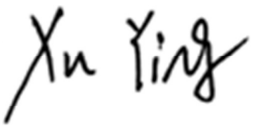
RF TEST REPORT

Applicant	MeiG Smart Technology Co., Ltd
FCC ID	2APJ4-SLM130-NA
Product	LTE NB-IOT Module
Brand	MEIGLink
Model	SLM130-NA
Report No.	R2409A1238-R2
Issue Date	October 21, 2024

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



Prepared by: Xu Ying

Approved by: Xu Kai

Eurofins TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
TEL: +86-021-50791141/2/3
FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Isotropic Radiated Power	2.1046 24.232(c)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 /24.238(a)	PASS
4	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 24.235	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 24.238(a)	PASS
7	Radiated Spurious Emission	2.1053 / 24.238(a)	PASS
Date of Testing: September 3, 2024 ~ September 13, 2024 Date of Sample Received: September 2, 2024			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the test report

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

1.2. Test facility

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

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

A2LA (Certificate Number: 3857.01)

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

1.3. Testing Location

Company:	Eurofins TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	https://www.eurofins.com/electrical-and-electronics
E-mail:	Kain.Xu@cpt.eurofinscn.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	MeiG Smart Technology Co., Ltd
Applicant address	2nd Floor, Office Building, No.5 Lingxia Road, Fenghuang, Fuyong Street, Bao'an District, Shenzhen, China.
Manufacturer	MeiG Smart Technology Co., Ltd
Manufacturer address	2nd Floor, Office Building, No.5 Lingxia Road, Fenghuang, Fuyong Street, Bao'an District, Shenzhen, China.

2.2. General information

EUT Description			
Model	SLM130-NA		
SN	Conducted: M130CN6AHE062600015 Radiated: M130CN6AHE062600033		
Hardware Version	SLM130-NA_V1.01_PCB		
Software Version	M018		
Power Supply	External power supply		
Antenna Type	External Antenna		
Antenna Gain	2.19 dBi		
Test Mode(s)	NB-IoT Band 2;		
Test Modulation	BPSK, QPSK		
Category	NB1		
Deployment	stand-alone		
Sub-carrier spacing	3.75KHz, 15KHz		
Ntones	single-tone, multi-tone		
Maximum E.I.R.P	NB-IoT Band 2:	24.79 dBm	
Rated Power Supply Voltage	3.8V		
Operating Voltage	Minimum: 3.5V Maximum: 4.2V		
Operating Temperature	Lowest: -35°C Highest: +75°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	NB-IoT Band 2	1850 ~ 1910	1930 ~ 1990
Auxiliary Test Equipment			
Antenna	Manufacturer: Shenzhen Be-Comfortable Technology Co. Ltd Model: N19-0740-R0A		

	Gain: NB-IoT Band 2: 2.19 dBi
Mother board	Manufacturer: MeiG Smart Technology Co., Ltd Model: /
Note: 1. The EUT is sent from the applicant to Eurofins 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 24E (2023)

FCC CFR47 Part 2 (2023)

Reference standard:
ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (vertical), lie-down position (horizontal). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (horizontal, horizontal polarization) and the worst case was recorded.

All modes as Subcarrier Spacing, modulations, Channel were investigated.
Subsequently, only the worst case emissions are reported.
The following testing in NB-IoT is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below for NB-IoT Band 2

Test items	Deployment mode	Subcarrier Spacing (kHz)		Modulation		Test Channel		
	Stand-alone	3.75	15	BPSK	QPSK	L	M	H
RF Power Output and Effective Isotropic Radiated Power	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	O	O
Band Edge Compliance	O	O	O	O	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	-	O	-
Frequency Stability	O	O	O	O	O	-	O	-
Spurious Emissions at Antenna Terminals	O	O	-	-	O	O	O	O
Radiated Spurious Emission	O	O	-	-	O	O	O	O

Note
1. The mark “O” means that this configuration is chosen for testing.
2. The mark “-” means that this configuration is not testing.

5. Test Case

5.1. RF Power Output and Effective Isotropic Radiated Power

Ambient condition

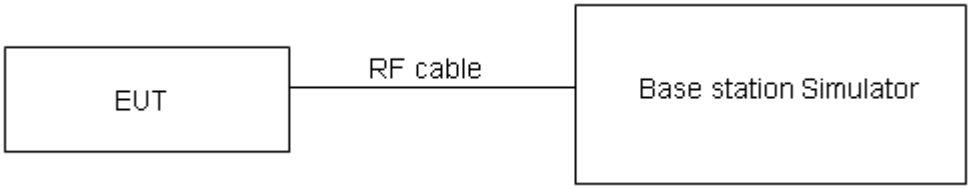
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Methods of Measurement

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

ERP can then be calculated as follows:
EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)
EIRP (dBm) = ERP (dBm) + 2.15 (dB.)

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 24.232(c) Mobile and portable stations are limited to 2 watts EIRP.
Rule Part 24.232(e) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

Limit	≤ 2 W (33 dBm)

Measurement Uncertainty

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

Test Results

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

5.2. Occupied Bandwidth

Ambient condition

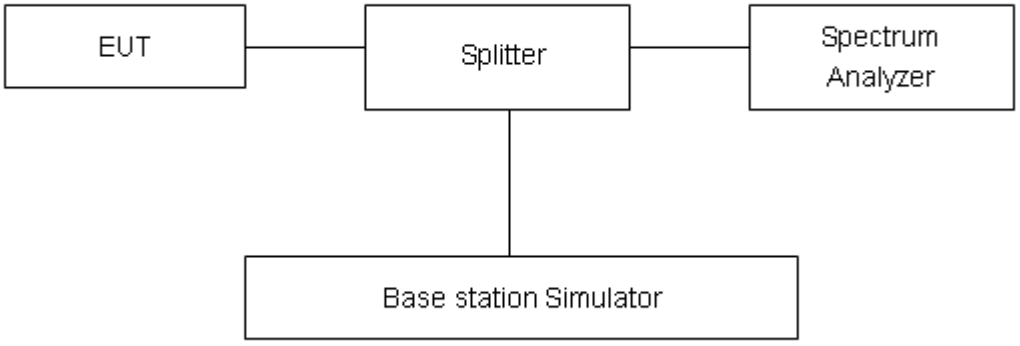
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to ≥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= 624Hz.

