

TEST REPORT

Application No.: SUCR2603000246MO
FCC ID: XMR25FCS962NLP
Applicant: Quectel Wireless Solutions Co., Ltd.
Address of Applicant: No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Manufacturer: Quectel Wireless Solutions Co., Ltd.
Address of Manufacturer: No. 8 Waipojing Road, Sijing Town, Songjiang District, Shanghai 201601, China
Equipment Under Test (EUT):
EUT Name: Wi-Fi & Bluetooth Module
Model No.: FCS962N-LP
Trade Mark: QUECTEL
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2026-03-24
Date of Test: 2026-03-30 to 2026-04-17
Date of Issue: 2026-04-21

Test Result:
Pass*

* In the configuration tested, the EUT complied with the standards specified above.

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Revision Record			
Version	Description	Date	Remark
00	Original	2026-04-21	/

Authorized for issue by:			
Tested By		Nature Shen	
		Nature Shen/Project Engineer	
Approved By		Cedar cheng	
		Cedar Cheng /Reviewer	

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Pass
Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence		N/A	47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2020) Section 6.10.5 & 7.8.8	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2020) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2020) Section 6.6 & 7.8.8	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Maximum Conducted Output Power		ANSI C63.10 (2020) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(1)	Pass
20dB Bandwidth		ANSI C63.10 (2020) Section 6.9.2	47 CFR Part 15, Subpart C 15.247(a)(1)	Reference report PD20240166-R3A
Carrier Frequencies Separation		ANSI C63.10 (2020) Section 7.8.2	47 CFR Part 15, Subpart C 15.247a(1)	Reference report PD20240166-R3A
Hopping Channel Number		ANSI C63.10 (2020) Section 7.8.3	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Reference report PD20240166-R3A
Dwell Time		ANSI C63.10 (2020) Section 7.8.4	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Reference report PD20240166-R3A
Conducted Band Edges Measurement		ANSI C63.10 (2020) Section 7.8.7.2	47 CFR Part 15, Subpart C 15.247(d)	Reference report PD20240166-R3A
Conducted Spurious Emissions		ANSI C63.10 (2020) Section 7.8.7	47 CFR Part 15, Subpart C 15.247(d)	Reference report PD20240166-R3A

Remark:

This test report (Report No.: SUCR260300024602 issue on 2026/04/21) is based on the original test report (Report No.: PD20240166-R3A issue on 2025/03/04).

Review this report and original report, this report just changing the parts according to the declaration letter from client.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report only Radiated Emissions which fall in the restricted bands, Radiated Spurious Emissions and Maximum Conducted Output Power were performed based on the worst case of the original report with report number PD20240166-R3A issue on 2025/03/04 and other test data in this report are based on the previous report with report number PD20240166-R3A issue on 2025/03/04.

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4 General Information

4.1 Details of E.U.T.

Power supply:	3.3V
Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK, pi/4DQPSK, 8DPSK
Number of Channels:	79
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Antenna Type:	PIFA Antenna
Antenna Number:	1
Hardware Version:	R1.0
Software Version:	/
SN:	D1825FN0N001966; D1825FN0N001955
Antenna Gain:	0.50dBi (Provided by the manufacturer)

4.2 Environment Parameter

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	25	3.3
Note: NV:Normal Voltage LV:Low Extreme Test Voltage HV:High Extreme Test Voltage NT:Normal Temperature LT:Low Extreme Test Temperature HT:High Extreme Test Temperature		

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Computer	Lenovo	T14	2YK6GR
Mouse	Lenovo	3D optical Mouse	N/A

4.4 Measurement Uncertainty & Decision Rule

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 3\%$
4	Conduction emission	$\pm 3.0\text{dB}$ (150kHz to 30MHz)
5	RF conducted power	$\pm 0.75\text{dB}$
6	RF power density	$\pm 2.84\text{dB}$
7	Conducted Spurious emissions	$\pm 0.75\text{dB}$
8	RF Radiated power	$\pm 1.56\text{dB}$ (9KHz-30MHz)
		$\pm 4.80\text{dB}$ (30MHz-1GHz)
		$\pm 4.80\text{dB}$ (1GHz-18GHz)
		$\pm 4.80\text{dB}$ (18GHz-40GHz)
9	Temperature test	$\pm 1^\circ\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1\%$
12	Time	$\pm 3\%$
Remark: The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results – compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit; – non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.		

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu)
Pilot Free Trade Zone

No tests were sub-contracted.

Note:

- 1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
- 2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).
3. Sample source: sent by customer.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 6336.01)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.is accredited by the American Association for Laboratory Accreditation (A2LA).

- **FCC (Designation Number: CN1312)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized as an accredited testing laboratory. Test Firm Registration Number:717327

- **ISED (CAB Identifier: CN0120)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 27594

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None

5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/14/2026	1/13/2027
2	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-15	11/21/2025	11/20/2026
3	MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	1/14/2026	1/13/2027
4	Signal Generator	ROHDE&SCHWARZ	SMW200A	SUWI-01-07-08	1/14/2026	1/13/2027
5	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-08-01	1/14/2026	1/13/2027
6	MXG Vector Signal Generator	ROHDE&SCHWARZ	SMR20	SUWI-01-33-01	11/21/2025	11/20/2026
7	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-13	5/8/2025	5/7/2026
8	Wideband Radio Communication Test Station	Anritsu	MT8000A	SUWI-01-34-02	11/21/2025	11/20/2026
9	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	11/21/2025	11/20/2026
10	Power meter	Anritsu	ML2495A	SUWI-01-31-01	11/21/2025	11/20/2026
11	Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	11/21/2025	11/20/2026
12	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/14/2026	1/13/2027
13	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2/11/2026	2/10/2027
14	Temperature Chamber	GIANT FORCE	ICT-017-40-SP-SD	SUWI-01-13-02	5/7/2025	5/6/2026
15	Measurement Software	TST	TST 272 V2.02	SUWI-03-55-03	NCR	NCR
16	RF Control unit	TST	TSCB3023R2	SUWI-02-20-01	NCR	NCR
17	RFCables	Tonscend	NA	SUWI-01-03-01	1/15/2026	1/14/2027
RF Radiated Test						
1	Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-01	6/3/2023	6/2/2026
2	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/14/2026	1/13/2027
3	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-09	11/21/2025	11/20/2026
4	Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	1/14/2026	1/13/2027
5	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-18-01	1/14/2026	1/13/2027
6	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	VULB 9168	SUWI-01-11-04	9/10/2025	9/9/2027
7	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9120D	SUWI-01-11-02	5/7/2025	5/6/2027
8	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	BBHA 9170	SUWI-01-11-03	5/7/2025	5/6/2027
9	Active Loop Antenna	SCHWRZBECK MESS-	FMZB 1519B	SUWI-01-21-01	5/7/2025	5/6/2027

