FCC RADIO TEST REPORT

FCC ID	:	**PKRISGFX31001**
Equipment	:	**Indoor Router**
Brand Name	:	**Inseego**
Model Name	:	**FX3100-1, FX3100-1G**
Marketing Name	:	**FX3100**
Applicant	:	**Inseego Corp.** **9710 Scranton Road Suite 200, San Diego, CA 92121**
Manufacturer	:	**Inseego Corp.** **9710 Scranton Road Suite 200, San Diego, CA 92121**
Standard	:	**FCC 47 CFR Part 2, 27**

The product was received on Apr. 02, 2024 and testing was performed from May 19, 2024 to Jun. 14, 2024. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issue Date
FG290606-02A	01	Initial issue of report	Jun. 19, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
	§27.50 (a)(3)	Effective Isotropic Radiated Power (Band 30)	Pass	
3.3	-	Peak-to-Average Ratio	Reporting only	-
3.4	§2.1049	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §27.53 (a)(4)	Conducted Band Edge Measurement (Band 30)	Pass	-
3.6	§2.1051 §27.53 (a)(4)	Conducted Spurious Emission (Band 30)	Pass	-
3.7	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Pass	-
4.2	§2.1053 §27.53 (a)(4)	Radiated Spurious Emission (Band 30)	Pass	11.13 dB under the limit at 6916.00 MHz
Remark: This is a variant report by adding bands via SW. All the test cases were performed on original report which can be referred to Sporton Report Number FG290606-01. Based on the original report, the test cases were verified.				

Conformity Assessment Condition:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”.
Disclaimer:
1. The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.
2. The purpose of different model name is for marketing segmentation.

Reviewed by: Lewis Ho

Report Producer: Michelle Chen

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs 4G-LTE, 5G-FR1, Wi-Fi 2.4GHz 802.11 b/g/n/ax, Wi-Fi 5GHz 802.11 a/n/ac/ax, and GNSS. **Antenna Type** WWAN: Fixed Internal Antenna WLAN: Fixed Internal Antenna GPS / Glonass / BDS / Galileo: Fixed Internal Antenna

Support band and evaluated information	
Supported band	B30
Evaluated and Tested band	B30

FDD band Power Class				
	PC3			
B30	V			

Antenna information							
Band	**Ant0**	**Ant1**	**Ant2**	**Ant5**	**Ant6**	**Main Ant. #**	**Sub Ant. #**
B30	**-0.6**						

Remark: The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH03-HY
Test Engineer	Diego Huang
Temperature (℃)	22.3~23.9
Relative Humidity (%)	50.1~55.6

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY (TAF Code: 3786)
Test Engineer	Jesse Fan, Tim Lee and Wilson Wu
Temperature (℃)	20~25
Relative Humidity (%)	50~60
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.4 Applicable Standards

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

- ANSI C63.26-2015
- FCC 47 CFR Part 2, 27
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

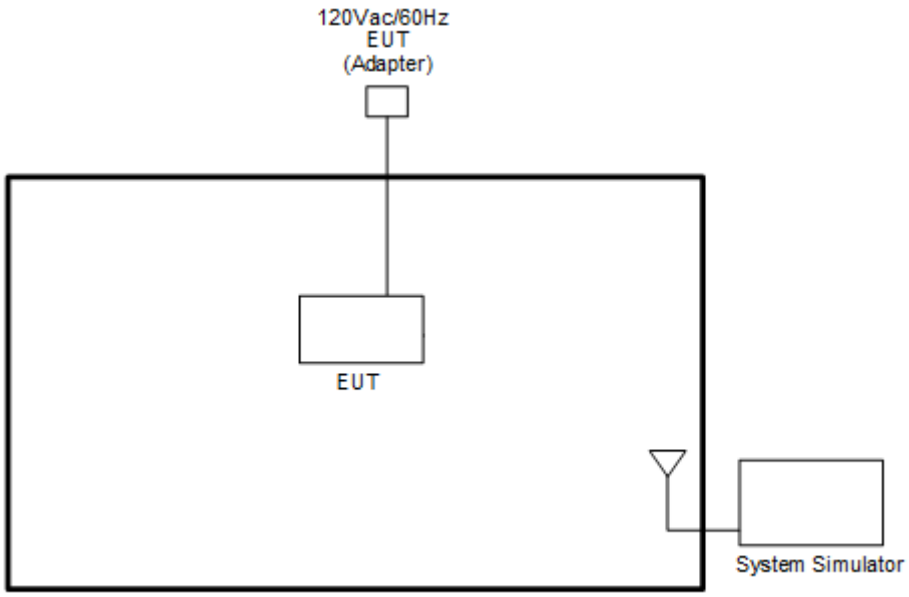
For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report.

Modulation Type	Modulation
A	QPSK
B	16QAM
C	64QAM
D	256QAM

Test Item	Modulation Type	Bandwidth	RB Size	Channel
Conducted Power	A, B, C, D	All	1, Half, Full	L, M, H
EIRP	A, B, C, D	All	1, Half, Full	L, M, H
PAR	A, B, C, D	10 MHz	Full	M
Bandwidth	A, B, C, D	All	Full	M
CBE	A, B, C, D	All	1RB Full	L, M, H
CSE	A	All	1RB	L, M, H
Frequency Stability	A	10 MHz	Full	M
RSE	A	10 MHz or less	1RB	L, M, H

Remark:
1. Evaluated all the transmitter signal and reporting worst-case configuration among all modulation types.
2. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst-case emissions are reported.
3. During the RSE preliminary test, the charging modes (Adapter mode) were verified. It is determined that the adapter mode is the worst case for the official test.
4. One representative bandwidth is selected to perform PAR and frequency stability.
5. Interband ULCA modes 5A-30A is covered by each rule part of LTE single carrier mode with higher power.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 30 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	-	27710	-
	Frequency	-	2310	-
5	Channel	27685	27710	27735
	Frequency	2307.5	2310	2312.5

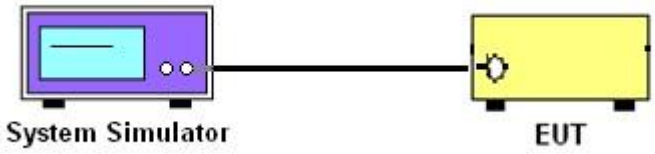
3 Conducted Test Items

3.1 Measuring Instruments

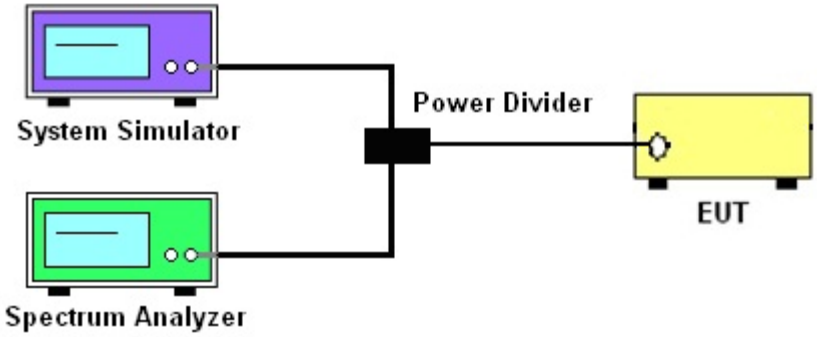
See list of measuring instruments of this test report.

3.1.1 Test Setup

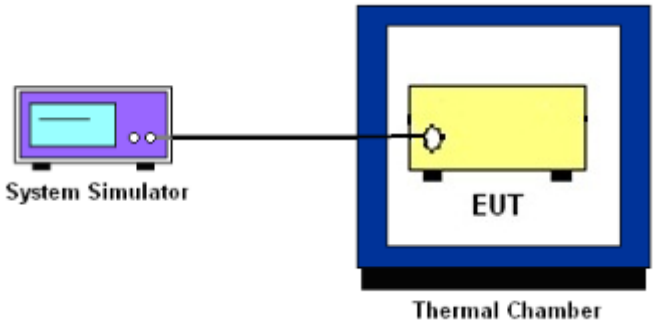
3.1.2 Conducted Output Power



3.1.3 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and EIRP

3.2.1 Description of the Conducted Output Power Measurement and EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 250mW/5MHz for LTE Band 30

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

3.3 Peak-to-Average Ratio

3.3.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

1. The EUT was connected to spectrum and system simulator via a power divider.
2. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
3. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. Record the deviation as Peak to Average Ratio.

3.4 Occupied Bandwidth

3.4.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.4.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
3. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
4. Set the detection mode to peak, and the trace mode to max hold.
5. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

27.53 (a)(4)

For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz.

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz.

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. Checked that all the results comply with the emission limit line.
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.6 Conducted Spurious Emission

3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For LTE Band 30

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The conducted spurious emission for the whole frequency range was taken.
4. Make the measurement with the spectrum analyzer's RBW = 100 kHz if the authorized frequency band/block is at or below 1 GHz and 1 MHz if the authorized frequency band/block is above 1 GH, VBW = 3 * RBW.
5. Set spectrum analyzer with RMS detector.
6. Taking the record of maximum spurious emission.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   For LTE Band 30
   The limit line is derived from 70 + 10log(P)dB below the transmitter power P(Watts)

3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

27.54

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

3.7.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.7.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at 20±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

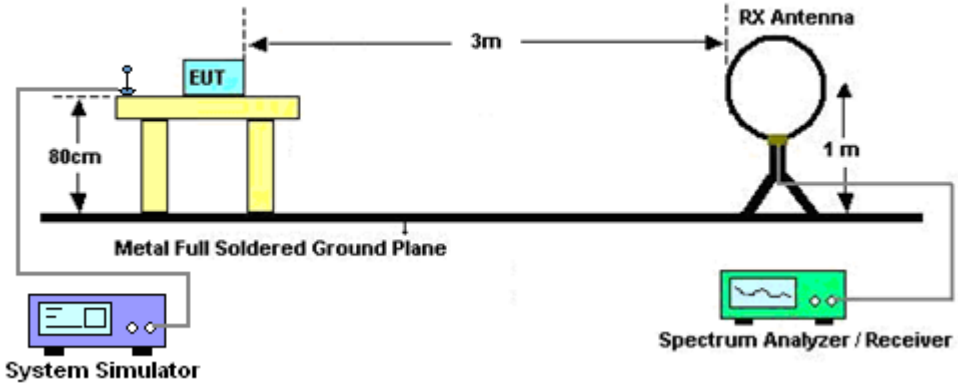
4 Radiated Test Items

4.1 Measuring Instruments

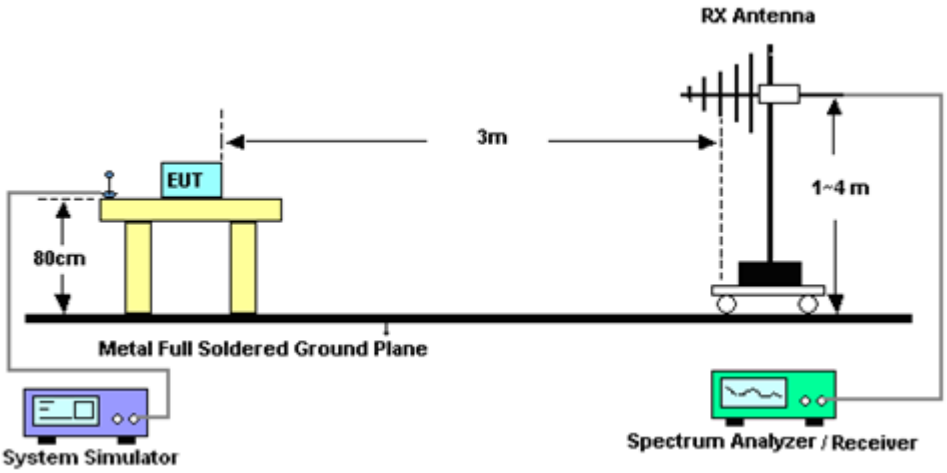
See list of measuring instruments of this test report.

4.1.1 Test Setup

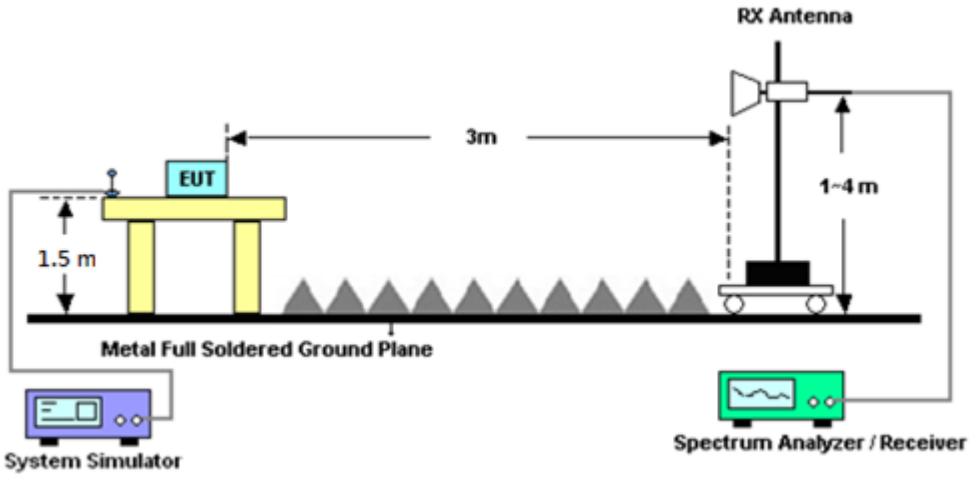
For radiated test below 30MHz



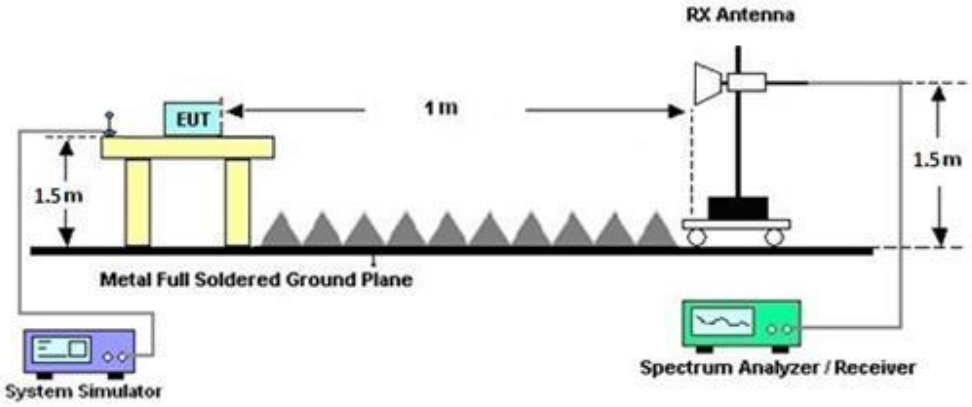
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.2 Radiated Spurious Emission Measurement

4.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI C63.26-2015.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For LTE Band 30

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 70 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI C63.26-2015 section 5.5.4 Radiated measurement using the field strength method.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. To convert spectrum reading E(dBuV/m) to EIRP(dBm)
   EIRP(dBm) = Level (dBuV/m) + 20log(d) -104.77,
   where d is the distance at which filed strength limit is specified in the rules
7. Field Strength Level (dBm) = Spectrum Reading (dBm) + Antenna Factor + Cable Loss + Read Level - Preamp Factor.
8. ERP (dBm) = EIRP (dBm) - 2.15
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Feb. 23, 2024	May 19, 2024~ May 21, 2024	Feb. 22, 2025	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N -06	37059 & 01	30MHz~1GHz	Nov. 03, 2023	May 19, 2024~ May 21, 2024	Nov. 02, 2024	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Jul. 31, 2023	May 19, 2024~ May 21, 2024	Jul. 30, 2024	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00993	18GHz-40GHz	Nov. 24, 2023	May 19, 2024~ May 21, 2024	Nov. 23, 2024	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 20, 2024	May 19, 2024~ May 21, 2024	Mar. 19, 2025	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	May 23, 2023	May 19, 2024~ May 21, 2024	May 22, 2024	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 20, 2023	May 19, 2024~ May 21, 2024	Dec. 19, 2024	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 07, 2023	May 19, 2024~ May 21, 2024	Dec. 06, 2024	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 10, 2024	May 19, 2024~ May 21, 2024	Jan. 09, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-900-1000-15000-60SS	SN11	1GHz High Pass Filter	Mar. 13, 2024	May 19, 2024~ May 21, 2024	Mar. 12, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN2	3GHz High Pass Filter	Mar. 13, 2024	May 19, 2024~ May 21, 2024	Mar. 12, 2025	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 13, 2024	May 19, 2024~ May 21, 2024	Mar. 12, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9kHz~30MHz	Mar. 06, 2024	May 19, 2024~ May 21, 2024	Mar. 05, 2025	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 18, 2023	May 19, 2024~ May 21, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 18, 2023	May 19, 2024~ May 21, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 18, 2023	May 19, 2024~ May 21, 2024	Dec. 17, 2024	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP210117	N/A	Oct. 19, 2023	May 19, 2024~ May 21, 2024	Oct. 18, 2024	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	May 19, 2024~ May 21, 2024	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	May 19, 2024~ May 21, 2024	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	May 19, 2024~ May 21, 2024	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	May 19, 2024~ May 21, 2024	N/A	Radiation (03CH12-HY)

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communication Analyzer	Anritsu	MT8821C	6262025353	LTE FDD/TDD LTE-2CC DLCA/ULCA	Oct. 03, 2023	May 28, 2024~ Jun. 14, 2024	Oct. 02, 2024	Conducted (TH03-HY)
Thermal Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 04, 2023	May 28, 2024~ Jun. 14, 2024	Sep. 03, 2024	Conducted (TH03-HY)
DC Power Supply	GW Instek	GPP-2323	GES906037	0V~64V；0A~6A	Nov. 28, 2023	May 28, 2024~ Jun. 14, 2024	Nov. 27, 2024	Conducted (TH03-HY)
Coupler+10dB+ RFcable	Warison+Wo Ken+義迅	20dB 25W SMA Directional Coupler+ 10dB 18GHz_5W+S FL405_1.5M	#A+#1+#1+#7	1-18GHz	Jan. 02, 2024	May 28, 2024~ Jun. 14, 2024	Jan. 01, 2025	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101905	10Hz~40GHz	Jul. 14, 2023	May 28, 2024~ Jun. 14, 2024	Jul. 13, 2024	Conducted (TH03-HY)
Software	Sporton	LTE Conducted Test Tools	N/A	Conducted Test Item	N/A	May 28, 2024~ Jun. 14, 2024	N/A	Conducted (TH03-HY)
Software	Anritsu	Auto Test System	N/A	Conducted Test Item	N/A	May 28, 2024~ Jun. 14, 2024	N/A	Conducted (TH03-HY)

6 Measurement Uncertainty

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.07 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.63 dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.14 dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power & EIRP)

LTE Band 30 Maximum Average Power [dBm] (GT - LC = -0.6 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
10	1	0	QPSK	-	22.65	-	22.05	0.1603
10	1	25			22.61			
10	1	49			22.52			
10	25	0			21.55			
10	25	12			21.61			
10	25	25			21.66			
10	50	0			21.55			
10	1	0	16-QAM		21.85		21.25	0.1334
10	1	25			21.78			
10	1	49			21.69			
10	25	0			20.59			
10	25	12			20.53			
10	25	25			20.62			
10	50	0			20.60			
10	1	0	64-QAM		20.79		20.19	0.1045
10	1	25			20.79			
10	1	49			20.54			
10	25	0			19.50			
10	25	12			19.51			
10	25	25			19.58			
10	50	0			19.48			
10	1	0	256-QAM		17.53		17.02	0.0504
10	1	25			17.60			
10	1	49			17.62			
10	25	0			17.49			
10	25	12			17.54			
10	25	25			17.60			
10	50	0			17.61			
Limit	EIRP < 250mW/5MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 250 mW/5MHz.

