



RF TEST REPORT

Applicant	Honor Device Co., Ltd.
FCC ID	2AYGCVNE-LX1
Product	Smart Phone
Model	VNE-LX1
Report No.	R2208A0708-R1
Issue Date	August 10, 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 22H (2021)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Xu Ying

Approved by: Xu Kai

TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000



TABLE OF CONTENT

1. Test Laboratory	4
1.1. Notes of the Test Report	4
1.2. Test facility	4
1.3. Testing Location	4
2. General Description of Equipment under Test	5
2.1. Applicant and Manufacturer Information	5
2.2. General Information	5
3. Applied Standards	7
4. Test Configuration	8
5. Test Case	10
5.1. RF Power Output and Effective Radiated Power	10
5.2. Occupied Bandwidth	11
5.3. Band Edge Compliance	12
5.4. Peak-to-Average Power Ratio (PAPR)	13
5.5. Frequency Stability	14
5.6. Spurious Emissions at Antenna Terminals	16
5.7. Radiates Spurious Emission	17
6. Test Result	20
6.1. RF Power Output and Effective Radiated Power	20
6.2. Occupied Bandwidth	23
6.3. Band Edge Compliance	35
6.4. Peak-to-Average Power Ratio (PAPR)	43
6.5. Frequency Stability	45
6.6. Spurious Emissions at Antenna Terminals	48
6.7. Radiates Spurious Emission	52
7. Main Test Instruments	58
ANNEX A: The EUT Appearance	59
ANNEX B: Test Setup Photos	60
ANNEX C: Product Change Description	61



Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Radiated Power	2.1046 22.913(a)(5)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 / 22.917(a)	PASS
4	Peak-to-Average Power Ratio	22.913(d)/ KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 22.355	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
7	Radiates Spurious Emission	2.1053 / 22.917 (a)	PASS

Date of Testing: July 13, 2022 ~July 24, 2022

Date of Sample Received: July 13, 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.

VNE-LX1 (Report No.: R2208A0708-R1) is a variant model of VNE-LX3 (Report No.: R2207A0619-R1V2). Test values all duplicated from Original for variant. There is no test for variant in this report.

The difference between VNE-LX3 and VNE-LX1 are show in the below table:

/	Model	VNE-LX3	VNE-LX1
Licensed Frequency	LTE Band	B2/B4/B5/B7/B13/B26/B38/B66	B5/B7
	UMTS Band	B2/B4/B5	B2/B5
Unlicensed Frequency	NFC	Not support	Support
Software	Version	2.1.0.34(SP02C900E5R1P1)	2.1.0.57(SP03C900E5R1P1)
RF	RF circuit	The RF circuit of the same frequency is the same.	The RF circuit of the same frequency is the same. The different frequency changed by hardware and some RF parameters. Changes are followed: DeleteWB4/LTEB2/B4/B13/B66/B38 SAWS and RF matching.
	Tune-up	The tune-up of the same frequency are the same.	The tune-up of the same frequency are the same.
Others		The same	The same

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



1. Test Laboratory

1.1. Notes of the Test Report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: Building 3, No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Honor Device Co., Ltd.
Applicant address	Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
Manufacturer	Honor Device Co., Ltd.
Manufacturer address	Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China

2.2. General Information

EUT Description			
Model	VNE-LX1		
SN	A96BNU2625200516		
Hardware Version	HL1VNEM		
Software Version	2.1.0.57(SP03C900E5R1P1)		
Power Supply	Battery / AC adapter		
Antenna Type	Internal Antenna		
Antenna Gain	Band	Main Antenna(dBi)	Second Antenna(dBi)
	GSM850	-0.3	-1.7
	WCDMA Band V	-0.3	-1.7
	LTE Band 5	-0.3	-1.7
Test Mode(s)	GSM 850; WCDMA Band V; LTE Band 5;		
Test Modulation	(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) BPSK ,QPSK,16QAM; (LTE) QPSK, 16QAM(Uplink); QPSK, 16QAM,64QAM(Downlink);		
GPRS Multislot Class	12		
EGPRS Multislot Class	12		
HSDPA UE Category	14		
HSUPA UE Category	7		
DC-HSDPA UE Category	24		
HSPA+ UE Category	24		
LTE Category	4		
Maximum E.R.P.	GSM 850:	30.45dBm	
	WCDMA Band V:	21.76dBm	
	LTE Band 5:	21.33dBm	
Rated Power Supply Voltage	3.87V		
Operating Voltage	Minimum: 3.6V Maximum: 4.45V		
Operating Temperature	Lowest: 0°C Highest: +35°C		
Testing Temperature	Lowest:-30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 ~ 849	869 ~ 894
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 5	824 ~ 849	869 ~ 894
EUT Accessory			



Accessory	Model	Manufacture	No.
Adapter	HW-050200E02	Honor Device Co., Ltd. (Manufacturer: Huntkey)	1
		Honor Device Co., Ltd. (Manufacturer: BYD)	2
	HW-050200B02	Honor Device Co., Ltd. (Manufacturer: Huntkey)	3
		Honor Device Co., Ltd. (Manufacturer: BYD)	4
	HW-050200U02	Honor Device Co., Ltd. (Manufacturer: Huntkey)	5
		Honor Device Co., Ltd. (Manufacturer: BYD)	6
Battery	HB496590EFW	Honor Device Co., Ltd. (Manufacturer: SCUD)	1
		Honor Device Co., Ltd. (Manufacturer: NVT)	2
	HB496590EFW-F	Honor Device Co., Ltd. (Manufacturer: SCUD)	3
		Honor Device Co., Ltd. (Manufacturer: NVT)	4
Data Cable	RY0002	NingBo Broad Telecommunication Co., Ltd.	1
	AU2-CRO013HF	Freeport Resources Enterprises Corp.	2
	2120-00001-0	MING JI ELECTRONICS CO., LTD.	3
	L125UC007-CS-H	LUXSHARE PRECISION INDUSTRY CO., LTD.	4
	CUDU01B-HC451-EH	FOXCONN INTERCONNECT TECHNOLOGY LIMITED	5
Earphone	MEND1532B528C00	Jiangxi Lianchuang Hongsheng Electronic Co., LTD.	1
	1293-3283-3.5MM-339	BOLUO COUNTY QUANCHENG ELECTRONIC CO.,LTD.	2

Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.

2. There is more than one Adapter/Battery/Data cable/Earphone, each one should be applied throughout the compliance test respectively, and however, only the worst case (Battery 3 /Data cable 1/ Earphone 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 22H (2021)

FCC CFR47 Part 2 (2021)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report.

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 (Main Antenna: Z axis, vertical polarization for GSM/WCDMA/LTE; Second Antenna: X axis, horizontal polarization for Second Antenna GSM/WCDMA/LTE) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in 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 850	WCDMA Band V
RF Power Output and Effective Radiated power	GSM GPRS EGPRS	RMC/AMR HSDPA/HSUPA DC-HSDPA/HSPA+
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 as the worst case configuration below for LTE Band 5

Test items	Modes	Bandwidth (MHz)					Modulation		RB			Test Channel		
		1.4	3	5	10	15	QPSK	16QAM	1	50%	100%	L	M	H
RF power output and Effective Radiated power	LTE 5	O	O	O	O	-	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE 5	O	O	O	O	-	O	O	O	-	O	O	O	O
Band Edge Compliance	LTE 5	O	O	O	O	-	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE 5	O	O	O	O	-	O	O	-	-	O	O	O	O
Frequency Stability	LTE 5	O	O	O	O	-	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE 5	O	O	O	O	-	O	-	O	-	-	O	O	O
Radiates Spurious Emission	LTE 5	O	-	O	O	-	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													

5. Test Case

5.1. RF Power Output and Effective Radiated Power

Ambient condition

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

Methods of Measurement

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

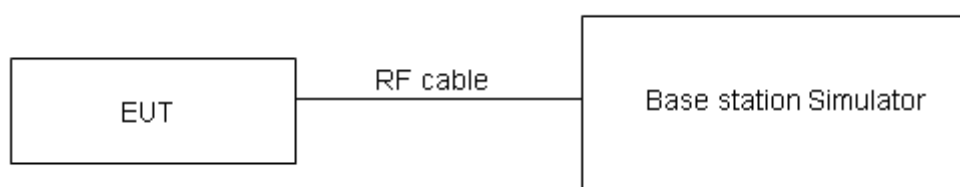
ERP can then be calculated as follows:

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

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

Limit	$\leq 7 \text{ W}$ (38.45 dBm)
-------	--------------------------------

Measurement Uncertainty

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

Test Results

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

5.2. Occupied Bandwidth

Ambient condition

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

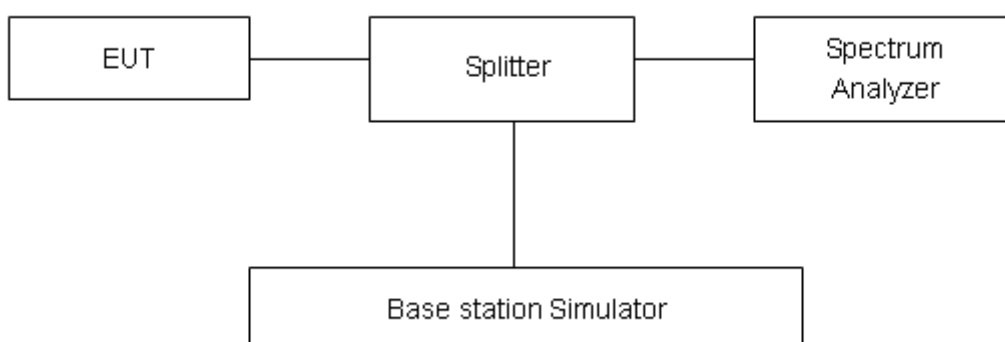
Method of Measurement

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

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

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

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

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

Test Results

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

5.3. Band Edge Compliance

Ambient condition

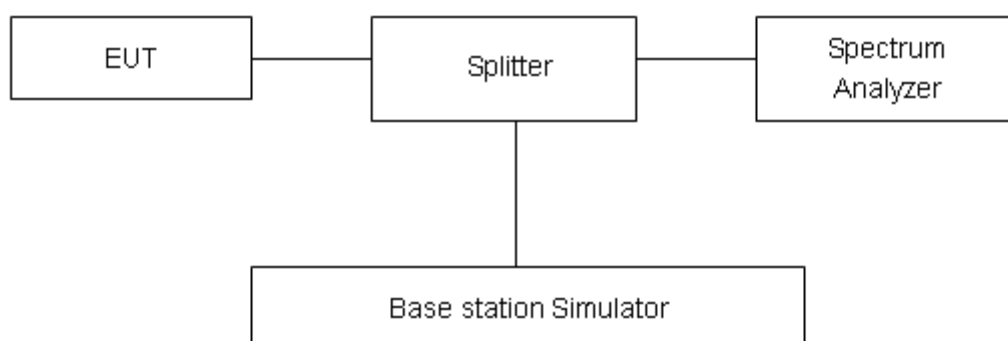
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

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

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.”

Limit	-13 dBm
-------	---------

Measurement Uncertainty

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

Test Results

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

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

Ambient condition

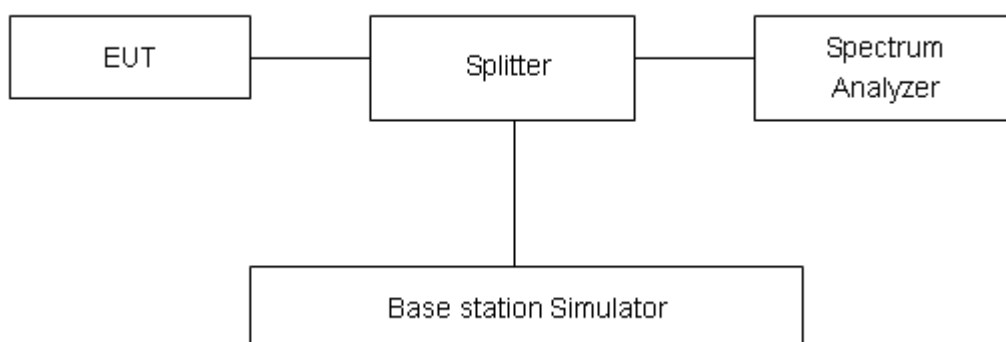
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

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

$$PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).$$

Test Setup



Limits

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

Measurement Uncertainty

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

Test Results

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

5.5. Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

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

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

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

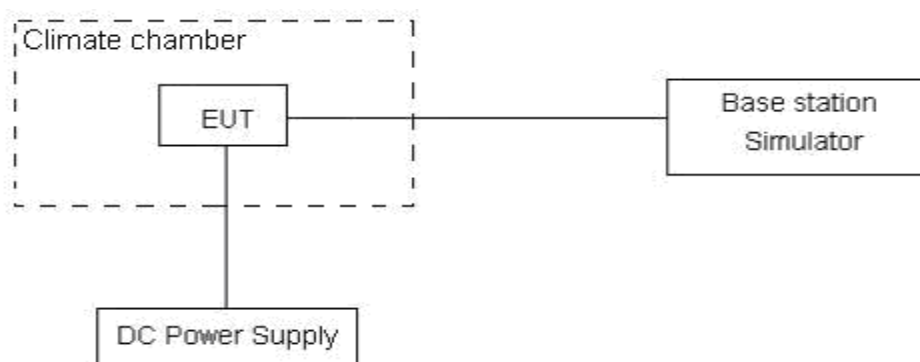
(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

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

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

This transceiver is specified to operate with an input voltage of between 3.60 V and 4.45 V, with a nominal voltage of 3.87V.

Test setup



Limits

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

Limits	≤ 2.5 ppm
--------	-----------

Measurement Uncertainty

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



Test Results

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

5.6. Spurious Emissions at Antenna Terminals

Ambient condition

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

Method of Measurement

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

The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.

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

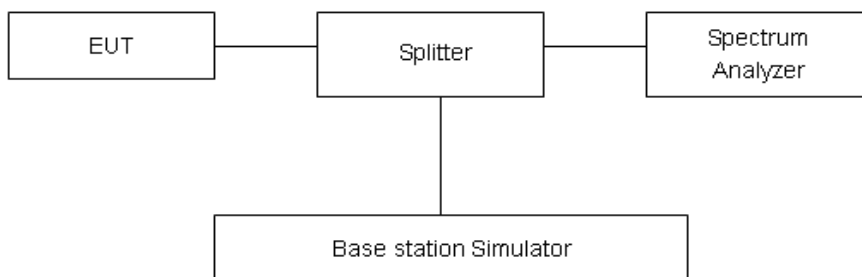
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

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 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.”

Limit	-13 dBm
-------	---------

Measurement Uncertainty

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

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-10GHz	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=100kHz,VBW=300kHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

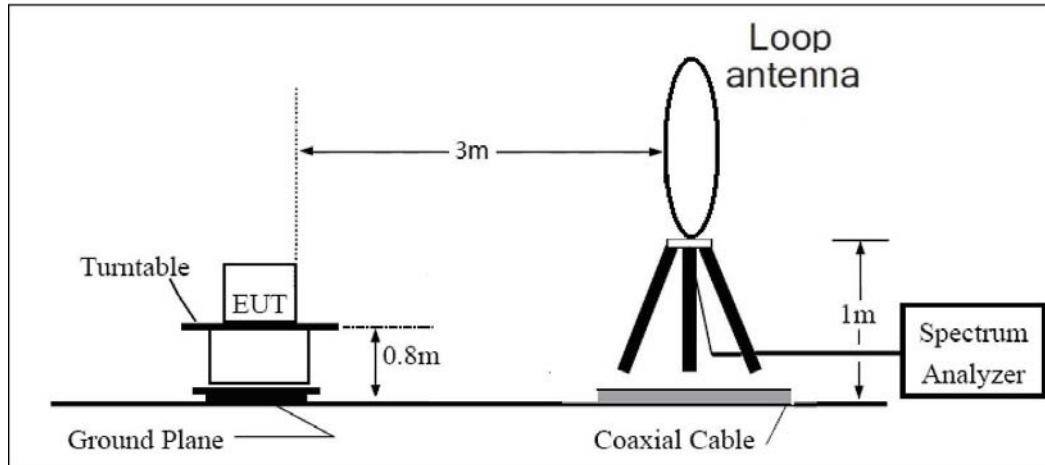
The measurement results are amend as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the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

= EIRP-2.15dB.

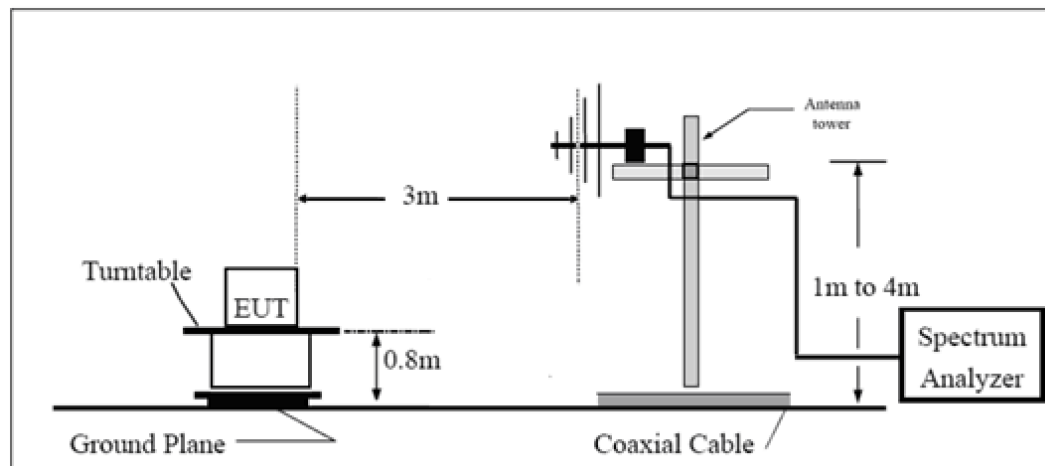
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

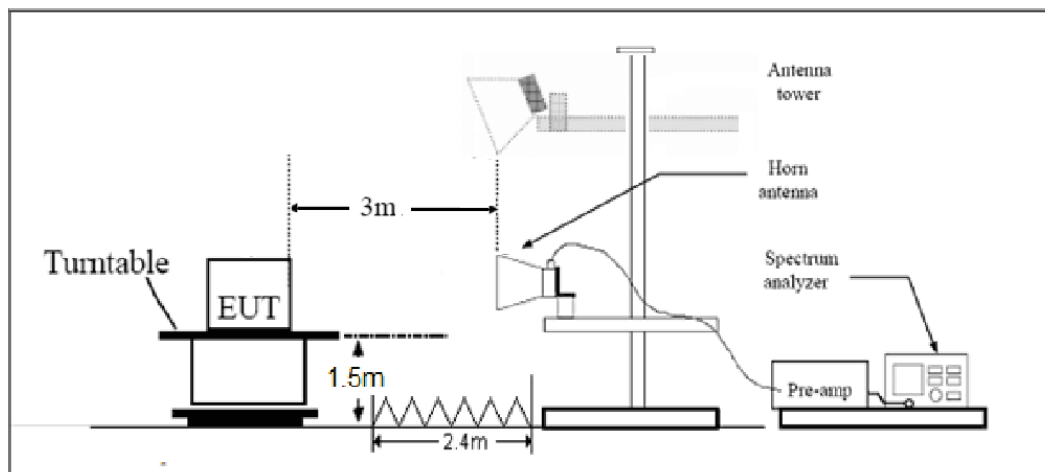
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.”