		ELEKTRONIK				
10	Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	1/14/2026	1/13/2027
11	Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	1/14/2026	1/13/2027
12	Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	1/14/2026	1/13/2027
13	Wideband Radio Communication Tester	Anritsu	MT8820C	SUWI-01-26-01	11/21/2025	11/20/2026
14	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	8/25/2025	8/24/2026
15	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-09	8/26/2025	8/25/2026
16	Radio Communication Analyzer	StarPoint	SP9500E	SUWI-01-28-02	11/21/2025	11/20/2026
17	Signal Generator	ROHDE&SCHWARZ	SMB100A	SUWI-01-08-01	1/14/2026	1/13/2027
18	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/14/2026	1/13/2027
19	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-05	2/11/2026	2/10/2027
20	Measurement Software	Tonscend	JS32-RE 4.0.0.0	SUWI-02-09-06	NCR	NCR
21	RF Control unit	Tonscend	JS0806-1	SUWI-02-20-01	NCR	NCR
22	RFCables	Tonscend	NA	SUWI-01-03-02	NCR	NCR

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard Requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b)(4) requirement: The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is PIFA antenna and no consideration of replacement. The best case gain of the antenna is 0.50dBi.

Antenna location: Refer to internal photo.

6.2 Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)

6.2.2 Conclusion

Standard Requirement: The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals. Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section. The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted. Compliance for section 15.247(a)(1): According to Technical Specification, the pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones. > Number of shift register stages: 9 > Length of pseudo-random sequence: $2^9 - 1 = 511$ bits > Longest sequence of zeros: 8 (non-inverted signal) Linear Feedback Shift Register for Generation of the PRBS sequence An example of Pseudorandom Frequency Hopping Sequence as follow: Each frequency used equally on the average by each transmitter. According to Technical Specification, the receivers are designed to have input and IF bandwidths that match the hopping channel bandwidths of any transmitters and shift frequencies in synchronization with the transmitted signals. Compliance for section 15.247(g): According to Technical Specification, the system transmits the packet with the pseudorandom hopping frequency with a continuous data and the short burst transmission from the Bluetooth system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system. Compliance for section 15.247(h): According to Technical specification, the system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the occupied channels. The system is designed not have the ability to coordinated with other FHSS System in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitter.

7 Radio Spectrum Matter Test Results

7.1 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.10.5 & 7.8.8

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C

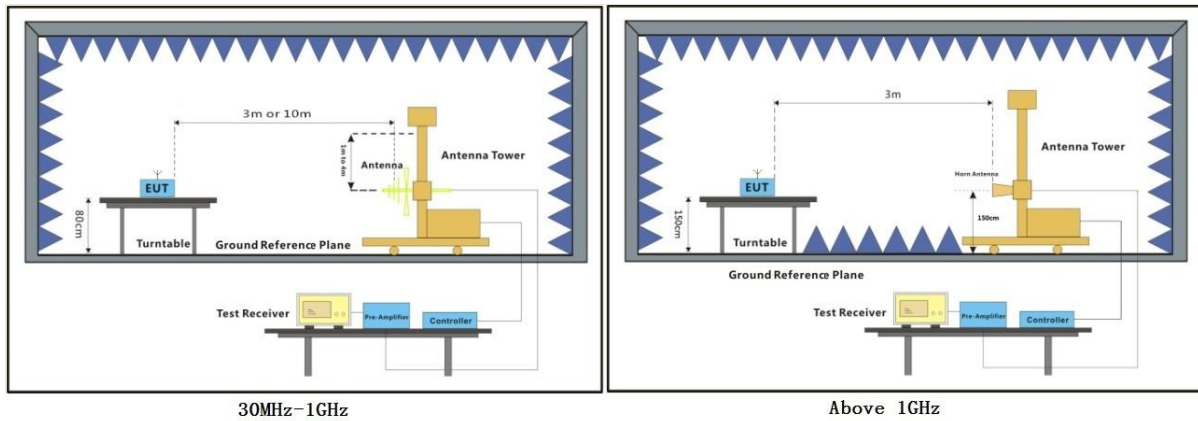
Humidity: 42 % RH

Atmospheric Pressure: 1001 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_non-Hop mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

