



RF TEST REPORT

Applicant Quectel Wireless Solutions Co., Ltd.

FCC ID XMR2022BG955AGL

Product LTE Cat M1/NB1/GPRS/GNSS Module

Brand Quectel

Model BG955A-GL

Report No. R2208A0765-R4V1

Issue Date November 18, 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.

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TABLE OF CONTENT

1. Test Laboratory	5
1.1. Notes of the Test Report	5
1.2. Test facility	5
1.3. Testing Location	5
2. General Description of Equipment under Test	6
2.1. Applicant and Manufacturer Information	6
2.2. General Information	6
3. Applied Standards	8
4. Test Configuration	9
5. Test Case	11
5.1. RF Power Output and Effective Radiated Power	11
5.2. Occupied Bandwidth	12
5.3. Band Edge Compliance	13
5.4. Peak-to-Average Power Ratio (PAPR)	14
5.5. Frequency Stability	15
5.6. Spurious Emissions at Antenna Terminals	17
5.7. Radiated Spurious Emission	18
6. Test Result	21
6.1. RF Power Output and Effective Radiated Power	21
6.2. Occupied Bandwidth	23
6.3. Band Edge Compliance	28
6.4. Peak-to-Average Power Ratio (PAPR)	41
6.5. Frequency Stability	42
6.6. Spurious Emissions at Antenna Terminals	46
6.7. Radiated Spurious Emission	52
7. Main Test Instruments	56
ANNEX A: The EUT Appearance	57
ANNEX B: Test Setup Photos	58



Version	Revision description	Issue Date
Rev.0	Initial issue of report.	October 21, 2022
Rev.1	Update information.	November 18, 2022
Note: This revised report (Report No. R2208A0765-R4V1) supersedes and replaces the previously issued report (Report No. R2208A0765-R4). Please discard or destroy the previously issued report and dispose of it accordingly.		



Summary of measurement results

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

Date of Testing: September 8, 2022 ~ September 29, 2022

Date of Sample Received: September 6, 2022

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

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

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



1. Test Laboratory

1.1. Notes of the Test Report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
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City: Shanghai
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E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	Quectel Wireless Solutions Co., Ltd.
Applicant address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China, 200233
Manufacturer	Quectel Wireless Solutions Co., Ltd.
Manufacturer address	Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China, 200233

2.2. General Information

EUT Description			
Model	BG955A-GL		
IMEI	868348060003740		
Hardware Version	R1.2		
Software Version	BG955AGLAAR02A01		
Power Supply	External power supply		
Antenna Type	External Antenna		
Antenna Gain	Mode	Frequency (MHz)	Gain (dBi)
	GSM850 LTE eMTC Band 5 LTE eMTC Band 26	820	2.53
		830	2.13
		840	1.89
		850	2.29
Test Mode(s)	GSM 850; LTE eMTC Band 5/26;		
Test Modulation	(GPRS)GMSK (eMTC) QPSK, 16QAM;		
GPRS Multislot Class	10		
LTE Category	M1		
Maximum E.R.P.	GSM 850:	33.43 dBm	
	LTE eMTC Band 5:	23.38 dBm	
	LTE eMTC Band 26:	23.83 dBm	
Rated Power Supply Voltage	DC 3.8V		
Operating Voltage	Minimum: 3.3 V	Maximum: 4.3 V	
Operating Temperature	Lowest: -35°C	Highest: +75°C	
Testing Temperature	Lowest: -30°C	Highest: +50°C	



Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 ~ 849	869 ~ 894
	LTE eMTC Band 5	824 ~ 849	869 ~ 894
	LTE eMTC Band 26	824 ~ 849	869 ~ 894
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			



3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR 47 Part 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 (X axis, horizontal 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/ LTE eMTC 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
RF Power Output and Effective Radiated power	GPRS
Occupied Bandwidth	GPRS(1Tx slot)
Band Edge Compliance	GPRS(1Tx slot)
Peak-to-Average Power Ratio	GPRS(1Tx slot)
Frequency Stability	GPRS(1Tx slot)
Spurious Emissions at Antenna Terminals	GPRS(1Tx slot)
Radiated Spurious Emission	GPRS(1Tx slot)



Test modes are chosen as the worst case configuration below for LTE eMTC Band 5/26

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 eMTC Band 5	O	O	O	O	-	O	O	O	O	O	O	O	O
	LTE eMTC Band 26	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	LTE eMTC Band 5	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE eMTC Band 26	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	LTE eMTC Band 5	O	O	O	O	-	O	O	O	-	O	O	-	O
	LTE eMTC Band 26	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	LTE eMTC Band 5	O	O	O	O	-	O	O	-	-	O	O	O	O
	LTE eMTC Band 26	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	LTE eMTC Band 5	O	O	O	O	-	O	O	O	-	-	-	O	-
	LTE eMTC Band 26	O	O	O	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	LTE eMTC Band 5	O	O	O	O	-	O	-	O	-	-	O	O	O
	LTE eMTC Band 26	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiated Spurious Emission	LTE eMTC Band 5	O	-	O	O	-	O	-	O	-	-	-	O	-
	LTE eMTC Band 26	O	-	O	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													

5. Test Case

5.1. RF Power Output and Effective Radiated Power

Ambient condition

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

Methods of Measurement

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

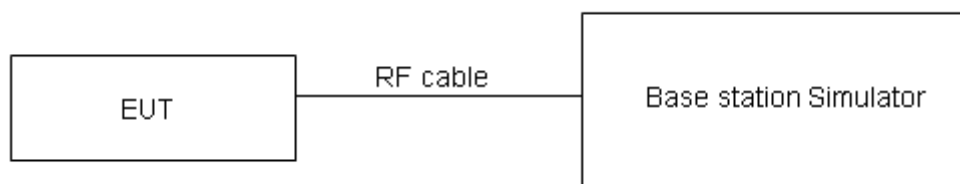
ERP can then be calculated as follows:

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

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

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

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

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

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

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

Test Results

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

5.2. Occupied Bandwidth

Ambient condition

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

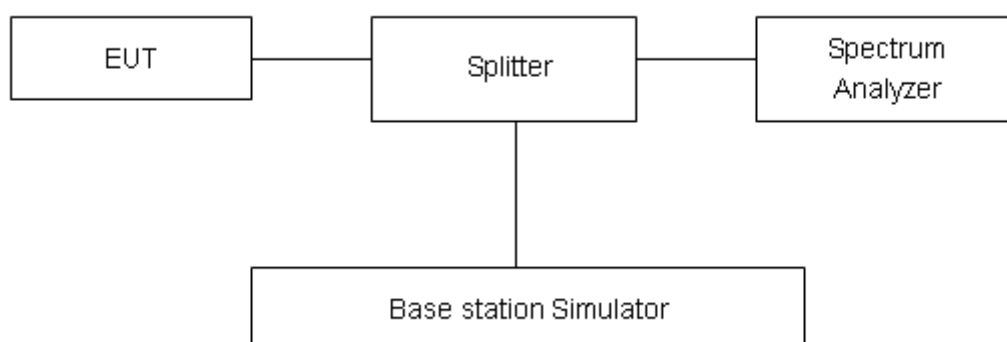
Method of Measurement

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

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

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

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

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

Test Results

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

5.3. Band Edge Compliance

Ambient condition

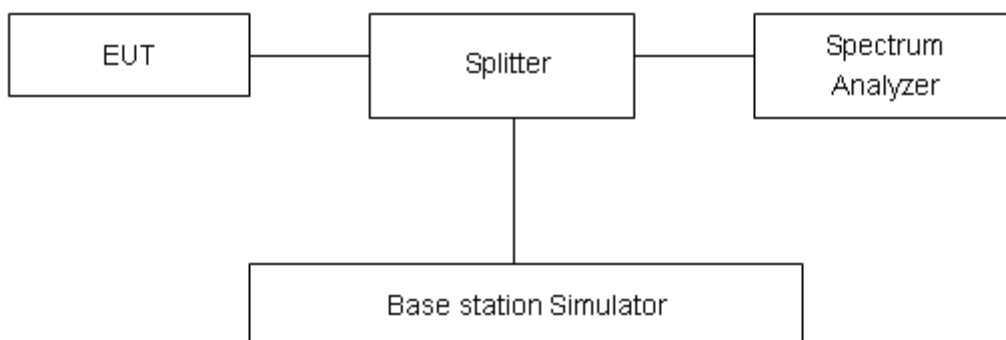
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

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

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

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

Limit	-13 dBm
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Measurement Uncertainty

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

Test Results

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

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

Ambient condition

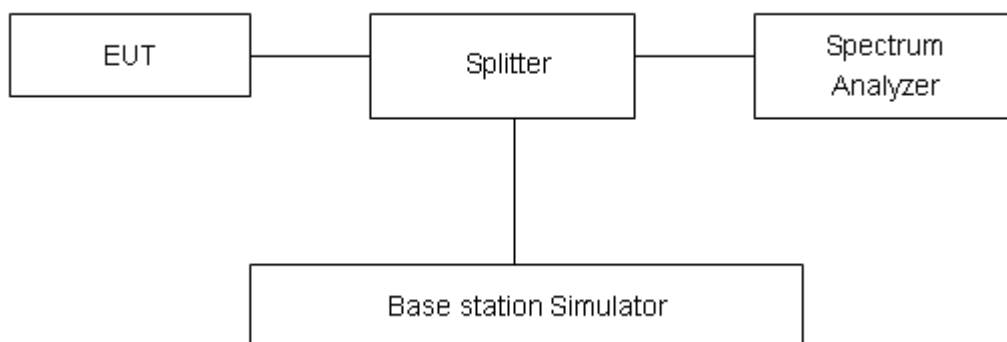
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as 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.

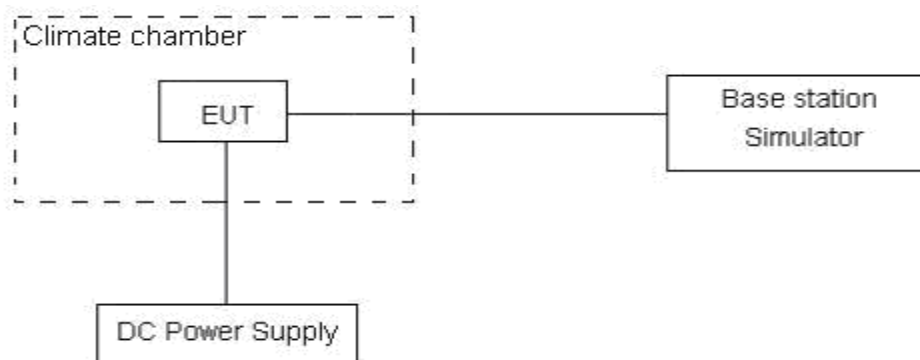
(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

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 3.3 V and 4.3 V, 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
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Measurement Uncertainty

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



Test Results

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

5.6. Spurious Emissions at Antenna Terminals

Ambient condition

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

Method of Measurement

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

The peak detector is used.

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

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

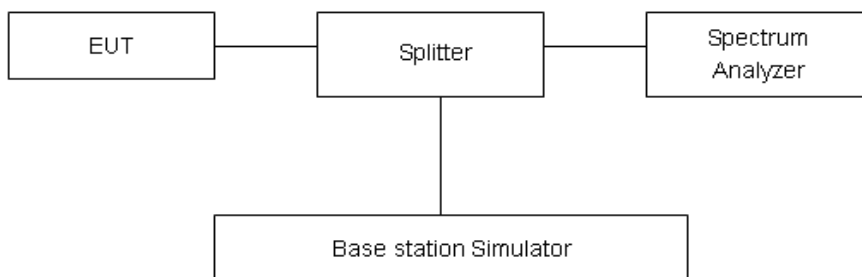
RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

Sweep is set to ATUO.

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

Test setup



Limits

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

Limit	-13 dBm
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Measurement Uncertainty

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

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-20GHz	1.407 dB

Test Results

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

5.7. Radiated Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
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:
$$\text{Power(EIRP)} = \text{PMea} - \text{PAg} - \text{Pcl} + \text{Ga}$$

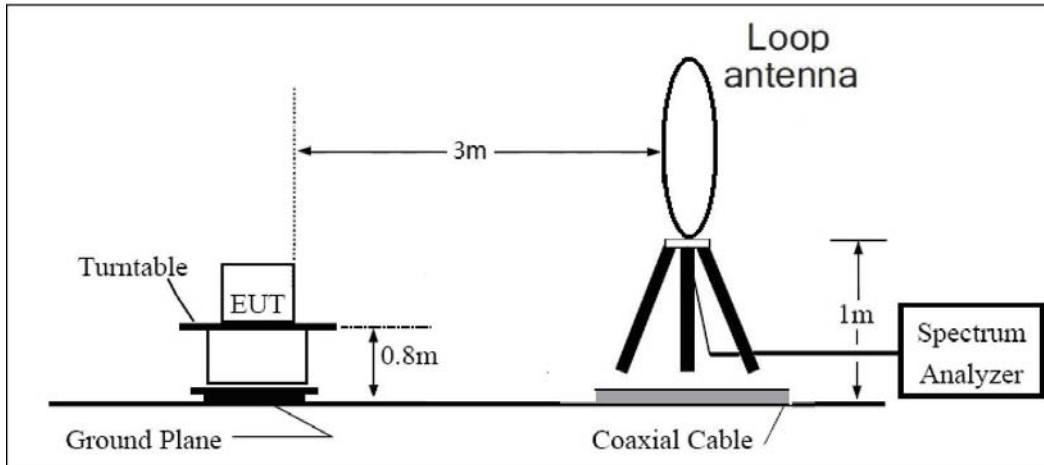
The measurement results are amend as described below:
$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the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

= EIRP-2.15dB.

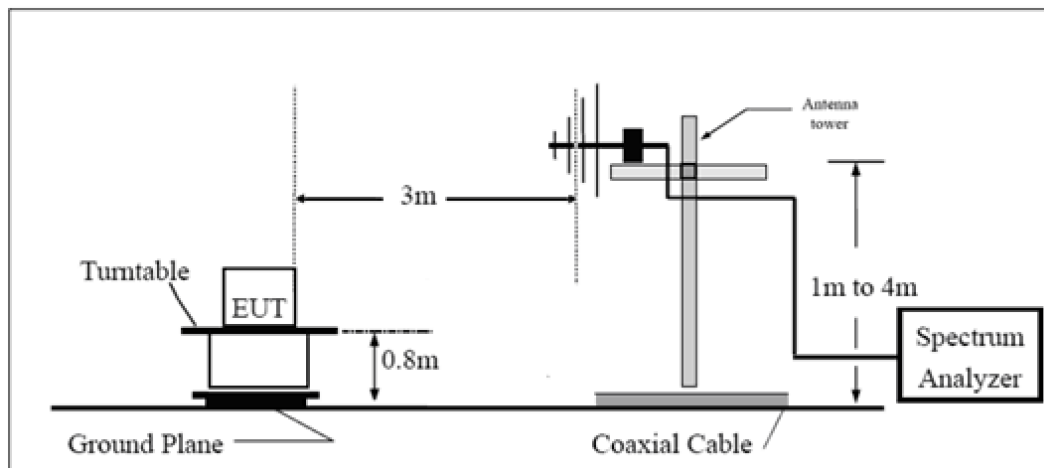
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

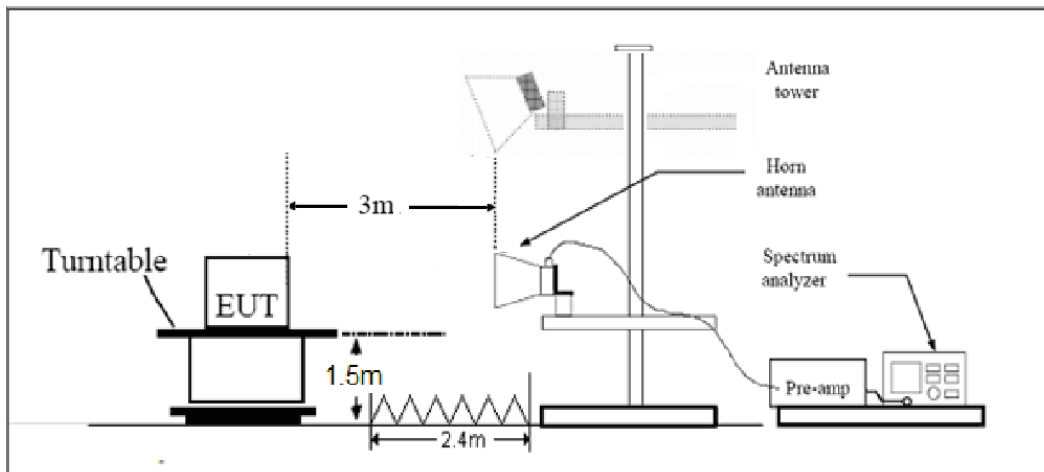
9KHz~ 30MHz



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
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Measurement Uncertainty

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

Test Results

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

6. Test Result

6.1. RF Power Output and Effective Radiated Power

GSM 850		Maximum Output Power (dBm)			ERP (dBm)		
		Channel/Frenqucy(MHz)			Channel/Frenqucy(MHz)		
		128/824.2	190/836.6	251/848.8	128/824.2	190/836.6	251/848.8
GPRS(GMSK)	1 Tx Slot	33.05	32.92	32.75	33.43	32.66	32.89
	2 Tx Slots	32.97	32.85	32.62	33.35	32.59	32.76