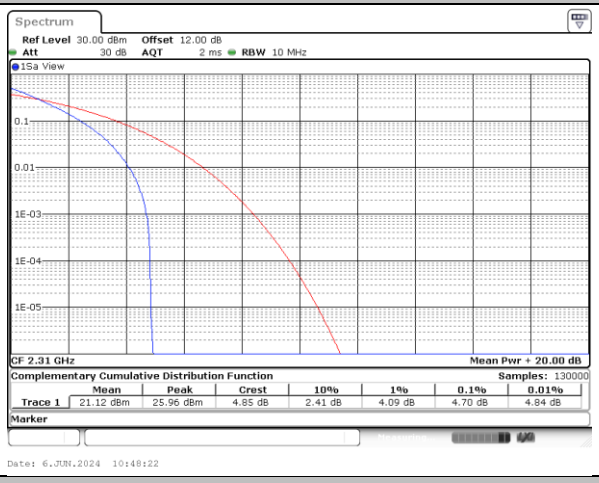
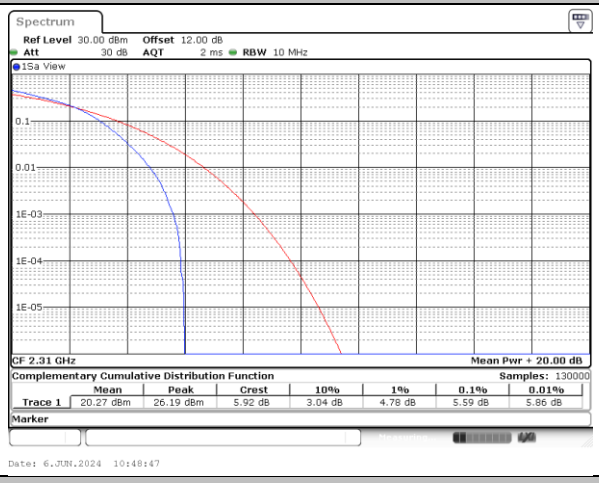
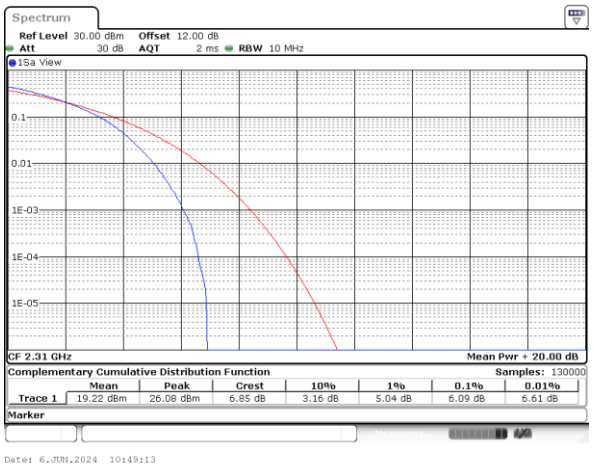
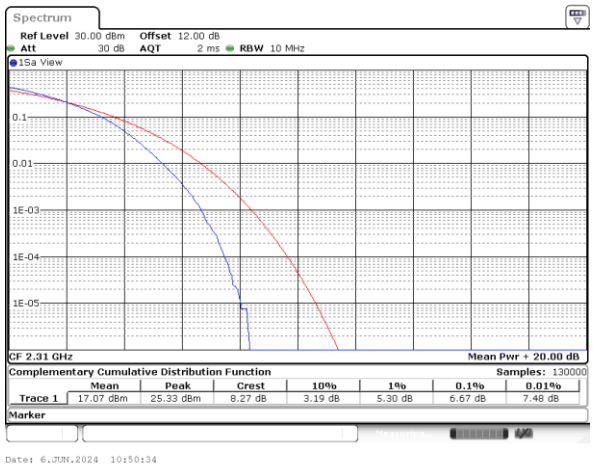
LTE Band 30 Maximum Average Power [dBm] (GT - LC = -0.6 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
5	1	0	QPSK	22.57	22.61	22.64	22.04	0.1600
5	1	12		22.51	22.55	22.58		
5	1	24		22.48	22.45	22.50		
5	12	0		21.63	21.54	21.55		
5	12	7		21.66	21.65	21.58		
5	12	13		21.63	21.60	21.56		
5	25	0		21.61	21.56	21.49		
5	1	0	16-QAM	21.95	21.84	21.88	21.44	0.1393
5	1	12		21.93	21.98	21.97		
5	1	24		22.04	21.94	21.97		
5	12	0		20.56	20.61	20.64		
5	12	7		20.68	20.71	20.62		
5	12	13		20.64	20.63	20.61		
5	25	0		20.64	20.58	20.54		
5	1	0	64-QAM	20.62	20.69	20.76	20.23	0.1054
5	1	12		20.83	20.77	20.82		
5	1	24		20.68	20.71	20.83		
5	12	0		19.52	19.54	19.52		
5	12	7		19.65	19.69	19.53		
5	12	13		19.59	19.57	19.62		
5	25	0		19.59	19.49	19.49		
5	1	0	256-QAM	17.43	17.60	17.57	17.21	0.0526
5	1	12		17.78	17.81	17.63		
5	1	24		17.58	17.61	17.64		
5	12	0		17.58	17.57	17.63		
5	12	7		17.65	17.73	17.59		
5	12	13		17.59	17.58	17.60		
5	25	0		17.56	17.54	17.52		
Limit	EIRP < 250mW/5MHz			Result			Pass	

Total EIRP power is less than partial EIRP limit 250 mW/5MHz.

LTE Band 30

Peak-to-Average Ratio

Mode	LTE Band 30 / 10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	4.70	5.59	6.09	6.67	PASS

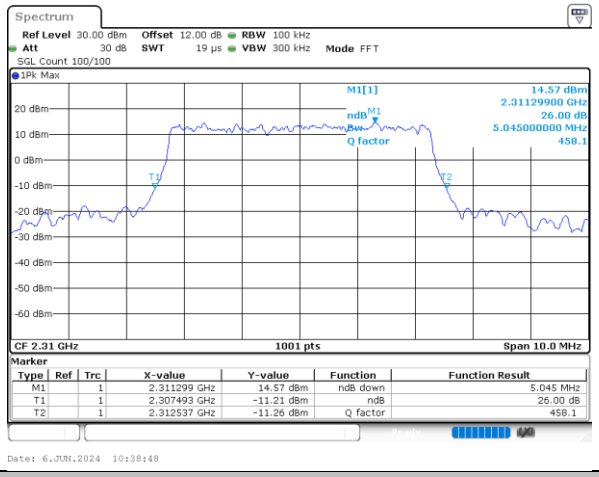
LTE Band 30 / 10MHz / QPSK	LTE Band 30 / 10MHz / 16QAM
Middle Channel / Full RB	Middle Channel / Full RB
	
LTE Band 30 / 10MHz / 64QAM	LTE Band 30 / 10MHz / 256QAM
Middle Channel / Full RB	Middle Channel / Full RB
	

26dB Bandwidth

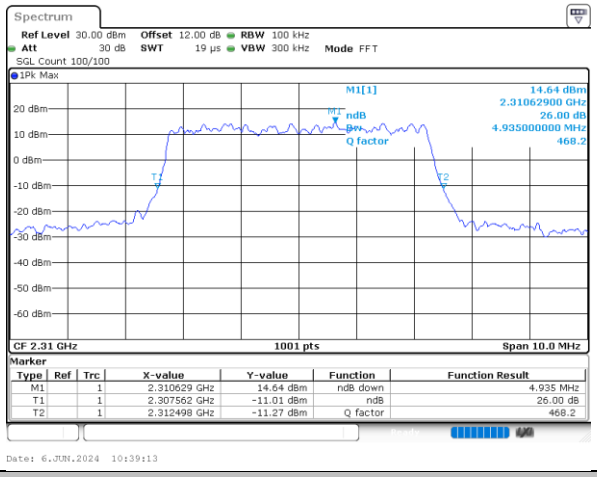
Mode	LTE Band 30 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	5.04	4.93	9.92	10.05	-	-	-	-
Mode	LTE Band 30 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM
Middle CH	-	-	-	-	5.05	5.06	9.66	10.13	-	-	-	-

LTE Band 30

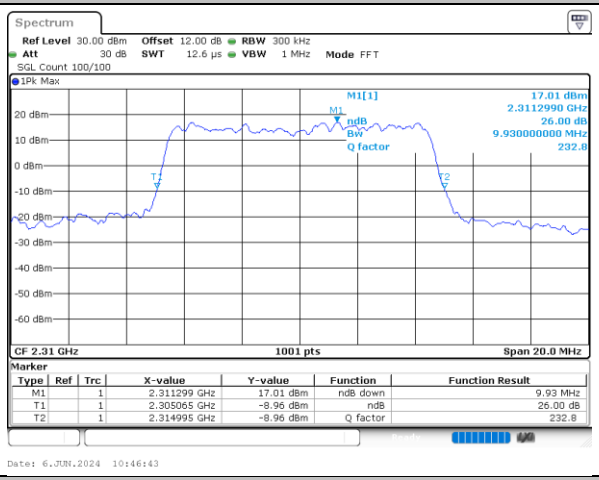
Middle Channel / 5MHz / QPSK



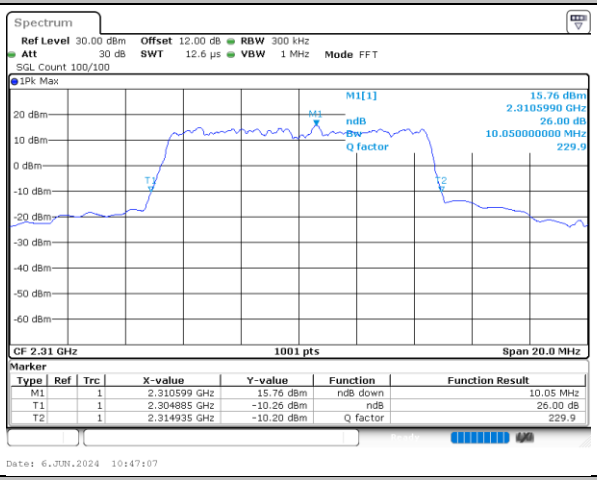
Middle Channel / 5MHz / 16QAM



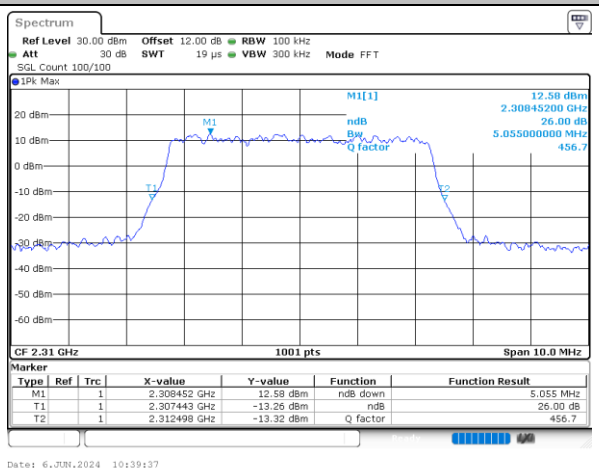
Middle Channel / 10MHz / QPSK



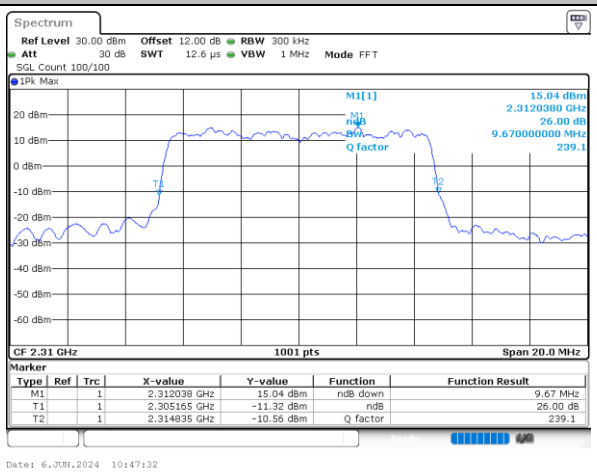
Middle Channel / 10MHz / 16QAM

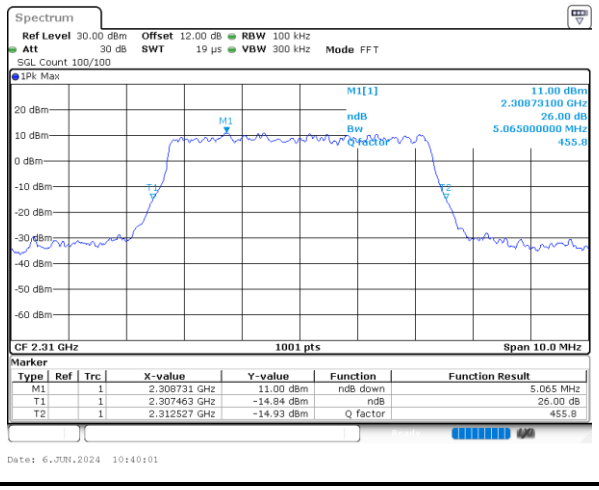
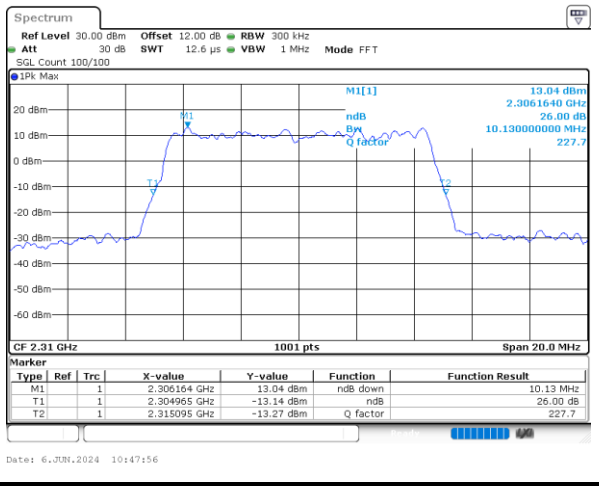


Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM



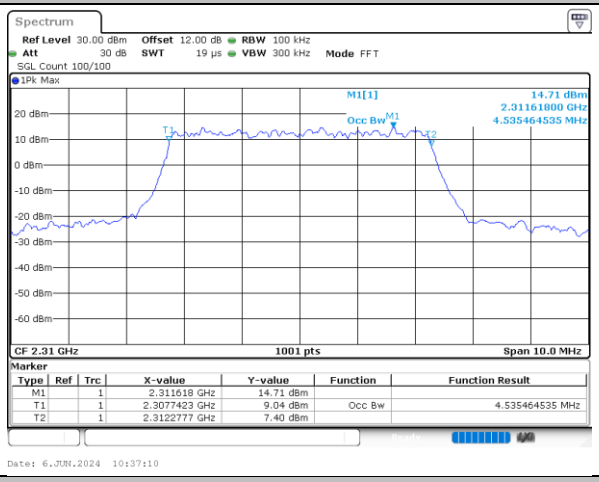
LTE Band 30	
Middle Channel / 5MHz / 256QAM	**Middle Channel / 10MHz / 256QAM**
	

Occupied Bandwidth

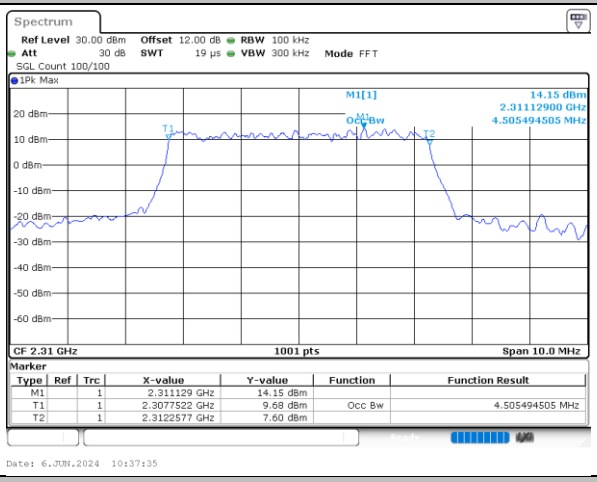
Mode	LTE Band 30 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	-	-	-	-	4.53	4.50	9.05	9.07	-	-	-	-
Mode	LTE Band 30 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM
Middle CH	-	-	-	-	4.49	4.50	9.09	9.05	-	-	-	-