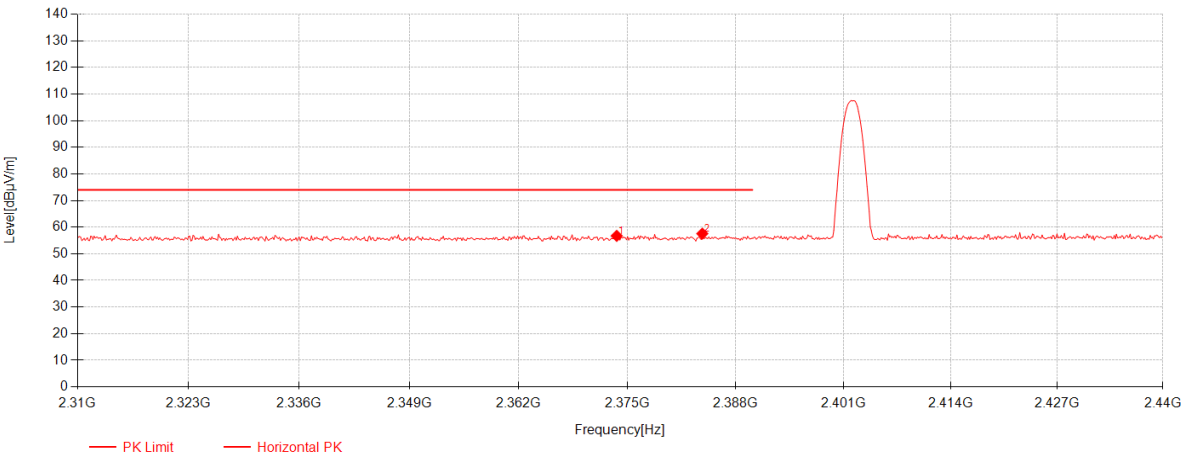
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

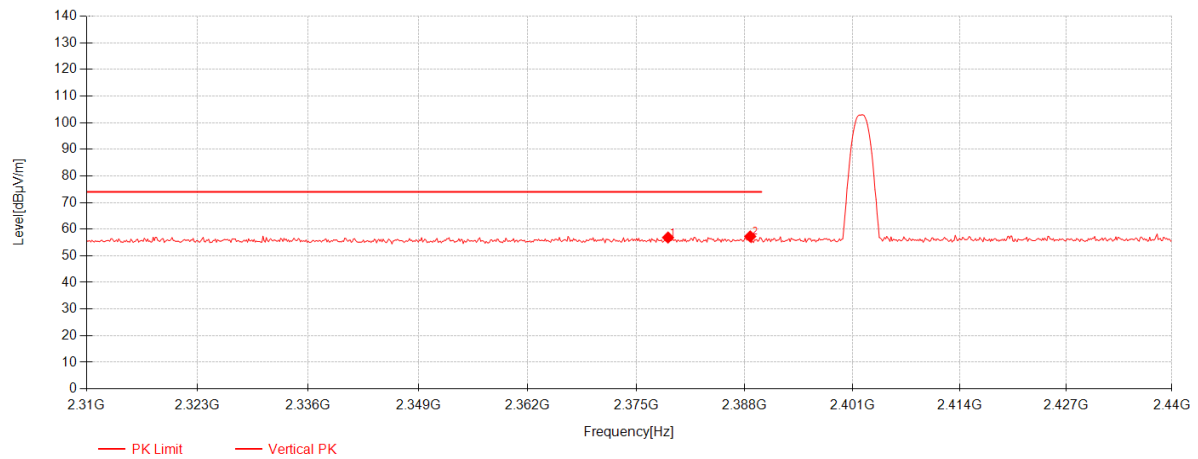
Remark 4: For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

BT_DH5_TX_CH_00_Horizontal



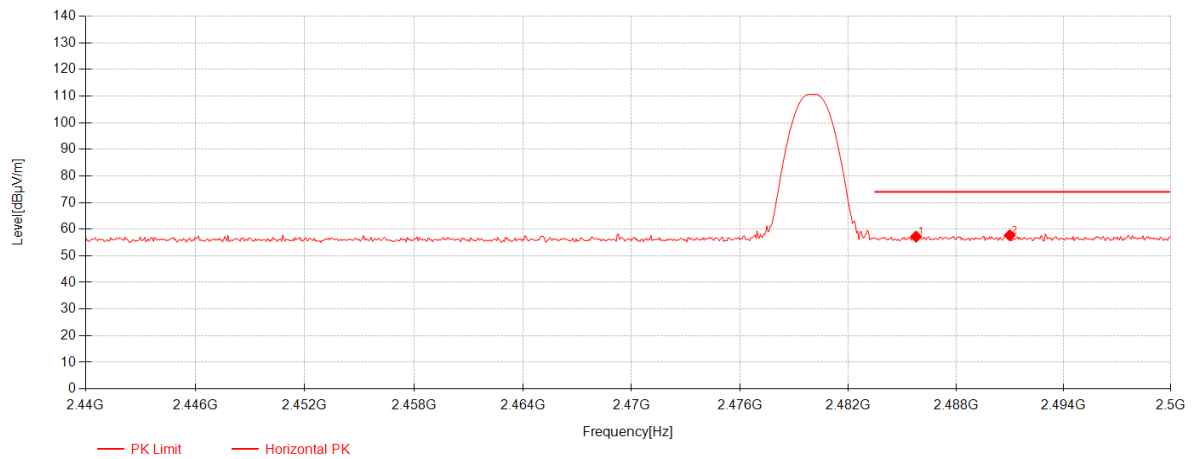
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2373.7	47.06	27.25	-17.58	56.73	74.00	17.27	Horizontal
2	2383.97	47.92	27.23	-17.57	57.58	74.00	16.42	Horizontal