Limit	-13 dBm
-------	---------

Measurement Uncertainty

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

Test Results

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

6. Test Result

6.1. RF Power Output and Effective Radiated Power

GSM 850		Maximum Output Power (dBm)			Main Antenna ERP (dBm)			Second Antenna ERP (dBm)		
		Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)		
		128/ 824.2	190/ 836.6	251/ 848.8	128/ 824.2	190/ 836.6	251/ 848.8	128/ 824.2	190/ 836.6	251/ 848.8
GSM	CS	32.83	32.90	32.86	30.38	30.45	30.41	28.98	29.05	29.01
GPRS/ EGPRS (GMSK)	1 Tx Slot	32.82	32.88	32.84	30.37	30.43	30.39	28.97	29.03	28.99
	2 Tx Slots	30.15	30.23	30.19	27.70	27.78	27.74	26.30	26.38	26.34
	3 Tx Slots	28.35	28.40	28.42	25.90	25.95	25.97	24.50	24.55	24.57
	4 Tx Slots	26.87	26.92	26.90	24.42	24.47	24.45	23.02	23.07	23.05
EGPRS (8PSK)	1 Tx Slot	25.96	26.23	26.26	23.51	23.78	23.81	22.11	22.38	22.41
	2 Tx Slots	22.92	23.20	23.15	20.47	20.75	20.70	19.07	19.35	19.30
	3 Tx Slots	20.99	21.18	21.24	18.54	18.73	18.79	17.14	17.33	17.39
	4 Tx Slots	19.71	19.77	19.72	17.26	17.32	17.27	15.86	15.92	15.87

WCDMA Band V		Maximum Output Power (dBm)			Main Antenna ERP (dBm)			Second Antenna ERP (dBm)		
		Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)		
		4132/ 826.4	4183/ 836.6	4233/ 846.6	4132/ 826.4	4183/ 836.6	4233/ 846.6	4132/ 826.4	4183/ 836.6	4233/ 846.6
RMC	12.2k	24.02	24.10	24.05	21.57	21.65	21.6	20.17	20.25	20.20
AMR	12.2k	24.04	24.10	24.21	21.59	21.65	21.76	20.19	20.25	20.36
HSDPA	Subtest 1	23.66	23.52	23.69	21.21	21.07	21.24	19.81	19.67	19.84
	Subtest 2	23.38	23.64	23.59	20.93	21.19	21.14	19.53	19.79	19.74
	Subtest 3	23.06	23.20	23.05	20.61	20.75	20.6	19.21	19.35	19.20
	Subtest 4	23.10	23.16	22.99	20.65	20.71	20.54	19.25	19.31	19.14
HSUPA	Subtest 1	23.00	23.00	22.97	20.55	20.55	20.52	19.15	19.15	19.12
	Subtest 2	21.46	21.66	21.59	19.01	19.21	19.14	17.61	17.81	17.74
	Subtest 3	22.32	22.44	22.19	19.87	19.99	19.74	18.47	18.59	18.34
	Subtest 4	21.88	21.76	21.93	19.43	19.31	19.48	18.03	17.91	18.08
	Subtest 5	23.50	23.56	23.77	21.05	21.11	21.32	19.65	19.71	19.92
DC-HSDPA	Subtest 1	23.42	23.76	23.51	20.97	21.31	21.06	19.57	19.91	19.66
	Subtest 2	23.54	23.58	23.59	21.09	21.13	21.14	19.69	19.73	19.74
	Subtest 3	23.12	23.14	23.01	20.67	20.69	20.56	19.27	19.29	19.16
	Subtest 4	23.02	23.02	22.91	20.57	20.57	20.46	19.17	19.17	19.06
HSPA+	16QAM	20.68	21.06	20.93	18.23	18.61	18.48	16.83	17.21	17.08



LTE Band 5				Maximum Output Power (dBm)			Main Antenna ERP (dBm)			Second Antenna ERP (dBm)		
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Channel/Frequency(MHz)			Channel/Frequency(MHz)		
				20407/824.7	20525/836.5	20643/848.3	20407/824.7	20525/836.5	20643/848.3	20407/824.7	20525/836.5	20643/848.3
1.4MHz	QPSK	1	0	23.57	23.63	23.67	21.12	21.18	21.22	19.72	19.78	19.82
		1	2	23.70	23.62	23.61	21.25	21.17	21.16	19.85	19.77	19.76
		1	5	23.63	23.59	23.59	21.18	21.14	21.14	19.78	19.74	19.74
		3	0	23.59	23.78	23.61	21.14	21.33	21.16	19.74	19.93	19.76
		3	2	23.59	23.74	23.56	21.14	21.29	21.11	19.74	19.89	19.71
		3	3	23.62	23.64	23.56	21.17	21.19	21.11	19.77	19.79	19.71
		6	0	22.62	22.80	22.70	20.17	20.35	20.25	18.77	18.95	18.85
	16QAM	1	0	22.85	22.86	22.96	20.40	20.41	20.51	19.00	19.01	19.11
		1	2	22.95	22.96	22.95	20.50	20.51	20.50	19.10	19.11	19.10
		1	5	22.92	22.96	22.77	20.47	20.51	20.32	19.07	19.11	18.92
		3	0	22.65	22.71	22.66	20.20	20.26	20.21	18.80	18.86	18.81
		3	2	22.68	22.73	22.64	20.23	20.28	20.19	18.83	18.88	18.79
		3	3	22.66	22.74	22.56	20.21	20.29	20.11	18.81	18.89	18.71
		6	0	21.67	21.81	21.76	19.22	19.36	19.31	17.82	17.96	17.91
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Channel/Frequency(MHz)			Channel/Frequency(MHz)		
				20415/825.5	20525/836.5	20635/847.5	20415/825.5	20525/836.5	20635/847.5	20415/825.5	20525/836.5	20635/847.5
3MHz	QPSK	1	0	23.53	23.54	23.62	21.08	21.09	21.17	19.68	19.69	19.77
		1	7	23.64	23.60	23.58	21.19	21.15	21.13	19.79	19.75	19.73
		1	14	23.57	23.52	23.51	21.12	21.07	21.06	19.72	19.67	19.66
		8	0	22.62	22.77	22.64	20.17	20.32	20.19	18.77	18.92	18.79
		8	4	22.64	22.71	22.56	20.19	20.26	20.11	18.79	18.86	18.71
		8	7	22.63	22.66	22.55	20.18	20.21	20.10	18.78	18.81	18.70
		15	0	22.59	22.72	22.61	20.14	20.27	20.16	18.74	18.87	18.76
	16QAM	1	0	22.82	22.79	22.89	20.37	20.34	20.44	18.97	18.94	19.04
		1	7	22.92	22.90	22.91	20.47	20.45	20.46	19.07	19.05	19.06
		1	14	22.87	22.89	22.71	20.42	20.44	20.26	19.02	19.04	18.86
		8	0	21.68	21.77	21.70	19.23	19.32	19.25	17.83	17.92	17.85
		8	4	21.69	21.73	21.64	19.24	19.28	19.19	17.84	17.88	17.79
		8	7	21.69	21.73	21.59	19.24	19.28	19.14	17.84	17.88	17.74
		15	0	21.63	21.72	21.67	19.18	19.27	19.22	17.78	17.87	17.82
Bandwidth	Modulation	RB allocation	offset	Channel/Frequency(MHz)			Channel/Frequency(MHz)			Channel/Frequency(MHz)		
				20425/826.5	20525/836.5	20625/846.5	20425/826.5	20525/836.5	20625/846.5	20425/826.5	20525/836.5	20625/846.5
5MHz	QPSK	1	0	23.54	23.58	23.64	21.09	21.13	21.19	19.69	19.73	19.79
		1	13	23.66	23.61	23.61	21.21	21.16	21.16	19.81	19.76	19.76
		1	24	23.60	23.57	23.55	21.15	21.12	21.10	19.75	19.72	19.70
		12	0	22.64	22.81	22.67	20.19	20.36	20.22	18.79	18.96	18.82



		12	6	22.67	22.76	22.60	20.22	20.31	20.15	18.82	18.91	18.75
		12	13	22.66	22.69	22.59	20.21	20.24	20.14	18.81	18.84	18.74
		25	0	22.61	22.76	22.66	20.16	20.31	20.21	18.76	18.91	18.81
	16QAM	1	0	22.84	22.81	22.91	20.39	20.36	20.46	18.99	18.96	19.06
		1	13	22.94	22.93	22.93	20.49	20.48	20.48	19.09	19.08	19.08
		1	24	22.89	22.93	22.74	20.44	20.48	20.29	19.04	19.08	18.89
		12	0	21.71	21.79	21.73	19.26	19.34	19.28	17.86	17.94	17.88
		12	6	21.72	21.78	21.68	19.27	19.33	19.23	17.87	17.93	17.83
		12	13	21.71	21.77	21.62	19.26	19.32	19.17	17.86	17.92	17.77
		25	0	21.66	21.77	21.71	19.21	19.32	19.26	17.81	17.92	17.86
Bandwidth	Modulation	RB	offset	Channel/Frequency(MHz)			Channel/Frequency(MHz)			Channel/Frequency(MHz)		
		allocation		20450/ 829	20525/ 836.5	20600/ 844	20450/ 829	20525/ 836.5	20600/ 844	20450/ 829	20525/ 836.5	20600/ 844
10MHz	QPSK	1	0	23.50	23.50	23.59	21.05	21.05	21.14	19.65	19.65	19.74
		1	25	23.63	23.56	23.56	21.18	21.11	21.11	19.78	19.71	19.71
		1	49	23.55	23.51	23.48	21.10	21.06	21.03	19.70	19.66	19.63
		25	0	22.59	22.72	22.60	20.14	20.27	20.15	18.74	18.87	18.75
		25	13	22.62	22.67	22.53	20.17	20.22	20.08	18.77	18.82	18.68
		25	25	22.60	22.61	22.51	20.15	20.16	20.06	18.75	18.76	18.66
		50	0	22.56	22.67	22.57	20.11	20.22	20.12	18.71	18.82	18.72
	16QAM	1	0	22.79	22.75	22.84	20.34	20.30	20.39	18.94	18.90	18.99
		1	25	22.89	22.88	22.87	20.44	20.43	20.42	19.04	19.03	19.02
		1	49	22.84	22.86	22.69	20.39	20.41	20.24	18.99	19.01	18.84
		25	0	21.65	21.73	21.67	19.20	19.28	19.22	17.80	17.88	17.82
		25	13	21.66	21.71	21.61	19.21	19.26	19.16	17.81	17.86	17.76
		25	25	21.66	21.68	21.55	19.21	19.23	19.10	17.81	17.83	17.70
		50	0	21.61	21.68	21.64	19.16	19.23	19.19	17.76	17.83	17.79

6.2. Occupied Bandwidth

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 850 (GMSK)	128	824.2	0.251	0.312
	190	836.6	0.252	0.315
	251	848.8	0.247	0.307
GPRS 850 (GMSK)	128	824.2	0.246	0.306
	190	836.6	0.244	0.293
	251	848.8	0.245	0.310
EGPRS 850 (8PSK)	128	824.2	0.250	0.317
	190	836.6	0.253	0.319
	251	848.8	0.249	0.317
WCDMA Band V (RMC)	4132	826.4	4.156	4.666
	4183	836.6	4.152	4.674
	4233	846.6	4.160	4.659

LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
1	QPSK	1.4	20407	824.7	0.302	0.472
			20525	836.5	0.294	0.464
			20643	848.3	0.289	0.475
		3	20415	825.5	0.400	0.574
			20525	836.5	0.398	0.579
			20635	847.5	0.399	0.573
		5	20425	826.5	0.701	0.960
			20525	836.5	0.730	1.050
			20625	846.5	0.698	0.986
	16QAM	10	20450	829	1.119	1.575
			20525	836.5	1.118	1.502
			20600	844	1.129	1.543
		1.4	20407	824.7	0.299	0.463
			20525	836.5	0.300	0.474
			20643	848.3	0.312	0.495



		3	20415	825.5	0.387	0.548
			20525	836.5	0.400	0.569
			20635	847.5	0.382	0.563
		5	20425	826.5	0.685	0.997
			20525	836.5	0.758	1.009
			20625	846.5	0.656	0.928
		10	20450	829	1.131	1.529
			20525	836.5	1.135	1.509
			20600	844	1.074	1.619
100%	QPSK	1.4	20407	824.7	1.093	1.278
			20525	836.5	1.098	1.273
			20643	848.3	1.094	1.270
		3	20415	825.5	2.699	2.928
			20525	836.5	2.694	2.927
			20635	847.5	2.692	2.904
		5	20425	826.5	4.509	4.880
			20525	836.5	4.508	4.926
			20625	846.5	4.499	4.876
		10	20450	829	8.969	9.704
			20525	836.5	8.972	9.683
			20600	844	8.968	9.695
	16QAM	1.4	20407	824.7	1.092	1.300
			20525	836.5	1.098	1.295
			20643	848.3	1.088	1.270
		3	20415	825.5	2.686	2.929
			20525	836.5	2.681	2.897
			20635	847.5	2.694	2.910
		5	20425	826.5	4.517	4.875
			20525	836.5	4.513	4.881
			20625	846.5	4.496	4.852
		10	20450	829	8.967	9.720
			20525	836.5	8.998	9.662
			20600	844	8.954	9.695