Test Results

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

5.3. Band Edge Compliance

Ambient condition

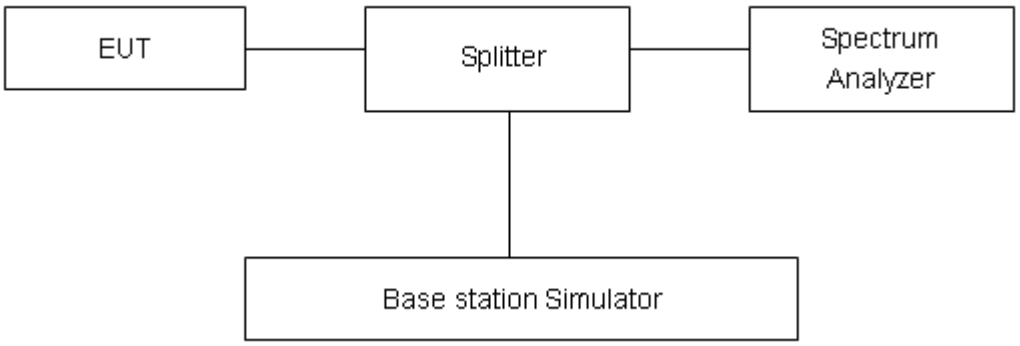
Temperature	Relative humidity	Pressure
15°C ~ 35°C	20% ~ 80%	86 kPa ~ 106 kPa

Method of Measurement

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

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

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

Test Results

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

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

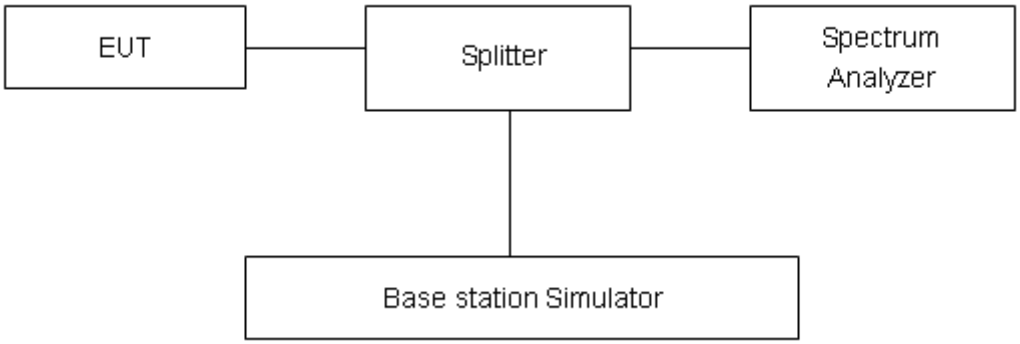
Ambient condition

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

Methods of Measurement

Measure the total peak power and record as PPk. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = PPk (dBm) - PAvg (dBm).

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peakto-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

Measurement Uncertainty

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

Test Results

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

5.5. Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

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

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

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

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

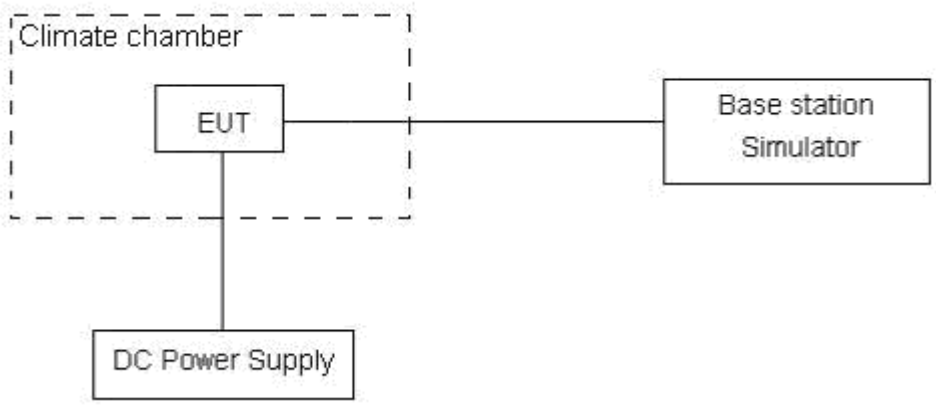
Frequency Stability (Voltage Variation)

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

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

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.2 V, with a nominal voltage of 3.8V.

Test setup



Limits

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

Measurement Uncertainty

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

Test Results

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

5.6. Spurious Emissions at Antenna Terminals

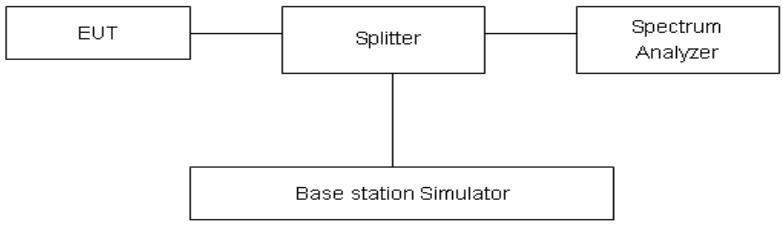
Ambient condition

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

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)
RBW is set to 100 kHz (30MHz~1000 MHz)
RBW is set to 1000 kHz (above 1000MHz)
Sweep is set to AUTO.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

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

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

Test Results

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

5.7. Radiated Spurious Emission

Ambient condition

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

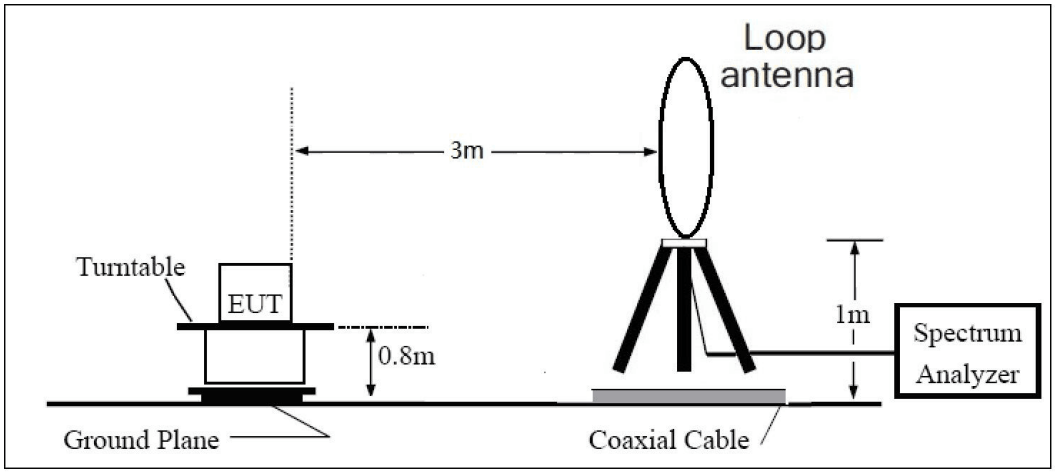
Method of Measurement

1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26-2015.
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=1MHz, VBW=3MHz, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + 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.