BT_DH5_TX_CH_00_Vertical



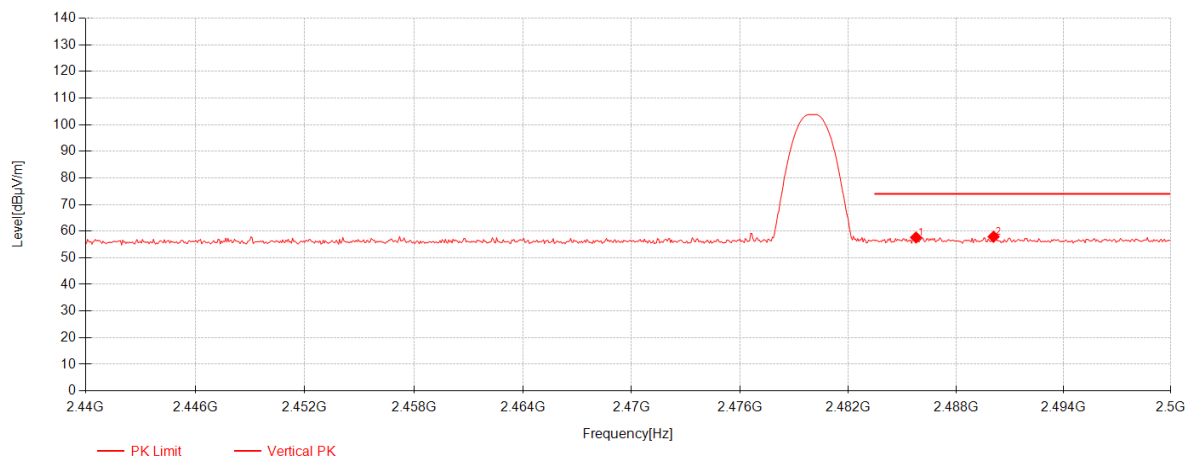
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2378.77	47.20	27.24	-17.57	56.87	74.00	17.13	Vertical
2	2388.65	47.61	27.22	-17.56	57.27	74.00	16.73	Vertical

BT_DH5_TX_CH_78_Horizontal



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2485.78	47.11	27.64	-17.55	57.20	74.00	16.80	Horizontal
2	2491	47.59	27.66	-17.55	57.70	74.00	16.30	Horizontal

BT_DH5_TX_CH_78_Vertical



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2485.78	47.55	27.64	-17.55	57.64	74.00	16.36	Vertical
2	2490.1	47.80	27.66	-17.55	57.91	74.00	16.09	Vertical

7.2 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.4,6.5

Limit:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	Field strength (dBμV/m@3m)
0.009-0.490	2400/F(kHz)	300	128.5 to 93.8
0.490-1.705	24000/F(kHz)	30	73.8 to 62.9
1.705-30.0	30	30	69.60
30-88	100	3	40.0
88-216	150	3	43.5
216-960	200	3	46.0
960-1000	500	3	54.0

Note : The above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C

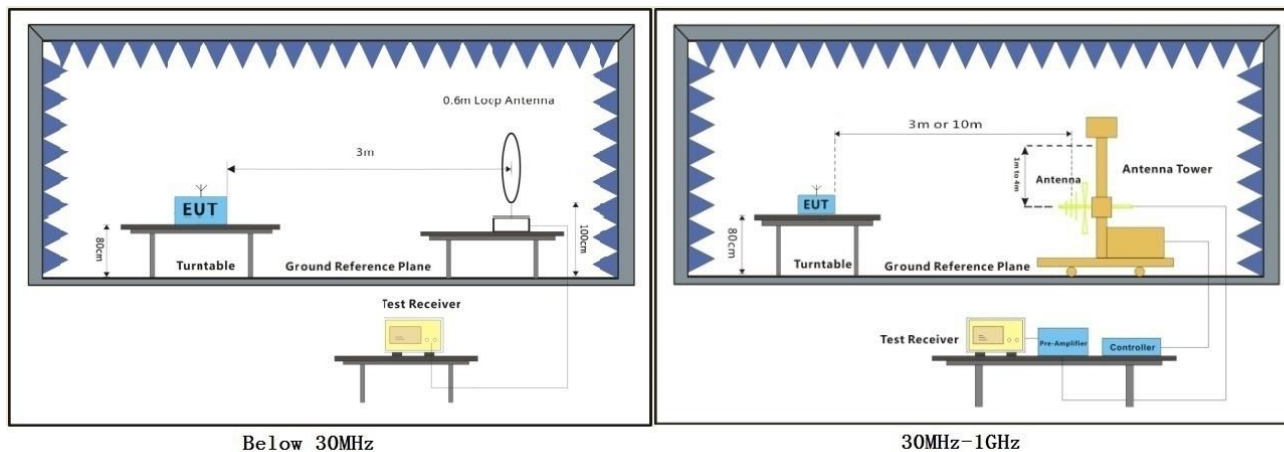
Humidity: 44 % RH

Atmospheric Pressure: 1001 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_non-Hop mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8m above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3m or 10m away from the interference-receiving antenna, which was mounted on the variable-height antenna tower.
- c. The antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1m) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. At frequencies below 1GHz, measurements may be performed at a distance different to specified in the regulations.

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

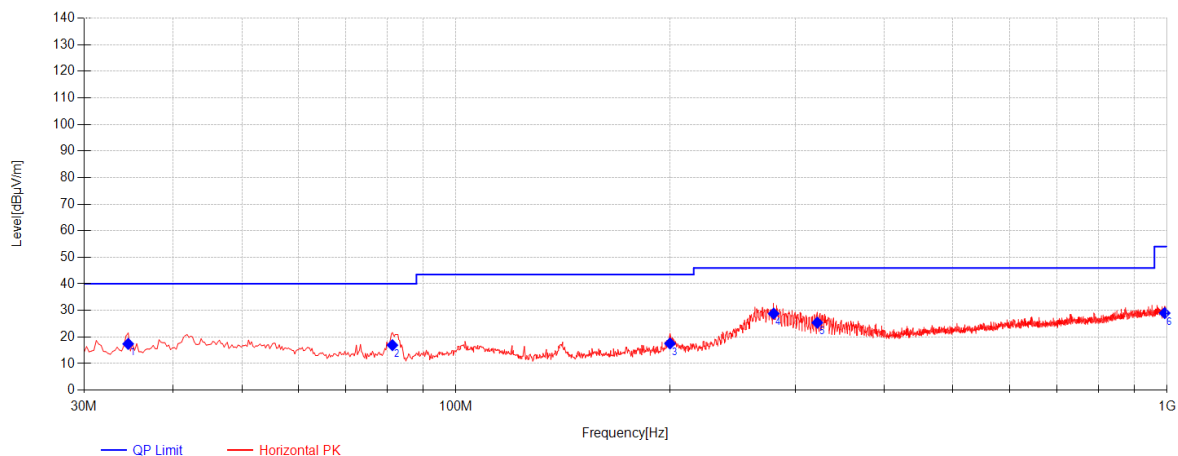
EX. Below 30MHz, Aux Factor = 40 dB/decade of distance, the aux factor is $40\log(3/300) = -80\text{dB}$ (for 3m test distance).