GSM 850 CH-Low



GSM 850 GPRS CH-Low



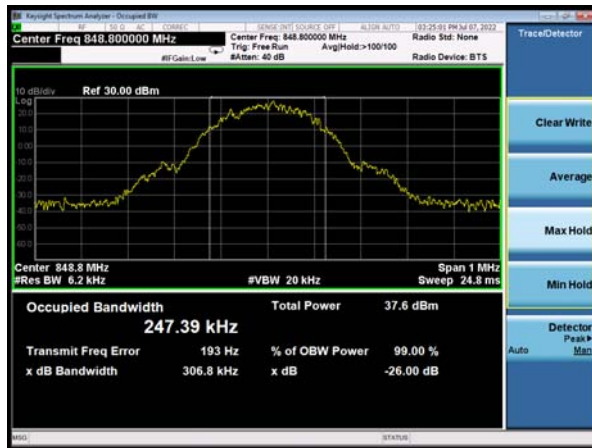
GSM 850 CH-Middle



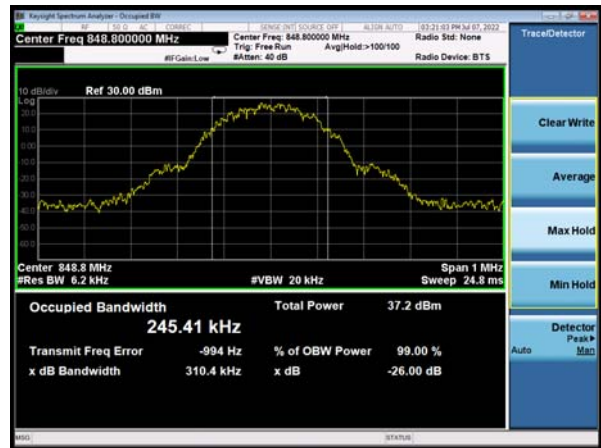
GSM 850 GPRS CH-Middle



GSM 850 CH-High



GSM 850 GPRS CH-High





GSM 850 EGPRS CH-Low



WCDMA Band V CH-Low



GSM 850 EGPRS CH-Middle



WCDMA Band V CH-Middle



GSM 850 EGPRS CH-High



WCDMA Band V CH-High



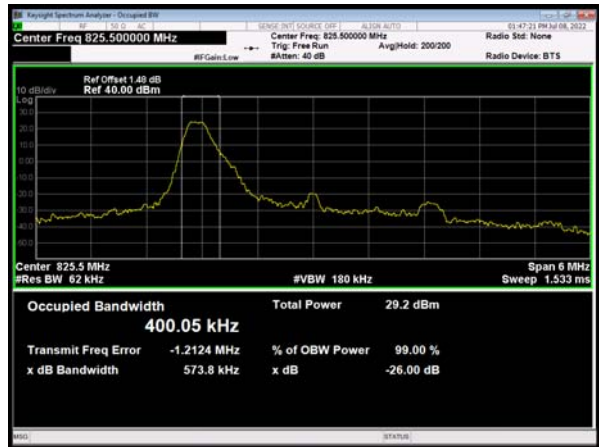


1 RB

LTE Band 5 QPSK 1.4MHz CH-Low



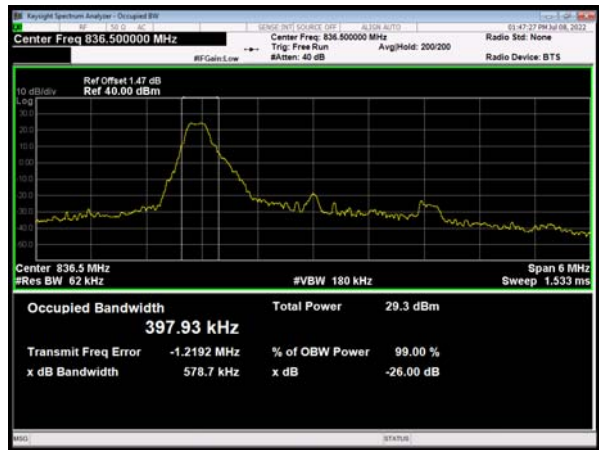
LTE Band 5 QPSK 3MHz CH-Low



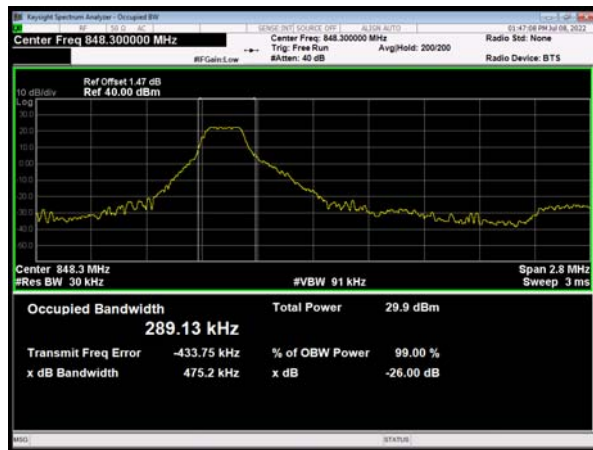
LTE Band 5 QPSK 1.4MHz CH-Middle



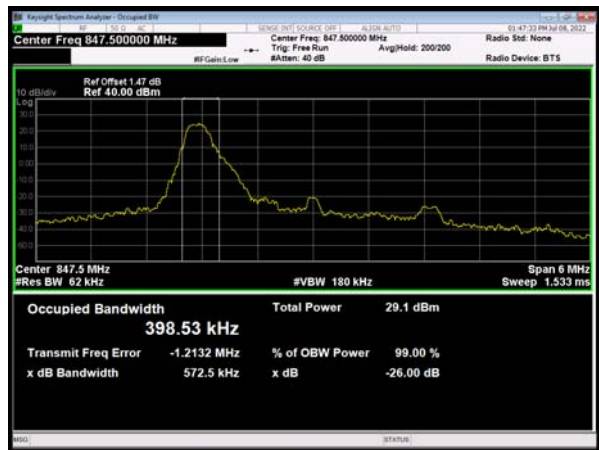
LTE Band 5 QPSK 3MHz CH-Middle



LTE Band 5 QPSK 1.4MHz CH-High

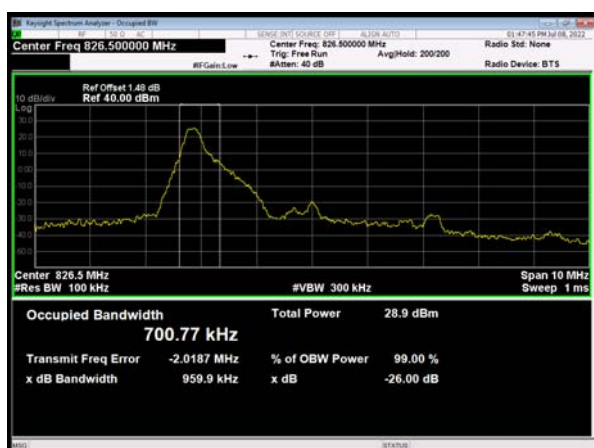


LTE Band 5 QPSK 3MHz CH-High

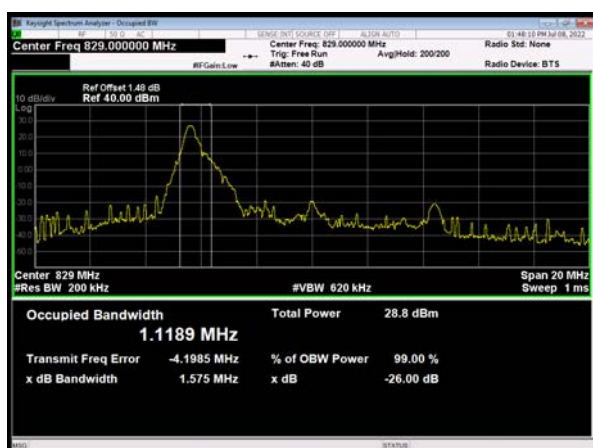




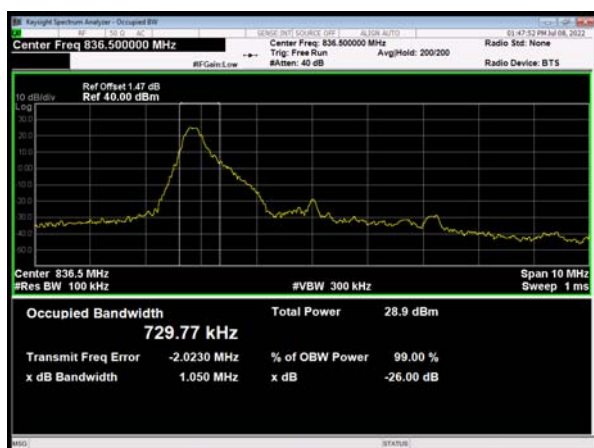
LTE Band 5 QPSK 5MHz CH-Low



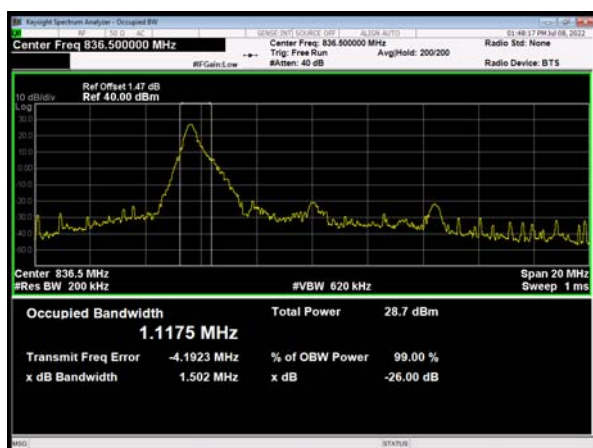
LTE Band 5 QPSK 10MHz CH-Low



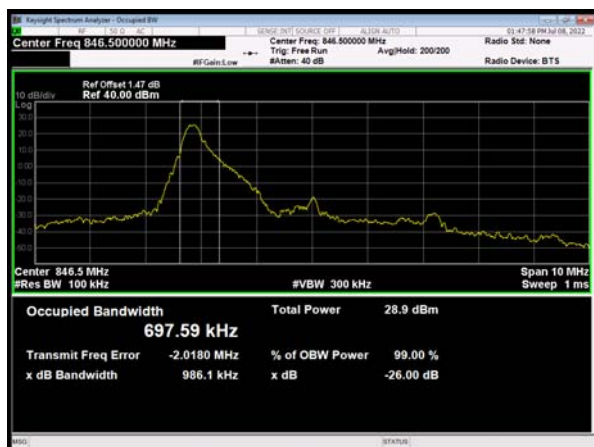
LTE Band 5 QPSK 5MHz CH-Middle



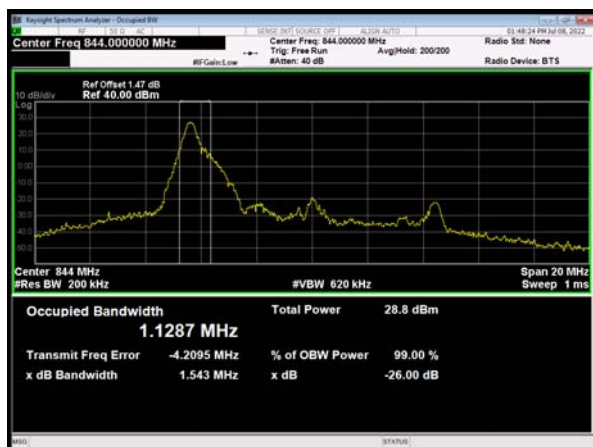
LTE Band 5 QPSK 10MHz CH-Middle



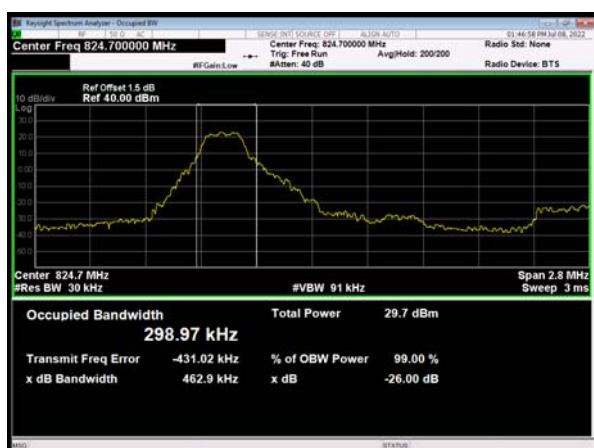
LTE Band 5 QPSK 5MHz CH-High



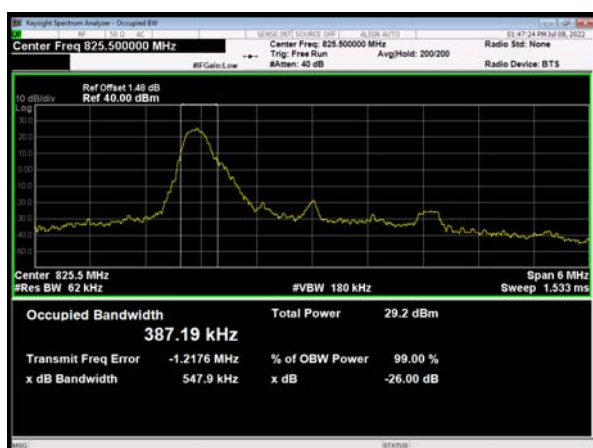
LTE Band 5 QPSK 10MHz CH-High



LTE Band 5 16QAM 1.4MHz CH-Low



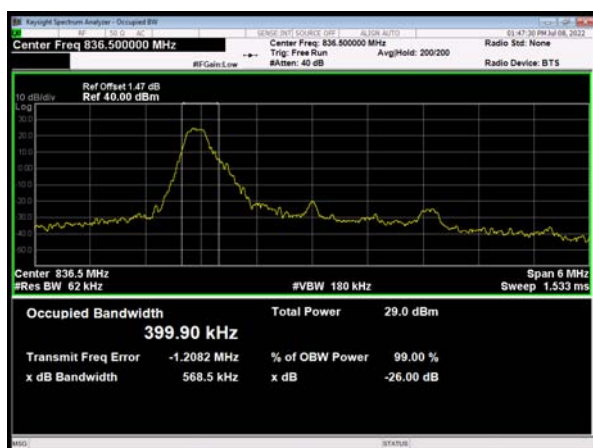
LTE Band 5 16QAM 3MHz CH-Low



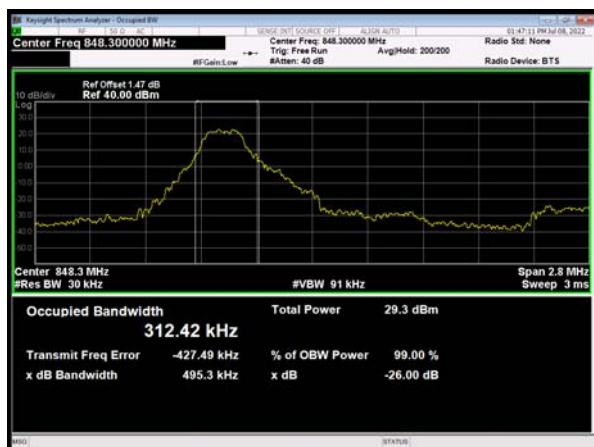
LTE Band 5 16QAM 1.4MHz CH-Middle



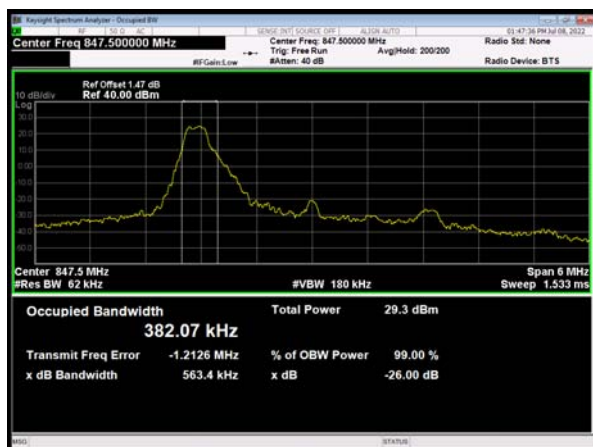
