

RF TEST REPORT

Applicant	Dspread Technology (Beijing) Inc
FCC ID	2AGQ6-QPOS-PLUS-L
Product	Mobile POS
Brand	DSPREAD
Model	QPOS Plus
Report No.	R2407A0983-R2
Issue Date	October 18, 2024

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2023)/ FCC CFR 47 Part 24E (2023)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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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	Radiated Spurious Emission	2.1053 / 24.238(a)	PASS
Date of Testing: August 13, 2024 ~ September 23, 2024			
Date of Sample Received: July 29, 2024			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the test report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
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2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Dspread Technology (Beijing) Inc
Applicant address	Rm 407, B12C, #10(Universal Business Park), Jiuxianqiao Road, Chaoyang District, Beijing, China
Manufacturer	Dspread Technology (Beijing) Inc
Manufacturer address	Rm 407, B12C, #10(Universal Business Park), Jiuxianqiao Road, Chaoyang District, Beijing, China

2.2. General information

EUT Description			
Model	QPOS Plus		
SN	Conducted: 03070001202405230109 Radiated: 03070001202405230115		
Hardware Version	2.2.0		
Software Version	2.3.0		
Power Supply	Battery / AC adapter		
Antenna Type	Internal Antenna		
Antenna Gain	GSM 1900	1.26 dBi	
	LTE Band 2	1.26 dBi	
Test Mode(s)	GSM1900; LTE Band 2;		
Test Modulation	(GSM/GPRS) GMSK (LTE) QPSK, 16QAM;		
GPRS Multislot Class	12		
LTE Category	1		
Maximum E.I.R.P	GSM 1900	31.98 dBm	
	LTE Band 2	26.28 dBm	
Rated Power Supply Voltage	3.7V		
Operating Voltage	Minimum: 3.6V Maximum: 4.2V		
Operating Temperature	Lowest: 0°C Highest: +40°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
	LTE Band 2	1850 ~ 1910	1930 ~ 1990
EUT Accessory			
Battery 1	Manufacturer: Beijing Guocai Huayang Technology Co., Ltd. Model: QPOS Plus		
Battery 2	Manufacturer: SHEN ZHEN UTILITY ENERGY CO., LTD.		

	Model: QPOS Plus
USB Cable	Manufacturer: JIANGXI JIEYE Electronics., Co. Ltd Model: JY-C15-11
Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. 2. There is more than one Batteries, each one should be applied throughout the compliance test respectively, and however, only the worst case (Battery 1) will be recorded in this report.	

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 (2023)

FCC CFR47 Part 2 (2023)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, horizontal polarization for GSM Band and (X axis, vertical polarization for LTE Band) 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/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	
RF Power Output and Effective Isotropic Radiated Power	GSM GPRS	
Occupied Bandwidth	GSM GPRS (1Tx slot)	
Band Edge Compliance	GSM GPRS (1Tx slot)	
Peak-to-Average Power Ratio	GSM GPRS (1Tx slot)	
Frequency Stability	GSM GPRS (1Tx slot)	
Spurious Emissions at Antenna Terminals	GSM	
Radiated Spurious Emission	GSM	

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
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 Isotropic Radiated Power

Ambient condition

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

Methods of Measurement

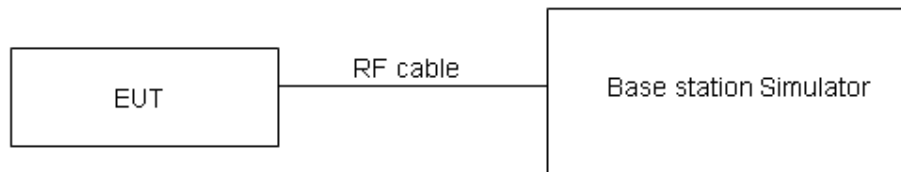
During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:

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

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

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 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
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

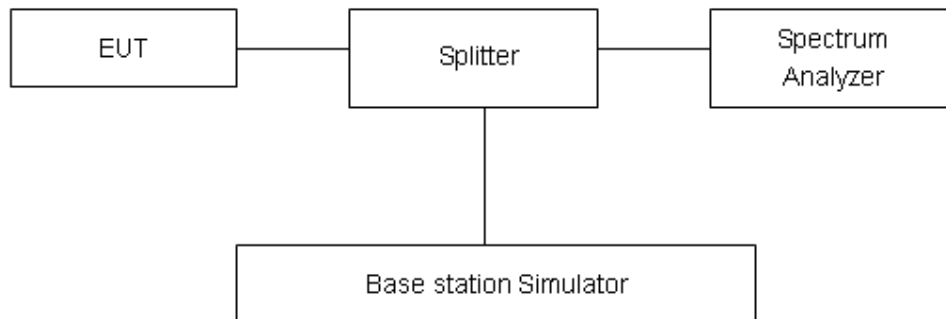
Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to $\geq 1\%$ EBW, VBW is set to 3x RBW.

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

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

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

Test Results

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

5.3. Band Edge Compliance

Ambient condition

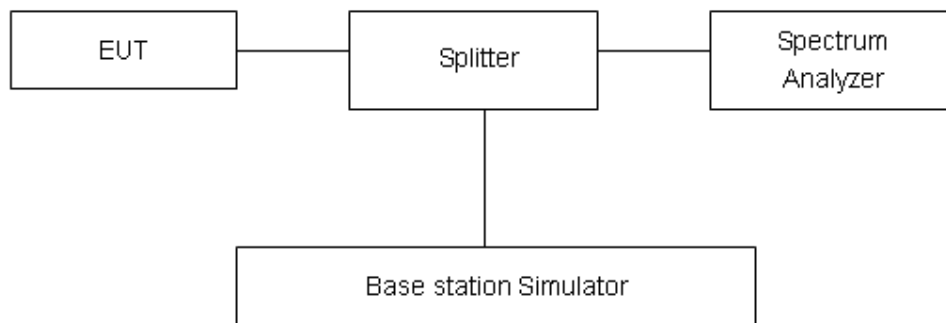
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used 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

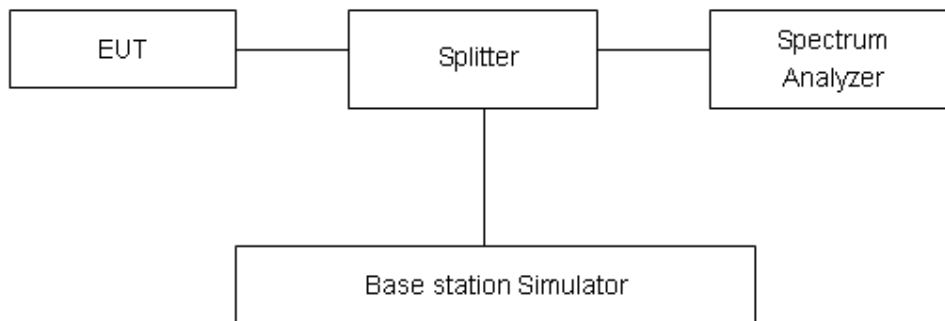
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

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
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

Frequency Stability (Temperature Variation)

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

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

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

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

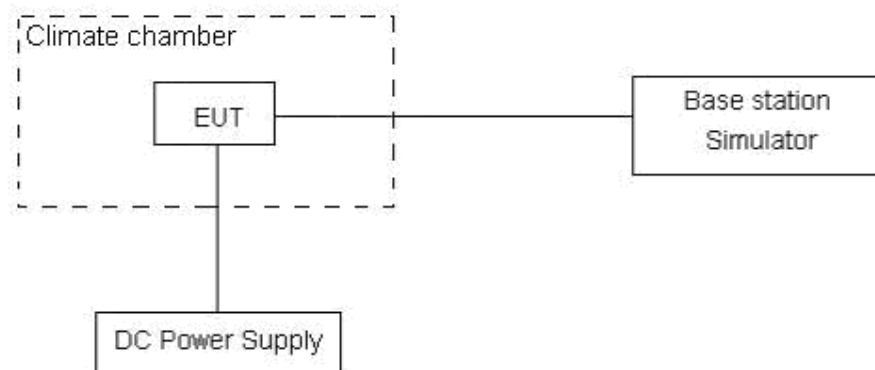
Frequency Stability (Voltage Variation)

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

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

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.2V, with a nominal voltage of 3.7V.

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
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.

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

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

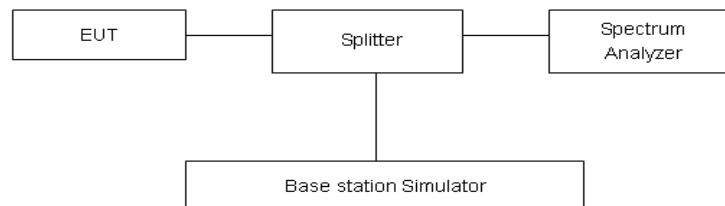
RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

Sweep is set to AUTO.

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

Test setup



Limits

Rule Part 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. Radiated Spurious Emission

Ambient condition

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

Method of Measurement

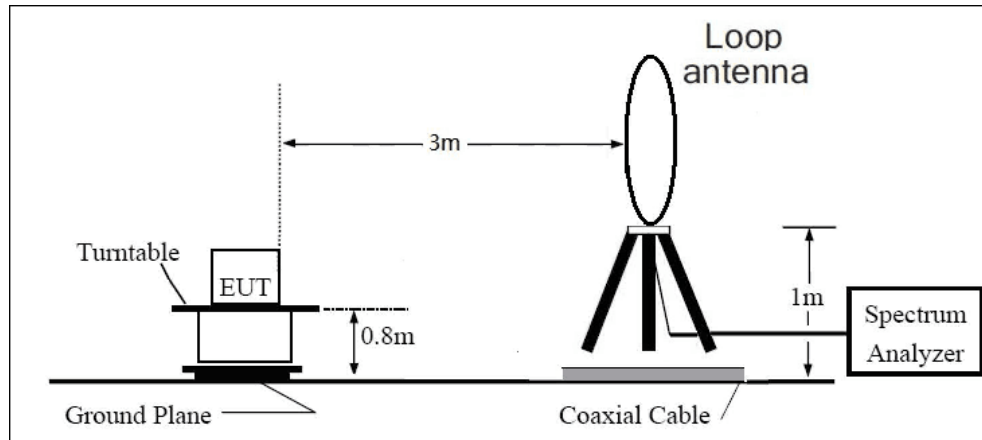
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26-2015.
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=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, $\text{ERP} = \text{EIRP} - 2.15\text{dB}$.

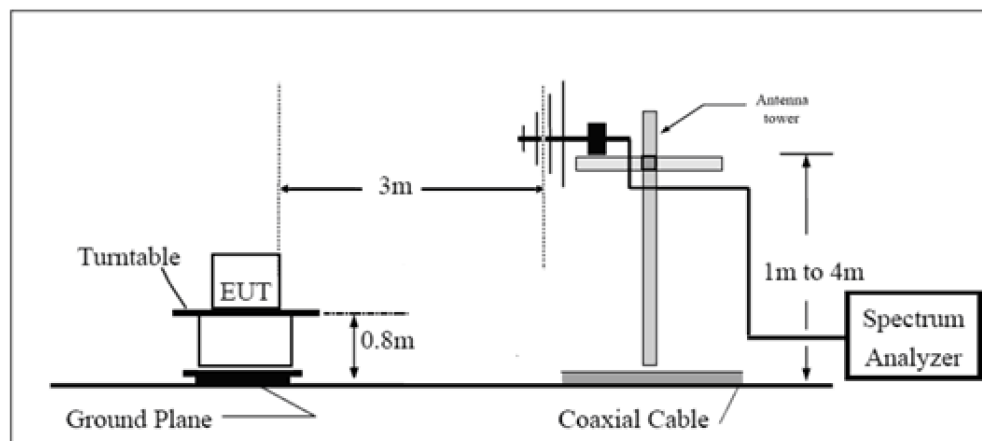
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

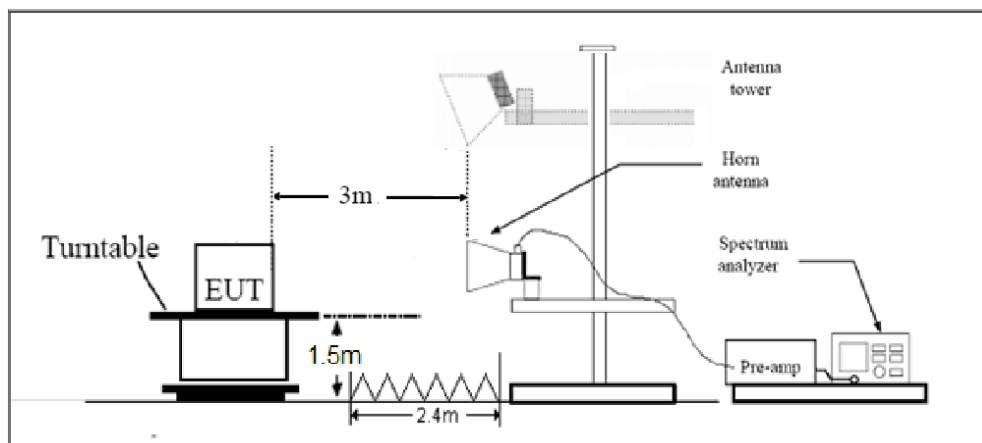
9KHz~ 30MHz



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	30.72	30.57	30.40	31.98	31.83	31.66
GPRS (GMSK)	1TXslot	30.69	30.55	30.49	31.95	31.81	31.75
	2TXslots	29.81	29.66	29.43	31.07	30.92	30.69
	3TXslots	28.28	28.23	27.96	29.54	29.49	29.22
	4TXslots	27.14	27.09	26.79	28.40	28.35	28.05

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	EIRP (dBm)
LTE Band2	1.4	18607	1	#0	QPSK	23.85	25.11
LTE Band2	1.4	18607	1	#Mid	QPSK	23.91	25.17
LTE Band2	1.4	18607	1	#Max	QPSK	23.24	24.50
LTE Band2	1.4	18607	3	#0	QPSK	23.91	25.17
LTE Band2	1.4	18607	3	#Mid	QPSK	23.88	25.14
LTE Band2	1.4	18607	3	#Max	QPSK	23.46	24.72
LTE Band2	1.4	18607	6	#0	QPSK	22.59	23.85
LTE Band2	1.4	18900	1	#0	QPSK	24.63	25.89
LTE Band2	1.4	18900	1	#Mid	QPSK	24.63	25.89
LTE Band2	1.4	18900	1	#Max	QPSK	23.77	25.03
LTE Band2	1.4	18900	3	#0	QPSK	24.62	25.88
LTE Band2	1.4	18900	3	#Mid	QPSK	24.6	25.86
LTE Band2	1.4	18900	3	#Max	QPSK	24.25	25.51
LTE Band2	1.4	18900	6	#0	QPSK	23.37	24.63
LTE Band2	1.4	19193	1	#0	QPSK	24.18	25.44
LTE Band2	1.4	19193	1	#Mid	QPSK	24.42	25.68
LTE Band2	1.4	19193	1	#Max	QPSK	23.71	24.97
LTE Band2	1.4	19193	3	#0	QPSK	24.44	25.70
LTE Band2	1.4	19193	3	#Mid	QPSK	24.55	25.81
LTE Band2	1.4	19193	3	#Max	QPSK	23.88	25.14
LTE Band2	1.4	19193	6	#0	QPSK	23.41	24.67
LTE Band2	3	18615	1	#0	QPSK	21.66	22.92
LTE Band2	3	18615	1	#Mid	QPSK	24.03	25.29
LTE Band2	3	18615	1	#Max	QPSK	22.39	23.65

LTE Band2	3	18615	8	#0	QPSK	22.66	23.92
LTE Band2	3	18615	8	#Mid	QPSK	22.7	23.96
LTE Band2	3	18615	8	#Max	QPSK	22.68	23.94
LTE Band2	3	18615	15	#0	QPSK	22.67	23.93
LTE Band2	3	18900	1	#0	QPSK	25.04	26.30
LTE Band2	3	18900	1	#Mid	QPSK	24.89	26.15
LTE Band2	3	18900	1	#Max	QPSK	23.51	24.77
LTE Band2	3	18900	8	#0	QPSK	23.64	24.90
LTE Band2	3	18900	8	#Mid	QPSK	23.64	24.90
LTE Band2	3	18900	8	#Max	QPSK	23.45	24.71
LTE Band2	3	18900	15	#0	QPSK	23.49	24.75
LTE Band2	3	19185	1	#0	QPSK	24.75	26.01
LTE Band2	3	19185	1	#Mid	QPSK	24.95	26.21
LTE Band2	3	19185	1	#Max	QPSK	22.63	23.89
LTE Band2	3	19185	8	#0	QPSK	23.73	24.99
LTE Band2	3	19185	8	#Mid	QPSK	23.71	24.97
LTE Band2	3	19185	8	#Max	QPSK	23.5	24.76
LTE Band2	3	19185	15	#0	QPSK	23.54	24.80
LTE Band2	5	18625	1	#0	QPSK	24.22	25.48
LTE Band2	5	18625	1	#Mid	QPSK	23.71	24.97
LTE Band2	5	18625	1	#Max	QPSK	23.29	24.55
LTE Band2	5	18625	12	#0	QPSK	22.94	24.20
LTE Band2	5	18625	12	#Mid	QPSK	22.95	24.21
LTE Band2	5	18625	12	#Max	QPSK	22.39	23.65
LTE Band2	5	18625	25	#0	QPSK	22.54	23.80
LTE Band2	5	18900	1	#0	QPSK	24.94	26.20
LTE Band2	5	18900	1	#Mid	QPSK	24.4	25.66
LTE Band2	5	18900	1	#Max	QPSK	24.4	25.66
LTE Band2	5	18900	12	#0	QPSK	23.77	25.03
LTE Band2	5	18900	12	#Mid	QPSK	23.79	25.05
LTE Band2	5	18900	12	#Max	QPSK	23.68	24.94
LTE Band2	5	18900	25	#0	QPSK	23.55	24.81
LTE Band2	5	19175	1	#0	QPSK	24.91	26.17
LTE Band2	5	19175	1	#Mid	QPSK	24.49	25.75
LTE Band2	5	19175	1	#Max	QPSK	23.49	24.75
LTE Band2	5	19175	12	#0	QPSK	23.87	25.13
LTE Band2	5	19175	12	#Mid	QPSK	23.87	25.13
LTE Band2	5	19175	12	#Max	QPSK	23.41	24.67
LTE Band2	5	19175	25	#0	QPSK	23.66	24.92
LTE Band2	10	18650	1	#0	QPSK	24.53	25.79
LTE Band2	10	18650	1	#Mid	QPSK	23.43	24.69
LTE Band2	10	18650	1	#Max	QPSK	22.96	24.22
LTE Band2	10	18650	25	#0	QPSK	22.92	24.18

