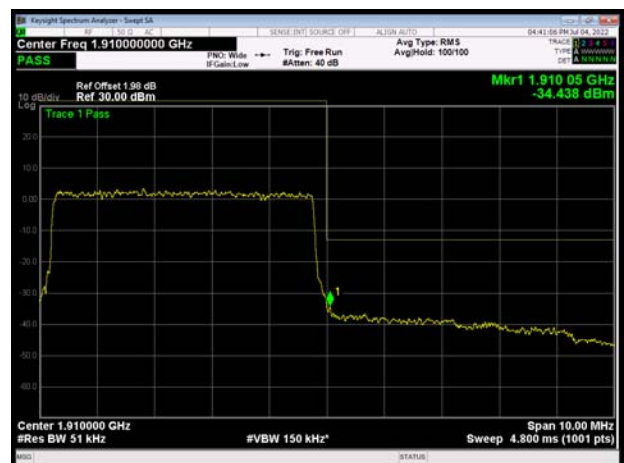
LTE Band 2 5MHz 16QAM 1RB CH-High



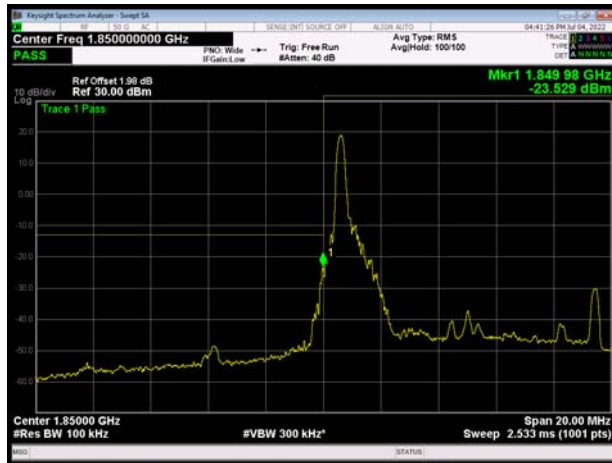
LTE Band 2 5MHz 16QAM 100%RB CH-Low



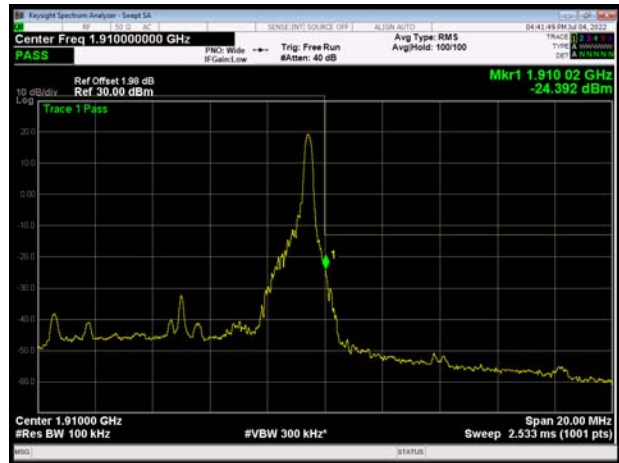
LTE Band 2 5MHz 16QAM 100%RB CH-High



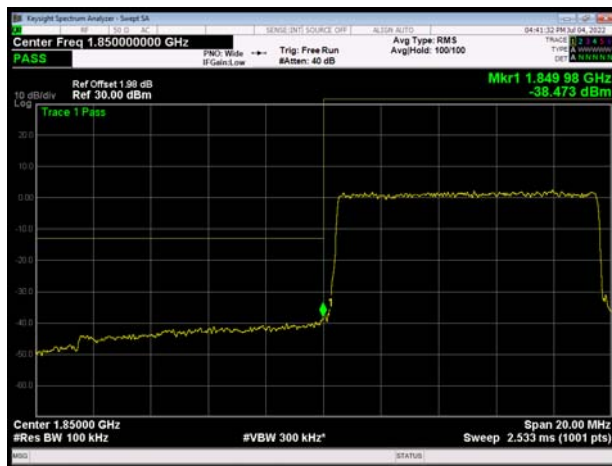
LTE Band 2 10MHz 16QAM 1RB CH-Low



LTE Band 2 10MHz 16QAM 1RB CH-High



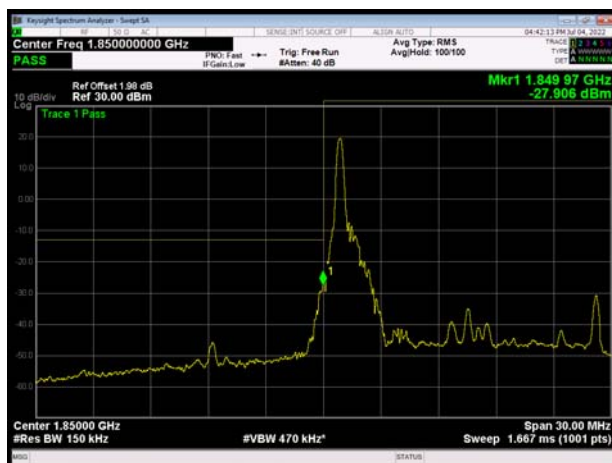
LTE Band 2 10MHz 16QAM 100%RB CH-Low



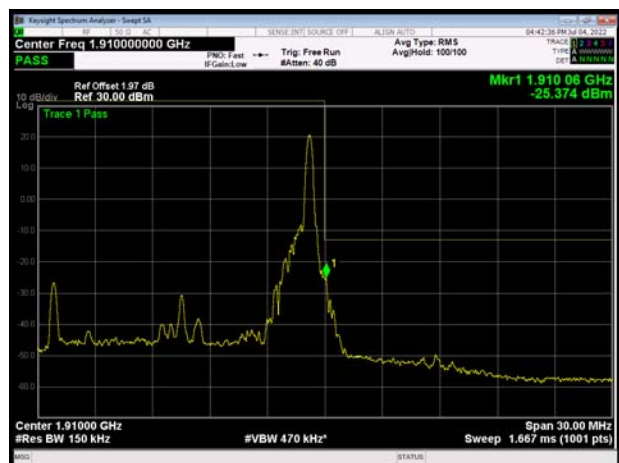
LTE Band 2 10MHz 16QAM 100%RB CH-High



LTE Band 2 15MHz 16QAM 1RB CH-Low

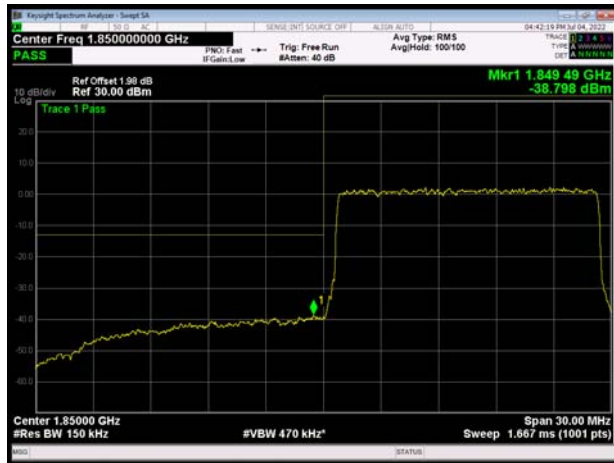


LTE Band 2 15MHz 16QAM 1RB CH-High





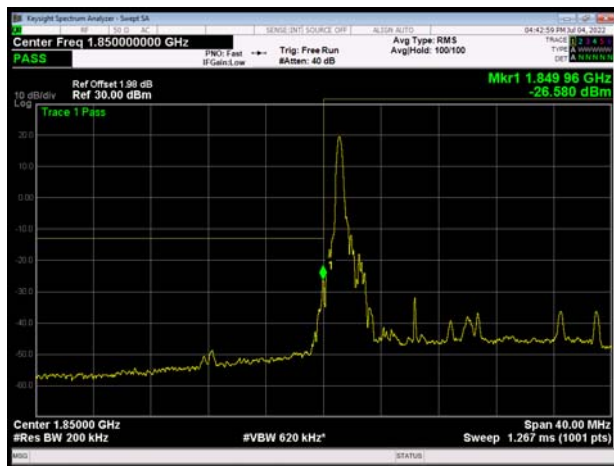
LTE Band 2 15MHz 16QAM 100%RB CH-Low



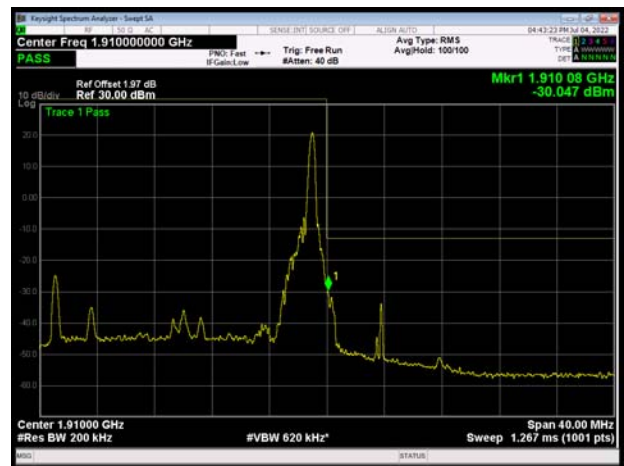
LTE Band 2 15MHz 16QAM 100%RB CH-High



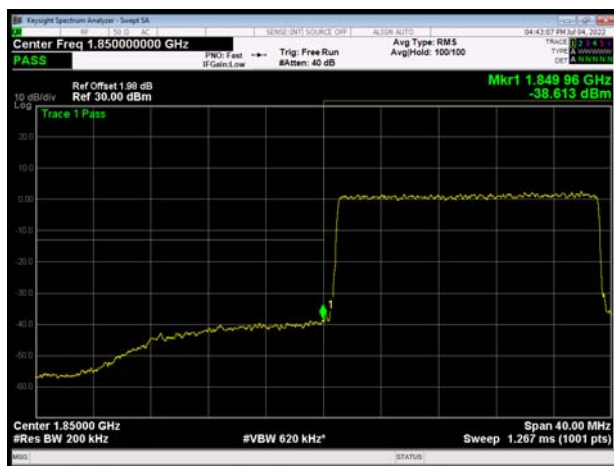
LTE Band 2 20MHz 16QAM 1RB CH-Low



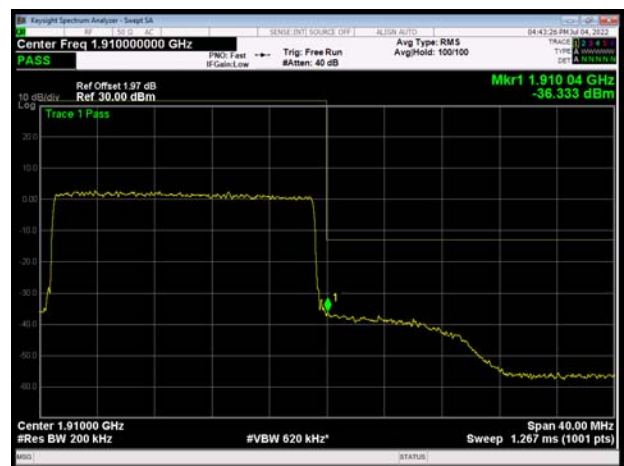
LTE Band 2 20MHz 16QAM 1RB CH-High



LTE Band 2 20MHz 16QAM 100%RB CH-Low



LTE Band 2 20MHz 16QAM 100%RB CH-High



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

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GMSK)	512	1850.2	30.04	27.40	2.64	≤13	PASS
	661	1880	28.12	25.47	2.65	≤13	PASS
	810	1909.8	27.81	25.14	2.67	≤13	PASS
GPRS 1900 (GMSK)	512	1850.2	30.03	27.38	2.65	≤13	PASS
	661	1880	28.03	25.39	2.64	≤13	PASS
	810	1909.8	27.88	25.23	2.65	≤13	PASS
EGPRS 1900 (8PSK)	512	1850.2	27.89	22.94	4.95	≤13	PASS
	661	1880	27.60	22.52	5.08	≤13	PASS
	810	1909.8	27.09	21.80	5.29	≤13	PASS
WCDMA Band II (RMC)	9262	1852.4	25.28	22.32	2.96	≤13	PASS
	9400	1880	24.21	21.27	2.94	≤13	PASS