LTE eMTC Band 5	Channel/ Frequency(MHz)	Index	RB#	RB#	Maximum Output Power (dBm)		ERP (dBm)	
			RBstart	RBstart	QPSK	16QAM	QPSK	16QAM
1.4MHz	20407/824.7	0	1#0	1#0	22.98	21.92	23.36	22.30
		0	6#0	5#0	21.47	21.01	21.85	21.39
	20525/836.5	0	1#0	1#0	22.95	21.93	22.69	21.67
		0	6#0	5#0	21.38	20.97	21.12	20.71
	20643/848.3	0	1#5	1#5	23.06	21.84	23.20	21.98
		0	6#0	5#0	21.41	20.90	21.55	21.04
3MHz	20415/825.5	0	1#0	1#0	23.40	22.42	23.38	22.40
		0	6#0	5#0	21.20	21.40	21.18	21.38
	20525/836.5	0	1#0	1#0	23.07	22.16	22.81	21.90
		0	6#0	5#0	21.32	21.04	21.06	20.78
	20635/847.5	1	1#5	1#5	23.18	22.08	23.32	22.22
		1	6#0	5#0	21.29	21.01	21.43	21.15
5MHz	20425/826.5	3	1#0	1#0	23.06	23.18	23.04	23.16
		0	6#0	5#0	22.24	21.15	22.22	21.13
	20525/836.5	0	1#0	1#0	23.08	23.15	22.82	22.89
		0	6#0	5#0	22.23	21.08	21.97	20.82
	20625/846.5	0	1#5	1#5	23.10	23.05	23.24	23.19
		3	6#0	5#0	22.23	21.04	22.37	21.18
10MHz	20450/829	3	1#0	1#0	23.25	23.32	23.23	23.30
		0	4#0	4#0	23.34	22.10	23.32	22.08
	20525/836.5	0	1#0	1#0	23.07	23.18	22.81	22.92
		0	4#0	4#0	23.36	22.13	23.10	21.87
	20600/844	4	1#5	1#5	23.10	23.02	22.84	22.76
		7	4#2	4#2	22.79	21.12	22.53	20.86



LTE eMTC Band 26	Channel/ Frequency(MHz)	Index	RB#	RB#	Maximum Output Power (dBm)		ERP (dBm)	
			RBstart QPSK	RBstart 16QAM	QPSK	16QAM	QPSK	16QAM
1.4MHz	26797/824.7	0	1#0	1#0	23.11	21.64	23.49	22.02
		0	6#0	5#0	21.78	21.47	22.16	21.85
	26915/836.5	0	1#0	1#0	23.10	21.58	22.84	21.32
		0	6#0	5#0	21.74	21.44	21.48	21.18
	27033/848.3	0	1#5	1#5	22.99	21.72	23.13	21.86
		0	6#0	5#0	21.75	21.39	21.89	21.53
3MHz	26805/825.5	0	1#0	1#0	23.29	21.79	23.27	21.77
		0	6#0	5#0	21.81	21.19	21.79	21.17
	26915/836.5	0	1#0	1#0	23.30	21.87	23.04	21.61
		0	6#0	5#0	21.75	21.19	21.49	20.93
	27025/847.5	1	1#5	1#5	23.13	21.89	23.27	22.03
		1	6#0	5#0	21.72	21.14	21.86	21.28
5MHz	26815/826.5	3	1#0	1#0	23.42	23.40	23.40	23.38
		0	6#0	5#0	22.47	20.84	22.45	20.82
	26915/836.5	0	1#0	1#0	23.13	22.72	22.87	22.46
		0	6#0	5#0	22.59	20.92	22.33	20.66
	27015/846.5	0	1#5	1#5	23.21	22.96	23.35	23.10
		3	6#0	5#0	22.52	20.86	22.66	21.00
10MHz	26840/829	3	1#0	1#0	23.85	23.56	23.83	23.54
		0	4#0	4#0	23.56	21.91	23.54	21.89
	26915/836.5	0	1#0	1#0	23.15	22.84	22.89	22.58
		0	4#0	4#0	23.07	21.83	22.81	21.57
	26990/844	4	1#5	1#5	23.46	23.49	23.20	23.23
		7	4#2	4#2	22.91	21.56	22.65	21.30
15MHz	26865/831.5	3	1#0	1#0	23.21	22.85	23.19	22.83
		0	6#0	5#0	23.59	22.91	23.57	22.89
	26915/836.5	0	1#0	1#0	23.13	22.71	22.87	22.45
		0	6#0	5#0	23.57	22.90	23.31	22.64
	26965/841.5	8	1#5	1#5	23.26	22.91	23.00	22.65
		11	6#0	5#0	23.52	22.79	23.26	22.53

6.2. Occupied Bandwidth

Mode	Channel	Frequency (MHz)	99% Power	-26dBc Bandwidth(MHz)
			Bandwidth (MHz)	
GPRS 850 (GMSK)	128	824.2	0.23974	0.3030
	190	836.6	0.23906	0.2981
	251	848.8	0.23935	0.3058

Mode	Bandwidth	Modulation	Channel/ Frequency(MHz)	RB	Index	Bandwidth(MHz)	
						99% Power	-26dBc
LTE eMTC Band 5	1.4MHz	QPSK	20525/836.5	6#0	0	1.11710	1.329
		16QAM	20525/836.5	5#0	0	0.96500	1.296
	3MHz	QPSK	20525/836.5	6#0	0	1.10340	1.336
		16QAM	20525/836.5	5#0	0	0.96901	1.299
	5MHz	QPSK	20525/836.5	6#0	0	1.10380	1.330
		16QAM	20525/836.5	5#0	0	0.97236	1.311
	10MHz	QPSK	20525/836.5	6#0	0	1.10010	1.333
		16QAM	20525/836.5	5#0	0	1.00000	1.305

Mode	Bandwidth	Modulation	Channel/ Frequency(MHz)	RB	Index	Bandwidth(MHz)	
						99% Power	-26dBc
LTE eMTC Band 26	1.4MHz	QPSK	26915/836.5	6#0	0	1.11110	1.327
		16QAM	26915/836.5	5#0	0	0.95966	1.310
	3MHz	QPSK	26915/836.5	6#0	0	1.11420	1.319
		16QAM	26915/836.5	5#0	0	0.96481	1.303
	5MHz	QPSK	26915/836.5	6#0	0	1.10160	1.329
		16QAM	26915/836.5	5#0	0	0.97812	1.316
	10MHz	QPSK	26915/836.5	6#0	0	1.10740	1.352
		16QAM	26915/836.5	5#0	0	0.99292	1.314
	15MHz	QPSK	26915/836.5	6#0	0	1.12090	1.347
		16QAM	26915/836.5	5#0	0	0.97557	1.328



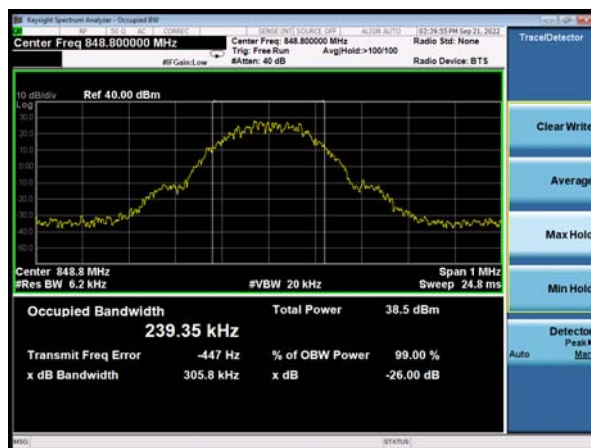
GSM 850 GPRS CH-Low



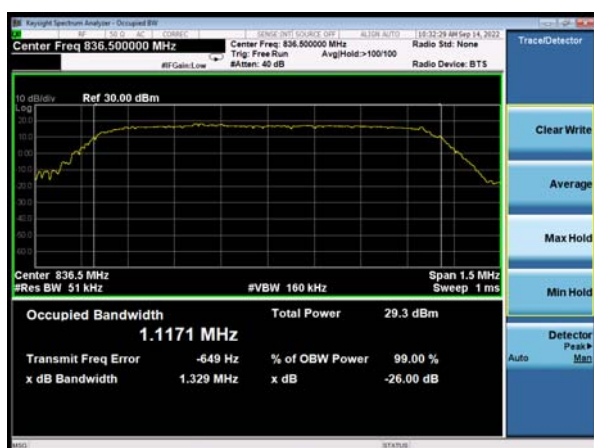
GSM 850 GPRS CH-Middle



GSM 850 GPRS CH-High



LTE eMTC Band 5 QPSK 1.4MHz CH-Middle



LTE eMTC Band 5 QPSK 3MHz CH-Middle



LTE eMTC Band 5 QPSK 5MHz CH-Middle



LTE eMTC Band 5 QPSK 10MHz CH-Middle



LTE eMTC Band 5 16QAM 1.4MHz CH-Middle



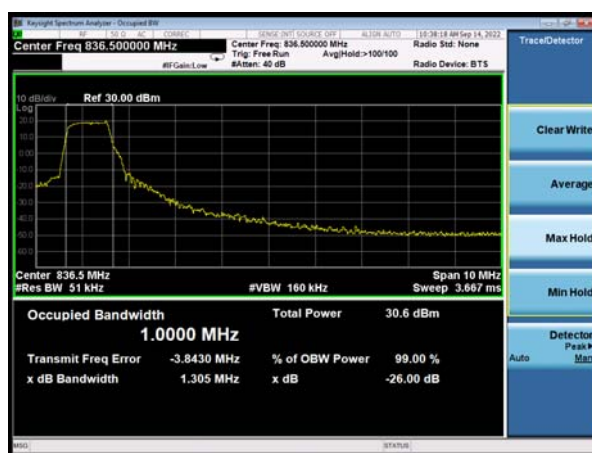
LTE eMTC Band 5 16QAM 3MHz CH-Middle



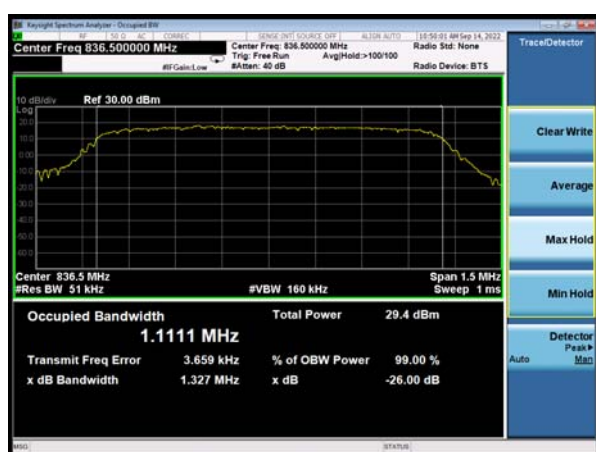
LTE eMTC Band 5 16QAM 5MHz CH-Middle



LTE eMTC Band 5 16QAM 10MHz CH-Middle



LTE eMTC Band 26 QPSK 1.4MHz CH-Middle



LTE eMTC Band 26 QPSK 3MHz CH-Middle



LTE eMTC Band 26 QPSK 5MHz CH-Middle



LTE eMTC Band 26 QPSK 10MHz CH-Middle



LTE eMTC Band 26 QPSK 15MHz CH-Middle



LTE eMTC Band 26 16QAM 1.4MHz CH-Middle



LTE eMTC Band 26 16QAM 3MHz CH-Middle



LTE eMTC Band 26 16QAM 5MHz CH-Middle



LTE eMTC Band 26 16QAM 10MHz CH-Middle



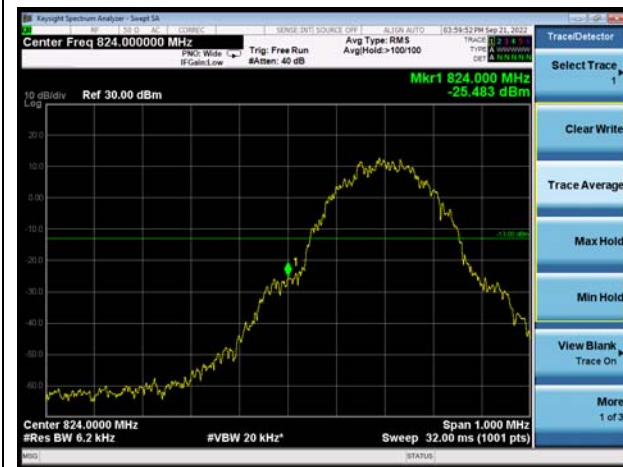
LTE eMTC Band 26 16QAM 15MHz CH-Middle



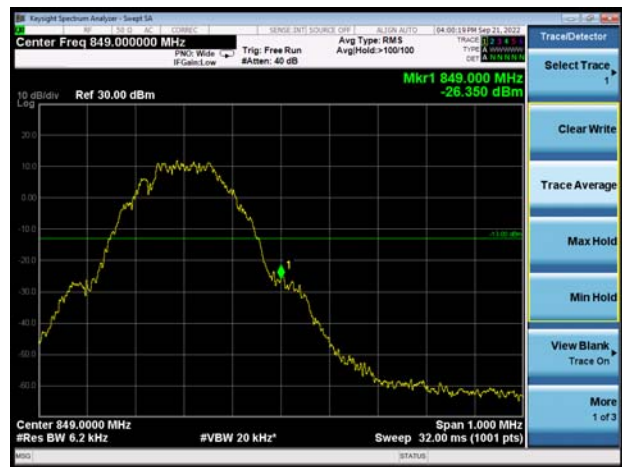


6.3. Band Edge Compliance

GSM 850 GPRS CH-Low



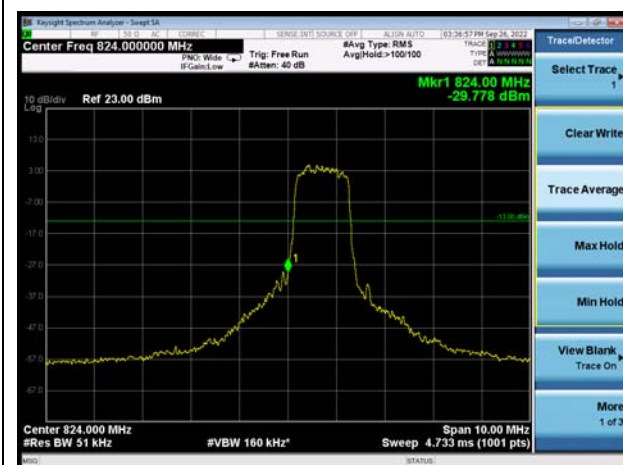
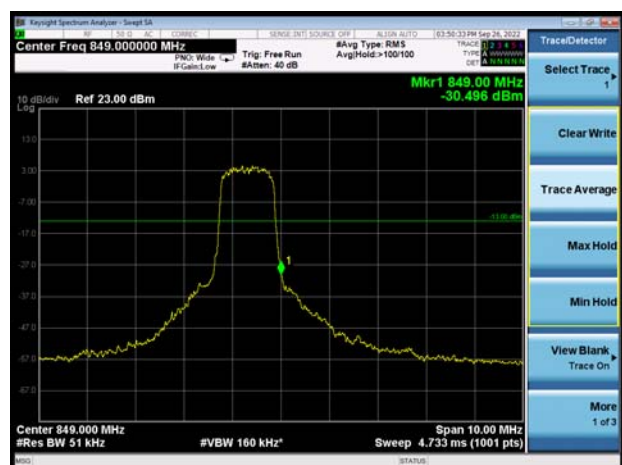
GSM 850 GPRS CH-High



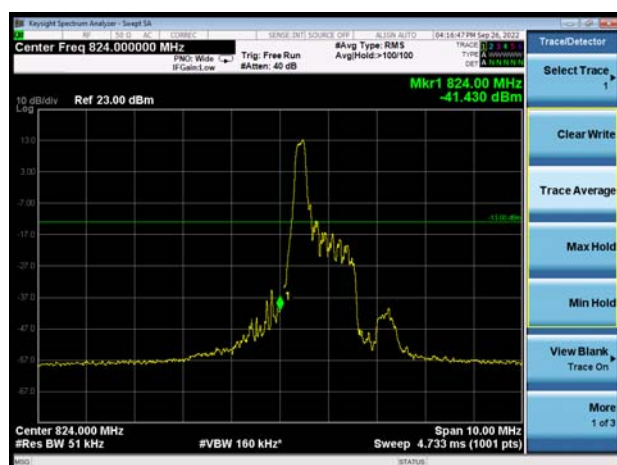
LTE eMTC Band 5 QPSK 1.4MHz CH-Low 1RB



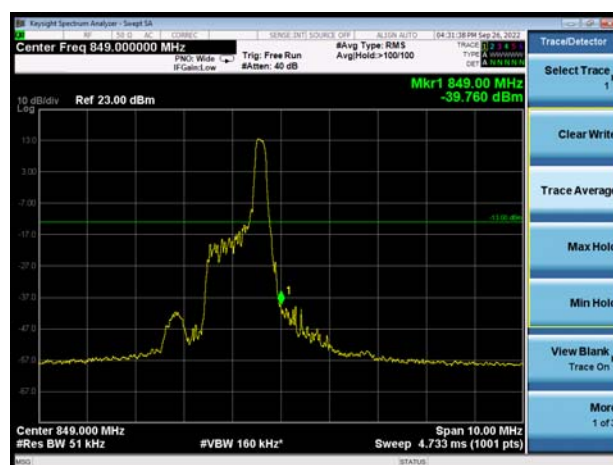
LTE eMTC Band 5 QPSK 1.4MHz CH-High 1RB

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

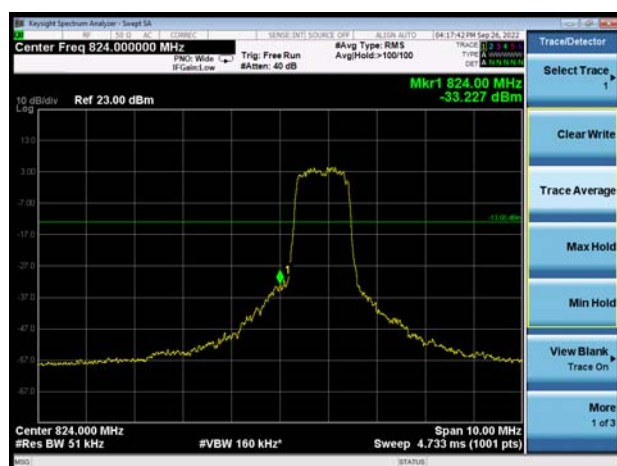
LTE eMTC Band 5 QPSK 3MHz CH-Low 1RB



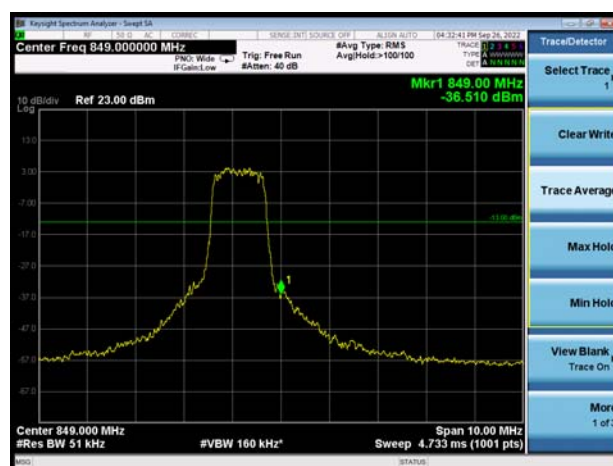
LTE eMTC Band 5 QPSK 3MHz CH-High 1RB



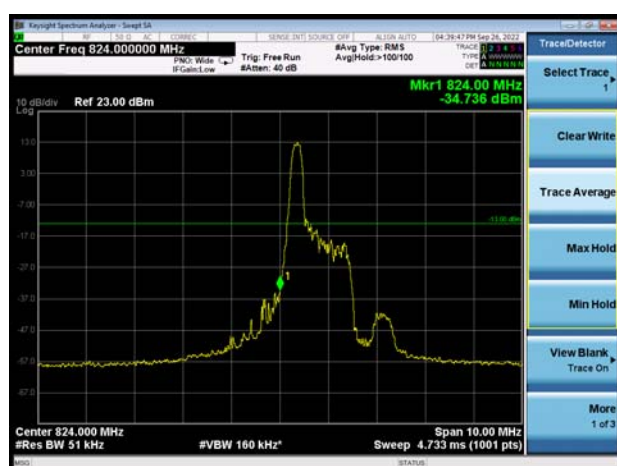
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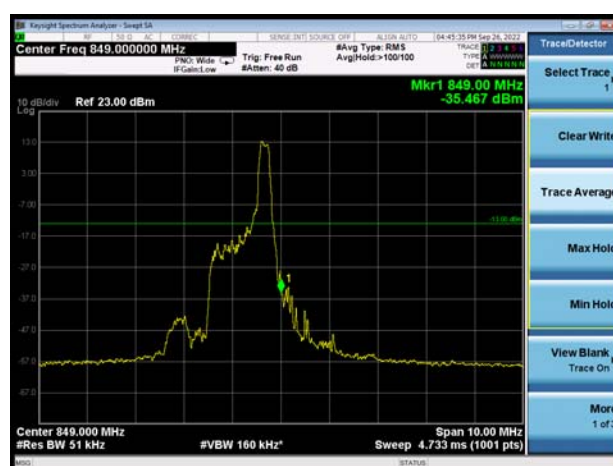
LTE eMTC Band 5 QPSK 3MHz CH-High 100%RB

