

TEST REPORT

APPLICANT

Garmin International Inc

MODEL NAME

A05216

FCC ID

IPH-05216

ISED ID

1792A-05216

REPORT NUMBER

HA2603-0045-R03-01

TEST REPORT

Date of Issue

June 10, 2026

Test Site

HCT America, Inc.
840 Yosemite Way, Milpitas, CA 95035, USA

Applicant	Garmin International Inc
Applicant Address	1200 E. 151 st Street Olathe, Kansas 66062, USA
FCC ID	IPH-05216
ISED ID	1792A-05216
EUT Type	Mobile GNSS navigator with 2.4 GHz and 5 GHz WLAN
Modulation Type	GFSK
FCC Classification	Digital Transmission System (DTS)
FCC Rule Part(s)	Part 15.249
ISED Rule Part(s)	RSS-210 Issue 11 (June 2024) RSS-Gen Issue 5 Amd 2 (February 2021)
Test Procedure	ANSI C63.10-2020, KDB 558074 D01 v05r02

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures required. The results of testing in this report apply only to the product which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Authorized & Released By:



Dan Corona
Technical Manager

Tested By:



Kevin Kim
RF Engineer

REVISION HISTORY

The revision history for this document is shown in table.

TEST REPORT NO.	REVISION	DATE	DESCRIPTION
HA2603-0045-R03	0	May 29, 2026	Initial Issue
HA2603-0045-R03-01	01	June 10, 2026	Updated cover page, and pages 1 & 4 to update FCC and ISSED ID, and added the FVIN

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1. GENERAL INFORMATION

EUT DESCRIPTION

Model	A05216
Product Name	A05216
Serial Number	Conducted: 3526722732 Radiated: 3526722794
Power rating	Normal operation: 10.0 – 24.0 VDC, 2 A USB*: 5 VDC, 3A
RF Specification	Bluetooth 5.0 LE (BR / EDR / 1M / 2M) WIFI 2.4 GHz: 802.11b/g/nHT20 WIFI 5 GHz: 802.11a/n20/n40/ac80
Transmitter Chain	Bluetooth LE / Bluetooth BR/EDR / WIFI 2.4 GHz: SISO WIFI 5 GHz: SISO
Operating Environment	Indoor and outdoor
Operating Temperature	-20 °C ~ 50 °C

NOTE: *The 5 VDC, 3 A supply is via USB and is not used during normal operation.

RF SPECIFICATION SUBJECT TO THE REPORT

RF Specification	ANT
Transmitter Chain	1
Frequency Range	2 400 MHz – 2 483.5 MHz
Max. RF Output Power	Peak: 97.21 dBuV
Modulation Type	GFSK
Antenna Specification ¹⁾	Antenna Type: Inverted-F Peak Gain: 2.11 dBi
Firmware Version ²⁾	1.24
Hardware Version ²⁾	A05216
FVIN	2.14
Date(s) of Tests	March 25, 2026, ~ April 28, 2026
Test Environment	Temperature: 18.9°C ~ 25°C Humidity: 35% ~ 50% R.H.

Note:

1. Antenna information is based on the document provided.
2. Firmware and Hardware Version are as received by the client.

OPERATING FREQUENCY CHANNELS

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2 400	32	2 432	64	2 464	96	2 496
01	2 401	33	2 433	65	2 465	97	2 497
02	2 402	34	2 434	66	2 466	98	2 498
03	2 403	35	2 435	67	2 467	99	2 499
04	2 404	36	2 436	68	2 468	100	2 500
05	2 405	37	2 437	69	2 469	101	2 501
06	2 406	38	2 438	70	2 470	102	2 502
07	2 407	39	2 439	71	2 471	103	2 503
08	2 408	40	2 440	72	2 472	104	2 504
09	2 409	41	2 441	73	2 473	105	2 505
10	2 410	42	2 442	74	2 474	106	2 506
11	2 411	43	2 443	75	2 475	107	2 507
12	2 412	44	2 444	76	2 476	108	2 508
13	2 413	45	2 445	77	2 477	109	2 509
14	2 414	46	2 446	78	2 478	110	2 510
15	2 415	47	2 447	79	2 479	111	2 511
16	2 416	48	2 448	80	2 480	112	2 512
17	2 417	49	2 449	81	2 481	113	2 513
18	2 418	50	2 450	82	2 482	114	2 514
19	2 419	51	2 451	83	2 483	115	2 515
20	2 420	52	2 452	84	2 484	116	2 516
21	2 421	53	2 453	85	2 485	117	2 517
22	2 422	54	2 454	86	2 486	118	2 518
23	2 423	55	2 455	87	2 487	119	2 519
24	2 424	56	2 456	88	2 488	120	2 520
25	2 425	*57	*2 457	89	2 489	121	2 521
26	2 426	58	2 458	90	2 490	122	2 522
27	2 427	59	2 459	91	2 491	123	2 523
28	2 428	60	2 460	92	2 492	124	2 524
29	2 429	61	2 461	93	2 493	---	---
30	2 430	62	2 462	94	2 494	---	---
31	2 431	63	2 463	95	2 495	---	---

* Reserved for ANT+

2. METHODOLOGY

FCC KDB 558074 D01 DTS Measurement Guidance v05r02 dated April 2nd, 2019 entitled “Guidance for Performing Compliance Measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under Section 15.247 of the FCC Rules” and the measurement procedures described in ANSI C63.10 (Version: 2020) ‘the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices’.

EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of Section 15.207, 15.209 and 15.247 under the FCC Rule Part 15 Subpart C and the Section 2.1091 under the FCC Rule Part 2 / the RSS-GEN issue 5 and 2, RSS-247 issue 4.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version:2020) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1GHz. Above 1GHz with 1.5m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. Also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emission, the relative positions of this hand-held transmitter (EUT) were rotated through three orthogonal axes according to the requirements in Section 8 of ANSI C63.10. (Version: 2020)

Conducted Antenna Terminal

KDB 558074 D01 v05r02

DESCRIPTION OF TEST MODES

The EUT has been tested at 2.4GHz ISM test mode. The EUT’s test mode was used to control the channels, power setting, continuous TX and normal RX mode. The EUT is equipped with 2.4GHz ISM.

3. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version: 2017).

4. FACILITIES AND ACCREDITATIONS

FACILITIES

HCT America, Inc. holds A2LA accreditation (certificate no. 4201.01) covering all testing included in the scope of this report. All tests were conducted at the facilities listed below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	840 Yosemite Way, Milpitas, CA 95035 USA	US0198	25729	898494
☐	1177 Comstock Road, Hollister, CA 95023 USA	US0198	25729	898494



EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203:

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section.

- (1) The antenna of this E.U.T is permanently attached and there is no provision for connection to an external antenna.
- (2) The E.U.T Complies with the requirement of §15.203

According to RSS-Gen Issue 5 Amd 2 (Section 6.8):

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

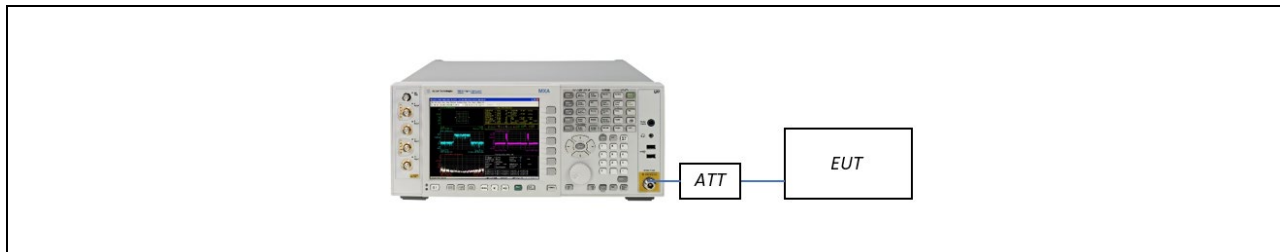
All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty
Output Power, Conducted	± 0.54 dB
Frequency Tolerance	± 16.78 kHz
Occupied Bandwidth	± 120.66 kHz
Unwanted Emissions, Conducted	± 0.54 dB
Radiated Emissions (below 1 GHz)	± 5.29 dB
Radiated Emissions (Above 1 GHz)	± 4.29 dB

7. DESCRIPTION OF TESTS

7.1. DUTY CYCLE

TEST SETUP



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer.
Zero-span measurement method was used, 6 (b) in KDB 558074 D01 v05r02.

The largest available value of RBW is 8 MHz and VBW is 50 MHz.

The zero-span method of measuring duty cycle shall not be used if $T \leq 6.25$ microseconds. ($50/6.25 = 8$)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are $> 50/T$.

- RBW = 8 MHz (the largest available value)
- VBW = 8 MHz ($\geq$ RBW)
- SPAN = 0 Hz
- Detector = Peak
- Number of points in sweep > 100
- Trace mode = Clear write
- Measure T_{total} and T_{on}
- Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor = $10 * \log(1/\text{Duty Cycle})$

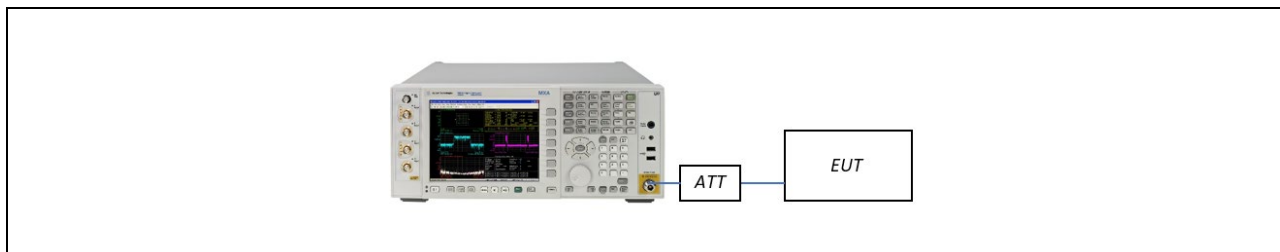
7.2. 20 dB BANDWIDTH / 99 % OCCUPIED BANDWIDTH

LIMIT

The bandwidth at 20 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequencies.