LTE Band 30

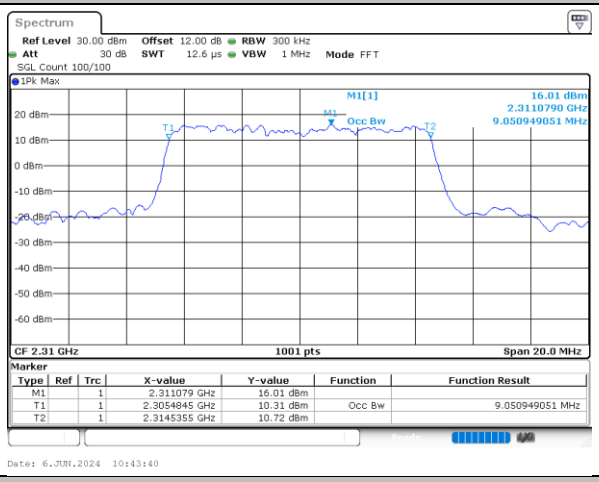
Middle Channel / 5MHz / QPSK



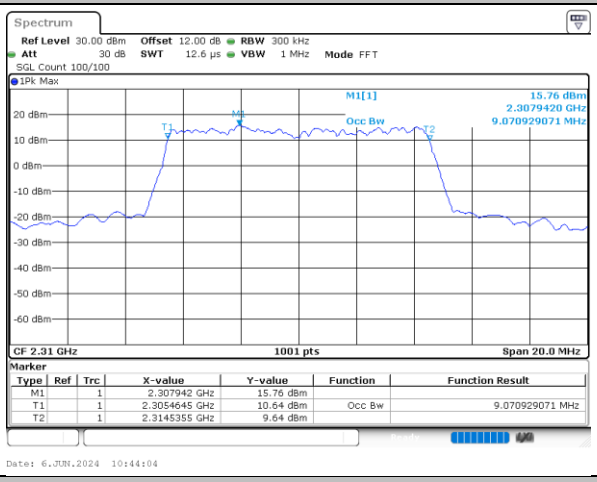
Middle Channel / 5MHz / 16QAM



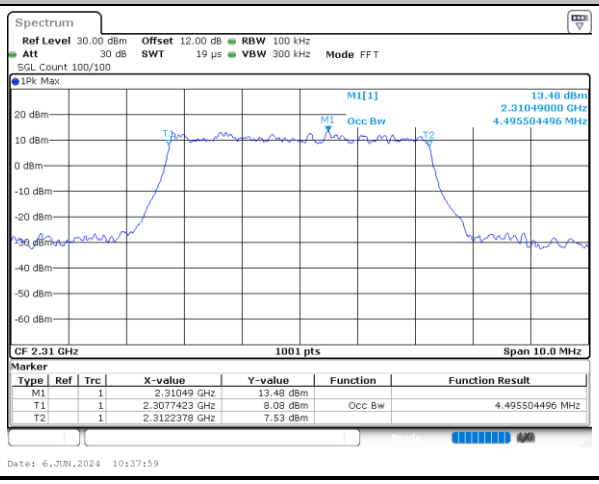
Middle Channel / 10MHz / QPSK



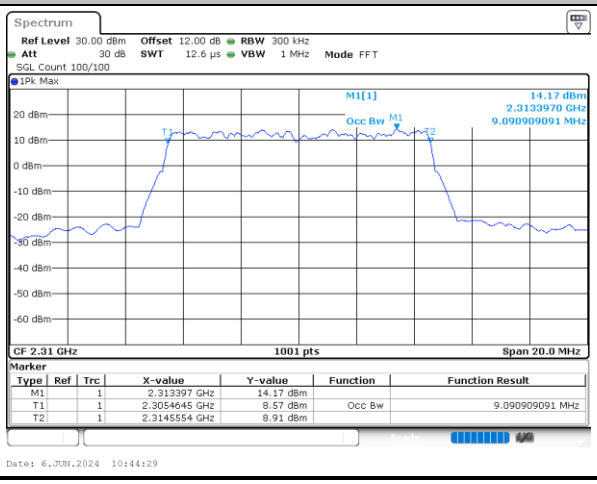
Middle Channel / 10MHz / 16QAM

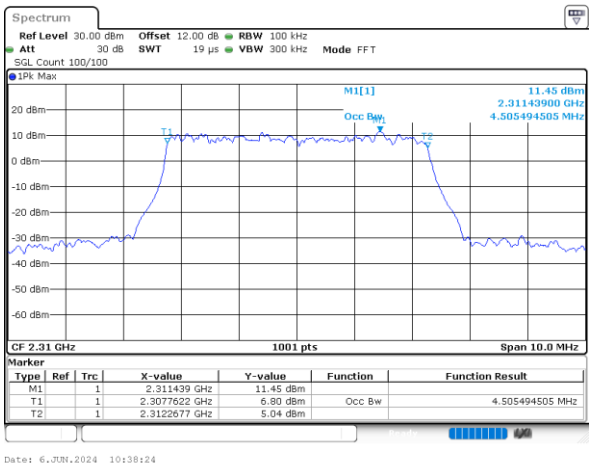
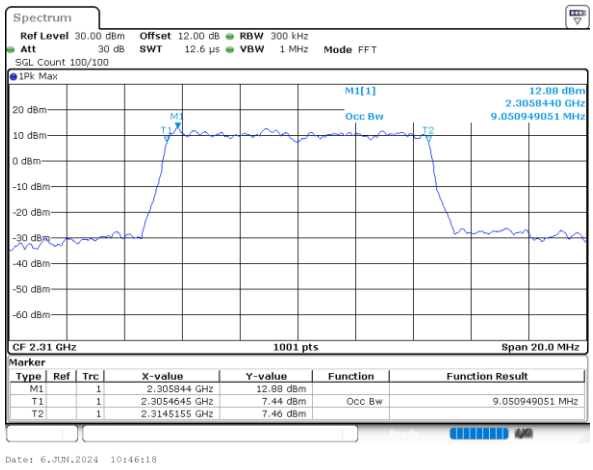


Middle Channel / 5MHz / 64QAM



Middle Channel / 10MHz / 64QAM

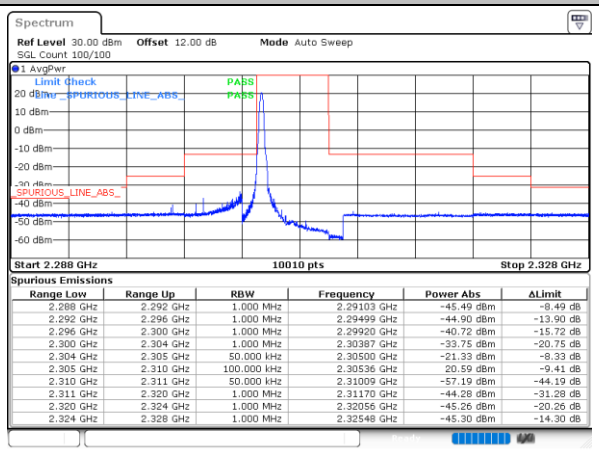


LTE Band 30	
Middle Channel / 5MHz / 256QAM	**Middle Channel / 10MHz / 256QAM**
	

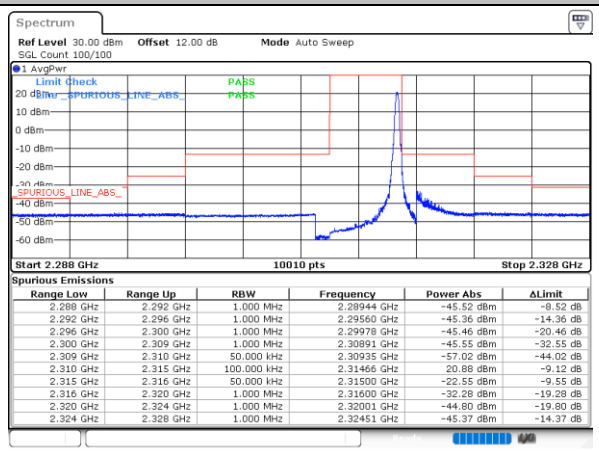
Conducted Band Edge

LTE Band 30 / 5MHz / QPSK

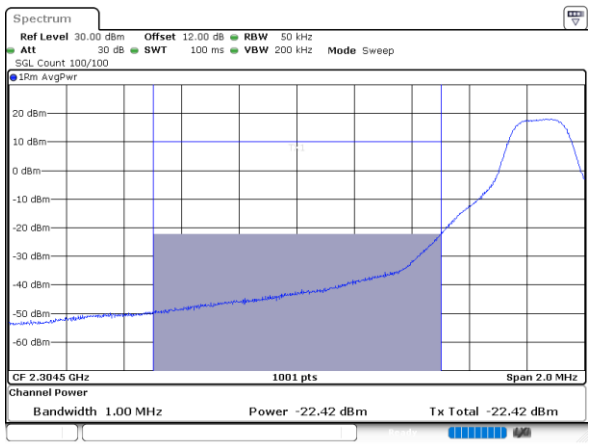
Lowest Band Edge / 1 RB



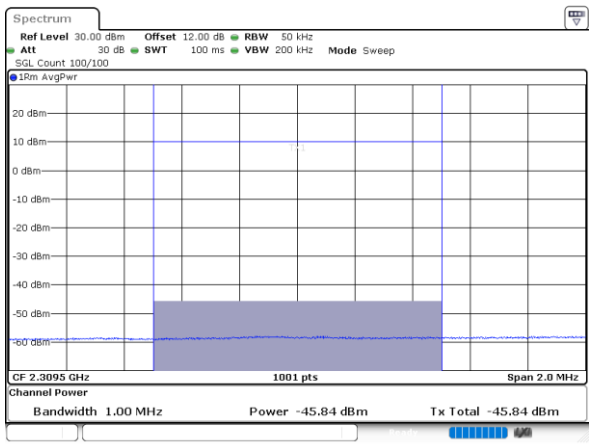
Highest Band Edge / 1 RB



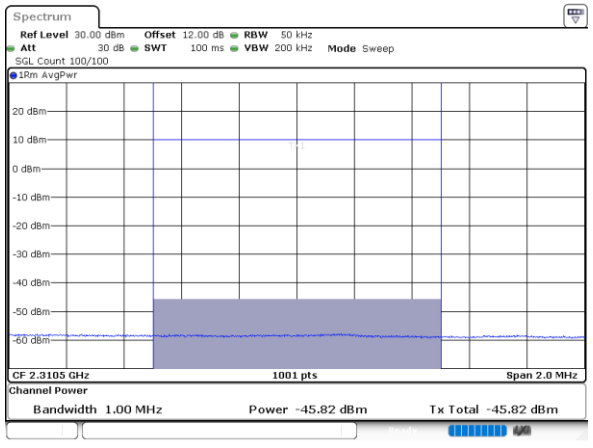
Lowest Band Edge / 1 RB / Lower zoom in



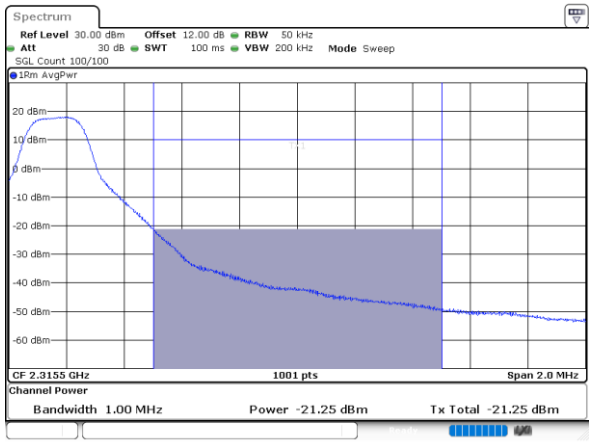
Highest Band Edge / 1 RB / Lower zoom in



Lowest Band Edge / 1 RB / Upper zoom in

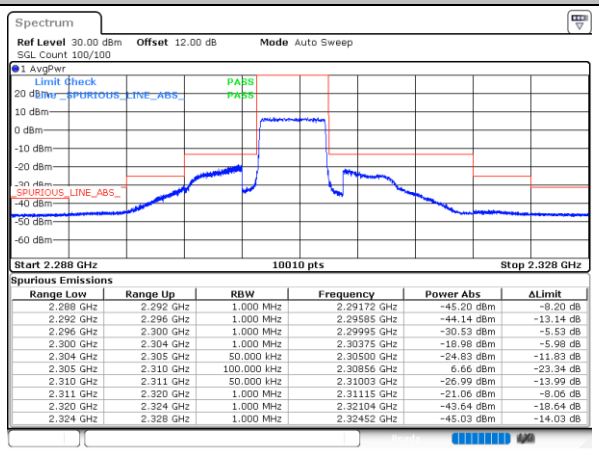


Highest Band Edge / 1 RB / Upper zoom in

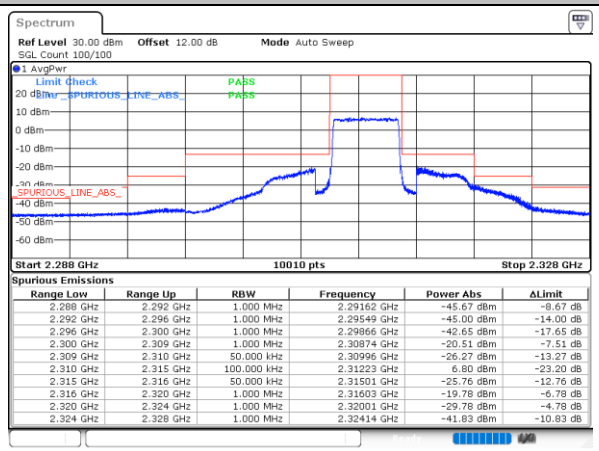


LTE Band 30 / 5MHz / QPSK

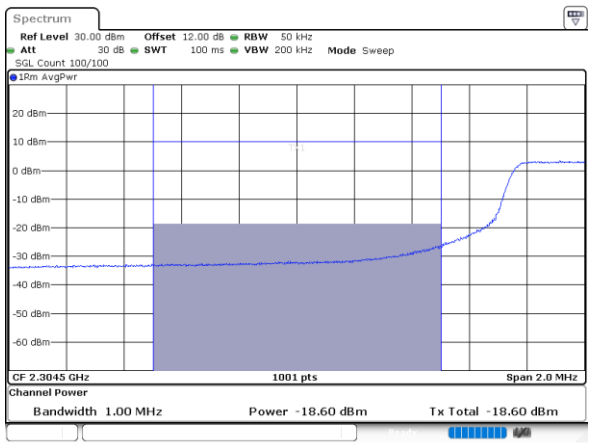
Lowest Band Edge / Full RB



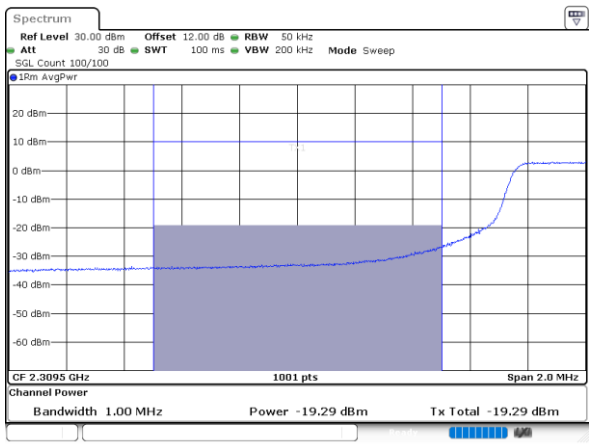
Highest Band Edge / Full RB



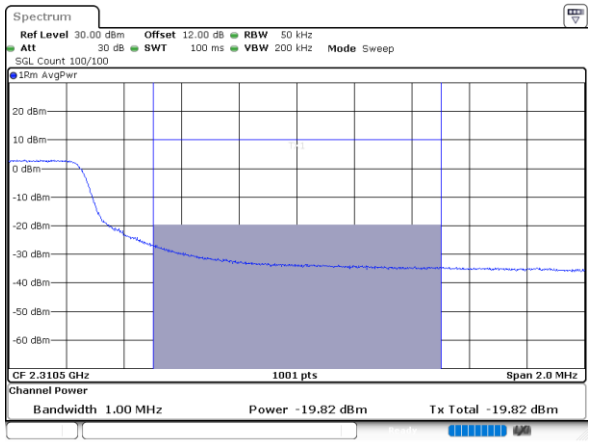
Lowest Band Edge / Full RB / Lower zoom in



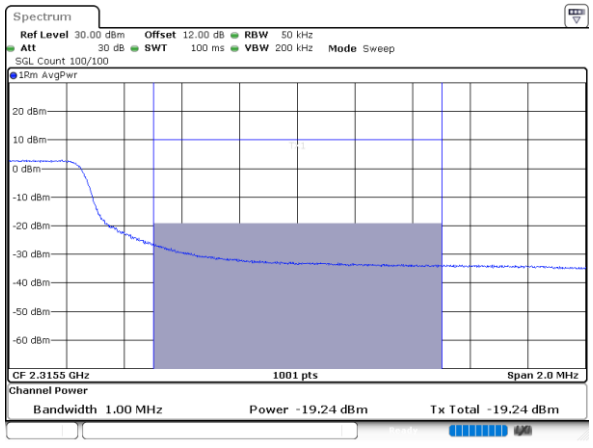
Highest Band Edge / Full RB / Lower zoom in