LTE Band2	10	18650	25	#Mid	QPSK	22.92	24.18
LTE Band2	10	18650	25	#Max	QPSK	22.19	23.45
LTE Band2	10	18650	50	#0	QPSK	22.52	23.78
LTE Band2	10	18900	1	#0	QPSK	25.32	26.58
LTE Band2	10	18900	1	#Mid	QPSK	24.63	25.89
LTE Band2	10	18900	1	#Max	QPSK	24.42	25.68
LTE Band2	10	18900	25	#0	QPSK	23.92	25.18
LTE Band2	10	18900	25	#Mid	QPSK	23.93	25.19
LTE Band2	10	18900	25	#Max	QPSK	23.39	24.65
LTE Band2	10	18900	50	#0	QPSK	23.57	24.83
LTE Band2	10	19150	1	#0	QPSK	24.15	25.41
LTE Band2	10	19150	1	#Mid	QPSK	24.49	25.75
LTE Band2	10	19150	1	#Max	QPSK	23.99	25.25
LTE Band2	10	19150	25	#0	QPSK	23.26	24.52
LTE Band2	10	19150	25	#Mid	QPSK	23.27	24.53
LTE Band2	10	19150	25	#Max	QPSK	23.84	25.10
LTE Band2	10	19150	50	#0	QPSK	23.44	24.70
LTE Band2	15	18675	1	#0	QPSK	24.75	26.01
LTE Band2	15	18675	1	#Mid	QPSK	23.2	24.46
LTE Band2	15	18675	1	#Max	QPSK	23.86	25.12
LTE Band2	15	18675	36	#0	QPSK	23.01	24.27
LTE Band2	15	18675	36	#Mid	QPSK	23.02	24.28
LTE Band2	15	18675	36	#Max	QPSK	22.68	23.94
LTE Band2	15	18675	75	#0	QPSK	22.37	23.63
LTE Band2	15	18900	1	#0	QPSK	24.78	26.04
LTE Band2	15	18900	1	#Mid	QPSK	24.47	25.73
LTE Band2	15	18900	1	#Max	QPSK	24.08	25.34
LTE Band2	15	18900	36	#0	QPSK	23.64	24.90
LTE Band2	15	18900	36	#Mid	QPSK	23.66	24.92
LTE Band2	15	18900	36	#Max	QPSK	23.81	25.07
LTE Band2	15	18900	75	#0	QPSK	23.51	24.77
LTE Band2	15	19125	1	#0	QPSK	23.37	24.63
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LTE Band2	15	19125	36	#Max	QPSK	24.04	25.30
LTE Band2	15	19125	75	#0	QPSK	23.26	24.52
LTE Band2	20	18700	1	#0	QPSK	24.35	25.61
LTE Band2	20	18700	1	#Mid	QPSK	23.3	24.56
LTE Band2	20	18700	1	#Max	QPSK	23.67	24.93
LTE Band2	20	18700	50	#0	QPSK	23.03	24.29
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LTE Band2	20	18700	50	#Max	QPSK	23.44	24.70
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LTE Band2	20	18900	1	#0	QPSK	24.57	25.83
LTE Band2	20	18900	1	#Mid	QPSK	24.99	26.25
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LTE Band2	20	18900	50	#0	QPSK	24.16	25.42
LTE Band2	20	18900	50	#Mid	QPSK	24.18	25.44
LTE Band2	20	18900	50	#Max	QPSK	23.71	24.97
LTE Band2	20	18900	100	#0	QPSK	23.6	24.86
LTE Band2	20	19100	1	#0	QPSK	23.32	24.58
LTE Band2	20	19100	1	#Mid	QPSK	24.15	25.41
LTE Band2	20	19100	1	#Max	QPSK	24.44	25.70
LTE Band2	20	19100	50	#0	QPSK	22.49	23.75
LTE Band2	20	19100	50	#Mid	QPSK	22.51	23.77
LTE Band2	20	19100	50	#Max	QPSK	23.78	25.04
LTE Band2	20	19100	100	#0	QPSK	22.7	23.96
LTE Band2	1.4	18607	1	#0	16QAM	23.01	24.27
LTE Band2	1.4	18607	1	#Mid	16QAM	22.55	23.81
LTE Band2	1.4	18607	1	#Max	16QAM	22.32	23.58
LTE Band2	1.4	18607	3	#0	16QAM	23.14	24.40
LTE Band2	1.4	18607	3	#Mid	16QAM	23.11	24.37
LTE Band2	1.4	18607	3	#Max	16QAM	22.31	23.57
LTE Band2	1.4	18607	6	#0	16QAM	21.21	22.47
LTE Band2	1.4	18900	1	#0	16QAM	23.73	24.99
LTE Band2	1.4	18900	1	#Mid	16QAM	23.77	25.03
LTE Band2	1.4	18900	1	#Max	16QAM	23.11	24.37
LTE Band2	1.4	18900	3	#0	16QAM	23.78	25.04
LTE Band2	1.4	18900	3	#Mid	16QAM	23.76	25.02
LTE Band2	1.4	18900	3	#Max	16QAM	23.44	24.70
LTE Band2	1.4	18900	6	#0	16QAM	22.02	23.28
LTE Band2	1.4	19193	1	#0	16QAM	23.18	24.44
LTE Band2	1.4	19193	1	#Mid	16QAM	23.53	24.79
LTE Band2	1.4	19193	1	#Max	16QAM	22.75	24.01
LTE Band2	1.4	19193	3	#0	16QAM	23.54	24.80
LTE Band2	1.4	19193	3	#Mid	16QAM	23.52	24.78
LTE Band2	1.4	19193	3	#Max	16QAM	23.39	24.65
LTE Band2	1.4	19193	6	#0	16QAM	22.52	23.78
LTE Band2	3	18615	1	#0	16QAM	20.54	21.80
LTE Band2	3	18615	1	#Mid	16QAM	22.89	24.15
LTE Band2	3	18615	1	#Max	16QAM	21.87	23.13
LTE Band2	3	18615	8	#0	16QAM	21.38	22.64
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LTE Band2	3	18615	8	#Max	16QAM	21.35	22.61

LTE Band2	3	18615	15	#0	16QAM	21.3	22.56
LTE Band2	3	18900	1	#0	16QAM	24.15	25.41
LTE Band2	3	18900	1	#Mid	16QAM	24.07	25.33
LTE Band2	3	18900	1	#Max	16QAM	22.72	23.98
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LTE Band2	3	18900	8	#Mid	16QAM	22.24	23.50
LTE Band2	3	18900	8	#Max	16QAM	22.05	23.31
LTE Band2	3	18900	15	#0	16QAM	22.05	23.31
LTE Band2	3	19185	1	#0	16QAM	23.67	24.93
LTE Band2	3	19185	1	#Mid	16QAM	23.98	25.24
LTE Band2	3	19185	1	#Max	16QAM	21.58	22.84
LTE Band2	3	19185	8	#0	16QAM	22.9	24.16
LTE Band2	3	19185	8	#Mid	16QAM	22.89	24.15
LTE Band2	3	19185	8	#Max	16QAM	22.67	23.93
LTE Band2	3	19185	15	#0	16QAM	22.74	24.00
LTE Band2	5	18625	1	#0	16QAM	23.57	24.83
LTE Band2	5	18625	1	#Mid	16QAM	23.16	24.42
LTE Band2	5	18625	1	#Max	16QAM	22.71	23.97
LTE Band2	5	18625	12	#0	16QAM	21.67	22.93
LTE Band2	5	18625	12	#Mid	16QAM	21.58	22.84
LTE Band2	5	18625	12	#Max	16QAM	21.03	22.29
LTE Band2	5	18625	25	#0	16QAM	21.23	22.49
LTE Band2	5	18900	1	#0	16QAM	24.15	25.41
LTE Band2	5	18900	1	#Mid	16QAM	23.73	24.99
LTE Band2	5	18900	1	#Max	16QAM	23.77	25.03
LTE Band2	5	18900	12	#0	16QAM	22.44	23.70
LTE Band2	5	18900	12	#Mid	16QAM	22.35	23.61
LTE Band2	5	18900	12	#Max	16QAM	22.7	23.96
LTE Band2	5	18900	25	#0	16QAM	22.16	23.42
LTE Band2	5	19175	1	#0	16QAM	24.17	25.43
LTE Band2	5	19175	1	#Mid	16QAM	23.83	25.09
LTE Band2	5	19175	1	#Max	16QAM	23.56	24.82
LTE Band2	5	19175	12	#0	16QAM	22.99	24.25
LTE Band2	5	19175	12	#Mid	16QAM	23.07	24.33
LTE Band2	5	19175	12	#Max	16QAM	22.65	23.91
LTE Band2	5	19175	25	#0	16QAM	22.82	24.08
LTE Band2	10	18650	1	#0	16QAM	23.89	25.15
LTE Band2	10	18650	1	#Mid	16QAM	22.81	24.07
LTE Band2	10	18650	1	#Max	16QAM	22.35	23.61
LTE Band2	10	18650	25	#0	16QAM	21.65	22.91
LTE Band2	10	18650	25	#Mid	16QAM	21.58	22.84
LTE Band2	10	18650	25	#Max	16QAM	20.88	22.14
LTE Band2	10	18900	1	#0	16QAM	24.48	25.74

LTE Band2	10	18900	1	#Mid	16QAM	23.86	25.12
LTE Band2	10	18900	1	#Max	16QAM	23.71	24.97
LTE Band2	10	18900	25	#0	16QAM	22.63	23.89
LTE Band2	10	18900	25	#Mid	16QAM	22.54	23.80
LTE Band2	10	18900	25	#Max	16QAM	22.53	23.79
LTE Band2	10	19150	1	#0	16QAM	23.13	24.39
LTE Band2	10	19150	1	#Mid	16QAM	23.38	24.64
LTE Band2	10	19150	1	#Max	16QAM	23.69	24.95
LTE Band2	10	19150	25	#0	16QAM	22.38	23.64
LTE Band2	10	19150	25	#Mid	16QAM	22.39	23.65
LTE Band2	10	19150	25	#Max	16QAM	22.96	24.22
LTE Band2	15	18675	1	#0	16QAM	24.09	25.35
LTE Band2	15	18675	1	#Mid	16QAM	22.16	23.42
LTE Band2	15	18675	1	#Max	16QAM	23.39	24.65
LTE Band2	15	18900	1	#0	16QAM	24.13	25.39
LTE Band2	15	18900	1	#Mid	16QAM	23.84	25.10
LTE Band2	15	18900	1	#Max	16QAM	23.55	24.81
LTE Band2	15	19125	1	#0	16QAM	22.69	23.95
LTE Band2	15	19125	1	#Mid	16QAM	23.57	24.83
LTE Band2	15	19125	1	#Max	16QAM	24.38	25.64
LTE Band2	20	18700	1	#0	16QAM	23.82	25.08
LTE Band2	20	18700	1	#Mid	16QAM	22.41	23.67
LTE Band2	20	18700	1	#Max	16QAM	23.23	24.49
LTE Band2	20	18900	1	#0	16QAM	23.52	24.78
LTE Band2	20	18900	1	#Mid	16QAM	23.82	25.08
LTE Band2	20	18900	1	#Max	16QAM	22.61	23.87
LTE Band2	20	19100	1	#0	16QAM	22.15	23.41
LTE Band2	20	19100	1	#Mid	16QAM	22.96	24.22
LTE Band2	20	19100	1	#Max	16QAM	23.29	24.55

6.2.Occupied Bandwidth

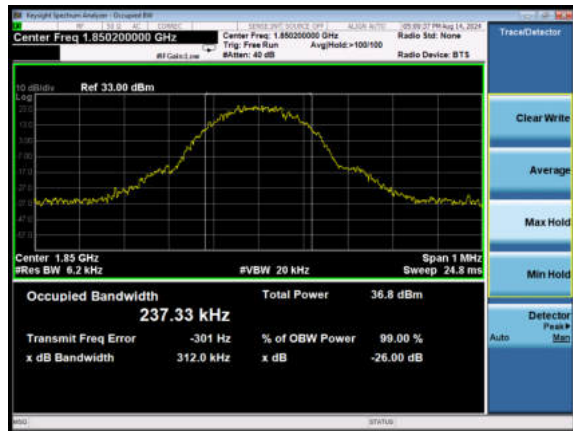
Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth (MHz)
GSM 1900 (GMSK)	512	1850.2	0.234	0.297
	661	1880.0	0.239	0.298
	810	1909.8	0.239	0.301
GPRS 1900 (GMSK)	512	1850.2	0.237	0.312
	661	1880.0	0.233	0.309
	810	1909.8	0.239	0.298

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	99% OBW (MHz)	-26dB EBW (MHz)
LTE Band2	1.4	18607	6	#0	QPSK	1.105	1.443
LTE Band2	1.4	18900	6	#0	QPSK	1.091	1.413
LTE Band2	1.4	19193	6	#0	QPSK	1.101	1.422
LTE Band2	3	18615	15	#0	QPSK	2.697	3.138
LTE Band2	3	18900	15	#0	QPSK	2.685	3.231
LTE Band2	3	19185	15	#0	QPSK	2.687	3.261
LTE Band2	5	18625	25	#0	QPSK	4.493	5.081
LTE Band2	5	18900	25	#0	QPSK	4.496	5.044
LTE Band2	5	19175	25	#0	QPSK	4.471	5.032
LTE Band2	10	18650	50	#0	QPSK	8.937	9.644
LTE Band2	10	18900	50	#0	QPSK	8.928	9.609
LTE Band2	10	19150	50	#0	QPSK	8.909	9.625
LTE Band2	15	18675	75	#0	QPSK	13.485	16.368
LTE Band2	15	18900	75	#0	QPSK	13.475	15.740
LTE Band2	15	19125	75	#0	QPSK	13.490	16.148
LTE Band2	20	18700	100	#0	QPSK	17.903	20.522
LTE Band2	20	18900	100	#0	QPSK	17.967	20.783
LTE Band2	20	19100	100	#0	QPSK	17.944	20.442
LTE Band2	1.4	18607	6	#0	16QAM	1.107	1.447
LTE Band2	1.4	18900	6	#0	16QAM	1.107	1.471
LTE Band2	1.4	19193	6	#0	16QAM	1.097	1.435
LTE Band2	3	18615	15	#0	16QAM	2.684	3.120
LTE Band2	3	18900	15	#0	16QAM	2.688	3.208
LTE Band2	3	19185	15	#0	16QAM	2.689	3.225
LTE Band2	5	18625	25	#0	16QAM	4.486	5.162
LTE Band2	5	18900	25	#0	16QAM	4.475	5.095
LTE Band2	5	19175	25	#0	16QAM	4.489	5.050