LTE Band 5 16QAM 3MHz CH-Middle



LTE Band 5 16QAM 1.4MHz CH-High



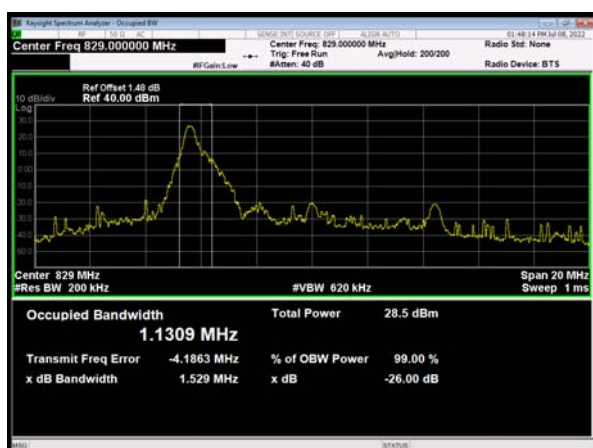
LTE Band 5 16QAM 3MHz CH-High



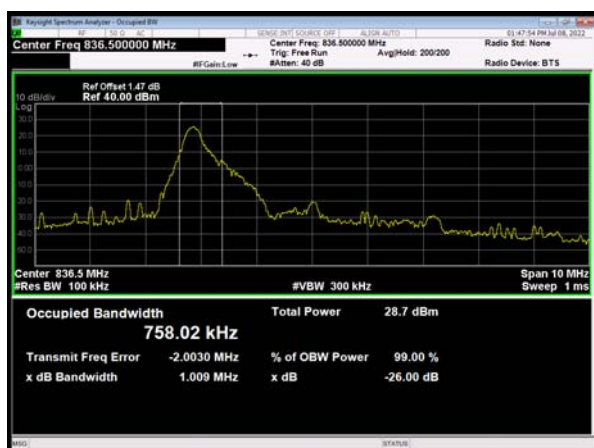
LTE Band 5 16QAM 5MHz CH-Low



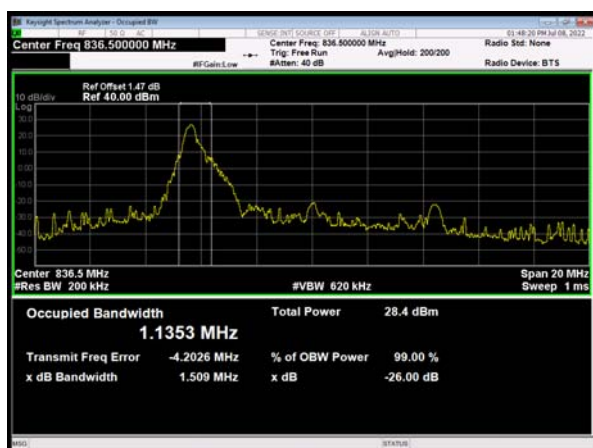
LTE Band 5 16QAM 10MHz CH-Low



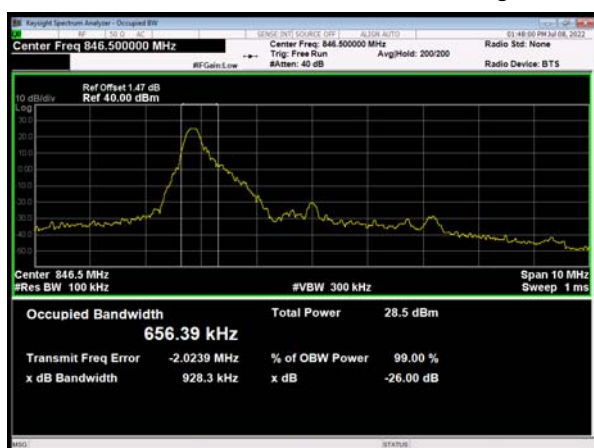
LTE Band 5 16QAM 5MHz CH-Middle



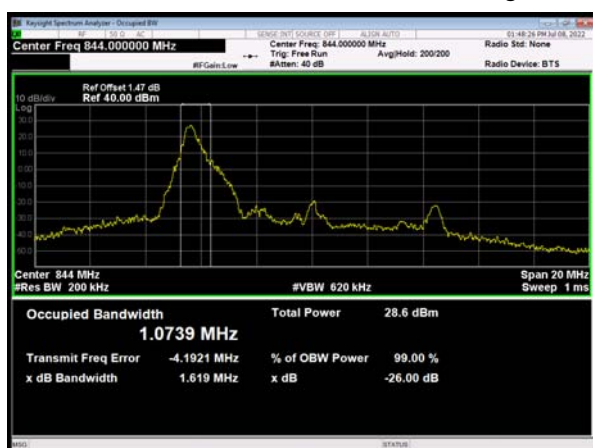
LTE Band 5 16QAM 10MHz CH-Middle



LTE Band 5 16QAM 5MHz CH-High



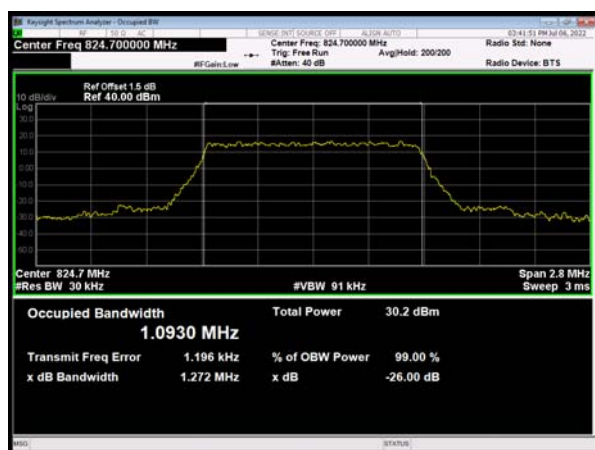
LTE Band 5 16QAM 10MHz CH-High



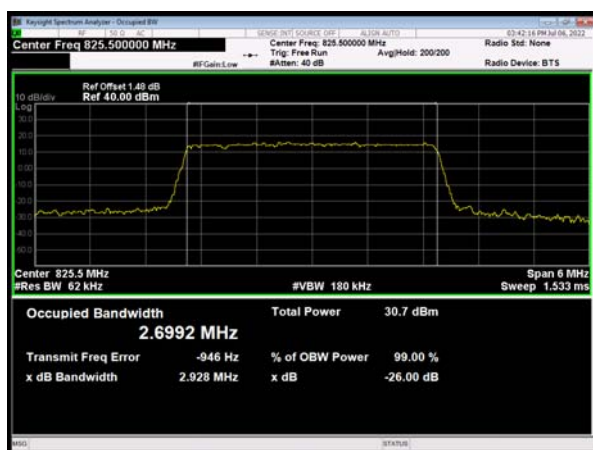


100%RB

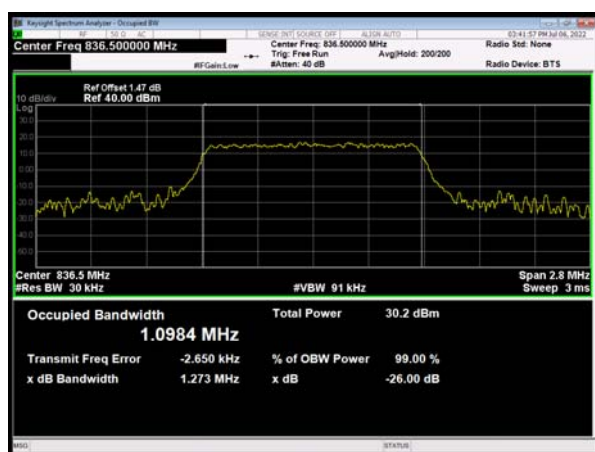
LTE Band 5 QPSK 1.4MHz CH-Low



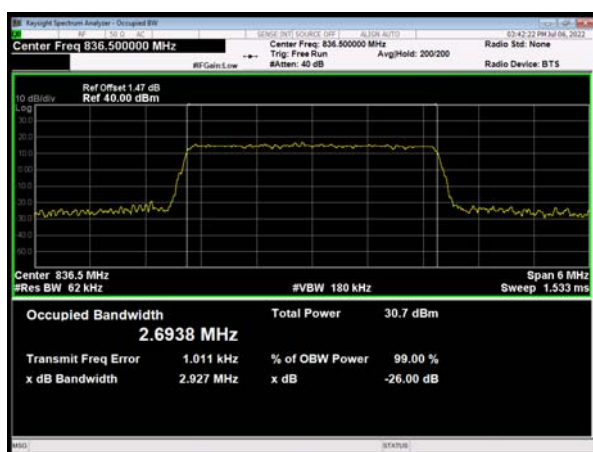
LTE Band 5 QPSK 3MHz CH-Low



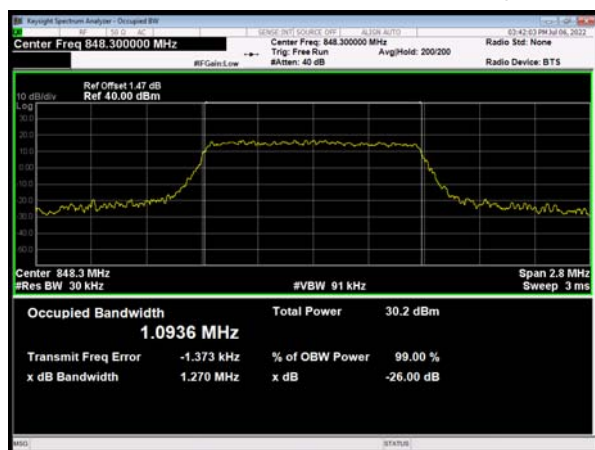
LTE Band 5 QPSK 1.4MHz CH-Middle



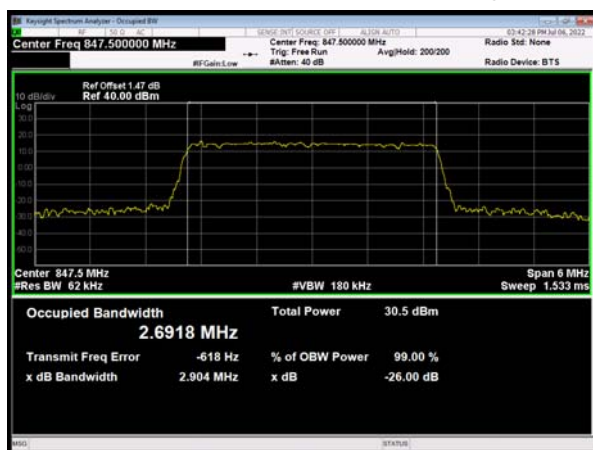
LTE Band 5 QPSK 3MHz CH-Middle



LTE Band 5 QPSK 1.4MHz CH-High

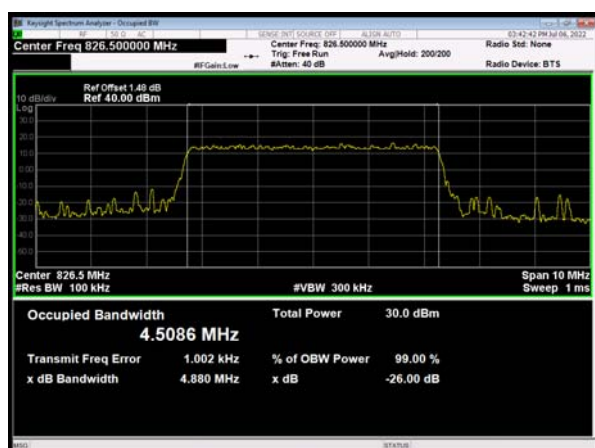


LTE Band 5 QPSK 3MHz CH-High

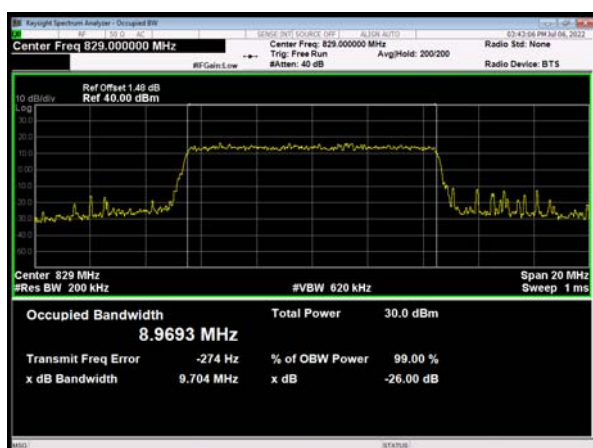




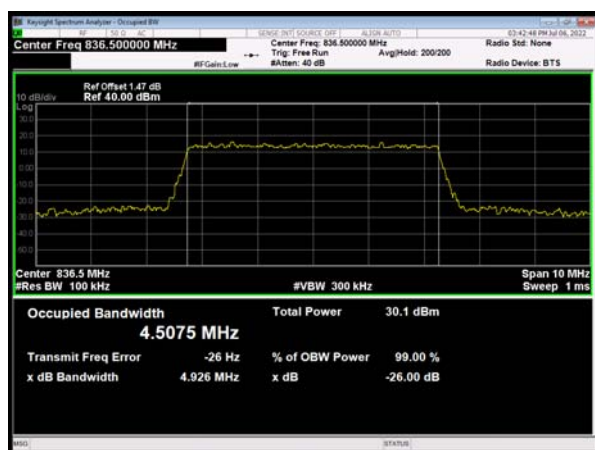
LTE Band 5 QPSK 5MHz CH-Low



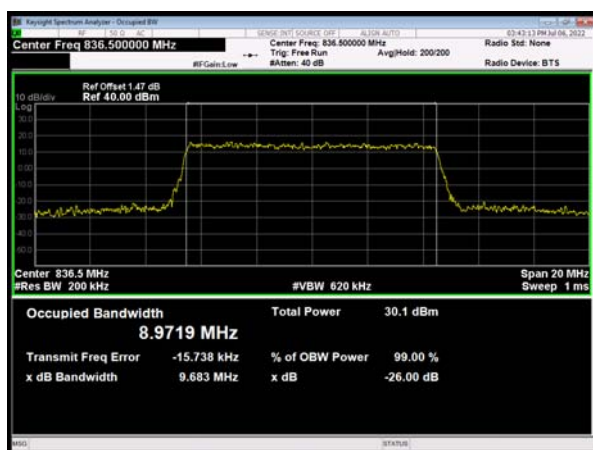
LTE Band 5 QPSK 10MHz CH-Low



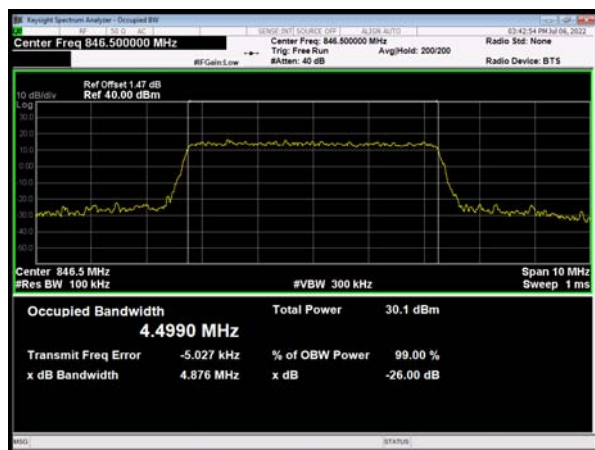
LTE Band 5 QPSK 5MHz CH-Middle



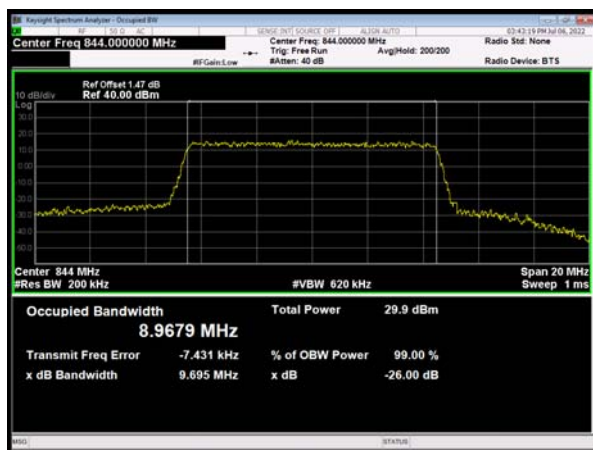
LTE Band 5 QPSK 10MHz CH-Middle



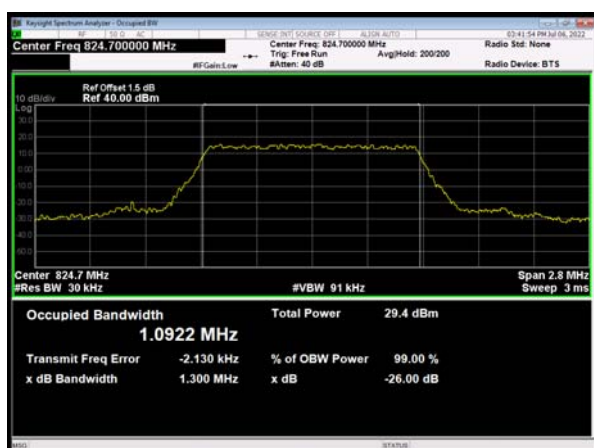
LTE Band 5 QPSK 5MHz CH-High



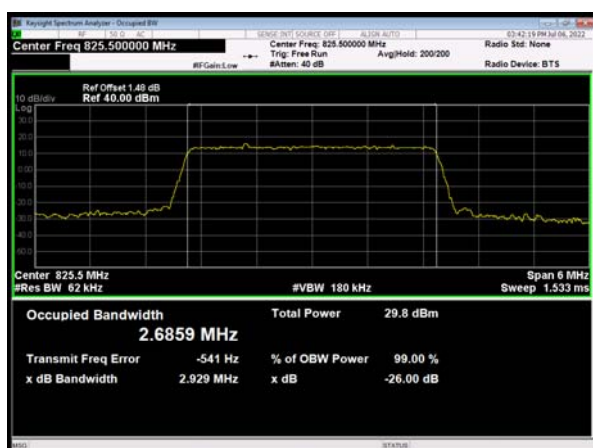
