



RF TEST REPORT

Applicant SAGETEL (HONG KONG) CO. LIMITED
FCC ID 2AT2L-HINTO-LITE
Product 4G Feature Phone
Brand altice; Sagetel
Model altice F4; Sagetel Hinto lite
Report No. R2205A0384-R1
Issue Date June 1, 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: Peng Tao

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

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	31
6.4. Peak-to-Average Power Ratio (PAPR)	38
6.5. Frequency Stability	40
6.6. Spurious Emissions at Antenna Terminals	43
6.7. Radiates Spurious Emission	47
7. Main Test Instruments	50
ANNEX A: The EUT Appearance	51
ANNEX B: Test Setup Photos	52

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: May 9, 2022 ~ May 13, 2022 and May 22, 2022

Date of Sample Received: May 5, 2022

Note: PASS: The EUT complies with the essential requirements in the standard.

FAIL: The EUT does not comply with the essential requirements in the standard.

All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.



1. Test Laboratory

1.1. Notes of the Test Report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
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	SAGETEL (HONG KONG) CO. LIMITED
Applicant address	FLAT D39. 8/F WAH LOK IND CTR PHASE 2, 31-35 SHAN MEI ST FO TAN SHATIN NT
Manufacturer	SAGETEL (HONG KONG) CO. LIMITED
Manufacturer address	FLAT D39. 8/F WAH LOK IND CTR PHASE 2, 31-35 SHAN MEI ST FO TAN SHATIN NT

2.2. General Information

EUT Description			
Model	altice F4; Sagetel Hinto lite		
IMEI	352847500227382		
Hardware Version	V01E		
Software Version	ALTICE_GX2421L_SS_L_V01_FCC_220428		
Power Supply	Battery / AC Adapter		
Antenna Type	PIFA Antenna		
Antenna Gain	Band	Gain(dBi)	
	GSM 850:	1.0	
	WCDMA Band V	-0.5	
	LTE Band 5:	-1.5	
Test Mode(s)	GSM 850; WCDMA Band V; LTE Band 5;		
Test Modulation	(GSM/GPRS)GMSK, (EGPRS) GMSK/ 8PSK; (WCDMA) BPSK, QPSK; (LTE) QPSK, 16QAM;		
GPRS Multislot Class	12		
EGPRS Multislot Class	12		
HSDPA UE Category	24		
HSUPA UE Category	6		
LTE Category	4		
Maximum E.R.P.	GSM 850:	29.43dBm	
	WCDMA Band V:	18.61dBm	
	LTE Band 5:	17.69dBm	
Rated Power Supply Voltage	3.8V		
Operating Voltage	Minimum: 3.6V	Maximum: 4.2V	
Operating Temperature	Lowest: -10°C	Highest: +55°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			
Adapter	Manufacturer: DongGuan AoHai Power Technology Co.Ltd. Model: A31A-050055U-US1		
Battery	Manufacturer: Shenzhen Aerospace Electronic.Co.Ltd Model: 178245411		
Earphone	Manufacturer: Baoshan Dahuahaihan Technology Co.,Ltd. Model: 3.5_balck_stereophony without mic_HTC		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. The customer claims that altice F4 and Sagetel Hinto lite are only different in model, and the others are the same.			



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

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

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

Subsequently, only the worst case emissions are reported.

The following testing in GSM/WCDMA/LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below:

Test items	Modes/Modulation	
	GSM 850	WCDMA Band V
RF Power Output and Effective Radiated power	GSM GPRS EGPRS	RMC/AMR HSDPA/HSUPA
Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Peak-to-Average Power Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Frequency Stability	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
Spurious Emissions at Antenna Terminals	GSM	RMC
Radiates Spurious Emission	GSM	RMC



Test modes are chosen as the worst case configuration below for LTE Band 5.

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

5. Test Case

5.1. RF Power Output and Effective 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.

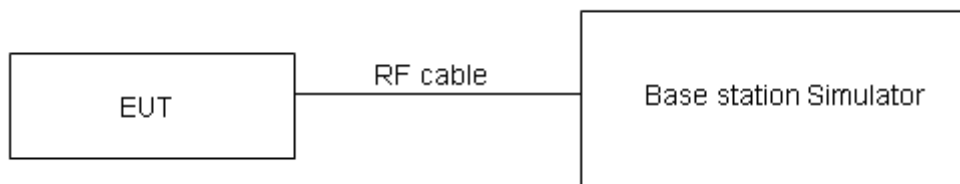
ERP can then be calculated as follows:

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

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

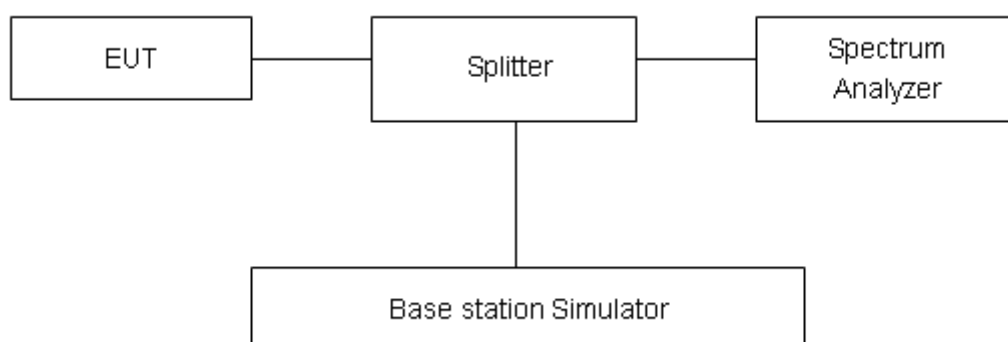
Method of Measurement

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

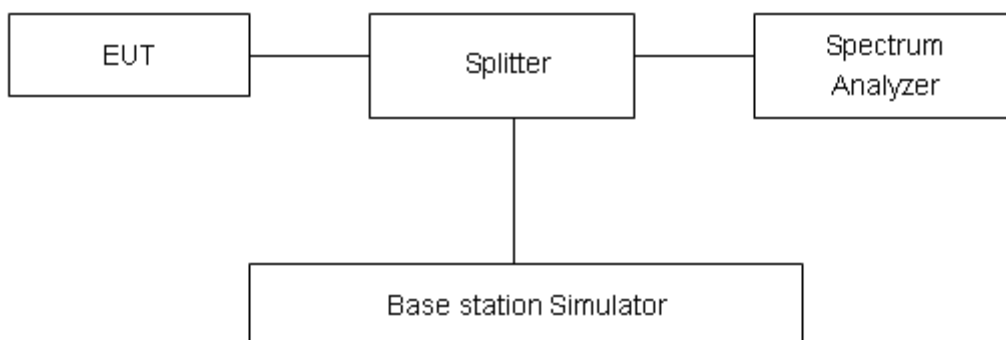
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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

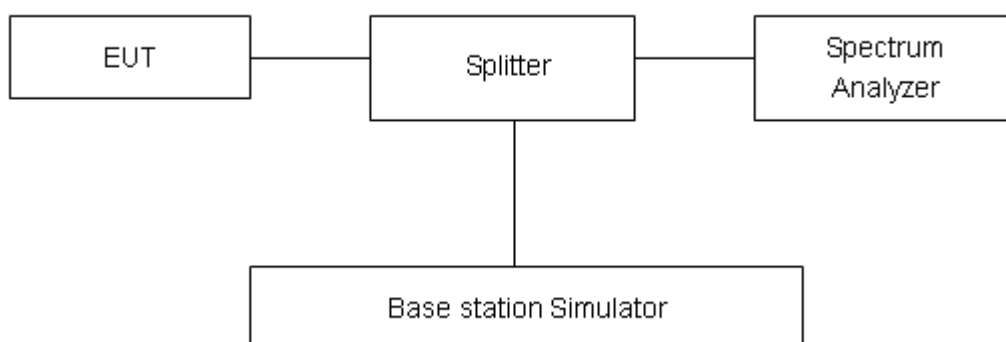
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

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.

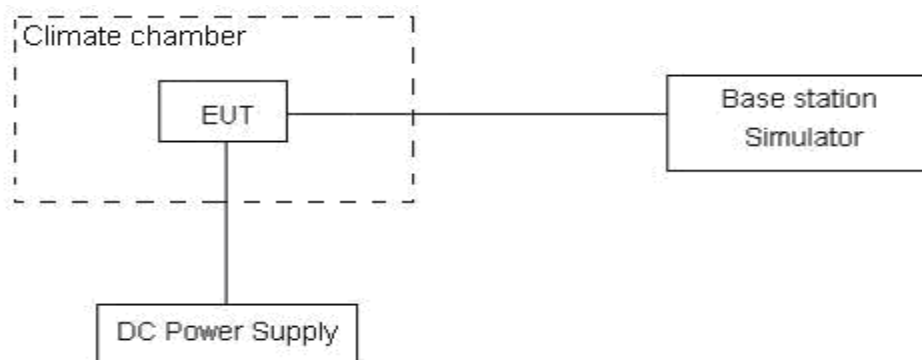
(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

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 3.6 V and 4.2V, with a nominal voltage of 3.8V.

Test setup



Limits

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

Limits	≤ 2.5 ppm
--------	-----------

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),

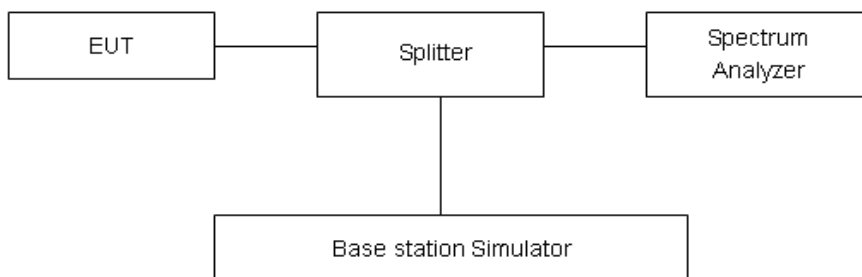
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

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-20GHz	1.407 dB

Test Results

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

5.7. Radiates Spurious Emission

Ambient condition

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

Method of Measurement

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

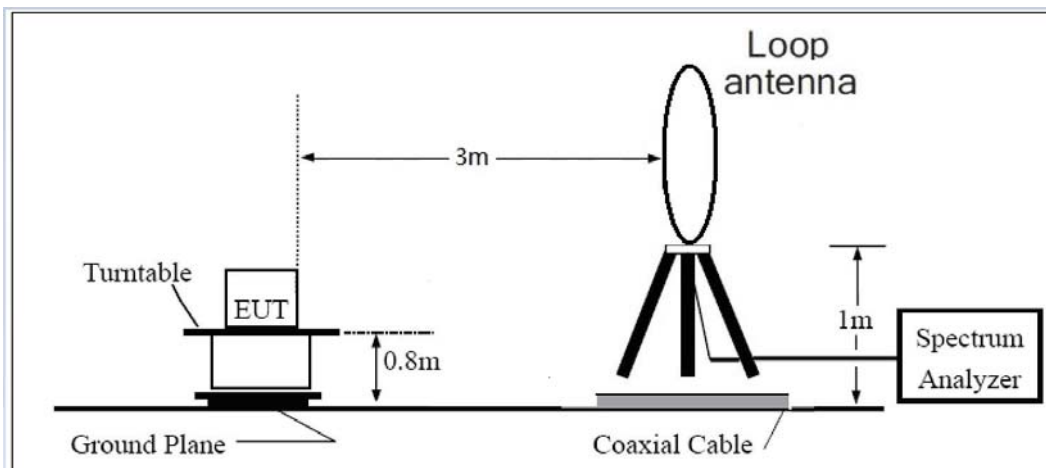
The measurement results are amend as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the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

= EIRP-2.15dB.

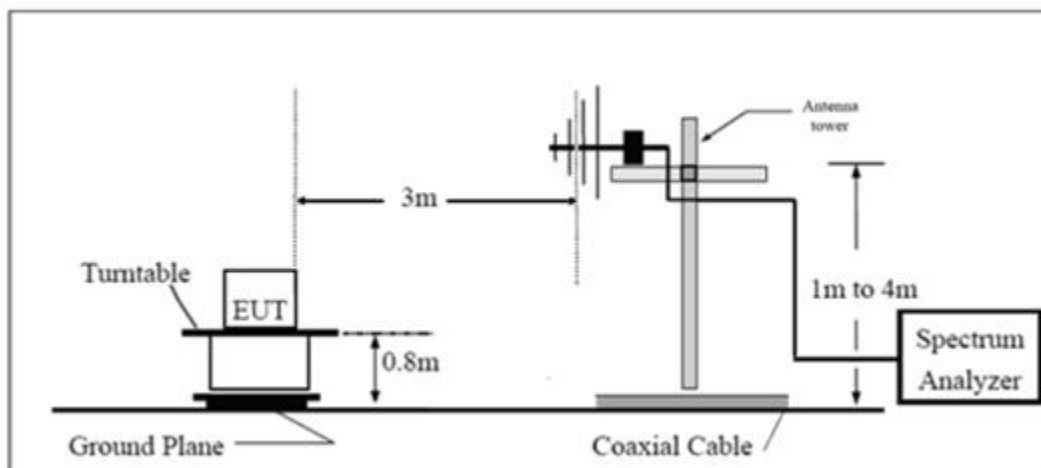
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