	9538	1907.6	24.15	21.42	2.73	≤13	PASS

LTE Band 2								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	18607	1850.7	26.66	21.31	5.35	≤13	PASS
		18900	1880.0	26.81	21.41	5.40	≤13	PASS
		19193	1909.3	26.58	21.89	4.69	≤13	PASS
	3	18615	1851.5	26.69	21.27	5.42	≤13	PASS
		18900	1880	26.85	21.40	5.45	≤13	PASS
		19185	1908.5	26.66	21.83	4.83	≤13	PASS
	5	18625	1852.5	26.75	21.27	5.48	≤13	PASS
		18900	1880	26.87	21.41	5.46	≤13	PASS
		19175	1907.5	26.79	21.83	4.96	≤13	PASS
	10	18650	1855	26.77	21.27	5.50	≤13	PASS
		18900	1880	26.85	21.40	5.45	≤13	PASS
		19150	1905	26.95	21.83	5.12	≤13	PASS
	15	18675	1857.5	27.10	21.29	5.81	≤13	PASS
		18900	1880	27.20	21.41	5.79	≤13	PASS
		19125	1902.5	27.31	21.81	5.50	≤13	PASS
	20	18700	1860	26.81	21.26	5.55	≤13	PASS
		18900	1880	27.04	21.42	5.62	≤13	PASS
		19100	1900	27.10	21.65	5.45	≤13	PASS
16QAM	1.4	18607	1850.7	26.44	20.30	6.14	≤13	PASS



		18900	1880.0	26.55	20.43	6.12	≤13	PASS
		19193	1909.3	26.54	20.95	5.59	≤13	PASS
	3	18615	1851.5	26.48	20.29	6.19	≤13	PASS
		18900	1880	26.69	20.42	6.27	≤13	PASS
		19185	1908.5	26.59	20.83	5.76	≤13	PASS
	5	18625	1852.5	26.45	20.26	6.19	≤13	PASS
		18900	1880	26.59	20.39	6.20	≤13	PASS
		19175	1907.5	26.64	20.84	5.80	≤13	PASS
	10	18650	1855	26.51	20.27	6.24	≤13	PASS
		18900	1880	26.67	20.41	6.26	≤13	PASS
		19150	1905	26.76	20.84	5.92	≤13	PASS
	15	18675	1857.5	26.58	20.25	6.33	≤13	PASS
		18900	1880	26.76	20.39	6.37	≤13	PASS
		19125	1902.5	26.90	20.77	6.13	≤13	PASS
	20	18700	1860	26.57	20.26	6.31	≤13	PASS
		18900	1880	26.79	20.43	6.36	≤13	PASS
		19100	1900	26.88	20.69	6.19	≤13	PASS