Lowest Band Edge / Full RB / Upper zoom in

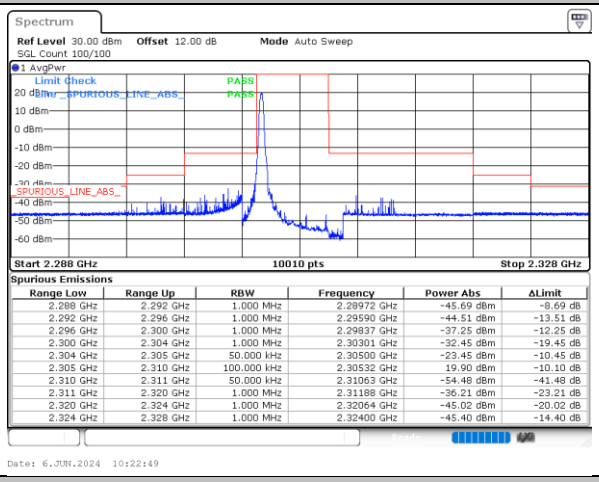


Highest Band Edge / Full RB / Upper zoom in



LTE Band 30 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

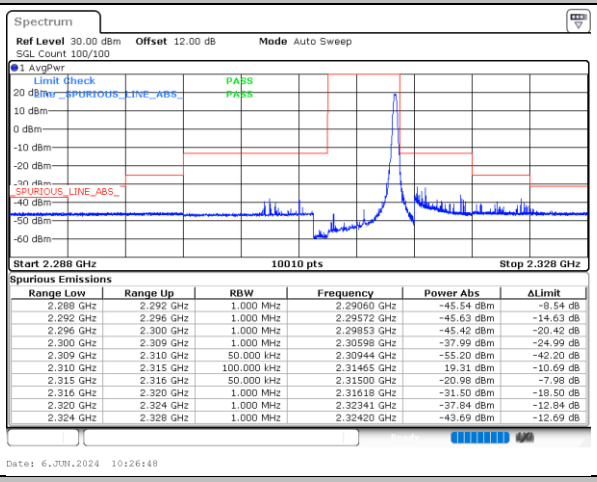


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.288 GHz	2.292 GHz	1.000 MHz	2.28972 GHz	-45.69 dBm	-8.69 dB
2.292 GHz	2.296 GHz	1.000 MHz	2.29590 GHz	-44.51 dBm	-13.51 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29837 GHz	-37.25 dBm	-12.25 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30301 GHz	-32.45 dBm	-19.45 dB
2.304 GHz	2.305 GHz	50.000 kHz	2.30500 GHz	-23.45 dBm	-10.45 dB
2.305 GHz	2.310 GHz	100.000 kHz	2.30532 GHz	19.90 dBm	-10.10 dB
2.310 GHz	2.311 GHz	50.000 kHz	2.31063 GHz	-54.48 dBm	-41.48 dB
2.311 GHz	2.320 GHz	1.000 MHz	2.31188 GHz	-36.21 dBm	-23.21 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32064 GHz	-45.02 dBm	-20.02 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32400 GHz	-45.40 dBm	-14.40 dB

Date: 6.JUN.2024 10:22:49

Highest Band Edge / 1 RB

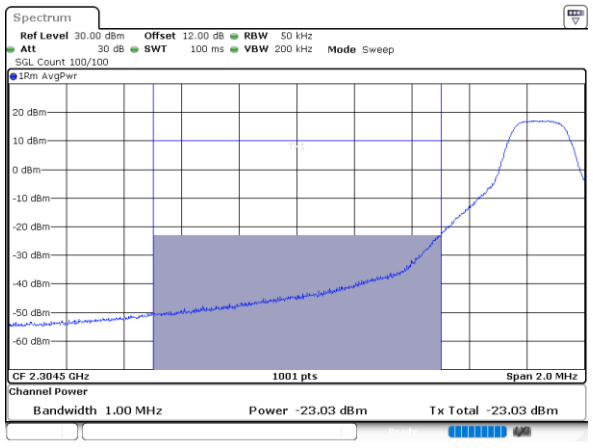


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.288 GHz	2.292 GHz	1.000 MHz	2.29060 GHz	-45.54 dBm	-8.54 dB
2.292 GHz	2.296 GHz	1.000 MHz	2.29572 GHz	-45.63 dBm	-14.63 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29853 GHz	-45.42 dBm	-20.42 dB
2.300 GHz	2.309 GHz	1.000 MHz	2.30598 GHz	-37.99 dBm	-24.99 dB
2.309 GHz	2.310 GHz	50.000 kHz	2.30944 GHz	-55.20 dBm	-42.20 dB
2.310 GHz	2.315 GHz	100.000 kHz	2.31465 GHz	19.31 dBm	-10.69 dB
2.315 GHz	2.316 GHz	50.000 kHz	2.31500 GHz	-20.98 dBm	-7.98 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31618 GHz	-31.50 dBm	-18.50 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32341 GHz	-37.84 dBm	-12.84 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32420 GHz	-43.69 dBm	-12.69 dB

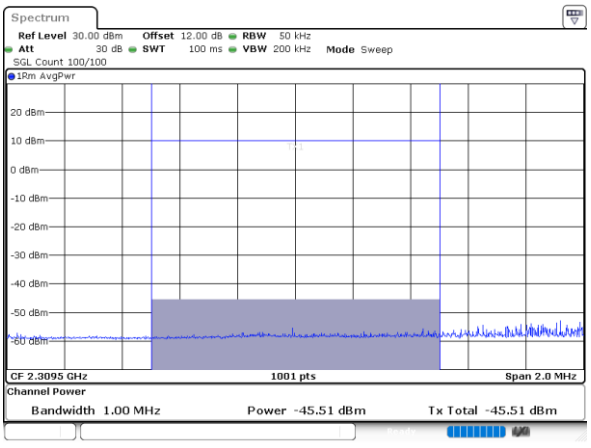
Date: 6.JUN.2024 10:26:48

Lowest Band Edge / 1 RB / Lower zoom in



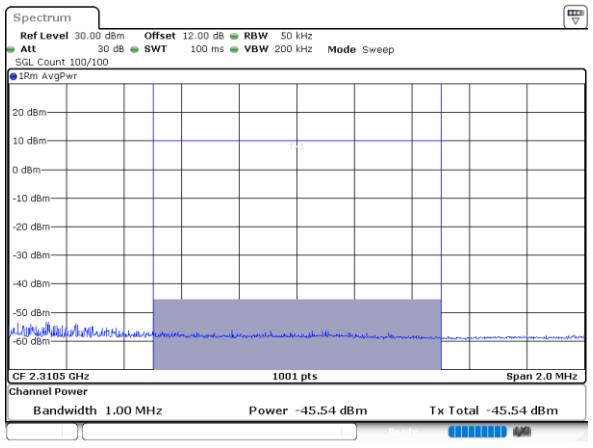
Date: 6.JUN.2024 11:20:03

Highest Band Edge / 1 RB / Lower zoom in



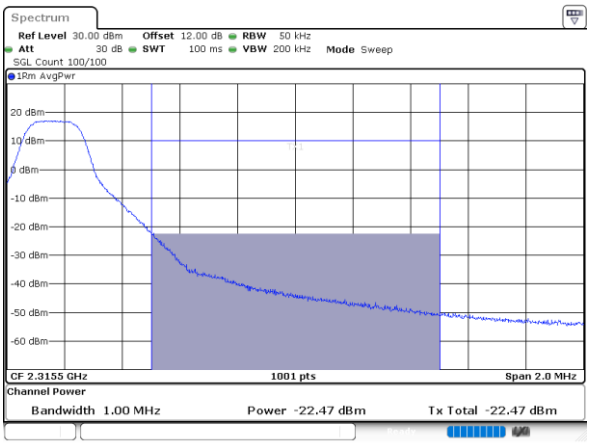
Date: 6.JUN.2024 11:33:51

Lowest Band Edge / 1 RB / Upper zoom in



Date: 6.JUN.2024 11:20:45

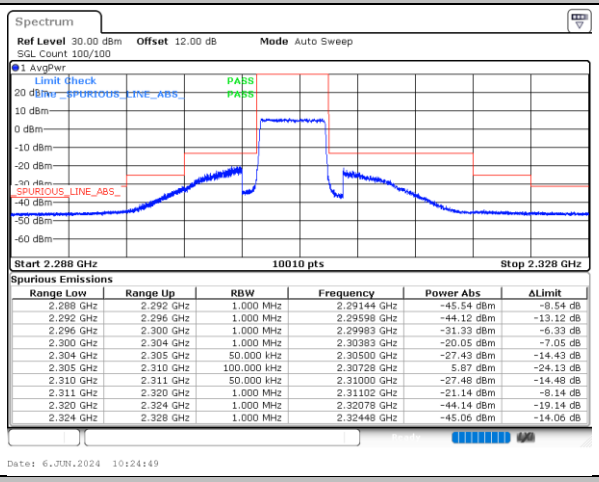
Highest Band Edge / 1 RB / Upper zoom in



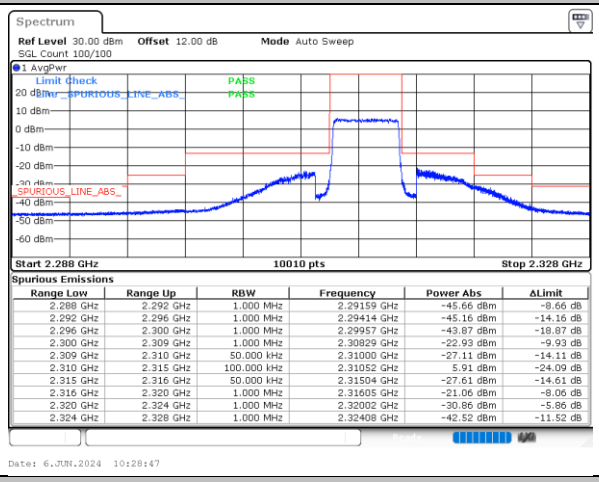
Date: 6.JUN.2024 11:34:13

LTE Band 30 / 5MHz / 16QAM

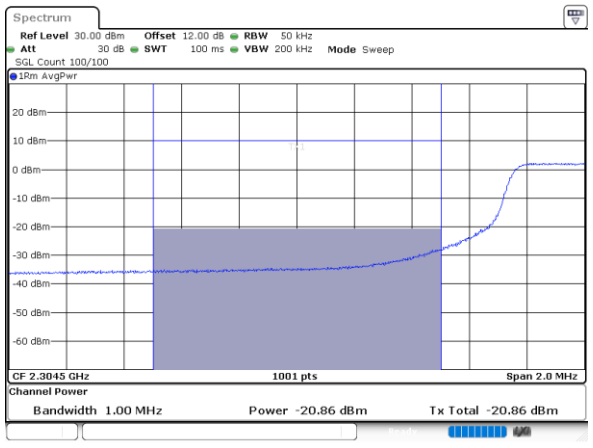
Lowest Band Edge / Full RB



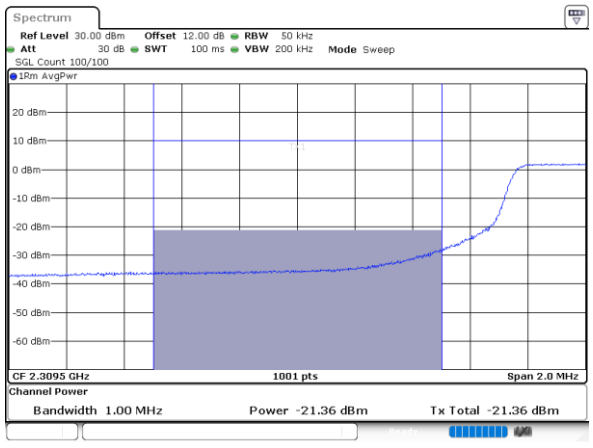
Highest Band Edge / Full RB



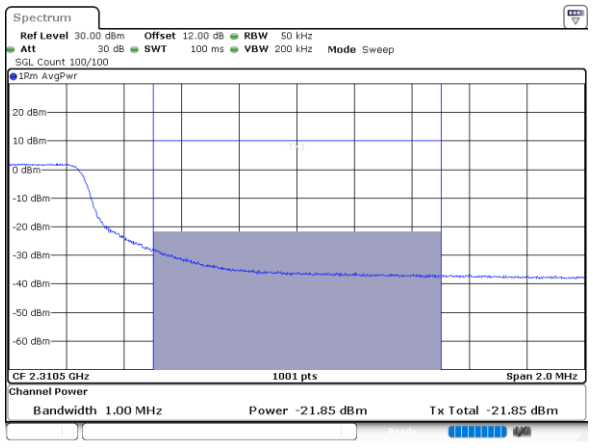
Lowest Band Edge / Full RB / Lower zoom in



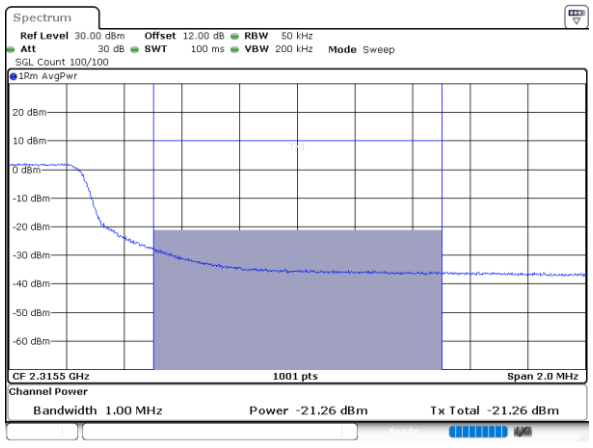
Highest Band Edge / Full RB / Lower zoom in



Lowest Band Edge / Full RB / Upper zoom in

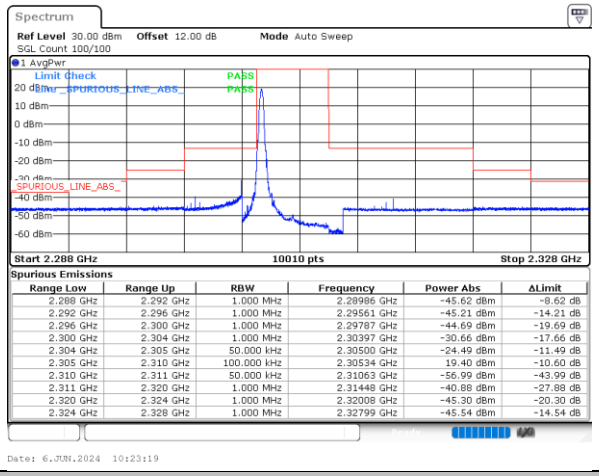


Highest Band Edge / Full RB / Upper zoom in

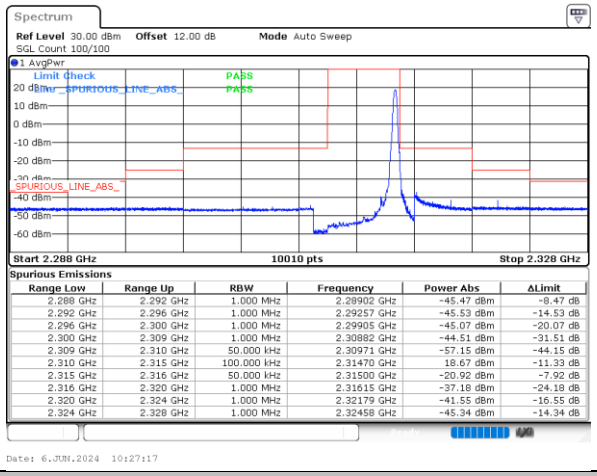


LTE Band 30 / 5MHz / 64QAM

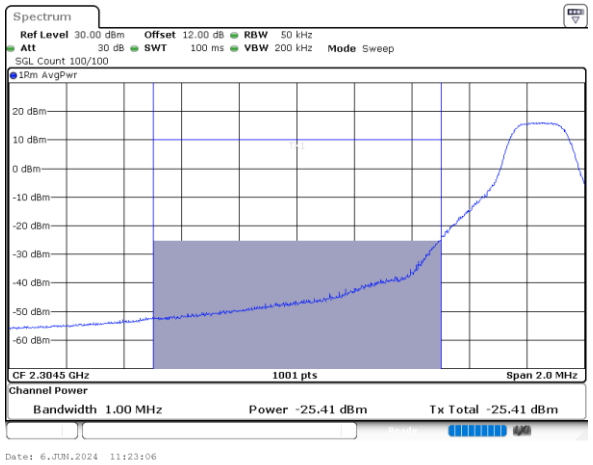
Lowest Band Edge / 1 RB



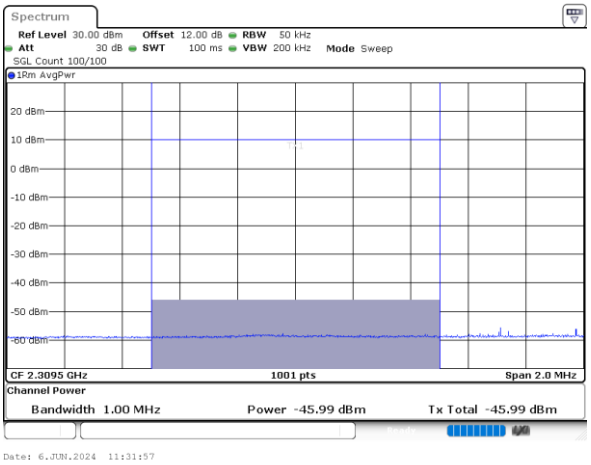
Highest Band Edge / 1 RB



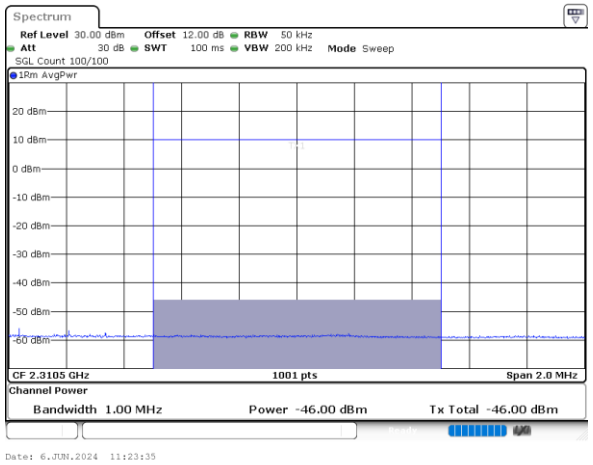
Lowest Band Edge / 1 RB / Lower zoom in



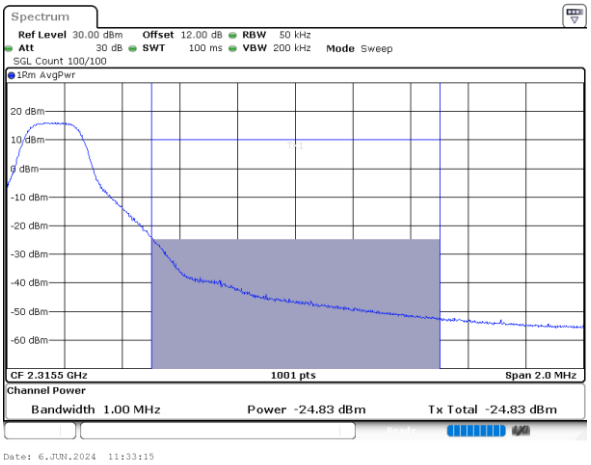
Highest Band Edge / 1 RB / Lower zoom in