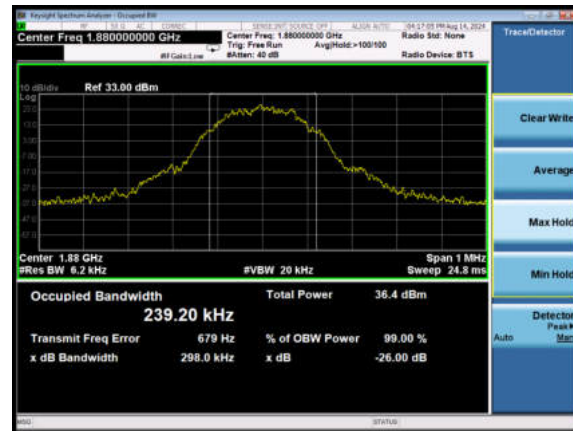
GSM1900 GSM CH-Low



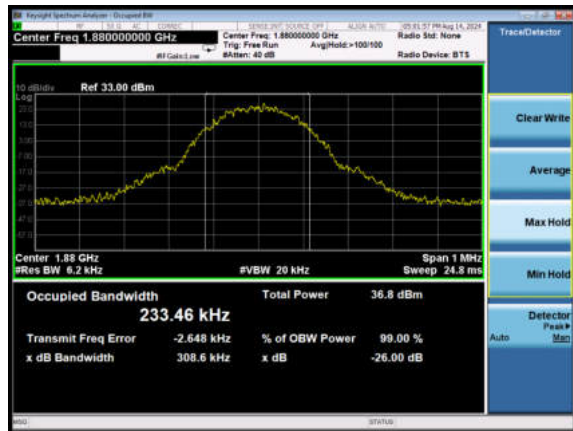
GSM1900 GPRS CH-Low



GSM 1900 GSM CH-Middle



GSM 1900 GPRS CH-Middle



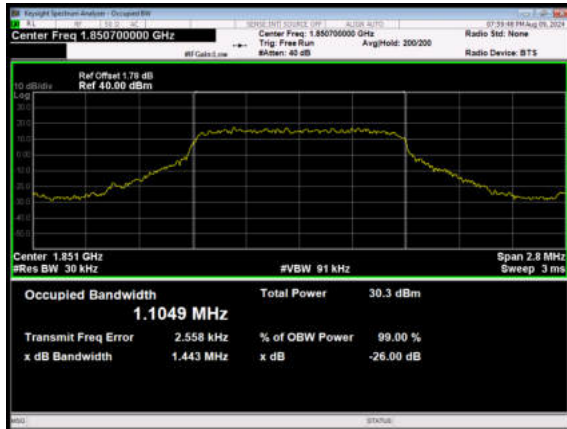
GSM 1900 GSM CH-High



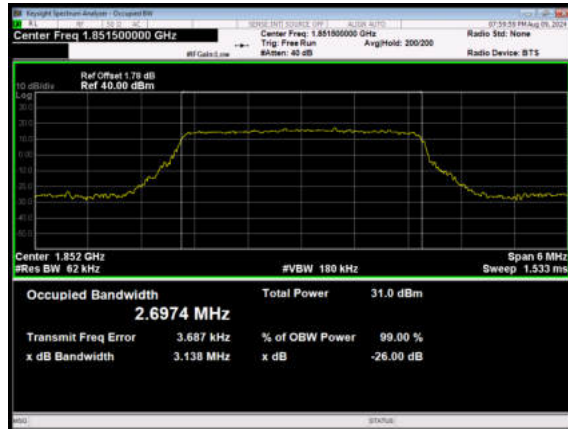
GSM 1900 GPRS CH-High



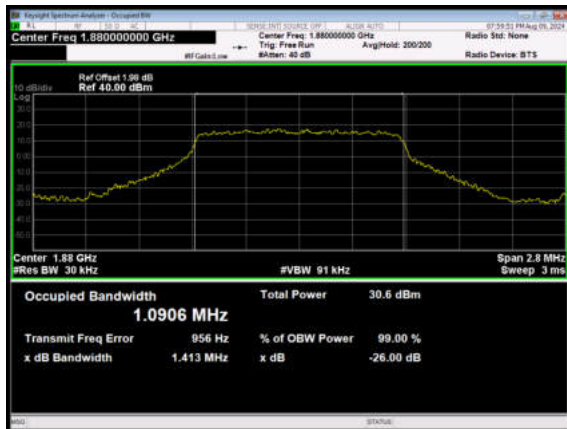
LTE Band 2 1.4MHz QPSK CH-Low



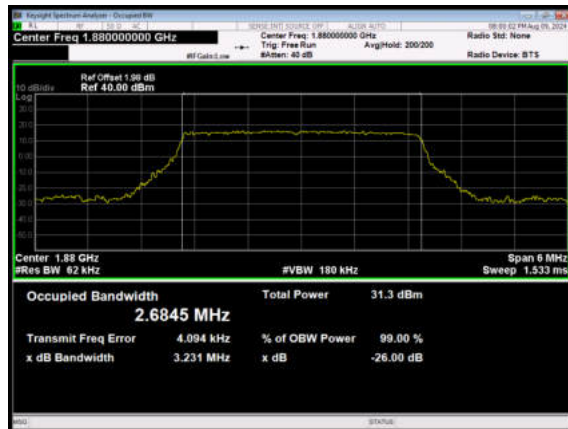
LTE Band 2 3MHz QPSK CH-Low



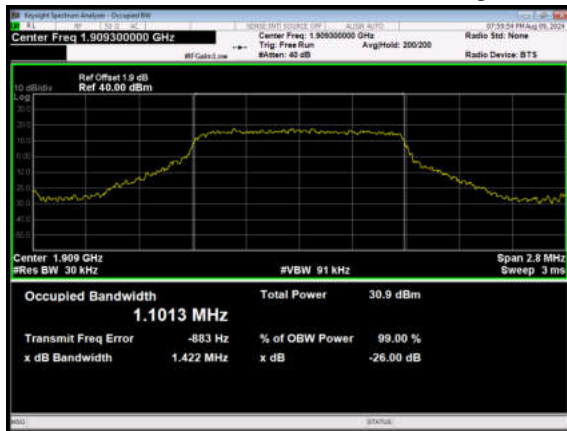
LTE Band 2 1.4MHz QPSK CH-Middle



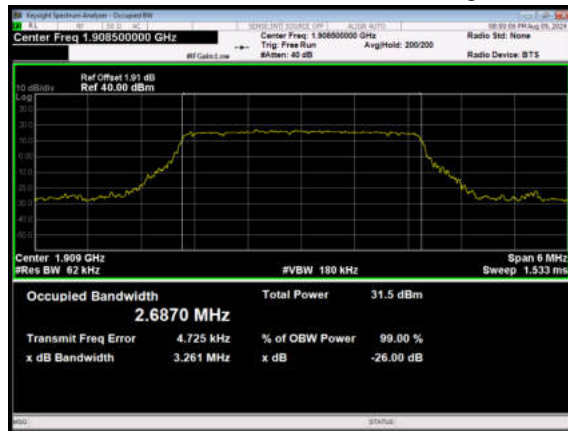
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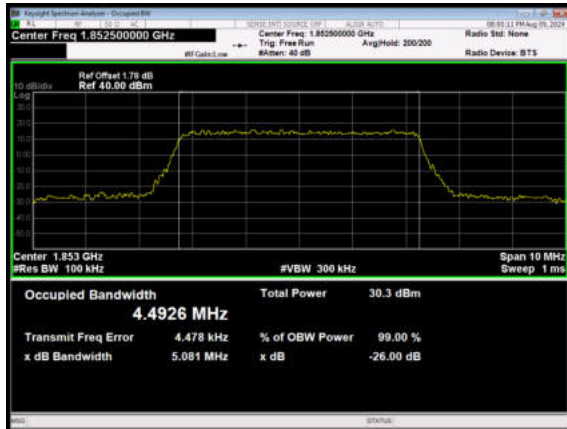
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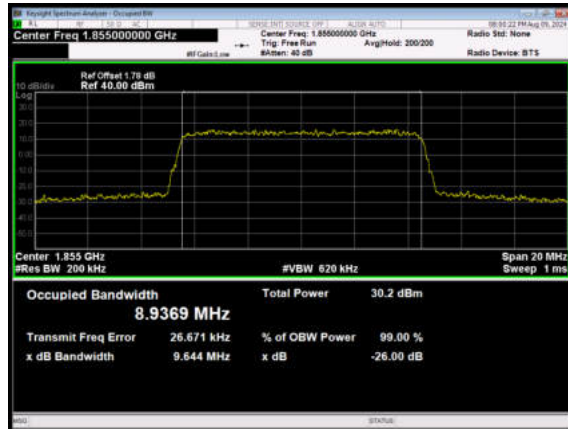
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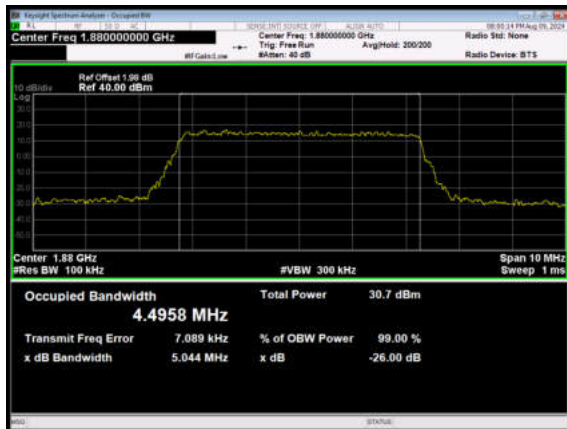
LTE Band 2 5MHz QPSK CH-Low



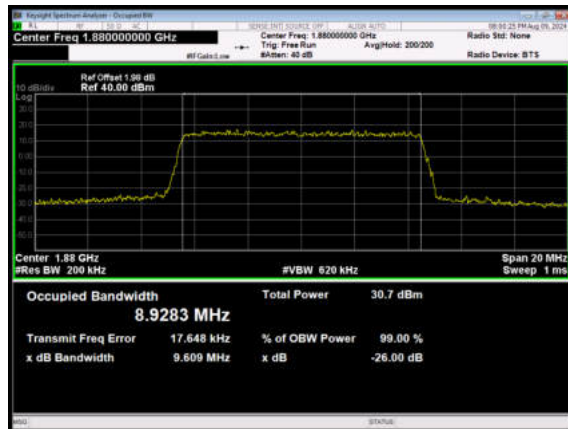
LTE Band 2 10MHz QPSK CH-Low



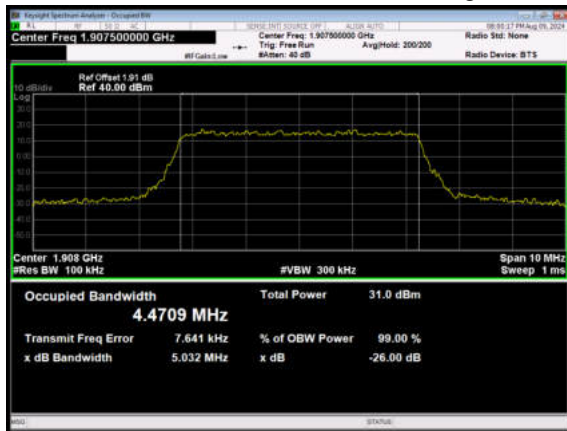
LTE Band 2 5MHz QPSK CH-Middle



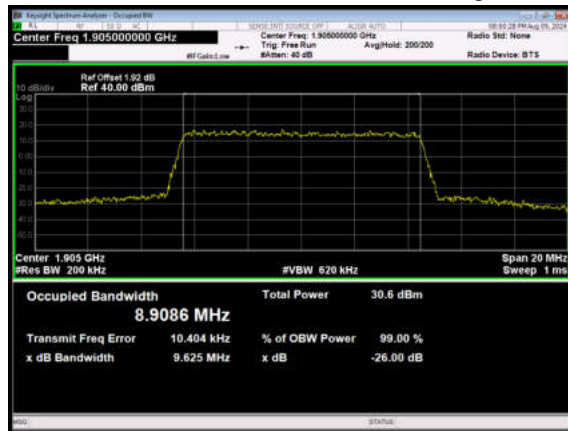
LTE Band 2 10MHz QPSK CH-Middle



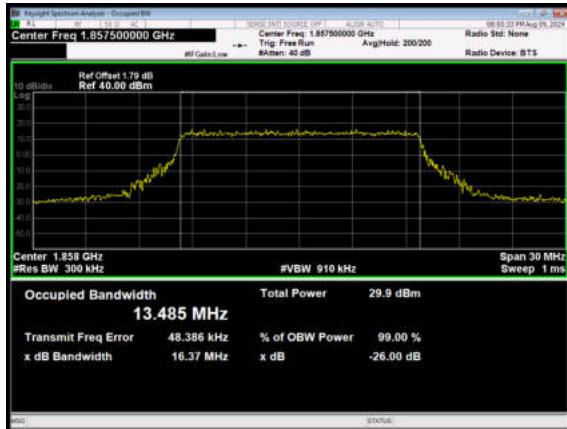
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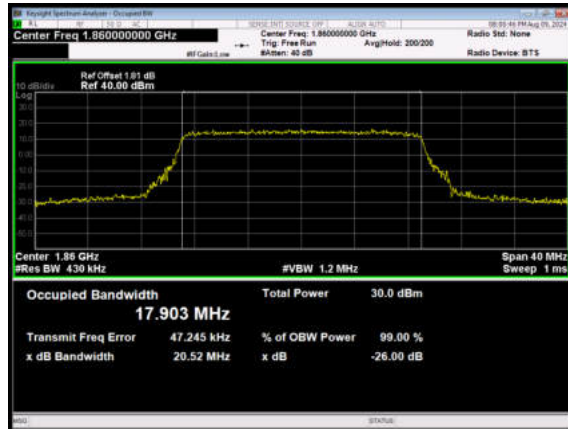
LTE Band 2 10MHz QPSK CH-High