6.5. Frequency Stability

GSM1900						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal(25℃)	Normal	10.61	13.59	0.00564	0.00723	PASS
Extreme(50℃)		5.10	7.56	0.00271	0.00402	PASS
Extreme(40℃)		7.03	1.02	0.00374	0.00054	PASS
Extreme(30℃)		3.83	17.11	0.00204	0.00910	PASS
Extreme(20℃)		15.36	15.98	0.00817	0.00850	PASS
Extreme(10℃)		6.62	11.26	0.00352	0.00599	PASS
Extreme(0℃)		2.70	16.88	0.00144	0.00898	PASS
Extreme(-10℃)		6.76	14.37	0.00360	0.00764	PASS
Extreme(-20℃)		11.33	17.74	0.00603	0.00944	PASS
Extreme(-30℃)		1.86	14.07	0.00099	0.00749	PASS
25℃	LV	4.68	10.91	0.00249	0.00580	PASS
	HV	17.78	6.70	0.00946	0.00356	PASS

WCDMA Band II						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal(25℃)	Normal	12.40	13.64	0.00660	0.00725	PASS
Extreme(50℃)		15.12	8.32	0.00804	0.00442	PASS
Extreme(40℃)		7.17	2.25	0.00381	0.00120	PASS
Extreme(30℃)		4.48	11.70	0.00239	0.00622	PASS
Extreme(20℃)		14.69	4.67	0.00782	0.00249	PASS
Extreme(10℃)		7.75	4.19	0.00412	0.00223	PASS
Extreme(0℃)		15.59	2.26	0.00830	0.00120	PASS
Extreme(-10℃)		10.37	7.95	0.00551	0.00423	PASS
Extreme(-20℃)		9.49	13.68	0.00505	0.00728	PASS
Extreme(-30℃)		8.98	9.92	0.00478	0.00527	PASS
25℃	LV	10.78	14.14	0.00573	0.00752	PASS
	HV	4.27	10.49	0.00227	0.00558	PASS

LTE Band 2						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
BANDWIDTH	1.4MHz	16QAM	QPSK	16QAM	QPSK	
Temperature	Voltage					
Normal(25℃)	Normal	6.23	15.18	0.00331	0.00807	PASS
Extreme(50℃)		12.62	13.90	0.00671	0.00739	PASS
Extreme(40℃)		13.83	2.69	0.00735	0.00143	PASS
Extreme(30℃)		9.35	17.77	0.00498	0.00945	PASS
Extreme(20℃)		14.61	8.01	0.00777	0.00426	PASS
Extreme(10℃)		9.69	16.19	0.00515	0.00861	PASS
Extreme(0℃)		16.47	11.25	0.00876	0.00598	PASS
Extreme(-10℃)		8.08	15.41	0.00430	0.00820	PASS
Extreme(-20℃)		1.34	11.98	0.00071	0.00637	PASS
Extreme(-30℃)		12.34	5.26	0.00656	0.00280	PASS
25℃	LV	5.86	9.01	0.00311	0.00479	PASS
	HV	3.40	12.66	0.00181	0.00673	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
BANDWIDTH	3MHz	16QAM	QPSK	16QAM	QPSK	
Temperature	Voltage					
Normal(25℃)	Normal	4.02	17.77	0.00214	0.00945	PASS
Extreme(50℃)		11.82	7.76	0.00629	0.00413	PASS
Extreme(40℃)		6.31	17.45	0.00336	0.00928	PASS
Extreme(30℃)		7.47	12.08	0.00397	0.00642	PASS
Extreme(20℃)		11.54	15.40	0.00614	0.00819	PASS
Extreme(10℃)		8.41	1.38	0.00447	0.00074	PASS
Extreme(0℃)		16.89	13.33	0.00898	0.00709	PASS
Extreme(-10℃)		12.66	9.28	0.00673	0.00494	PASS
Extreme(-20℃)		11.85	8.81	0.00630	0.00468	PASS
Extreme(-30℃)		1.24	12.86	0.00066	0.00684	PASS
25℃	LV	14.50	10.01	0.00771	0.00533	PASS
	HV	14.89	13.04	0.00792	0.00693	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
BANDWIDTH	5MHz	16QAM	QPSK	16QAM	QPSK	
Temperature	Voltage					
Normal(25℃)	Normal	16.37	14.77	0.00871	0.00786	PASS
Extreme(50℃)		10.47	7.75	0.00557	0.00412	PASS
Extreme(40℃)		12.73	10.45	0.00677	0.00556	PASS



Extreme(30℃)		3.16	8.46	0.00168	0.00450	PASS
Extreme(20℃)		4.73	6.79	0.00251	0.00361	PASS
Extreme(10℃)		3.55	16.11	0.00189	0.00857	PASS
Extreme(0℃)		1.90	5.37	0.00101	0.00285	PASS
Extreme(-10℃)		7.91	11.90	0.00421	0.00633	PASS
Extreme(-20℃)		8.64	11.66	0.00459	0.00620	PASS
Extreme(-30℃)		7.65	17.50	0.00407	0.00931	PASS
25℃	LV	17.79	6.45	0.00946	0.00343	PASS
	HV	1.88	14.62	0.00100	0.00777	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
BANDWIDTH	10MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal(25℃)	Normal	11.13	16.15	0.00592	0.00859	PASS
Extreme(50℃)		8.13	4.35	0.00433	0.00231	PASS
Extreme(40℃)		6.18	13.91	0.00329	0.00740	PASS
Extreme(30℃)		2.78	14.68	0.00148	0.00781	PASS
Extreme(20℃)		16.85	16.27	0.00896	0.00866	PASS
Extreme(10℃)		5.59	5.44	0.00298	0.00289	PASS
Extreme(0℃)		7.12	9.82	0.00379	0.00522	PASS
Extreme(-10℃)		17.20	17.72	0.00915	0.00942	PASS
Extreme(-20℃)		11.83	6.46	0.00629	0.00344	PASS
Extreme(-30℃)		14.85	5.05	0.00790	0.00269	PASS
25℃	LV	14.50	3.28	0.00771	0.00175	PASS
	HV	15.15	17.50	0.00806	0.00931	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
BANDWIDTH	15MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal(25℃)	Normal	11.68	17.04	0.00622	0.00906	PASS
Extreme(50℃)		5.03	11.04	0.00267	0.00587	PASS
Extreme(40℃)		1.02	9.45	0.00054	0.00503	PASS
Extreme(30℃)		1.36	8.27	0.00073	0.00440	PASS
Extreme(20℃)		14.42	9.37	0.00767	0.00498	PASS
Extreme(10℃)		9.35	11.79	0.00497	0.00627	PASS
Extreme(0℃)		3.74	8.36	0.00199	0.00445	PASS
Extreme(-10℃)		11.71	11.22	0.00623	0.00597	PASS
Extreme(-20℃)		17.53	14.81	0.00932	0.00788	PASS
Extreme(-30℃)		13.49	17.96	0.00717	0.00955	PASS
25℃	LV	8.06	2.30	0.00429	0.00122	PASS
	HV	8.24	10.01	0.00438	0.00532	PASS