Lowest Band Edge / 1 RB / Upper zoom in

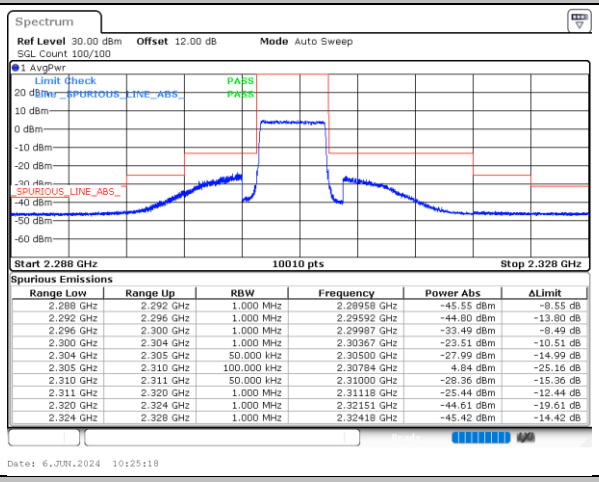


Highest Band Edge / 1 RB / Upper zoom in

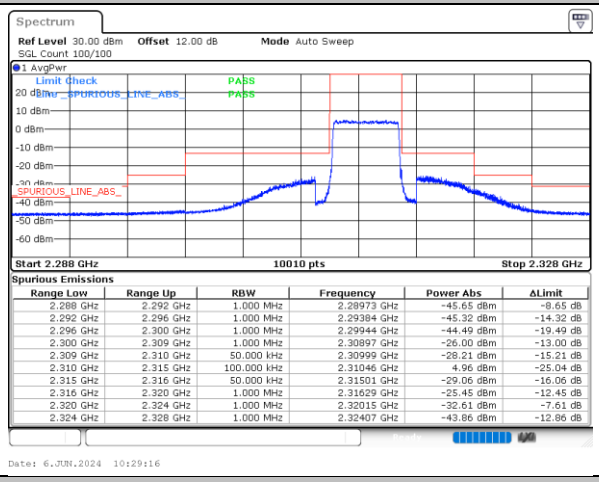


LTE Band 30 / 5MHz / 64QAM

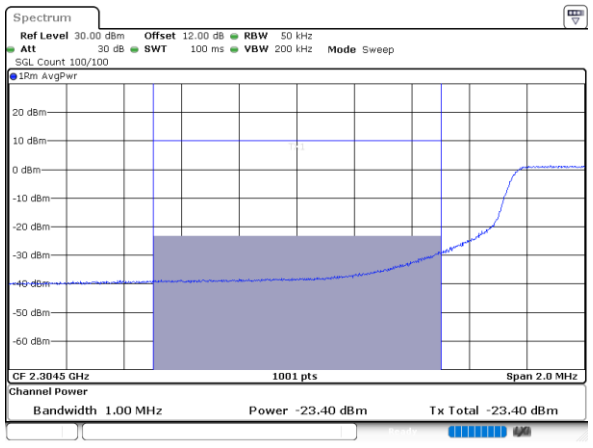
Lowest Band Edge / Full RB



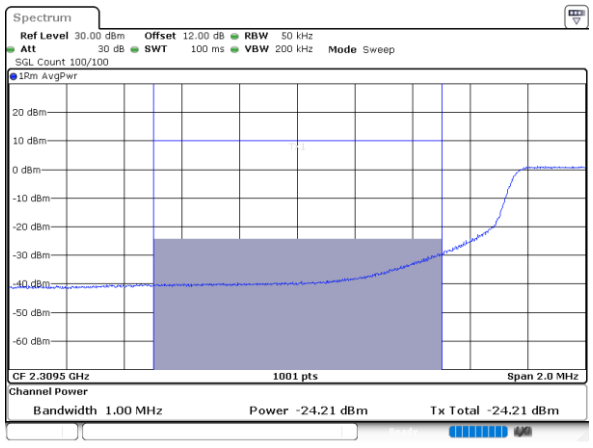
Highest Band Edge / Full RB



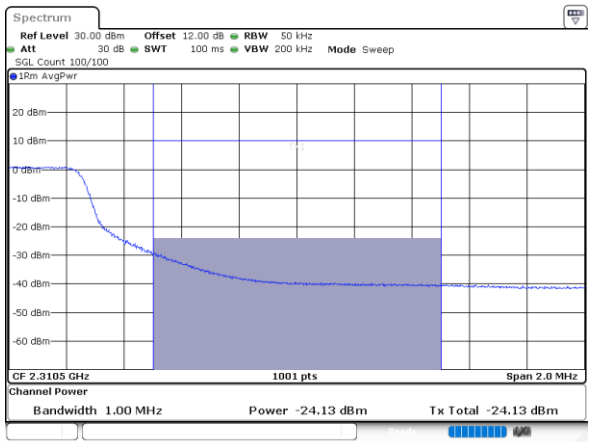
Lowest Band Edge / Full RB / Lower zoom in



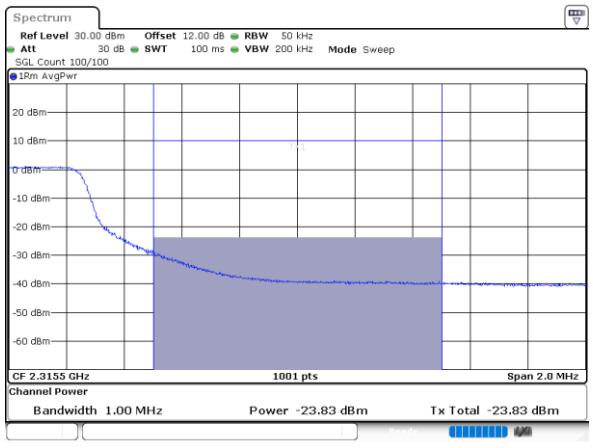
Highest Band Edge / Full RB / Lower zoom in



Lowest Band Edge / Full RB / Upper zoom in

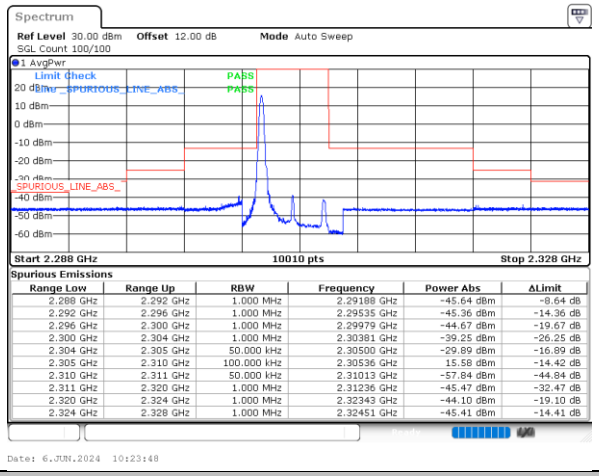


Highest Band Edge / Full RB / Upper zoom in

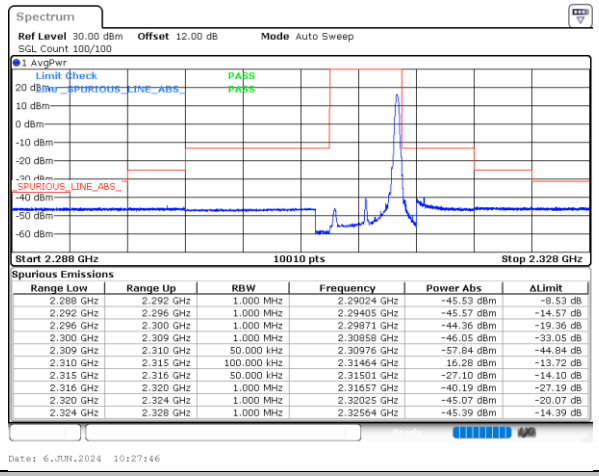


LTE Band 30 / 5MHz / 256QAM

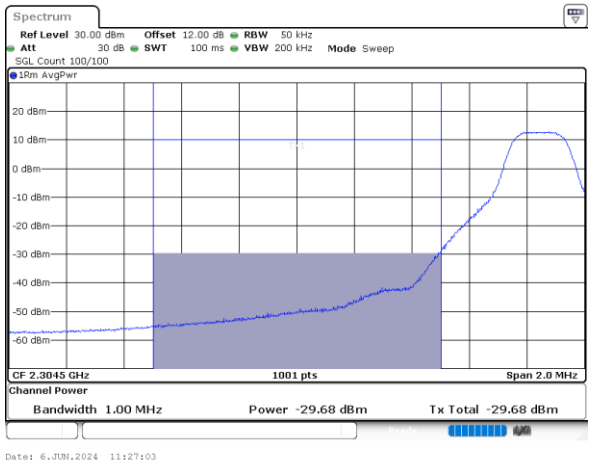
Lowest Band Edge / 1 RB



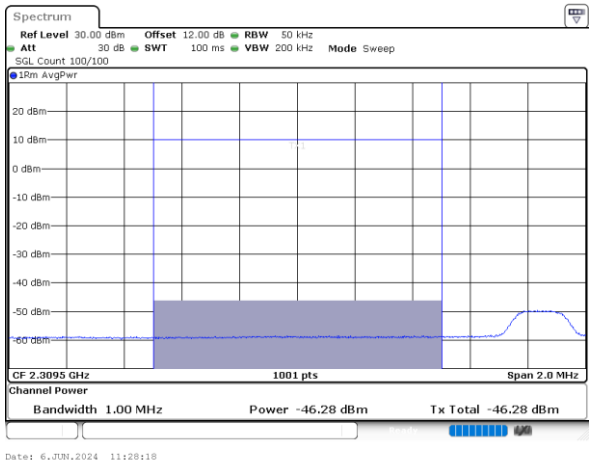
Highest Band Edge / 1 RB



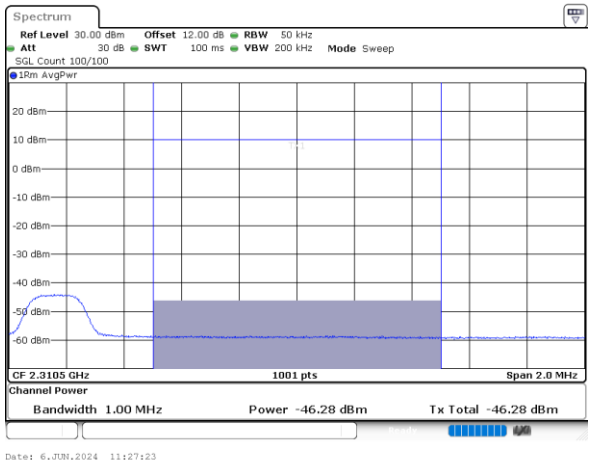
Lowest Band Edge / 1 RB / Lower zoom in



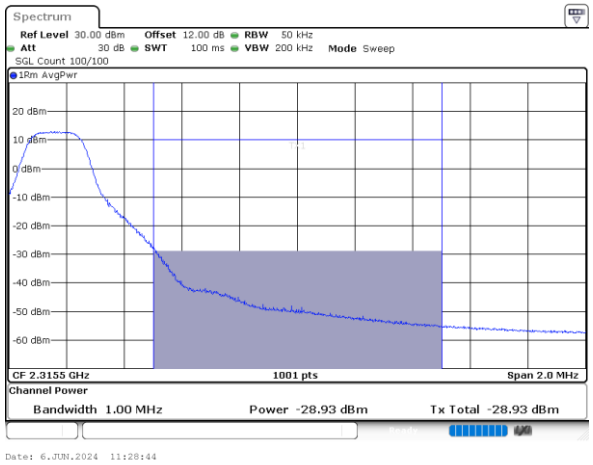
Highest Band Edge / 1 RB / Lower zoom in



Lowest Band Edge / 1 RB / Upper zoom in

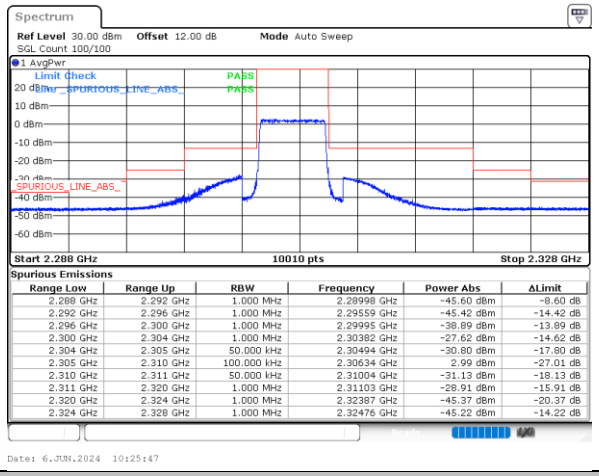


Highest Band Edge / 1 RB / Upper zoom in

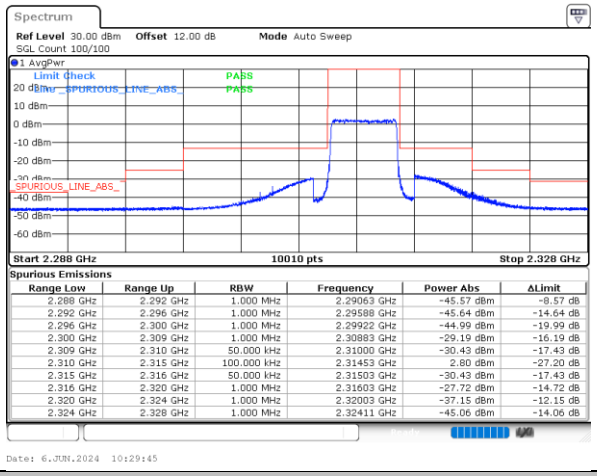


LTE Band 30 / 5MHz / 256QAM

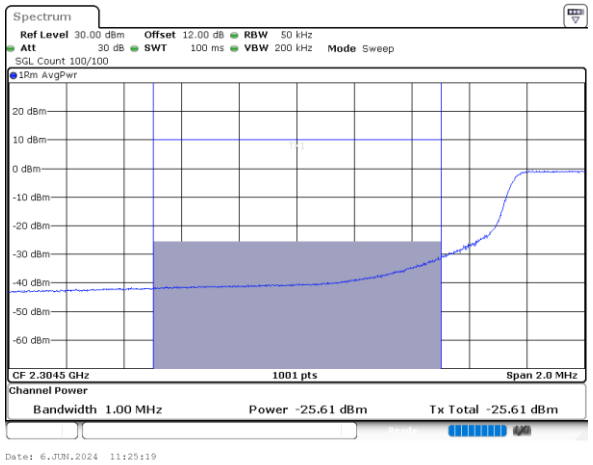
Lowest Band Edge / Full RB



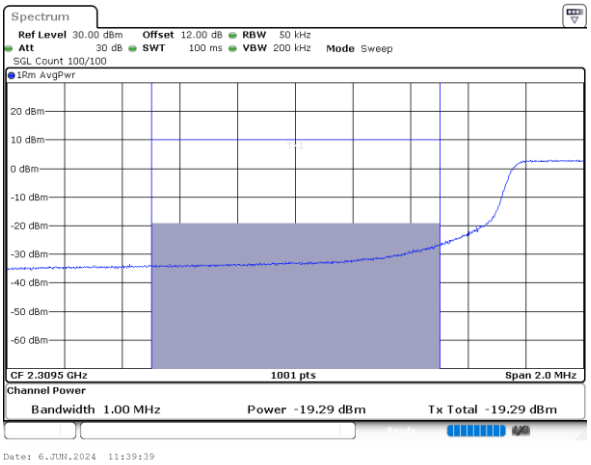
Highest Band Edge / Full RB



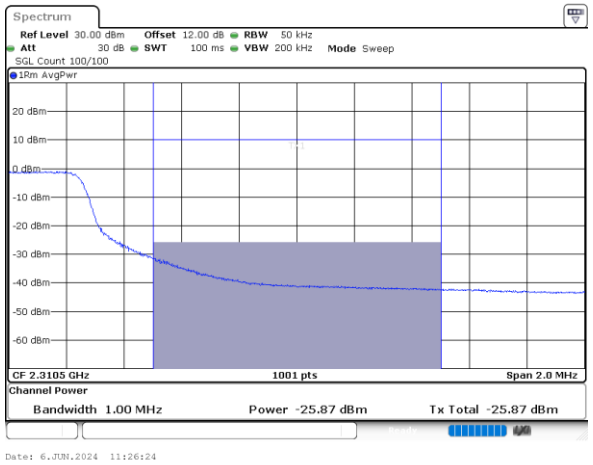
Lowest Band Edge / Full RB / Lower zoom in