EX. Above 30MHz, Aux Factor = 20 dB/decade of distance, the aux factor is $20\log(10/3) = 10.46\text{dB}$ (for 10m test distance).

2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the worst-case test curve is displayed.

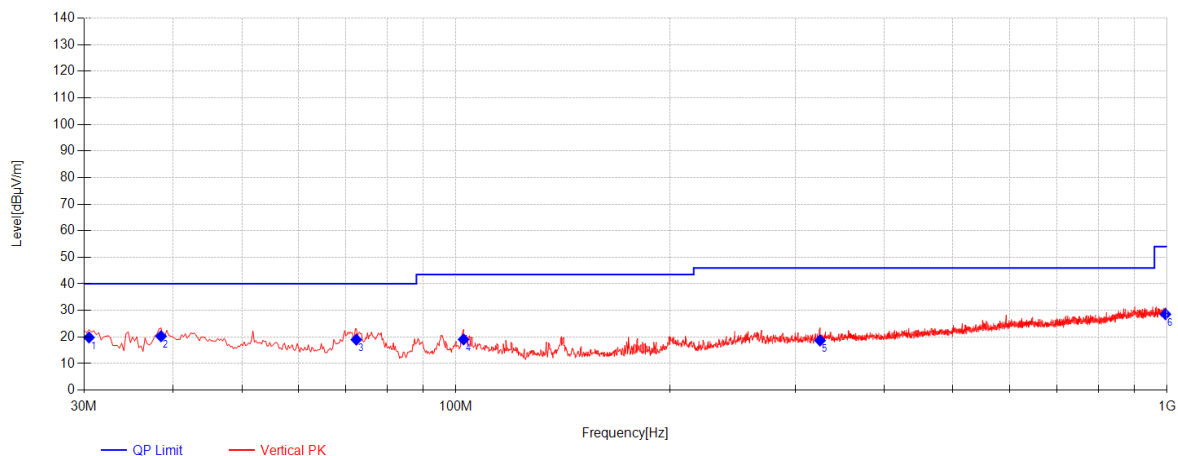
Test Mode: 00; Polarity: Horizontal



Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	34.6075	41.23	17.48	-41.30	17.41	40.00	22.59	189	33	Horizontal
2	81.41	43.35	14.14	-40.56	16.93	40.00	23.07	176	33	Horizontal
3	199.9925	35.25	21.58	-39.27	17.56	43.50	25.94	200	84	Horizontal
4	279.775	48.16	19.00	-38.36	28.80	46.00	17.20	117	78	Horizontal
5	322.2125	43.73	19.79	-38.13	25.39	46.00	20.61	103	96	Horizontal
6	992.24	34.89	27.88	-33.77	29.00	54.00	25.00	190	338	Horizontal

Test Mode: 00; Polarity: Vertical



Final Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	30.485	44.41	16.79	-41.38	19.82	40.00	20.18	176	284	Vertical
2	38.4875	42.84	18.65	-41.22	20.27	40.00	19.73	188	0	Vertical
3	72.4375	43.67	16.07	-40.75	18.99	40.00	21.01	103	196	Vertical
4	102.5075	41.66	17.75	-40.33	19.08	43.50	24.42	146	247	Vertical
5	325.1225	36.92	19.90	-38.14	18.68	46.00	27.32	125	213	Vertical
6	994.9075	34.21	28.09	-33.74	28.56	54.00	25.44	111	161	Vertical

7.3 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.6 & 7.8.8

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

Note:

At Above 18GHz, measurements may be performed at a distance shorter than that specified in the regulations

Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor+ Aux Factor (if applicable)

The aux factor needs to be added when measurements are performed at a distance other than the limit distance provided.

EX. Above 18GHz, Aux Factor = 20 dB/decade of distance, the aux factor is $20\log(1/3) = -9.54\text{dB}$ (for 1m test distance).

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C

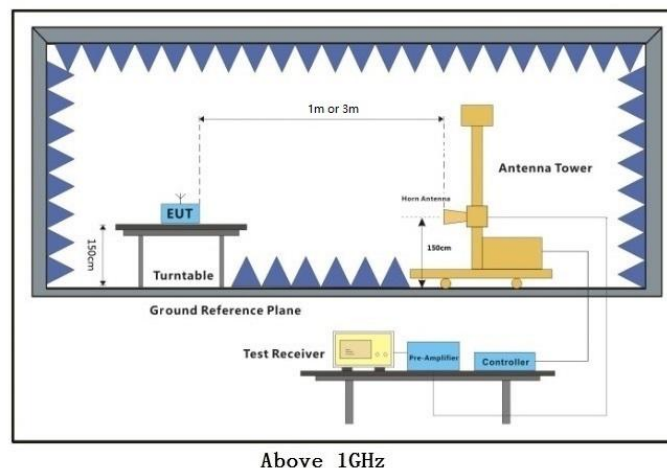
Humidity: 41 % RH

Atmospheric Pressure: 1001 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_non-Hop mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