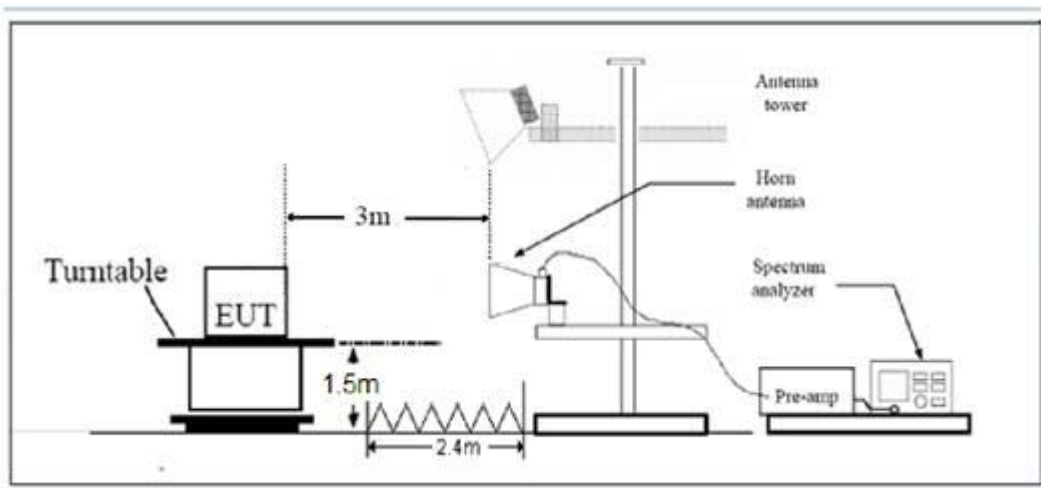
9KHz ~ 30MHz



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)			ERP (dBm)		
		Channel 128	Channel 190	Channel 251	Channel 128	Channel 190	Channel 251
		824.2 (MHz)	836.6 (MHz)	848.8 (MHz)	824.2 (MHz)	836.6 (MHz)	848.8 (MHz)
GSM(GMSK)	Results	30.55	30.54	30.57	29.40	29.39	29.42
GPRS (GMSK)	1TXslot	30.58	30.55	30.55	29.43	29.40	29.40
	2TXslots	28.05	27.97	27.97	26.90	26.82	26.82
	3TXslots	25.82	25.80	25.80	24.67	24.65	24.65
	4TXslots	23.63	23.66	23.65	22.48	22.51	22.50
EGPRS (8PSK)	1TXslot	24.66	24.99	24.50	23.51	23.84	23.35
	2TXslots	23.62	24.01	23.42	22.47	22.86	22.27
	3TXslots	21.23	21.51	21.00	20.08	20.36	19.85
	4TXslots	19.34	19.60	18.98	18.19	18.45	17.83

WCDMA Band V		Maximum Output Power (dBm)			ERP (dBm)		
		Channel 4132	Channel 4183	Channel 4233	Channel 4132	Channel 4183	Channel 4233
		826.4 (MHz)	836.6 (MHz)	846.6 (MHz)	826.4 (MHz)	836.6 (MHz)	846.6 (MHz)
RMC		20.71	20.74	20.77	18.06	18.09	18.12
AMR		20.92	20.80	20.85	18.27	18.15	18.20
HSDPA	Sub - Test 1	21.13	20.99	21.21	18.48	18.34	18.56
	Sub - Test 2	20.46	20.36	20.58	17.81	17.71	17.93
	Sub - Test 3	19.69	19.53	19.47	17.04	16.88	16.82
	Sub - Test 4	19.16	18.99	18.94	16.51	16.34	16.29
HSUPA	Sub - Test 1	18.21	18.20	18.30	15.56	15.55	15.65
	Sub - Test 2	18.06	17.73	17.87	15.41	15.08	15.22
	Sub - Test 3	18.25	18.26	18.31	15.60	15.61	15.66
	Sub - Test 4	17.64	17.74	17.87	14.99	15.09	15.22
	Sub - Test 5	21.20	21.05	21.26	18.55	18.40	18.61



LTE Band 5				Maximum Output Power(dBm)			ERP (dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20407 /824.7	20525 /836.5	20643 /848.3	20407 /824.7	20525 /836.5	20643 /848.3
1.4MHz	QPSK	1	0	21.18	21.21	21.12	17.53	17.56	17.47
		1	2	21.25	21.12	21.30	17.60	17.47	17.65
		1	5	21.14	21.11	21.26	17.49	17.46	17.61
		3	0	20.89	20.90	20.88	17.24	17.25	17.23
		3	2	20.87	21.02	20.88	17.22	17.37	17.23
		3	3	20.92	20.82	21.30	17.27	17.17	17.65
		6	0	19.97	20.01	20.02	16.32	16.36	16.37
	16QAM	1	0	19.89	19.87	20.05	16.24	16.22	16.40
		1	2	19.95	19.83	19.78	16.30	16.18	16.13
		1	5	19.79	19.69	19.83	16.14	16.04	16.18
		3	0	20.31	20.34	20.28	16.66	16.69	16.63
		3	2	20.18	20.29	20.38	16.53	16.64	16.73
		3	3	20.25	20.28	20.15	16.60	16.63	16.50
		6	0	19.31	19.51	19.24	15.66	15.86	15.59
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20415 /825.5	20525 /836.5	20635 /847.5	20415 /825.5	20525 /836.5	20635 /847.5
3MHz	QPSK	1	0	21.20	21.25	21.15	17.55	17.60	17.50
		1	7	21.23	21.15	21.34	17.58	17.50	17.69
		1	14	21.17	21.16	21.30	17.52	17.51	17.65
		8	0	19.99	20.02	20.01	16.34	16.37	16.36
		8	4	19.99	20.12	20.00	16.34	16.47	16.35
		8	7	20.02	19.93	20.40	16.37	16.28	16.75
		15	0	19.97	20.05	20.05	16.32	16.40	16.40
	16QAM	1	0	19.89	19.89	20.08	16.24	16.24	16.43
		1	7	19.95	19.83	19.82	16.30	16.18	16.17
		1	14	19.81	19.73	19.86	16.16	16.08	16.21
		8	0	19.42	19.47	19.40	15.77	15.82	15.75
		8	4	19.29	19.42	19.50	15.64	15.77	15.85
		8	7	19.35	19.40	19.28	15.70	15.75	15.63
		15	0	19.34	19.55	19.27	15.69	15.90	15.62
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)					
				20425 /826.5	20525 /836.5	20625 /846.5	20425 /826.5	20525 /836.5	20625 /846.5
5MHz	QPSK	1	0	21.17	21.23	21.11	17.52	17.58	17.46
		1	13	21.21	21.11	21.31	17.56	17.46	17.66
		1	24	21.14	21.11	21.26	17.49	17.46	17.61



		12	0	19.96	19.97	19.97	16.31	16.32	16.32
		12	6	19.97	20.08	19.95	16.32	16.43	16.30
		12	13	20.00	19.91	20.36	16.35	16.26	16.71
		25	0	19.97	20.04	20.03	16.32	16.39	16.38
	16QAM	1	0	19.89	19.85	20.05	16.24	16.20	16.40
		1	13	19.95	19.81	19.79	16.30	16.16	16.14
		1	24	19.78	19.71	19.82	16.13	16.06	16.17
		12	0	19.40	19.43	19.37	15.75	15.78	15.72
		12	6	19.26	19.37	19.46	15.61	15.72	15.81
		12	13	19.32	19.35	19.24	15.67	15.70	15.59
		25	0	19.32	19.51	19.22	15.67	15.86	15.57
		Channel/Frequency(MHz)							
BW	Modulation	RB size	RB offset	20450	20525	20600	20450	20525	20600
				/829	/836.5	/844	/829	/836.5	/844
10MHz	QPSK	1	0	21.15	21.16	21.09	17.50	17.51	17.44
		1	25	21.21	21.11	21.30	17.56	17.46	17.65
		1	49	21.11	21.09	21.22	17.46	17.44	17.57
		25	0	19.94	19.93	19.94	16.29	16.28	16.29
		25	13	19.95	20.04	19.92	16.30	16.39	16.27
		25	25	19.96	19.87	20.33	16.31	16.22	16.68
		50	0	19.96	19.97	19.98	16.31	16.32	16.33
	16QAM	1	0	19.88	19.82	20.00	16.23	16.17	16.35
		1	25	19.94	19.80	19.76	16.29	16.15	16.11
		1	49	19.76	19.66	19.80	16.11	16.01	16.15
		25	0	19.37	19.42	19.35	15.72	15.77	15.70
		25	13	19.22	19.34	19.42	15.57	15.69	15.77
		25	25	19.30	19.31	19.21	15.65	15.66	15.56
		50	0	19.30	19.47	19.19	15.65	15.82	15.54

6.2. Occupied Bandwidth

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 850 (GMSK)	128	824.2	0.243	0.299
	190	836.6	0.241	0.301
	251	848.8	0.244	0.303
GPRS 850 (GMSK)	128	824.2	0.241	0.314
	190	836.6	0.243	0.305
	251	848.8	0.245	0.312
EGPRS 850 (8PSK)	128	824.2	0.251	0.321
	190	836.6	0.260	0.320
	251	848.8	0.247	0.305
WCDMA Band V (RMC)	4132	826.4	4.146	4.613
	4183	836.6	4.138	4.622
	4233	846.6	4.156	4.658

LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.101	1.246
			20525	836.5	1.099	1.259
			20643	848.3	1.095	1.253
		3	20415	825.5	2.706	3.044
			20525	836.5	2.698	3.028
			20635	847.5	2.712	3.004
		5	20425	826.5	4.507	4.959
			20525	836.5	4.512	4.970
			20625	846.5	4.518	4.956
		10	20450	829	8.979	9.852
			20525	836.5	8.997	9.814
			20600	844	8.971	9.881
	16QAM	1.4	20407	824.7	1.100	1.247
			20525	836.5	1.097	1.247
			20643	848.3	1.093	1.238



		3	20415	825.5	2.727	3.056
			20525	836.5	2.699	3.036
			20635	847.5	2.710	3.040
		5	20425	826.5	4.523	4.971
			20525	836.5	4.501	4.963
			20625	846.5	4.513	4.953
		10	20450	829	8.971	9.867
			20525	836.5	8.979	9.871
			20600	844	8.982	9.869