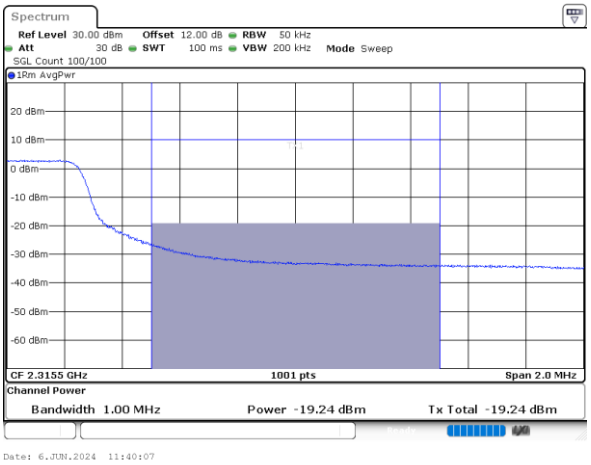
Highest Band Edge / Full RB / Lower zoom in

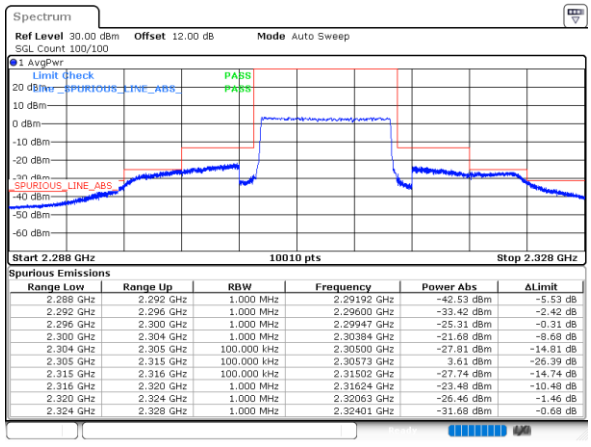
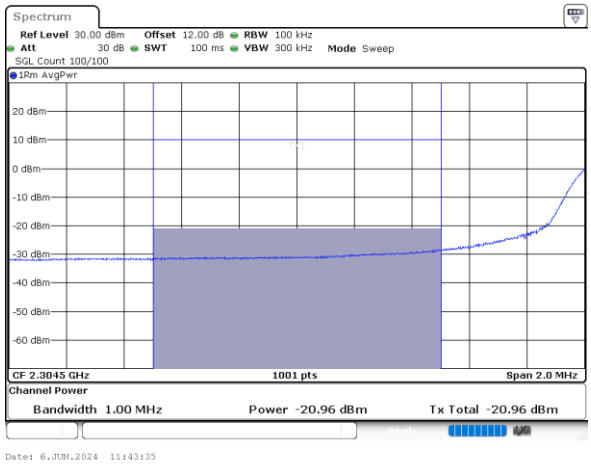
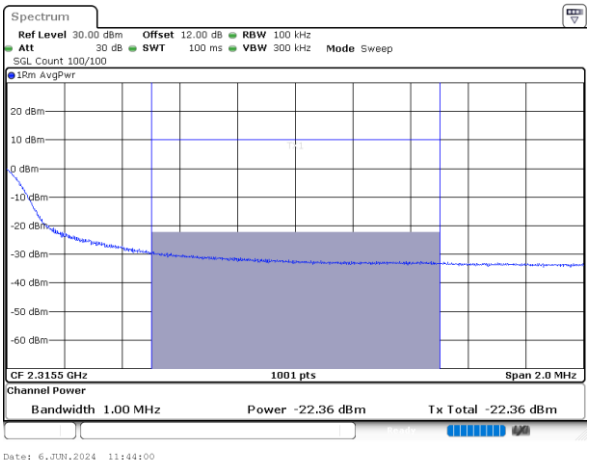


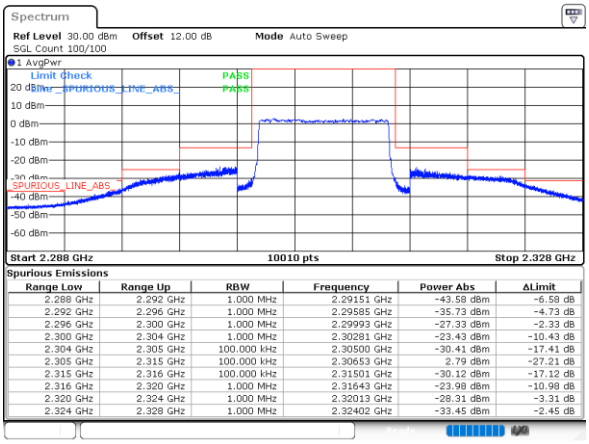
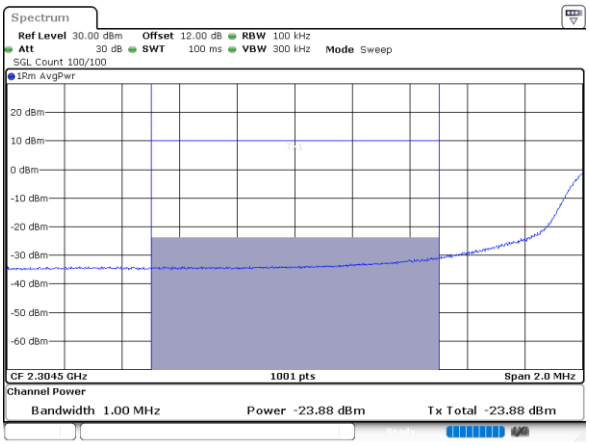
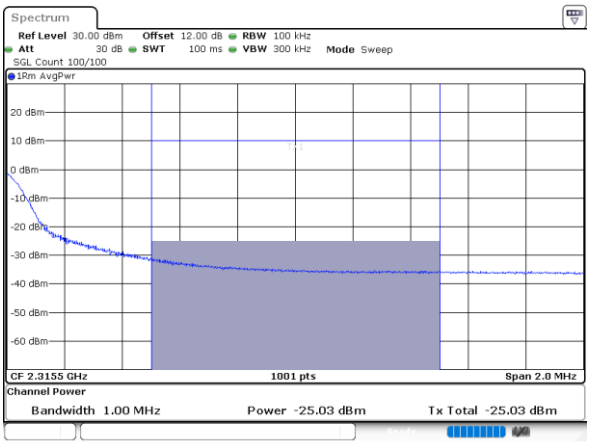
Lowest Band Edge / Full RB / Upper zoom in



Highest Band Edge / Full RB / Upper zoom in

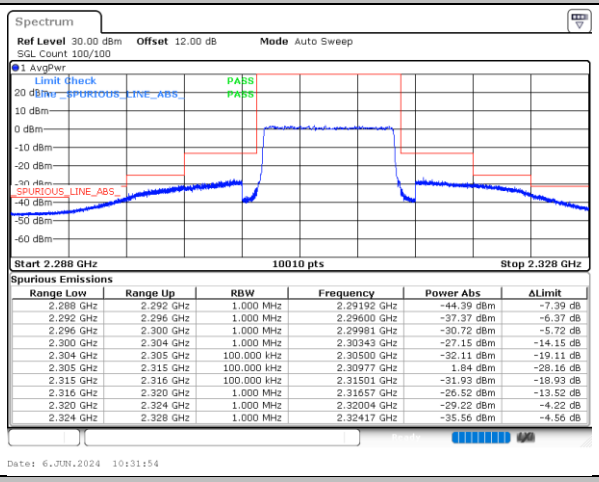


LTE Band 30 / 10MHz / QPSK	
Middle Band Edge / Full RB	
	
Middle Band Edge / Full RB / Lower zoom in	**Middle Band Edge / Full RB / Upper zoom in**
	

LTE Band 30 / 10MHz / 16QAM	
Middle Band Edge / Full RB	
 **Spurious Emissions** Range Low / Range Up / RBW / Frequency / Power Abs / ΔLimit 2.288 GHz / 2.292 GHz / 1.000 MHz / 2.29151 GHz / -43.58 dBm / -6.58 dB 2.292 GHz / 2.296 GHz / 1.000 MHz / 2.29585 GHz / -35.73 dBm / -4.73 dB 2.296 GHz / 2.300 GHz / 1.000 MHz / 2.29993 GHz / -27.33 dBm / -2.33 dB 2.300 GHz / 2.304 GHz / 1.000 MHz / 2.30281 GHz / -23.43 dBm / -10.43 dB 2.304 GHz / 2.305 GHz / 100.000 kHz / 2.30500 GHz / -30.41 dBm / -17.41 dB 2.305 GHz / 2.315 GHz / 100.000 kHz / 2.30653 GHz / 2.79 dBm / -27.21 dB 2.315 GHz / 2.316 GHz / 100.000 kHz / 2.31501 GHz / -30.12 dBm / -17.12 dB 2.316 GHz / 2.320 GHz / 1.000 MHz / 2.31643 GHz / -23.98 dBm / -10.98 dB 2.320 GHz / 2.324 GHz / 1.000 MHz / 2.32013 GHz / -28.31 dBm / -3.31 dB 2.324 GHz / 2.328 GHz / 1.000 MHz / 2.32402 GHz / -33.45 dBm / -2.45 dB Date: 12.JUN.2024 15:58:05	
Middle Band Edge / Full RB / Lower zoom in	**Middle Band Edge / Full RB / Upper zoom in**
	

LTE Band 30 / 10MHz / 64QAM

Middle Band Edge / Full RB

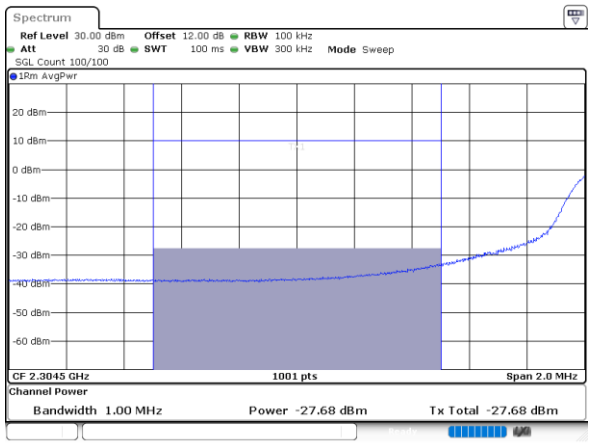


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.288 GHz	2.292 GHz	1.000 MHz	2.29192 GHz	-44.39 dBm	-7.39 dB
2.292 GHz	2.296 GHz	1.000 MHz	2.29600 GHz	-37.37 dBm	-6.37 dB
2.296 GHz	2.300 GHz	1.000 MHz	2.29981 GHz	-30.72 dBm	-5.72 dB
2.300 GHz	2.304 GHz	1.000 MHz	2.30343 GHz	-27.15 dBm	-14.15 dB
2.304 GHz	2.305 GHz	100.000 kHz	2.30500 GHz	-32.11 dBm	-19.11 dB
2.305 GHz	2.315 GHz	100.000 kHz	2.30977 GHz	1.84 dBm	-28.16 dB
2.315 GHz	2.316 GHz	100.000 kHz	2.31501 GHz	-31.93 dBm	-18.93 dB
2.316 GHz	2.320 GHz	1.000 MHz	2.31657 GHz	-26.52 dBm	-13.52 dB
2.320 GHz	2.324 GHz	1.000 MHz	2.32004 GHz	-29.22 dBm	-4.22 dB
2.324 GHz	2.328 GHz	1.000 MHz	2.32417 GHz	-35.56 dBm	-4.56 dB

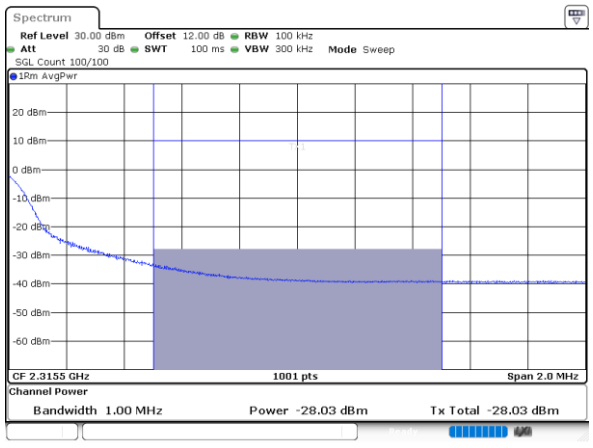
Date: 6.JUN.2024 10:31:54

Middle Band Edge / Full RB / Lower zoom in

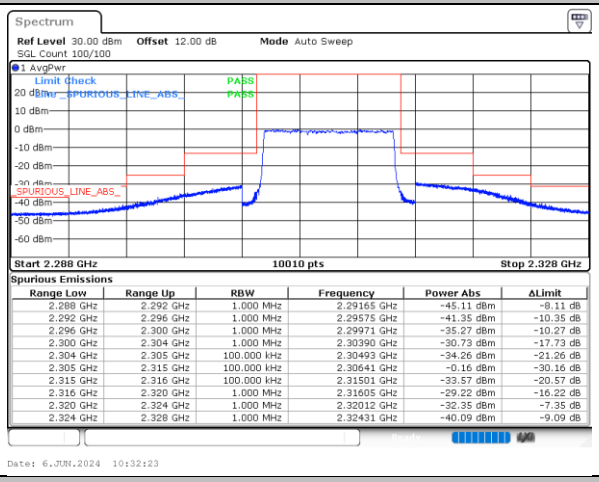
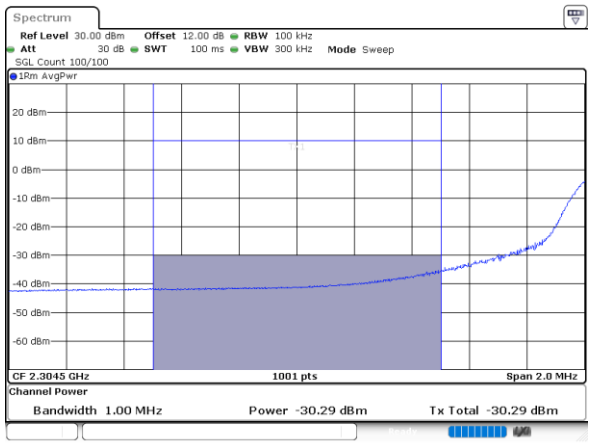
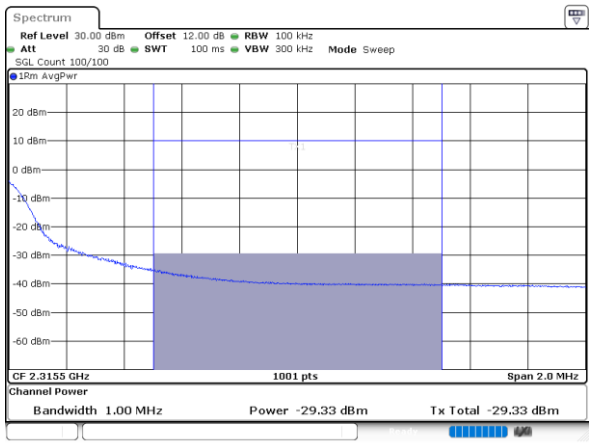


Date: 6.JUN.2024 11:45:31

Middle Band Edge / Full RB / Upper zoom in



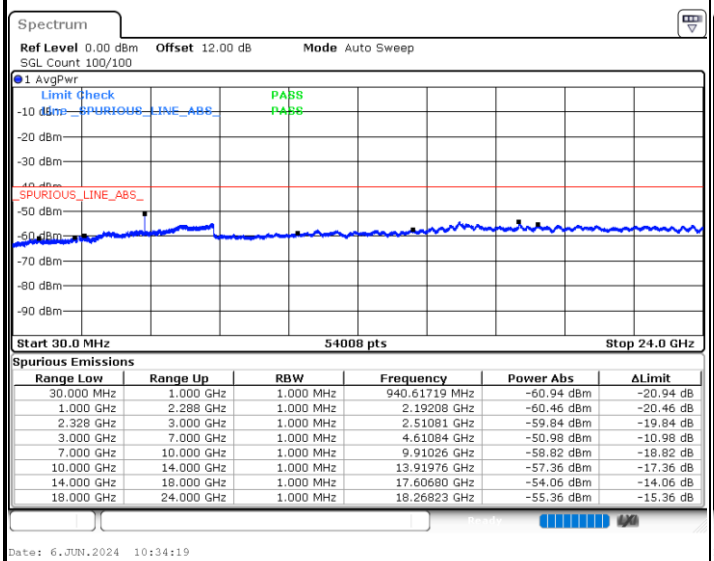
Date: 6.JUN.2024 11:45:54

LTE Band 30 / 10MHz / 256QAM	
Middle Band Edge / Full RB	
 Spurious Emissions Range Low | Range Up | RBW | Frequency | Power Abs | ΔLimit 2.288 GHz | 2.292 GHz | 1.000 MHz | 2.29165 GHz | -45.11 dBm | -8.11 dB 2.292 GHz | 2.296 GHz | 1.000 MHz | 2.29575 GHz | -41.35 dBm | -10.35 dB 2.296 GHz | 2.300 GHz | 1.000 MHz | 2.29971 GHz | -35.27 dBm | -10.27 dB 2.300 GHz | 2.304 GHz | 1.000 MHz | 2.30390 GHz | -30.73 dBm | -17.73 dB 2.304 GHz | 2.305 GHz | 100.000 kHz | 2.30493 GHz | -34.26 dBm | -21.26 dB 2.305 GHz | 2.315 GHz | 100.000 kHz | 2.30641 GHz | -0.16 dBm | -30.16 dB 2.315 GHz | 2.316 GHz | 100.000 kHz | 2.31501 GHz | -33.57 dBm | -20.57 dB 2.316 GHz | 2.320 GHz | 1.000 MHz | 2.31605 GHz | -29.22 dBm | -16.22 dB 2.320 GHz | 2.324 GHz | 1.000 MHz | 2.32012 GHz | -32.35 dBm | -7.35 dB 2.324 GHz | 2.328 GHz | 1.000 MHz | 2.32431 GHz | -40.09 dBm | -9.09 dB Date: 6.JUN.2024 10:32:23	
Middle Band Edge / Full RB / Lower zoom in	**Middle Band Edge / Full RB / Upper zoom in**
	