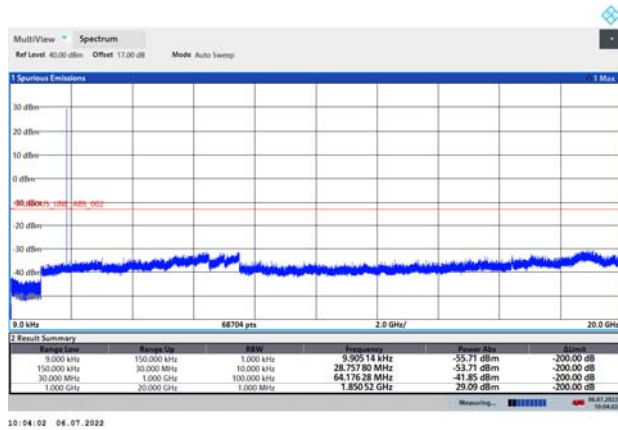
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
BANDWIDTH	20MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
Normal(25℃)	Normal	7.62	3.98	0.00405	0.00212	PASS
Extreme(50℃)		14.61	3.42	0.00777	0.00182	PASS
Extreme(40℃)		16.65	6.30	0.00886	0.00335	PASS
Extreme(30℃)		4.24	11.80	0.00226	0.00628	PASS
Extreme(20℃)		9.83	2.63	0.00523	0.00140	PASS
Extreme(10℃)		2.93	8.56	0.00156	0.00455	PASS
Extreme(0℃)		14.15	12.71	0.00753	0.00676	PASS
Extreme(-10℃)		15.50	15.19	0.00825	0.00808	PASS
Extreme(-20℃)		11.70	2.92	0.00622	0.00155	PASS
Extreme(-30℃)		2.81	10.62	0.00150	0.00565	PASS
25℃	LV	15.62	6.37	0.00831	0.00339	PASS
	HV	3.41	16.92	0.00181	0.00900	PASS

6.6. Spurious Emissions at Antenna Terminals

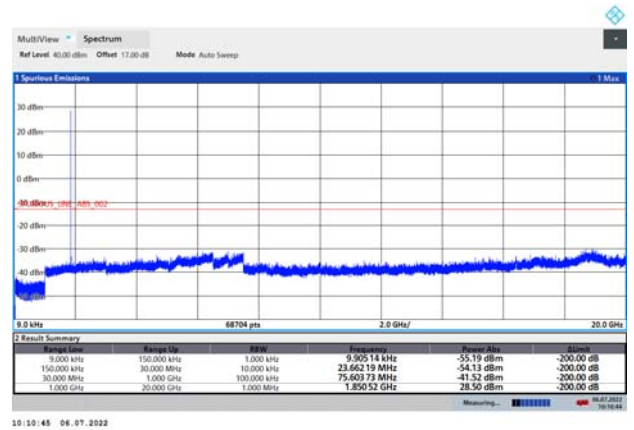
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