GSM 850 CH-Low



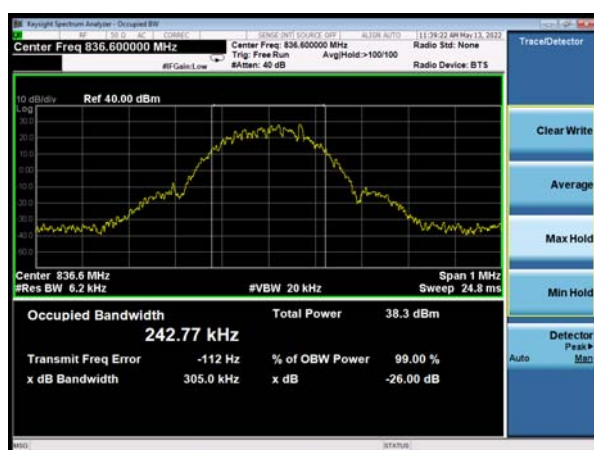
GSM 850 GPRS CH-Low



GSM 850 CH-Middle



GSM 850 GPRS CH-Middle



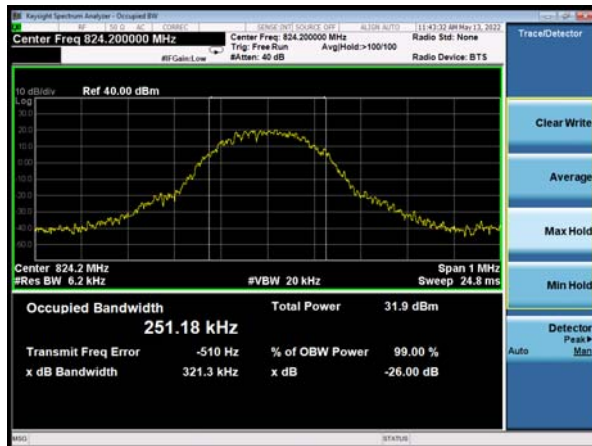
GSM 850 CH-High



GSM 850 GPRS CH-High



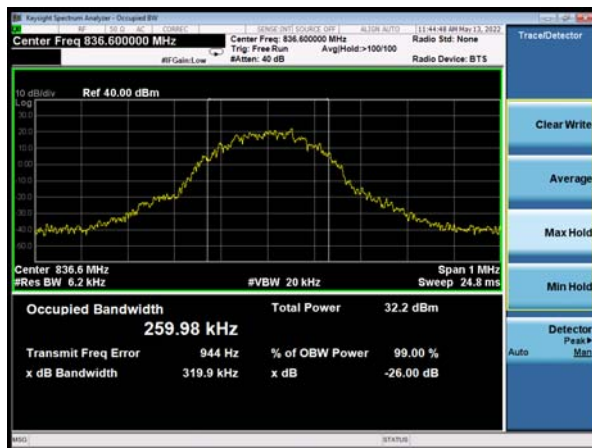
GSM 850 EGPRS CH-Low



WCDMA Band V CH-Low



GSM 850 EGPRS CH-Middle



WCDMA Band V CH-Middle



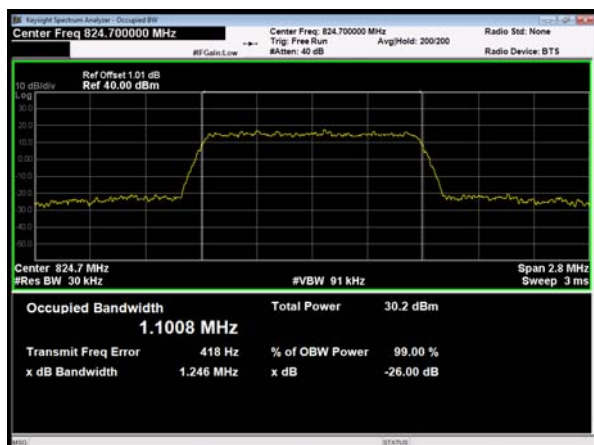
GSM 850 EGPRS CH-High



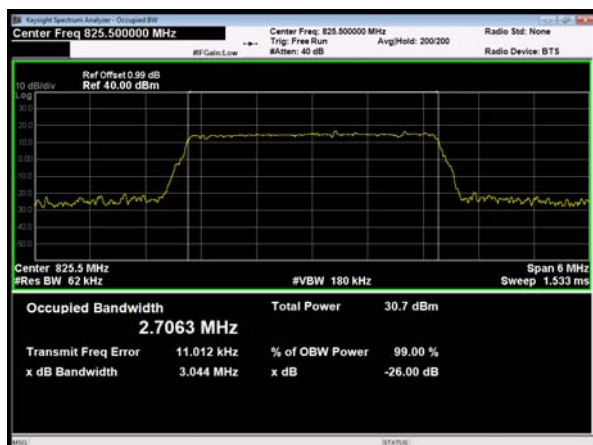
WCDMA Band V CH-High



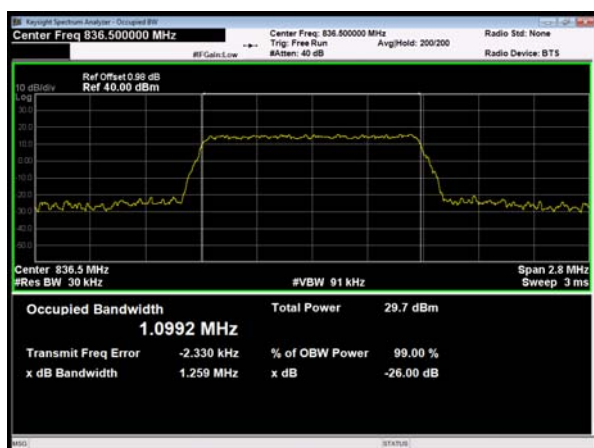
LTE Band 5 QPSK 1.4MHz CH-Low



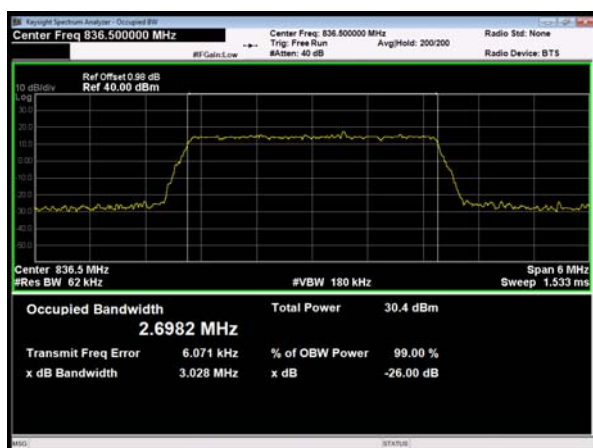
LTE Band 5 QPSK 3MHz CH-Low



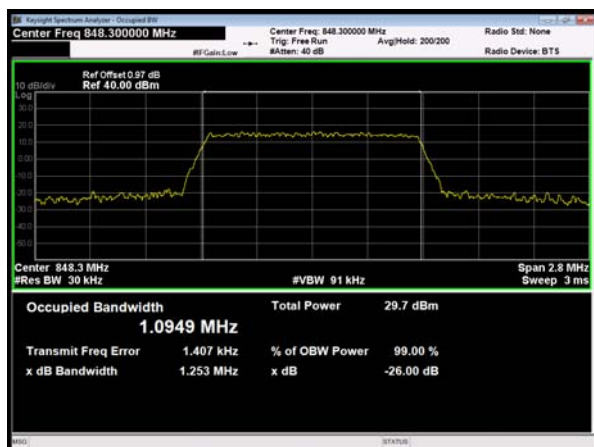
LTE Band 5 QPSK 1.4MHz CH-Middle



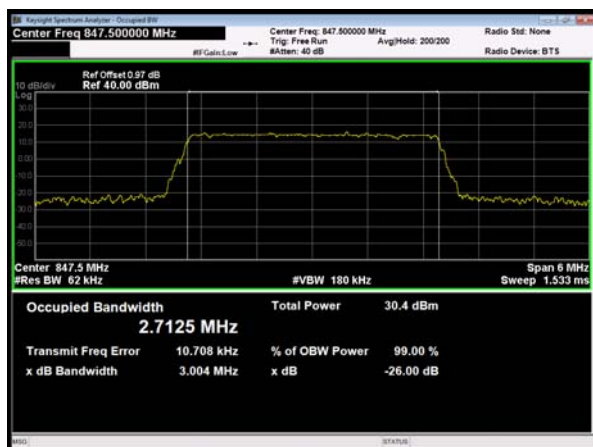
LTE Band 5 QPSK 3MHz CH-Middle



LTE Band 5 QPSK 1.4MHz CH-High

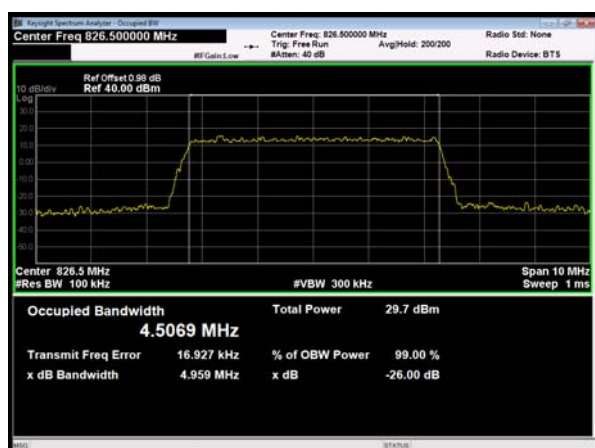


LTE Band 5 QPSK 3MHz CH-High

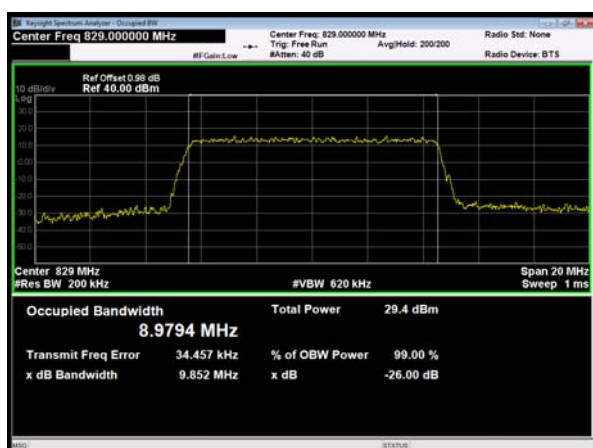




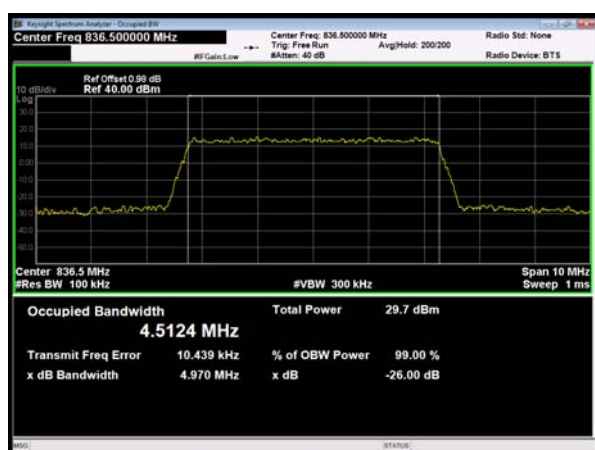
LTE Band 5 QPSK 5MHz CH-Low



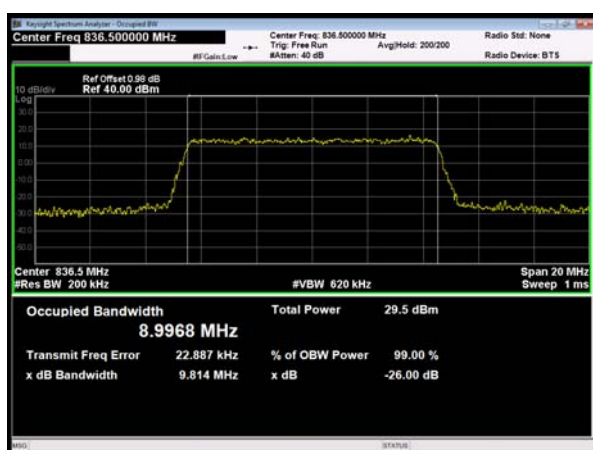
LTE Band 5 QPSK 10MHz CH-Low



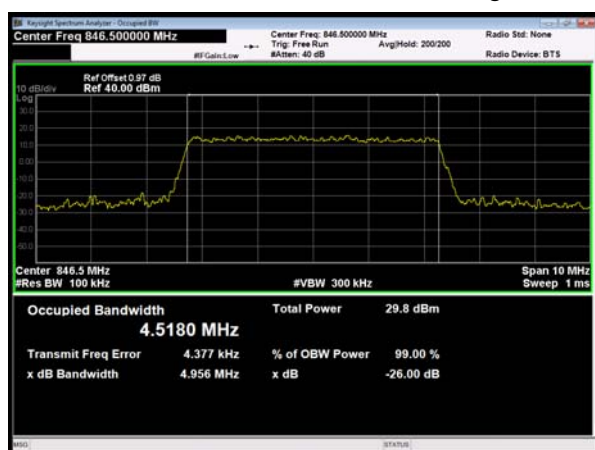
LTE Band 5 QPSK 5MHz CH-Middle



LTE Band 5 QPSK 10MHz CH-Middle



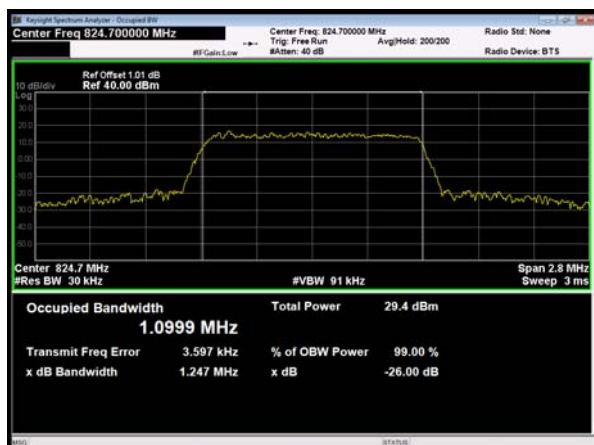
LTE Band 5 QPSK 5MHz CH-High



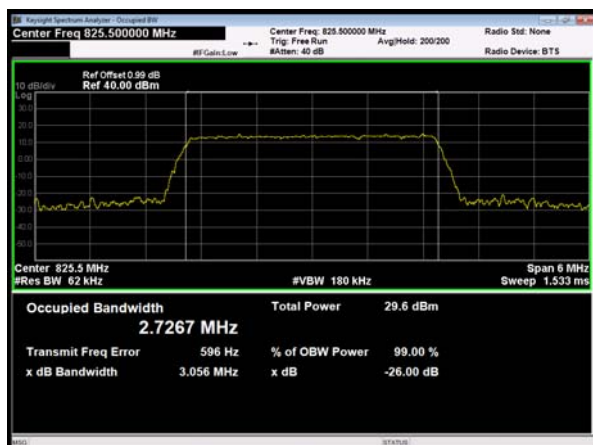
LTE Band 5 QPSK 10MHz CH-High



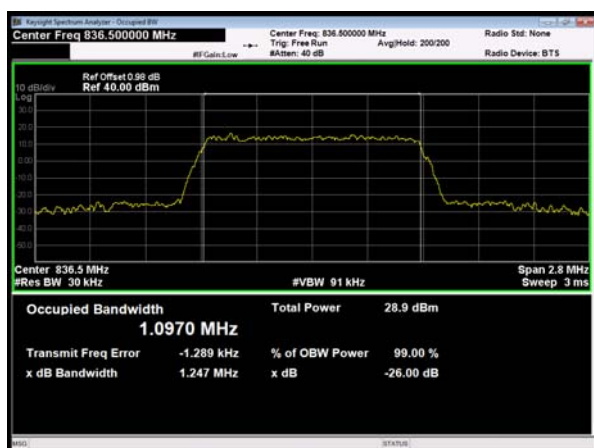
LTE Band 5 16QAM 1.4MHz CH-Low



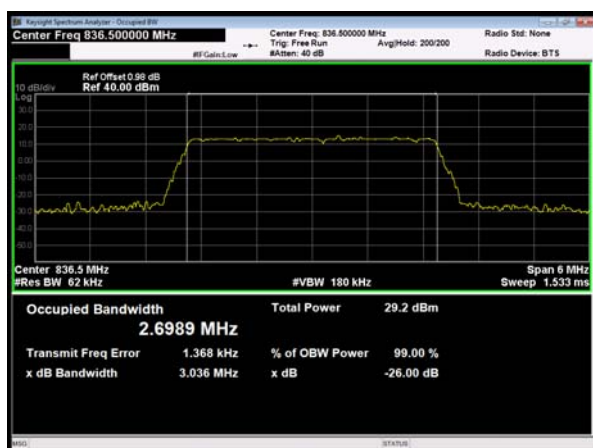
LTE Band 5 16QAM 3MHz CH-Low



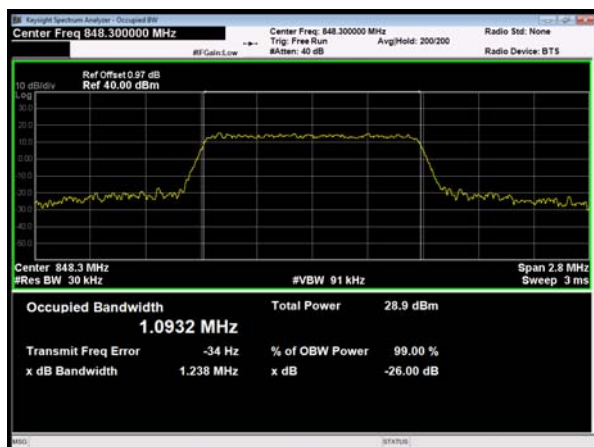
LTE Band 5 16QAM 1.4MHz CH-Middle



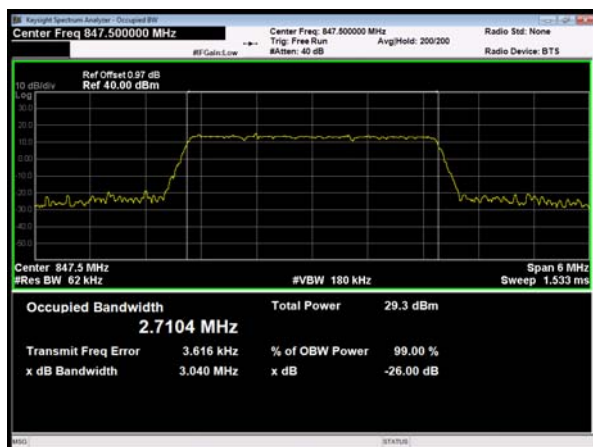
LTE Band 5 16QAM 3MHz CH-Middle



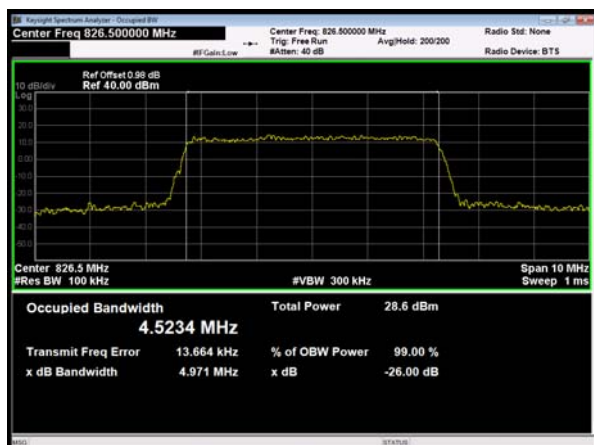
LTE Band 5 16QAM 1.4MHz CH-High



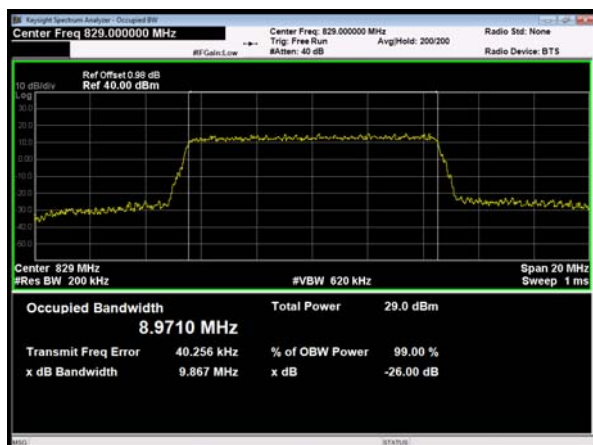
LTE Band 5 16QAM 3MHz CH-High



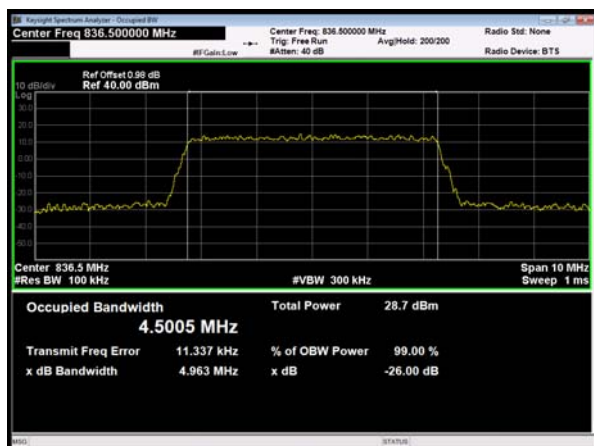
LTE Band 5 16QAM 5MHz CH-Low



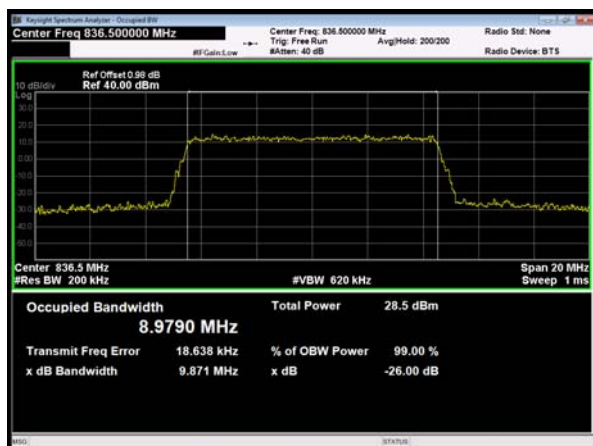
LTE Band 5 16QAM 10MHz CH-Low



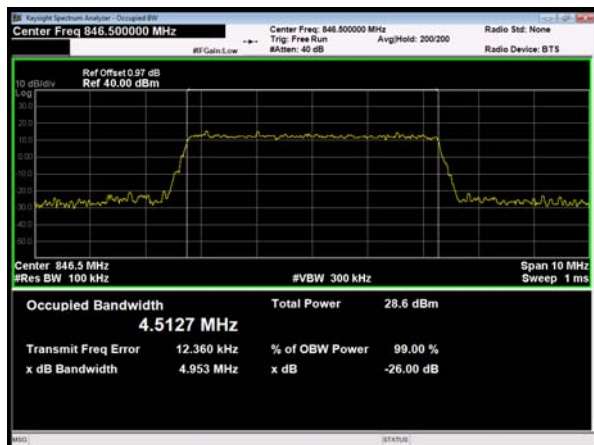
LTE Band 5 16QAM 5MHz CH-Middle



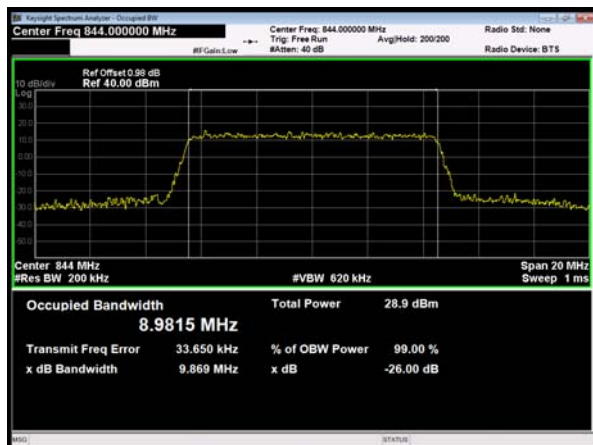
LTE Band 5 16QAM 10MHz CH-Middle



LTE Band 5 16QAM 5MHz CH-High

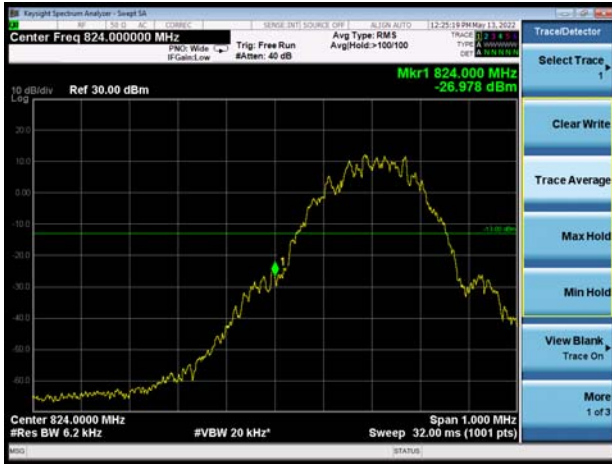


LTE Band 5 16QAM 10MHz CH-High



6.3. Band Edge Compliance

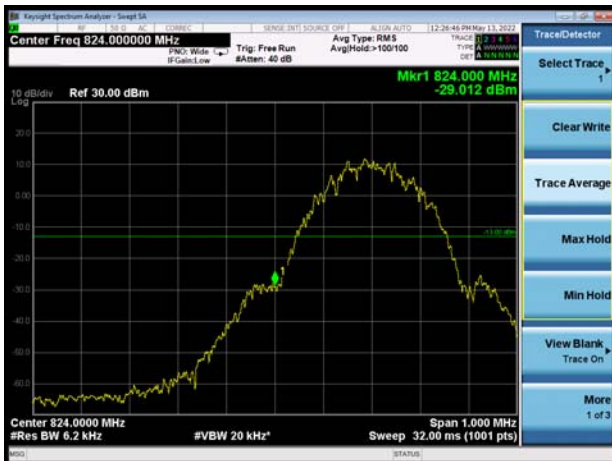
GSM 850 CH-Low



GSM 850 CH-High



GSM 850 GPRS CH-Low



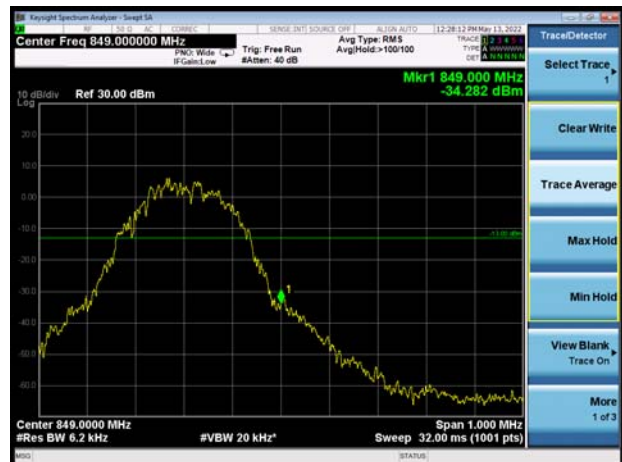
GSM 850 GPRS CH-High



GSM 850 EGPRS CH-Low



GSM 850 EGPRS CH-High



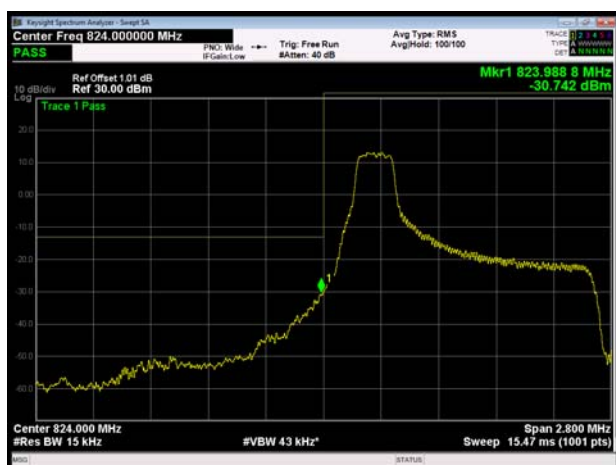