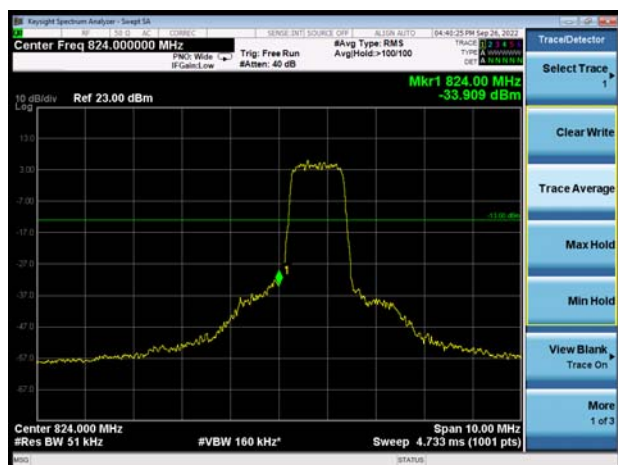
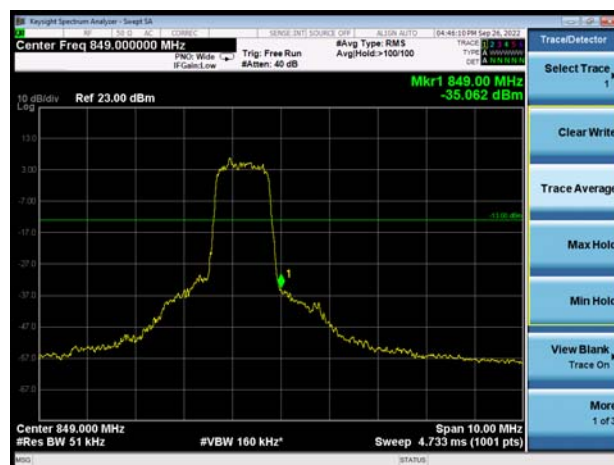


LTE eMTC Band 5 QPSK 5MHz CH-Low 1RB

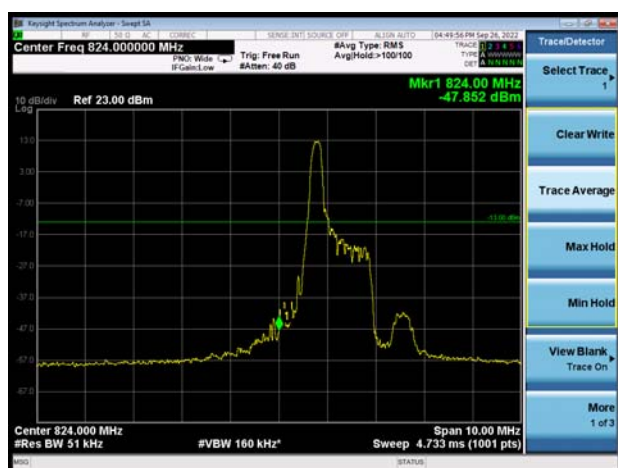


LTE eMTC Band 5 QPSK 5MHz CH-High 1RB

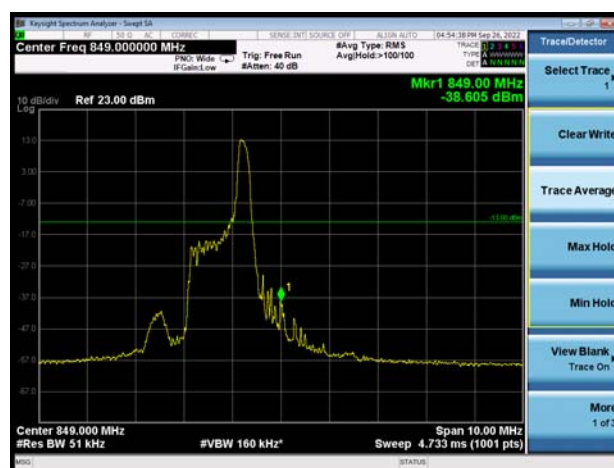
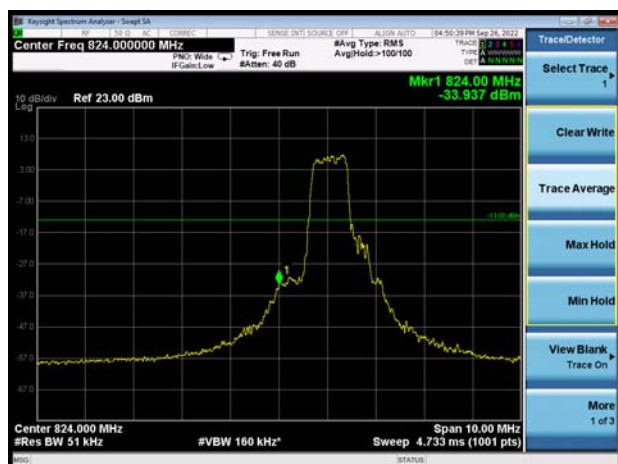
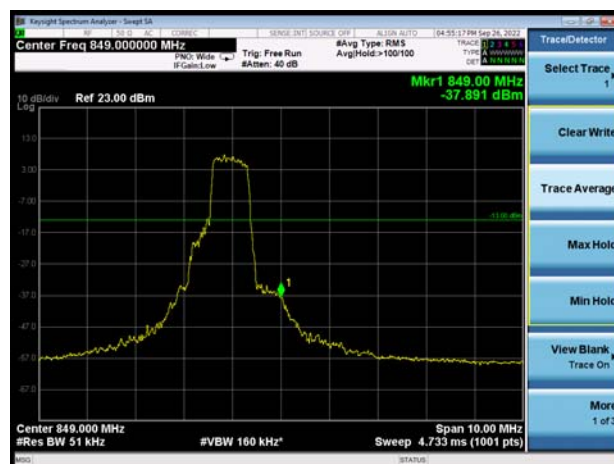


LTE eMTC Band 5 QPSK 5MHz CH-Low
100%RBLTE eMTC Band 5 QPSK 5MHz CH-High
100%RB

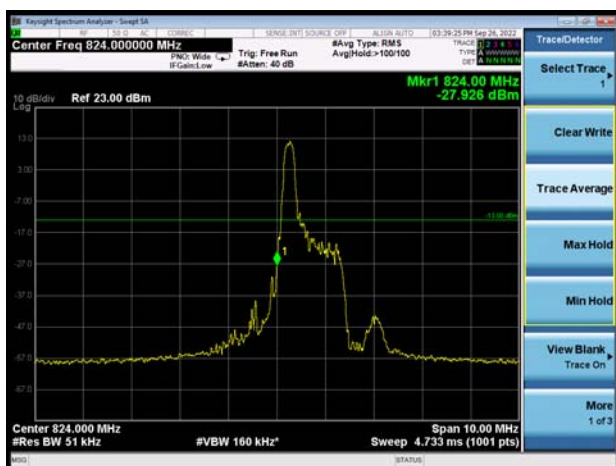
LTE eMTC Band 5 QPSK 10MHz CH-Low 1RB



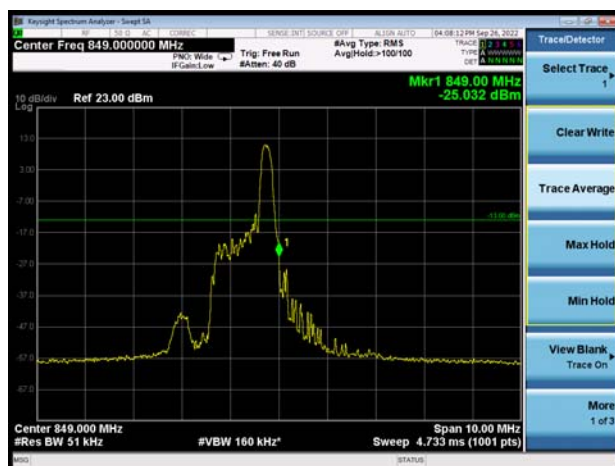
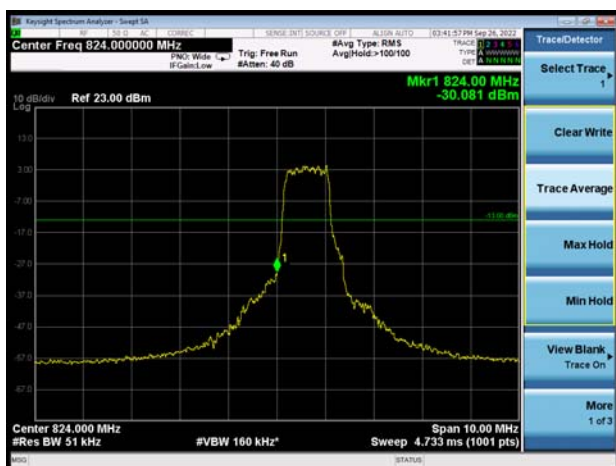
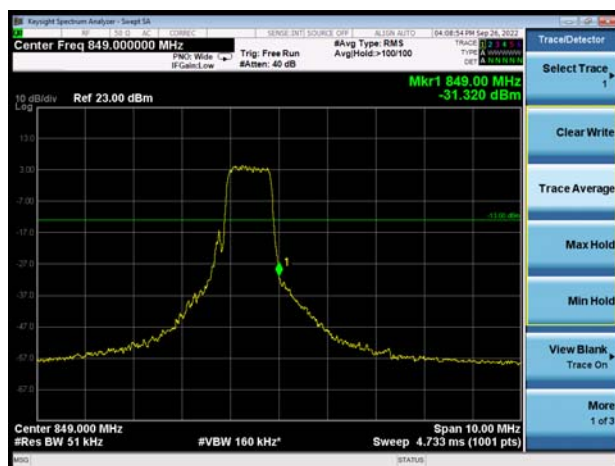
LTE eMTC Band 5 QPSK 10MHz CH-High 1RB

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

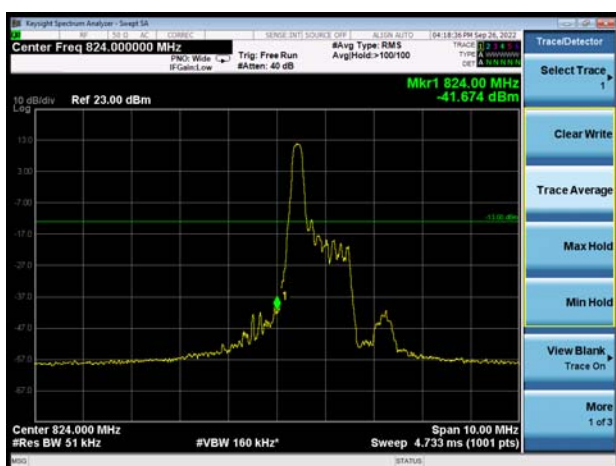
LTE eMTC Band 5 16QAM 1.4MHz CH-Low 1RB



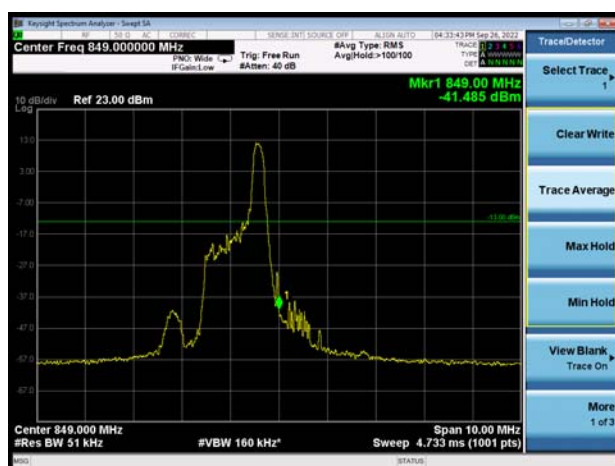
LTE eMTC Band 5 16QAM 1.4MHz CH-High 1RB


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

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


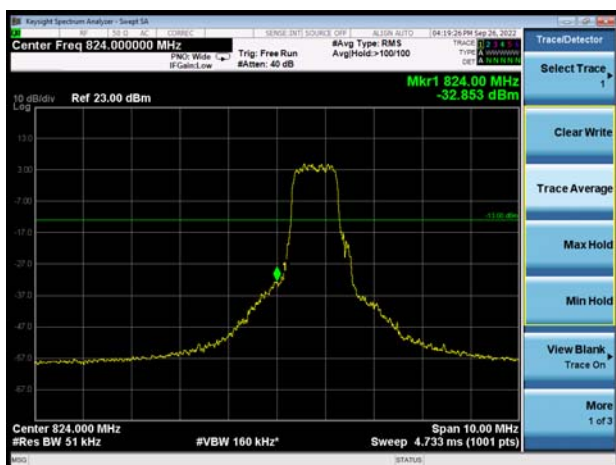
LTE eMTC Band 5 16QAM 3MHz CH-Low 1RB



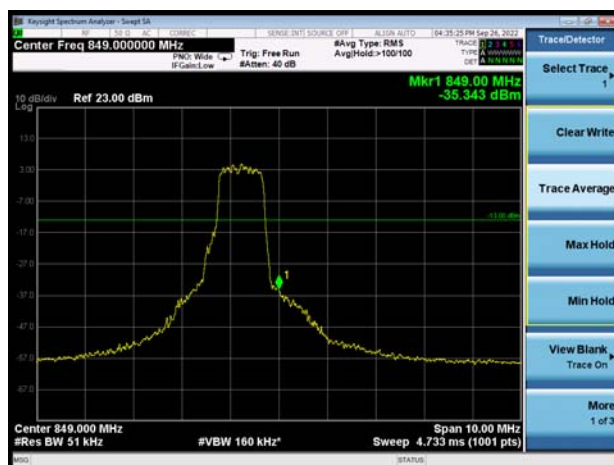
LTE eMTC Band 5 16QAM 3MHz CH-High 1RB



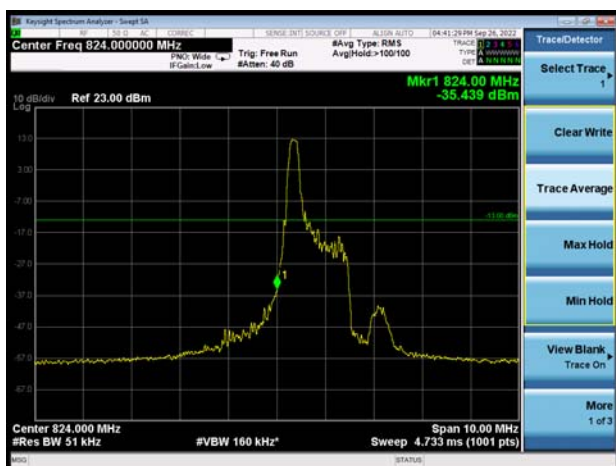
LTE eMTC Band 5 16QAM 3MHz CH-Low 100%RB



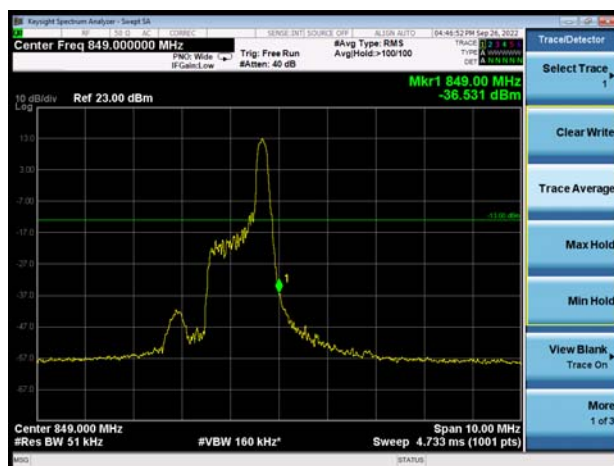
LTE eMTC Band 5 16QAM 3MHz CH-High 100%RB