LTE Band 5 QPSK 10MHz CH-High



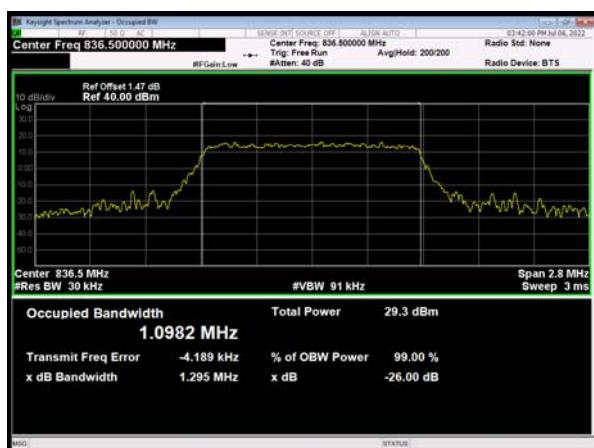
LTE Band 5 16QAM 1.4MHz CH-Low



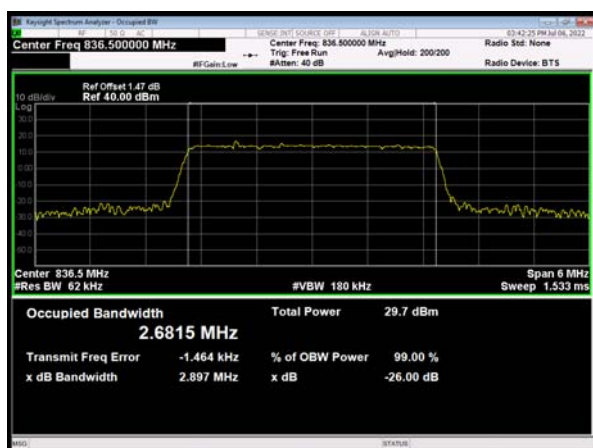
LTE Band 5 16QAM 3MHz CH-Low



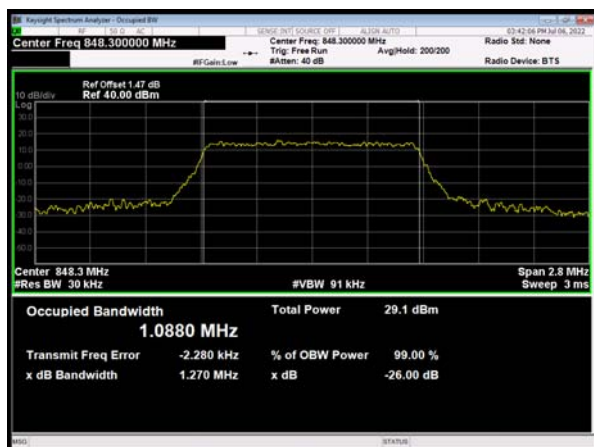
LTE Band 5 16QAM 1.4MHz CH-Middle



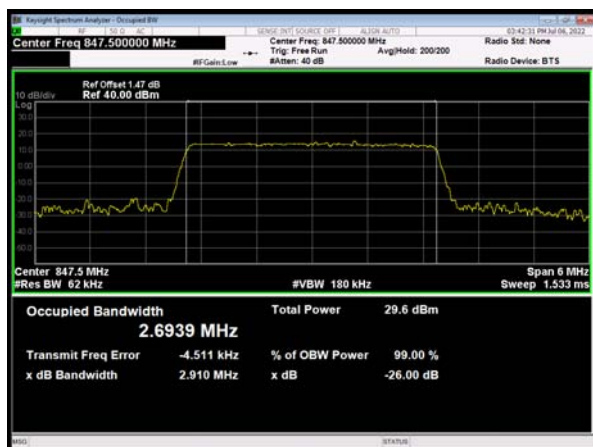
LTE Band 5 16QAM 3MHz CH-Middle



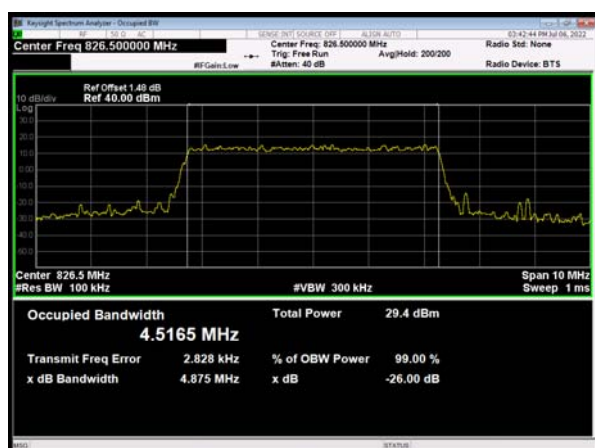
LTE Band 5 16QAM 1.4MHz CH-High



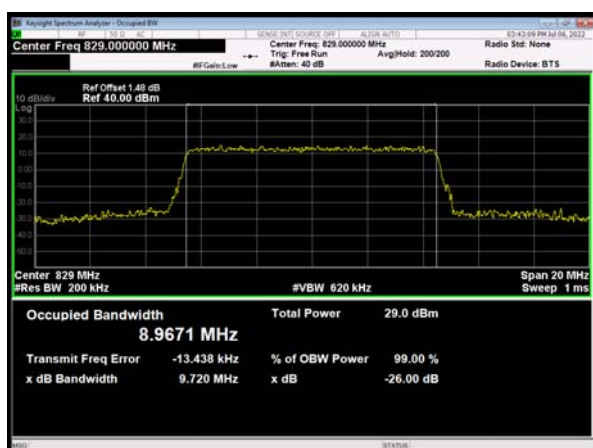
LTE Band 5 16QAM 3MHz CH-High



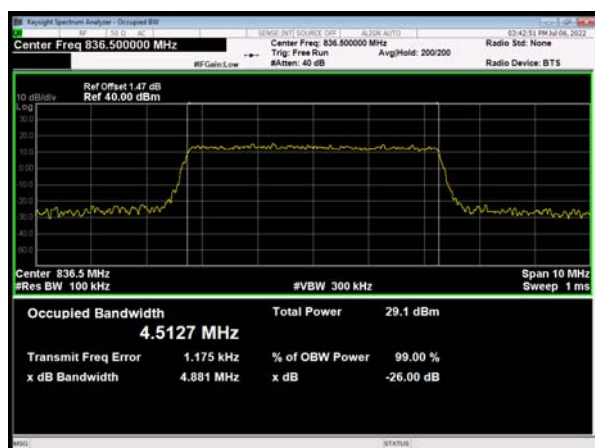
LTE Band 5 16QAM 5MHz CH-Low



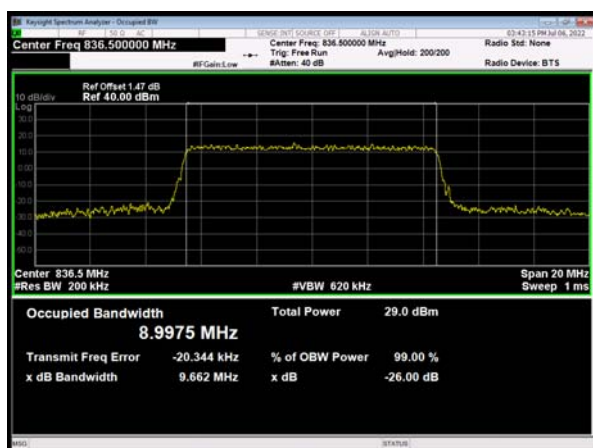
LTE Band 5 16QAM 10MHz CH-Low



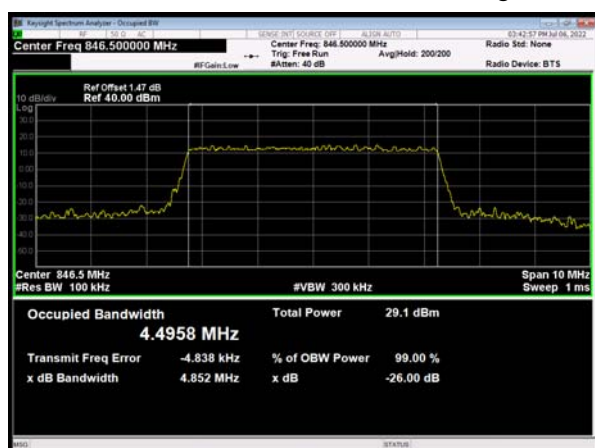
LTE Band 5 16QAM 5MHz CH-Middle



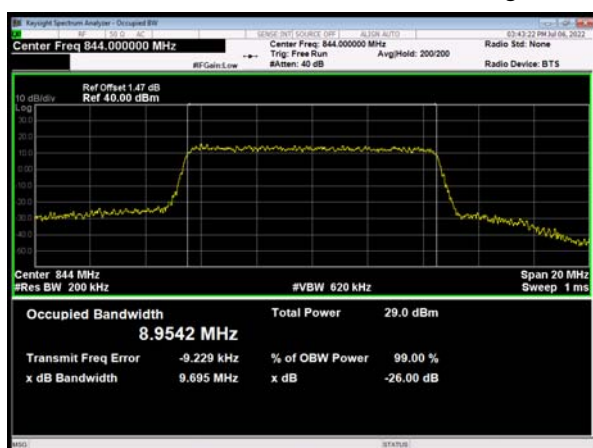
LTE Band 5 16QAM 10MHz CH-Middle



LTE Band 5 16QAM 5MHz CH-High

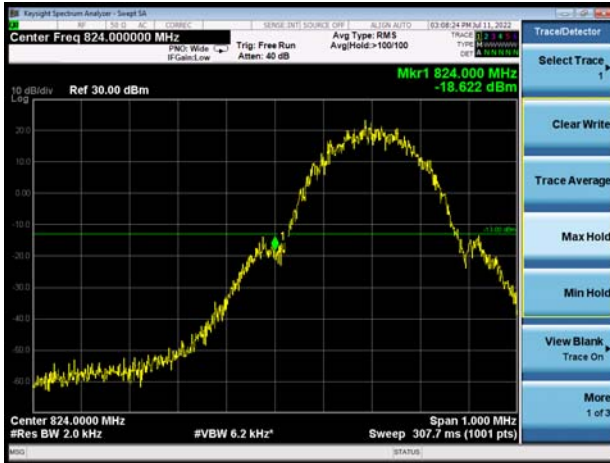


LTE Band 5 16QAM 10MHz CH-High



6.3. Band Edge Compliance

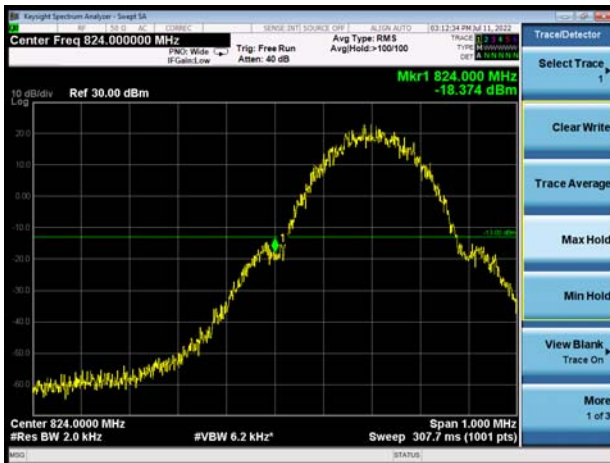
GSM 850 CH-Low



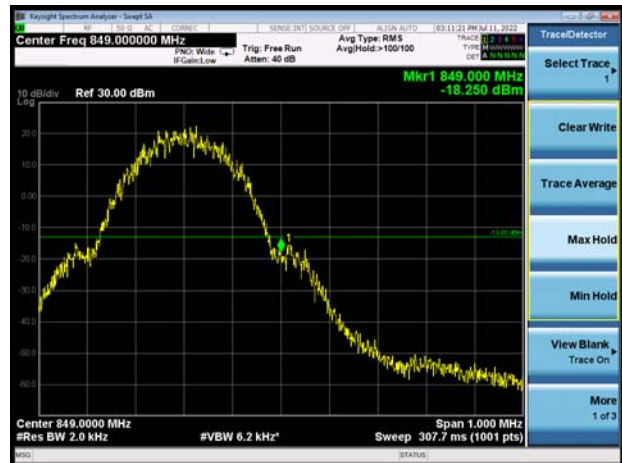
GSM 850 CH-High



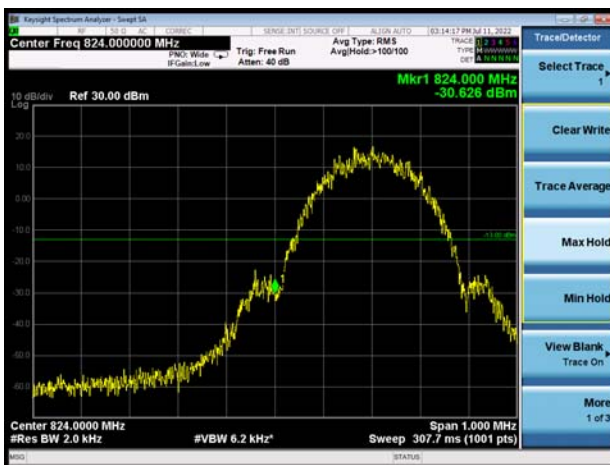
GSM 850 GPRS CH-Low



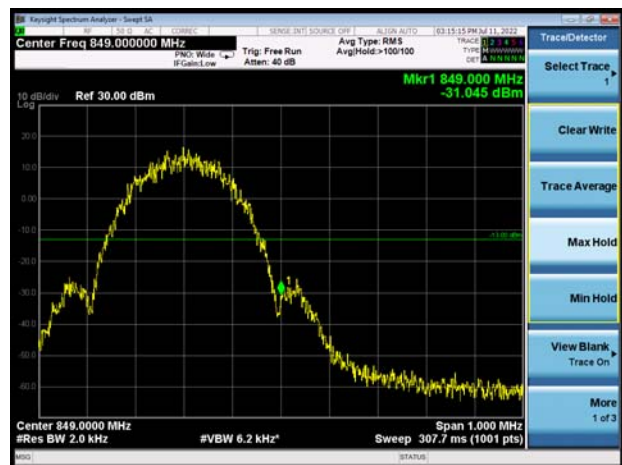
GSM 850 GPRS CH-High



GSM 850 EGPRS CH-Low

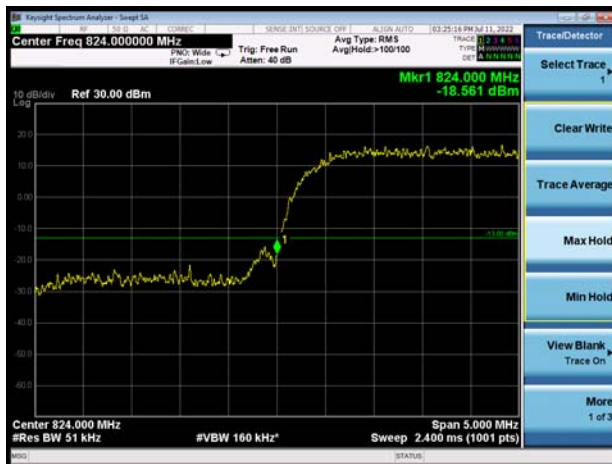


GSM 850 EGPRS CH-High





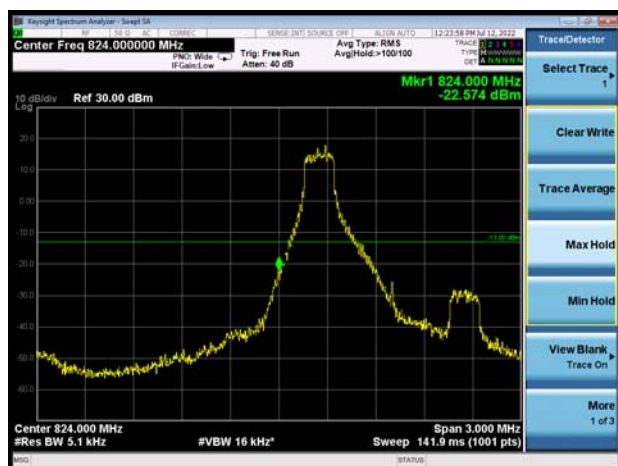
WCDMA Band V CH-Low



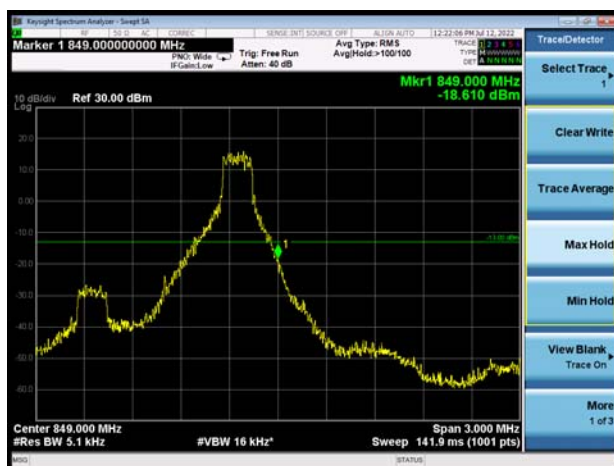
WCDMA Band V CH-High



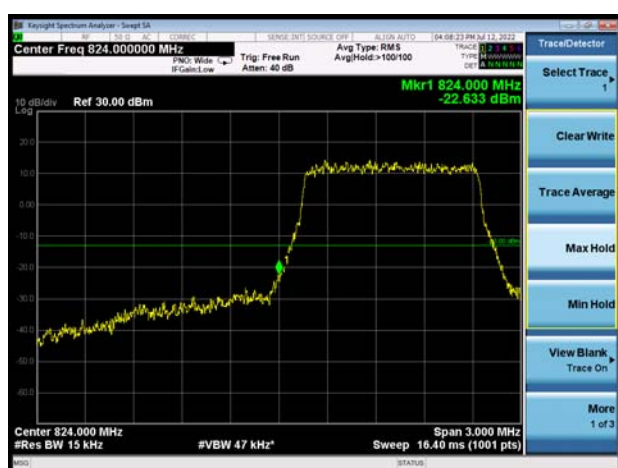
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