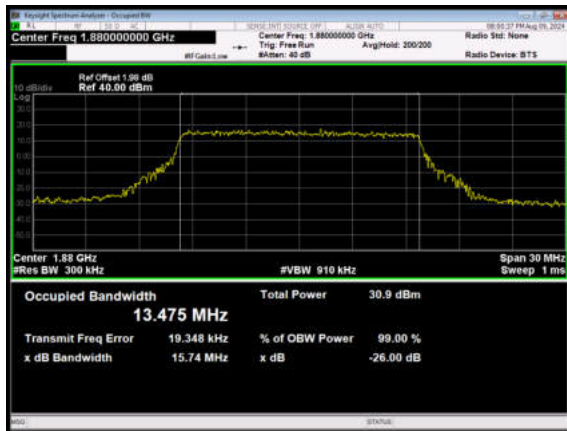
LTE Band 2 15MHz QPSK CH-Low



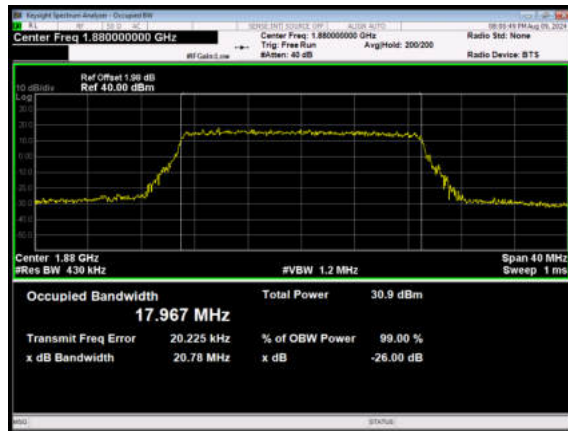
LTE Band 2 20MHz QPSK CH-Low



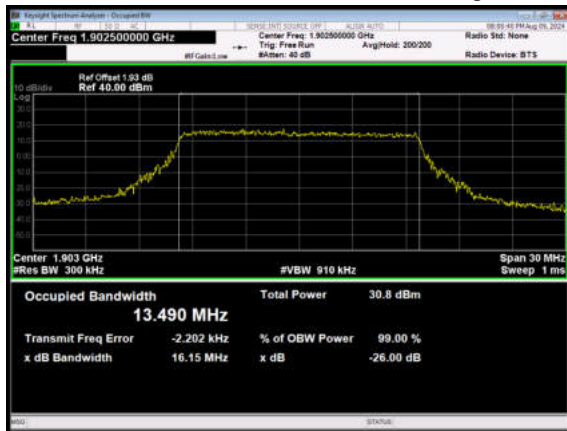
LTE Band 2 15MHz QPSK CH-Middle



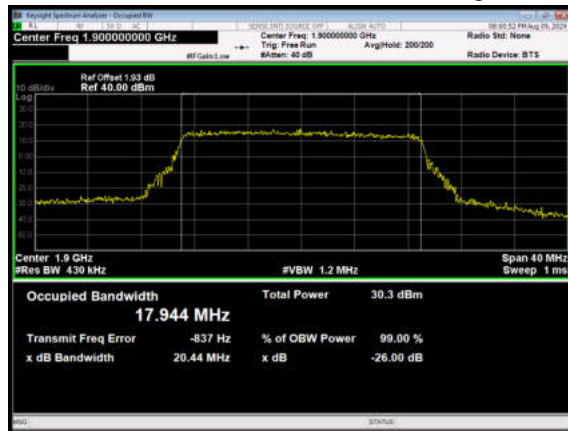
LTE Band 2 20MHz QPSK CH-Middle



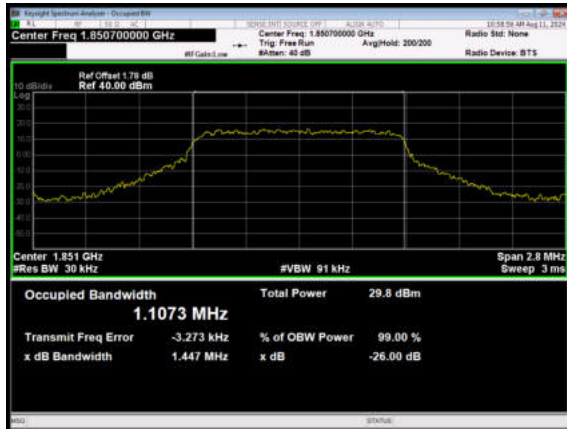
LTE Band 2 15MHz QPSK CH-High



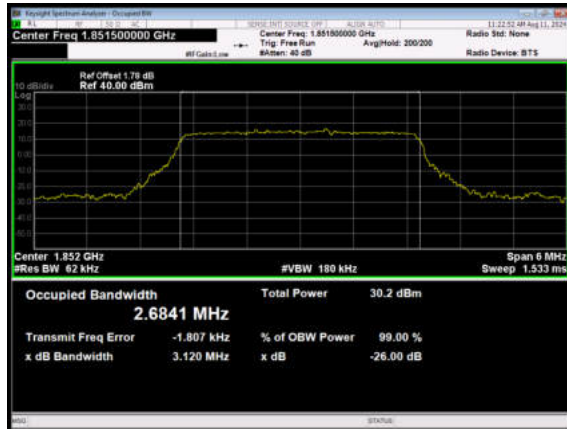
LTE Band 2 20MHz QPSK CH-High



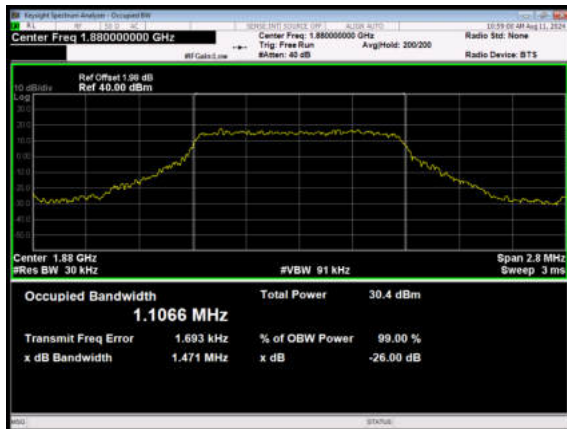
LTE Band 2 1.4MHz 16QAM CH-Low



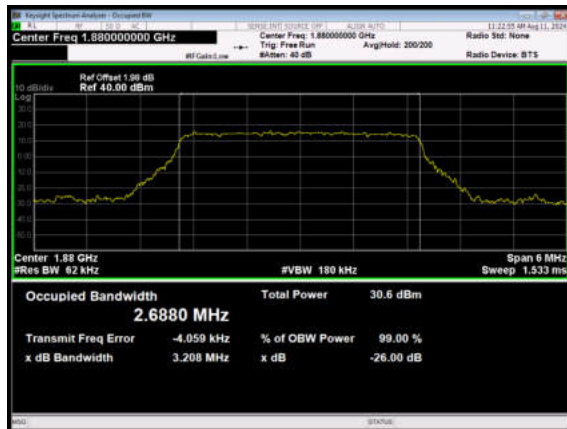
LTE Band 2 3MHz 16QAM CH-Low



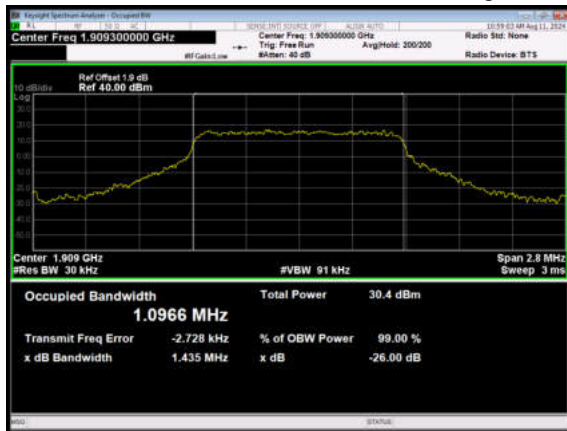
LTE Band 2 1.4MHz 16QAM CH-Middle



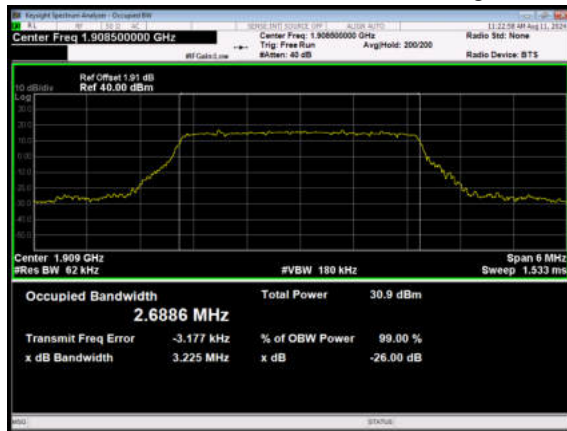
LTE Band 2 3MHz 16QAM CH-Middle



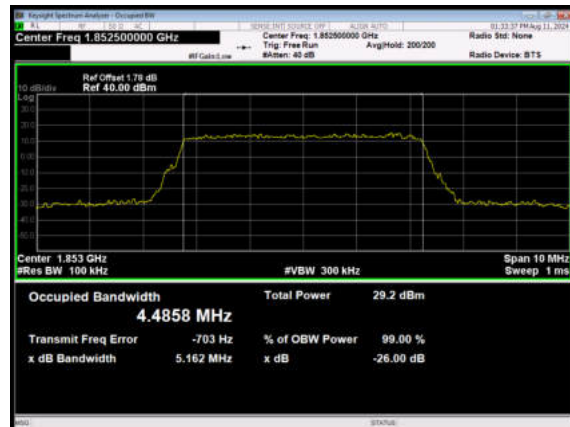
LTE Band 2 1.4MHz 16QAM CH-High



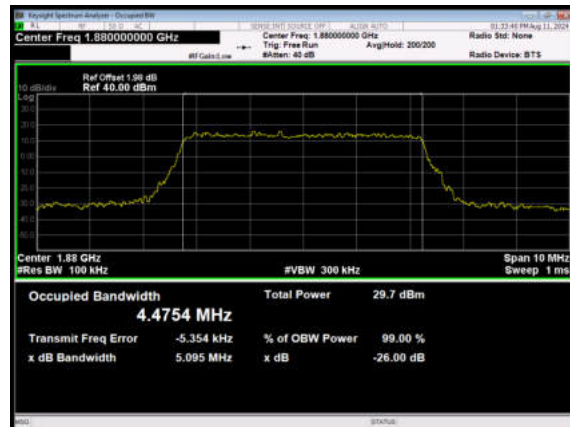
LTE Band 2 3MHz 16QAM CH-High



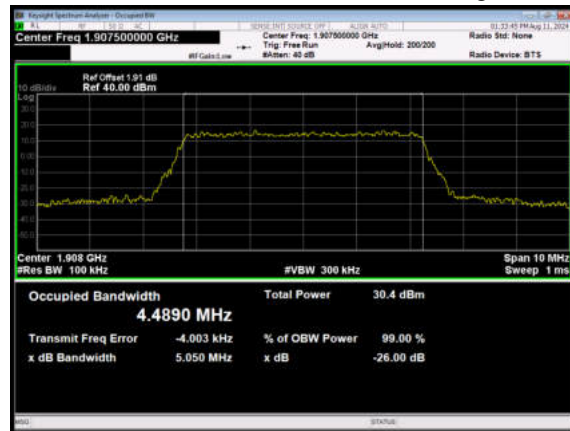
LTE Band 2 5MHz 16QAM CH-Low



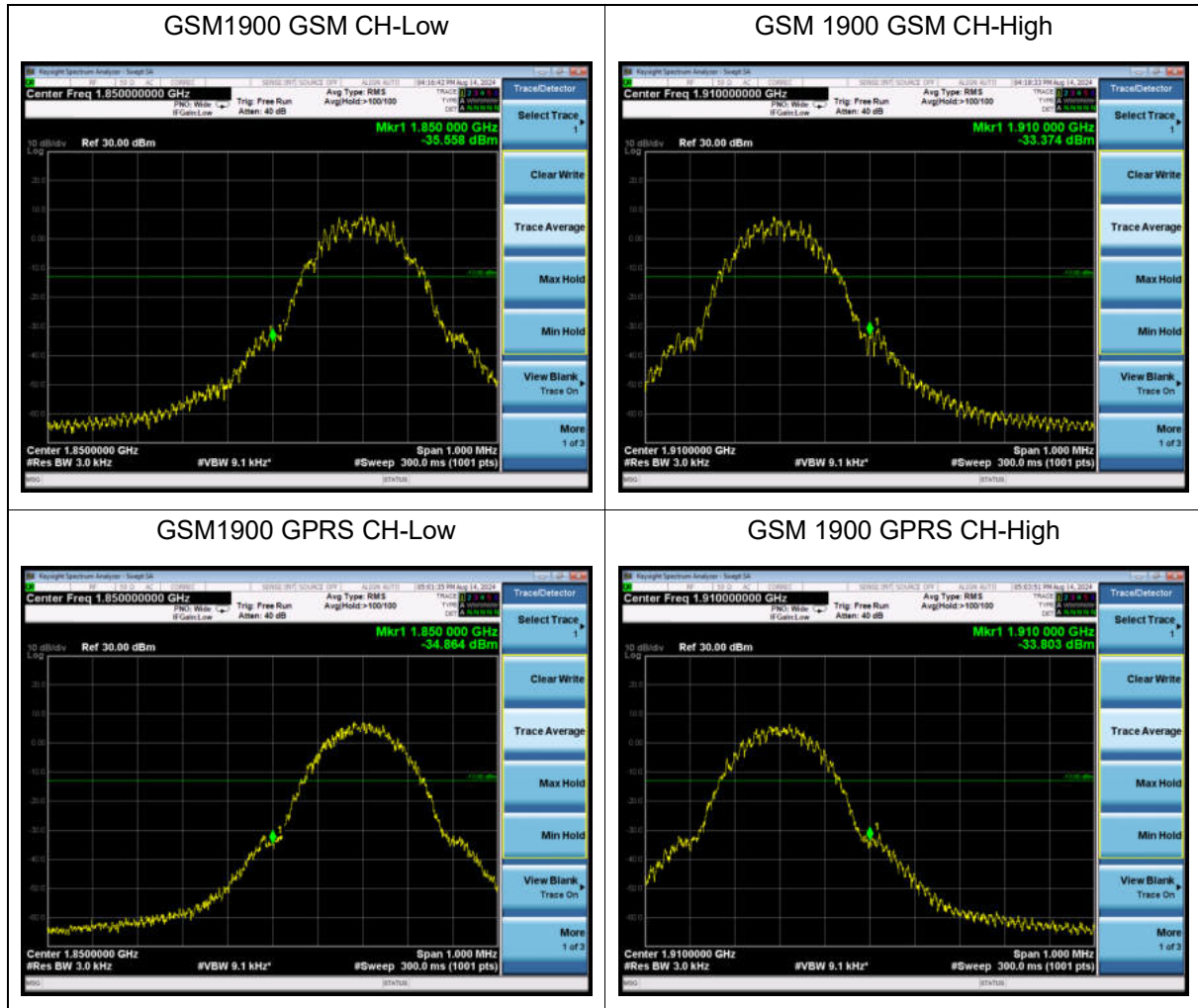
LTE Band 2 5MHz 16QAM CH-Middle



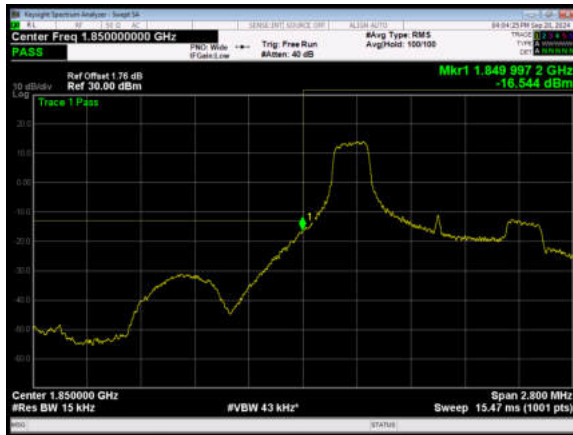
LTE Band 2 5MHz 16QAM CH-High



6.3. Band Edge Compliance



LTE Band 2 1.4MHz QPSK 1RB CH-Low



LTE Band 2 1.4MHz QPSK 1RB CH-High



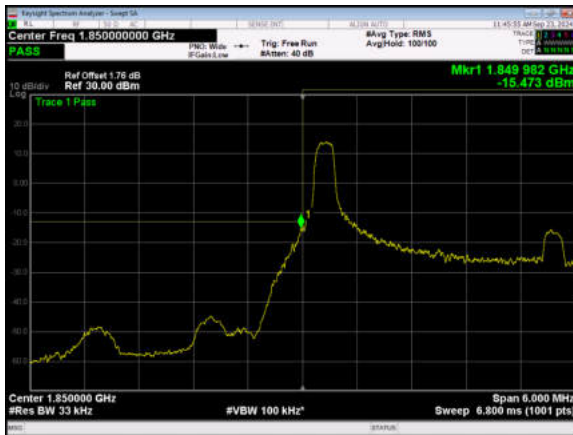
LTE Band 2 1.4MHz QPSK 100%RB CH-Low



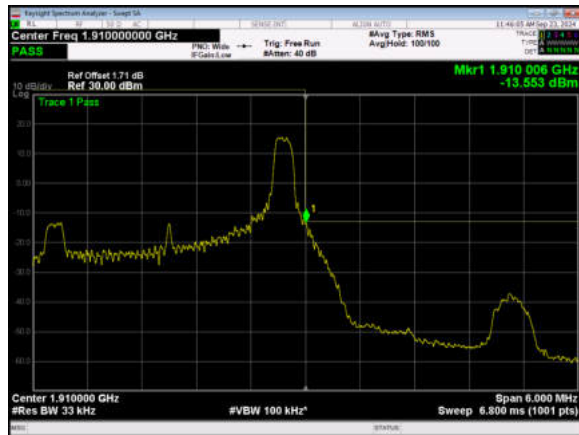
LTE Band 2 1.4MHz QPSK 100%RB CH-High



LTE Band 2 3MHz QPSK 1RB CH-Low



LTE Band 2 3MHz QPSK 1RB CH-High



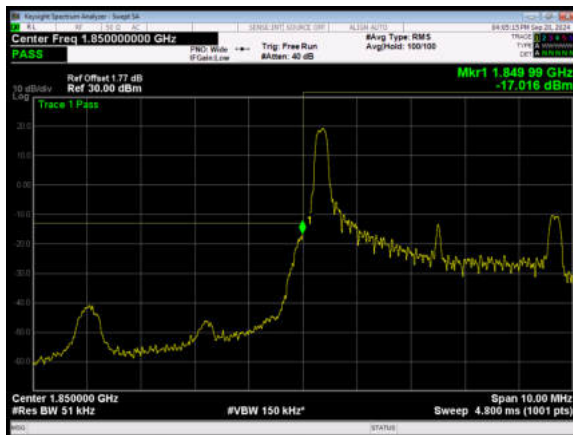
LTE Band 2 3MHz QPSK 100%RB CH-Low



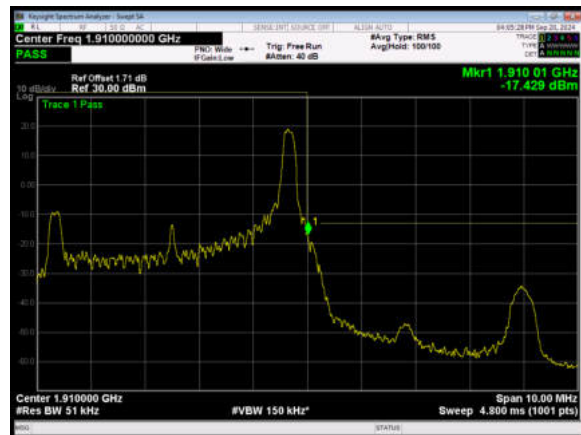
LTE Band 2 3MHz QPSK 100%RB CH-High



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



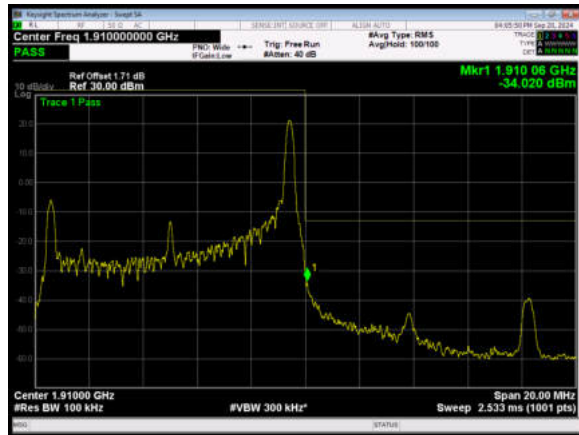
LTE Band 2 5MHz QPSK 100%RB CH-High



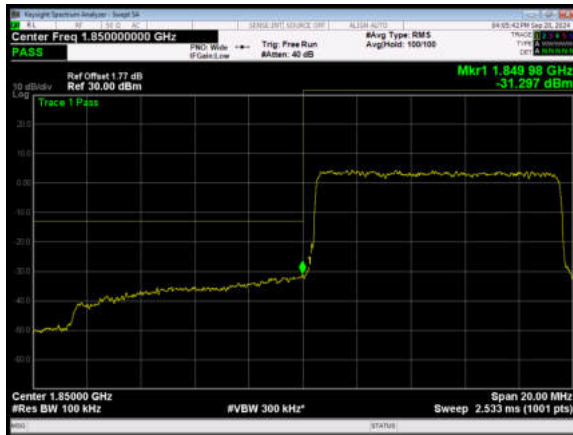
LTE Band 2 10MHz QPSK 1RB CH-Low



LTE Band 2 10MHz QPSK 1RB CH-High



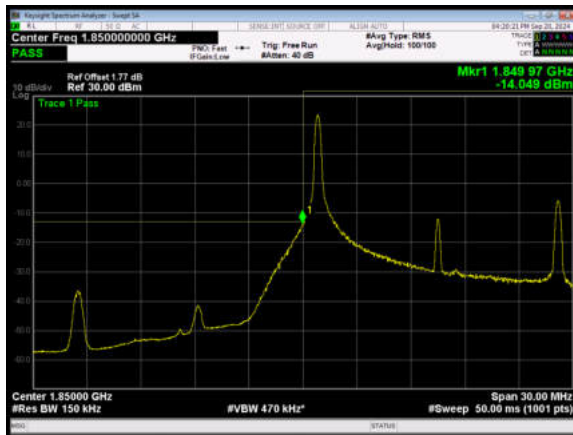
LTE Band 2 10MHz QPSK 100%RB CH-Low



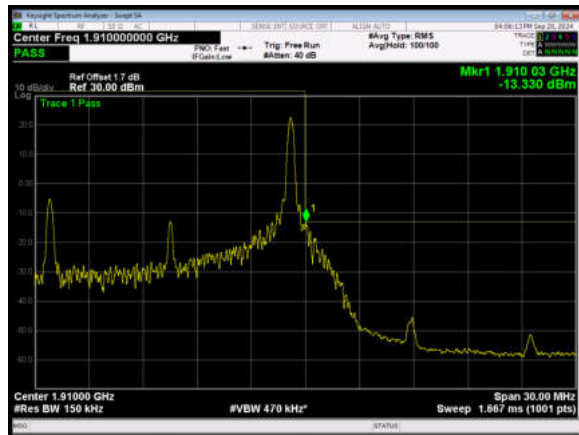
LTE Band 2 10MHz QPSK 100%RB CH-High



LTE Band 2 15MHz QPSK 1RB CH-Low



LTE Band 2 15MHz QPSK 1RB CH-High



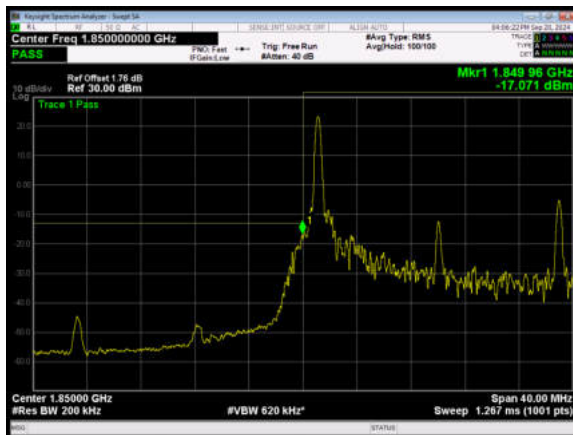
LTE Band 2 15MHz QPSK 100%RB CH-Low



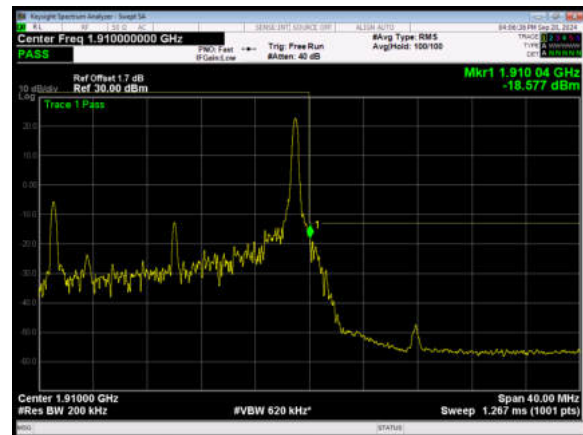
LTE Band 2 15MHz QPSK 100%RB CH-High



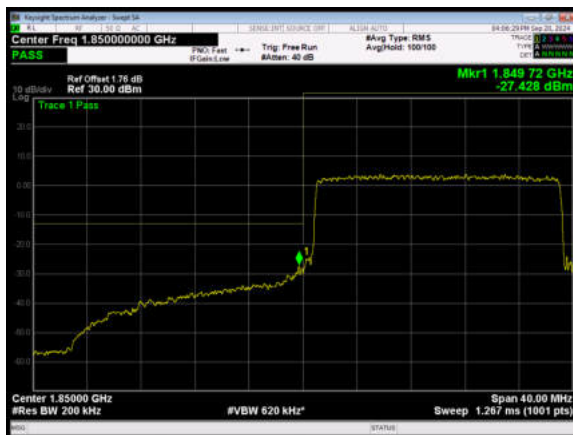
LTE Band 2 20MHz QPSK 1RB CH-Low



LTE Band 2 20MHz QPSK 1RB CH-High



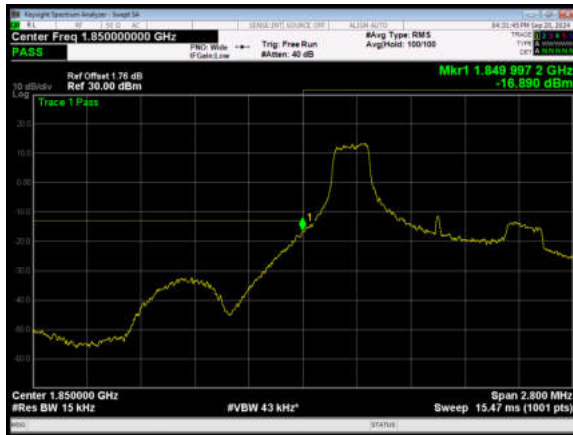
LTE Band 2 20MHz QPSK 100%RB CH-Low



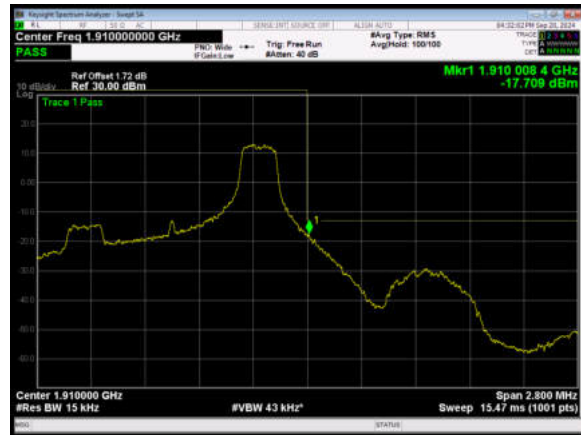
LTE Band 2 20MHz QPSK 100%RB CH-High



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



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



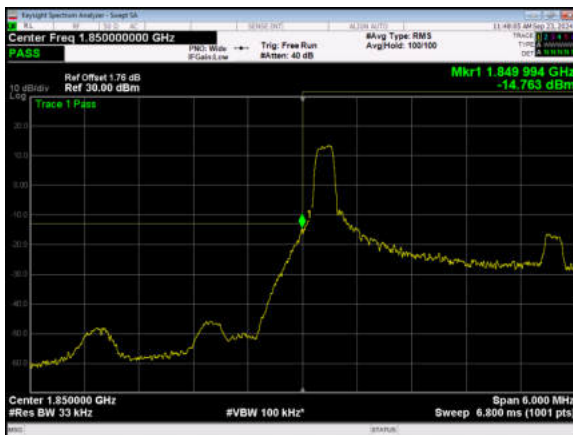
LTE Band 2 1.4MHz 16QAM 100%RB CH-Low



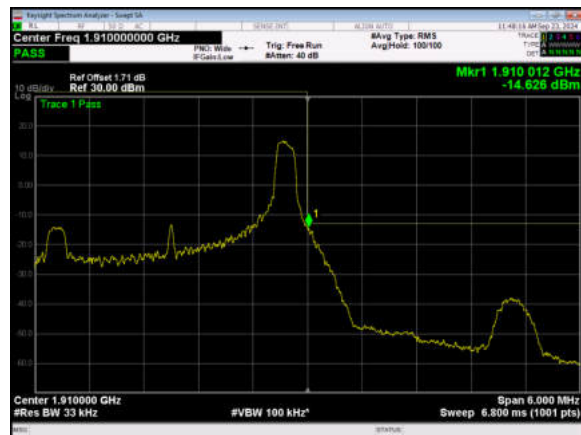