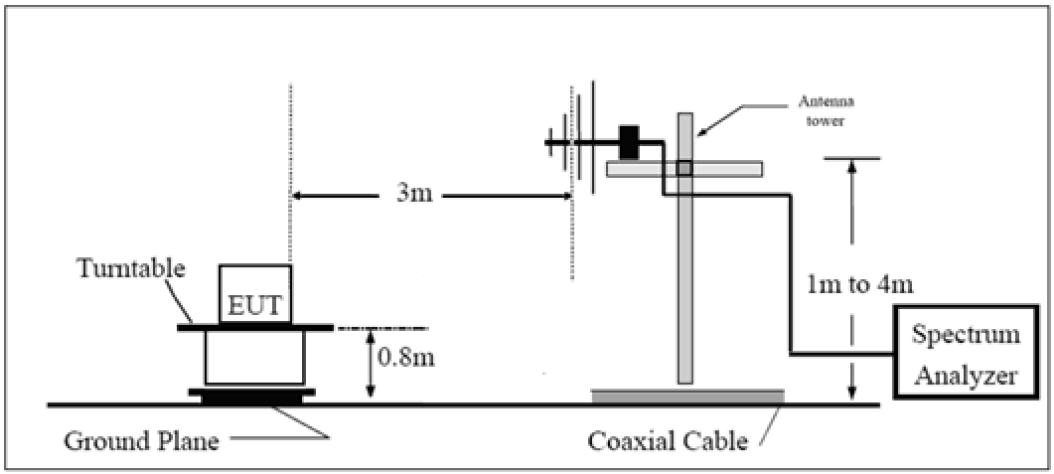
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

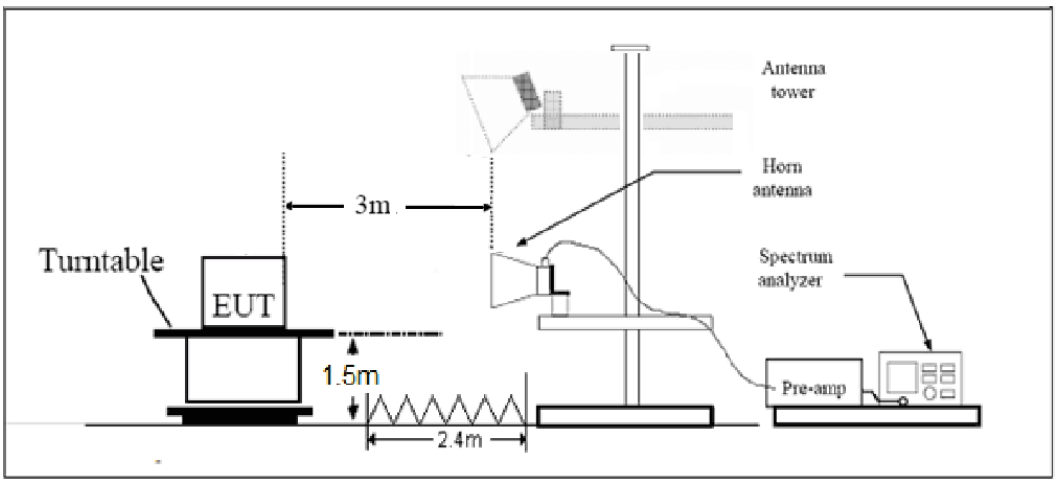
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log10 (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

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

Test Results

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

6. Test Results

6.1. RF Power Output and Effective Isotropic Radiated Power

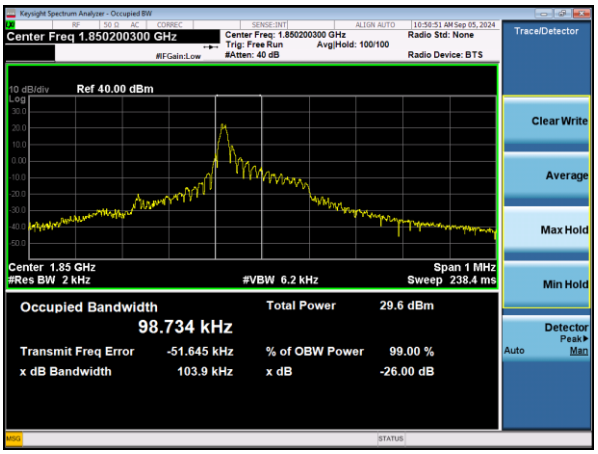
Mode	Modulation	Sub-carrier spacing (KHz)	Ntones	Conducted Power (dBm)			EIRP (dBm)		
				18602/ 1850.2	18900/ 1880.0	19198/ 1909.8	18602/ 1850.2	18900/ 1880.0	19198/ 1909.8
Band 2 Standalone	BPSK	3.75	1@0	22.47	22.46	22.49	24.66	24.65	24.68
			1@47	22.44	22.44	22.48	24.63	24.63	24.67
		15	1@0	22.54	22.45	22.53	24.73	24.64	24.72
			1@11	22.48	22.40	22.56	24.67	24.59	24.75
	QPSK	3.75	1@0	22.50	22.47	22.52	24.69	24.66	24.71
			1@47	22.48	22.46	22.51	24.67	24.65	24.70
		15	1@0	22.49	22.38	22.58	24.68	24.57	24.77
			1@11	22.53	22.50	22.60	24.72	24.69	24.79
		15	12@0	20.36	20.57	20.87	22.55	22.76	23.06

6.2. Occupied Bandwidth

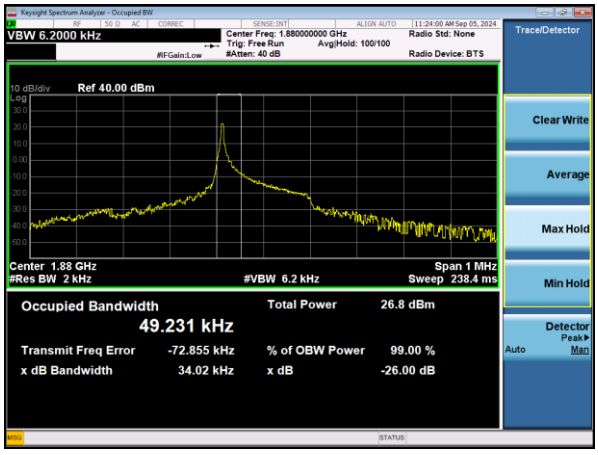
Mode	Modulation	Sub-carrier spacing (KHz)	Ntones	Bandwidth (KHz)					
				18602/1850.2		18900/1880.0		19198/1909.8	
				99% Power	-26dBc	99% Power	-26dBc	99% Power	-26dBc
Band 2 Standalone	BPSK	3.75	1@0	48.27	37.25	49.23	34.02	51.05	38.44
	QPSK	3.75	1@0	58.91	37.92	59.87	41.49	67.45	42.27
	BPSK	15	1@0	98.73	103.90	98.01	90.85	112.13	90.92
	QPSK	15	1@0	108.21	101.80	111.44	130.20	112.51	103.60
	QPSK	15	12@0	184.87	261.80	183.88	281.70	188.38	342.20