WCDMA Band V CH-Low



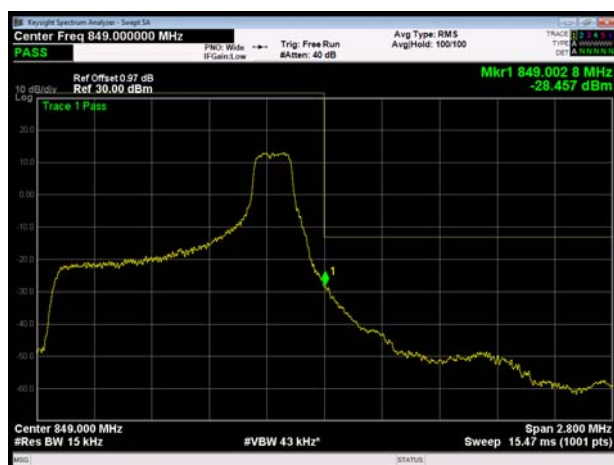
WCDMA Band V CH-High



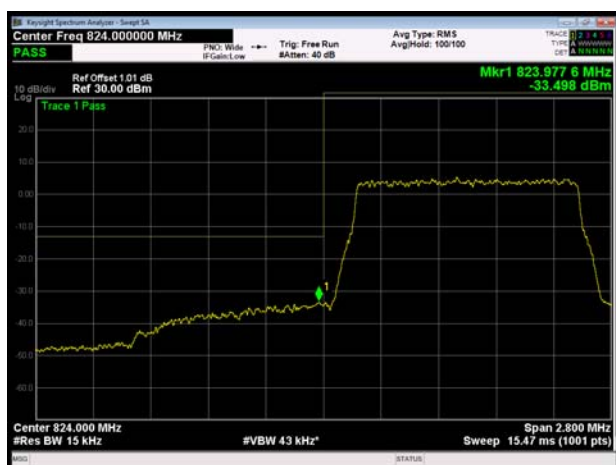
LTE Band 5 QPSK 1.4MHz CH-Low 1RB



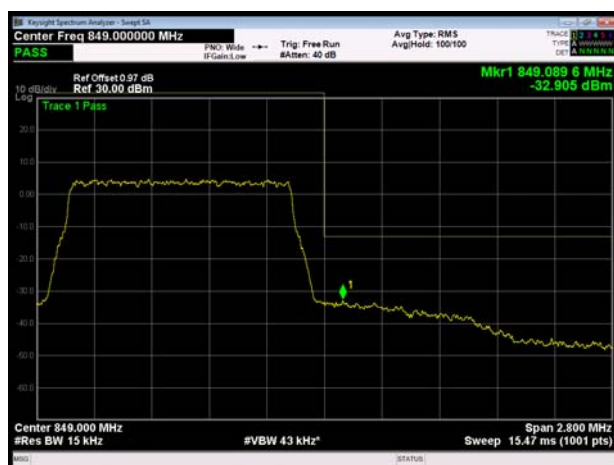
LTE Band 5 QPSK 1.4MHz CH-High 1RB



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

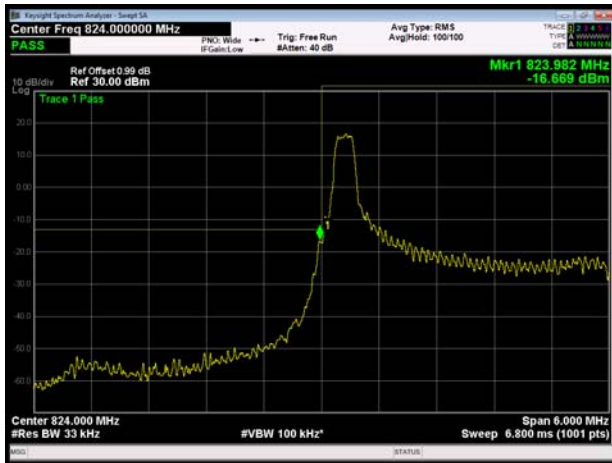


LTE Band 5 QPSK 1.4MHz CH-High 100%RB

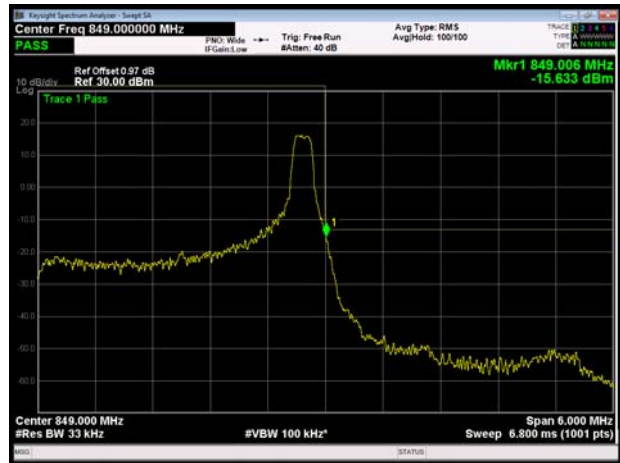




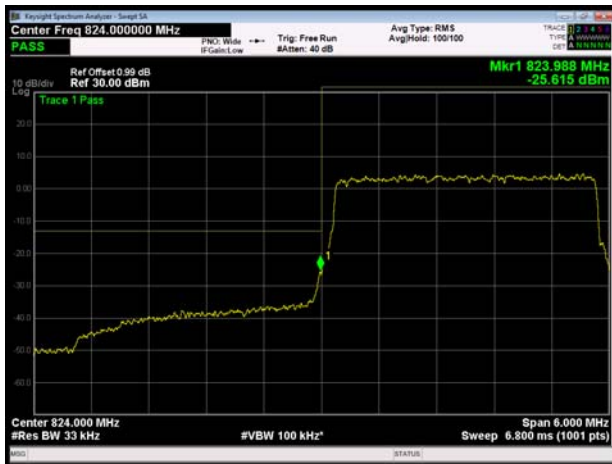
LTE Band 5 QPSK 3MHz CH-Low 1RB



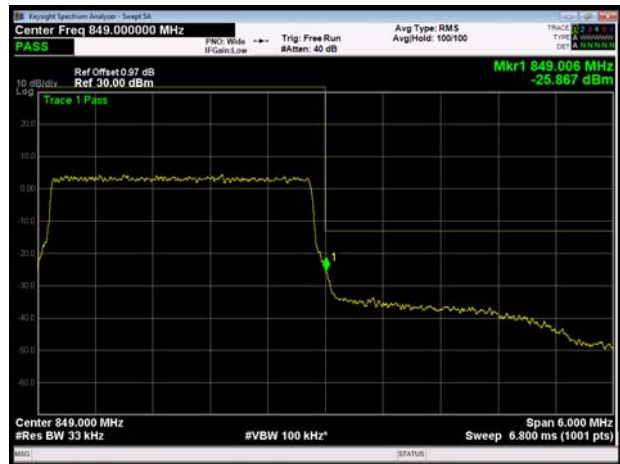
LTE Band 5 QPSK 3MHz CH-High 1RB



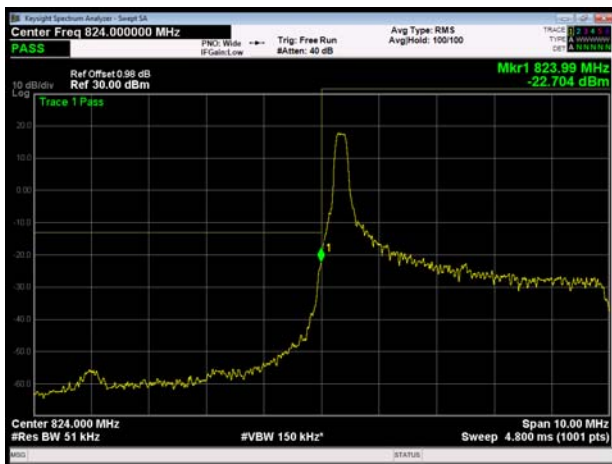
LTE Band 5 QPSK 3MHz CH-Low 100%RB



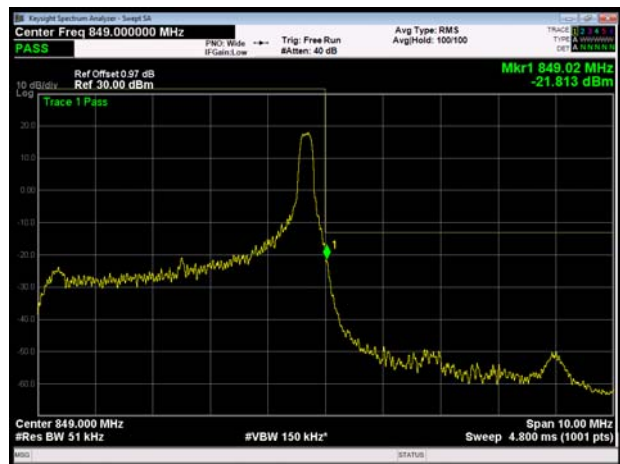
LTE Band 5 QPSK 3MHz CH-High 100%RB



LTE Band 5 QPSK 5MHz CH-Low 1RB

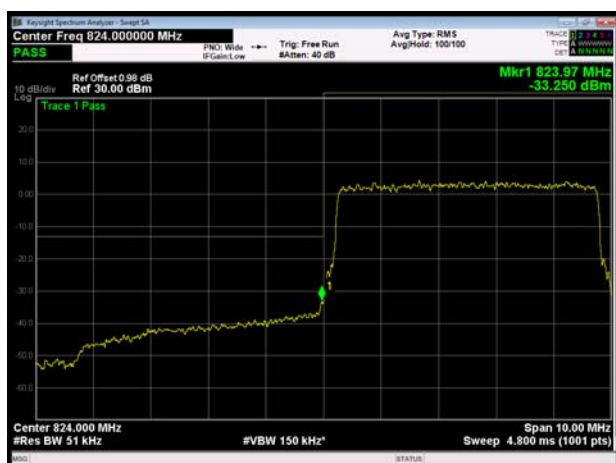


LTE Band 5 QPSK 5MHz CH-High 1RB





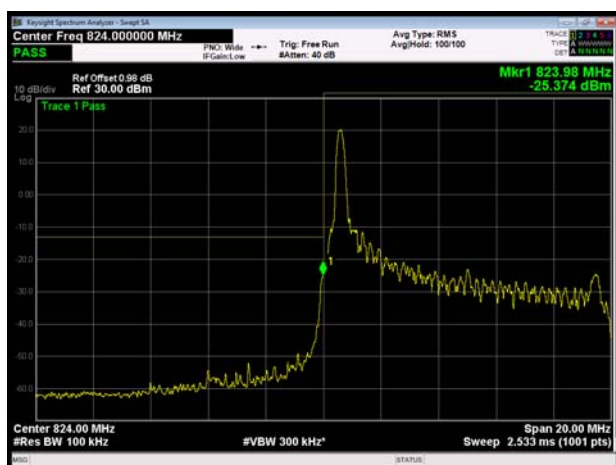
LTE Band 5 QPSK 5MHz CH-Low 100%RB



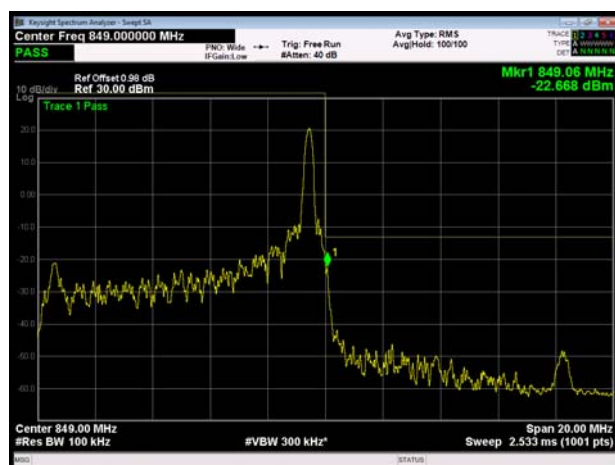
LTE Band 5 QPSK 5MHz CH-High 100%RB



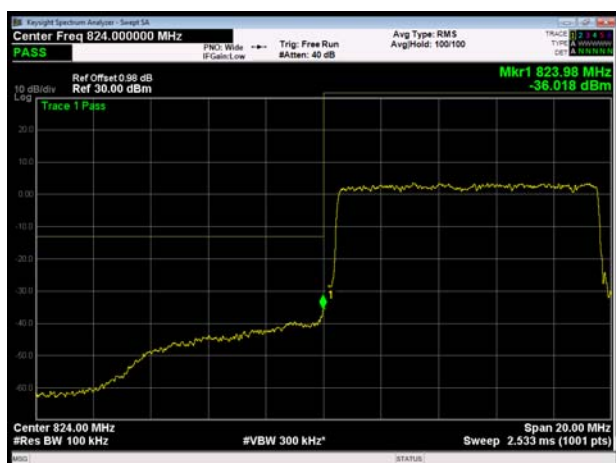
LTE Band 5 QPSK 10MHz CH-Low 1RB



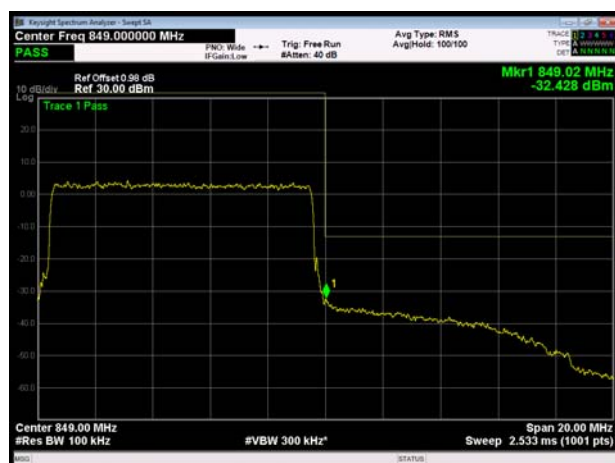
LTE Band 5 QPSK 10MHz CH-High 1RB



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

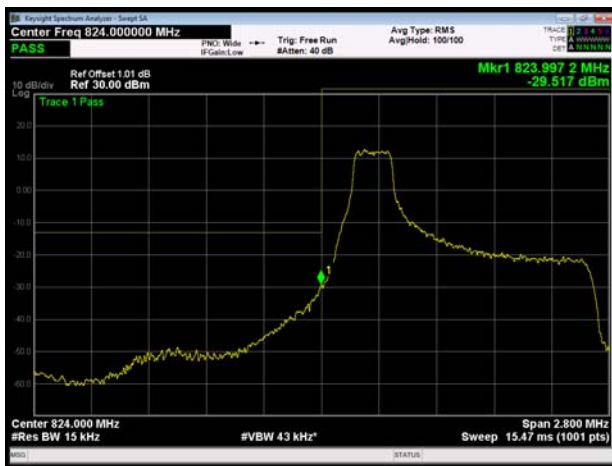


LTE Band 5 QPSK 10MHz CH-High 100%RB

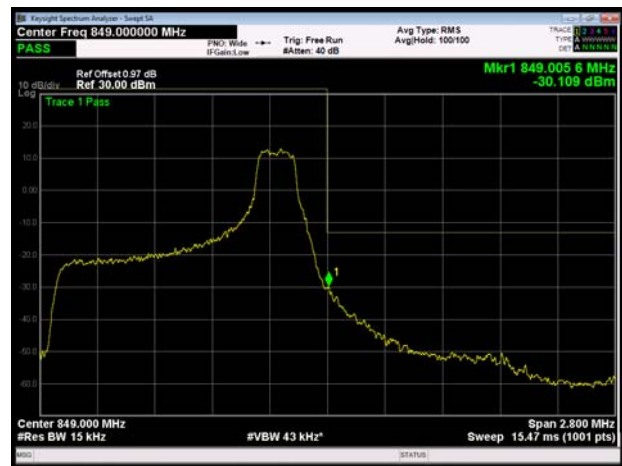




LTE Band 5 16QAM 1.4MHz CH-Low 1RB



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



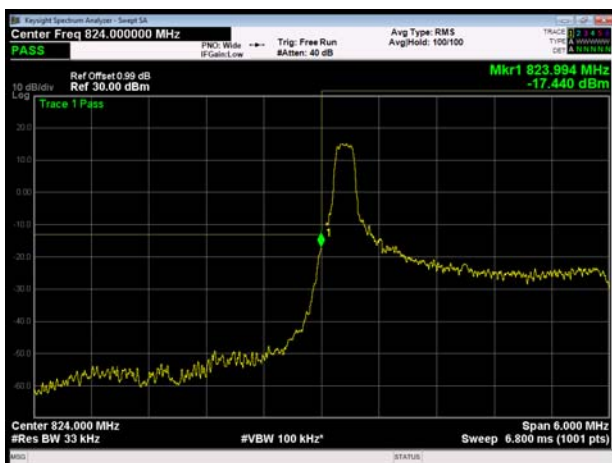
LTE Band 5 16QAM 1.4MHz CH-Low 100%RB



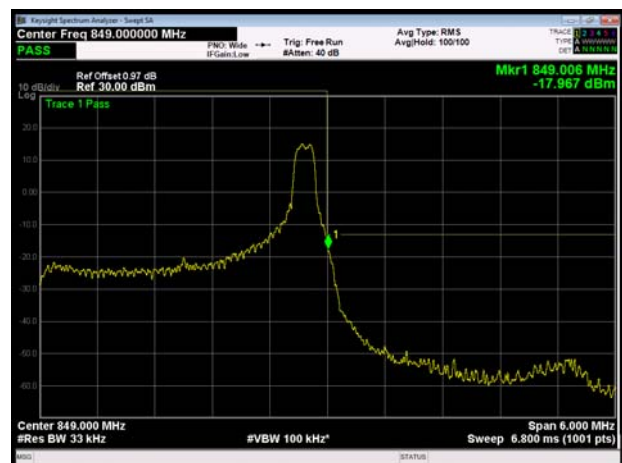
LTE Band 5 16QAM 1.4MHz CH-High 100%RB



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

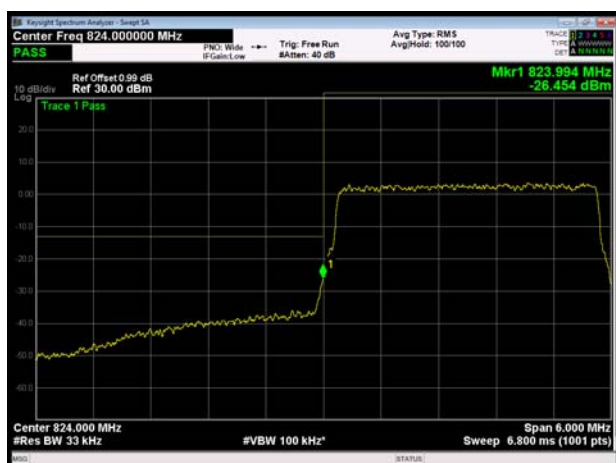


LTE Band 5 16QAM 3MHz CH-High 1RB

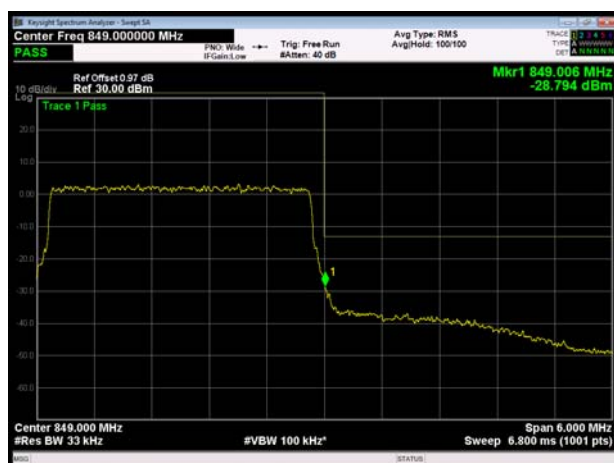




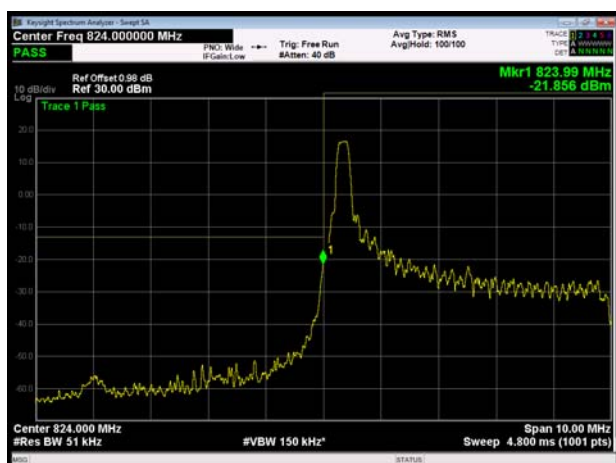
LTE Band 5 16QAM 3MHz CH-Low 100%RB



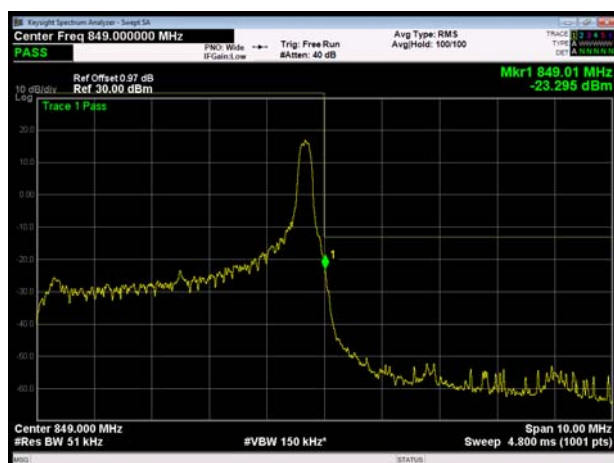
LTE Band 5 16QAM 3MHz CH-High 100%RB



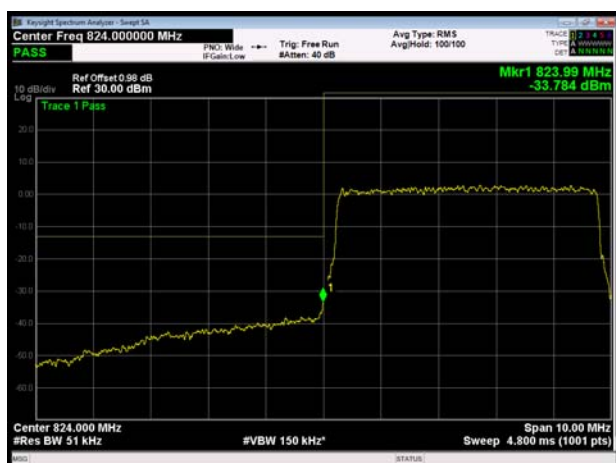
LTE Band 5 16QAM 5MHz CH-Low 1RB



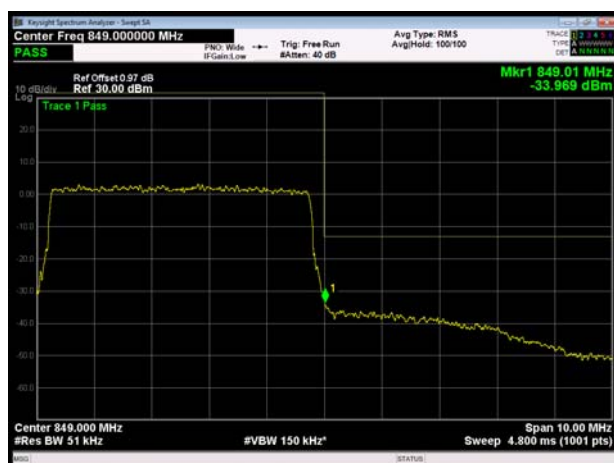
LTE Band 5 16QAM 5MHz CH-High 1RB



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

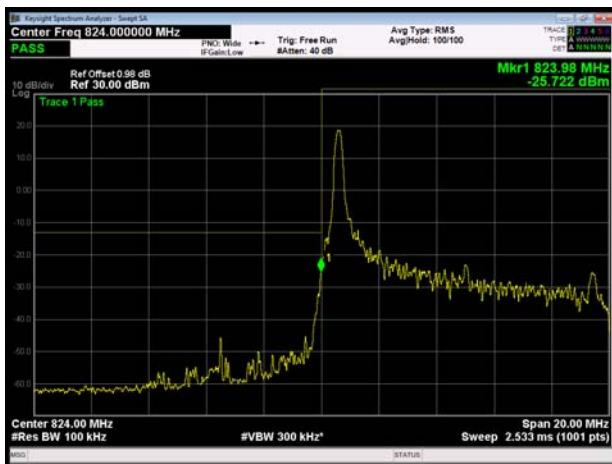


LTE Band 5 16QAM 5MHz CH-High 100%RB

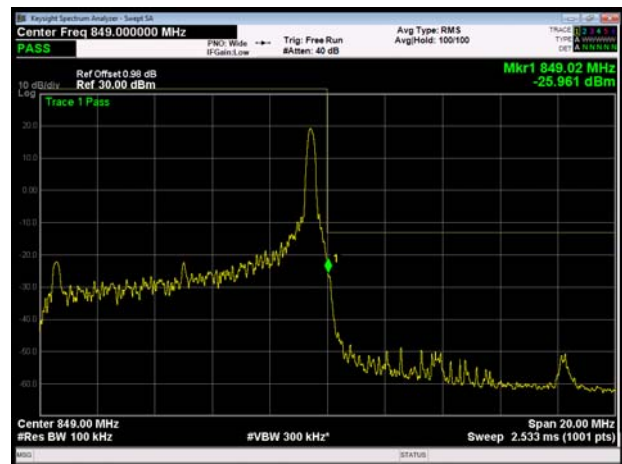




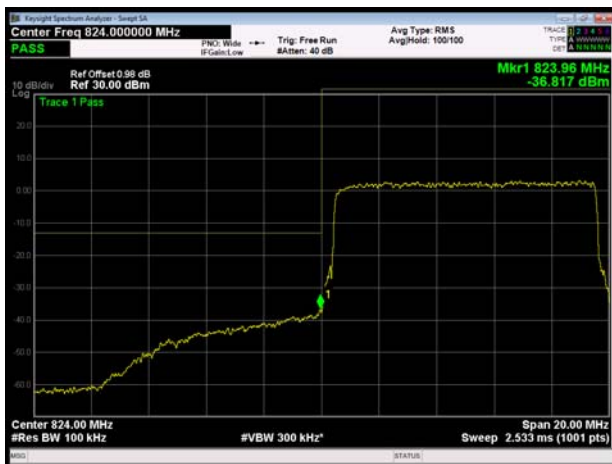
LTE Band 5 16QAM 10MHz CH-Low 1RB



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	32.57	29.96	2.61	≤13	PASS
	190	836.6	32.57	29.96	2.61	≤13	PASS