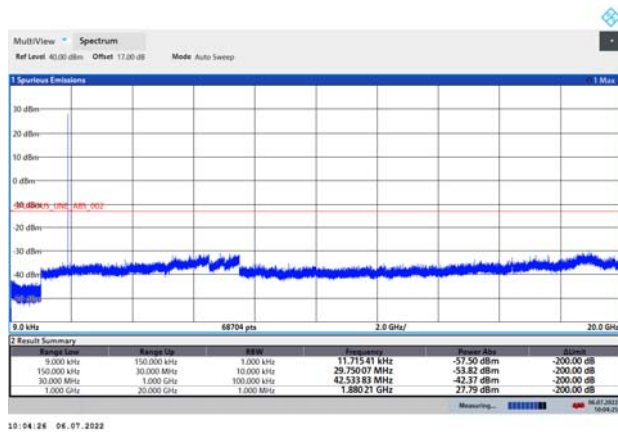
GSM 1900 CH-Low 9kHz ~ 20GHz



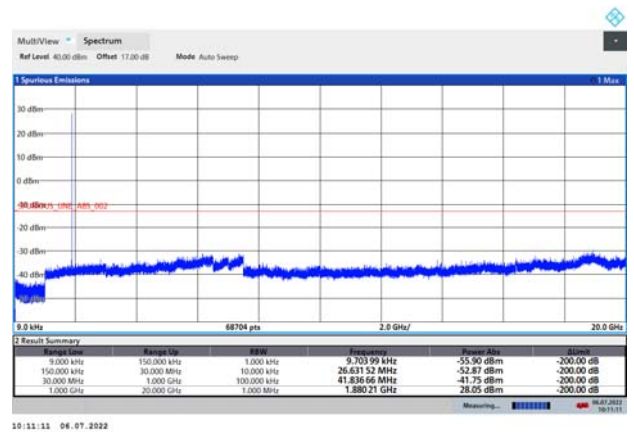
GPRS 1900 CH-Low 9kHz ~ 20GHz



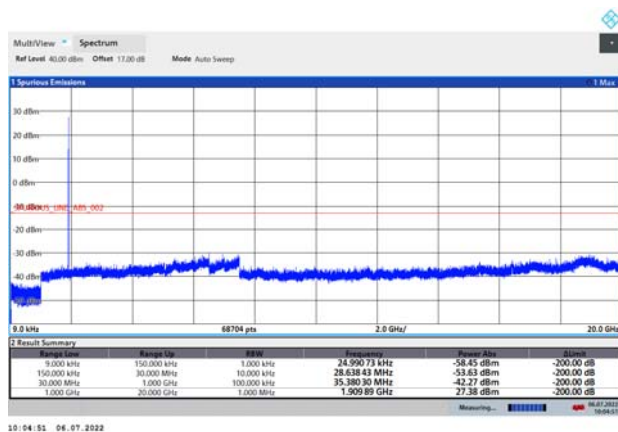
GSM 1900 CH- Middle 9kHz ~ 20GHz



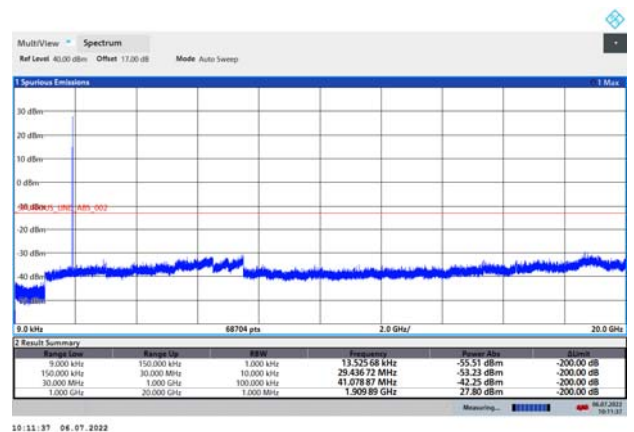
GPRS 1900 CH- Middle 9kHz ~ 20GHz



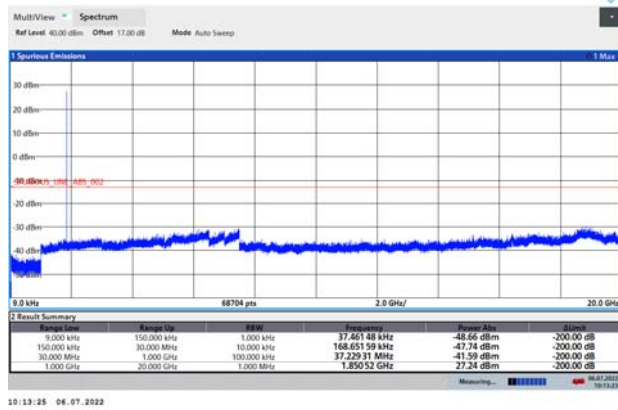
GSM 1900 CH-High 9kHz ~ 20GHz



GPRS 1900 CH-High 9kHz ~ 20GHz

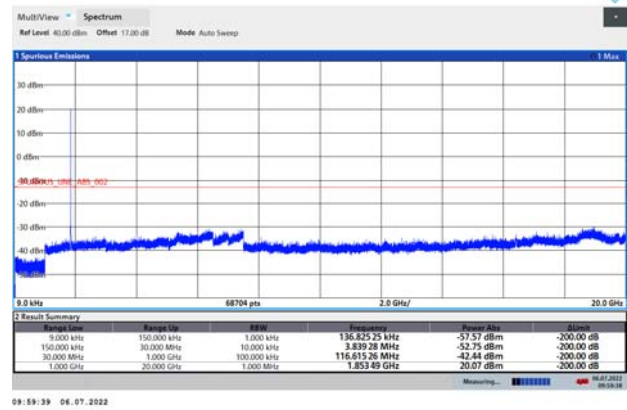


EGPRS 1900 CH-Low 9kHz ~ 20GHz



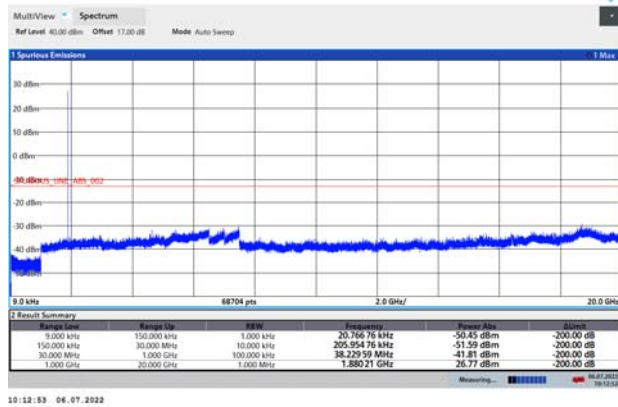
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WCDMA BAND II CH-Low 9kHz ~ 20GHz



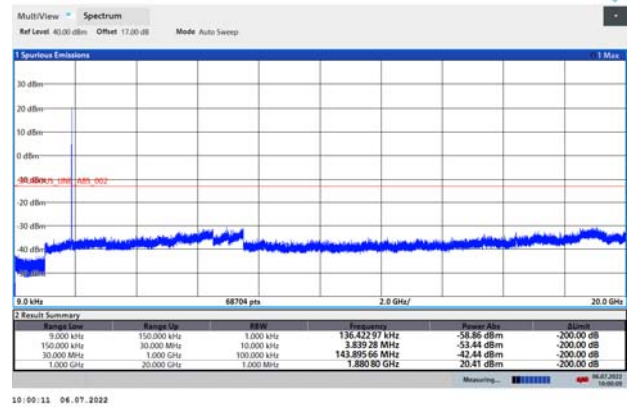
09:59:39 06.07.2022

EGPRS 1900 CH- Middle 9kHz ~ 20GHz



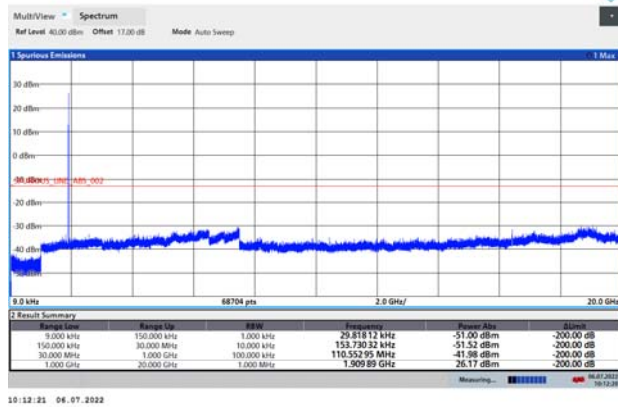
10:12:53 06.07.2022

WCDMA BAND II CH- Middle 9kHz ~ 20GHz



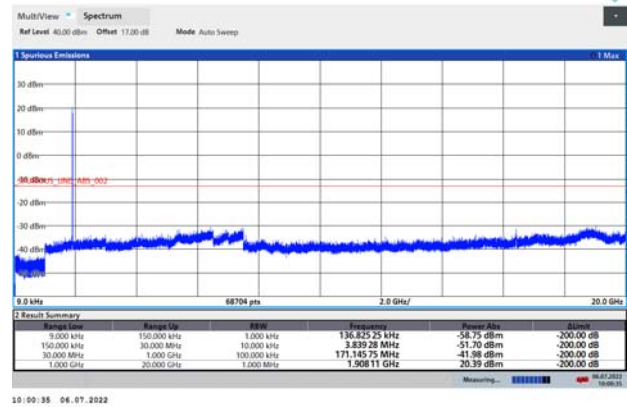
10:00:11 06.07.2022

EGPRS 1900 CH-High 9kHz ~ 20GHz



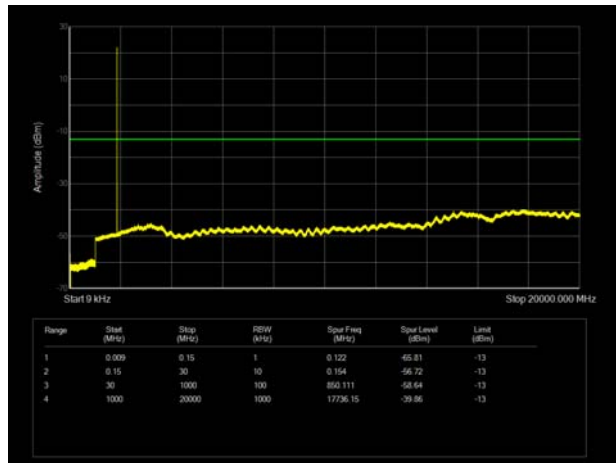
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WCDMA BAND II CH-High 9kHz ~ 20GHz