LTE Band 2 1.4MHz 16QAM 100%RB CH-High



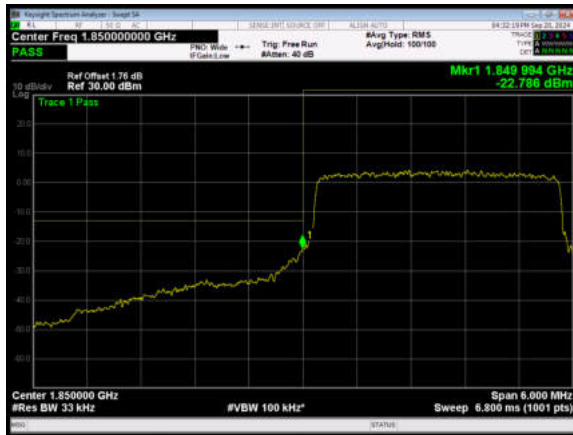
LTE Band 2 3MHz 16QAM 1RB CH-Low



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



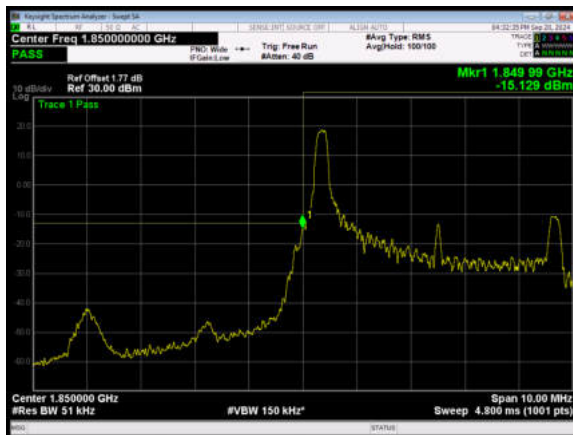
LTE Band 2 3MHz 16QAM 100%RB CH-Low



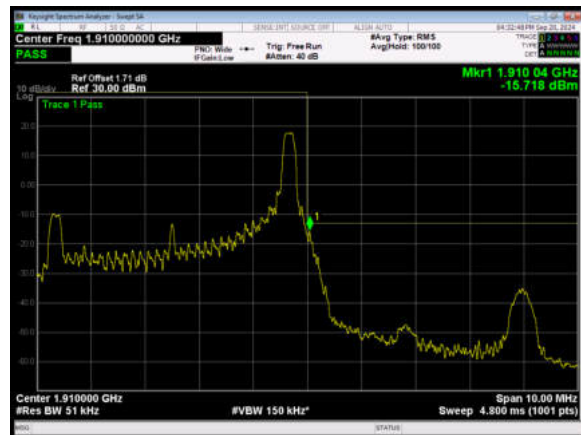
LTE Band 2 3MHz 16QAM 100%RB CH-High



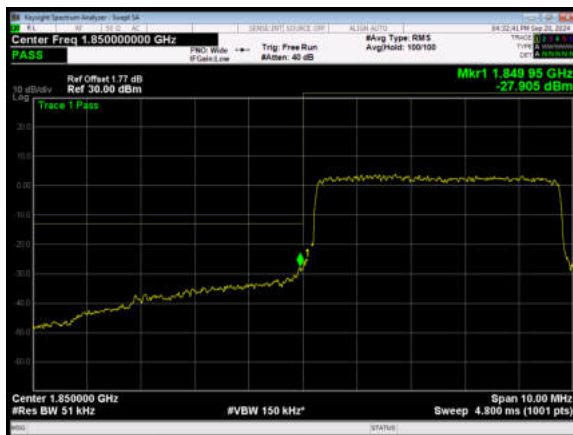
LTE Band 2 5MHz 16QAM 1RB CH-Low



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



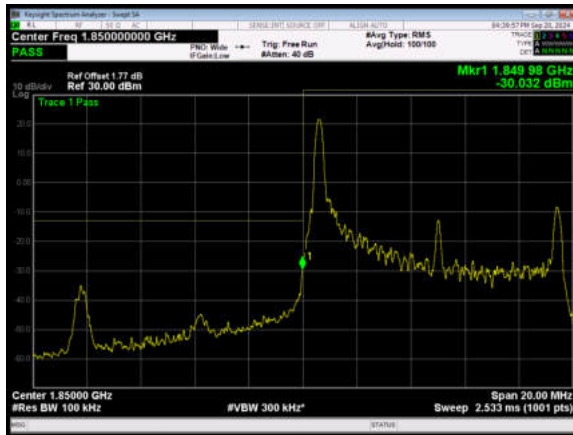
LTE Band 2 5MHz 16QAM 100%RB CH-Low



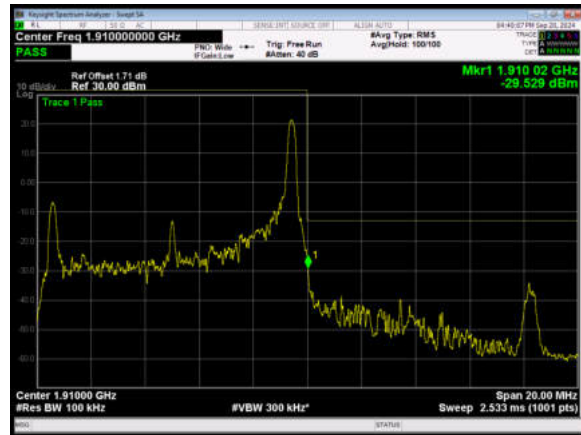
LTE Band 2 5MHz 16QAM 100%RB CH-High



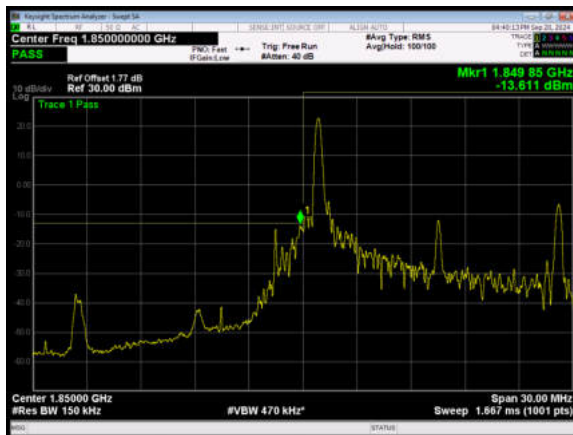
LTE Band 2 10MHz 16QAM 1RB CH-Low



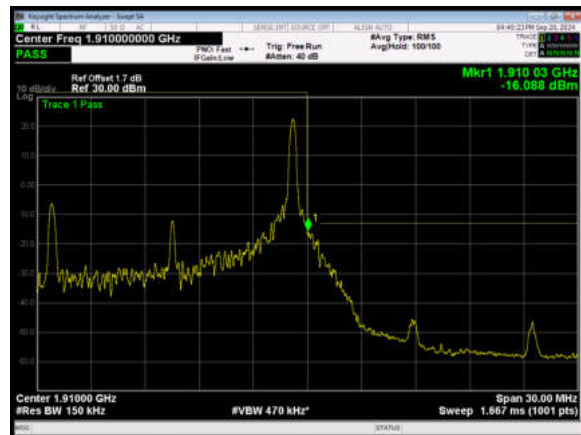
LTE Band 2 10MHz 16QAM 1RB CH-High



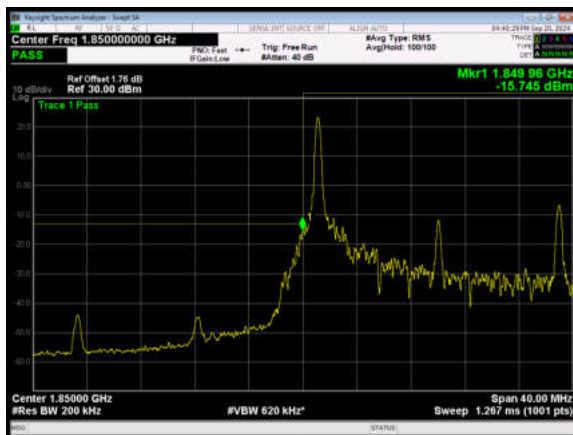
LTE Band 2 15MHz 16QAM 1RB CH-Low



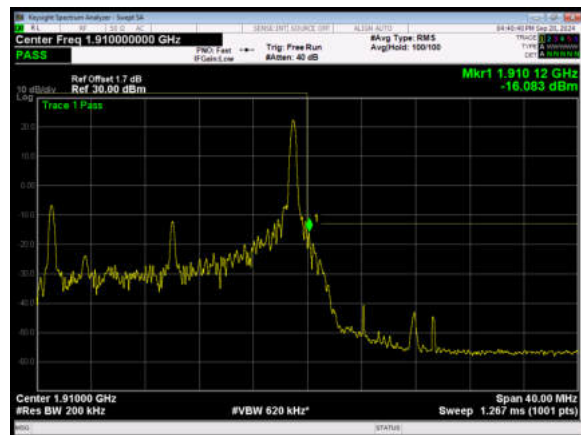
LTE Band 2 15MHz 16QAM 1RB CH-High



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



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

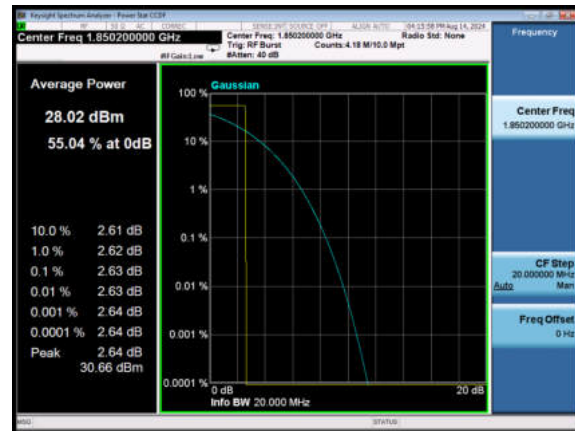


6.4. Peak-to-Average Power Ratio (PAPR)

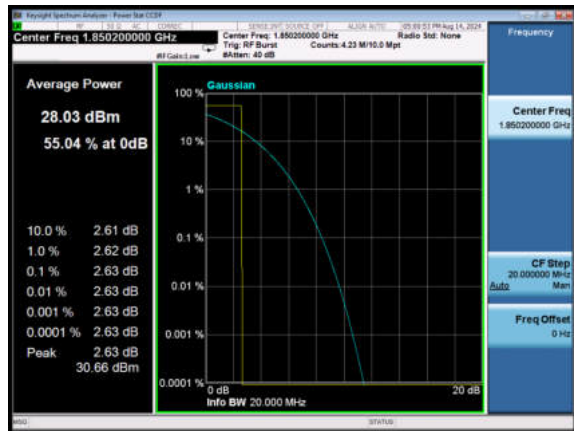
Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Limit(dB)	Conclusion
GSM 1900 (GMSK)	512	1850.2	30.65	28.02	2.63	≤13	PASS
	661	1880	30.22	27.59	2.63	≤13	PASS
	810	1909.8	29.93	27.31	2.62	≤13	PASS
GPRS 1900 (GMSK)	512	1850.2	30.66	28.03	2.63	≤13	PASS
	661	1880	30.26	27.61	2.65	≤13	PASS
	810	1909.8	30.07	27.44	2.63	≤13	PASS

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Result (dB)	High Limit (dB)	Verdict
LTE Band2	1.4	18607	6	#0	QPSK	5.75	13	PASS
LTE Band2	1.4	18900	6	#0	QPSK	5.68	13	PASS
LTE Band2	1.4	19193	6	#0	QPSK	5.45	13	PASS
LTE Band2	3	18615	15	#0	QPSK	5.77	13	PASS
LTE Band2	3	18900	15	#0	QPSK	5.63	13	PASS
LTE Band2	3	19185	15	#0	QPSK	5.52	13	PASS
LTE Band2	5	18625	25	#0	QPSK	5.87	13	PASS
LTE Band2	5	18900	25	#0	QPSK	5.83	13	PASS
LTE Band2	5	19175	25	#0	QPSK	5.74	13	PASS
LTE Band2	10	18650	50	#0	QPSK	5.88	13	PASS
LTE Band2	10	18900	50	#0	QPSK	5.81	13	PASS
LTE Band2	10	19150	50	#0	QPSK	5.73	13	PASS
LTE Band2	15	18675	75	#0	QPSK	6.23	13	PASS
LTE Band2	15	18900	75	#0	QPSK	6.15	13	PASS
LTE Band2	15	19125	75	#0	QPSK	6.09	13	PASS
LTE Band2	20	18700	100	#0	QPSK	5.65	13	PASS
LTE Band2	20	18900	100	#0	QPSK	5.7	13	PASS
LTE Band2	20	19100	100	#0	QPSK	5.64	13	PASS
LTE Band2	1.4	18607	6	#0	16QAM	6.48	13	PASS
LTE Band2	1.4	18900	6	#0	16QAM	6.43	13	PASS
LTE Band2	1.4	19193	6	#0	16QAM	6.35	13	PASS
LTE Band2	3	18615	15	#0	16QAM	6.46	13	PASS
LTE Band2	3	18900	15	#0	16QAM	6.56	13	PASS
LTE Band2	3	19185	15	#0	16QAM	6.35	13	PASS
LTE Band2	5	18625	25	#0	16QAM	6.38	13	PASS
LTE Band2	5	18900	25	#0	16QAM	6.26	13	PASS
LTE Band2	5	19175	25	#0	16QAM	6.41	13	PASS