	251	848.8	32.62	30.01	2.61	≤13	PASS
GPRS 850 (GMSK)	128	824.2	32.58	29.97	2.61	≤13	PASS
	190	836.6	32.57	29.96	2.61	≤13	PASS
	251	848.8	32.63	30.02	2.61	≤13	PASS
EGPRS 850 (8PSK)	128	824.2	29.24	23.98	5.26	≤13	PASS
	190	836.6	29.48	24.19	5.29	≤13	PASS
	251	848.8	29.22	23.91	5.31	≤13	PASS
WCDMA Band V (RMC)	4132	826.4	25.53	22.49	3.04	≤13	PASS
	4183	836.6	25.56	22.48	3.08	≤13	PASS
	4233	846.6	25.58	22.52	3.06	≤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	27.10	22.05	5.05	≤13	PASS
		20525	836.5	27.23	21.86	5.37	≤13	PASS
		20643	848.3	26.82	21.73	5.09	≤13	PASS
	3	20415	825.5	27.14	22.03	5.11	≤13	PASS
		20525	836.5	27.16	21.78	5.38	≤13	PASS
		20635	847.5	26.95	21.87	5.08	≤13	PASS
	5	20425	826.5	26.96	21.78	5.18	≤13	PASS
		20525	836.5	27.21	21.76	5.45	≤13	PASS
		20625	846.5	26.97	21.80	5.17	≤13	PASS
	10	20450	829	27.05	21.68	5.37	≤13	PASS
		20525	836.5	27.22	21.76	5.46	≤13	PASS
		20600	844	27.28	22.04	5.24	≤13	PASS
16QAM	1.4	20407	824.7	26.97	21.10	5.87	≤13	PASS
		20525	836.5	27.35	20.95	6.40	≤13	PASS
		20643	848.3	26.85	21.14	5.71	≤13	PASS
	3	20415	825.5	27.05	21.02	6.03	≤13	PASS
		20525	836.5	27.06	20.86	6.20	≤13	PASS
		20635	847.5	26.75	20.71	6.04	≤13	PASS
	5	20425	826.5	26.70	20.64	6.06	≤13	PASS
		20525	836.5	26.95	20.80	6.15	≤13	PASS
		20625	846.5	26.72	20.71	6.01	≤13	PASS



	10	20450	829	27.13	21.08	6.05	≤13	PASS
		20525	836.5	26.90	20.69	6.21	≤13	PASS
		20600	844	27.07	21.05	6.02	≤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	3.31	4.84	0.00396	0.00579	PASS
Extreme (50℃)		17.12	13.87	0.02046	0.01658	PASS
Extreme (40℃)		10.55	14.95	0.01261	0.01787	PASS
Extreme (30℃)		12.18	9.11	0.01456	0.01089	PASS
Extreme (20℃)		11.51	5.37	0.01376	0.00641	PASS
Extreme (10℃)		6.92	1.92	0.00827	0.00230	PASS
Extreme (0℃)		4.56	7.03	0.00544	0.00841	PASS
Extreme (-10℃)		9.21	7.19	0.01100	0.00860	PASS
Extreme (-20℃)		4.12	5.48	0.00493	0.00655	PASS
Extreme (-30℃)		17.41	6.64	0.02081	0.00794	PASS
25℃	LV	9.29	8.51	0.01110	0.01017	PASS
	HV	9.90	7.10	0.01183	0.00849	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	3.88	3.34	0.00464	0.00400	PASS
Extreme (50℃)		17.13	16.81	0.02047	0.02009	PASS
Extreme (40℃)		2.43	12.62	0.00291	0.01508	PASS
Extreme (30℃)		6.98	2.97	0.00834	0.00355	PASS
Extreme (20℃)		3.87	10.81	0.00462	0.01292	PASS
Extreme (10℃)		4.87	15.32	0.00582	0.01831	PASS
Extreme (0℃)		17.61	2.53	0.02104	0.00302	PASS
Extreme (-10℃)		15.30	15.89	0.01828	0.01899	PASS
Extreme (-20℃)		9.53	12.19	0.01140	0.01457	PASS
Extreme (-30℃)		12.15	7.24	0.01452	0.00865	PASS