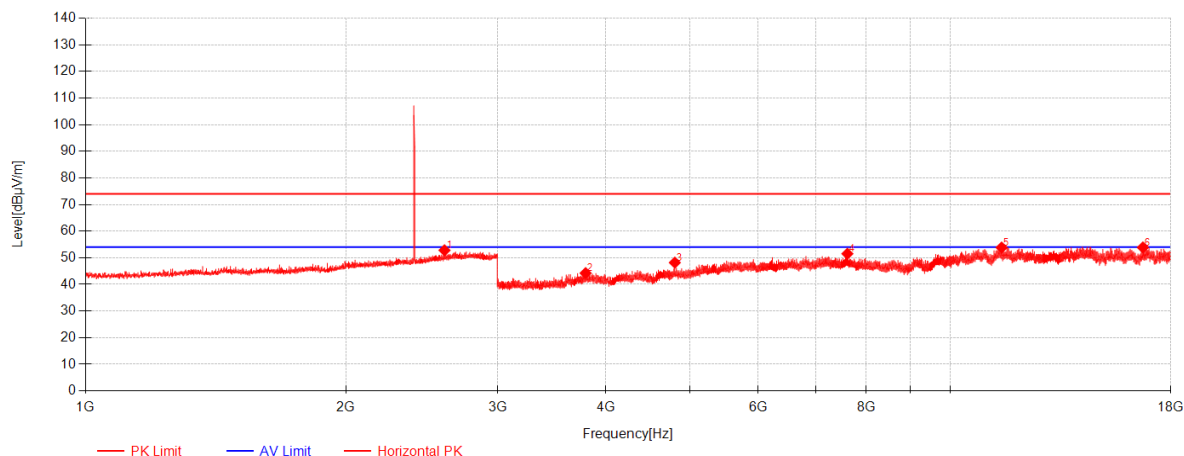
7.3.4 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5m above the ground at a 3m fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3m away from the interference-receiving antenna from 1GHz to 18GHz, and 1m away from the interference-receiving antenna above 18GHz.
- b. The interference-receiving antenna was mounted on the variable-height antenna tower, with its boresight facing the EUT throughout the test.
- c. The antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1m to 4m and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- g. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- h. Repeat above procedures until all frequencies measured was complete.

Remark:

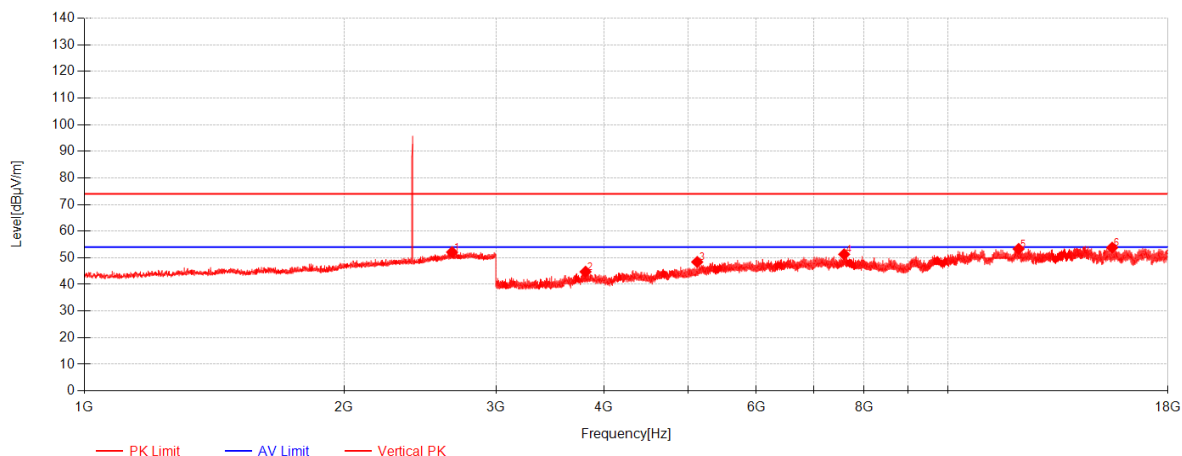
1. Scan from 1GHz to 10th harmonic of the highest frequency or 40 GHz, whichever is lower.
2. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
3. For the frequency above 18GHz, testing had been executed under all test modes, only the worst-case test curve is displayed in the report.
4. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst-case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.

BT_DH5_TX_CH_00_Horizontal



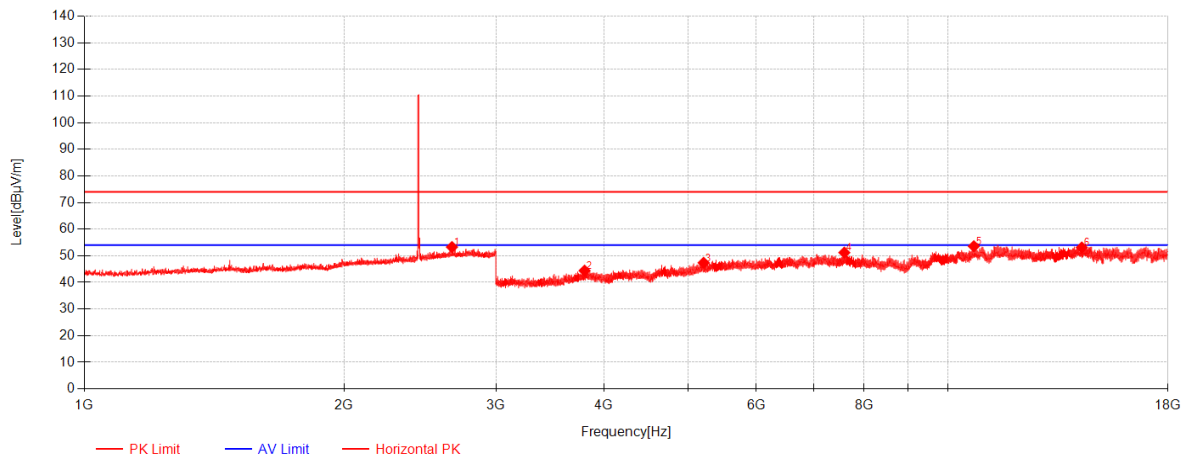
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2602	41.98	28.10	-17.27	52.81	74.00	21.19	Horizontal
2	3788.25	58.13	29.67	-43.56	44.24	74.00	29.76	Horizontal
3	4804.125	59.14	31.08	-42.03	48.19	74.00	25.81	Horizontal
4	7606.5	55.18	36.89	-40.55	51.52	74.00	22.48	Horizontal
5	11467.875	53.98	40.53	-40.68	53.83	74.00	20.17	Horizontal
6	16705.125	52.28	39.71	-38.12	53.87	74.00	20.13	Horizontal