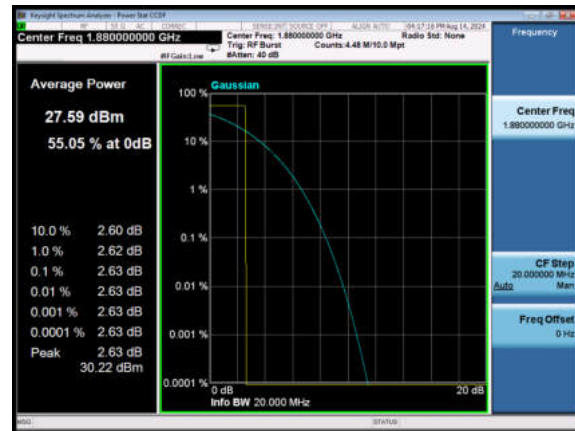
GSM1900 GSM CH-Low



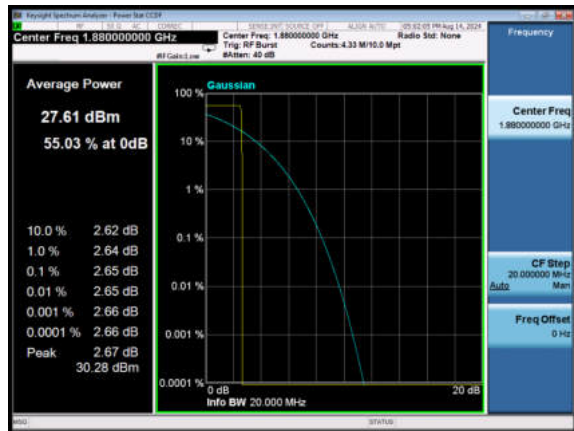
GSM1900 GPRS CH-Low



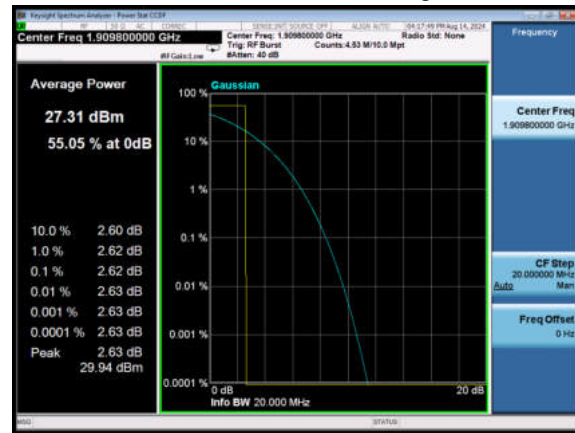
GSM 1900 GSM CH-Middle



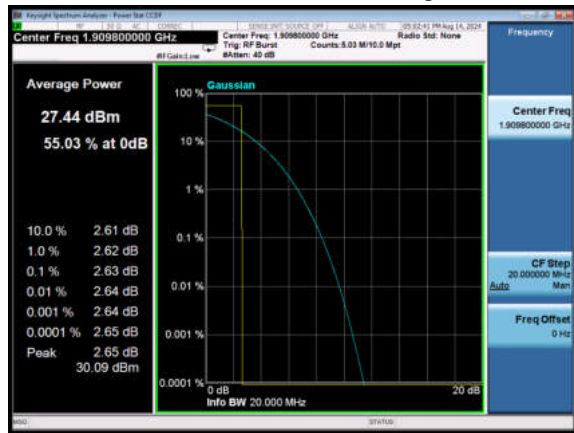
GSM 1900 GPRS CH-Middle



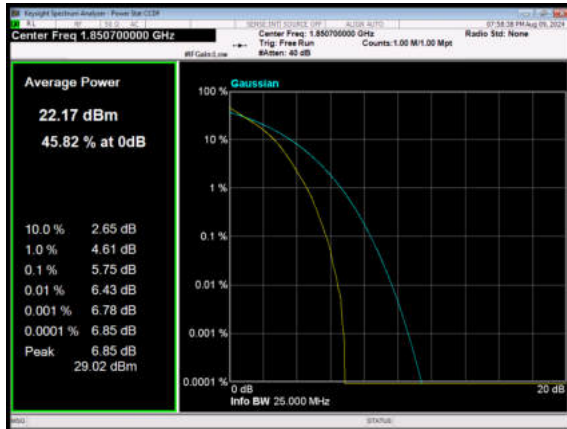
GSM 1900 GSM CH-High



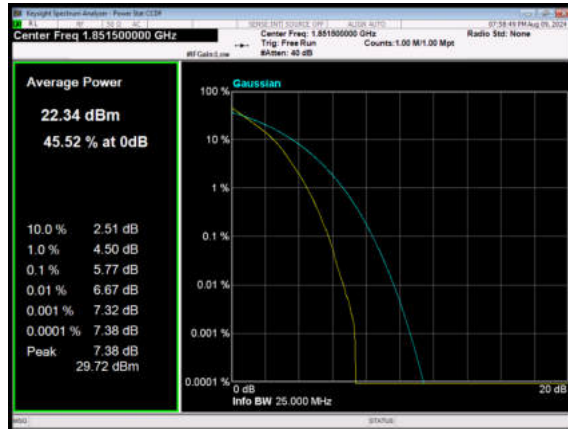
GSM 1900 GPRS CH-High



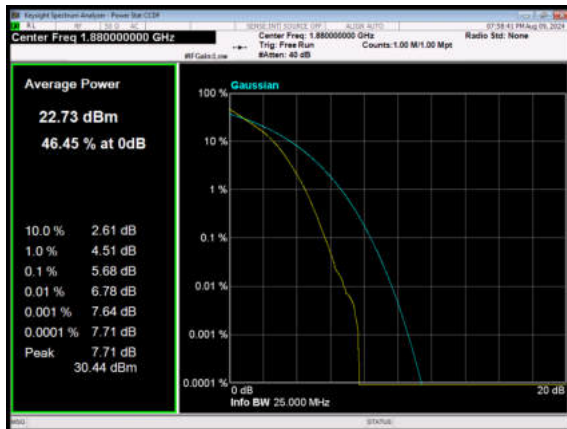
LTE Band 2 1.4MHz QPSK CH-Low



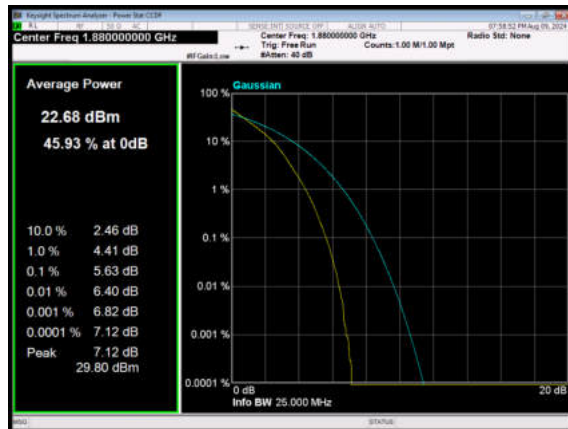
LTE Band 2 3MHz QPSK CH-Low



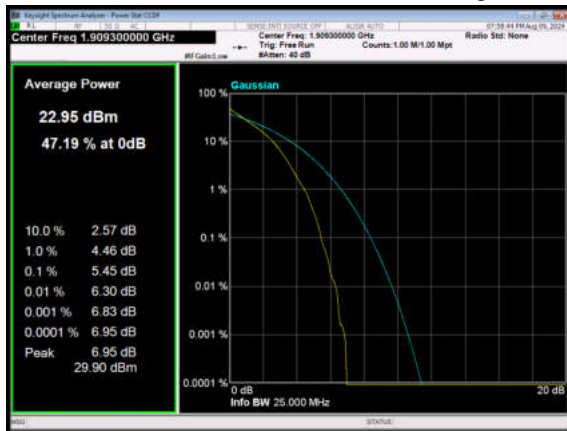
LTE Band 2 1.4MHz QPSK CH-Middle



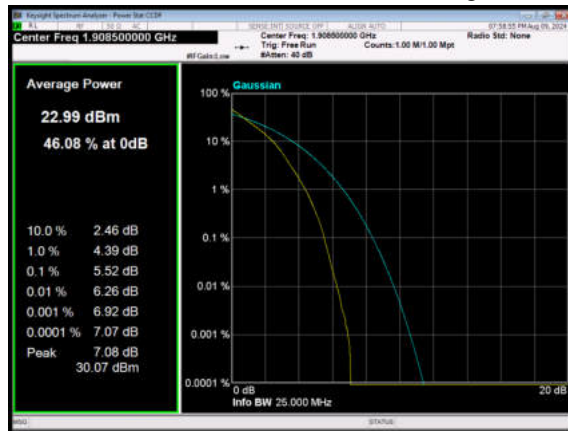
LTE Band 2 3MHz QPSK CH-Middle



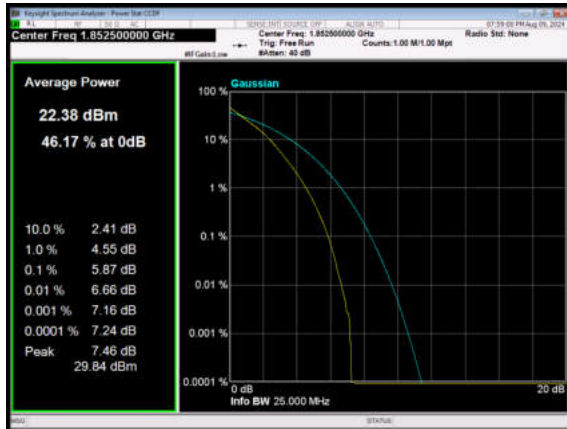
LTE Band 2 1.4MHz QPSK CH-High



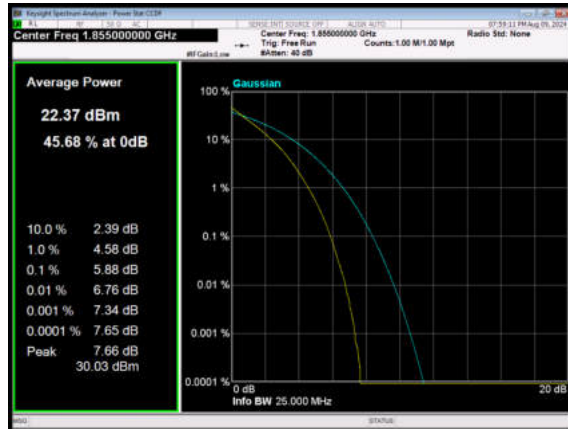
LTE Band 2 3MHz QPSK CH-High



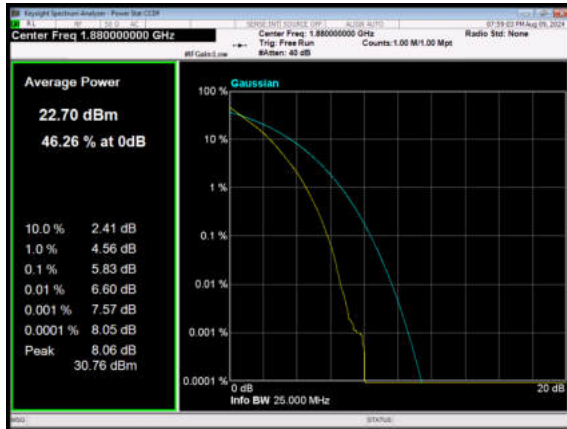
LTE Band 2 5MHz QPSK CH-Low



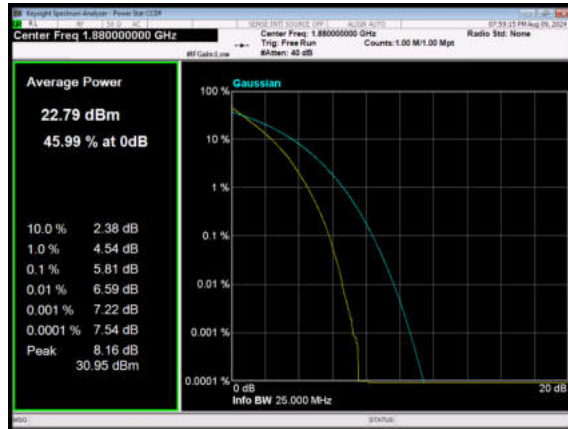
LTE Band 2 10MHz QPSK CH-Low



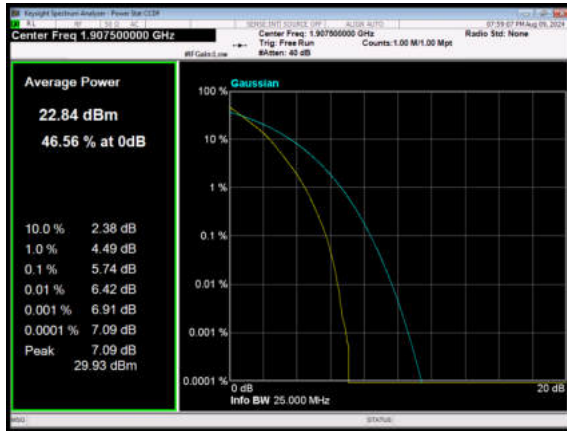
LTE Band 2 5MHz QPSK CH-Middle



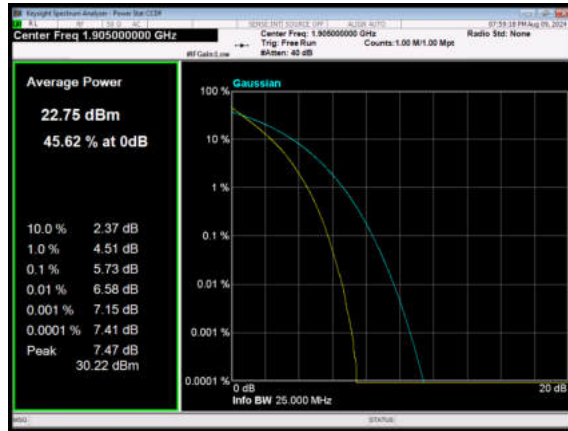
LTE Band 2 10MHz QPSK CH-Middle



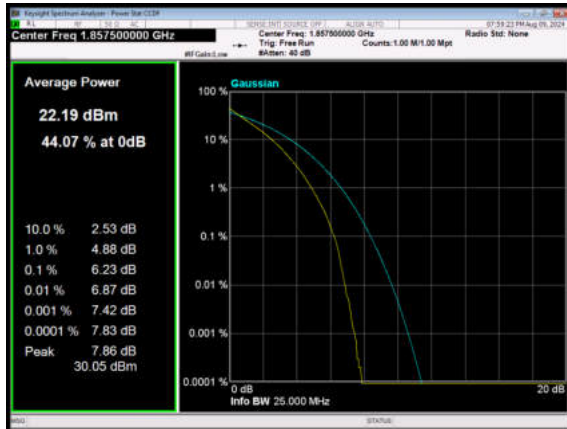
LTE Band 2 5MHz QPSK CH-High



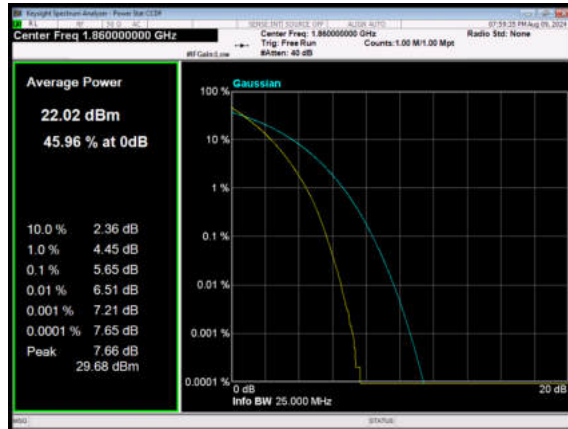
LTE Band 2 10MHz QPSK CH-High



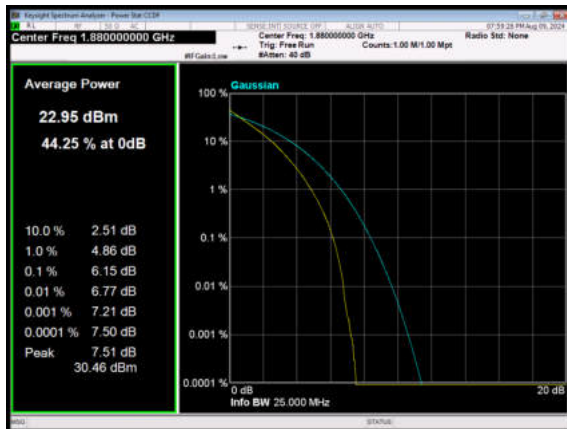
LTE Band 2 15MHz QPSK CH-Low



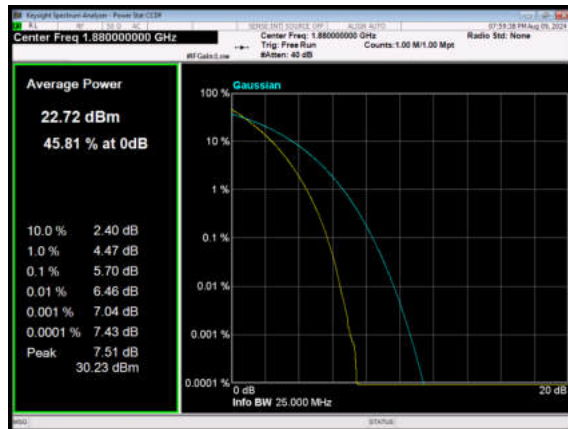
LTE Band 2 20MHz QPSK CH-Low



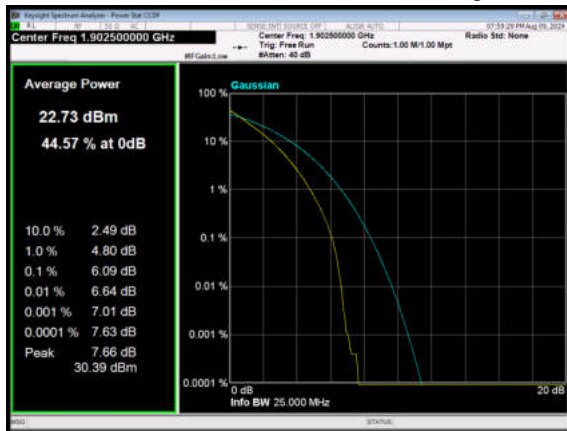
LTE Band 2 15MHz QPSK CH-Middle



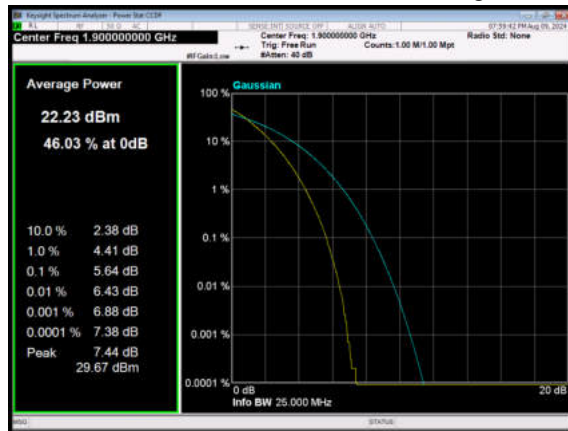
LTE Band 2 20MHz QPSK CH-Middle



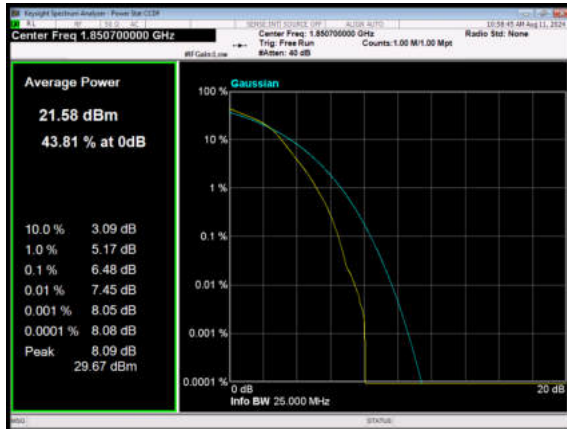
LTE Band 2 15MHz QPSK CH-High



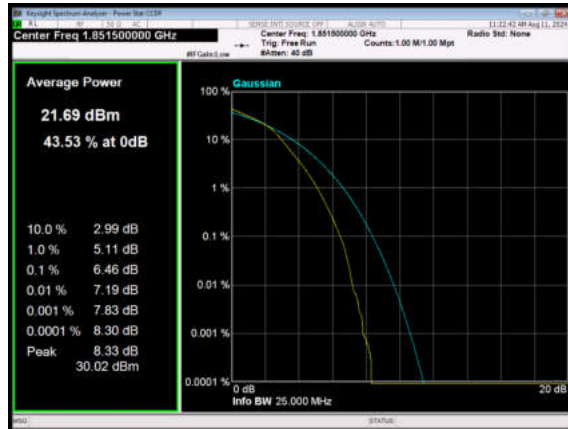
LTE Band 2 20MHz QPSK CH-High



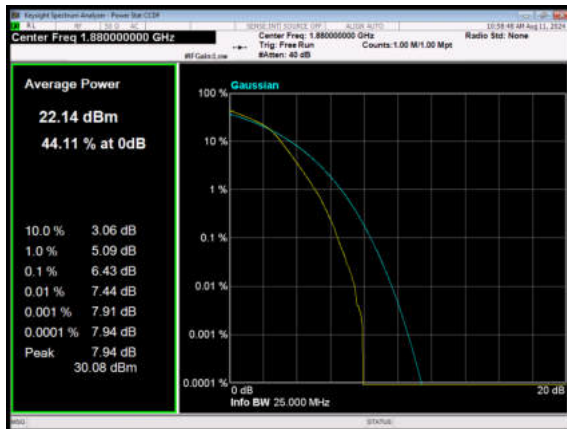
LTE Band 2 1.4MHz 16QAM CH-Low



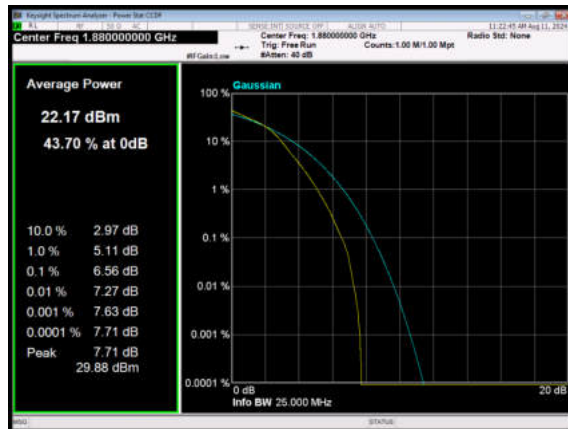
LTE Band 2 3MHz 16QAM CH-Low



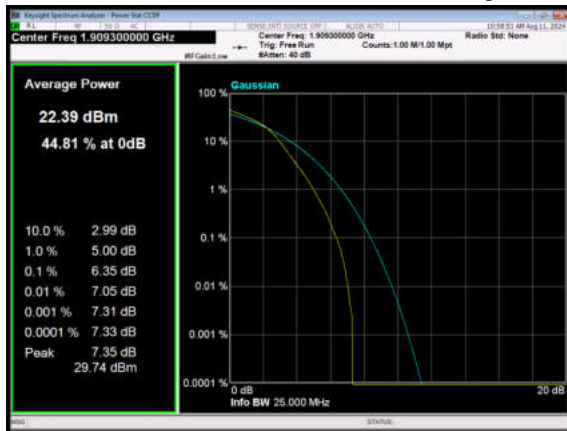
LTE Band 2 1.4MHz 16QAM CH-Middle



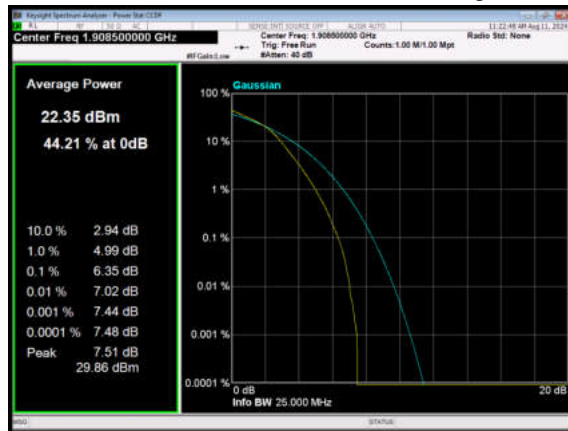
LTE Band 2 3MHz 16QAM CH-Middle

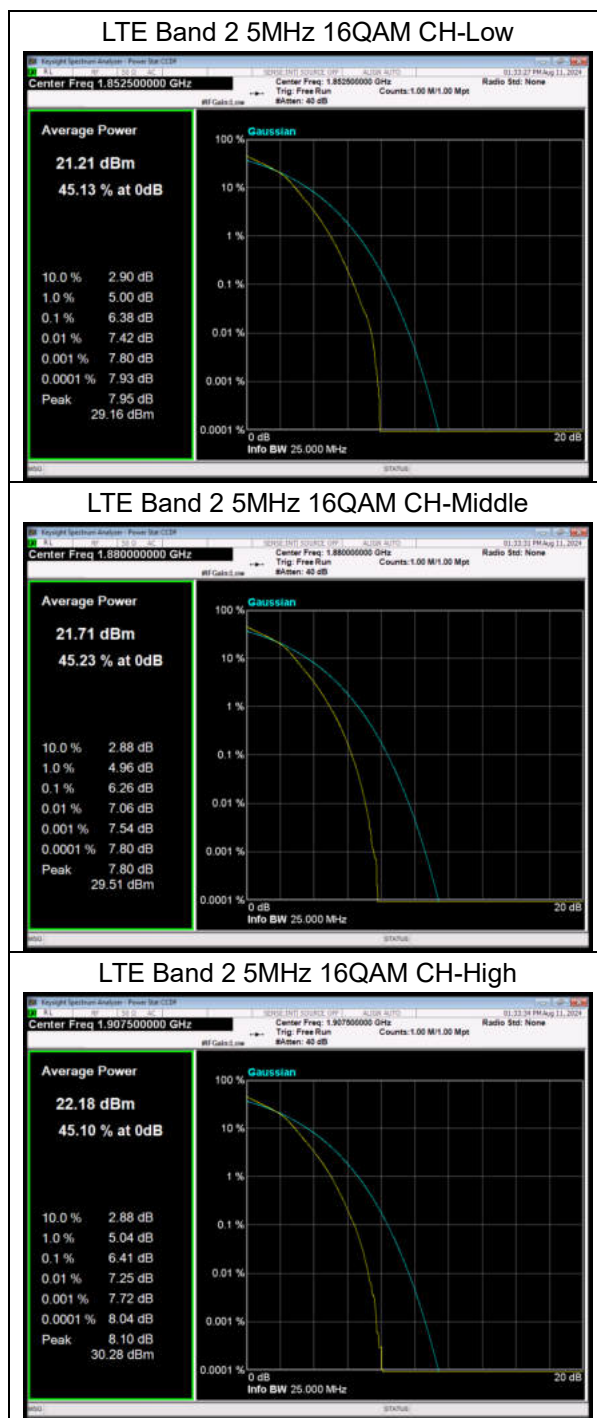


LTE Band 2 1.4MHz 16QAM CH-High



LTE Band 2 3MHz 16QAM CH-High





6.5.Frequency Stability

GSM1900	Condition		Freq.Error (Hz)	Frequency Stability (ppm)	Verdict
	Temperature	Voltage	GMSK	GMSK	
	Normal (25℃)	Normal	12.49	0.00664	PASS
	Extreme (50℃)		8.51	0.00453	PASS
	Extreme (40℃)		9.26	0.00493	PASS
	Extreme (30℃)		10.79	0.00574	PASS
	Extreme (20℃)		5.13	0.00273	PASS
	Extreme (10℃)		12.75	0.00678	PASS
	Extreme (0℃)		2.15	0.00114	PASS
	Extreme (-10℃)		8.09	0.00430	PASS
	Extreme (-20℃)		9.88	0.00525	PASS
	Extreme (-30℃)		1.47	0.00078	PASS
	25℃	LV	10.13	0.00539	PASS
		HV	7.41	0.00394	PASS

LTE Band 2	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	1.4MHz					
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	1.03	12.07	0.00055	0.00642	PASS
	Extreme (50℃)		14.93	8.00	0.00794	0.00426	PASS
	Extreme (40℃)		8.58	12.88	0.00456	0.00685	PASS
	Extreme (30℃)		6.25	5.60	0.00333	0.00298	PASS
	Extreme (20℃)		5.48	3.36	0.00291	0.00179	PASS
	Extreme (10℃)		11.77	17.77	0.00626	0.00945	PASS
	Extreme (0℃)		4.24	13.86	0.00225	0.00737	PASS
	Extreme (-10℃)		12.02	4.09	0.00639	0.00217	PASS
	Extreme (-20℃)		7.55	6.67	0.00402	0.00355	PASS
	Extreme (-30℃)		9.51	6.39	0.00506	0.00340	PASS
	25℃	LV	3.01	7.54	0.00160	0.00401	PASS
		HV	4.26	11.13	0.00227	0.00592	PASS

LTE Band 2	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	3MHz					
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	4.59	5.04	0.00244	0.00268	PASS