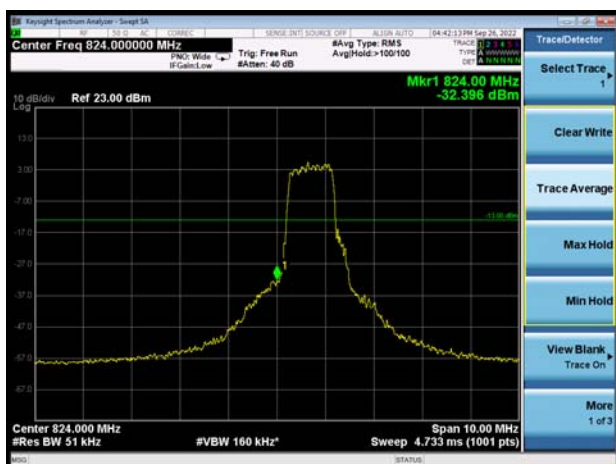
LTE eMTC Band 5 16QAM 5MHz CH-Low 1RB



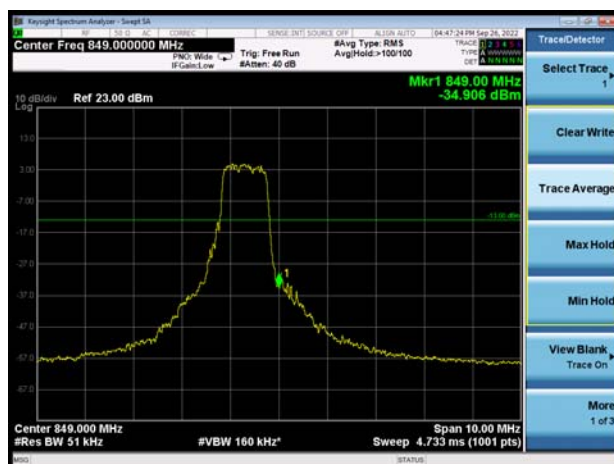
LTE eMTC Band 5 16QAM 5MHz CH-High 1RB



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

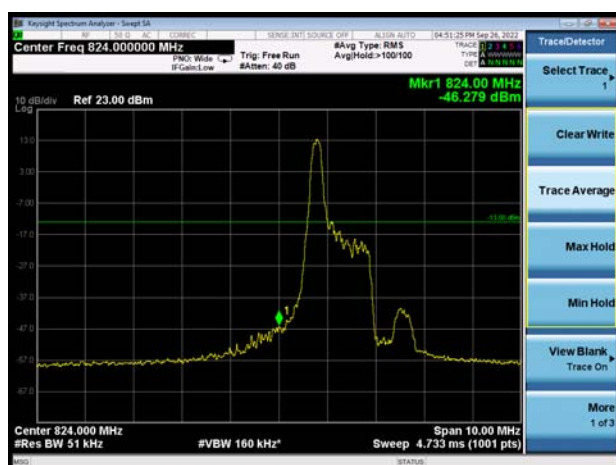


LTE eMTC Band 5 16QAM 5MHz CH-High 100%RB

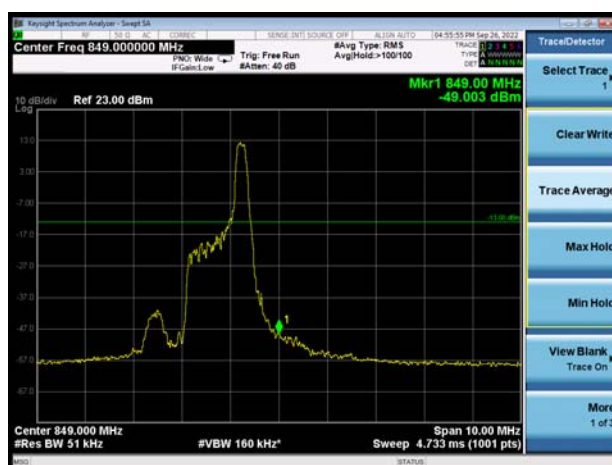
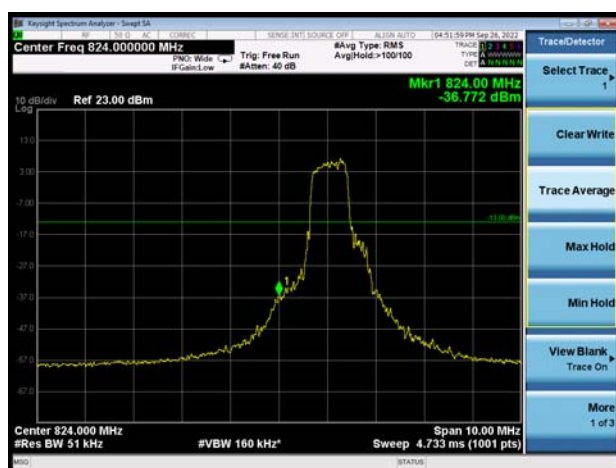
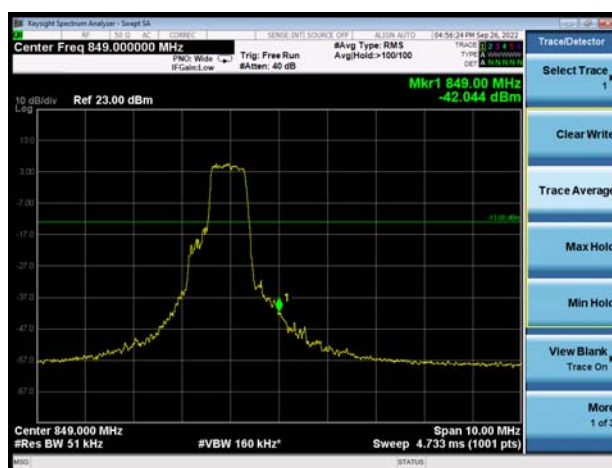




LTE eMTC Band 5 16QAM 10MHz CH-Low 1RB



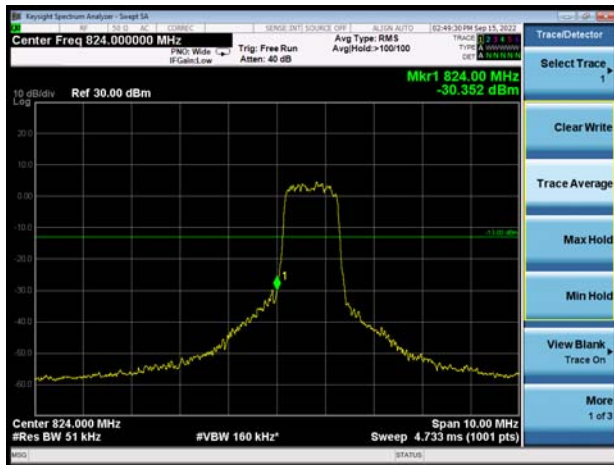
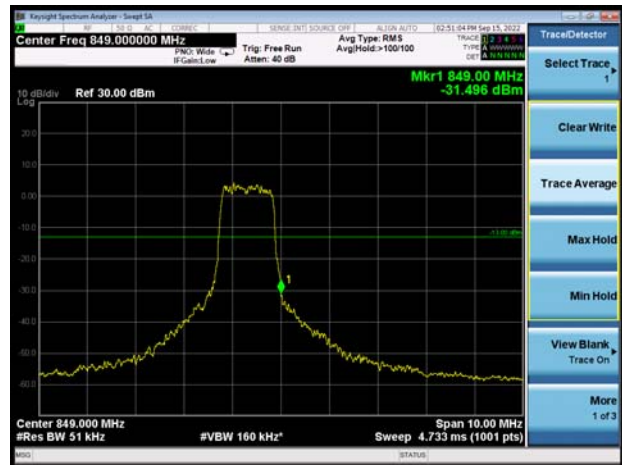
LTE eMTC Band 5 16QAM 10MHz CH-High 1RB

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

LTE eMTC Band 26 QPSK 1.4MHz CH-Low 1RB



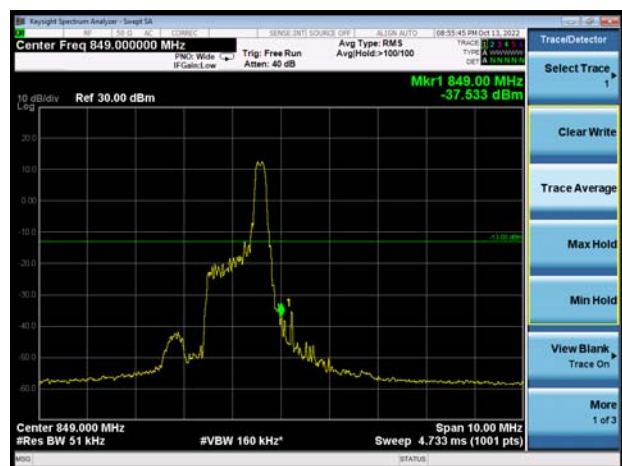
LTE eMTC Band 26 QPSK 1.4MHz CH-High 1RB

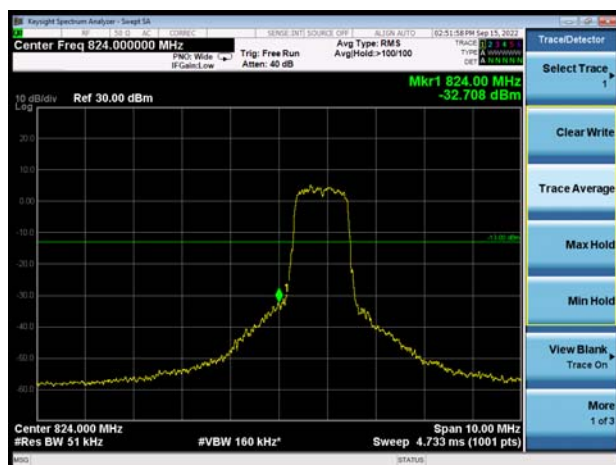
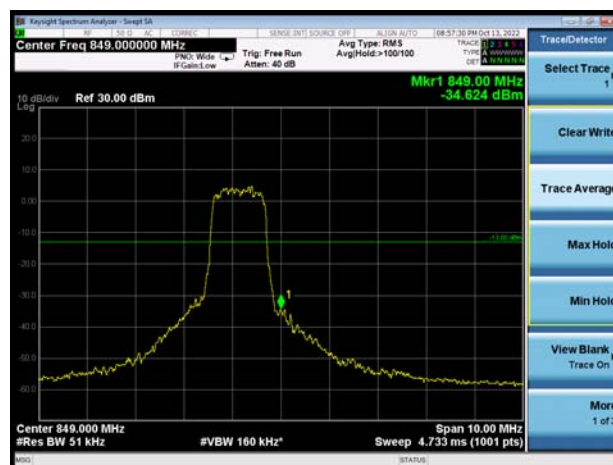

LTE eMTC Band 26 QPSK 1.4MHz CH-Low
100%RB

LTE eMTC Band 26 QPSK 1.4MHz CH-High
100%RB


LTE eMTC Band 26 QPSK 3MHz CH-Low 1RB

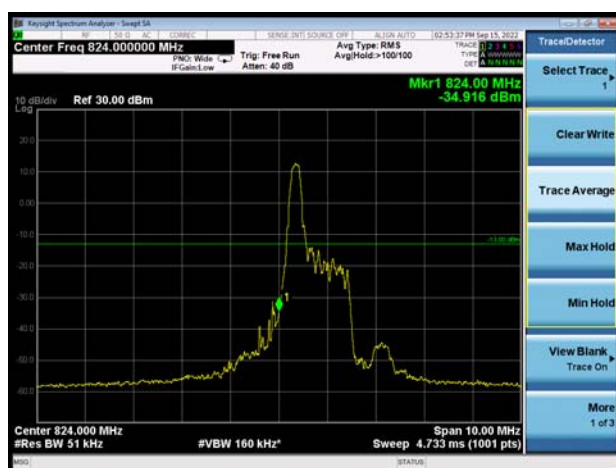


LTE eMTC Band 26 QPSK 3MHz CH-High 1RB

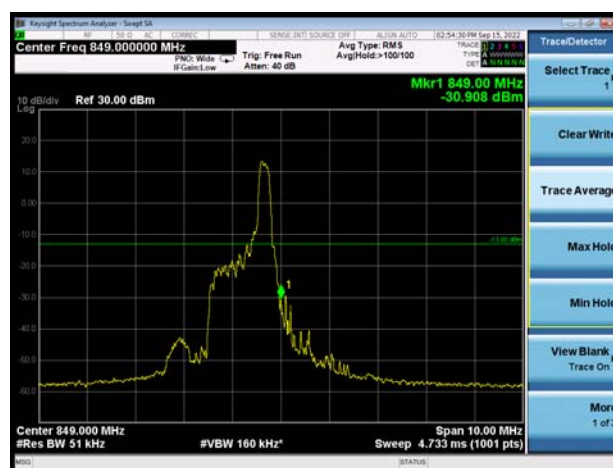
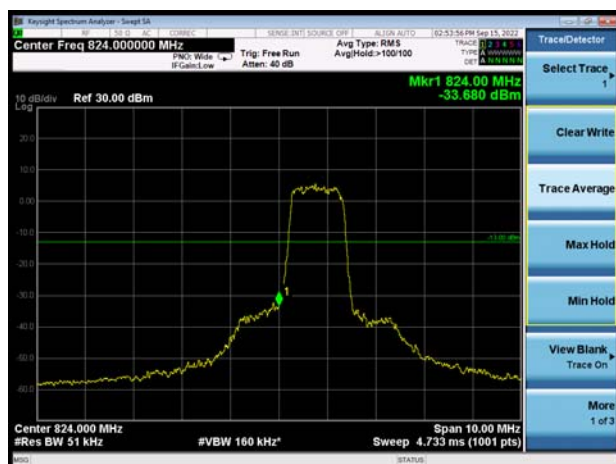
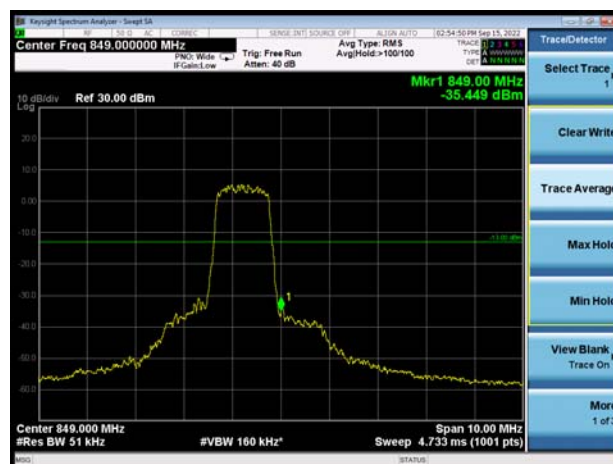


LTE eMTC Band 26 QPSK 3MHz CH-Low
100%RBLTE eMTC Band 26 QPSK 3MHz CH-High
100%RB

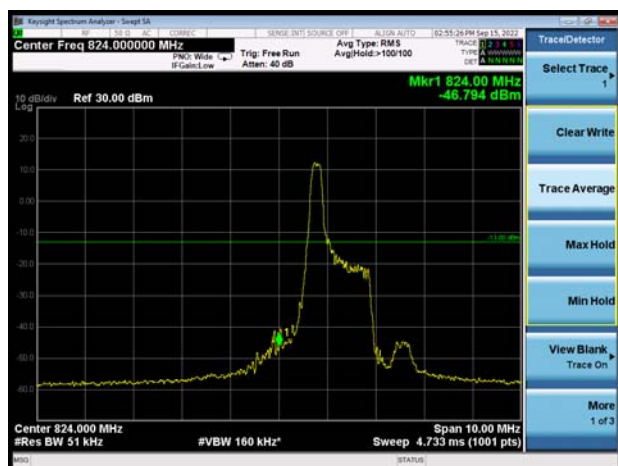
LTE eMTC Band 26 QPSK 5MHz CH-Low 1RB



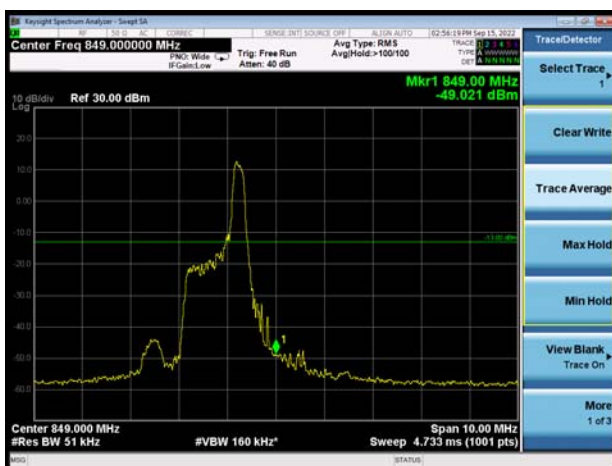
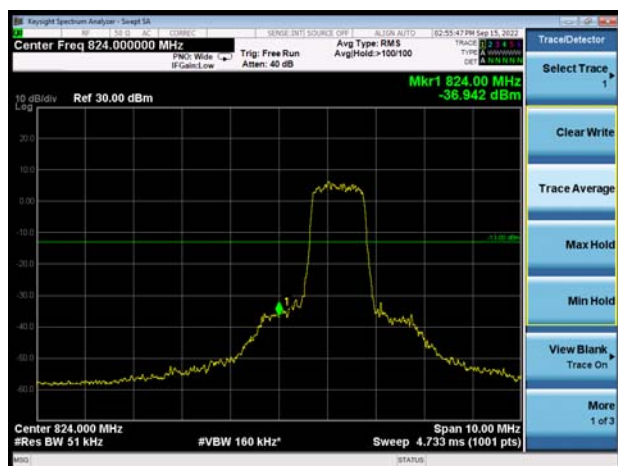
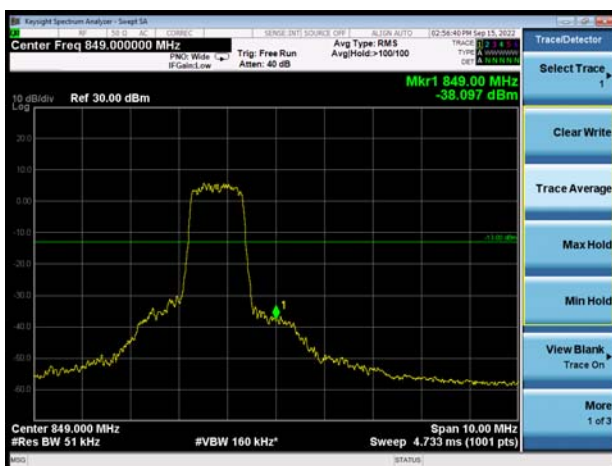
LTE eMTC Band 26 QPSK 5MHz CH-High 1RB