NB-IoT Band 2 BPSK 3.75kHz 1@0 CH-Low

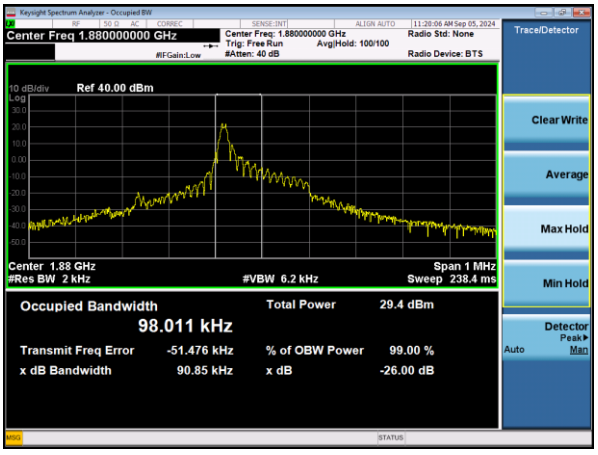
NB-IoT Band 2 BPSK 15kHz 1@0 CH-Low



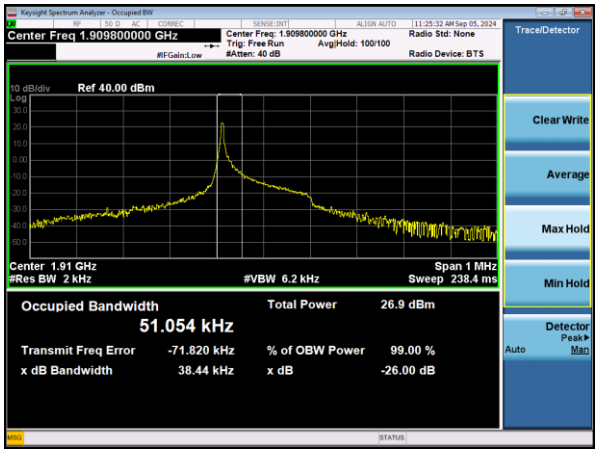
NB-IoT Band 2 BPSK 3.75kHz 1@0 CH-Middle



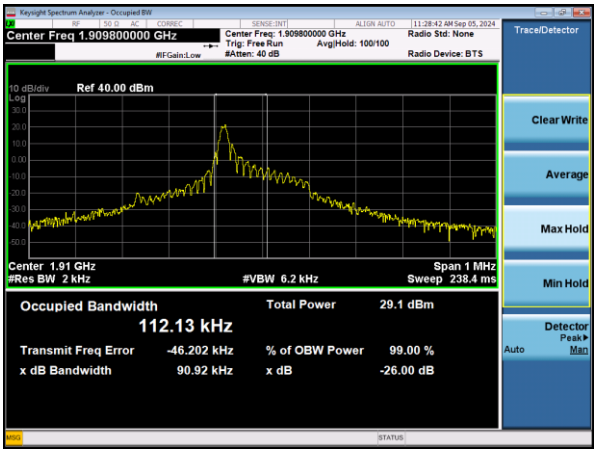
NB-IoT Band 2 BPSK 15kHz 1@0 CH-Middle



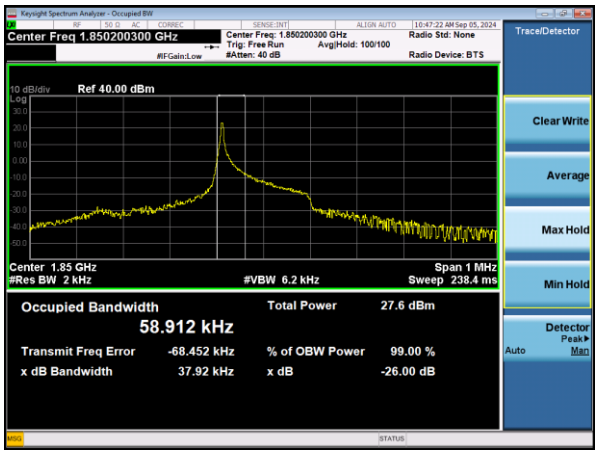
NB-IoT Band 2 BPSK 3.75kHz 1@0 CH-High



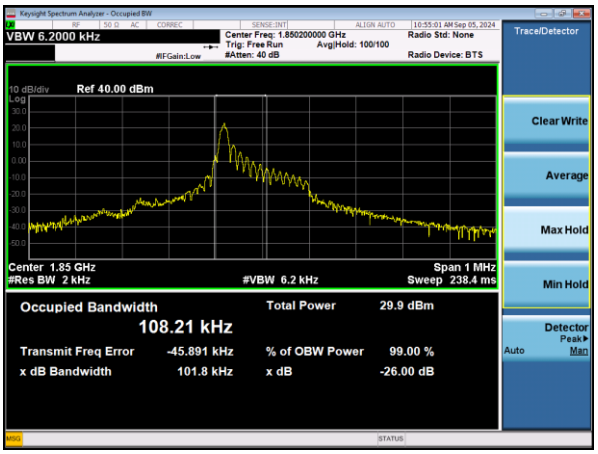
NB-IoT Band 2 BPSK 15kHz 1@0 CH-High



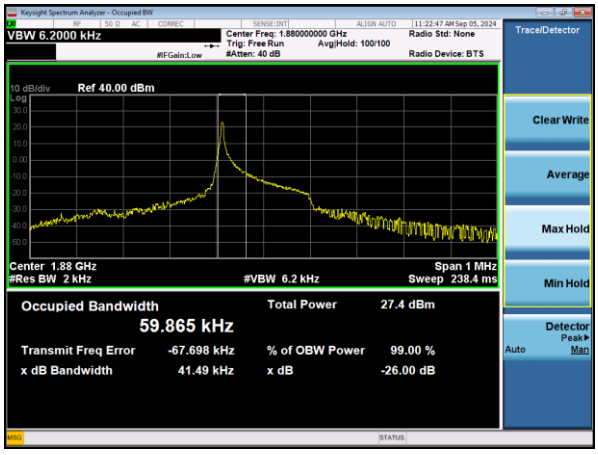
NB-IoT Band 2 QPSK 3.75kHz 1@0 CH-Low



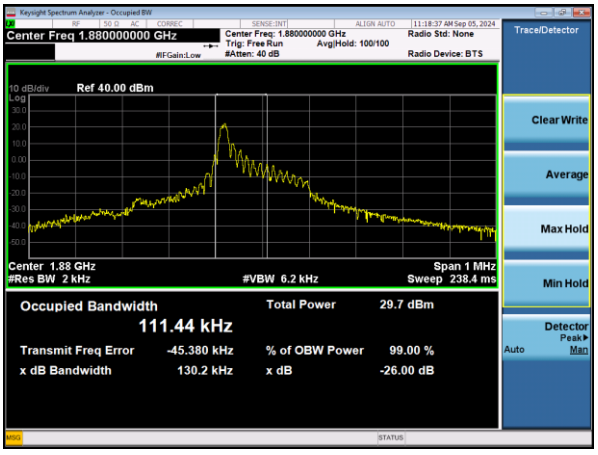
NB-IoT Band 2 QPSK 15kHz 1@0 CH-Low



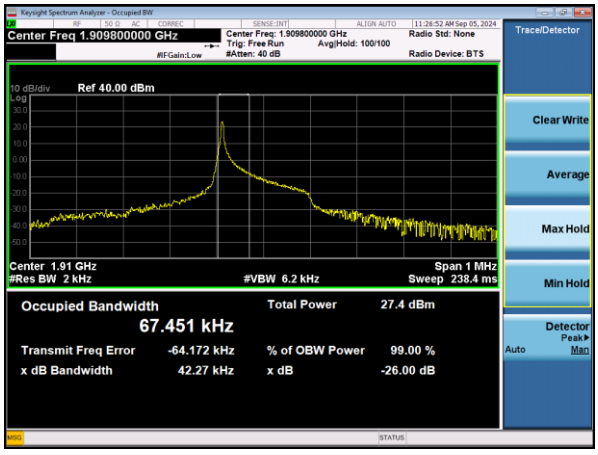
NB-IoT Band 2 QPSK 3.75kHz 1@0 CH-Middle