Conducted Spurious Emission

LTE Band 30 / 5MHz

Lowest Channel / QPSK

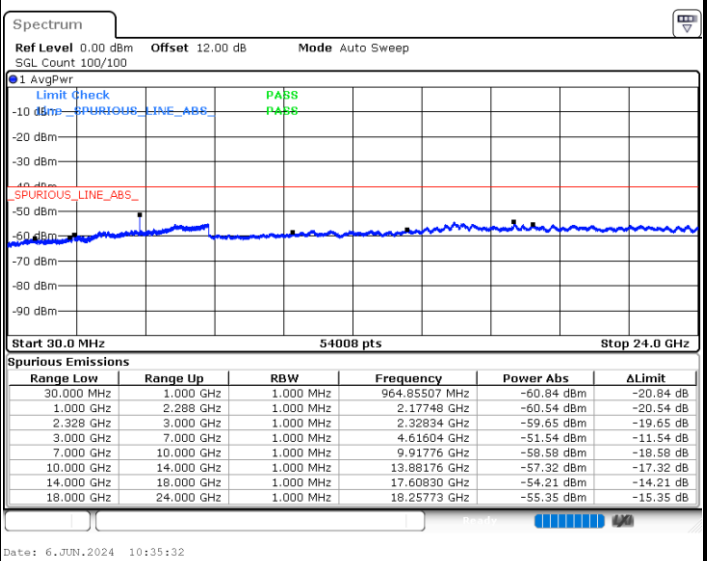


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	940.61719 MHz	-60.94 dBm	-20.94 dB
1.000 GHz	2.288 GHz	1.000 MHz	2.19208 GHz	-60.46 dBm	-20.46 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.51081 GHz	-59.84 dBm	-19.84 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.61084 GHz	-50.98 dBm	-10.98 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.91026 GHz	-58.82 dBm	-18.82 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.91976 GHz	-57.36 dBm	-17.36 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.60680 GHz	-54.06 dBm	-14.06 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.26823 GHz	-55.36 dBm	-15.36 dB

Date: 6.JUN.2024 10:34:19

Middle Channel / QPSK

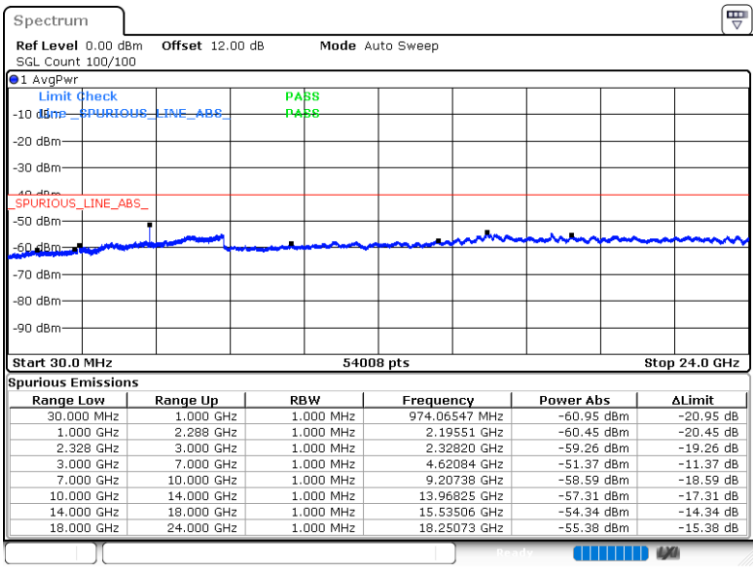


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	964.85507 MHz	-60.84 dBm	-20.84 dB
1.000 GHz	2.288 GHz	1.000 MHz	2.17748 GHz	-60.54 dBm	-20.54 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.32834 GHz	-59.65 dBm	-19.65 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.61604 GHz	-51.54 dBm	-11.54 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.91776 GHz	-58.58 dBm	-18.58 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.88176 GHz	-57.32 dBm	-17.32 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.60830 GHz	-54.21 dBm	-14.21 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.25773 GHz	-55.35 dBm	-15.35 dB

Date: 6.JUN.2024 10:35:32

Highest Channel / QPSK

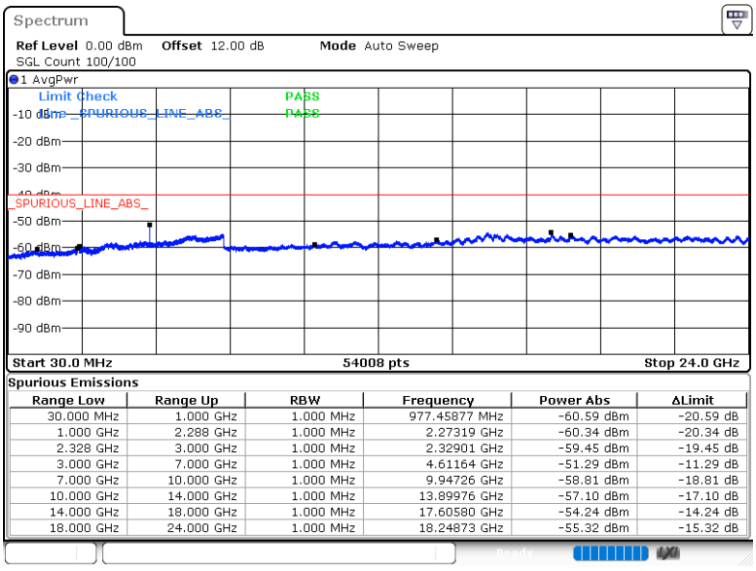


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	974.06547 MHz	-60.95 dBm	-20.95 dB
1.000 GHz	2.288 GHz	1.000 MHz	2.19551 GHz	-60.45 dBm	-20.45 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.32820 GHz	-59.26 dBm	-19.26 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.62084 GHz	-51.37 dBm	-11.37 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.20738 GHz	-58.59 dBm	-18.59 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.96825 GHz	-57.31 dBm	-17.31 dB
14.000 GHz	18.000 GHz	1.000 MHz	15.53506 GHz	-54.34 dBm	-14.34 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.25073 GHz	-55.38 dBm	-15.38 dB

Date: 6.JUN.2024 10:36:45

LTE Band 30 / 10MHz
Middle Channel / QPSK



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	977.45877 MHz	-60.59 dBm	-20.59 dB
1.000 GHz	2.288 GHz	1.000 MHz	2.27319 GHz	-60.34 dBm	-20.34 dB
2.328 GHz	3.000 GHz	1.000 MHz	2.32901 GHz	-59.45 dBm	-19.45 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.61164 GHz	-51.29 dBm	-11.29 dB
7.000 GHz	10.000 GHz	1.000 MHz	9.94726 GHz	-58.81 dBm	-18.81 dB
10.000 GHz	14.000 GHz	1.000 MHz	13.89976 GHz	-57.10 dBm	-17.10 dB
14.000 GHz	18.000 GHz	1.000 MHz	17.60580 GHz	-54.24 dBm	-14.24 dB
18.000 GHz	24.000 GHz	1.000 MHz	18.24873 GHz	-55.32 dBm	-15.32 dB

Date: 6.JUN.2024 10:51:46

Frequency Stability

Test Conditions		LTE Band 30 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0045	PASS
40	Normal Voltage	0.0015	
30	Normal Voltage	0.0007	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0051	
0	Normal Voltage	0.0013	
-10	Normal Voltage	0.0008	
-20	Normal Voltage	0.0066	
-30	Normal Voltage	0.0020	
20	Maximum Voltage	0.0061	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0041	

Note:

1. Normal Voltage = 12 V.；Battery End Point (BEP) = 9 V.；Maximum Voltage = 14 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

B1. Summary of each worse mode

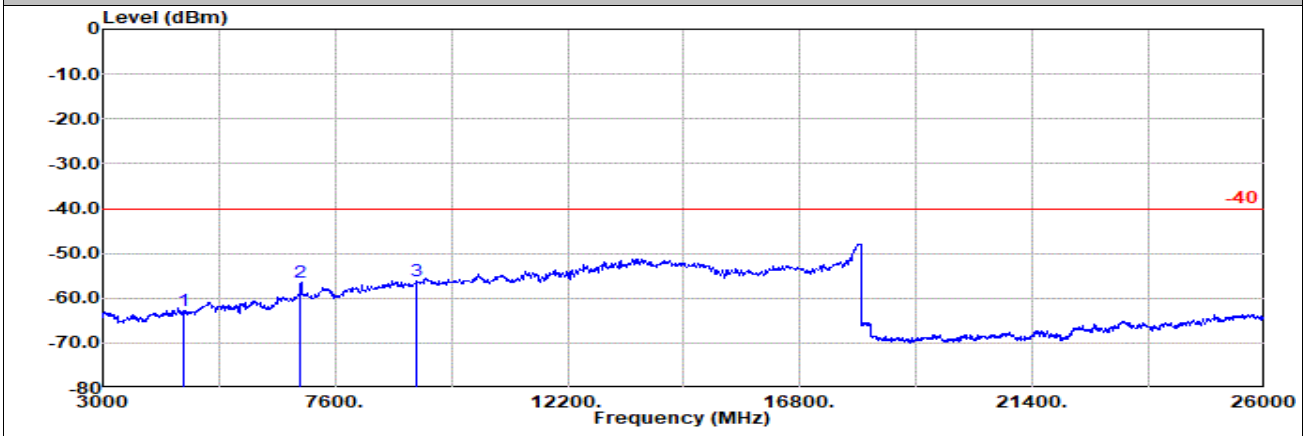
Mode	Part	Band	Ch	Freq (MHz)	Level (dBm)	Det	Ant Factor (dB)	Amp\Cbl (dB)	Filter (dB)	EIRPCF (dB)	Reading (dBuV)	Limit (dBm)	Margin (dB)	Pol	Ant
1	Part 27D	LTE B30	H	6931	-54.39	RMS	36.00	-51.85	0.34	-95.23	56.35	-40.00	-14.39	V	0
2	Part 27D	LTE B30	M	6916	-51.13	RMS	36.00	-51.86	0.34	-95.23	59.62	-40.00	-11.13	H	0

Ant. 0

Part 27D Mode 1

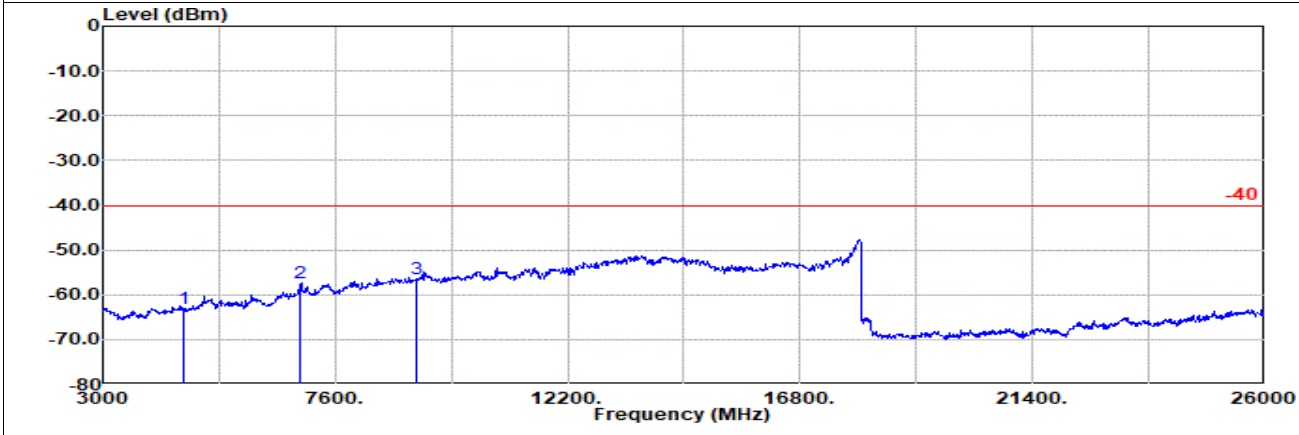
LTE B30 5M Ch27685 1RB0 QPSK

L



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Horizontal
: LTE Band 30 BW5M CH27685 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4610.00	-62.67	RMS	31.78	-56.31	0.49	-95.23	56.60	-40.00	-22.67	Horizontal
2	6916.00	-56.57	RMS	36.00	-51.86	0.34	-95.23	54.18	-40.00	-16.57	Horizontal
3	9221.00	-56.27	RMS	38.40	-51.45	0.34	-95.23	51.67	-40.00	-16.27	Horizontal



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Vertical
: LTE Band 30 BW5M CH27685 1RB0 QPSK

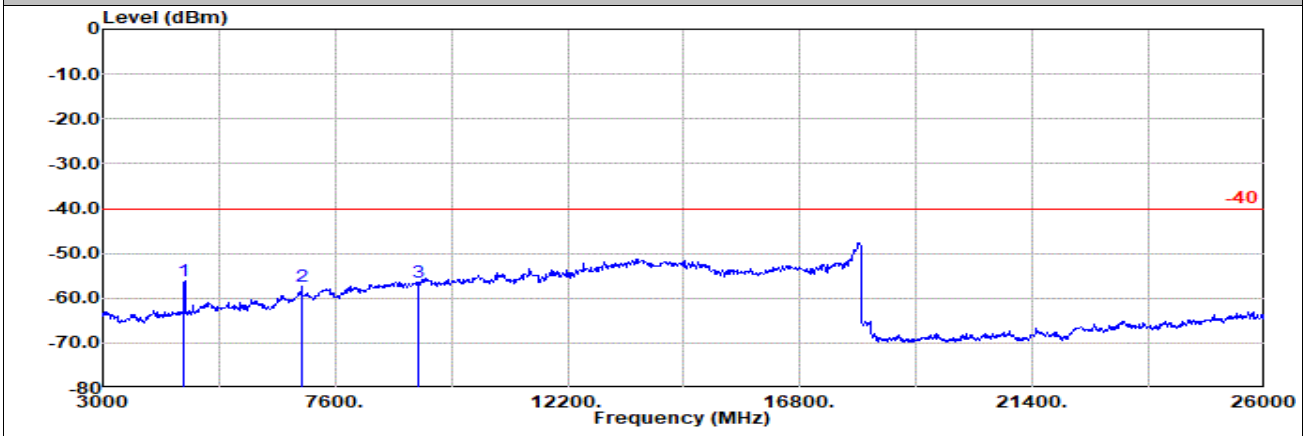
	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4610.00	-63.12	RMS	31.78	-56.31	0.49	-95.23	56.15	-40.00	-23.12	Vertical
2	6916.00	-57.41	RMS	36.00	-51.86	0.34	-95.23	53.34	-40.00	-17.41	Vertical
3	9221.00	-56.45	RMS	38.40	-51.45	0.34	-95.23	51.49	-40.00	-16.45	Vertical

Ant. 0

Part 27D Mode 1

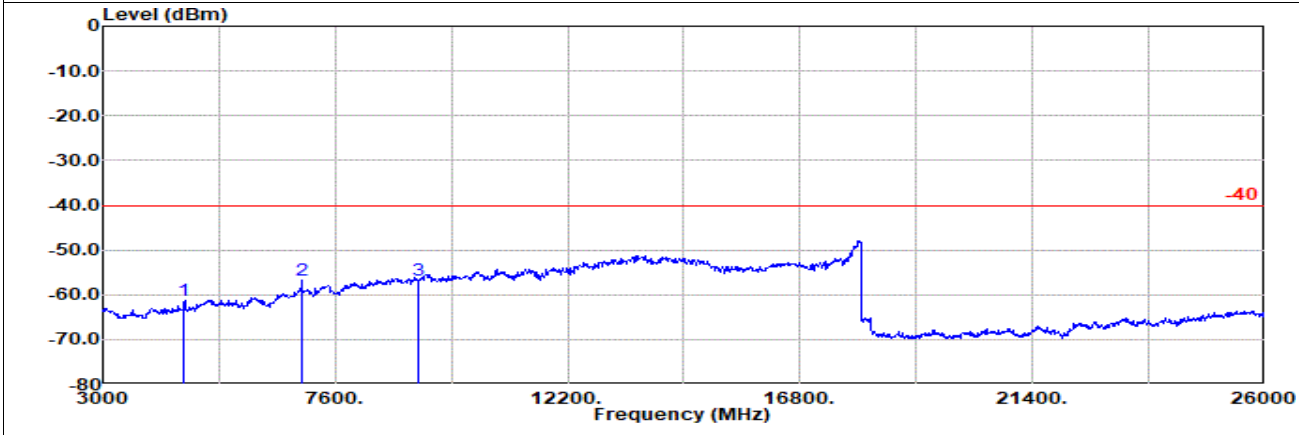
LTE B30 5M Ch27710 1RB0 QPSK

M



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Horizontal
: LTE Band 30 BW5M CH27710 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4615.00	-56.14	RMS	31.77	-56.27	0.48	-95.23	63.11	-40.00	-16.14	Horizontal
2	6923.00	-57.40	RMS	36.00	-51.85	0.34	-95.23	53.34	-40.00	-17.40	Horizontal
3	9231.00	-56.60	RMS	38.40	-51.42	0.34	-95.23	51.31	-40.00	-16.60	Horizontal



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Vertical
: LTE Band 30 BW5M CH27710 1RB0 QPSK