LTE eMTC Band 26 QPSK 5MHz CH-Low
100%RBLTE eMTC Band 26 QPSK 5MHz CH-High
100%RB

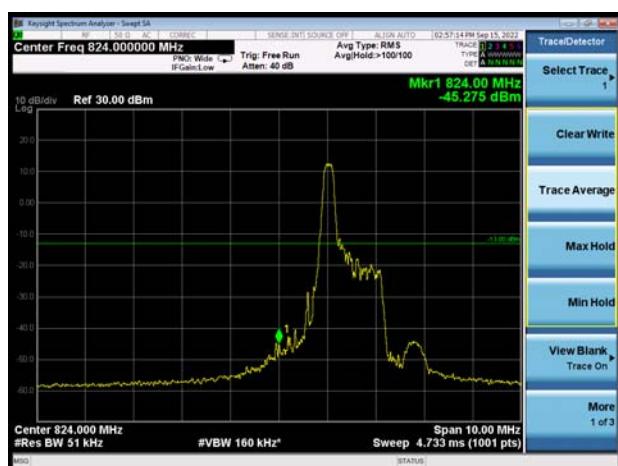
LTE eMTC Band 26 QPSK 10MHz CH-Low 1RB



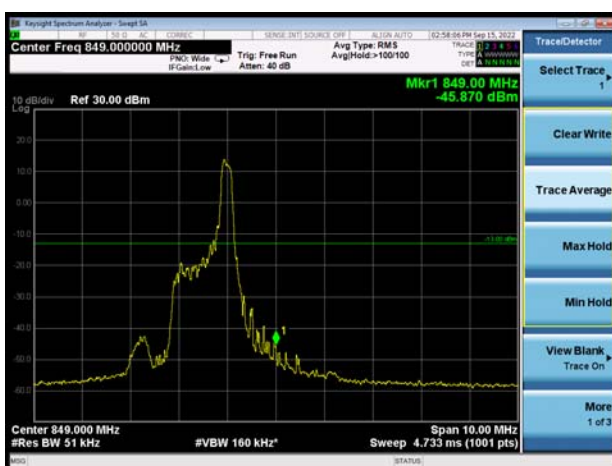
LTE eMTC Band 26 QPSK 10MHz CH-High 1RB


LTE eMTC Band 26 QPSK 10MHz CH-Low
100%RB

LTE eMTC Band 26 QPSK 10MHz CH-High
100%RB


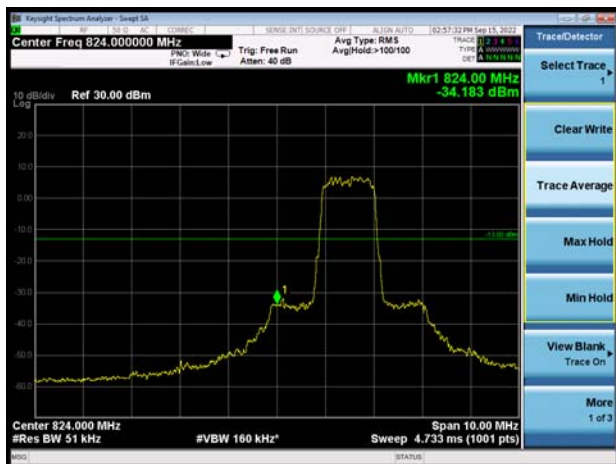
LTE eMTC Band 26 QPSK 15MHz CH-Low 1RB



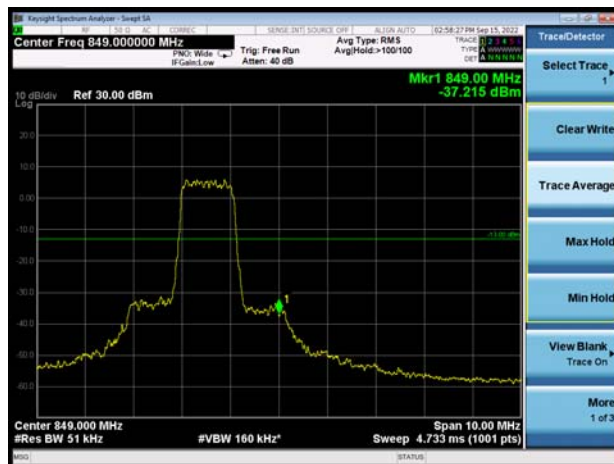
LTE eMTC Band 26 QPSK 15MHz CH-High 1RB



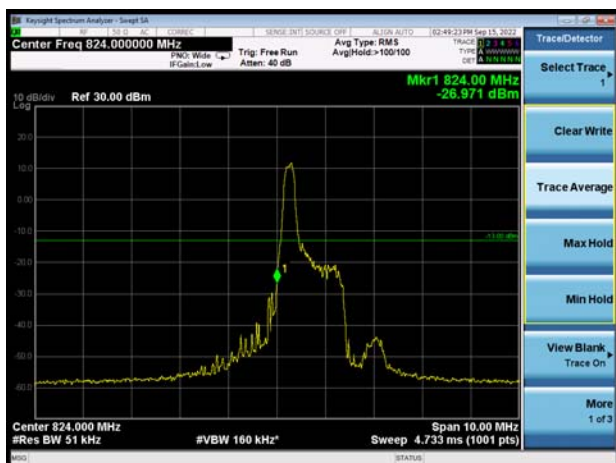
LTE eMTC Band 26 QPSK 15MHz CH-Low 100%RB



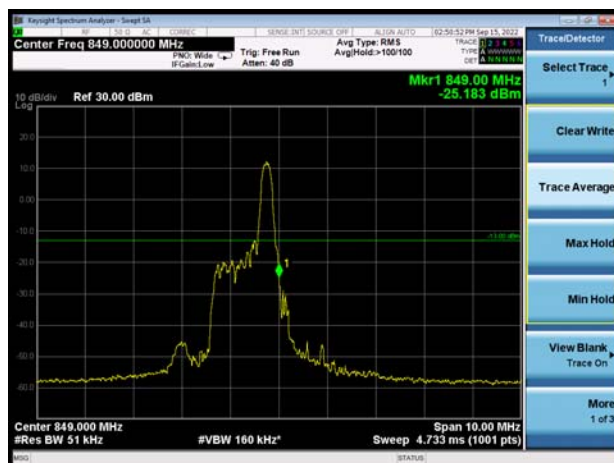
LTE eMTC Band 26 QPSK 15MHz CH-High 100%RB



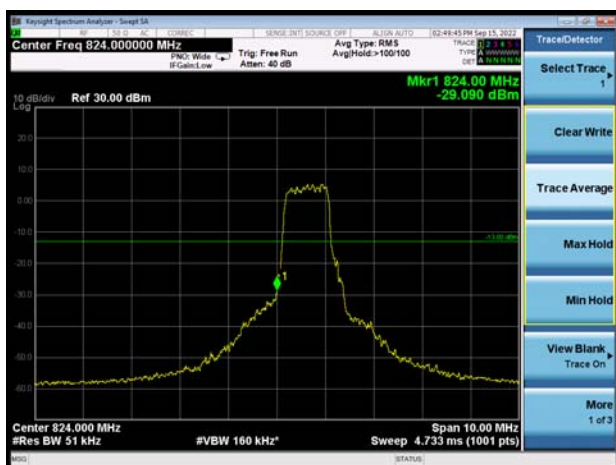
LTE eMTC Band 26 16QAM 1.4MHz CH-Low 1RB



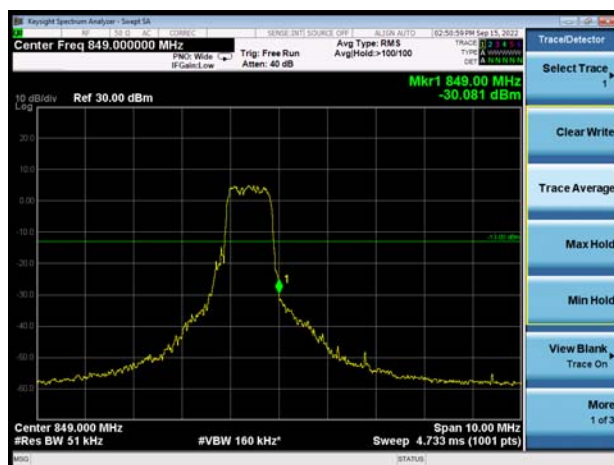
LTE eMTC Band 26 16QAM 1.4MHz CH-High 1RB



LTE eMTC Band 26 16QAM 1.4MHz CH-Low 100%RB



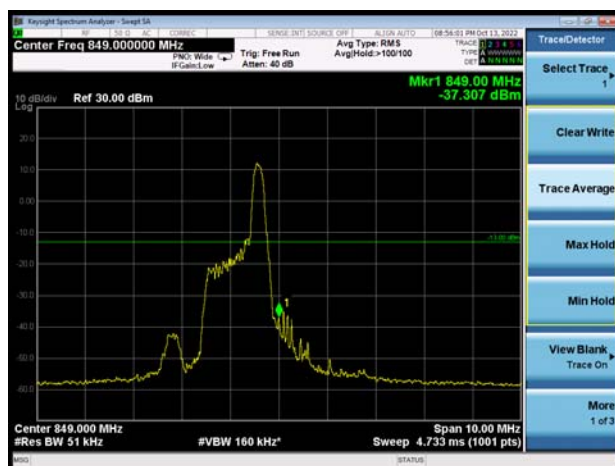
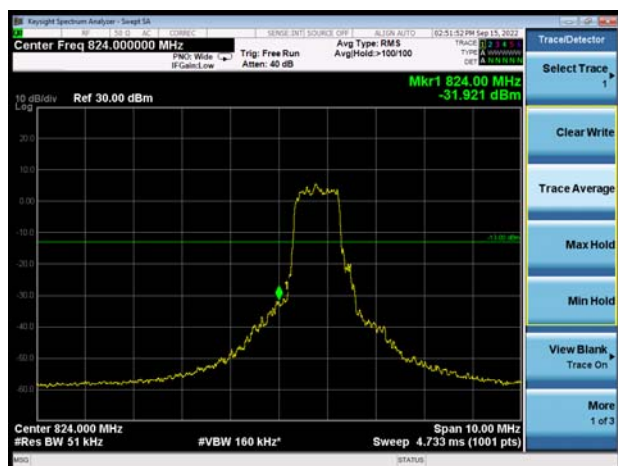
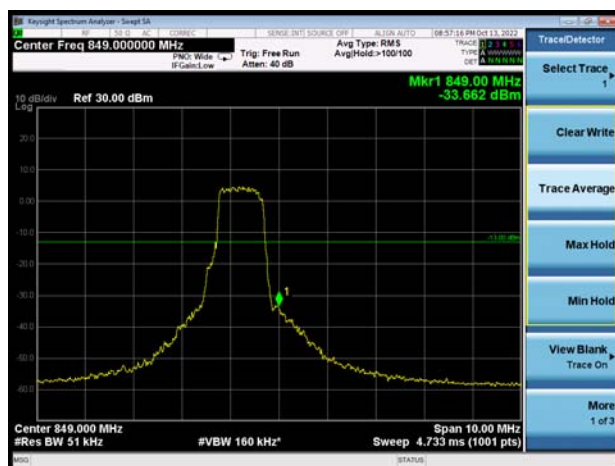
LTE eMTC Band 26 16QAM 1.4MHz CH-High 100%RB



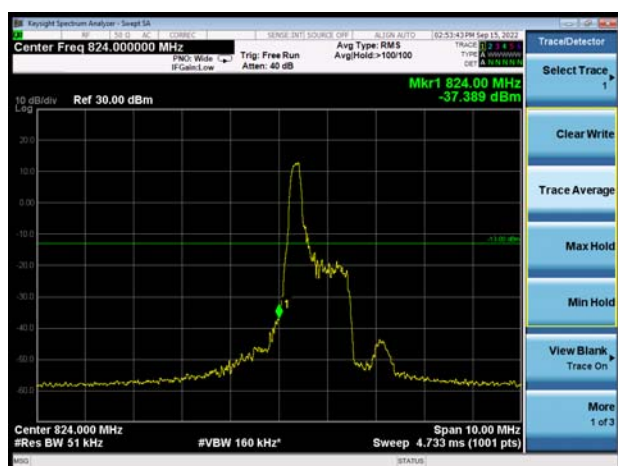
LTE eMTC Band 26 16QAM 3MHz CH-Low 1RB



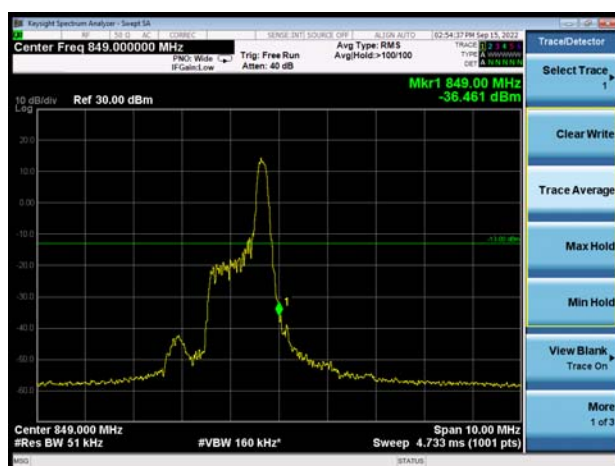
LTE eMTC Band 26 16QAM 3MHz CH-High 1RB


LTE eMTC Band 26 16QAM 3MHz CH-Low
100%RB

LTE eMTC Band 26 16QAM 3MHz CH-High
100%RB


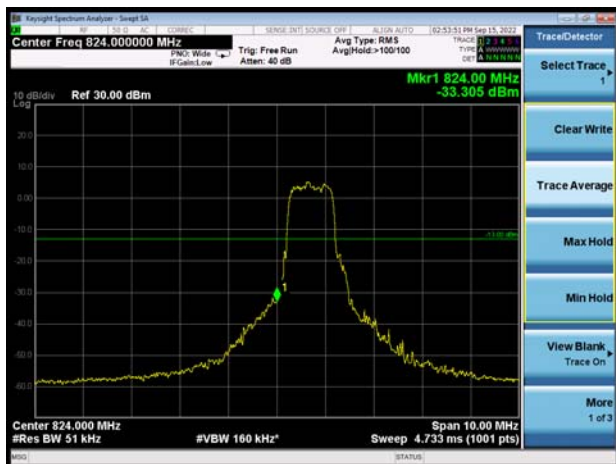
LTE eMTC Band 26 16QAM 5MHz CH-Low 1RB



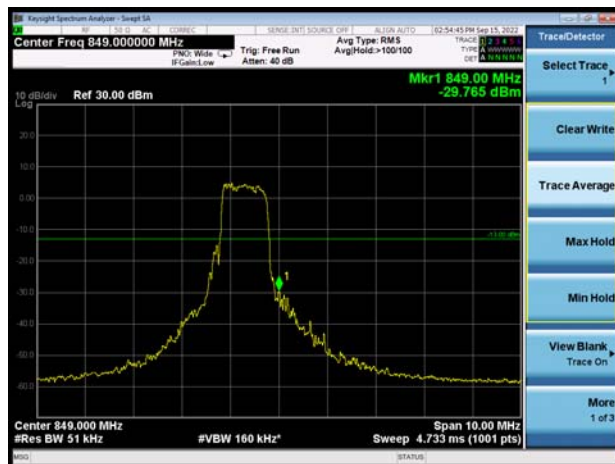
LTE eMTC Band 26 16QAM 5MHz CH-High 1RB



LTE eMTC Band 26 16QAM 5MHz CH-Low 100%RB



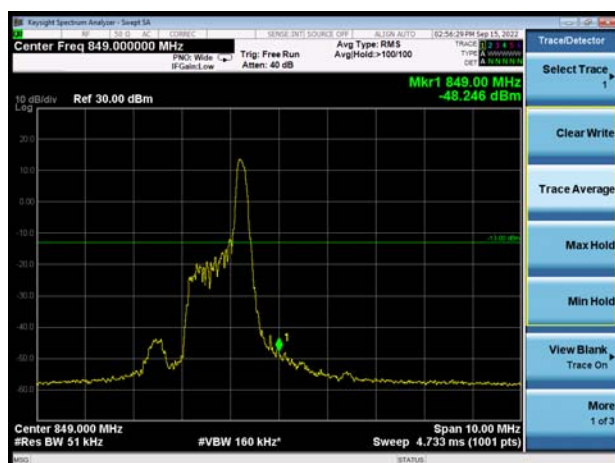
LTE eMTC Band 26 16QAM 5MHz CH-High 100%RB