	Extreme (50℃)		11.65	8.42	0.00620	0.00448	PASS

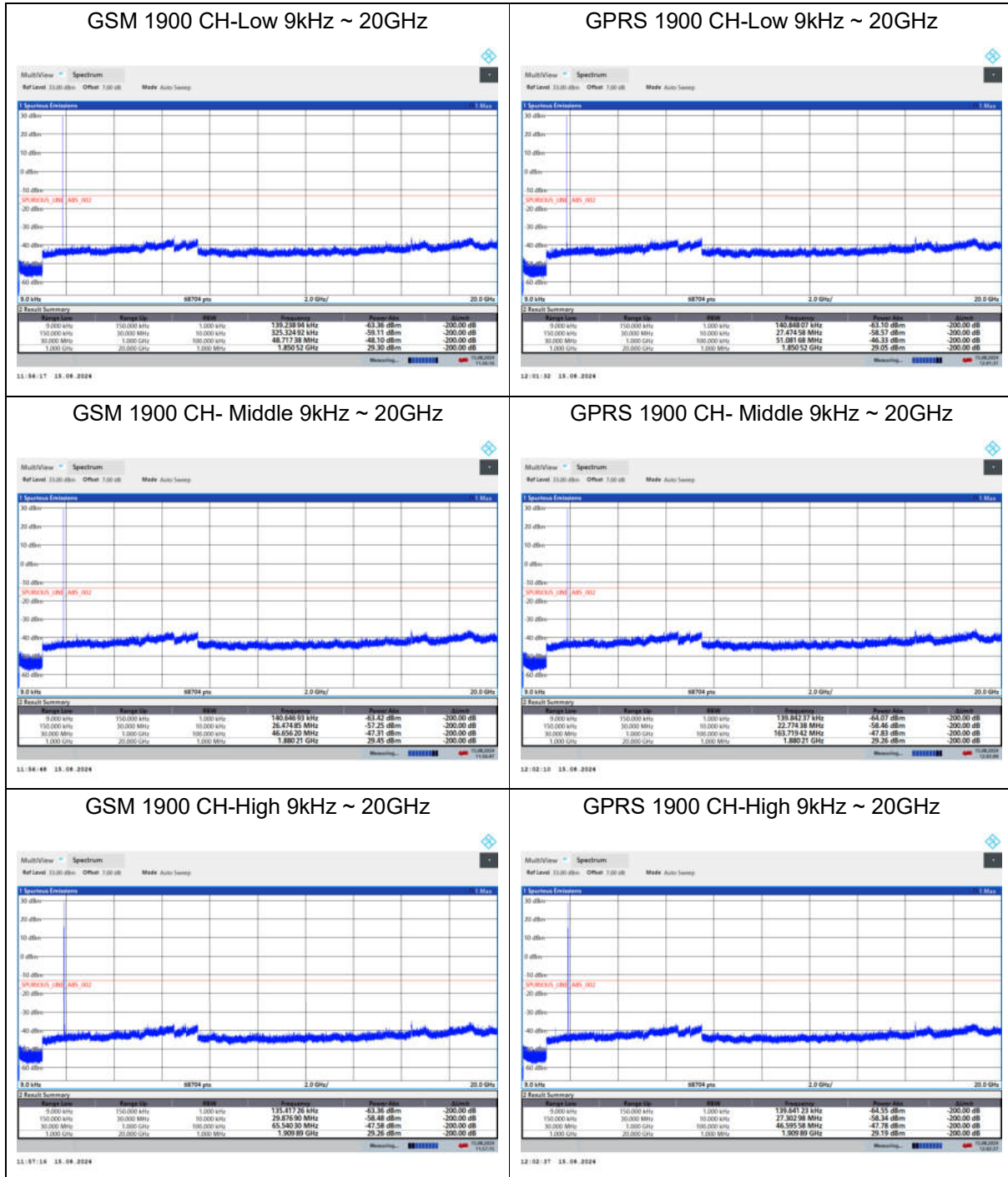
	Extreme (40℃)		4.68	10.19	0.00249	0.00542	PASS
	Extreme (30℃)		1.07	17.66	0.00057	0.00939	PASS
	Extreme (20℃)		12.73	6.42	0.00677	0.00341	PASS
	Extreme (10℃)		6.53	11.86	0.00348	0.00631	PASS
	Extreme (0℃)		4.54	11.87	0.00241	0.00631	PASS
	Extreme (-10℃)		8.12	13.31	0.00432	0.00708	PASS
	Extreme (-20℃)		15.57	6.94	0.00828	0.00369	PASS
	Extreme (-30℃)		14.65	11.45	0.00779	0.00609	PASS
	25℃	LV	2.32	1.41	0.00124	0.00075	PASS
		HV	3.70	16.10	0.00197	0.00856	PASS
LTE Band 2	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	5MHz					
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	17.50	13.47	0.00931	0.00716	PASS
	Extreme (50℃)		1.76	9.90	0.00093	0.00526	PASS
	Extreme (40℃)		14.48	11.44	0.00770	0.00609	PASS
	Extreme (30℃)		10.67	9.32	0.00568	0.00496	PASS
	Extreme (20℃)		2.32	6.88	0.00123	0.00366	PASS
	Extreme (10℃)		5.91	9.90	0.00314	0.00527	PASS
	Extreme (0℃)		12.36	17.97	0.00658	0.00956	PASS
	Extreme (-10℃)		6.60	4.83	0.00351	0.00257	PASS
	Extreme (-20℃)		9.40	15.64	0.00500	0.00832	PASS
	Extreme (-30℃)		2.94	12.93	0.00156	0.00688	PASS
	25℃	LV	4.63	13.69	0.00246	0.00728	PASS
		HV	6.80	16.72	0.00362	0.00889	PASS
LTE Band 2	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	12.67	6.15	0.00674	0.00327	PASS
	Extreme (50℃)		14.56	13.82	0.00774	0.00735	PASS
	Extreme (40℃)		5.77	7.51	0.00307	0.00400	PASS
	Extreme (30℃)		2.39	9.37	0.00127	0.00498	PASS
	Extreme (20℃)		5.50	10.72	0.00292	0.00570	PASS
	Extreme (10℃)		6.58	3.65	0.00350	0.00194	PASS
	Extreme (0℃)		9.00	10.24	0.00479	0.00545	PASS
	Extreme (-10℃)		2.84	4.67	0.00151	0.00248	PASS
	Extreme (-20℃)		14.79	3.76	0.00787	0.00200	PASS
	Extreme (-30℃)		7.67	9.92	0.00408	0.00528	PASS
	25℃	LV	17.24	12.75	0.00917	0.00678	PASS

		HV	10.90	9.17	0.00580	0.00488	PASS
LTE Band 2	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	15MHz					
	Temperature	Voltage					
	Normal (25℃)	Normal	16QAM	QPSK	16QAM	QPSK	PASS
	Extreme (50℃)		15.01	14.88	0.00798	0.00791	PASS
	Extreme (40℃)		6.57	5.62	0.00350	0.00299	PASS
	Extreme (30℃)		12.33	8.33	0.00656	0.00443	PASS
	Extreme (20℃)		8.53	1.89	0.00454	0.00101	PASS
	Extreme (20℃)		11.86	17.54	0.00631	0.00933	PASS
	Extreme (10℃)		10.92	14.06	0.00581	0.00748	PASS
	Extreme (0℃)		11.92	6.41	0.00634	0.00341	PASS
	Extreme (-10℃)		4.34	13.59	0.00231	0.00723	PASS
	Extreme (-20℃)		15.74	11.08	0.00837	0.00589	PASS
	Extreme (-30℃)		5.96	4.40	0.00317	0.00234	PASS
	25℃	LV	5.51	6.64	0.00293	0.00353	PASS
		HV	15.22	11.77	0.00809	0.00626	PASS
LTE Band 2	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	20MHz					
	Temperature	Voltage					
	Normal (25℃)	Normal	16QAM	QPSK	16QAM	QPSK	PASS
	Extreme (50℃)		11.44	9.69	0.00608	0.00515	PASS
	Extreme (40℃)		17.36	4.15	0.00923	0.00221	PASS
	Extreme (30℃)		10.09	12.65	0.00537	0.00673	PASS
	Extreme (20℃)		2.36	13.67	0.00125	0.00727	PASS
	Extreme (20℃)		9.97	8.34	0.00531	0.00444	PASS
	Extreme (10℃)		6.82	4.38	0.00363	0.00233	PASS
	Extreme (0℃)		4.12	11.13	0.00219	0.00592	PASS
	Extreme (-10℃)		6.11	9.32	0.00325	0.00496	PASS
	Extreme (-20℃)		6.02	7.62	0.00320	0.00406	PASS
	Extreme (-30℃)		8.45	17.30	0.00449	0.00920	PASS
	25℃	LV	9.22	11.01	0.00490	0.00586	PASS
		HV	4.55	6.43	0.00242	0.00342	PASS

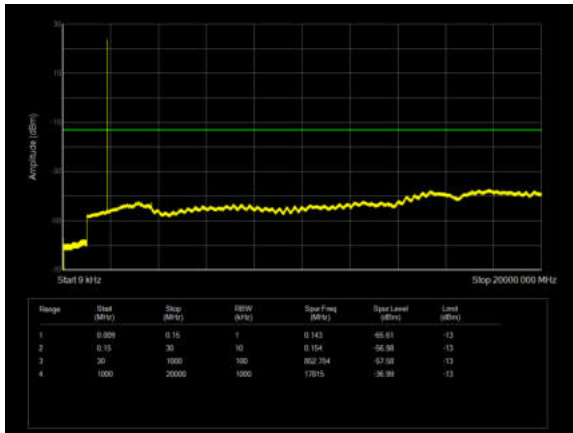
6.6. Spurious Emissions at Antenna Terminals

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.

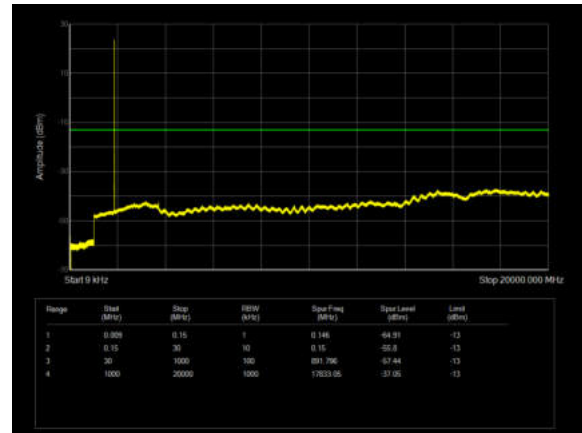
The signal beyond the limit is carrier.