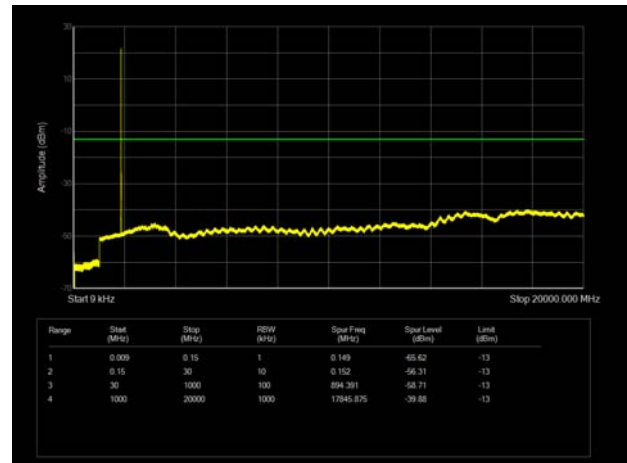


10:00:35 06.07.2022

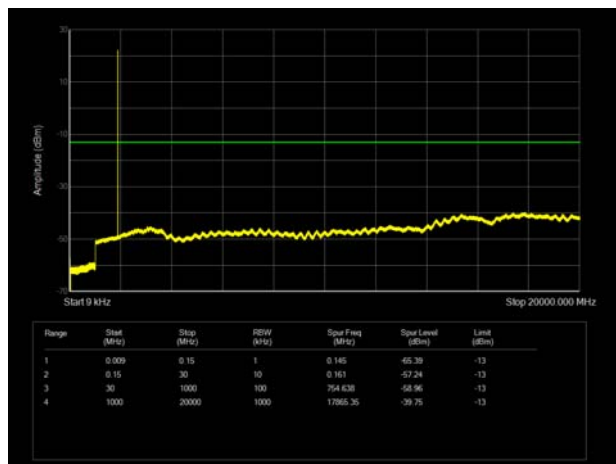
LTE Band 2 1.4MHz CH-Low 9kHz~20GHz



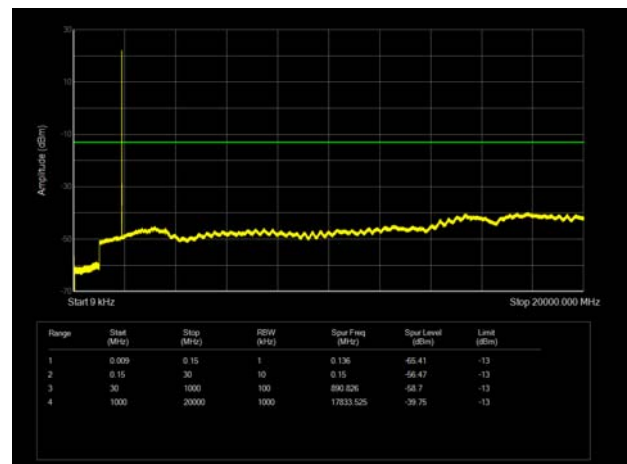
LTE Band 2 3MHz CH-Low 9kHz~20GHz



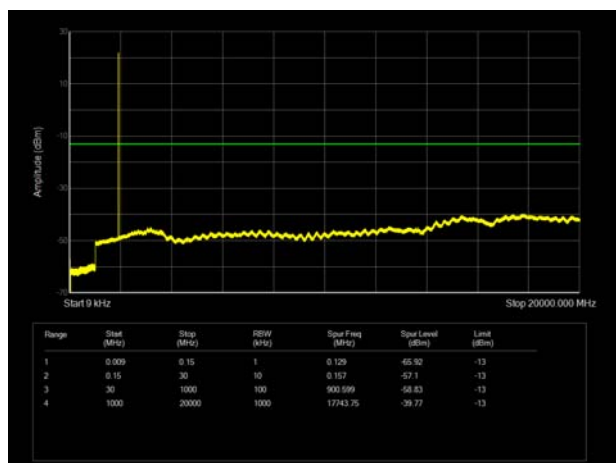
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz