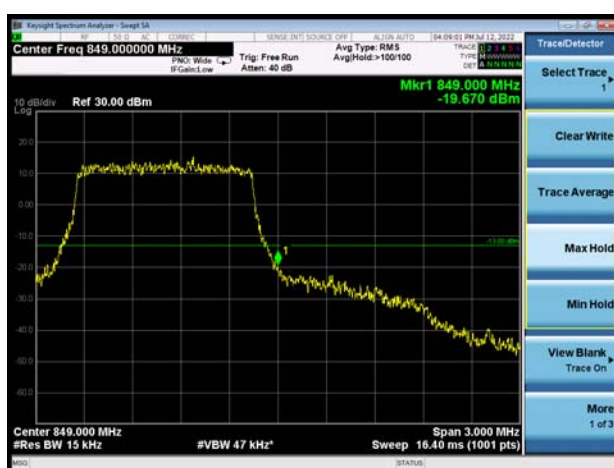
LTE Band 5 QPSK 1.4MHz CH-High 1RB



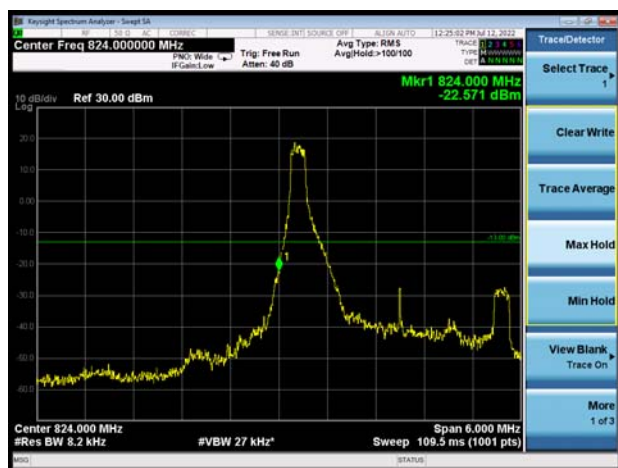
LTE Band 5 QPSK 1.4MHz CH-Low 100%RB



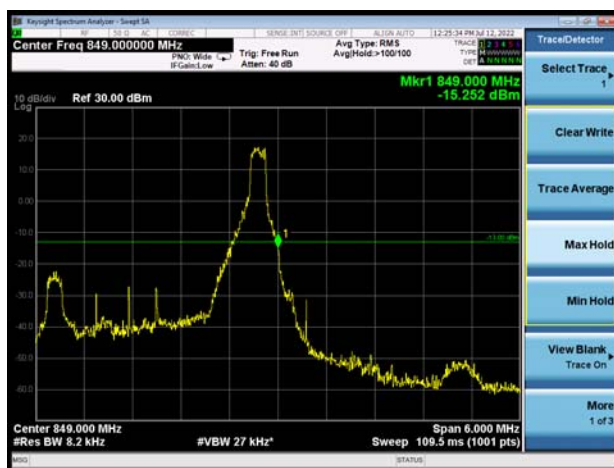
LTE Band 5 QPSK 1.4MHz CH-High 100%RB



LTE Band 5 QPSK 3MHz CH-Low 1RB

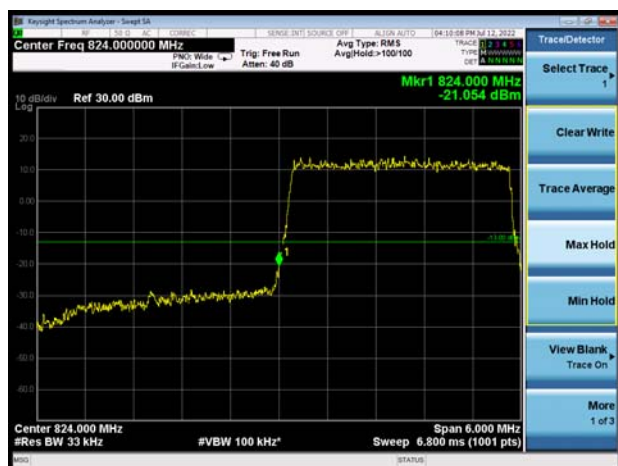


LTE Band 5 QPSK 3MHz CH-High 1RB

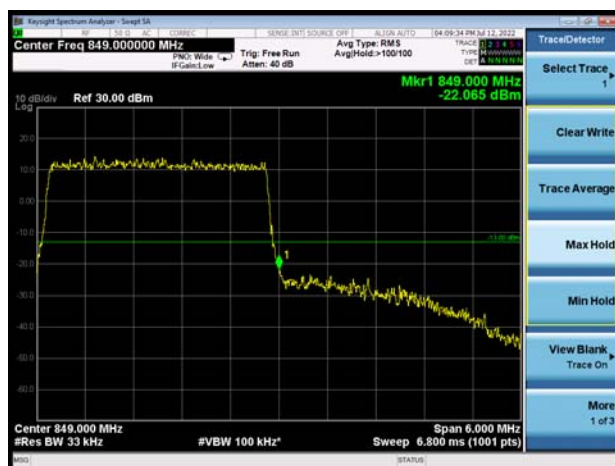




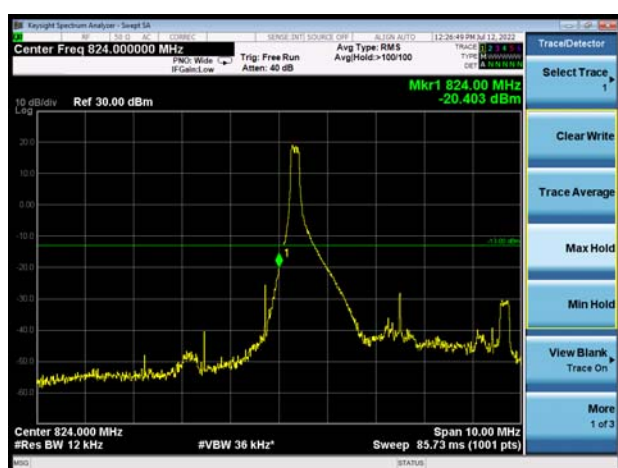
LTE Band 5 QPSK 3MHz CH-Low 100%RB



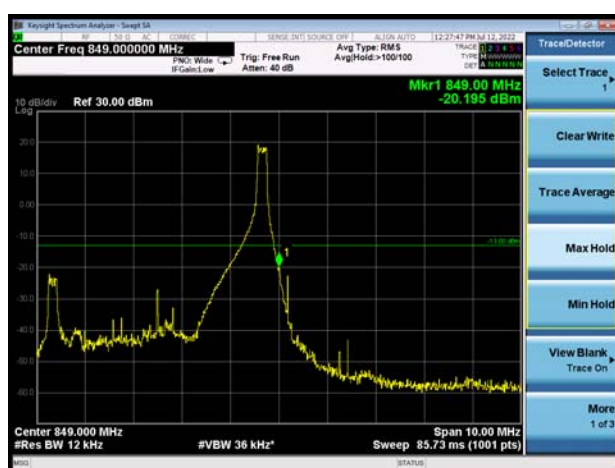
LTE Band 5 QPSK 3MHz CH-High 100%RB



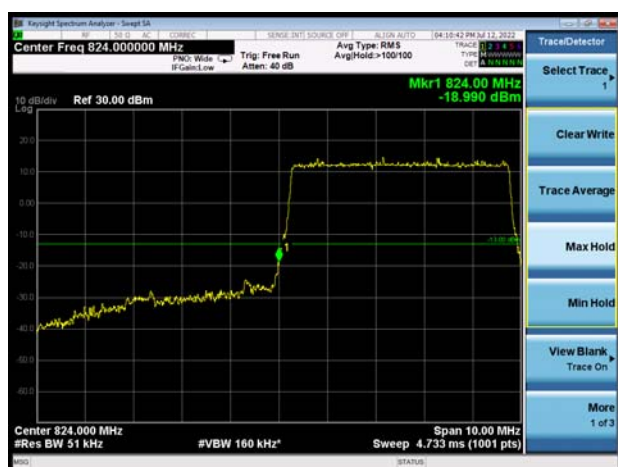
LTE Band 5 QPSK 5MHz CH-Low 1RB



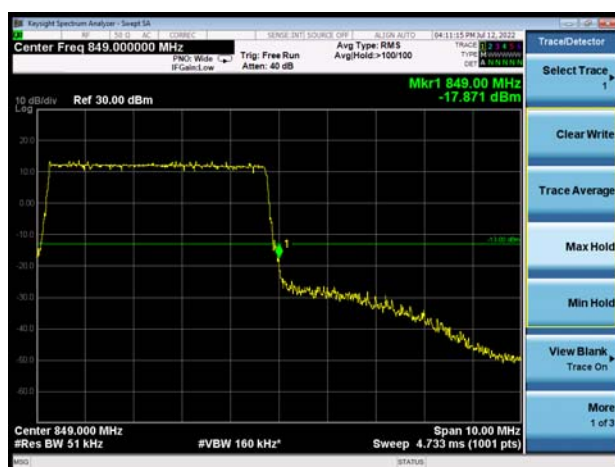
LTE Band 5 QPSK 5MHz CH-High 1RB



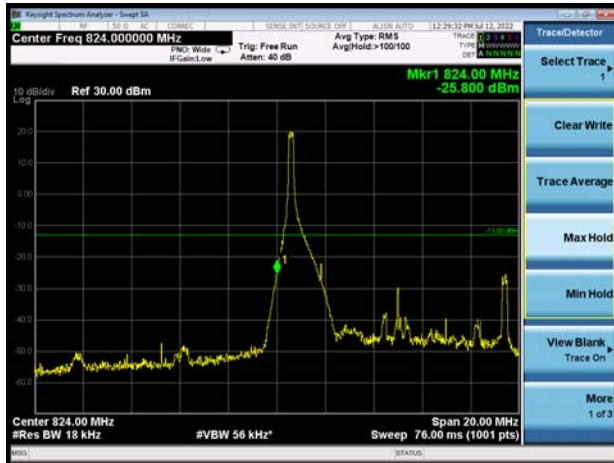
LTE Band 5 QPSK 5MHz CH-Low 100%RB



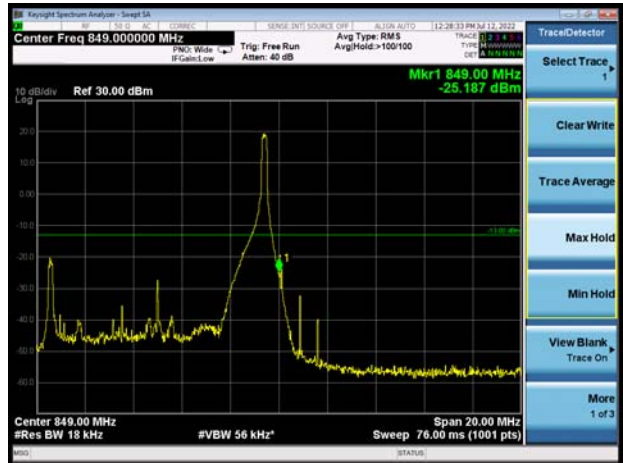
LTE Band 5 QPSK 5MHz CH-High 100%RB



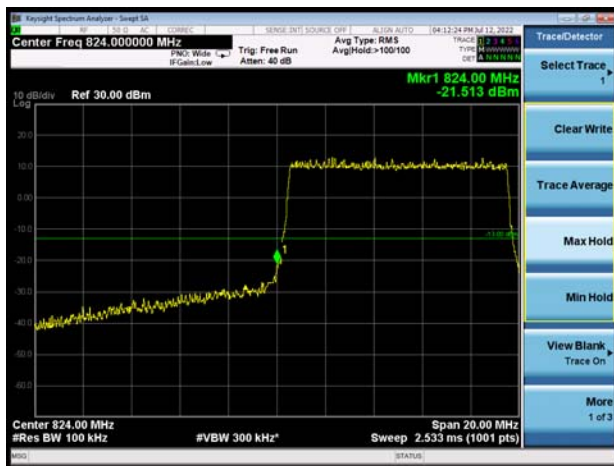
LTE Band 5 QPSK 10MHz CH-Low 1RB



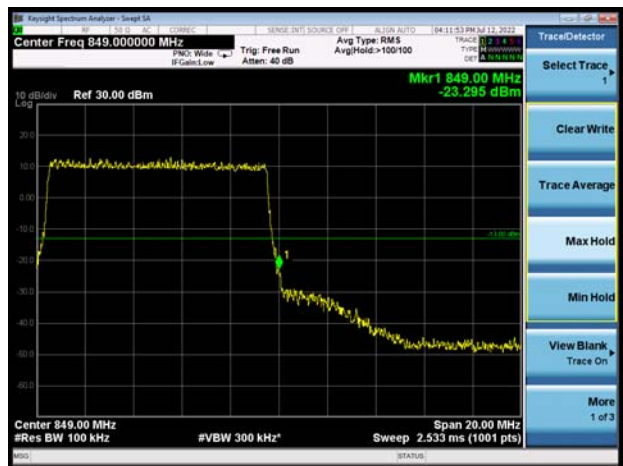
LTE Band 5 QPSK 10MHz CH-High 1RB



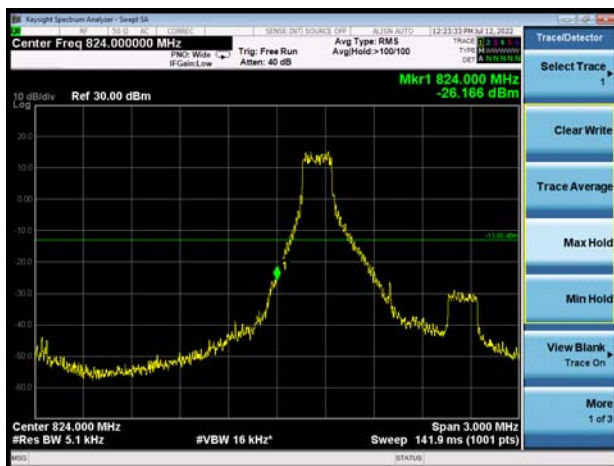
LTE Band 5 QPSK 10MHz CH-Low 100%RB



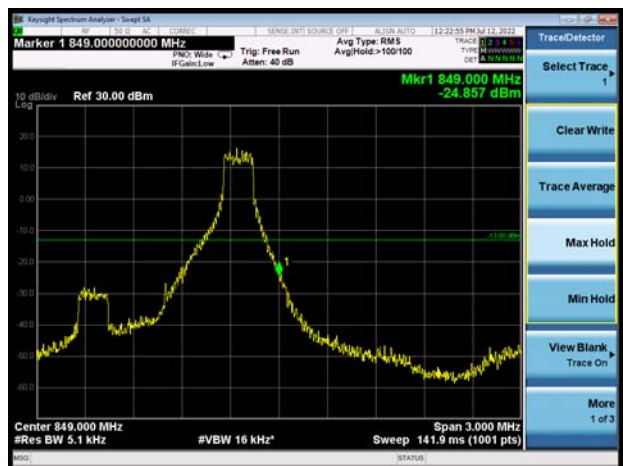
LTE Band 5 QPSK 10MHz CH-High 100%RB



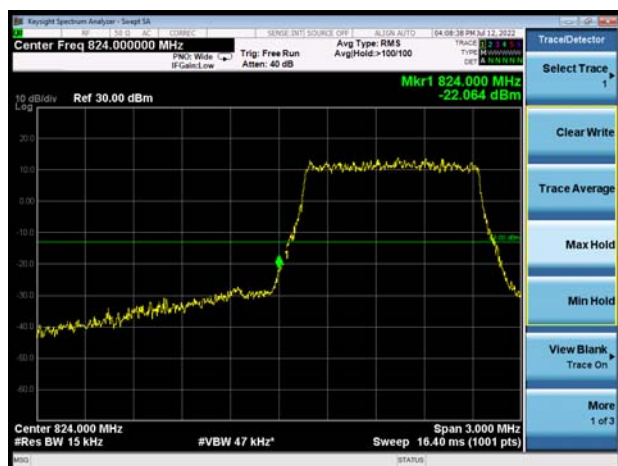
LTE Band 5 16QAM 1.4MHz CH-Low 1RB



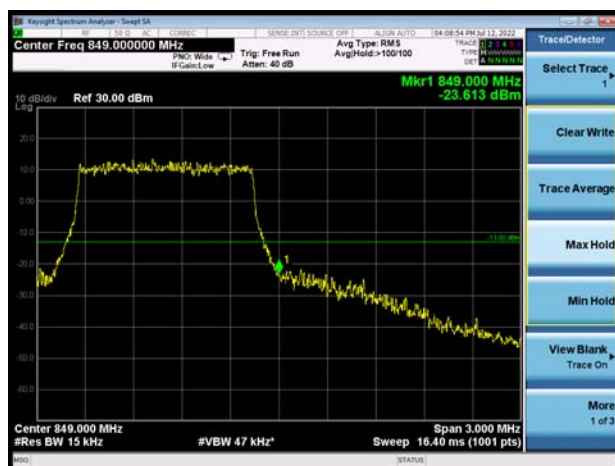
LTE Band 5 16QAM 1.4MHz CH-High 1RB



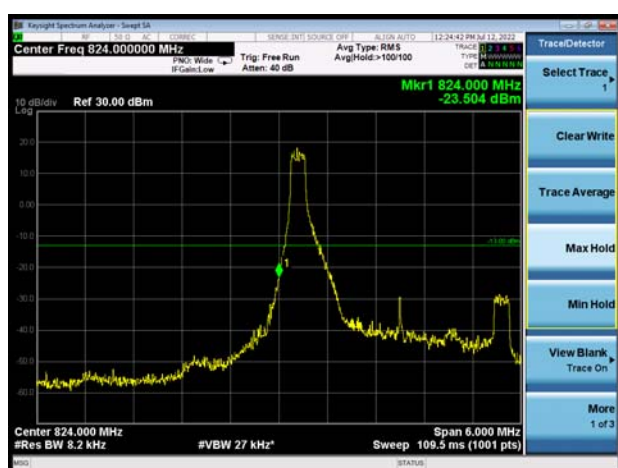
LTE Band 5 16QAM 1.4MHz CH-Low 100%RB



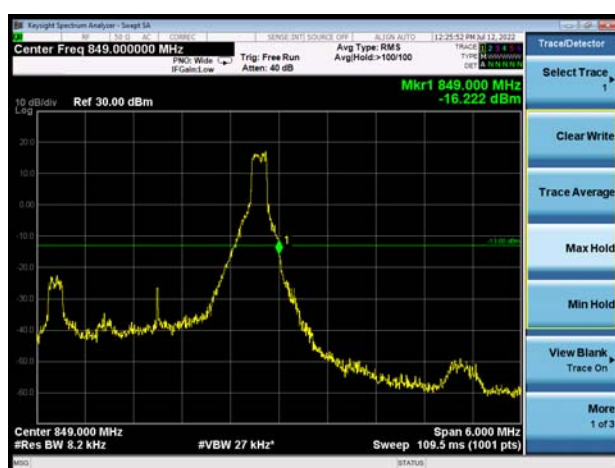
LTE Band 5 16QAM 1.4MHz CH-High 100%RB



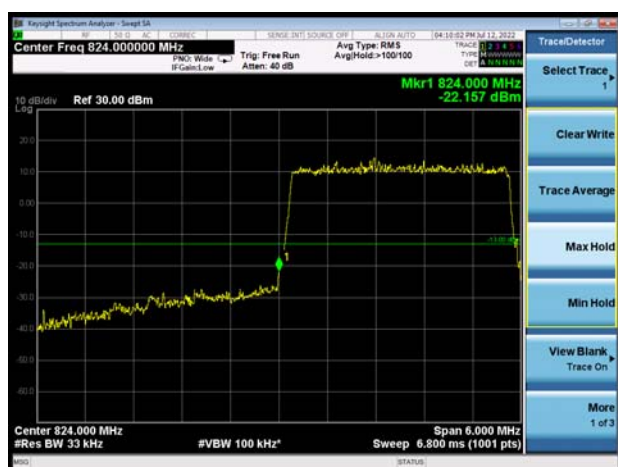
LTE Band 5 16QAM 3MHz CH-Low 1RB



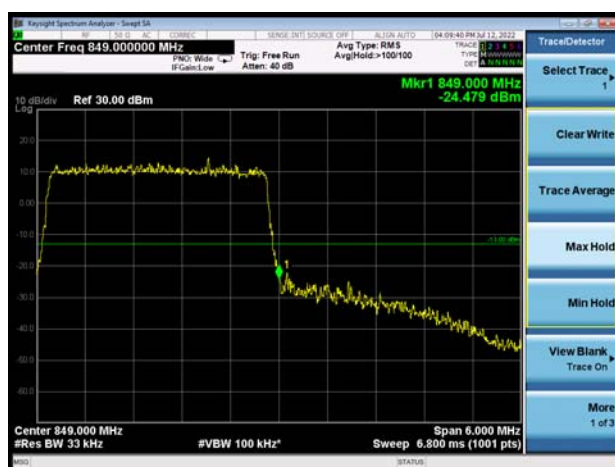
LTE Band 5 16QAM 3MHz CH-High 1RB



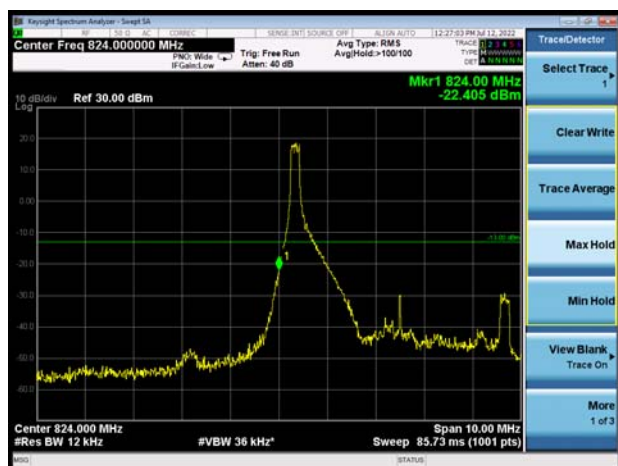
LTE Band 5 16QAM 3MHz CH-Low 100%RB



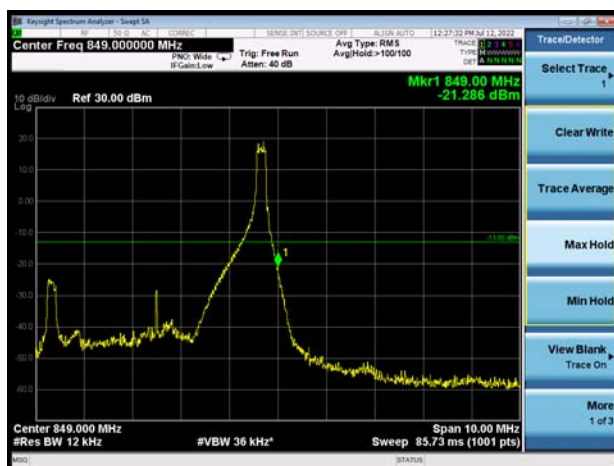
LTE Band 5 16QAM 3MHz CH-High 100%RB



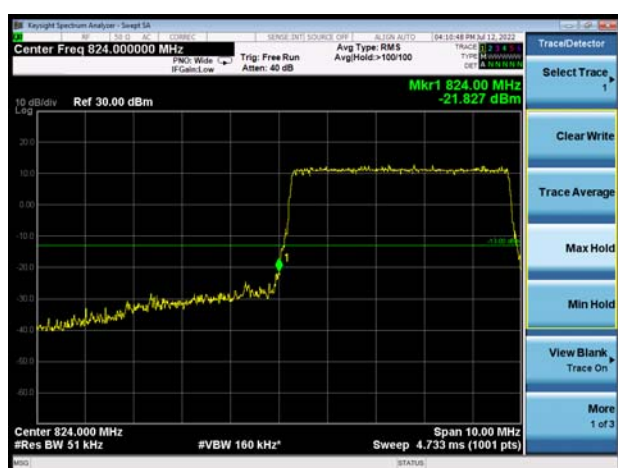
LTE Band 5 16QAM 5MHz CH-Low 1RB



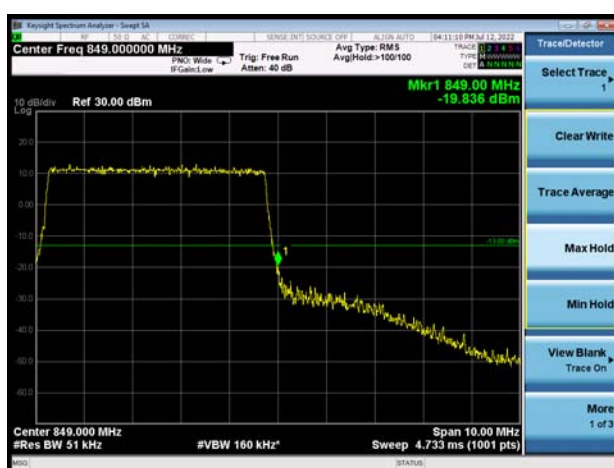
LTE Band 5 16QAM 5MHz CH-High 1RB



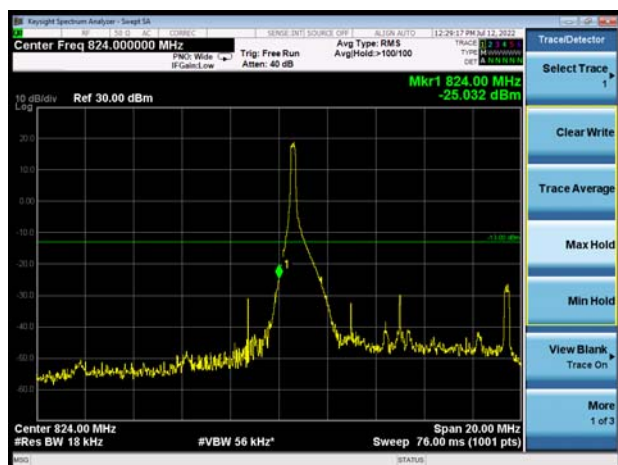
LTE Band 5 16QAM 5MHz CH-Low 100%RB



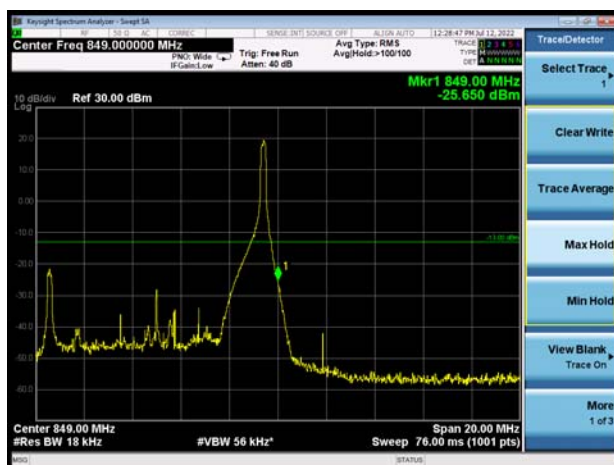
LTE Band 5 16QAM 5MHz CH-High 100%RB



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

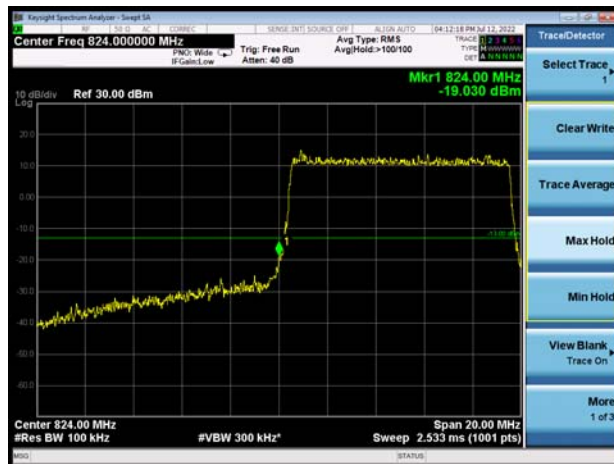


LTE Band 5 16QAM 10MHz CH-High 1RB

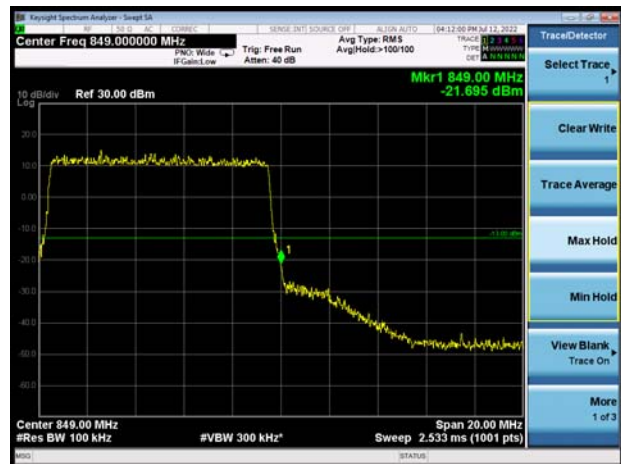




LTE Band 5 16QAM 10MHz CH-Low 100%RB



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



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

Mode	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
GSM 850 (GMSK)	128	824.2	32.25	29.61	2.64	≤13	PASS
	190	836.6	32.24	29.61	2.63	≤13	PASS
	251	848.8	32.20	29.57	2.63	≤13	PASS
GPRS 850 (GMSK)	128	824.2	32.30	29.66	2.64	≤13	PASS
	190	836.6	32.31	29.67	2.64	≤13	PASS
	251	848.8	32.26	29.62	2.64	≤13	PASS
EGPRS 850 (8PSK)	128	824.2	28.47	22.85	5.62	≤13	PASS
	190	836.6	28.61	22.98	5.63	≤13	PASS
	251	848.8	28.57	22.94	5.63	≤13	PASS
WCDMA Band V (RMC)	4132	826.4	26.49	23.50	2.99	≤13	PASS
	4183	836.6	26.37	23.55	2.82	≤13	PASS
	4233	846.6	26.36	23.49	2.87	≤13	PASS

LTE Band 5								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	20407	824.7	27.68	22.19	5.49	≤13	PASS
		20525	836.5	27.12	22.13	4.99	≤13	PASS
		20643	848.3	26.94	22.13	4.81	≤13	PASS
	3	20415	825.5	27.59	22.15	5.44	≤13	PASS
		20525	836.5	27.15	22.11	5.04	≤13	PASS
		20635	847.5	27.07	22.04	5.03	≤13	PASS
	5	20425	826.5	27.62	22.13	5.49	≤13	PASS
		20525	836.5	27.23	22.13	5.10	≤13	PASS
		20625	846.5	27.28	22.06	5.22	≤13	PASS
	10	20450	829	27.41	22.16	5.25	≤13	PASS
		20525	836.5	27.37	22.15	5.22	≤13	PASS
		20600	844	27.45	22.09	5.36	≤13	PASS
16QAM	1.4	20407	824.7	27.42	21.19	6.23	≤13	PASS
		20525	836.5	26.94	21.19	5.75	≤13	PASS
		20643	848.3	26.84	21.14	5.70	≤13	PASS
	3	20415	825.5	27.53	21.22	6.31	≤13	PASS



		20525	836.5	27.01	21.17	5.84	≤13	PASS
		20635	847.5	26.93	21.02	5.91	≤13	PASS
	5	20425	826.5	27.43	21.19	6.24	≤13	PASS
		20525	836.5	27.04	21.15	5.89	≤13	PASS
		20625	846.5	27.12	21.09	6.03	≤13	PASS
	10	20450	829	27.30	21.20	6.10	≤13	PASS
		20525	836.5	27.14	21.19	5.95	≤13	PASS
		20600	844	27.34	21.13	6.21	≤13	PASS