25℃	LV	5.73	17.60	0.00685	0.02103	PASS
	HV	6.25	4.56	0.00747	0.00545	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	
Normal (25℃)	Normal	17.16	10.62	0.02052	0.01270	PASS
Extreme (50℃)		2.80	1.06	0.00335	0.00127	PASS
Extreme (40℃)		9.68	17.58	0.01157	0.02102	PASS
Extreme (30℃)		3.21	14.78	0.00383	0.01767	PASS
Extreme (20℃)		13.06	11.35	0.01561	0.01357	PASS
Extreme (10℃)		10.37	7.64	0.01239	0.00914	PASS
Extreme (0℃)		13.78	1.95	0.01648	0.00233	PASS
Extreme (-10℃)		7.78	16.93	0.00930	0.02024	PASS
Extreme (-20℃)		10.29	13.04	0.01230	0.01559	PASS
Extreme (-30℃)		13.90	7.98	0.01662	0.00954	PASS
25℃	LV	4.92	4.96	0.00588	0.00593	PASS
	HV	12.67	4.70	0.01515	0.00562	PASS
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	3.44	10.64	0.00411	0.01272	PASS
Extreme (50℃)		12.99	8.01	0.01552	0.00958	PASS
Extreme (40℃)		12.91	13.07	0.01544	0.01563	PASS
Extreme (30℃)		13.33	5.01	0.01594	0.00599	PASS
Extreme (20℃)		11.95	14.65	0.01428	0.01751	PASS
Extreme (10℃)		6.00	4.89	0.00717	0.00585	PASS
Extreme (0℃)		4.89	13.20	0.00585	0.01578	PASS
Extreme (-10℃)		15.07	8.07	0.01802	0.00964	PASS
Extreme (-20℃)		1.76	2.38	0.00210	0.00284	PASS
Extreme (-30℃)		1.07	9.24	0.00128	0.01105	PASS
25℃	LV	5.84	16.62	0.00699	0.01987	PASS
	HV	6.87	17.10	0.00822	0.02044	PASS
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	2.94	6.90	0.00351	0.00825	PASS
Extreme (50℃)		5.61	14.30	0.00671	0.01710	PASS
Extreme (40℃)		1.91	3.94	0.00228	0.00471	PASS



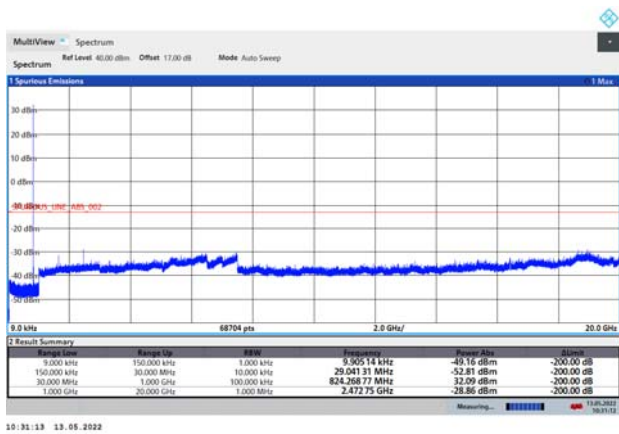
Extreme (30℃)		11.28	7.50	0.01348	0.00897	PASS
Extreme (20℃)		9.11	14.37	0.01089	0.01718	PASS
Extreme (10℃)		3.97	3.53	0.00474	0.00422	PASS
Extreme (0℃)		5.64	4.86	0.00674	0.00581	PASS
Extreme (-10℃)		15.85	11.79	0.01895	0.01410	PASS
Extreme (-20℃)		11.86	12.96	0.01418	0.01549	PASS
Extreme (-30℃)		15.60	8.86	0.01865	0.01060	PASS
25℃	LV	7.45	15.37	0.00891	0.01837	PASS
	HV	16.54	9.49	0.01978	0.01134	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	4.98	9.77	0.00596	0.01168	PASS
Extreme (50℃)		16.09	12.32	0.01924	0.01473	PASS
Extreme (40℃)		5.57	16.22	0.00666	0.01939	PASS
Extreme (30℃)		15.41	4.26	0.01842	0.00509	PASS
Extreme (20℃)		5.41	11.15	0.00647	0.01333	PASS
Extreme (10℃)		6.63	7.30	0.00793	0.00873	PASS
Extreme (0℃)		4.57	2.47	0.00547	0.00295	PASS
Extreme (-10℃)		15.83	2.21	0.01892	0.00264	PASS
Extreme (-20℃)		7.95	5.41	0.00951	0.00647	PASS
Extreme (-30℃)		1.04	6.28	0.00124	0.00751	PASS
25℃	LV	15.25	14.67	0.01823	0.01754	PASS
	HV	13.04	10.27	0.01559	0.01228	PASS