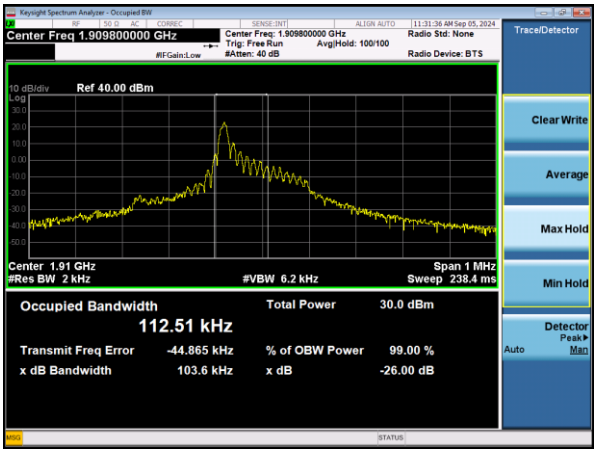
NB-IoT Band 2 QPSK 15kHz 1@0 CH-Middle



NB-IoT Band 2 QPSK 3.75kHz 1@0 CH-High



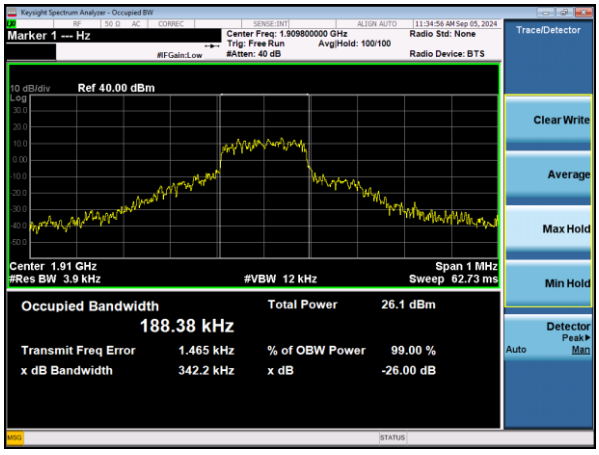
NB-IoT Band 2 QPSK 15kHz 1@0 CH-High



NB-IoT Band 2 QPSK 15kHz 12@0 CH-Low

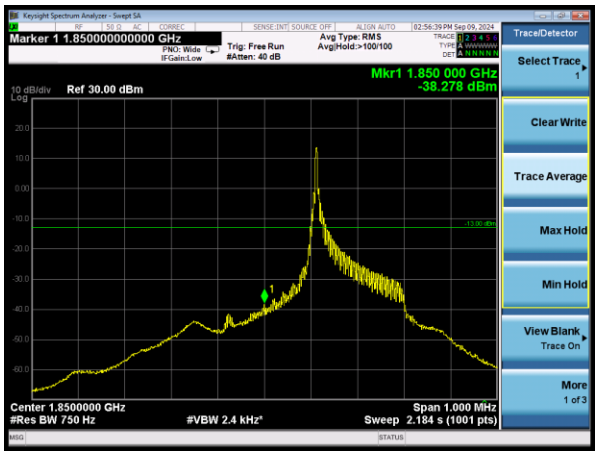
NB-IoT Band 2 QPSK 15kHz 12@0 CH-Middle

NB-IoT Band 2 QPSK 15kHz 12@0 CH-High

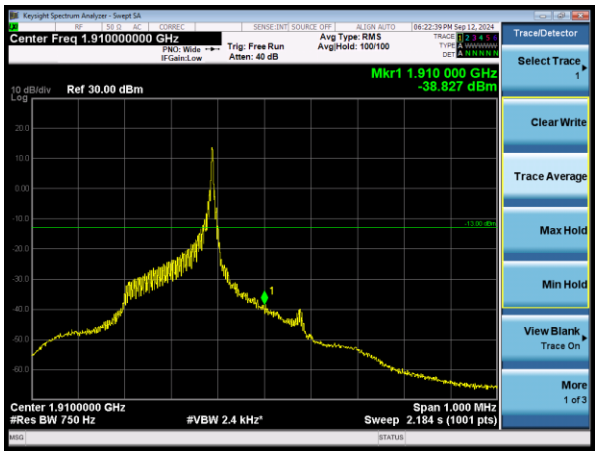


6.3. Band Edge Compliance

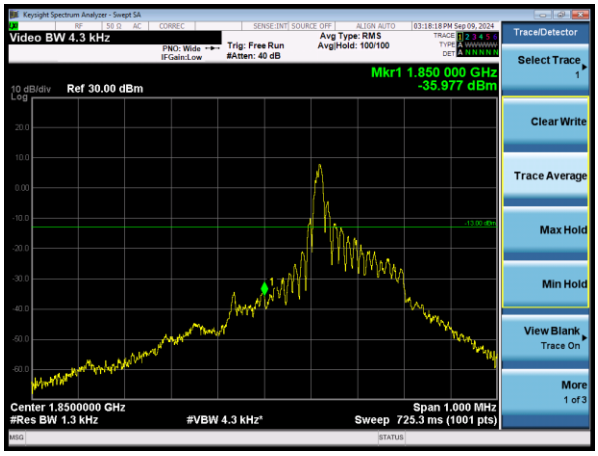
NB-IoT Band 2 BPSK 3.75kHz 1@0 CH-Low



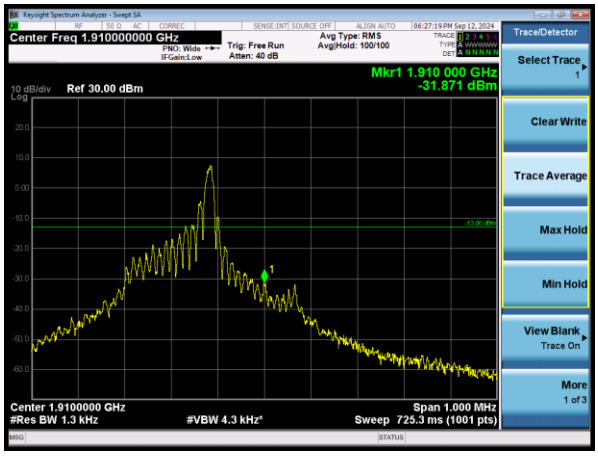
NB-IoT Band 2 BPSK 3.75kHz 1@47 CH-High



NB-IoT Band 2 BPSK 15kHz 1@0 CH-Low

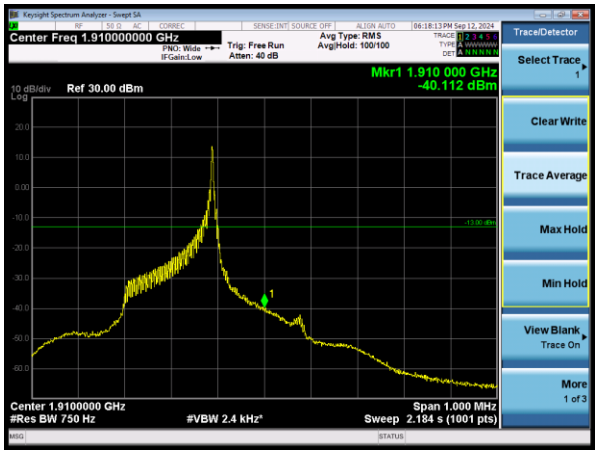


NB-IoT Band 2 BPSK 15kHz 1@11 CH-High