6.5. Frequency Stability

GSM 850						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	GMSK	8PSK	GMSK	8PSK	
Normal (25℃)	Normal	14.33	12.29	0.01713	0.01469	PASS
Extreme (50℃)		13.38	12.63	0.01600	0.01509	PASS
Extreme (40℃)		17.61	3.54	0.02105	0.00423	PASS
Extreme (30℃)		10.69	3.59	0.01278	0.00430	PASS
Extreme (20℃)		10.88	12.45	0.01301	0.01489	PASS
Extreme (10℃)		10.59	11.27	0.01266	0.01347	PASS
Extreme (0℃)		2.22	4.17	0.00265	0.00499	PASS
Extreme (-10℃)		1.71	5.07	0.00205	0.00606	PASS
Extreme (-20℃)		9.29	15.35	0.01111	0.01835	PASS
Extreme (-30℃)		4.60	5.37	0.00550	0.00641	PASS
25℃	LV	17.55	15.04	0.02098	0.01798	PASS
	HV	3.35	16.34	0.00400	0.01953	PASS

WCDMA Band V						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
Normal (25℃)	Normal	1.33	11.23	0.00159	0.01342	PASS
Extreme (50℃)		12.33	12.23	0.01474	0.01462	PASS
Extreme (40℃)		1.97	7.93	0.00236	0.00948	PASS
Extreme (30℃)		1.80	5.12	0.00215	0.00612	PASS
Extreme (20℃)		8.48	11.13	0.01013	0.01330	PASS
Extreme (10℃)		7.39	16.08	0.00883	0.01922	PASS
Extreme (0℃)		13.97	12.95	0.01670	0.01548	PASS
Extreme (-10℃)		3.25	10.76	0.00389	0.01286	PASS
Extreme (-20℃)		1.37	5.58	0.00164	0.00667	PASS
Extreme (-30℃)		11.85	3.35	0.01416	0.00400	PASS
25℃	LV	2.08	13.76	0.00248	0.01645	PASS
	HV	12.31	14.38	0.01471	0.01719	PASS



LTE Band 5						
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	1.4MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	PASS
Normal (25℃)	Normal	7.94	8.92	0.00949	0.01066	
Extreme (50℃)		11.58	12.75	0.01385	0.01524	
Extreme (40℃)		12.48	14.74	0.01492	0.01761	
Extreme (30℃)		3.22	1.48	0.00384	0.00176	
Extreme (20℃)		10.36	4.05	0.01239	0.00484	
Extreme (10℃)		17.74	2.33	0.02121	0.00279	
Extreme (0℃)		2.42	8.52	0.00290	0.01019	
Extreme (-10℃)		2.51	1.06	0.00299	0.00127	
Extreme (-20℃)		6.80	15.92	0.00813	0.01902	
Extreme (-30℃)		5.41	17.22	0.00647	0.02059	
25℃	LV	10.39	1.26	0.01241	0.00151	PASS
	HV	1.54	16.22	0.00184	0.01939	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	3MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	PASS
Normal (25℃)	Normal	2.71	17.50	0.00324	0.02091	
Extreme (50℃)		17.87	3.05	0.02136	0.00365	
Extreme (40℃)		7.41	5.01	0.00886	0.00599	
Extreme (30℃)		3.15	10.14	0.00377	0.01212	
Extreme (20℃)		7.09	11.03	0.00847	0.01318	
Extreme (10℃)		4.05	14.46	0.00484	0.01728	
Extreme (0℃)		7.18	9.08	0.00858	0.01085	
Extreme (-10℃)		10.47	14.21	0.01252	0.01699	
Extreme (-20℃)		17.25	4.37	0.02063	0.00523	
Extreme (-30℃)		3.94	13.92	0.00470	0.01664	
25℃	LV	6.96	3.66	0.00832	0.00438	PASS
	HV	14.86	8.69	0.01776	0.01039	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz					
Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	PASS
Normal (25℃)	Normal	9.62	8.36	0.01150	0.01000	
Extreme (50℃)		5.50	11.82	0.00657	0.01413	
Extreme (40℃)		9.51	2.67	0.01136	0.00320	



Extreme (30℃)		17.34	6.07	0.02072	0.00726	PASS
Extreme (20℃)		1.56	7.17	0.00187	0.00857	PASS
Extreme (10℃)		16.08	2.03	0.01922	0.00242	PASS
Extreme (0℃)		8.44	13.25	0.01008	0.01584	PASS
Extreme (-10℃)		15.49	17.25	0.01852	0.02062	PASS
Extreme (-20℃)		17.87	14.26	0.02136	0.01704	PASS
Extreme (-30℃)		4.74	7.23	0.00567	0.00864	PASS
25℃	LV	17.05	9.75	0.02039	0.01165	PASS
	HV	13.18	10.05	0.01576	0.01201	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	15.47	2.05	0.01849	0.00245	PASS
Extreme (50℃)		10.23	1.45	0.01223	0.00173	PASS
Extreme (40℃)		1.00	16.41	0.00120	0.01961	PASS
Extreme (30℃)		3.81	3.88	0.00456	0.00463	PASS
Extreme (20℃)		1.93	3.55	0.00230	0.00424	PASS
Extreme (10℃)		9.64	16.17	0.01153	0.01933	PASS
Extreme (0℃)		3.84	9.98	0.00459	0.01192	PASS
Extreme (-10℃)		2.31	5.64	0.00276	0.00674	PASS
Extreme (-20℃)		4.88	4.14	0.00584	0.00495	PASS
Extreme (-30℃)		17.66	17.23	0.02110	0.02060	PASS
25℃	LV	10.43	7.67	0.01247	0.00916	PASS
	HV	1.96	12.22	0.00234	0.01460	PASS

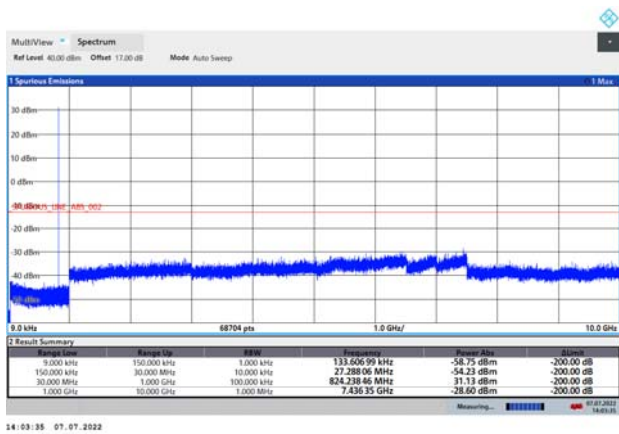


6.6. Spurious Emissions at Antenna Terminals

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.

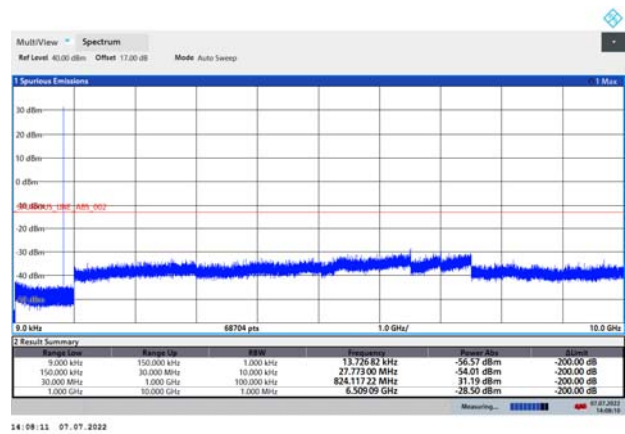
The signal beyond the limit is carrier.