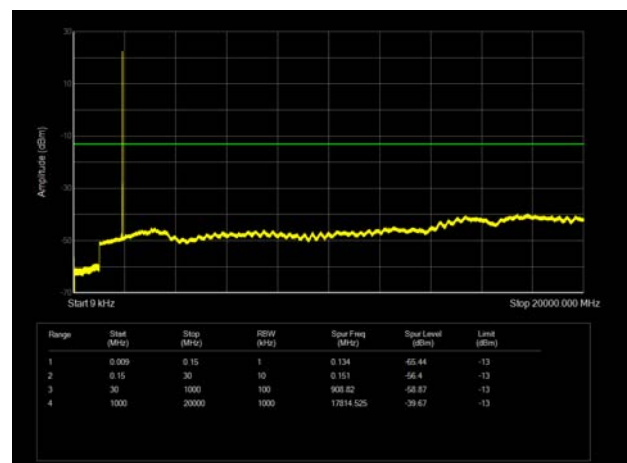
LTE Band 2 3MHz CH-Middle 9kHz~20GHz



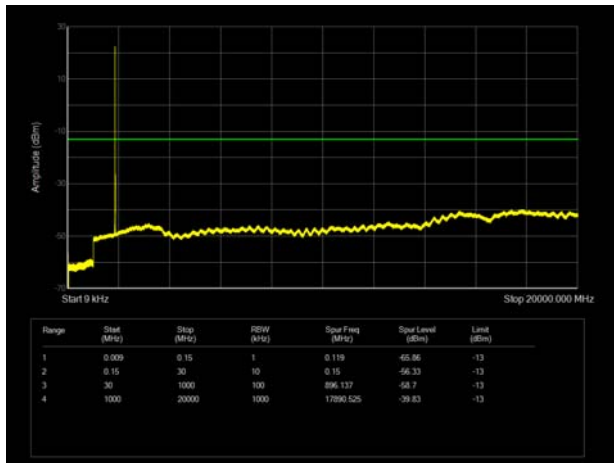
LTE Band 2 1.4MHz CH-High 9kHz~20GHz



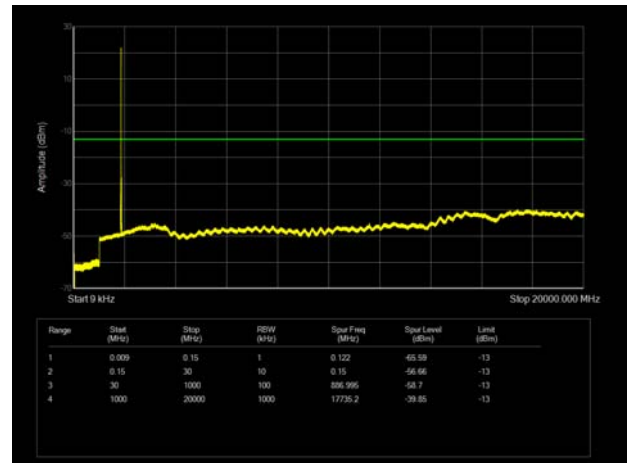
LTE Band 2 3MHz CH-High 9kHz~20GHz



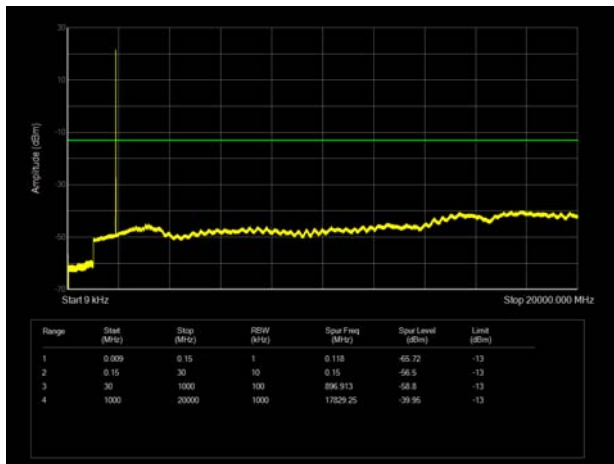
LTE Band 2 5MHz CH-Low 9kHz~20GHz



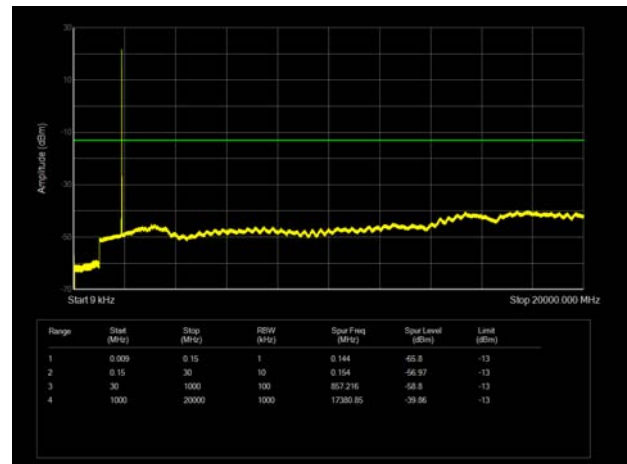
LTE Band 2 10MHz CH-Low 9kHz~20GHz



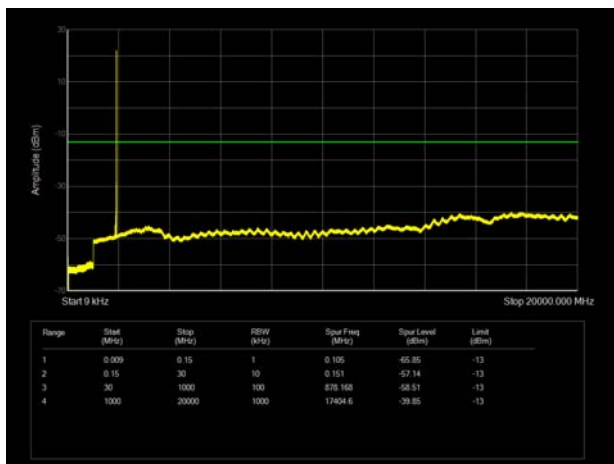
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



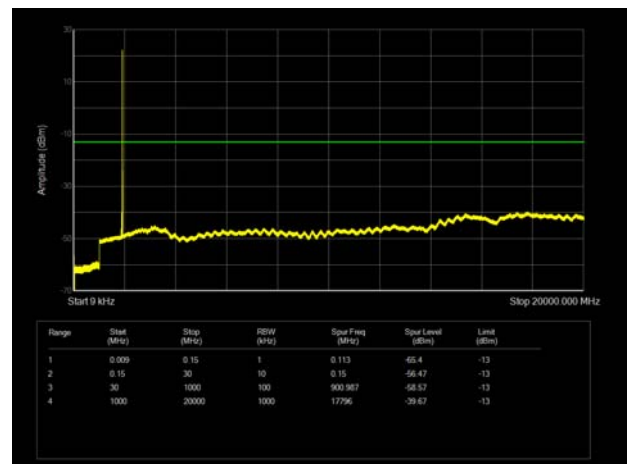
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



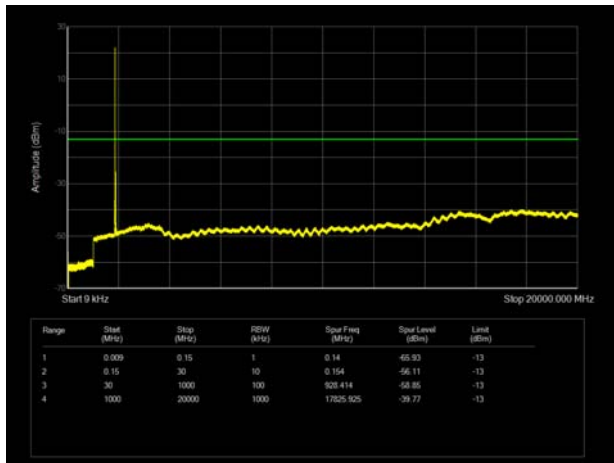
LTE Band 2 5MHz CH-High 9kHz~20GHz



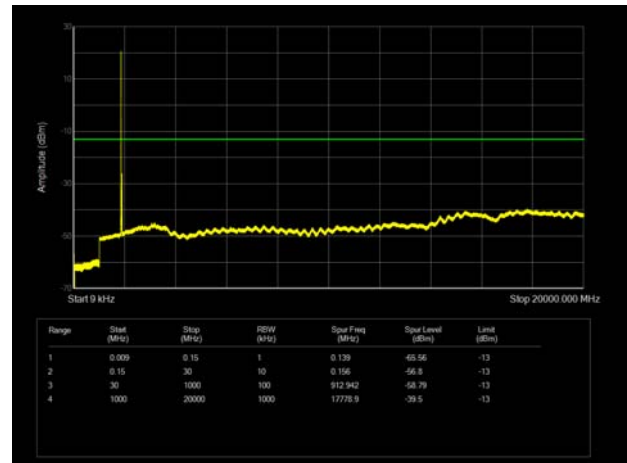
LTE Band 2 10MHz CH-High 9kHz~20GHz



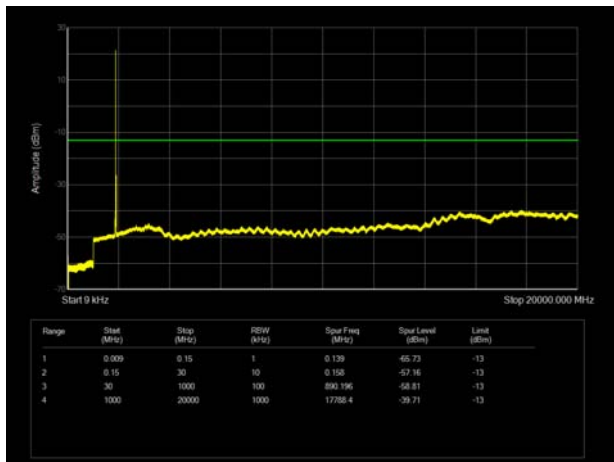
LTE Band 2 15MHz CH-Low 9kHz~20GHz



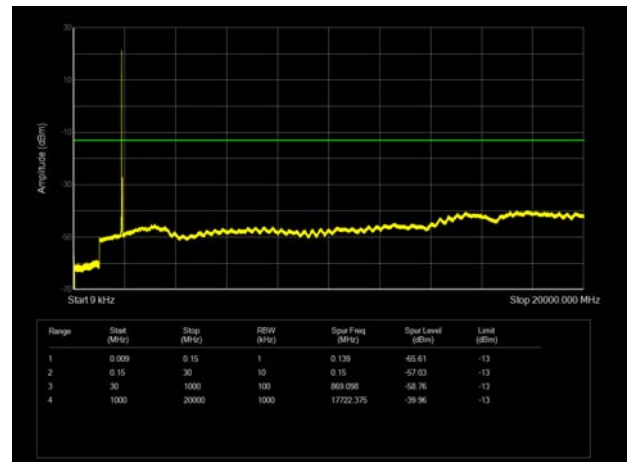
LTE Band 2 20MHz CH-Low 9kHz~20GHz



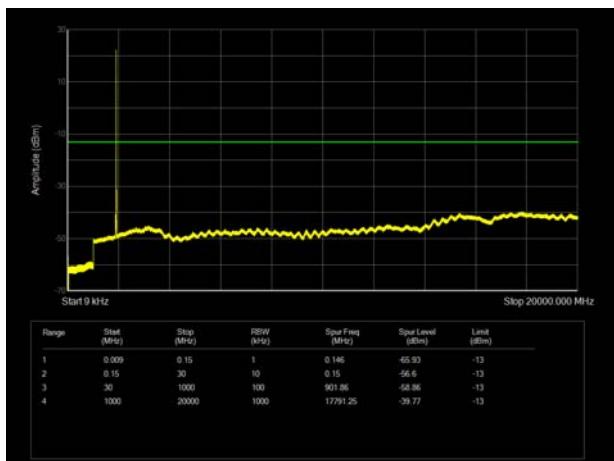
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