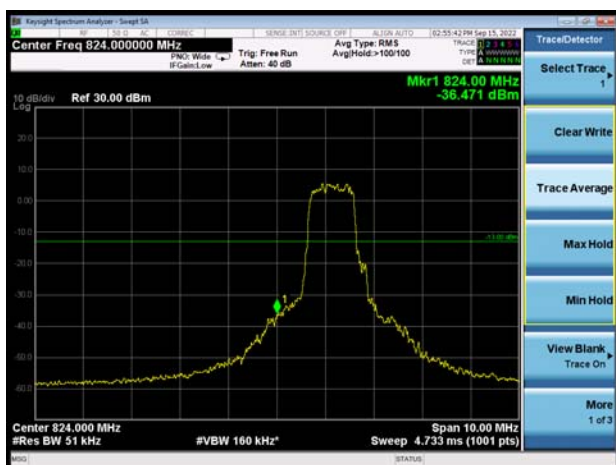
LTE eMTC Band 26 16QAM 10MHz CH-Low 1RB



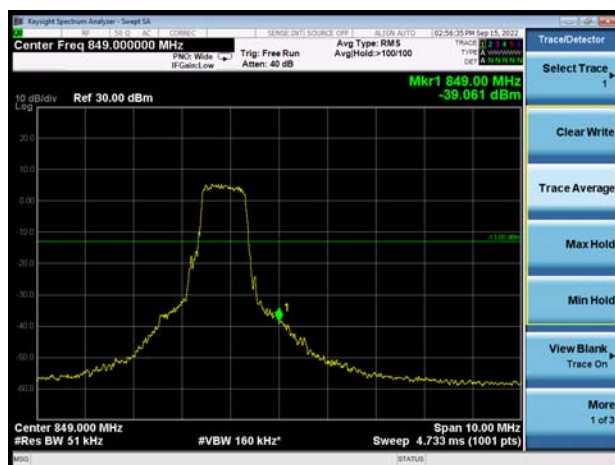
LTE eMTC Band 26 16QAM 10MHz CH-High 1RB



LTE eMTC Band 26 16QAM 10MHz CH-Low 100%RB

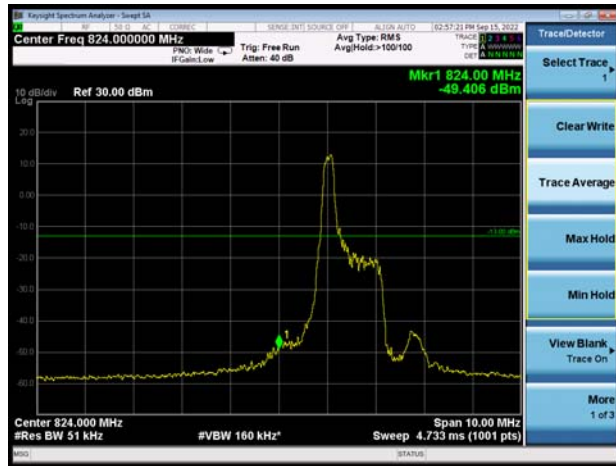


LTE eMTC Band 26 16QAM 10MHz CH-High 100%RB

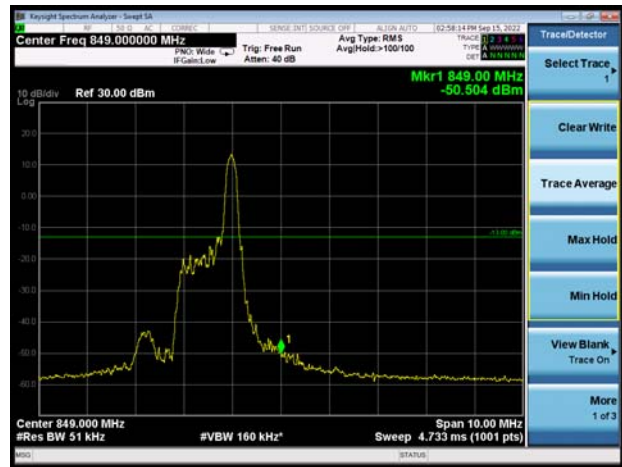




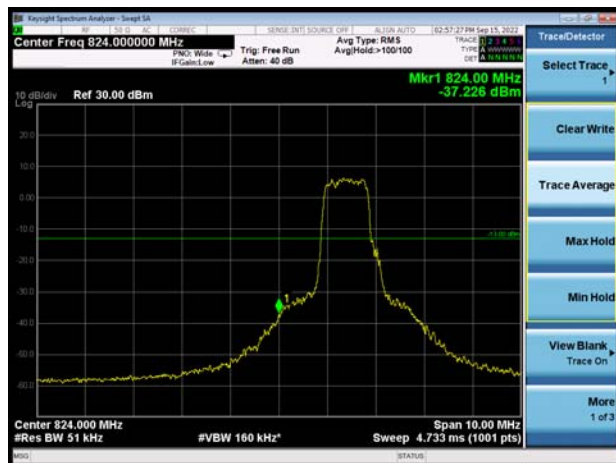
LTE eMTC Band 26 16QAM 15MHz CH-Low 1RB



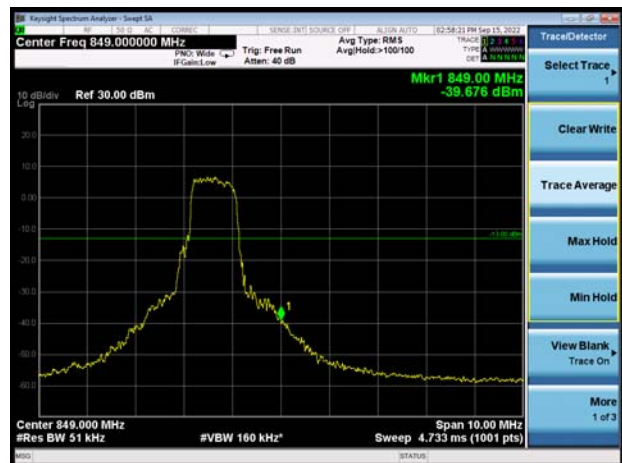
LTE eMTC Band 26 16QAM 15MHz CH-High 1RB



LTE eMTC Band 26 16QAM 15MHz CH-Low 100%RB



LTE eMTC Band 26 16QAM 15MHz 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	33.77	30.70	3.07	≤13	PASS
	190	836.6	33.69	30.63	3.06	≤13	PASS
	251	848.8	33.52	30.49	3.03	≤13	PASS

Mode	Bandwidth	Modulation	Channel/ Frequency (MHz)	Peak-to-Average Power Ratio (PAPR)			Limit (dB)	Conclusion
				Peak (dBm)	Avg (dBm)	PAPR (dB)		
LTE eMTC Band 5	1.4MHz	QPSK	20525/836.5	26.94	17.10	9.84	≤13	PASS
		16QAM	20525/836.5	27.43	16.21	11.22	≤13	PASS
	3MHz	QPSK	20525/836.5	26.82	16.87	9.95	≤13	PASS
		16QAM	20525/836.5	27.47	15.83	11.64	≤13	PASS
	5MHz	QPSK	20525/836.5	27.61	17.85	9.76	≤13	PASS
		16QAM	20525/836.5	27.52	15.86	11.66	≤13	PASS
	10MHz	QPSK	20525/836.5	27.72	17.89	9.83	≤13	PASS
		16QAM	20525/836.5	28.14	16.66	11.48	≤13	PASS

Mode	Bandwidth	Modulation	Channel/ Frequency (MHz)	Peak-to-Average Power Ratio (PAPR)			Limit (dB)	Conclusion
				Peak (dBm)	Avg (dBm)	PAPR (dB)		
LTE eMTC Band 26	1.4MHz	QPSK	26915/836.5	27.02	17.11	9.91	≤13	PASS
		16QAM	26915/836.5	27.62	16.43	11.19	≤13	PASS
	3MHz	QPSK	26915/836.5	27.10	17.29	9.81	≤13	PASS
		16QAM	26915/836.5	27.50	16.49	11.01	≤13	PASS
	5MHz	QPSK	26915/836.5	27.77	17.96	9.81	≤13	PASS
		16QAM	26915/836.5	27.45	16.61	10.84	≤13	PASS
	10MHz	QPSK	26915/836.5	27.89	18.19	9.70	≤13	PASS
		16QAM	26915/836.5	28.10	17.35	10.75	≤13	PASS
	15MHz	QPSK	26915/836.5	28.41	18.69	9.72	≤13	PASS
		16QAM	26915/836.5	28.70	18.75	9.95	≤13	PASS

6.5. Frequency Stability

	Condition		Freq.Error (Hz)	Frequency Stability(ppm)	Verdict
	Temperature	Voltage	GMSK	GMSK	
GSM850	Normal (25℃)	Normal	4.48	0.00536	PASS
	Extreme (50℃)		16.39	0.01959	PASS
	Extreme (40℃)		8.55	0.01022	PASS
	Extreme (30℃)		10.11	0.01209	PASS
	Extreme (20℃)		14.57	0.01742	PASS
	Extreme (10℃)		5.53	0.00661	PASS
	Extreme (0℃)		7.89	0.00943	PASS
	Extreme (-10℃)		14.48	0.01731	PASS
	Extreme (-20℃)		11.00	0.01315	PASS
	Extreme (-30℃)		6.86	0.00820	PASS
	25℃	LV	1.62	0.00194	PASS
		HV	10.53	0.01258	PASS

	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
	BANDWIDTH	1.4MHz	16QAM	QPSK	16QAM	QPSK	
LTE eMTC Band 5	Temperature	Voltage	14.42	11.47	0.00767	0.00610	PASS
	Normal (25℃)	Normal	12.65	9.24	0.00673	0.00492	PASS
	Extreme (50℃)		7.77	7.06	0.00413	0.00376	PASS
	Extreme (40℃)		7.76	9.51	0.00413	0.00506	PASS
	Extreme (30℃)		7.70	1.20	0.00409	0.00064	PASS
	Extreme (20℃)		2.16	12.98	0.00115	0.00690	PASS
	Extreme (10℃)		12.16	2.87	0.00647	0.00153	PASS
	Extreme (0℃)		9.58	6.08	0.00510	0.00323	PASS
	Extreme (-10℃)		6.14	6.01	0.00326	0.00320	PASS
	Extreme (-20℃)		7.25	13.10	0.00385	0.00697	PASS
	Extreme (-30℃)		15.00	1.58	0.00798	0.00084	PASS
	25℃	LV	7.81	17.95	0.00416	0.00955	PASS
		HV					
	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability(ppm)	Frequency Stability(ppm)	Verdict
	BANDWIDTH	3MHz	16QAM	QPSK	16QAM	QPSK	
	Temperature	Voltage	8.81	11.35	0.00468	0.00604	PASS
	Normal (25℃)	Normal	7.36	12.28	0.00392	0.00653	PASS
	Extreme (50℃)		4.39	7.03	0.00234	0.00374	PASS
	Extreme (40℃)		15.59	2.41	0.00829	0.00128	PASS
	Extreme (30℃)						



	Extreme (20℃)		4.94	5.75	0.00263	0.00306	PASS
	Extreme (10℃)		1.81	11.45	0.00097	0.00609	PASS
	Extreme (0℃)		8.67	11.51	0.00461	0.00612	PASS
	Extreme (-10℃)		17.80	1.24	0.00947	0.00066	PASS
	Extreme (-20℃)		1.36	11.12	0.00072	0.00592	PASS
	Extreme (-30℃)		6.37	11.62	0.00339	0.00618	PASS
	25℃	LV	2.74	2.44	0.00146	0.00130	PASS
		HV	2.78	6.72	0.00148	0.00357	PASS
	Condition		Freq.Error	Freq.Error	Frequency	Frequency	Verdict
	BANDWIDTH	5MHz	(Hz)	(Hz)	Stability(ppm)	Stability(ppm)	
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	1.28	12.07	0.00068	0.00642	PASS
	Extreme (50℃)		17.64	3.04	0.00938	0.00162	PASS
	Extreme (40℃)		10.26	15.30	0.00546	0.00814	PASS
	Extreme (30℃)		10.49	15.99	0.00558	0.00850	PASS
	Extreme (20℃)		3.06	5.69	0.00163	0.00302	PASS
	Extreme (10℃)		4.15	8.55	0.00221	0.00455	PASS
	Extreme (0℃)		1.96	15.29	0.00104	0.00813	PASS
	Extreme (-10℃)		2.79	13.62	0.00148	0.00725	PASS
	Extreme (-20℃)		14.34	11.49	0.00763	0.00611	PASS
	Extreme (-30℃)		1.48	4.64	0.00079	0.00247	PASS
	25℃	LV	12.80	17.46	0.00681	0.00929	PASS
		HV	14.04	11.77	0.00747	0.00626	PASS
	Condition		Freq.Error	Freq.Error	Frequency	Frequency	Verdict
	BANDWIDTH	10MHz	(Hz)	(Hz)	Stability(ppm)	Stability(ppm)	
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	8.30	7.92	0.00441	0.00421	PASS
	Extreme (50℃)		16.03	16.97	0.00853	0.00903	PASS
	Extreme (40℃)		11.06	15.45	0.00588	0.00822	PASS
	Extreme (30℃)		4.88	10.72	0.00260	0.00570	PASS
	Extreme (20℃)		15.14	13.72	0.00805	0.00730	PASS
	Extreme (10℃)		9.90	4.39	0.00527	0.00234	PASS
	Extreme (0℃)		6.33	7.28	0.00337	0.00387	PASS
	Extreme (-10℃)		5.60	16.22	0.00298	0.00863	PASS
	Extreme (-20℃)		4.82	15.86	0.00256	0.00843	PASS
	Extreme (-30℃)		1.56	2.60	0.00083	0.00139	PASS
	25℃	LV	14.25	15.13	0.00758	0.00805	PASS
		HV	6.75	1.61	0.00359	0.00086	PASS



LTE eMTC Band 26	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	5.50	7.60	0.00292	0.00404	PASS
	Extreme (50℃)		11.66	6.71	0.00620	0.00357	PASS
	Extreme (40℃)		8.41	2.93	0.00447	0.00156	PASS
	Extreme (30℃)		3.34	16.82	0.00178	0.00895	PASS
	Extreme (20℃)		16.65	7.26	0.00886	0.00386	PASS
	Extreme (10℃)		3.77	9.59	0.00200	0.00510	PASS
	Extreme (0℃)		7.30	15.28	0.00388	0.00813	PASS
	Extreme (-10℃)		8.61	14.16	0.00458	0.00753	PASS
	Extreme (-20℃)		2.08	2.53	0.00111	0.00135	PASS
	Extreme (-30℃)		8.87	10.64	0.00472	0.00566	PASS
	25℃	LV	12.86	4.41	0.00684	0.00234	PASS
		HV	12.84	12.27	0.00683	0.00653	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	15.41	4.58	0.00820	0.00243	PASS
	Extreme (50℃)		1.04	8.55	0.00055	0.00455	PASS
	Extreme (40℃)		1.80	3.41	0.00096	0.00181	PASS
	Extreme (30℃)		10.45	6.84	0.00556	0.00364	PASS
	Extreme (20℃)		5.45	15.39	0.00290	0.00819	PASS
	Extreme (10℃)		17.98	7.22	0.00956	0.00384	PASS
	Extreme (0℃)		5.40	4.36	0.00287	0.00232	PASS
	Extreme (-10℃)		17.48	3.09	0.00930	0.00165	PASS
	Extreme (-20℃)		3.88	8.70	0.00207	0.00463	PASS
	Extreme (-30℃)		10.52	7.32	0.00560	0.00389	PASS
	25℃	LV	5.37	3.72	0.00286	0.00198	PASS
		HV	1.44	9.13	0.00076	0.00486	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	17.62	15.11	0.00937	0.00804	PASS
	Extreme (50℃)		3.88	8.17	0.00206	0.00435	PASS
	Extreme (40℃)		2.95	10.30	0.00157	0.00548	PASS
	Extreme (30℃)		16.30	4.25	0.00867	0.00226	PASS
	Extreme (20℃)		16.62	16.53	0.00884	0.00879	PASS
	Extreme (10℃)		7.31	4.43	0.00389	0.00236	PASS
	Extreme (0℃)		3.34	5.25	0.00178	0.00279	PASS
	Extreme (-10℃)		1.84	4.54	0.00098	0.00241	PASS
	Extreme (-20℃)		17.60	7.99	0.00936	0.00425	PASS



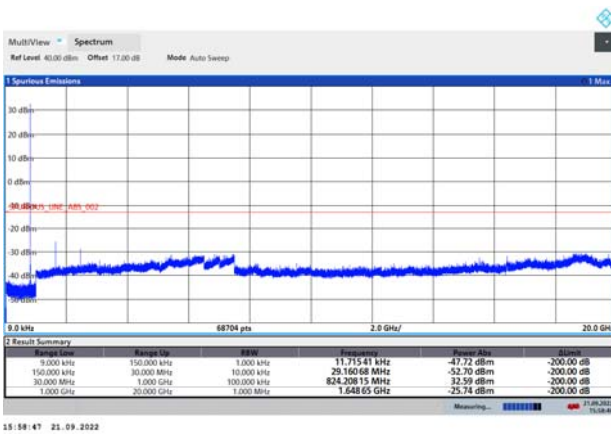
	Extreme (-30℃)		4.41	13.39	0.00234	0.00712	PASS
	25℃	LV	6.28	7.25	0.00334	0.00386	PASS
		HV	4.05	13.31	0.00215	0.00708	PASS
	Condition		Freq.Error	Freq.Error	Frequency	Frequency	Verdict
	BANDWIDTH	10MHz	(Hz)	(Hz)	Stability(ppm)	Stability(ppm)	
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	14.64	10.34	0.00779	0.00550	PASS
	Extreme (50℃)		1.20	3.68	0.00064	0.00196	PASS
	Extreme (40℃)		9.87	6.06	0.00525	0.00323	PASS
	Extreme (30℃)		1.40	9.48	0.00074	0.00504	PASS
	Extreme (20℃)		10.54	1.91	0.00561	0.00102	PASS
	Extreme (10℃)		10.32	17.26	0.00549	0.00918	PASS
	Extreme (0℃)		1.52	16.34	0.00081	0.00869	PASS
	Extreme (-10℃)		6.34	2.12	0.00337	0.00113	PASS
	Extreme (-20℃)		15.55	17.95	0.00827	0.00955	PASS
	Extreme (-30℃)		9.55	4.11	0.00508	0.00219	PASS
	25℃	LV	13.35	6.28	0.00710	0.00334	PASS
		HV	15.75	6.78	0.00838	0.00361	PASS
	Condition		Freq.Error	Freq.Error	Frequency	Frequency	Verdict
	BANDWIDTH	15MHz	(Hz)	(Hz)	Stability(ppm)	Stability(ppm)	
	Temperature	Voltage	16QAM	QPSK	16QAM	QPSK	
	Normal (25℃)	Normal	11.30	14.45	0.00601	0.00768	PASS
	Extreme (50℃)		2.09	14.07	0.00111	0.00749	PASS
	Extreme (40℃)		10.47	17.71	0.00557	0.00942	PASS
	Extreme (30℃)		11.76	16.44	0.00626	0.00875	PASS
	Extreme (20℃)		3.94	15.97	0.00210	0.00849	PASS
	Extreme (10℃)		17.20	13.43	0.00915	0.00714	PASS
	Extreme (0℃)		17.43	2.34	0.00927	0.00125	PASS
	Extreme (-10℃)		6.55	2.39	0.00348	0.00127	PASS
	Extreme (-20℃)		10.24	9.56	0.00545	0.00509	PASS
	Extreme (-30℃)		16.73	16.20	0.00890	0.00862	PASS
	25℃	LV	4.63	14.89	0.00246	0.00792	PASS
		HV	13.52	2.34	0.00719	0.00124	PASS