BT_DH5_TX_CH_00_Vertical



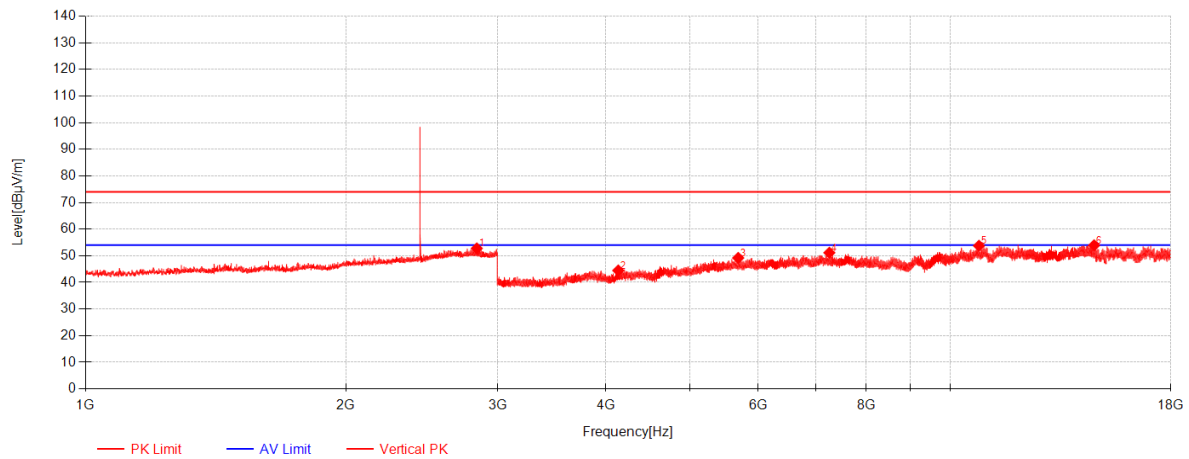
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2667.5	41.17	28.17	-17.23	52.11	74.00	21.89	Vertical
2	3807.75	58.71	29.57	-43.53	44.75	74.00	29.25	Vertical
3	5129.25	57.99	31.98	-41.55	48.42	74.00	25.58	Vertical
4	7588.875	55.04	36.86	-40.60	51.30	74.00	22.70	Vertical
5	12086.25	53.62	39.81	-40.10	53.33	74.00	20.67	Vertical
6	15507.375	51.87	39.17	-37.24	53.80	74.00	20.20	Vertical

BT_DH5_TX_CH_39_Horizontal



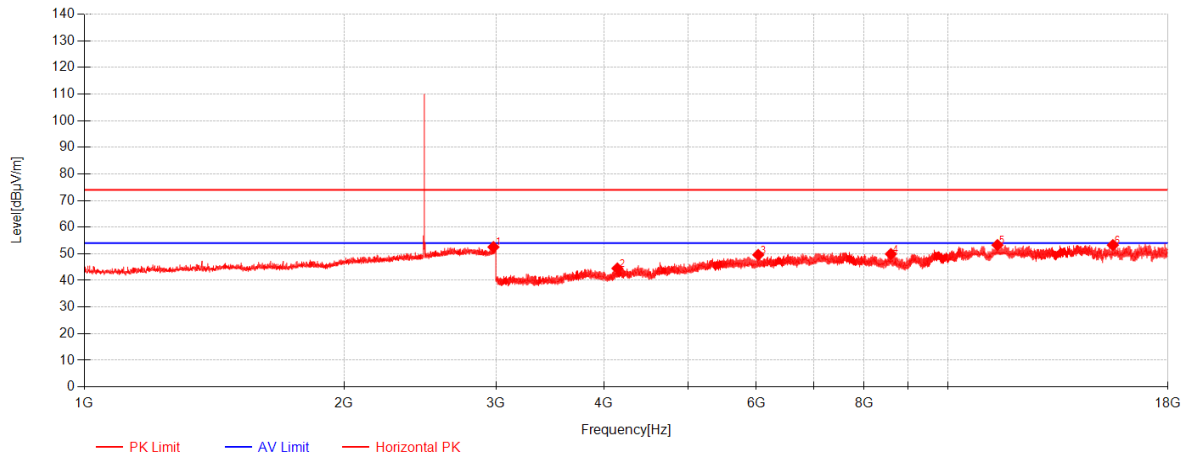
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2666.5	42.33	28.17	-17.23	53.27	74.00	20.73	Horizontal
2	3798	58.34	29.61	-43.54	44.41	74.00	29.59	Horizontal
3	5217	56.57	32.10	-41.31	47.36	74.00	26.64	Horizontal
4	7592.625	54.92	36.87	-40.59	51.20	74.00	22.80	Horizontal
5	10724.625	54.64	39.22	-40.29	53.57	74.00	20.43	Horizontal
6	14303.25	52.02	41.90	-40.81	53.11	74.00	19.89	Horizontal