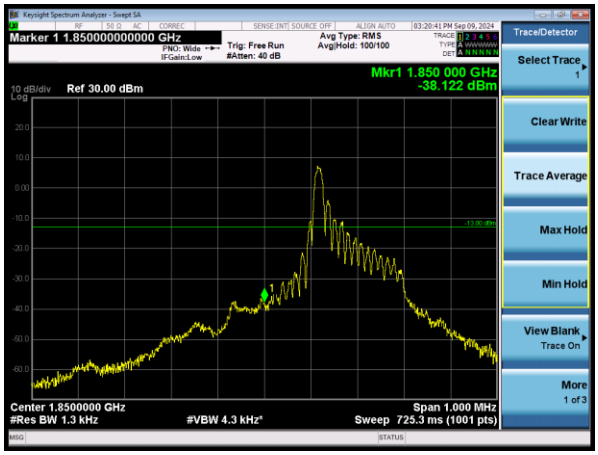


NB-IoT Band 2 QPSK 3.75kHz 1@0 CH-Low

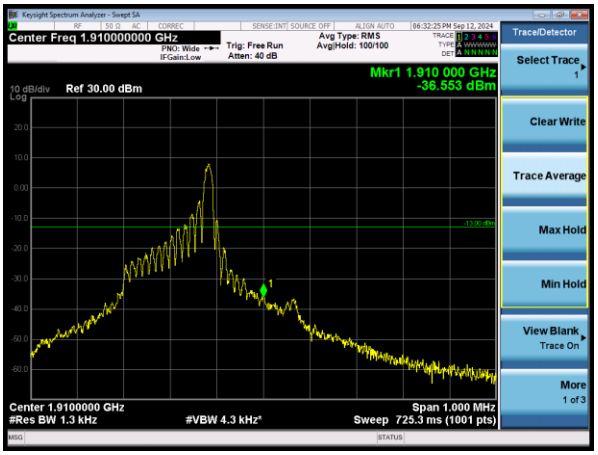
NB-IoT Band 2 QPSK 3.75kHz 1@47 CH-High



NB-IoT Band 2 QPSK 15kHz 1@0 CH-Low



NB-IoT Band 2 QPSK 15kHz 1@11 CH-High



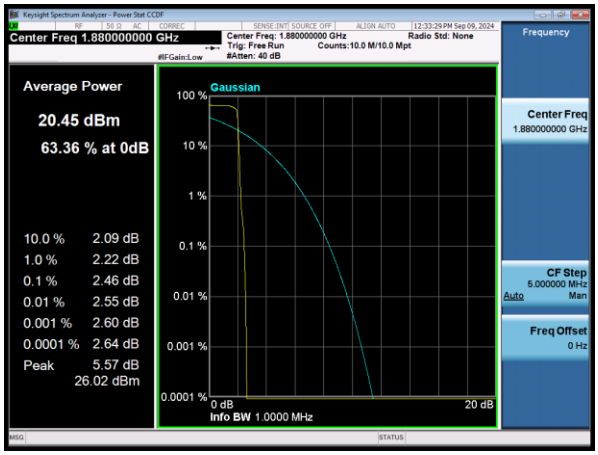
NB-IoT Band 2 QPSK 15kHz 12@0 CH-Low

NB-IoT Band 2 QPSK 15kHz 12@0 CH-High

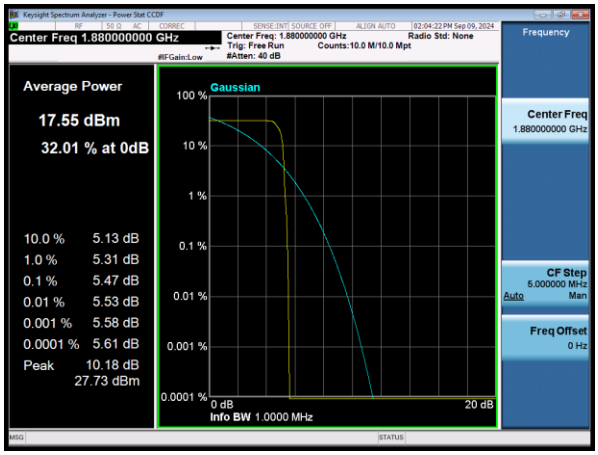
6.4. Peak-to-Average Power Ratio (PAPR)

Mode	Modulation	Sub-carrier spacing (KHz)	Channel/ Frequency(MHz)	Peak-to-Average Power Ratio (PAPR)		
				Peak(dBm)	Avg(dBm)	PAPR(dB)
Band 2 Standalone	BPSK	3.75	18900/1880.0	22.91	20.45	2.46
	QPSK	3.75	18900/1880.0	22.84	20.49	2.35
	BPSK	15	18900/1880.0	23.02	17.55	5.47
	QPSK	15	18900/1880.0	22.95	17.58	5.37