GSM 850 CH-Low 9kHz ~ 10GHz



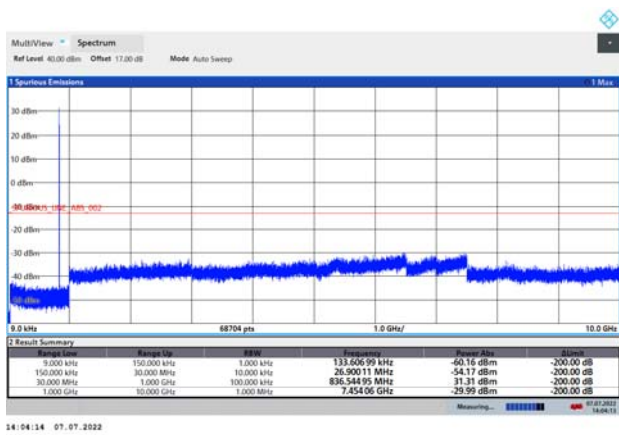
14:03:35 07.07.2022

GPRS 850 CH-Low 9kHz ~ 10GHz



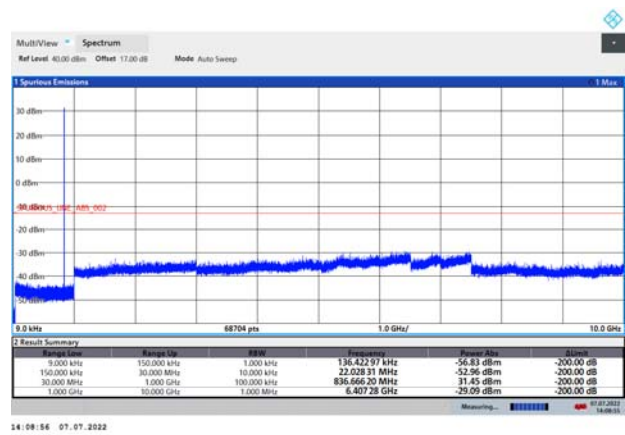
14:08:11 07.07.2022

GSM 850 CH-Middle 9kHz ~ 10GHz



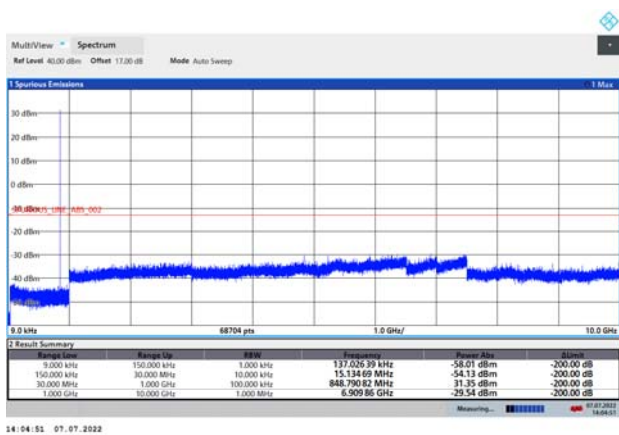
14:04:14 07.07.2022

GPRS 850 CH-Middle 9kHz ~ 10GHz



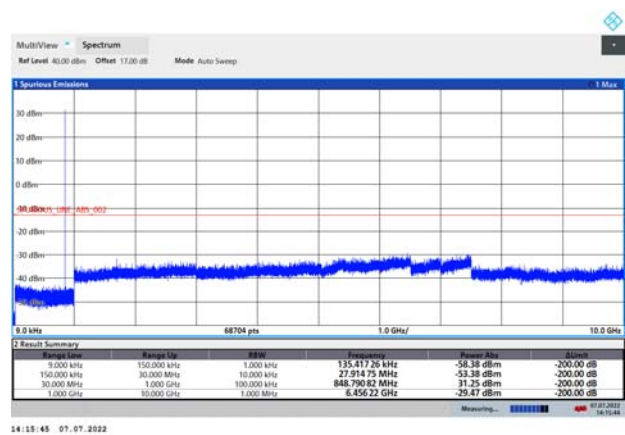
14:09:56 07.07.2022

GSM 850 CH-High 9kHz ~ 10GHz



14:04:51 07.07.2022

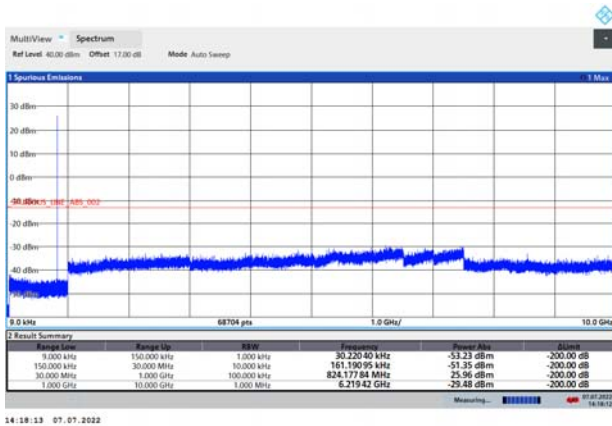
GPRS 850 CH-High 9kHz ~ 10GHz



14:18:45 07.07.2022

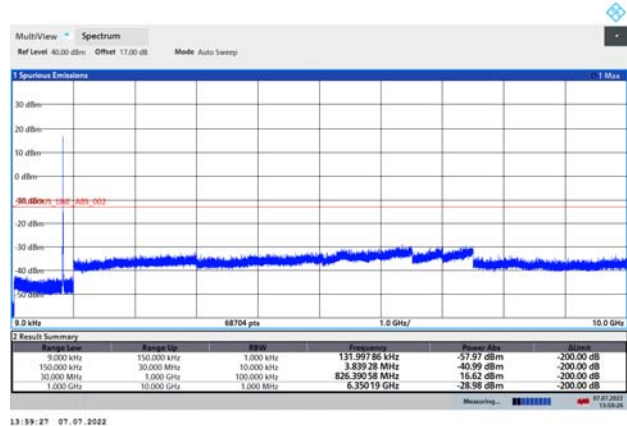


EGPRS 850 CH-Low 9kHz ~ 10GHz



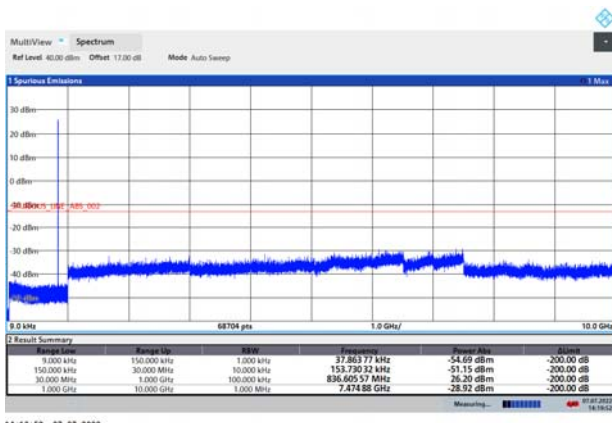
14:18:13 07.07.2022

WCDMA BAND V CH-Low 9kHz ~ 10GHz



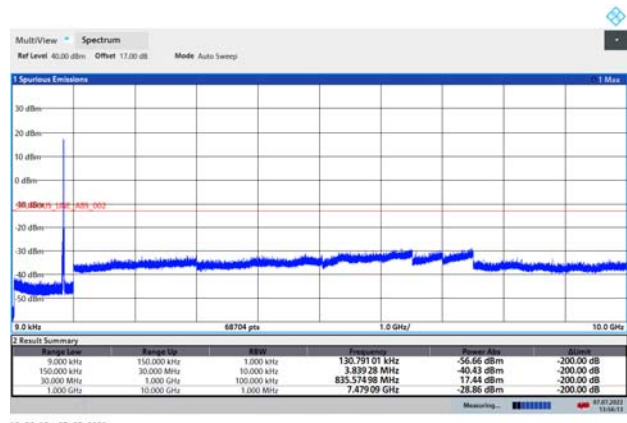
13:59:27 07.07.2022

EGPRS 850 CH-Middle 9kHz ~ 10GHz



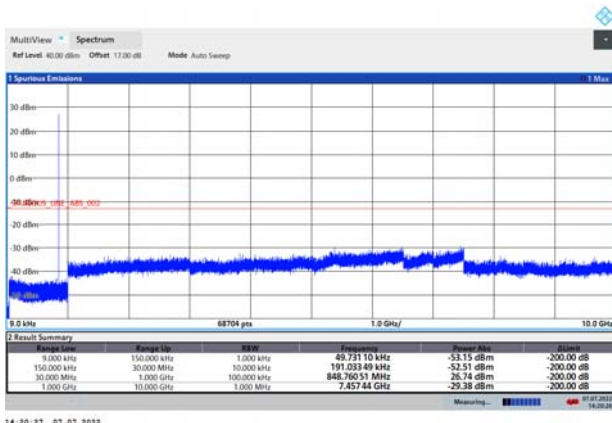
14:19:52 07.07.2022

WCDMA BAND V CH-Middle 9kHz ~ 10GHz



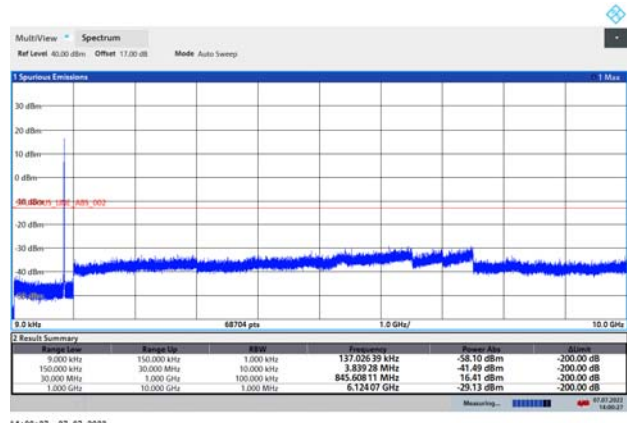
13:56:13 07.07.2022

EGPRS 850 CH-High 9kHz ~ 10GHz



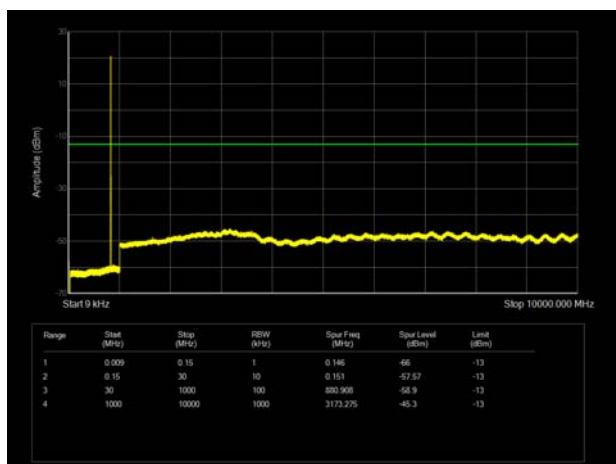
14:20:27 07.07.2022

WCDMA BAND V CH-High 9kHz ~ 10GHz

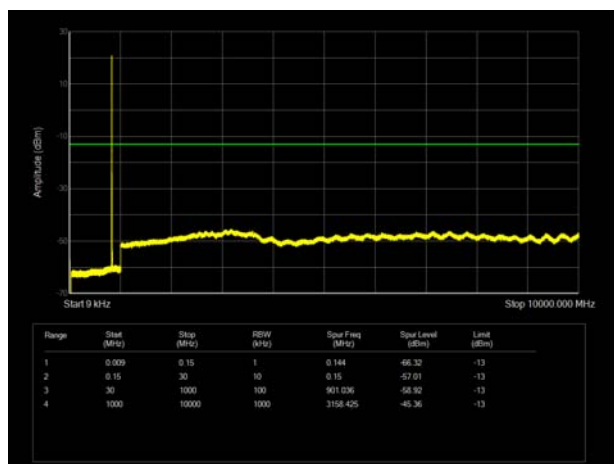


14:00:27 07.07.2022

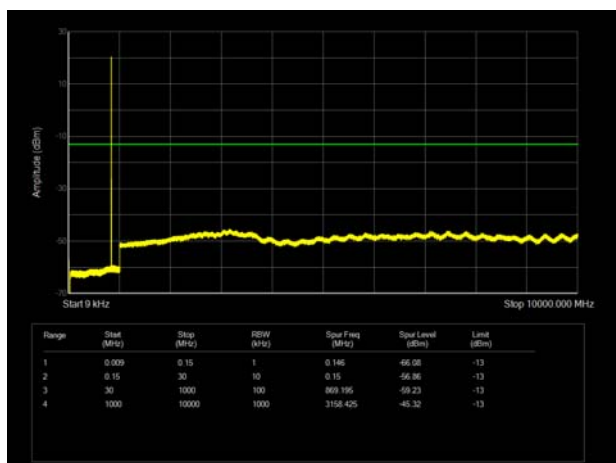
LTE Band 5 1.4MHz CH-Low 9kHz~10GHz



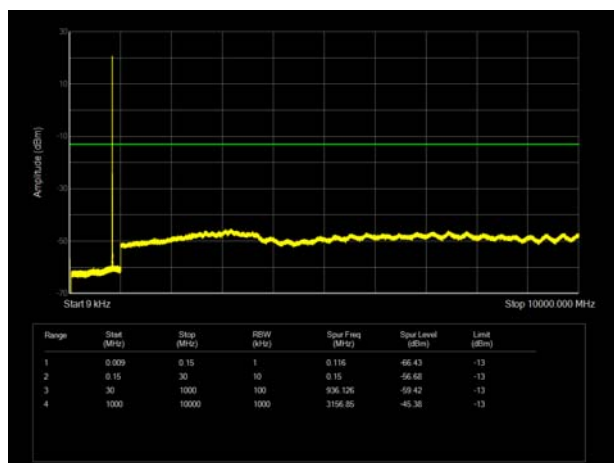
LTE Band 5 3MHz CH-Low 9kHz~10GHz



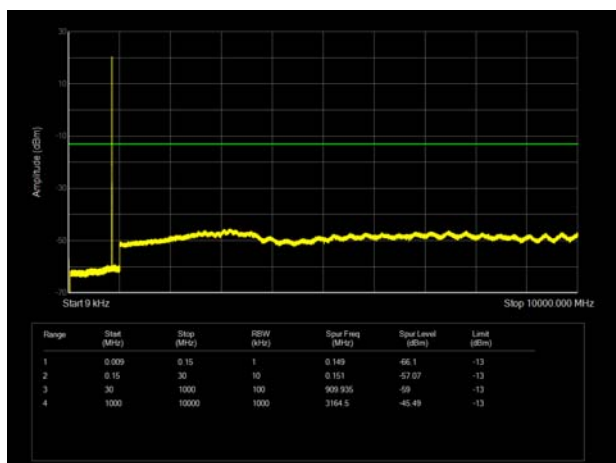
LTE Band 5 1.4MHz CH-Middle 9kHz~10GHz



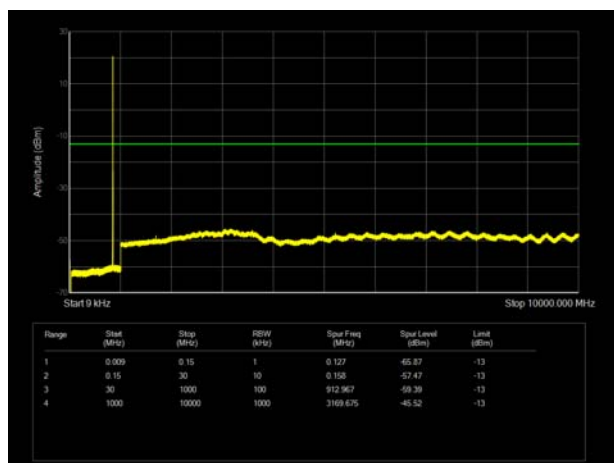
LTE Band 5 3MHz CH-Middle 9kHz~10GHz



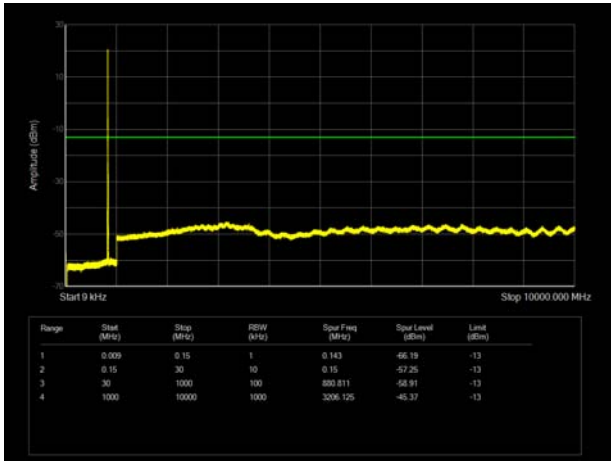
LTE Band 5 1.4MHz CH-High 9kHz~10GHz



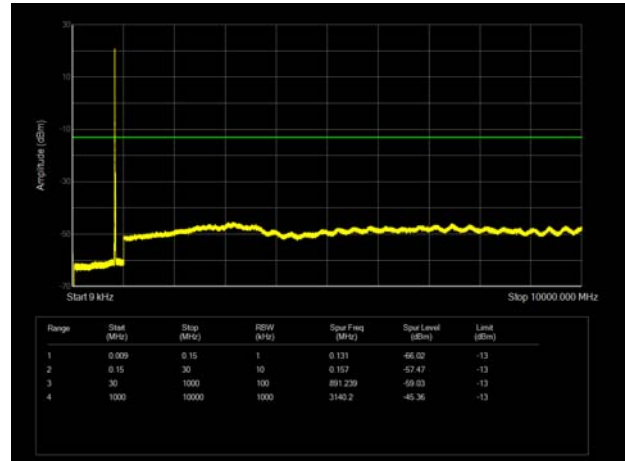
LTE Band 5 3MHz CH-High 9kHz~10GHz



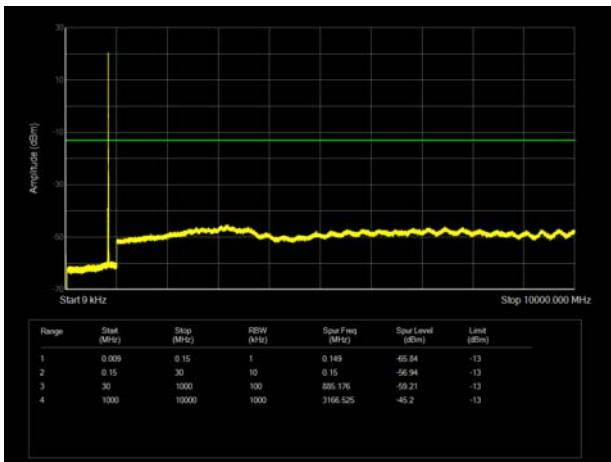
LTE Band 5 5MHz CH-Low 9kHz~10GHz



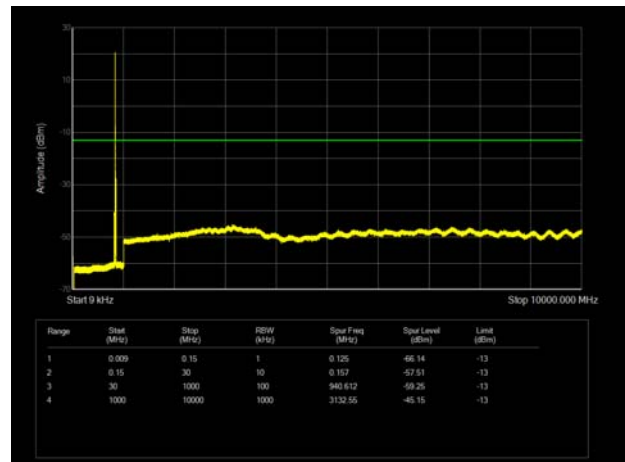
LTE Band 5 10MHz CH-Low 9kHz~10GHz



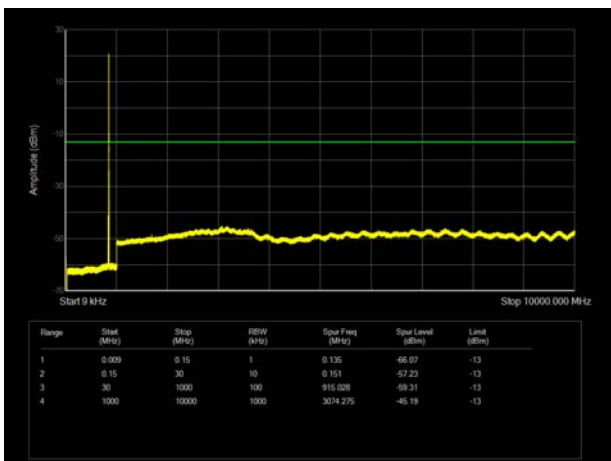
LTE Band 5 5MHz CH-Middle 9kHz~10GHz



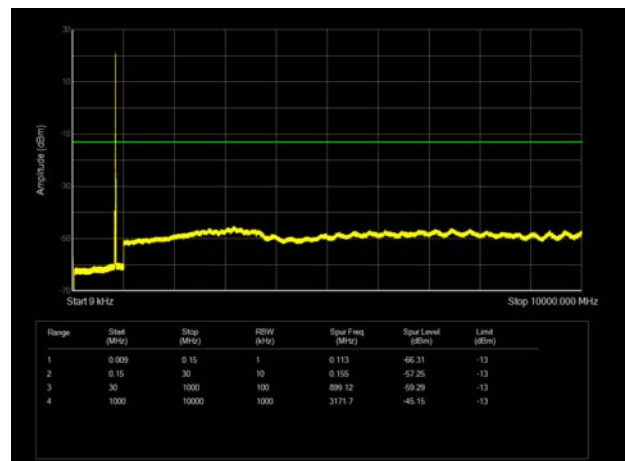
LTE Band 5 10MHz CH-Middle 9kHz~10GHz



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



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



6.7. 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.

Main Antenna

GSM 850 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.55	-62.51	1.70	8.70	Vertical	-57.66	-13.00	44.66	45
3	2509.80	-60.52	2.30	12.00	Vertical	-52.97	-13.00	39.97	90
4	3346.40	-65.89	2.70	12.70	Vertical	-58.04	-13.00	45.04	270
5	4183.00	-64.11	3.00	12.50	Vertical	-56.76	-13.00	43.76	0
6	5019.60	-62.18	3.40	12.50	Vertical	-55.23	-13.00	42.23	90
7	5856.20	-64.00	3.40	12.80	Vertical	-56.75	-13.00	43.75	45
8	6692.80	-59.67	4.10	11.50	Vertical	-54.42	-13.00	41.42	225
9	7529.40	-56.23	4.20	12.20	Vertical	-50.38	-13.00	37.38	90
10	8366.00	-54.56	4.30	12.50	Vertical	-48.51	-13.00	35.51	135

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1671.20	-66.29	1.70	8.70	Vertical	-61.44	-13.00	48.44	45
3	2510.40	-65.32	2.30	12.00	Vertical	-57.77	-13.00	44.77	0
4	3346.40	-66.05	2.70	12.70	Vertical	-58.20	-13.00	45.20	180
5	4183.00	-63.96	3.00	12.50	Vertical	-56.61	-13.00	43.61	0
6	5019.60	-64.17	3.40	12.50	Vertical	-57.22	-13.00	44.22	45
7	5856.20	-62.60	3.40	12.80	Vertical	-55.35	-13.00	42.35	315
8	6692.80	-54.25	4.10	11.50	Vertical	-49.00	-13.00	36.00	0
9	7529.40	-54.29	4.20	12.20	Vertical	-48.44	-13.00	35.44	180
10	8366.00	-54.38	4.30	12.50	Vertical	-48.33	-13.00	35.33	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 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-65.72	1.70	8.70	Vertical	-60.87	-13.00	47.87	0
3	2509.50	-66.10	2.30	12.00	Vertical	-58.55	-13.00	45.55	180
4	3346.00	-65.16	2.70	12.70	Vertical	-57.31	-13.00	44.31	45
5	4182.50	-64.29	3.00	12.50	Vertical	-56.94	-13.00	43.94	180
6	5019.00	-64.90	3.40	12.50	Vertical	-57.95	-13.00	44.95	0
7	5855.50	-63.03	3.40	12.80	Vertical	-55.78	-13.00	42.78	180
8	6692.00	-55.20	4.10	11.50	Vertical	-49.95	-13.00	36.95	315
9	7528.50	-52.84	4.20	12.20	Vertical	-46.99	-13.00	33.99	0
10	8365.00	-54.51	4.30	12.50	Vertical	-48.46	-13.00	35.46	315

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Vertical position.

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.60	-65.17	1.70	8.70	Vertical	-60.32	-13.00	47.32	225
3	2503.30	-65.90	2.30	12.00	Vertical	-58.35	-13.00	45.35	270
4	3337.50	-64.29	2.70	12.70	Vertical	-56.44	-13.00	43.44	0
5	4171.88	-64.12	3.00	12.50	Vertical	-56.77	-13.00	43.77	180
6	5006.25	-61.77	3.40	12.50	Vertical	-54.82	-13.00	41.82	225
7	5840.63	-63.49	3.40	12.80	Vertical	-56.24	-13.00	43.24	270
8	6675.00	-54.87	4.10	11.50	Vertical	-49.62	-13.00	36.62	0
9	7509.38	-52.35	4.20	12.20	Vertical	-46.50	-13.00	33.50	180
10	8343.75	-53.91	4.30	12.50	Vertical	-47.86	-13.00	34.86	45

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Vertical position.



LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1664.40	-66.41	1.70	8.70	Vertical	-61.56	-13.00	48.56	0
3	2496.60	-66.12	2.30	12.00	Vertical	-58.57	-13.00	45.57	180
4	3326.00	-65.33	2.70	12.70	Vertical	-57.48	-13.00	44.48	180
5	4157.50	-63.52	3.00	12.50	Vertical	-56.17	-13.00	43.17	0
6	4989.00	-63.64	3.40	12.50	Vertical	-56.69	-13.00	43.69	180
7	5820.50	-58.30	3.40	12.80	Vertical	-51.05	-13.00	38.05	315
8	6652.00	-54.69	4.10	11.50	Vertical	-49.44	-13.00	36.44	0
9	7483.50	-54.79	4.20	12.20	Vertical	-48.94	-13.00	35.94	315
10	8315.00	-53.82	4.30	12.50	Vertical	-47.77	-13.00	34.77	270

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Vertical position.

**Second Antenna**

GSM 850 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.25	-61.20	1.70	8.70	Horizontal	-56.35	-13.00	43.35	225
3	2509.80	-55.15	2.30	12.00	Horizontal	-47.60	-13.00	34.60	90
4	3346.40	-63.93	2.70	12.70	Horizontal	-56.08	-13.00	43.08	225
5	4183.00	-64.28	3.00	12.50	Horizontal	-56.93	-13.00	43.93	90
6	5019.60	-62.47	3.40	12.50	Horizontal	-55.52	-13.00	42.52	45
7	5856.20	-62.71	3.40	12.80	Horizontal	-55.46	-13.00	42.46	315
8	6692.80	-58.40	4.10	11.50	Horizontal	-53.15	-13.00	40.15	90
9	7529.40	-54.74	4.20	12.20	Horizontal	-48.89	-13.00	35.89	45
10	8366.00	-54.65	4.30	12.50	Horizontal	-48.60	-13.00	35.60	225
Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1671.20	-64.37	1.70	8.70	Horizontal	-59.52	-13.00	46.52	90
3	2510.40	-60.56	2.30	12.00	Horizontal	-53.01	-13.00	40.01	180
4	3346.40	-66.54	2.70	12.70	Horizontal	-58.69	-13.00	45.69	0
5	4183.00	-64.75	3.00	12.50	Horizontal	-57.40	-13.00	44.40	45
6	5019.60	-62.91	3.40	12.50	Horizontal	-55.96	-13.00	42.96	225
7	5856.20	-62.60	3.40	12.80	Horizontal	-55.35	-13.00	42.35	90
8	6692.80	-59.46	4.10	11.50	Horizontal	-54.21	-13.00	41.21	45
9	7529.40	-55.48	4.20	12.20	Horizontal	-49.63	-13.00	36.63	315
10	8366.00	-55.00	4.30	12.50	Horizontal	-48.95	-13.00	35.95	90
Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-60.98	1.70	8.70	Horizontal	-56.13	-13.00	43.13	0
3	2509.50	-56.03	2.30	12.00	Horizontal	-48.48	-13.00	35.48	225
4	3346.00	-64.65	2.70	12.70	Horizontal	-56.80	-13.00	43.80	45
5	4182.50	-64.41	3.00	12.50	Horizontal	-57.06	-13.00	44.06	180
6	5019.00	-63.86	3.40	12.50	Horizontal	-56.91	-13.00	43.91	0
7	5855.50	-61.88	3.40	12.80	Horizontal	-54.63	-13.00	41.63	180
8	6692.00	-54.59	4.10	11.50	Horizontal	-49.34	-13.00	36.34	315
9	7528.50	-53.28	4.20	12.20	Horizontal	-47.43	-13.00	34.43	0
10	8365.00	-54.51	4.30	12.50	Horizontal	-48.46	-13.00	35.46	315

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.60	-59.57	1.70	8.70	Horizontal	-54.72	-13.00	41.72	135
3	2503.30	-55.72	2.30	12.00	Horizontal	-48.17	-13.00	35.17	90
4	3337.50	-64.31	2.70	12.70	Horizontal	-56.46	-13.00	43.46	0
5	4171.88	-62.82	3.00	12.50	Horizontal	-55.47	-13.00	42.47	180
6	5006.25	-64.32	3.40	12.50	Horizontal	-57.37	-13.00	44.37	225
7	5840.63	-62.90	3.40	12.80	Horizontal	-55.65	-13.00	42.65	270
8	6675.00	-56.17	4.10	11.50	Horizontal	-50.92	-13.00	37.92	0
9	7509.38	-53.39	4.20	12.20	Horizontal	-47.54	-13.00	34.54	180
10	8343.75	-54.12	4.30	12.50	Horizontal	-48.07	-13.00	35.07	45

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.



LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1664.40	-64.01	1.70	8.70	Horizontal	-59.16	-13.00	46.16	0
3	2496.60	-59.78	2.30	12.00	Horizontal	-52.23	-13.00	39.23	135
4	3326.00	-64.34	2.70	12.70	Horizontal	-56.49	-13.00	43.49	180
5	4157.50	-63.99	3.00	12.50	Horizontal	-56.64	-13.00	43.64	0
6	4989.00	-63.85	3.40	12.50	Horizontal	-56.90	-13.00	43.90	180
7	5820.50	-63.40	3.40	12.80	Horizontal	-56.15	-13.00	43.15	315
8	6652.00	-54.46	4.10	11.50	Horizontal	-49.21	-13.00	36.21	0
9	7483.50	-54.18	4.20	12.20	Horizontal	-48.33	-13.00	35.33	315
10	8315.00	-54.31	4.30	12.50	Horizontal	-48.26	-13.00	35.26	270

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is Horizontal position.



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	150415	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
Spectrum 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.



ANNEX C: Product Change Description

The Product Change Description are submitted separately.