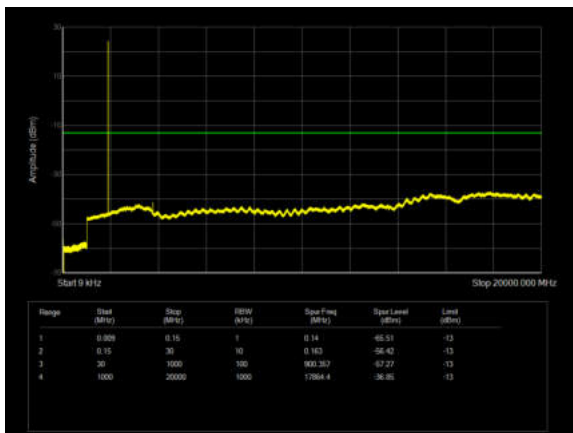
LTE Band 2 1.4MHz CH-Low 9kHz~20GHz



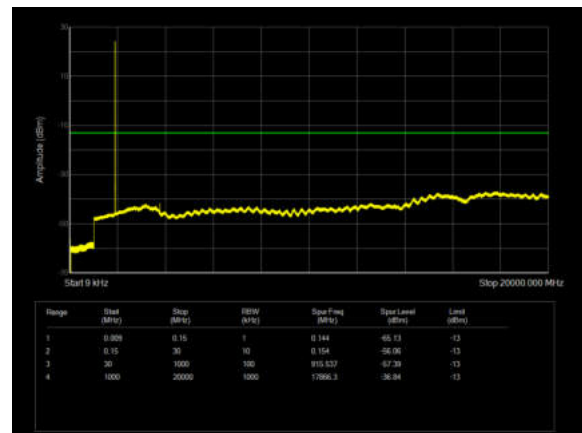
LTE Band 2 3MHz CH-Low 9kHz~20GHz



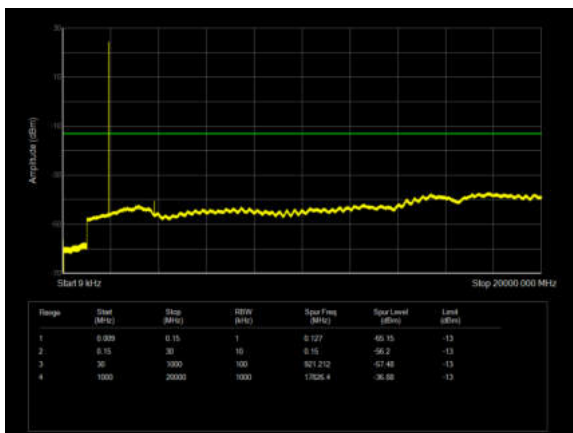
LTE Band 2 1.4MHz CH-Middle 9kHz~20GHz



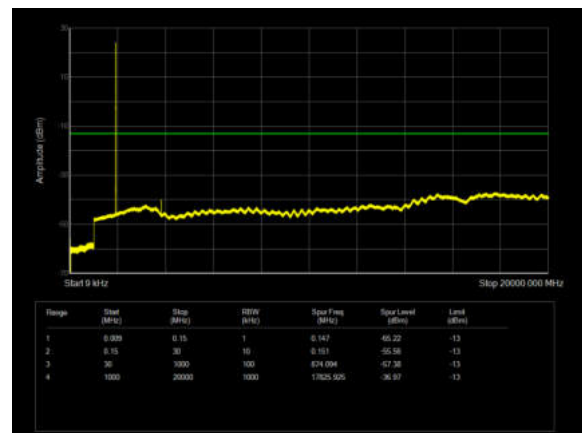
LTE Band 2 3MHz CH-Middle 9kHz~20GHz



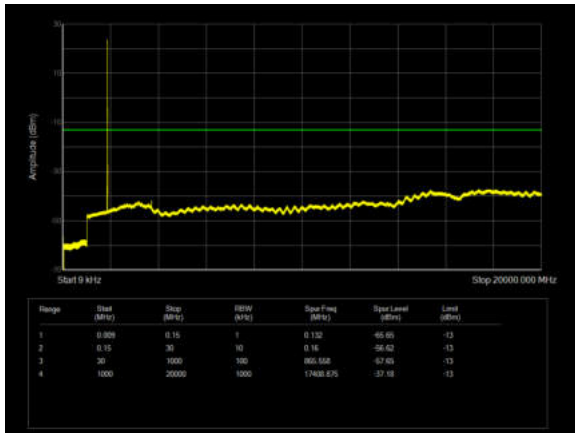
LTE Band 2 1.4MHz CH-High 9kHz~20GHz



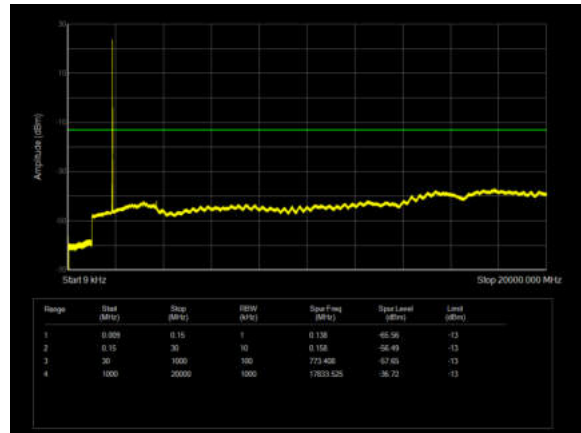
LTE Band 2 3MHz CH-High 9kHz~20GHz



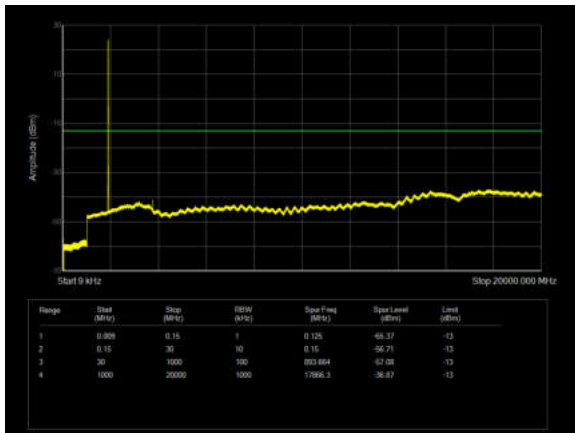
LTE Band 2 5MHz CH-Low 9kHz~20GHz



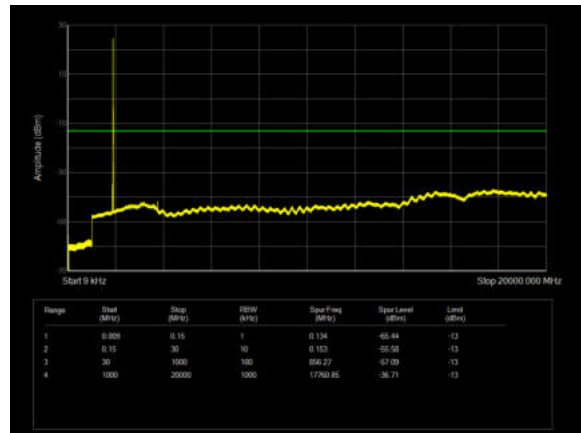
LTE Band 2 10MHz CH-Low 9kHz~20GHz



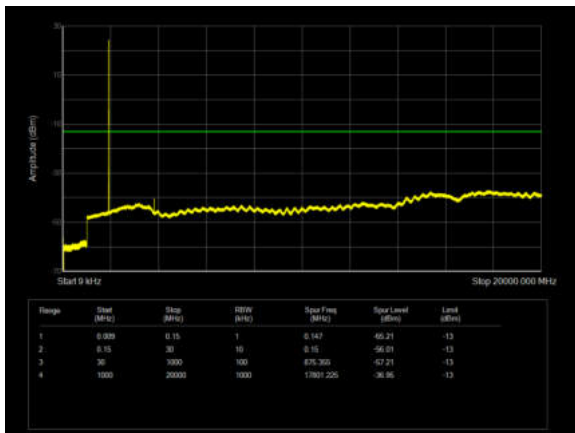
LTE Band 2 5MHz CH-Middle 9kHz~20GHz



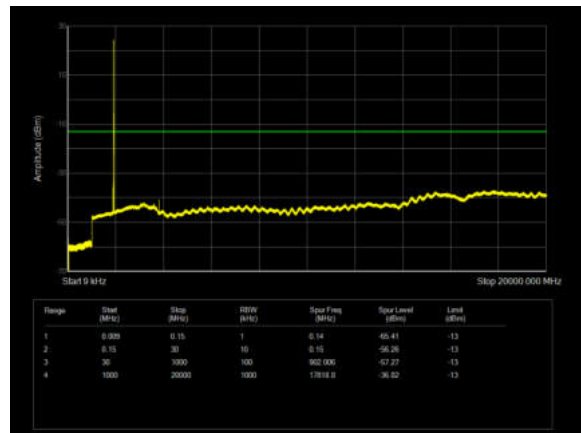
LTE Band 2 10MHz CH-Middle 9kHz~20GHz



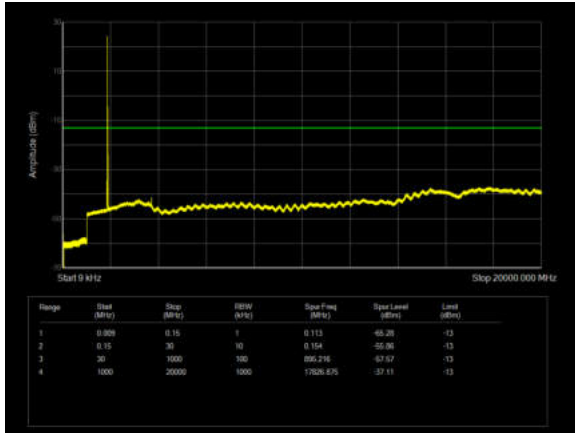
LTE Band 2 5MHz CH-High 9kHz~20GHz



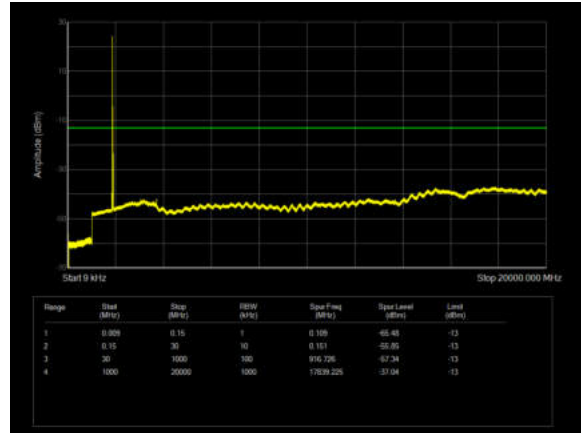
LTE Band 2 10MHz CH-High 9kHz~20GHz



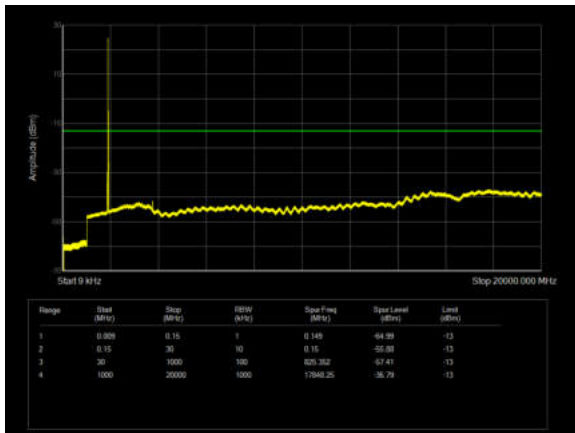
LTE Band 2 15MHz CH-Low 9kHz~20GHz



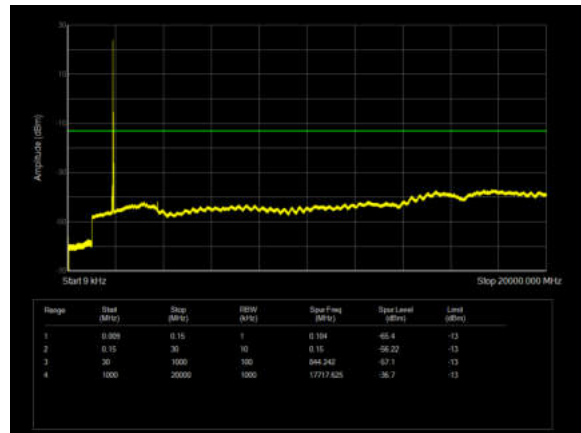
LTE Band 2 20MHz CH-Low 9kHz~20GHz



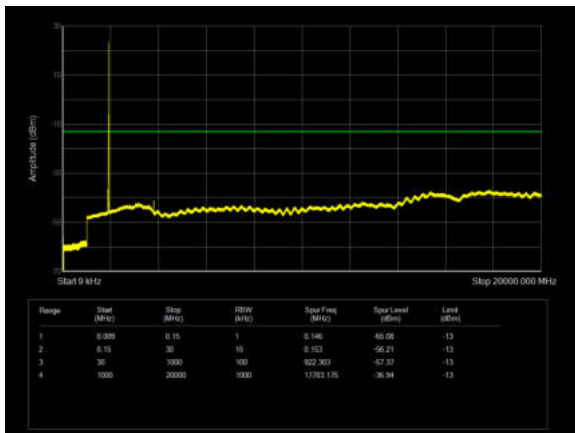
LTE Band 2 15MHz CH-Middle 9kHz~20GHz



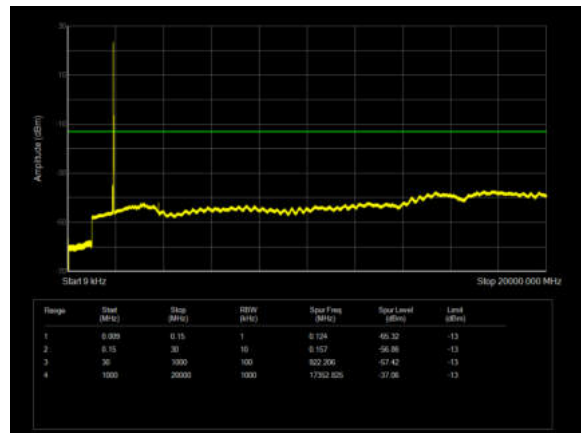
LTE Band 2 20MHz CH-Middle 9kHz~20GHz



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



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



6.7.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.

GSM 1900 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.00	-48.08	2.60	12.50	Horizontal	-38.18	-13.00	25.18	0
3	5640.00	-48.15	3.30	12.50	Horizontal	-38.95	-13.00	25.95	42
4	7520.00	-57.19	4.20	12.20	Horizontal	-49.19	-13.00	36.19	12
5	9400.00	-54.32	4.30	11.10	Horizontal	-47.52	-13.00	34.52	12
6	11280.00	-51.44	5.90	11.90	Horizontal	-45.44	-13.00	32.44	32
7	13160.00	-51.28	5.70	14.00	Horizontal	-42.98	-13.00	29.98	0
8	15040.00	-55.19	5.80	13.10	Horizontal	-47.89	-13.00	34.89	5
9	16920.00	-52.13	6.10	14.60	Horizontal	-43.63	-13.00	30.63	55
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 Horizontal position.

LTE Band 2 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.00	-38.05	2.60	12.50	Vertical	-28.15	-13.00	15.15	50
3	5638.90	-48.41	3.30	12.50	Vertical	-39.21	-13.00	26.21	20
4	7518.00	-54.19	4.20	12.20	Vertical	-46.19	-13.00	33.19	45
5	9397.80	-45.67	4.30	11.10	Vertical	-38.87	-13.00	25.87	120
6	1128.08	-50.19	5.90	11.90	Vertical	-44.19	-13.00	31.19	5
7	1317.82	-49.02	5.70	14.00	Vertical	-40.72	-13.00	27.72	60
8	15040.00	-53.39	5.80	13.10	Vertical	-46.09	-13.00	33.09	1
9	16920.00	-48.23	6.10	14.60	Vertical	-39.73	-13.00	26.73	0
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	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3755.63	-36.49	2.60	12.50	Vertical	-26.59	-13.00	13.59	10
3	5633.00	-46.25	3.30	12.50	Vertical	-37.05	-13.00	24.05	25
4	7510.00	-53.91	4.20	12.20	Vertical	-45.91	-13.00	32.91	85
5	9387.50	-43.77	4.30	11.10	Vertical	-36.97	-13.00	23.97	75
6	1126.74	-49.95	5.90	11.90	Vertical	-43.95	-13.00	30.95	52
7	13134.80	-48.89	5.70	14.00	Vertical	-40.59	-13.00	27.59	25
8	15019.40	-53.34	5.80	13.10	Vertical	-46.04	-13.00	33.04	40
9	16985.60	-50.17	6.10	14.60	Vertical	-41.67	-13.00	28.67	10
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	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3742.00	-45.25	2.60	12.50	Vertical	-35.35	-13.00	22.35	0
3	5613.50	-52.52	3.30	12.50	Vertical	-43.32	-13.00	30.32	50
4	7484.60	-54.64	4.20	12.20	Vertical	-46.64	-13.00	33.64	10
5	9355.40	-48.49	4.30	11.10	Vertical	-41.69	-13.00	28.69	5
6	11226.00	-49.13	5.90	11.90	Vertical	-43.13	-13.00	30.13	50
7	13085.00	-50.70	5.70	14.00	Vertical	-42.40	-13.00	29.40	0
8	14977.60	-52.48	5.80	13.10	Vertical	-45.18	-13.00	32.18	0
9	16979.00	-49.44	6.10	14.60	Vertical	-40.94	-13.00	27.94	10
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	WEISS	VT 4002	58226119450 010	2024-05-07	2025-05-06
Wireless Communication Tester	R&S	CMW500	150415	2024-05-07	2025-05-06
Spectrum Analyzer	Keysight	N9020A	MY50510203	2024-05-07	2025-05-06
DC Power Supply	UNI-T	UTP1310+	C220795889	2024-05-08	2025-05-07
Spectrum Analyzer	R&S	FSV3030	101411	2023-12-05	2024-12-04
Attenuator	HASCO	HA18A-10	0003	/	/
Radiated Spurious Emission					
Spectrum Analyzer	R&S	FSV30	104028	2024-05-07	2025-05-06
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	391	2022-09-29	2025-09-28
Horn Antenna	SCHWARZBECK	BBHA 9120D	01799	2022-09-01	2025-08-31
Software	R&S	EMC32	10.35.10	/	/

ANNEX A: The EUT Appearance

The EUT Appearance is submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos is submitted separately.

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