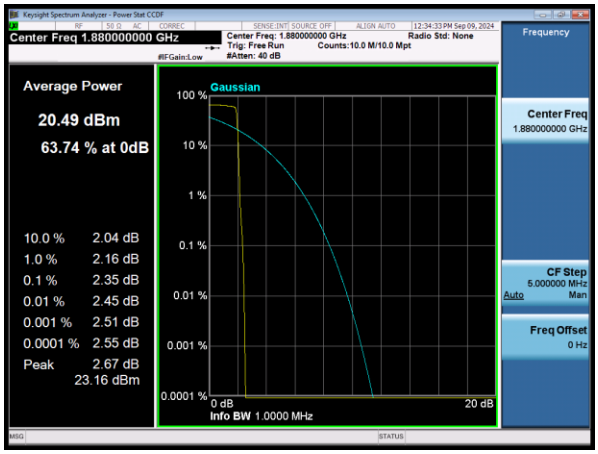
NB-IoT Band 2 BPSK 3.75kHz



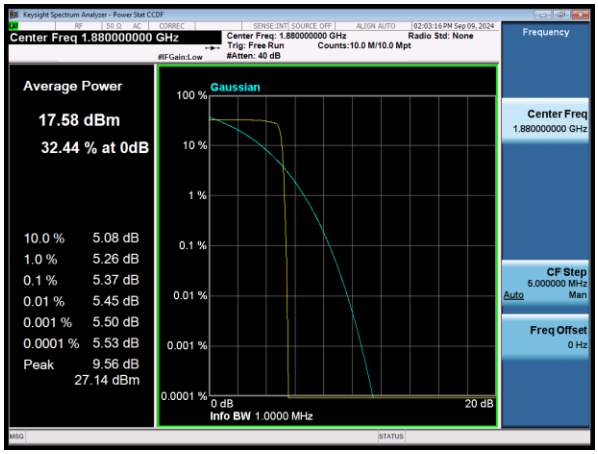
NB-IoT Band 2 BPSK 15kHz



NB-IoT Band 2 QPSK 3.75kHz



NB-IoT Band 2 QPSK 15kHz



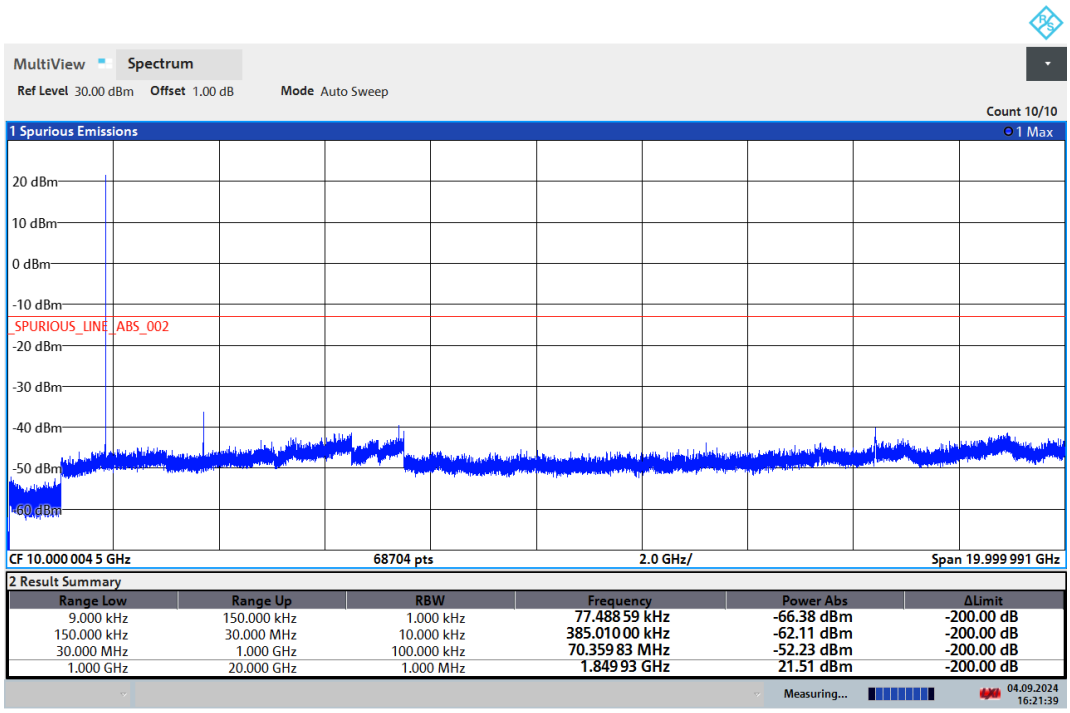
6.5. Frequency Stability

	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	3.75					
	Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
BAND2	Normal (25℃)	Normal	16.71	8.37	0.00889	0.00445	PASS
	Extreme (50℃)		11.08	2.40	0.00589	0.00128	PASS
	Extreme (40℃)		15.79	10.72	0.00840	0.00570	PASS
	Extreme (30℃)		13.26	3.46	0.00705	0.00184	PASS
	Extreme (20℃)		10.31	17.01	0.00548	0.00905	PASS
	Extreme (10℃)		14.49	7.94	0.00771	0.00422	PASS
	Extreme (0℃)		11.84	10.49	0.00630	0.00558	PASS
	Extreme (-10℃)		4.61	15.51	0.00245	0.00825	PASS
	Extreme (-20℃)		6.79	15.09	0.00361	0.00803	PASS
	Extreme (-30℃)		5.50	14.47	0.00292	0.00770	PASS
	25℃	LV	5.25	4.02	0.00279	0.00214	PASS
		HV	14.08	15.48	0.00749	0.00824	PASS
	Condition		Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
	BANDWIDTH	15					
	Temperature	Voltage	BPSK	QPSK	BPSK	QPSK	
BAND2	Normal (25℃)	Normal	14.85	5.52	0.00790	0.00294	PASS
	Extreme (50℃)		13.07	14.02	0.00695	0.00746	PASS
	Extreme (40℃)		7.81	7.88	0.00416	0.00419	PASS
	Extreme (30℃)		11.91	2.98	0.00634	0.00159	PASS
	Extreme (20℃)		14.66	12.52	0.00780	0.00666	PASS
	Extreme (10℃)		15.60	12.99	0.00830	0.00691	PASS
	Extreme (0℃)		14.49	15.23	0.00771	0.00810	PASS
	Extreme (-10℃)		14.28	7.47	0.00760	0.00397	PASS
	Extreme (-20℃)		15.35	13.25	0.00816	0.00705	PASS
	Extreme (-30℃)		13.54	14.86	0.00720	0.00790	PASS
	25℃	LV	16.71	4.01	0.00889	0.00213	PASS
		HV	5.97	2.24	0.00317	0.00119	PASS

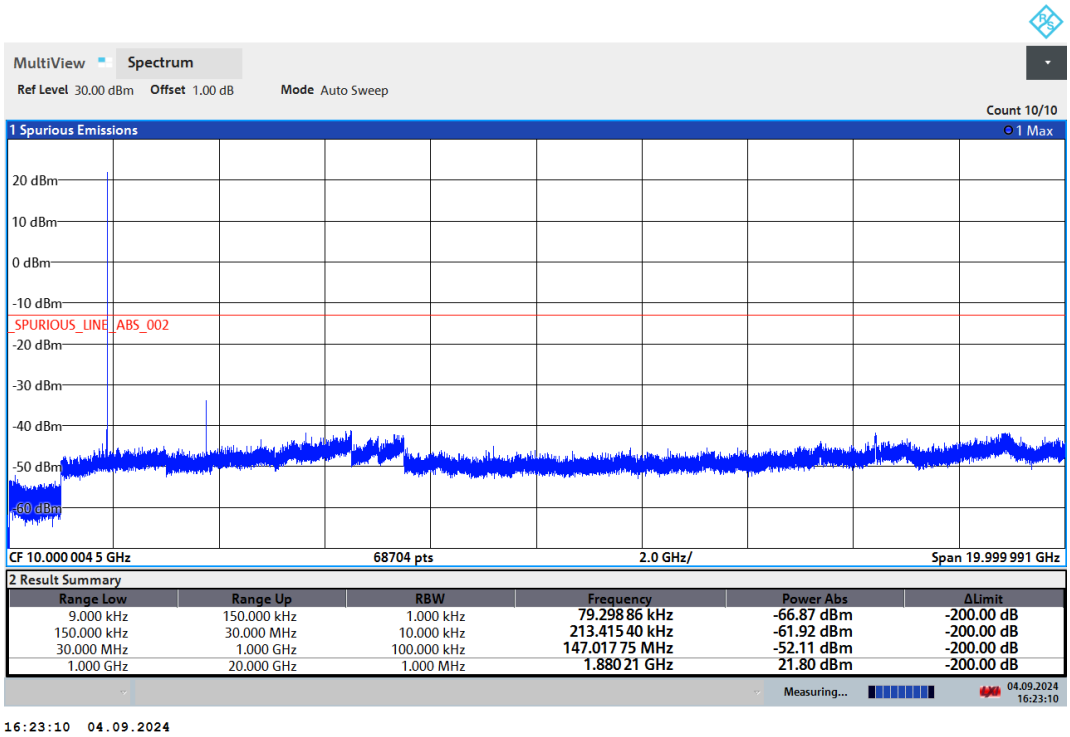
6.6. Spurious Emissions at Antenna Terminals

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.