BT_DH5_TX_CH_39_Verical



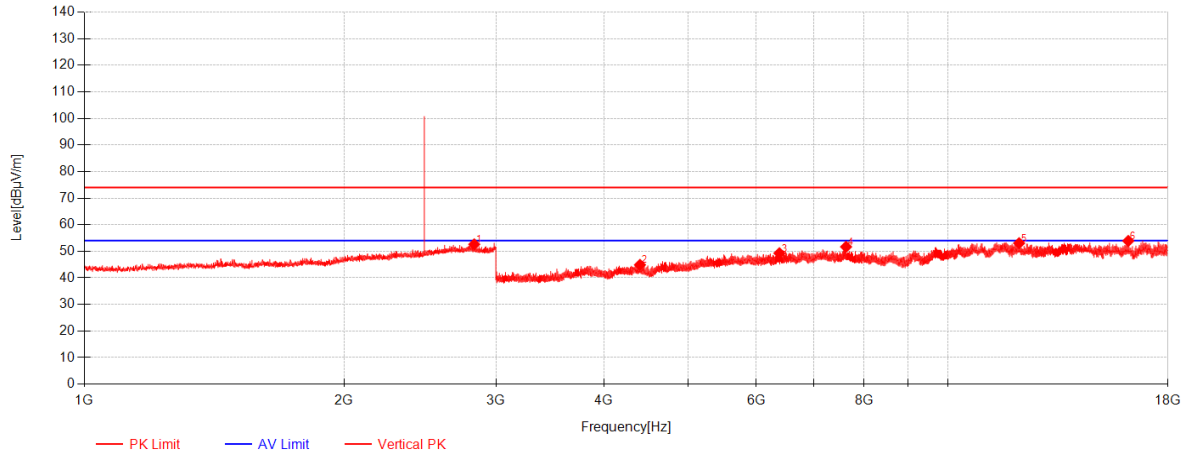
Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2835.5	40.82	28.57	-16.61	52.78	74.00	21.22	Vertical
2	4133.25	58.08	29.47	-43.08	44.47	74.00	29.53	Vertical
3	5688	56.73	32.80	-40.34	49.19	74.00	24.81	Vertical
4	7249.875	54.95	36.60	-40.41	51.14	74.00	22.86	Vertical
5	10796.625	54.77	39.30	-40.31	53.76	74.00	20.24	Vertical
6	14671.5	52.87	41.66	-40.59	53.94	74.00	20.06	Vertical

BT_DH5_TX_CH_78_Horizontal



Data List								
NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2979	40.41	28.69	-16.57	52.53	74.00	21.47	Horizontal
2	4145.25	58.07	29.49	-43.06	44.50	74.00	29.50	Horizontal
3	6034.5	57.00	33.11	-40.51	49.60	74.00	24.40	Horizontal
4	8596.875	53.22	36.81	-40.11	49.92	74.00	24.08	Horizontal
5	11422.5	53.07	40.58	-40.37	53.28	74.00	19.72	Horizontal
6	15538.125	51.36	39.05	-37.16	53.25	74.00	19.75	Horizontal

BT_DH5_TX_CH_78_Vertical



Data List

NO.	Frequency [MHz]	Reading [dBμV]	AF [dB/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2830	40.67	28.56	-16.60	52.63	74.00	21.37	Vertical
2	4402.125	57.37	29.92	-42.40	44.89	74.00	29.11	Vertical
3	6385.875	55.71	33.89	-40.34	49.26	74.00	24.74	Vertical
4	7627.875	55.30	36.84	-40.47	51.67	74.00	22.33	Vertical
5	12101.625	53.32	39.80	-40.08	53.04	74.00	19.96	Vertical
6	16189.5	52.18	38.40	-36.69	53.89	74.00	19.61	Vertical

7.4 Maximum Conducted Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(1)

Test Method: ANSI C63.10 (2020) Section 7.8.5

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21 °C

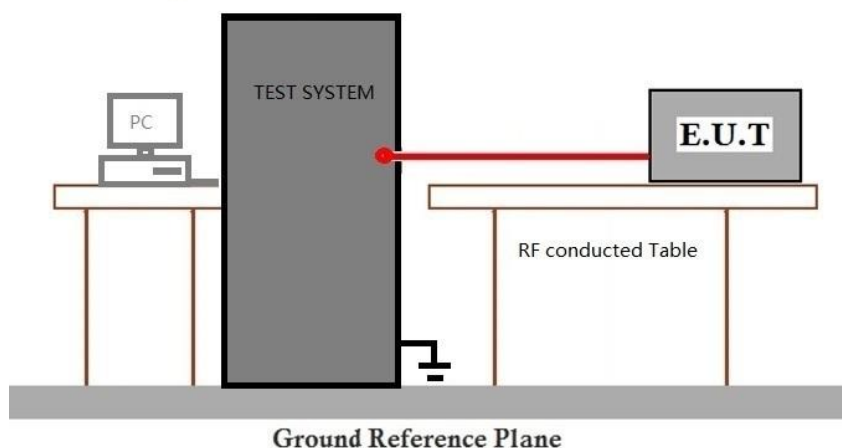
Humidity: 41 % RH

Atmospheric Pressure: 1001 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_non-Hop mode_Keep the EUT in charging and continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for SUCR2603000246MO

9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SUCR2603000246MO

10 Appendix

1. Maximum Conducted Output Power

1.1 Test Result

1.1.1 Power

Mode	TX Type	Frequency (MHz)	Packet Type	Maximum Peak Conducted Output Power (dBm)		Verdict
				ANT1	Limit	
GFSK	SISO	2402	DH5	10.26	≤ 30	Pass
		2441	DH5	9.51	≤ 30	Pass
		2480	DH5	9.04	≤ 30	Pass
Pi/4DQPSK	SISO	2402	2DH5	6.23	≤ 20.97	Pass
		2441	2DH5	7.04	≤ 20.97	Pass
		2480	2DH5	7.02	≤ 20.97	Pass
8DPSK	SISO	2402	3DH5	6.37	≤ 20.97	Pass
		2441	3DH5	7.36	≤ 20.97	Pass
		2480	3DH5	7.34	≤ 20.97	Pass

Note1: Antenna Gain: Ant1: 0.50dBi;

- End of the Report -