6.6. Spurious Emissions at Antenna Terminals

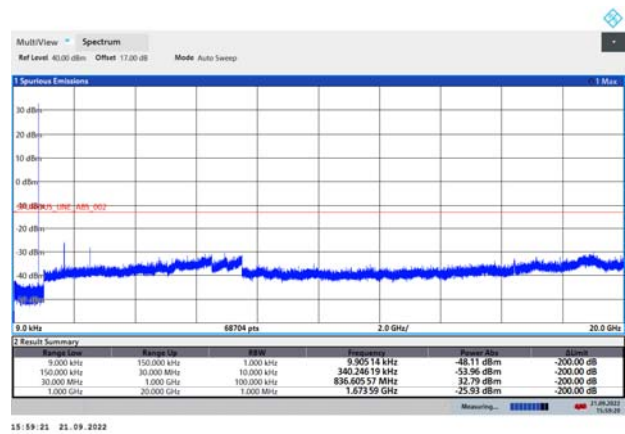
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

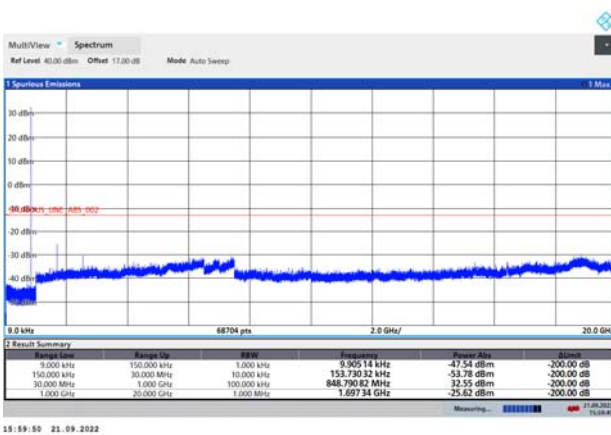
GPRS 850 CH-Low 9kHz ~ 20GHz



GPRS 850 CH-Middle 9kHz ~ 20GHz

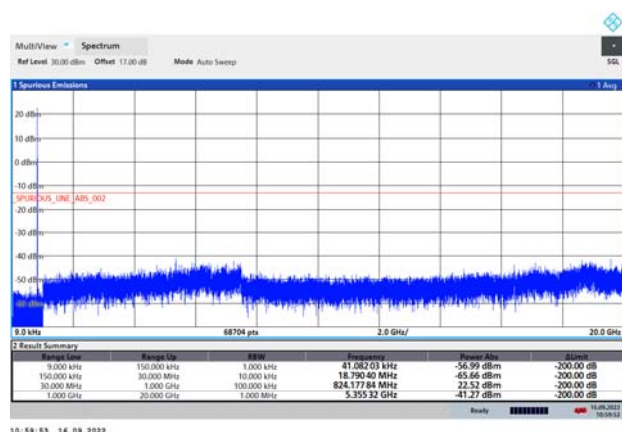


GPRS 850 CH-High 9kHz ~ 20GHz



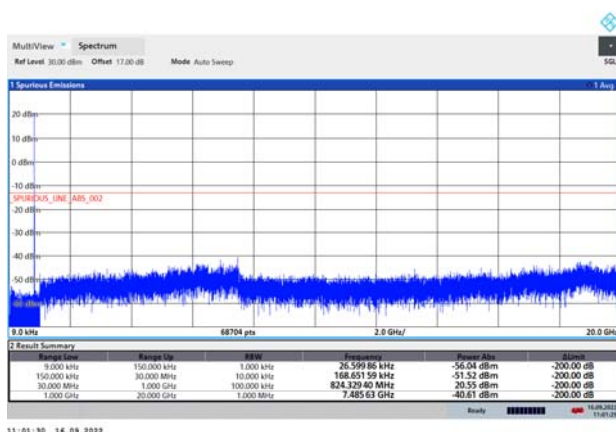


LTE eMTC Band 5 1.4MHz CH-Low 9kHz~20GHz



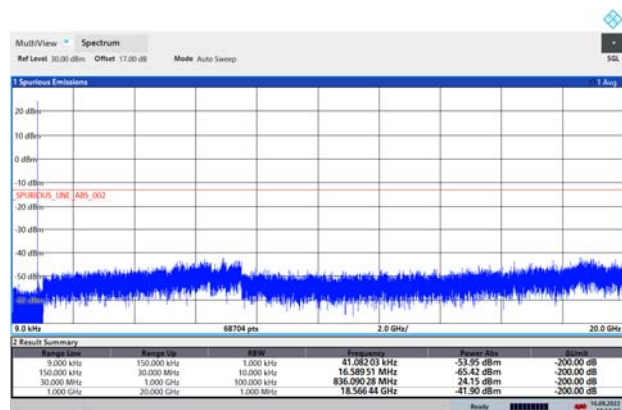
10:59:53 16.09.2022

LTE eMTC Band 5 3MHz CH-Low 9kHz~20GHz



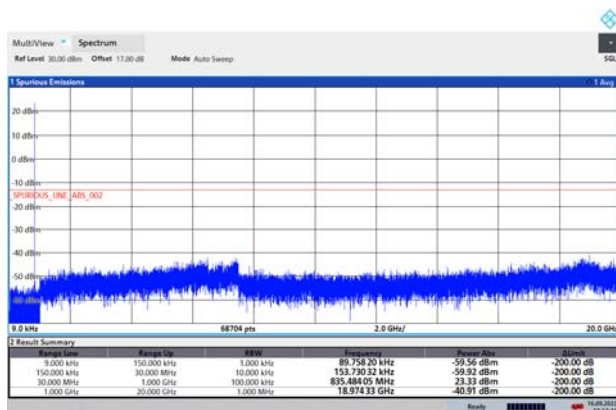
11:01:30 16.09.2022

LTE eMTC Band 5 1.4MHz CH-Middle 9kHz~20GHz



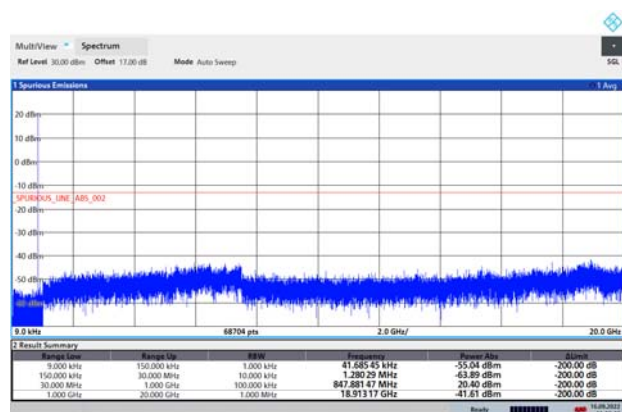
10:57:07 16.09.2022

LTE eMTC Band 5 3MHz CH-Middle 9kHz~20GHz



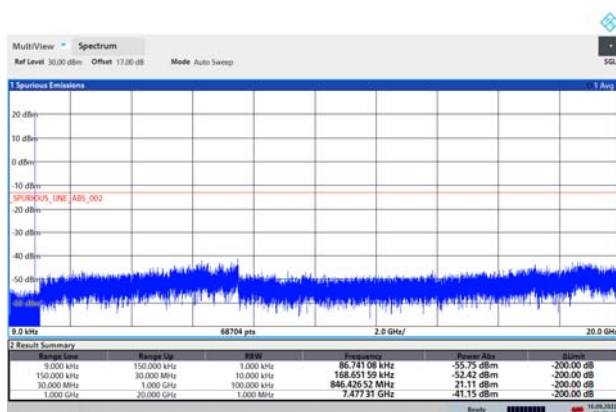
10:57:45 16.09.2022

LTE eMTC Band 5 1.4MHz CH-High 9kHz~20GHz



11:00:40 16.09.2022

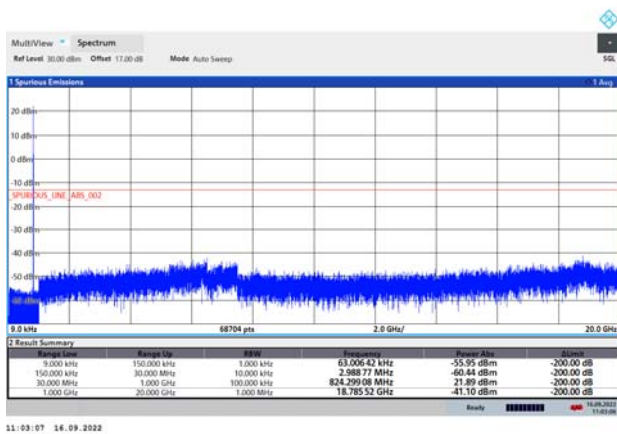
LTE eMTC Band 5 3MHz CH-High 9kHz~20GHz



11:02:15 16.09.2022

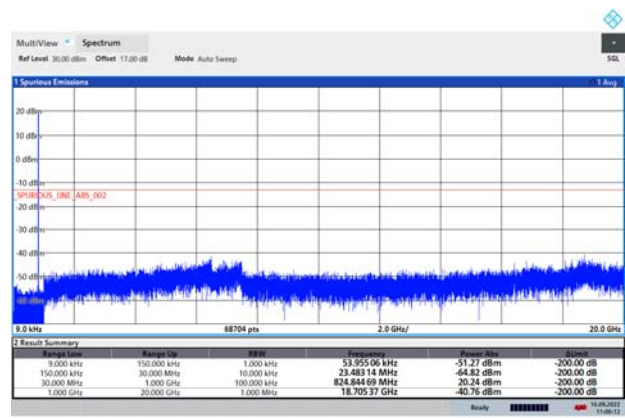


LTE eMTC Band 5 5MHz CH-Low 9kHz~20GHz



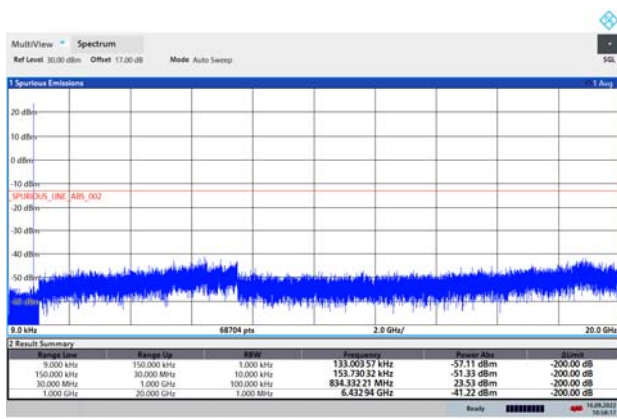
11:03:07 16.09.2022

LTE eMTC Band 5 10MHz CH-Low 9kHz~20GHz



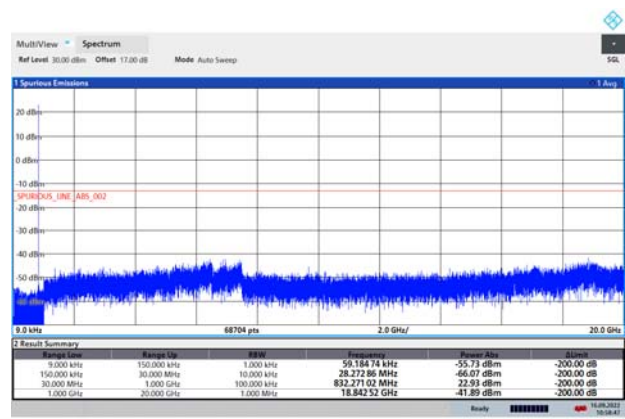
11:04:13 16.09.2022

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



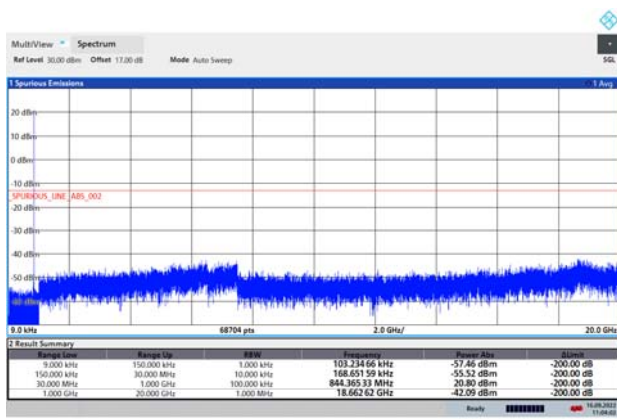
10:58:18 16.09.2022

LTE eMTC Band 5 10MHz CH-Middle 9kHz~20GHz



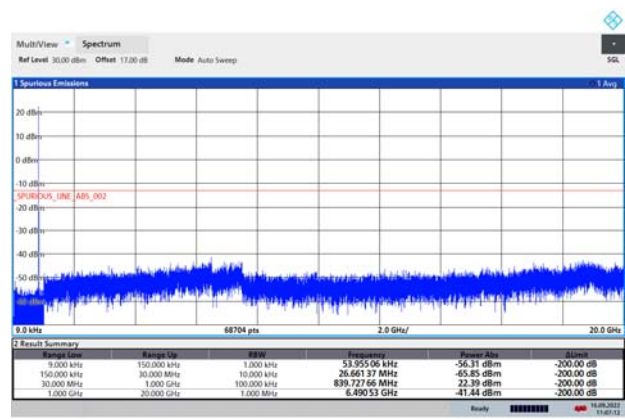
10:58:47 16.09.2022

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



11:04:03 16.09.2022

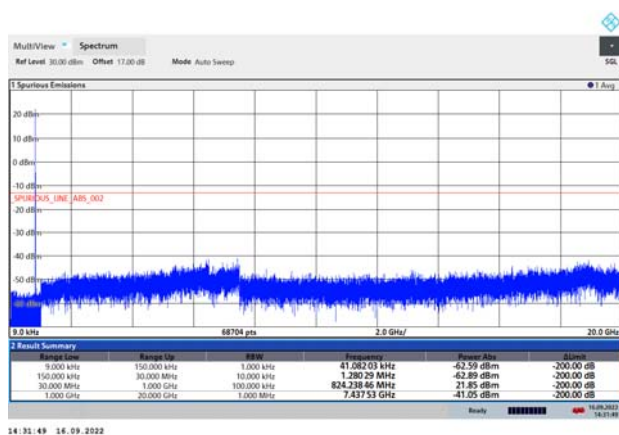
LTE eMTC Band 5 10MHz CH-High 9kHz~20GHz