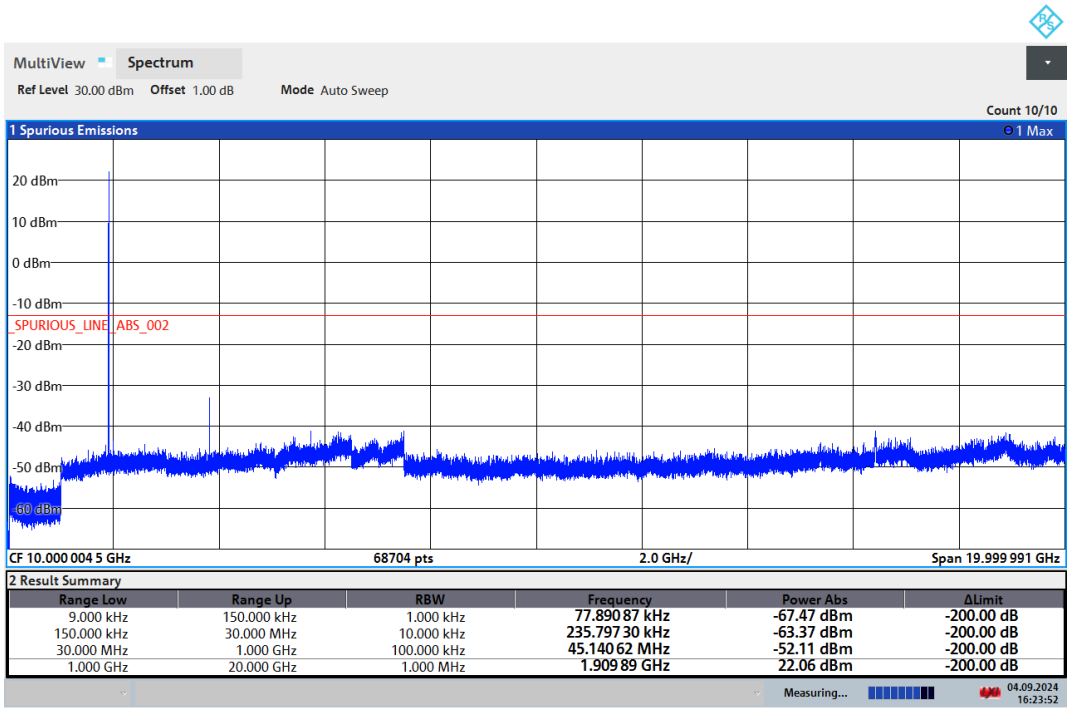
NB-IoT Band 2 CH-Low



NB-IoT Band 2 CH-Middle



NB-IoT Band 2 CH-High



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.

NB-IoT Band 2 QPSK 3.75MHz CH-Low

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3700.00	-43.05	2.60	12.50	Horizontal	-33.15	-13.00	20.15	14
3	5550.10	-49.29	3.30	12.50	Horizontal	-40.09	-13.00	27.09	23
4	7400.00	-40.67	4.20	12.20	Horizontal	-32.67	-13.00	19.67	78
5	9250.50	-54.09	4.30	11.10	Horizontal	-47.29	-13.00	34.29	62
6	11100.60	-53.20	5.90	11.90	Horizontal	-47.20	-13.00	34.20	14
7	12950.70	-55.29	5.70	14.00	Horizontal	-46.99	-13.00	33.99	236
8	14800.80	-54.24	5.80	13.10	Horizontal	-46.94	-13.00	33.94	47
9	16650.90	-57.76	6.10	14.60	Horizontal	-49.26	-13.00	36.26	142
10	18501.00	/	/	/	/	/	/	/	/
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

NB-IoT Band 2 QPSK 3.75MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3759.80	-41.20	2.60	12.50	Horizontal	-31.30	-13.00	18.30	23
3	5639.70	-55.35	3.30	12.50	Horizontal	-46.15	-13.00	33.15	214
4	7519.80	-44.88	4.20	12.20	Horizontal	-36.88	-13.00	23.88	26
5	9400.00	-54.88	4.30	11.10	Horizontal	-48.08	-13.00	35.08	0
6	11280.00	-53.07	5.90	11.90	Horizontal	-47.07	-13.00	34.07	90
7	13160.00	-53.06	5.70	14.00	Horizontal	-44.76	-13.00	31.76	45
8	15040.00	-56.25	5.80	13.10	Horizontal	-48.95	-13.00	35.95	2
9	16920.00	-55.02	6.10	14.60	Horizontal	-46.52	-13.00	33.52	41
10	18800.00	/	/	/	/	/	/	/	/
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

NB-IoT Band 2 QPSK 3.75MHz CH-High

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	Result Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3819.60	-38.48	2.60	12.50	Horizontal	-28.58	-13.00	15.58	25
3	5729.30	-57.83	3.30	12.50	Horizontal	-48.63	-13.00	35.63	14
4	7639.60	-52.18	4.20	12.20	Horizontal	-44.18	-13.00	31.18	78
5	9549.50	-56.68	4.30	11.10	Horizontal	-49.88	-13.00	36.88	2
6	11459.40	-52.54	5.90	11.90	Horizontal	-46.54	-13.00	33.54	175
7	13369.30	-52.75	5.70	14.00	Horizontal	-44.45	-13.00	31.45	23
8	15279.20	-58.46	5.80	13.10	Horizontal	-51.16	-13.00	38.16	41
9	17189.10	-55.41	6.10	14.60	Horizontal	-46.91	-13.00	33.91	58
10	19099.00	/	/	/	/	/	/	/	/

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

7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Climate Chamber	WEISS	VT 4002	582261194500 10	2024-05-07	2025-05-06
Spectrum Analyzer	Keysight	N9020A	MY50510203	2024-05-07	2025-05-06
Wireless Communication Tester	StarPoint	SP8315	SP8315-1225	2024-05-08	2025-05-07
DC Power Supply	UNI-T	UTP1310+	C220795889	2024-05-08	2025-05-07
Spectrum Analyzer	R&S	FSV3030	101411	2023-12-05	2024-12-04
Attenuator	HASCO	HA18A-10	0003	/	/
Spectrum Analyzer	R&S	FSV30	104028	2024-05-07	2025-05-06
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	1439	2024-07-06	2027-07-05
Horn Antenna	SCHWARZBECK	BBHA 9120D	01799	2022-09-01	2025-08-31
Software	R&S	EMC32	10.35.10	/	/

ANNEX A: The EUT Appearance

The EUT Appearance is submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos is submitted separately.

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