6.6. Spurious Emissions at Antenna Terminals

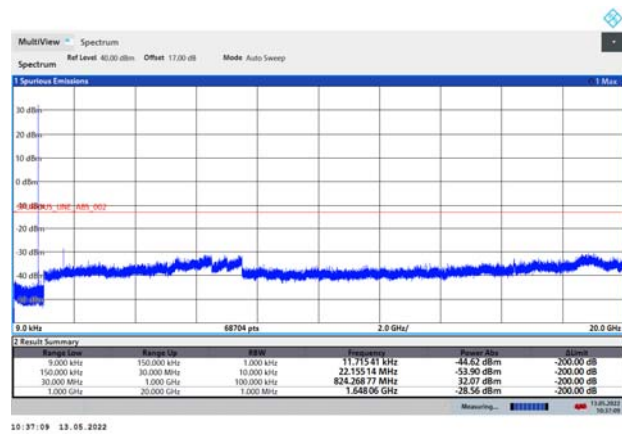
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

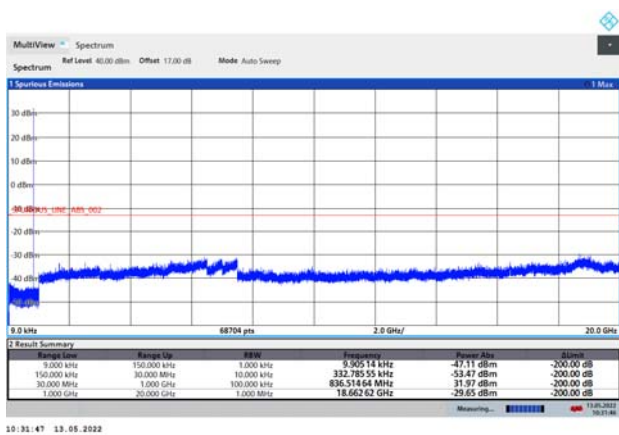
GSM 850 CH-Low 9kHz ~ 20GHz



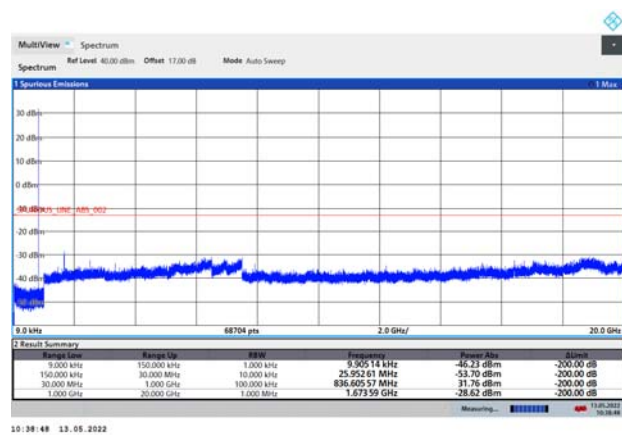
GPRS 850 CH-Low 9kHz ~ 20GHz



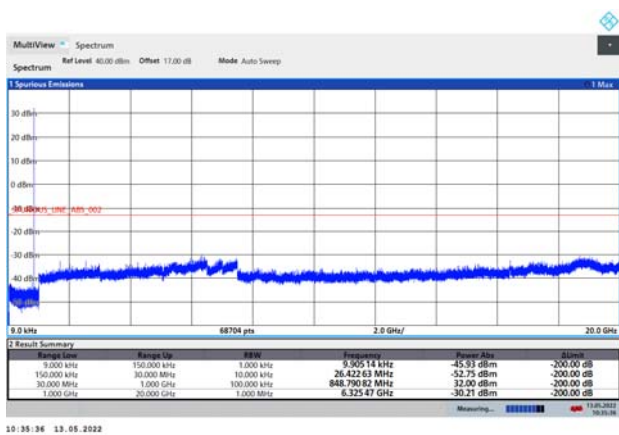
GSM 850 CH-Middle 9kHz ~ 20GHz



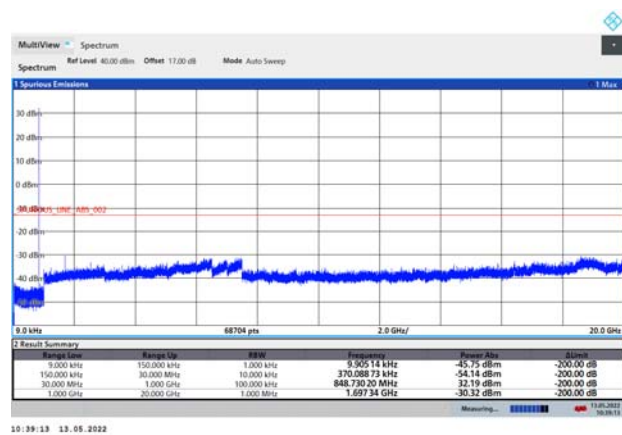
GPRS 850 CH-Middle 9kHz ~ 20GHz



GSM 850 CH-High 9kHz ~ 20GHz

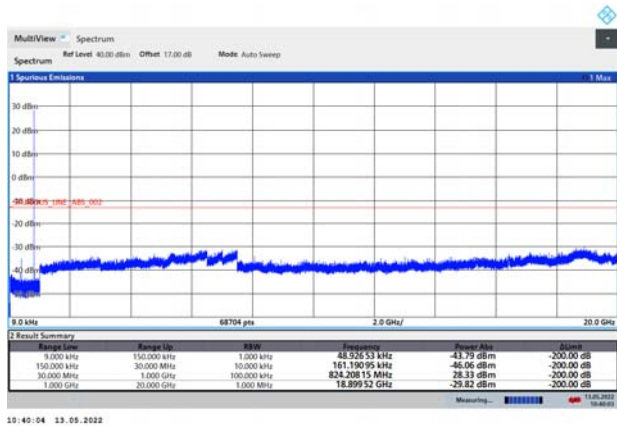


GPRS 850 CH-High 9kHz ~ 20GHz



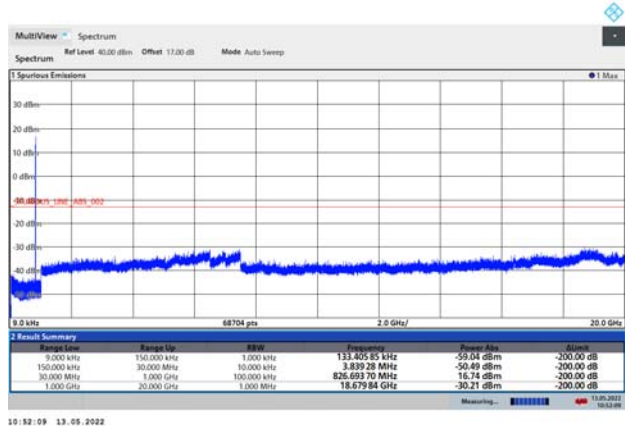


EGPRS 850 CH-Low 9kHz ~ 20GHz



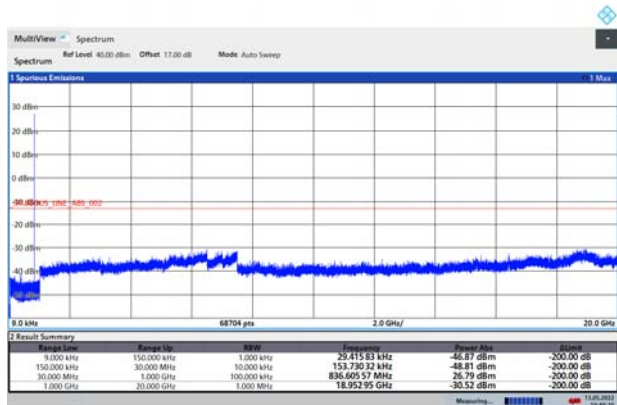
10:40:04 13.05.2022

WCDMA BAND V CH-Low 9kHz ~ 20GHz



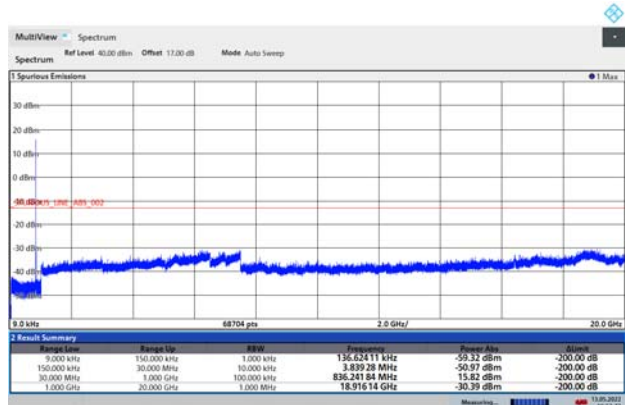
10:52:09 13.05.2022

EGPRS 850 CH-Middle 9kHz ~ 20GHz



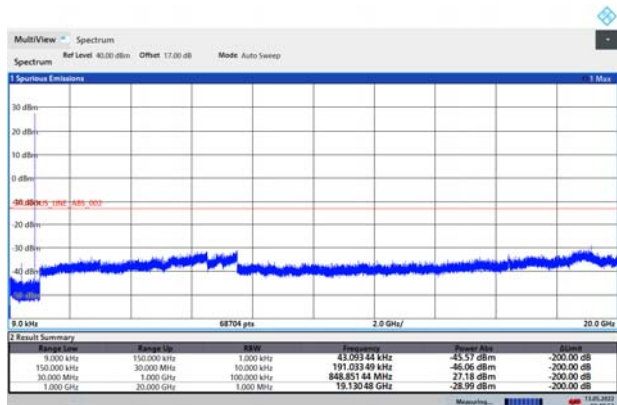
10:40:31 13.05.2022

WCDMA BAND V CH-Middle 9kHz ~ 20GHz



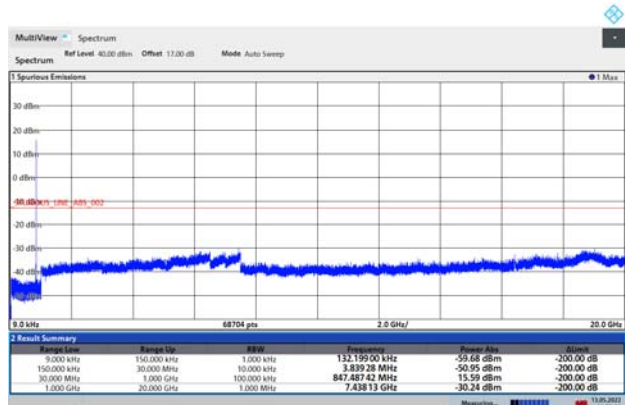
10:52:43 13.05.2022

EGPRS 850 CH-High 9kHz ~ 20GHz



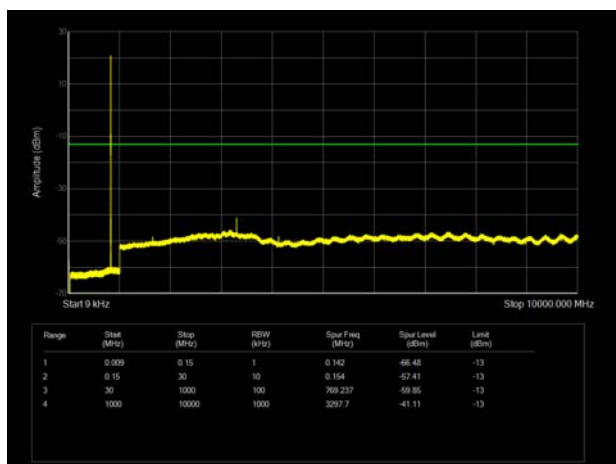
10:40:53 13.05.2022

WCDMA BAND V CH-High 9kHz ~ 20GHz

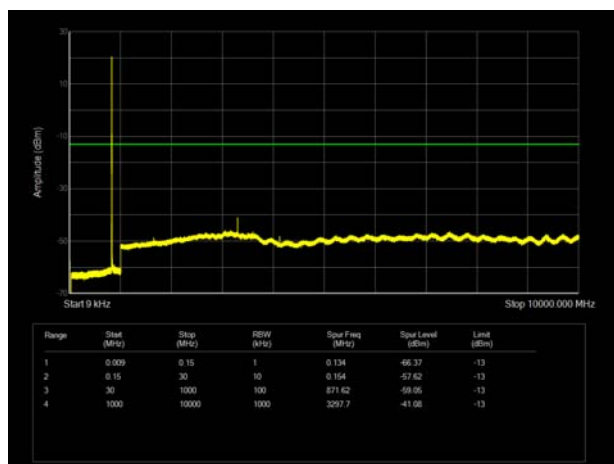


10:53:12 13.05.2022

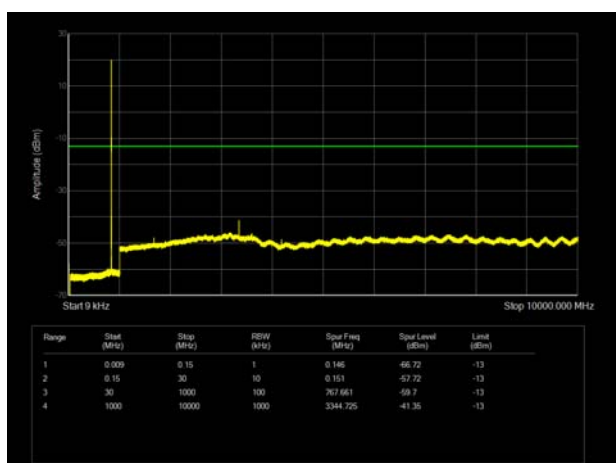
LTE Band 5 1.4MHz CH-Low 9kHz~10GHz



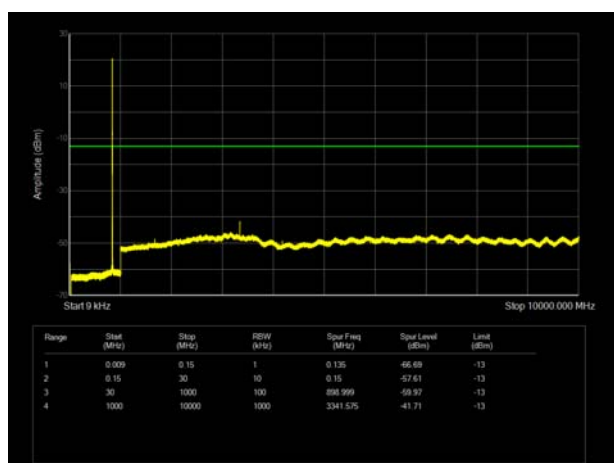
LTE Band 5 3MHz CH-Low 9kHz~10GHz



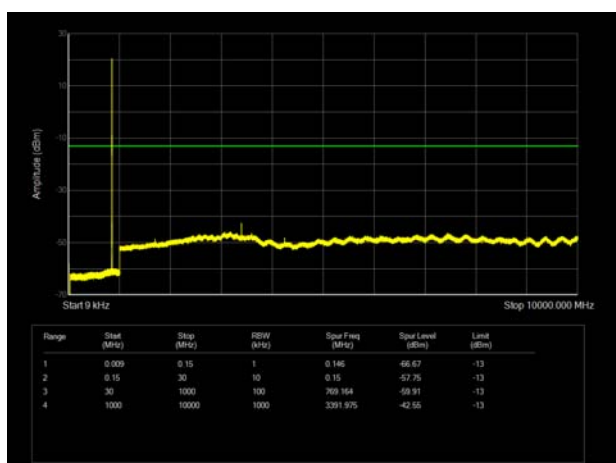
LTE Band 5 1.4MHz CH-Middle 9kHz~10GHz



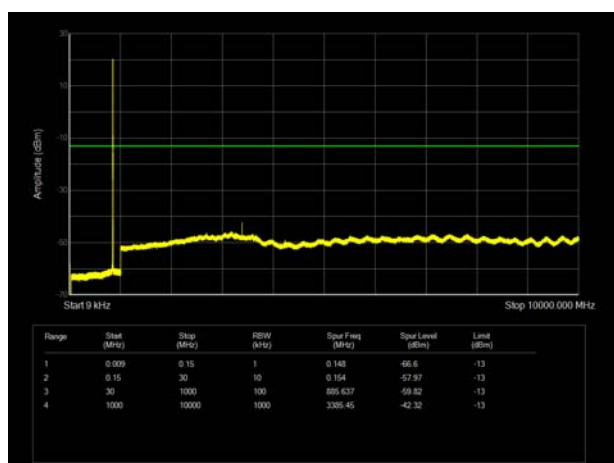
LTE Band 5 3MHz CH-Middle 9kHz~10GHz



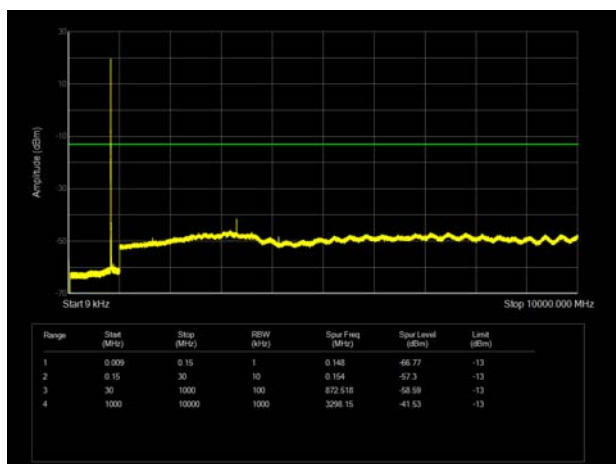
LTE Band 5 1.4MHz CH-High 9kHz~10GHz



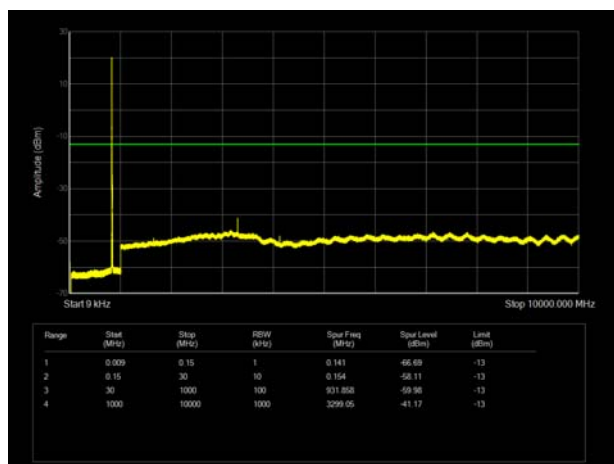
LTE Band 5 3MHz CH-High 9kHz~10GHz



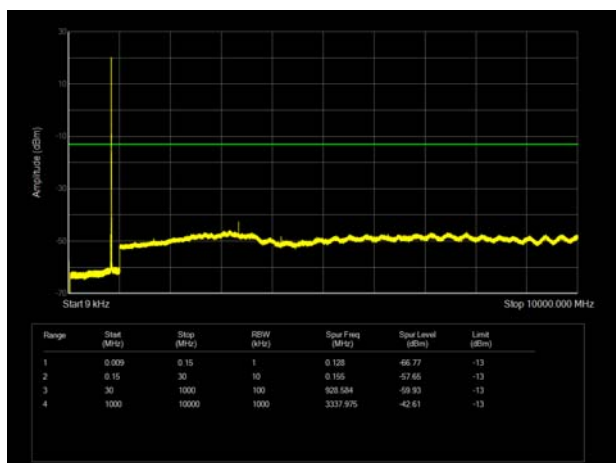
LTE Band 5 5MHz CH-Low 9kHz~10GHz



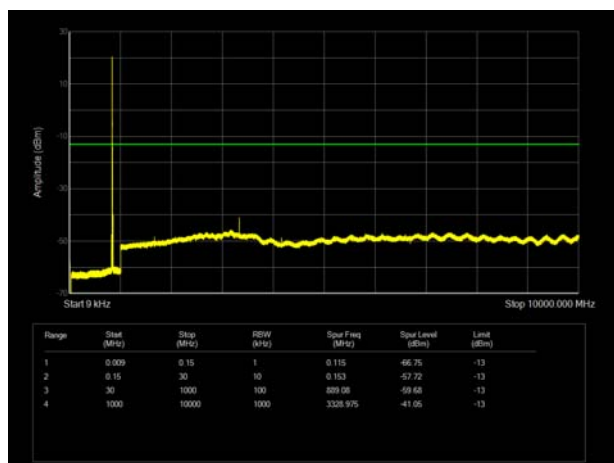
LTE Band 5 10MHz CH-Low 9kHz~10GHz



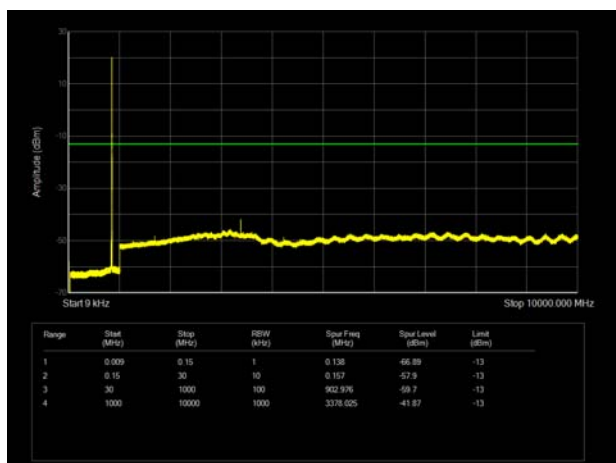
LTE Band 5 5MHz CH-Middle 9kHz~10GHz



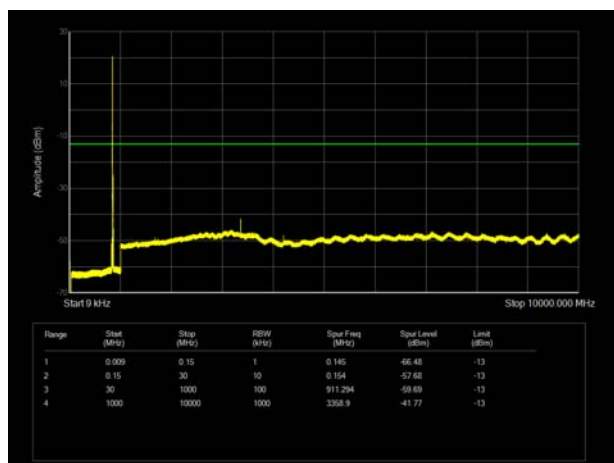
LTE Band 5 10MHz CH-Middle 9kHz~10GHz



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.

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	1673.20	-47.47	1.70	8.70	Horizontal	-42.62	-13.00	29.62	0
3	2509.80	-48.57	2.30	12.00	Horizontal	-41.02	-13.00	28.02	135
4	3346.40	-58.66	2.70	12.70	Horizontal	-50.81	-13.00	37.81	45
5	4183.00	-60.07	3.00	12.50	Horizontal	-52.72	-13.00	39.72	180
6	5019.60	-61.87	3.40	12.50	Horizontal	-54.92	-13.00	41.92	45
7	5856.20	-63.55	3.40	12.80	Horizontal	-56.30	-13.00	43.30	315
8	6692.80	-58.91	4.10	11.50	Horizontal	-53.66	-13.00	40.66	0
9	7529.40	-54.83	4.20	12.20	Horizontal	-48.98	-13.00	35.98	90
10	8366.00	-55.25	4.30	12.50	Horizontal	-49.20	-13.00	36.20	180
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	-66.80	1.70	8.70	Horizontal	-61.95	-13.00	48.95	180
3	2510.40	-64.59	2.30	12.00	Horizontal	-57.04	-13.00	44.04	45
4	3346.40	-62.54	2.70	12.70	Horizontal	-54.69	-13.00	41.69	90
5	4183.00	-64.05	3.00	12.50	Horizontal	-56.70	-13.00	43.70	45
6	5019.60	-61.93	3.40	12.50	Horizontal	-54.98	-13.00	41.98	270
7	5856.20	-64.72	3.40	12.80	Horizontal	-57.47	-13.00	44.47	0
8	6692.80	-59.85	4.10	11.50	Horizontal	-54.60	-13.00	41.60	270