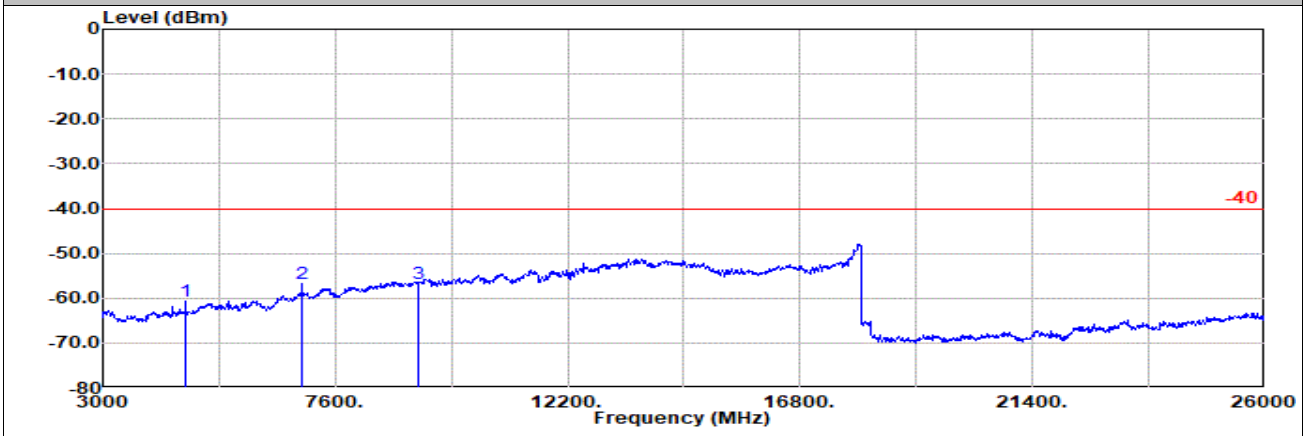
	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4615.00	-61.25	RMS	31.77	-56.27	0.48	-95.23	58.00	-40.00	-21.25	Vertical
2	6923.00	-56.71	RMS	36.00	-51.85	0.34	-95.23	54.03	-40.00	-16.71	Vertical
3	9231.00	-56.71	RMS	38.40	-51.42	0.34	-95.23	51.20	-40.00	-16.71	Vertical

Ant. 0

Part 27D Mode 1

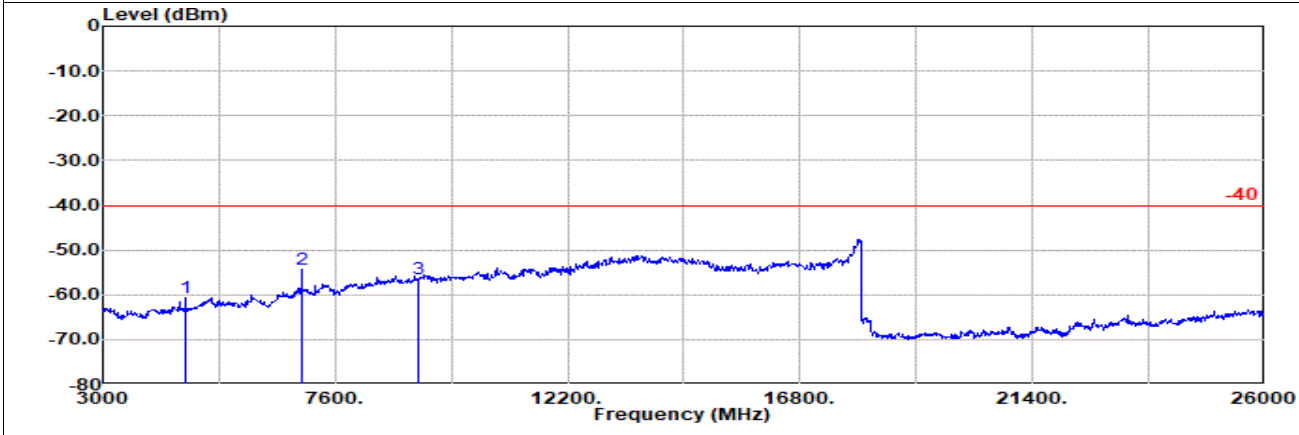
LTE B30 5M Ch27735 1RB0 QPSK

H



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Horizontal
: LTE Band 30 BW5M CH27735 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4620.00	-60.71	RMS	31.76	-56.24	0.48	-95.23	58.52	-40.00	-20.71	Horizontal
2	6931.00	-56.70	RMS	36.00	-51.85	0.34	-95.23	54.04	-40.00	-16.70	Horizontal
3	9241.00	-56.75	RMS	38.40	-51.39	0.34	-95.23	51.13	-40.00	-16.75	Horizontal



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Vertical
: LTE Band 30 BW5M CH27735 1RB0 QPSK

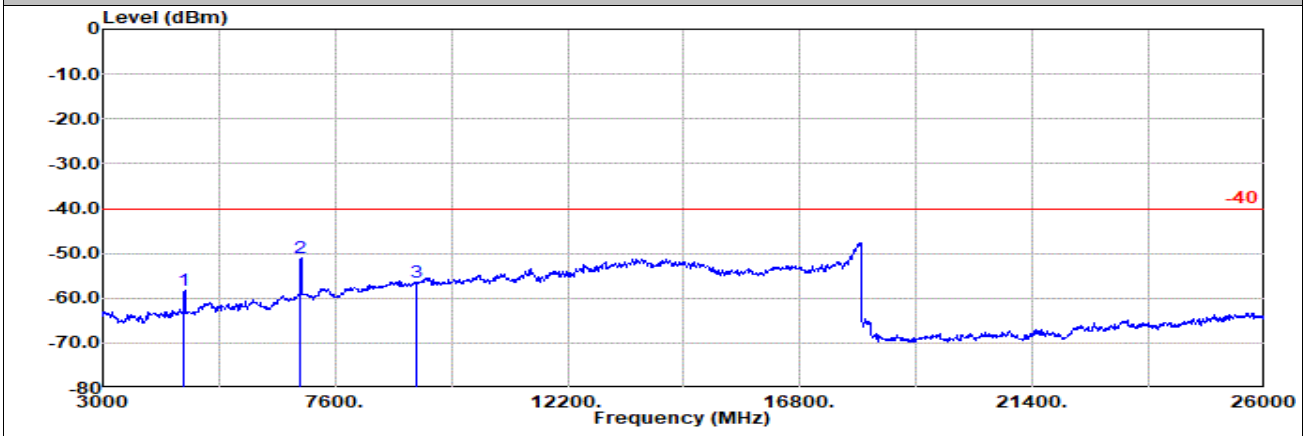
	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4620.00	-60.76	RMS	31.76	-56.24	0.48	-95.23	58.47	-40.00	-20.76	Vertical
2	6931.00	-54.39	RMS	36.00	-51.85	0.34	-95.23	56.35	-40.00	-14.39	Vertical
3	9241.00	-56.57	RMS	38.40	-51.39	0.34	-95.23	51.31	-40.00	-16.57	Vertical

Ant. 0

Part 27D Mode 2

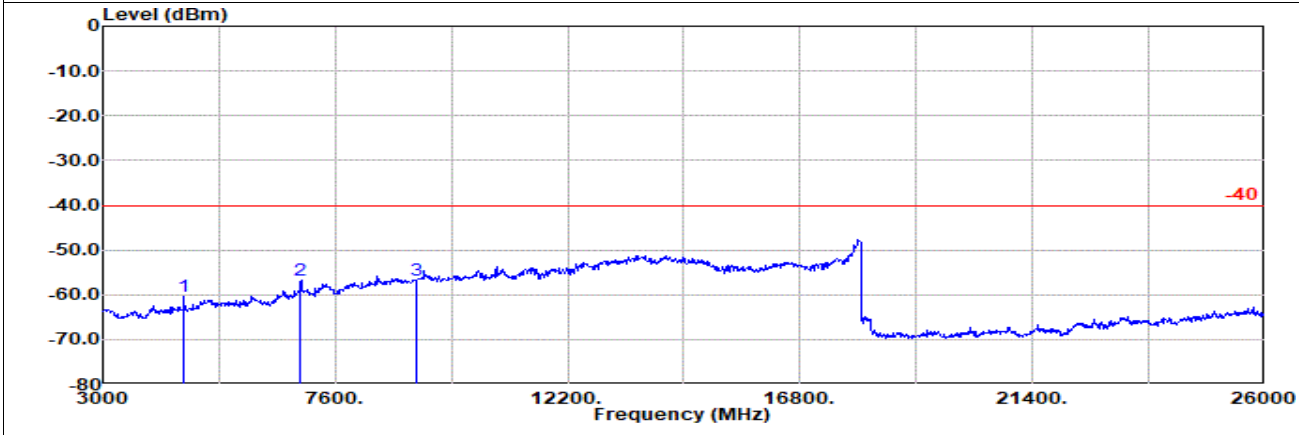
LTE B30 10M Ch27710 1RB0 QPSK

M



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Horizontal
: LTE Band 30 BW10M CH27710 1RB0 QPSK

	Freq	Level	Detector	Ant Factor	Amp\Cb l	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4611.00	-58.29	RMS	31.78	-56.30	0.49	-95.23	60.97	-40.00	-18.29	Horizontal
2	6916.00	-51.13	RMS	36.00	-51.86	0.34	-95.23	59.62	-40.00	-11.13	Horizontal
3	9222.00	-56.44	RMS	38.40	-51.45	0.34	-95.23	51.50	-40.00	-16.44	Horizontal



Site : 03CH12-HY
Condition: -40 1m SHF_00993_231124 Vertical
: LTE Band 30 BW10M CH27710 1RB0 QPSK

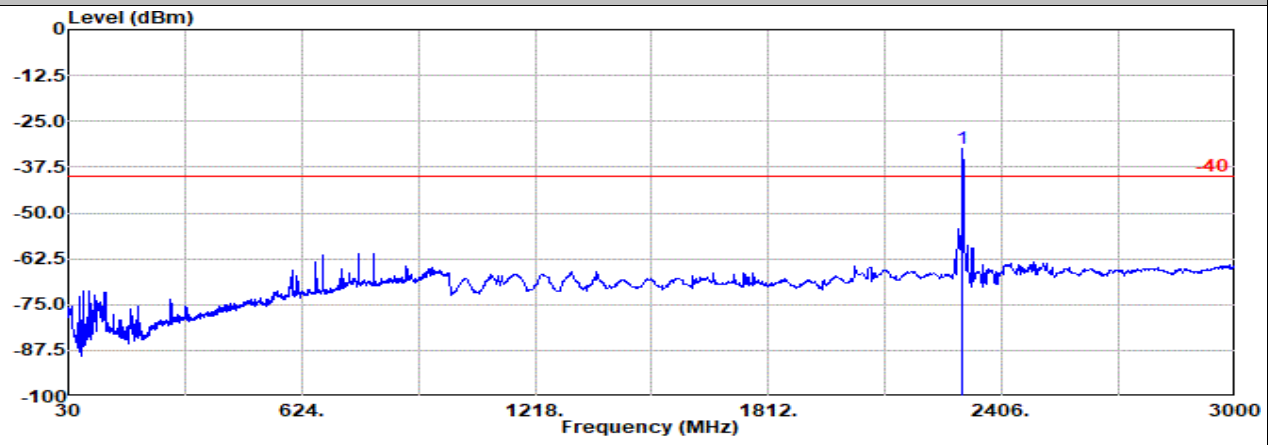
	Freq	Level	Detector	Ant Factor	Amp\Cb l	Filter	EIRPCF	Readin g	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	4611.00	-60.42	RMS	31.78	-56.30	0.49	-95.23	58.84	-40.00	-20.42	Vertical
2	6916.00	-56.79	RMS	36.00	-51.86	0.34	-95.23	53.96	-40.00	-16.79	Vertical
3	9222.00	-56.63	RMS	38.40	-51.45	0.34	-95.23	51.31	-40.00	-16.63	Vertical

Ant. 0

Part 27D Mode 2

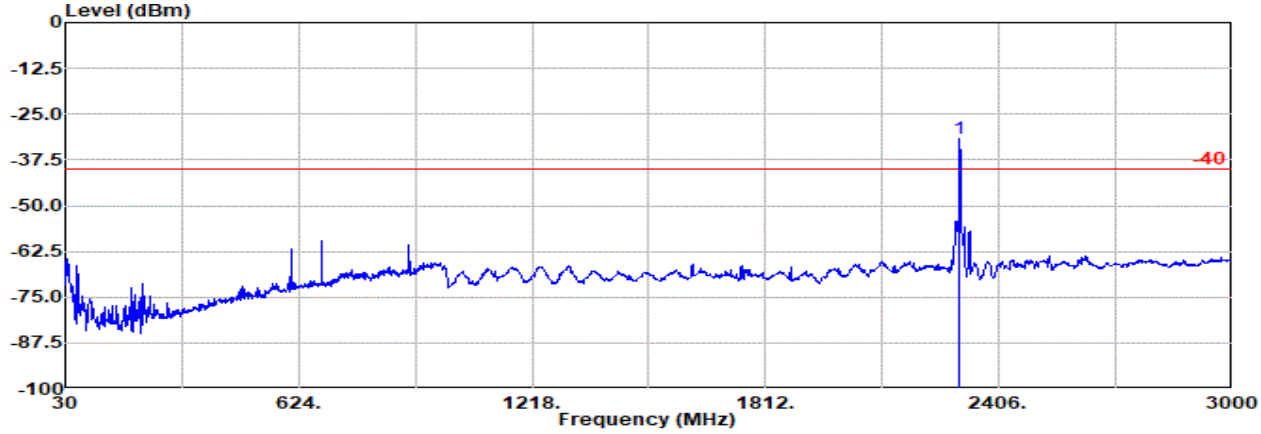
LTE B30 10M Ch27710 1RB0 QPSK

M



Site : 03CH12-HY
Condition: -40 3m Bilog_37059_20231103 Horizontal
: LTE Band 30 BW10M CH27710 1RB0 QPSK
: #1 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	2305.59	-32.57	RMS	27.26	-59.82	0.51	-95.23	94.71	-40.00	7.43	Horizontal



Site : 03CH12-HY
Condition: -40 3m Bilog_37059_20231103 Vertical
: LTE Band 30 BW10M CH27710 1RB0 QPSK
: #1 is fundamental signal which can be ignored.

	Freq	Level	Detector	Ant Factor	Amp\Cbl	Filter	EIRPCF	Reading	Limit	Margin	Pol
	MHz	dBm		dB/m	dB	dB	dB	dBuV	dBm	dB	
1	2305.59	-31.81	RMS	27.26	-59.82	0.51	-95.23	95.47	-40.00	8.19	Vertical

Remark: The over limit signal #1 is fundamental signal which can be ignored.

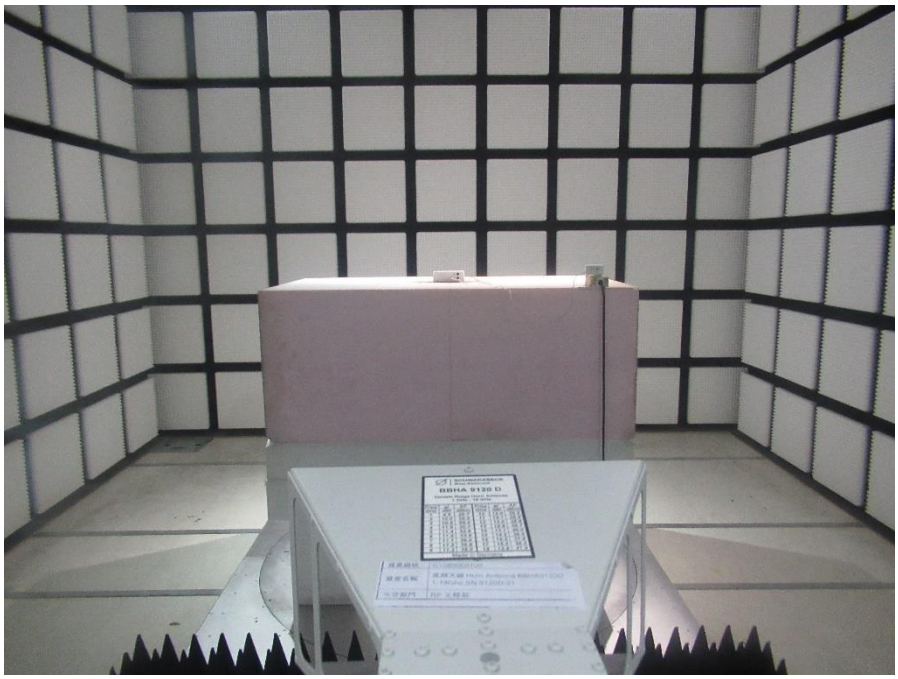
Appendix C. Setup Photographs

<Radiated Emission>

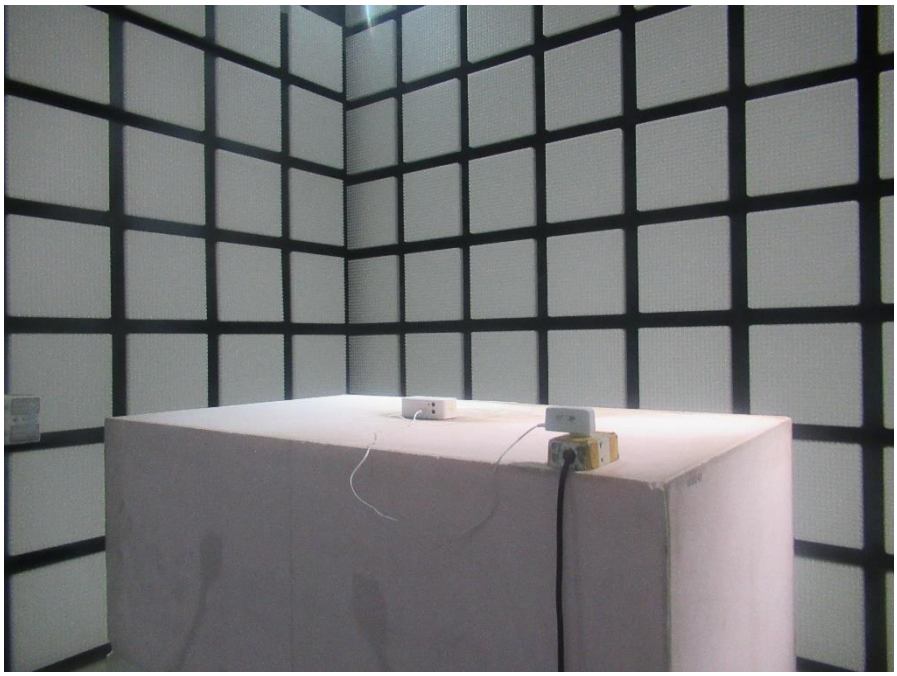
X Plane with Adapter

LF

HF



SHF



————THE END————