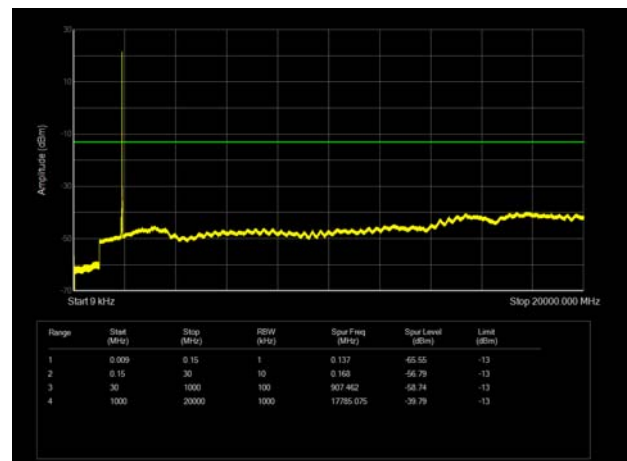
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



LTE Band 2 15MHz CH-High 9kHz~20GHz



LTE Band 2 20MHz CH-High 9kHz~20GHz



6.7. Radiates 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.

GSM 1900 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.00	-40.48	2.60	12.50	Vertical	-30.58	-13.00	17.58	225
3	5640.00	-49.87	3.30	12.50	Vertical	-40.67	-13.00	27.67	135
4	7520.00	-40.09	4.20	12.20	Vertical	-32.09	-13.00	19.09	0
5	9400.00	-47.65	4.30	11.10	Vertical	-40.85	-13.00	27.85	270
6	11280.00	-48.60	5.90	11.90	Vertical	-42.60	-13.00	29.60	45
7	13160.00	-47.18	5.70	14.00	Vertical	-38.88	-13.00	25.88	315
8	15040.00	-51.06	5.80	13.10	Vertical	-43.76	-13.00	30.76	90
9	16920.00	-47.07	6.10	14.60	Vertical	-38.57	-13.00	25.57	45
10	18800.00	--	--	--	--	--	--	--	--
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 Vertical position.									

WCDMA Band II CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-42.29	2.60	12.50	Vertical	-32.39	-13.00	19.39	90
3	5640.0	-55.07	3.30	12.50	Vertical	-45.87	-13.00	32.87	90
4	7520.0	-38.98	4.20	12.20	Vertical	-30.98	-13.00	17.98	45
5	9400.0	-44.07	4.30	11.10	Vertical	-37.27	-13.00	24.27	225
6	11280.0	-49.36	5.90	11.90	Vertical	-43.36	-13.00	30.36	90
7	13160.0	-52.80	5.70	14.00	Vertical	-44.50	-13.00	31.50	45
8	15040.0	-51.29	5.80	13.10	Vertical	-43.99	-13.00	30.99	315
9	16920.0	-50.05	6.10	14.60	Vertical	-41.55	-13.00	28.55	90
10	18800.0	--	--	--	--	--	--	--	--
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 Vertical position.									

LTE Band 2 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.00	-42.21	2.60	12.50	Vertical	-32.31	-13.00	19.31	0
3	5638.88	-43.96	3.30	12.50	Vertical	-34.76	-13.00	21.76	135
4	7520.00	-31.95	4.20	12.20	Vertical	-23.95	-13.00	10.95	225
5	9400.00	-39.44	4.30	11.10	Vertical	-32.64	-13.00	19.64	270
6	11280.00	-38.33	5.90	11.90	Vertical	-32.33	-13.00	19.33	0
7	13160.00	-47.53	5.70	14.00	Vertical	-39.23	-13.00	26.23	45
8	15040.00	-48.79	5.80	13.10	Vertical	-41.49	-13.00	28.49	90
9	16920.00	-50.40	6.10	14.60	Vertical	-41.90	-13.00	28.90	225
10	18800.00	--	--	--	--	--	--	--	--

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 Vertical position.

LTE Band 2 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3755.63	-41.35	2.60	12.50	Vertical	-31.45	-13.00	18.45	180
3	5633.63	-43.88	3.30	12.50	Vertical	-34.68	-13.00	21.68	90
4	7510.00	-31.48	4.20	12.20	Vertical	-23.48	-13.00	10.48	0
5	9387.50	-38.14	4.30	11.10	Vertical	-31.34	-13.00	18.34	0
6	11265.00	-37.26	5.90	11.90	Vertical	-31.26	-13.00	18.26	45
7	13142.00	-47.62	5.70	14.00	Vertical	-39.32	-13.00	26.32	270
8	15020.00	-50.05	5.80	13.10	Vertical	-42.75	-13.00	29.75	90
9	16897.50	-49.79	6.10	14.60	Vertical	-41.29	-13.00	28.29	135
10	18800.00	--	--	--	--	--	--	--	--

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 Vertical position.



LTE Band 2 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	EIRP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.13	-38.17	2.60	12.50	Vertical	-28.27	-13.00	15.27	0
3	5613.38	-45.55	3.30	12.50	Vertical	-36.35	-13.00	23.35	90
4	7484.63	-30.80	4.20	12.20	Vertical	-22.80	-13.00	9.80	45
5	9355.33	-38.05	4.30	11.10	Vertical	-31.25	-13.00	18.25	315
6	11226.39	-39.85	5.90	11.90	Vertical	-33.85	-13.00	20.85	90
7	13097.46	-48.98	5.70	14.00	Vertical	-40.68	-13.00	27.68	135
8	14968.52	-48.58	5.80	13.10	Vertical	-41.28	-13.00	28.28	135
9	16938.59	-53.28	6.10	14.60	Vertical	-44.78	-13.00	31.78	270
10	18800.00	--	--	--	--	--	--	--	--

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 Vertical position.

7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Climate Chamber	ESPEC	SU-242	93000506	2021-12-12	2022-12-11
Wideband radio communication tester	R&S	CMW500	113645	2022-05-14	2023-05-13
Spectrum Analyzer	Keysight	N9020A	MY50510203	2021-12-12	2022-12-11
Universal Radio Communication Tester	Agilent	E5515C	GB44400275	2021-12-12	2022-12-11
Signal Analyzer	R&S	FSV3030	101411	2021-12-12	2022-12-11
Spectrum Analyzer	R&S	FSV30	104028	2021-12-12	2022-12-11
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01111	2019--9-12	2022-09-11
Horn Antenna	Schwarzbeck	BBHA 9120D	1594	2020-12-17	2023-12-16
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.