9	7529.40	-54.48	4.20	12.20	Horizontal	-48.63	-13.00	35.63	315
10	8366.00	-55.98	4.30	12.50	Horizontal	-49.93	-13.00	36.93	180
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	-66.13	1.70	8.70	Vertical	-61.28	-13.00	48.28	225
3	2509.50	-64.37	2.30	12.00	Vertical	-56.82	-13.00	43.82	45
4	3346.00	-62.11	2.70	12.70	Vertical	-54.26	-13.00	41.26	0
5	4182.50	-64.58	3.00	12.50	Vertical	-57.23	-13.00	44.23	45
6	5019.00	-63.15	3.40	12.50	Vertical	-56.20	-13.00	43.20	225
7	5855.50	-65.34	3.40	12.80	Vertical	-58.09	-13.00	45.09	0
8	6692.00	-60.14	4.10	11.50	Vertical	-54.89	-13.00	41.89	45
9	7528.50	-56.33	4.20	12.20	Vertical	-50.48	-13.00	37.48	90
10	8365.00	-56.41	4.30	12.50	Vertical	-50.36	-13.00	37.36	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 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	-66.29	1.70	8.70	Vertical	-61.44	-13.00	48.44	0
3	2503.30	-65.82	2.30	12.00	Vertical	-58.27	-13.00	45.27	45
4	3337.50	-58.95	2.70	12.70	Vertical	-51.10	-13.00	38.10	90
5	4171.88	-63.07	3.00	12.50	Vertical	-55.72	-13.00	42.72	45
6	5006.25	-63.32	3.40	12.50	Vertical	-56.37	-13.00	43.37	0
7	5840.63	-63.57	3.40	12.80	Vertical	-56.32	-13.00	43.32	0
8	6675.00	-59.65	4.10	11.50	Vertical	-54.40	-13.00	41.40	45
9	7509.38	-54.95	4.20	12.20	Vertical	-49.10	-13.00	36.10	225
10	8343.75	-55.11	4.30	12.50	Vertical	-49.06	-13.00	36.06	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 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	-65.70	1.70	8.70	Vertical	-60.85	-13.00	47.85	45
3	2496.60	-63.78	2.30	12.00	Vertical	-56.23	-13.00	43.23	135
4	3328.00	-58.71	2.70	12.70	Vertical	-50.86	-13.00	37.86	45
5	4182.50	-63.67	3.00	12.50	Vertical	-56.32	-13.00	43.32	90
6	5019.00	-63.34	3.40	12.50	Vertical	-56.39	-13.00	43.39	0
7	5855.50	-64.24	3.40	12.80	Vertical	-56.99	-13.00	43.99	45
8	6692.00	-59.15	4.10	11.50	Vertical	-53.90	-13.00	40.90	0
9	7528.50	-54.76	4.20	12.20	Vertical	-48.91	-13.00	35.91	225
10	8365.00	-54.92	4.30	12.50	Vertical	-48.87	-13.00	35.87	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.



7. Main Test Instruments

Date of Testing: May 9, 2022 ~ May 13, 2022

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Wireless Communication Tester	Anritsu	MT8000A	6261844783	2021-05-15	2022-05-14
Wireless Communication Tester	Anritsu	MT8821C	6201538758	2021-05-15	2022-05-14
Climate Chamber	WEISS	VT 4002	58226119450010	2021-05-15	2022-05-14
Universal Radio Communication Tester	R&S	CMW500	150415	2021-05-15	2022-05-14
Spectrum Analyzer	Keysight	N9020A	MY52330084	2021-05-15	2022-05-14
Universal Radio Communication Tester	Agilent	E5515C	GB44400275	2021-05-15	2022-05-14
Universal Radio Communication Tester	StarPoint	SP9500	SP9500-20440	2021-05-15	2022-05-14
Spectrum Analyzer	R&S	FSV3030	101411	2021-12-12	2022-12-11
Spectrum Analyzer	R&S	FSV30	104028	2021-12-12	2022-12-11

Date of Testing: May 22, 2022

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Radiates Spurious Emission					
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01111	2019-09-12	2022-09-11
Loop Antenna	R&S	HM020E	101140	2021-06-07	2024-06-06
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.