11:07:13 16.09.2022

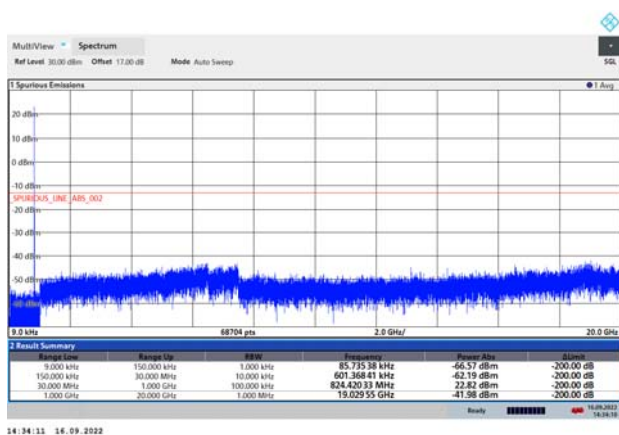


LTE eMTC Band 26 1.4MHz CH-Low 9kHz~20GHz



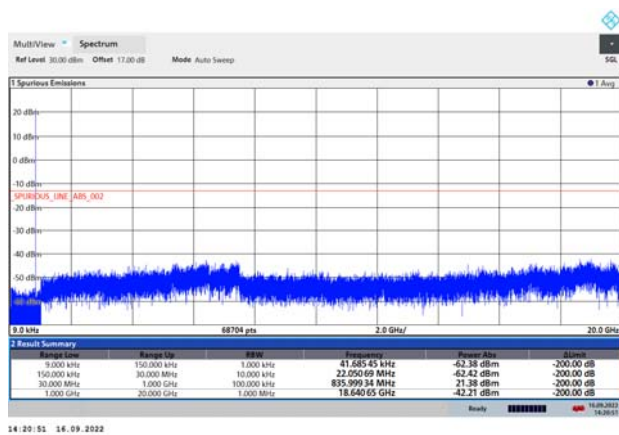
14:31:49 16.09.2022

LTE eMTC Band 26 3MHz CH-Low 9kHz~20GHz



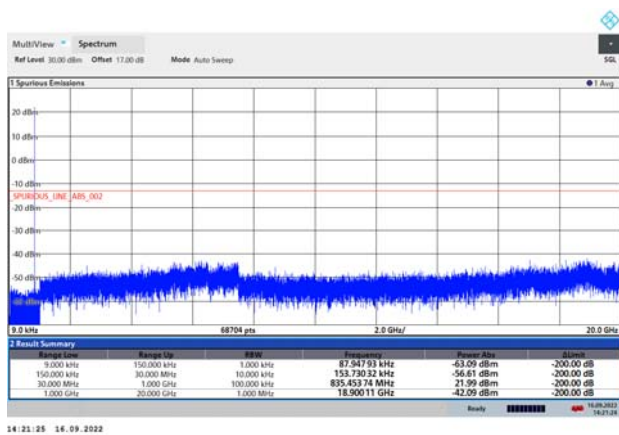
14:34:12 16.09.2022

LTE eMTC Band 26 1.4MHz CH-Middle 9kHz~20GHz



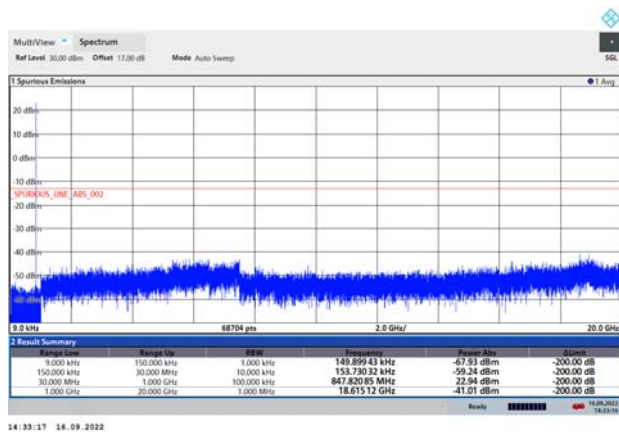
14:20:51 16.09.2022

LTE eMTC Band 26 3MHz CH-Middle 9kHz~20GHz



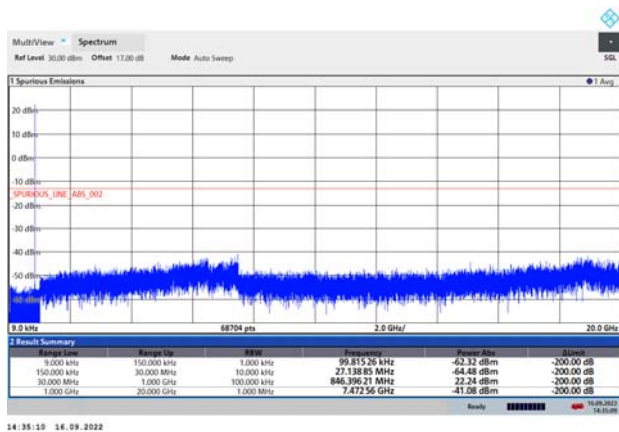
14:21:28 16.09.2022

LTE eMTC Band 26 1.4MHz CH-High 9kHz~20GHz



14:33:17 16.09.2022

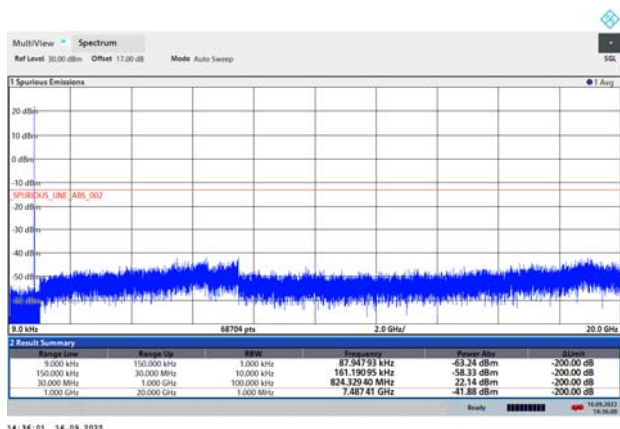
LTE eMTC Band 26 3MHz CH-High 9kHz~20GHz



14:35:10 16.09.2022

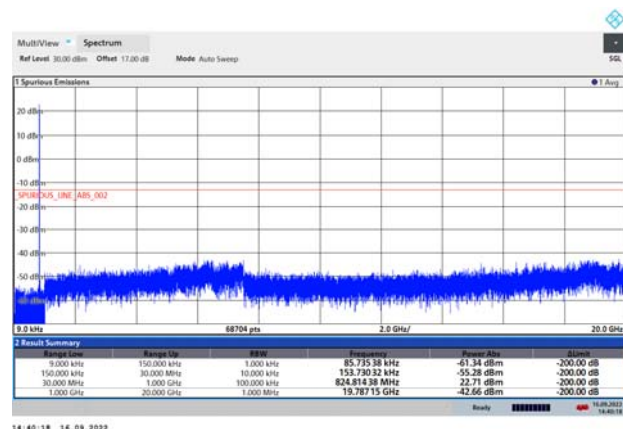


LTE eMTC Band 26 5MHz CH-Low 9kHz~20GHz



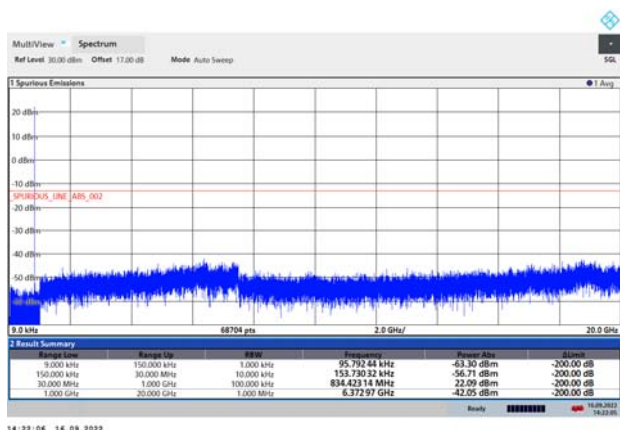
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LTE eMTC Band 26 10MHz CH-Low 9kHz~20GHz



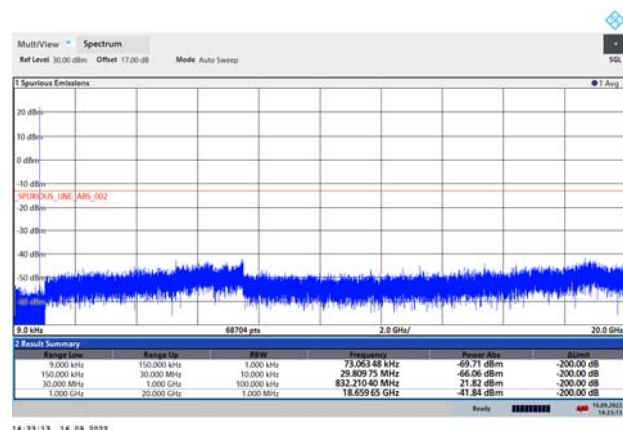
14:40:18 16.09.2022

LTE eMTC Band 26 5MHz CH-Middle 9kHz~20GHz



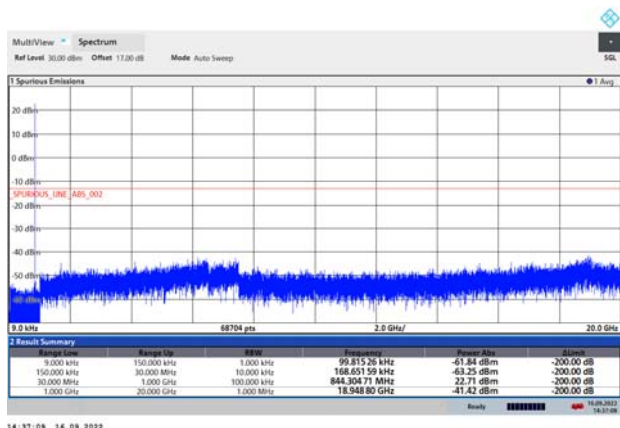
14:22:06 16.09.2022

LTE eMTC Band 26 10MHz CH-Middle 9kHz~20GHz



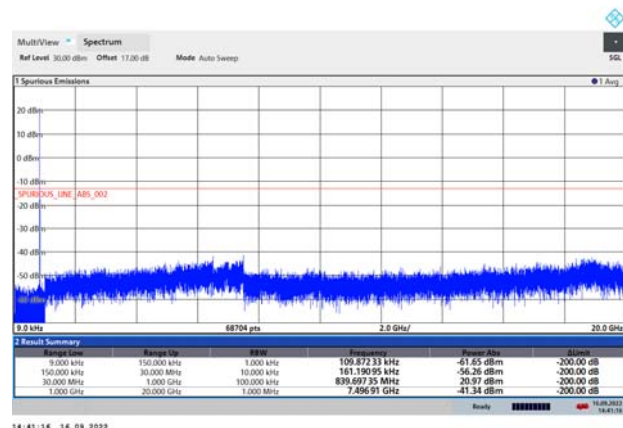
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LTE eMTC Band 26 5MHz CH-High 9kHz~20GHz

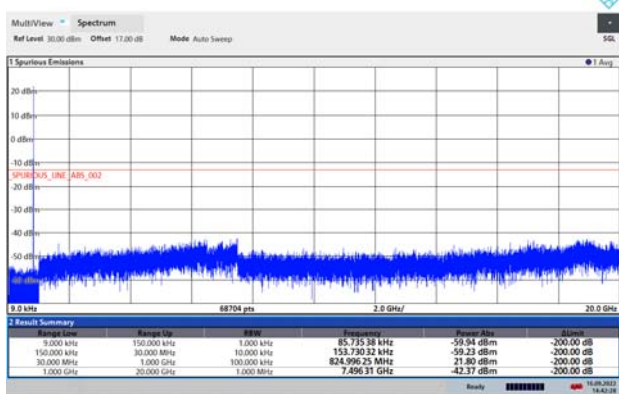


14:37:09 16.09.2022

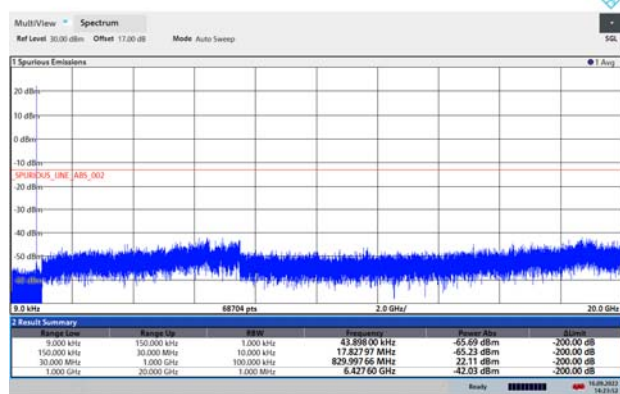
LTE eMTC Band 26 10MHz CH-High 9kHz~20GHz



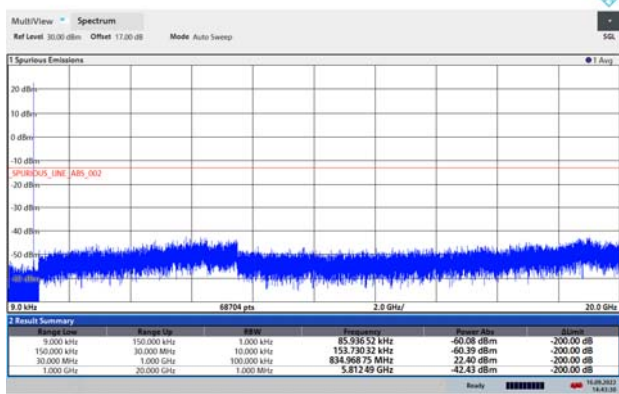
14:41:16 16.09.2022

LTE eMTC Band 26 15MHz CH-Low
9kHz~20GHz

14:42:29 16.09.2022

LTE eMTC Band 26 15MHz CH-Middle
9kHz~20GHz

14:23:52 16.09.2022

LTE eMTC Band 26 15MHz CH-High
9kHz~20GHz

14:43:31 16.09.2022

6.7. Radiated Spurious Emission

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

GSM 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	-59.01	1.70	8.70	Horizontal	-54.16	-13.00	41.16	135
3	2509.80	-49.06	2.30	12.00	Horizontal	-41.51	-13.00	28.51	180
4	3346.40	-66.21	2.70	12.70	Horizontal	-58.36	-13.00	45.36	315
5	4183.00	-63.77	3.00	12.50	Horizontal	-56.42	-13.00	43.42	90
6	5019.60	-60.78	3.40	12.50	Horizontal	-53.83	-13.00	40.83	225
7	5856.20	-61.15	3.40	12.80	Horizontal	-53.90	-13.00	40.90	270
8	6692.80	-58.38	4.10	11.50	Horizontal	-53.13	-13.00	40.13	0
9	7529.40	-55.53	4.20	12.20	Horizontal	-49.68	-13.00	36.68	45
10	8366.00	-54.53	4.30	12.50	Horizontal	-48.48	-13.00	35.48	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 eMTC 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	-62.33	1.70	8.70	Horizontal	-57.48	-13.00	44.48	90
3	2509.50	-55.36	2.30	12.00	Horizontal	-47.81	-13.00	34.81	225
4	3346.00	-65.69	2.70	12.70	Horizontal	-57.84	-13.00	44.84	270
5	4182.50	-63.45	3.00	12.50	Horizontal	-56.10	-13.00	43.10	90
6	5019.00	-60.64	3.40	12.50	Horizontal	-53.69	-13.00	40.69	0
7	5855.50	-61.07	3.40	12.80	Horizontal	-53.82	-13.00	40.82	0
8	6692.00	-58.45	4.10	11.50	Horizontal	-53.20	-13.00	40.20	90
9	7528.50	-55.08	4.20	12.20	Horizontal	-49.23	-13.00	36.23	45
10	8365.00	-54.81	4.30	12.50	Horizontal	-48.76	-13.00	35.76	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 Horizontal position.

LTE eMTC 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	-63.50	1.70	8.70	Horizontal	-58.65	-13.00	45.65	90
3	2503.30	-51.15	2.30	12.00	Horizontal	-43.60	-13.00	30.60	0
4	3337.50	-66.06	2.70	12.70	Horizontal	-58.21	-13.00	45.21	0
5	4171.88	-63.70	3.00	12.50	Horizontal	-56.35	-13.00	43.35	45
6	5006.25	-58.60	3.40	12.50	Horizontal	-51.65	-13.00	38.65	270
7	5840.63	-61.11	3.40	12.80	Horizontal	-53.86	-13.00	40.86	315
8	6675.00	-58.37	4.10	11.50	Horizontal	-53.12	-13.00	40.12	90
9	7509.38	-54.32	4.20	12.20	Horizontal	-48.47	-13.00	35.47	45
10	8343.75	-54.95	4.30	12.50	Horizontal	-48.90	-13.00	35.90	225

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

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

LTE eMTC 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	-63.64	1.70	8.70	Horizontal	-58.79	-13.00	45.79	45
3	2496.60	-58.44	2.30	12.00	Horizontal	-50.89	-13.00	37.89	135
4	3326.00	-66.73	2.70	12.70	Horizontal	-58.88	-13.00	45.88	45
5	4157.50	-64.06	3.00	12.50	Horizontal	-56.71	-13.00	43.71	225
6	4989.00	-59.61	3.40	12.50	Horizontal	-52.66	-13.00	39.66	270
7	5820.50	-61.19	3.40	12.80	Horizontal	-53.94	-13.00	40.94	90
8	6652.00	-59.41	4.10	11.50	Horizontal	-54.16	-13.00	41.16	0
9	7483.50	-54.90	4.20	12.20	Horizontal	-49.05	-13.00	36.05	45
10	8315.00	-55.07	4.30	12.50	Horizontal	-49.02	-13.00	36.02	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 Horizontal position.

LTE eMTC Band 26 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	-61.63	1.70	8.70	Horizontal	-56.78	-13.00	43.78	135
3	2509.50	-50.24	2.30	12.00	Horizontal	-42.69	-13.00	29.69	225
4	3346.00	-65.74	2.70	12.70	Horizontal	-57.89	-13.00	44.89	225
5	4182.50	-64.37	3.00	12.50	Horizontal	-57.02	-13.00	44.02	0
6	5019.00	-61.41	3.40	12.50	Horizontal	-54.46	-13.00	41.46	45
7	5855.50	-60.99	3.40	12.80	Horizontal	-53.74	-13.00	40.74	315
8	6692.00	-58.41	4.10	11.50	Horizontal	-53.16	-13.00	40.16	90
9	7528.50	-55.52	4.20	12.20	Horizontal	-49.67	-13.00	36.67	225
10	8365.00	-55.48	4.30	12.50	Horizontal	-49.43	-13.00	36.43	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 eMTC Band 26 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	1668.00	-63.49	1.70	8.70	Horizontal	-58.64	-13.00	45.64	0
3	2502.00	-52.27	2.30	12.00	Horizontal	-44.72	-13.00	31.72	315
4	3336.00	-66.98	2.70	12.70	Horizontal	-59.13	-13.00	46.13	135
5	4170.00	-51.43	3.00	12.50	Horizontal	-44.08	-13.00	31.08	90
6	5004.00	-61.53	3.40	12.50	Horizontal	-54.58	-13.00	41.58	135
7	5838.00	-60.03	3.40	12.80	Horizontal	-52.78	-13.00	39.78	0
8	6672.00	-58.80	4.10	11.50	Horizontal	-53.55	-13.00	40.55	45
9	7506.00	-54.63	4.20	12.20	Horizontal	-48.78	-13.00	35.78	315
10	8340.00	-54.30	4.30	12.50	Horizontal	-48.25	-13.00	35.25	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 eMTC Band 26 15MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1658.00	-62.10	1.70	8.70	Horizontal	-57.25	-13.00	44.25	180
3	2487.00	-54.07	2.30	12.00	Horizontal	-46.52	-13.00	33.52	90
4	3316.00	-65.26	2.70	12.70	Horizontal	-57.41	-13.00	44.41	90
5	4145.00	-64.86	3.00	12.50	Horizontal	-57.51	-13.00	44.51	0
6	4974.00	-61.68	3.40	12.50	Horizontal	-54.73	-13.00	41.73	45
7	5803.00	-59.65	3.40	12.80	Horizontal	-52.40	-13.00	39.40	225
8	6632.00	-59.63	4.10	11.50	Horizontal	-54.38	-13.00	41.38	90
9	7461.00	-54.21	4.20	12.20	Horizontal	-48.36	-13.00	35.36	45
10	8290.00	-55.08	4.30	12.50	Horizontal	-49.03	-13.00	36.03	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.



7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Climatic Chamber	ESPEC	SU-242	93000506	2021-12-12	2022-12-11
Comprehensive measuring instrument	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
Universal Radio Communication Tester	StarPoint	SP8315	SP8315-1225	2022-05-14	2023-05-13
Spectrum Analyzer	R&S	FSV3030	101411	2021-12-12	2022-12-11
Radiated Spurious Emissions					
Signal Analyzer	R&S	FSV30	100815	2021-12-12	2022-12-11
Loop antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01439	2021-06-30	2024-06-29
Horn Antenna	Schwarzbeck	BBHA 9120D	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.