The minimum permissible 6 dB bandwidth is 500 kHz.

TEST SETUP



TEST PROCEDURE (20 dB BANDWIDTH)

Section 8.2 in KDB 558074 D01 v05r02, Subclause 11.8 in ANSI 63.10-2020

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer setting :

- RBW = 100 kHz
- VBW $\geq 3 \times$ RBW
- Detector = Peak
- Trace mode = max hold
- Sweep = auto couple
- Allow the trace to stabilize
- Use X dB bandwidth measurement function from the spectrum analyzer by setting X dB to 6 dB

TEST PROCEDURE (99% Bandwidth)

The transmitter output is connected to the spectrum analyzer.

- RBW = 1% ~ 5% of the occupied bandwidth
- VBW $\geq 3 \times$ RBW
- Detector = Peak
- Trace mode = max hold
- Sweep = auto couple
- Allow the trace to stabilize

Note(s) :

We tested OBW using the automatic bandwidth measurement capability of a spectrum analyzer.

7.3. RADIATED EMISSIONS

LIMIT

§15.249

§15.205 and §15.209

RSS-210 Annex B. 10.

ISED RSS-GEN, Section 8.9 and 8.10

Operation within the bands 2400-2483.5 MHz.

- (a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

- (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.
- (e) As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section 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 point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

RADIATION EMISSION LIMIT

FCC : 47 CFR § 15.209		
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

ISED : RSS-GEN Section 8.9		
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	6.37/F(kHz)	300
0.490 – 1.705	63.7/F(kHz)	30
1.705 – 30	0.08	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

RECEIVER RADIATED EMISSION LIMIT

ISED : RSS-GEN Section 7.3		
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

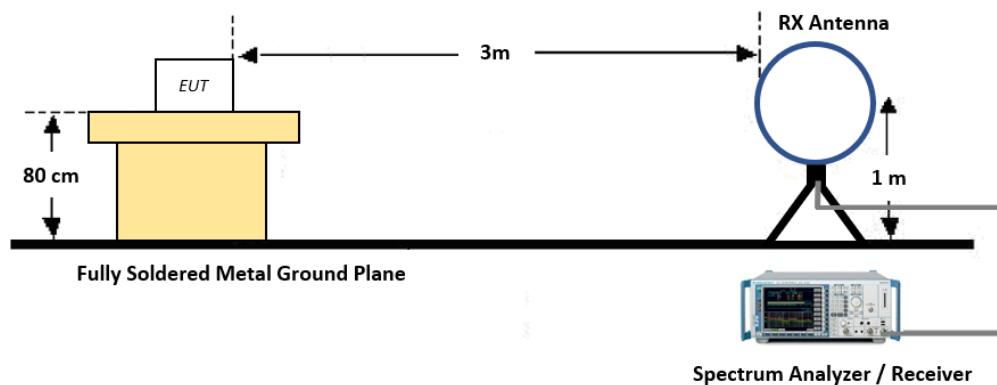
RESTRICTED BANDS OF OPERATION

FCC: 47 CFR § 15.205(a)				
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.090 – 0.110	12.29 - 12.293	149.9 - 150.05	1660.0 - 1710.0	8025 - 8500
0.495 - 0.505	12.51975 - 12.52025	156.52475 - 156.52525	1718.8 - 1722.2	9000 - 9200
2.1735 - 2.1905	12.57675 - 12.57725	156.7 - 156.9	2200.0 - 2300.0	9300 - 9500
4.125 - 4.128	13.36 - 13.41	162.0125 - 167.17	2310.0 - 2390.0	10600 - 12700
4.17725 - 4.17775	16.42 - 16.423	167.72 - 173.2	2483.5 - 2500.0	13250 - 13400
4.20725 - 4.20775	16.69475 - 16.69525	240.0 - 285.0	2690.0 - 2900.0	14470 - 14500
6.215 - 6.218	16.80425 - 16.80475	322.0 - 335.4	3260.0 - 3267.0	15350 - 16200
6.26775 - 6.26825	25.5 - 25.67	399.9 - 410.0	3332.0 - 3339.0	17700 - 21400
6.31175 - 6.31225	37.5 - 38.25	608.0 - 614.0	3345.8 - 3358.0	22010 - 23120
8.291 - 8.294	73 - 74.6	960.0 - 1240.0	3600.0 - 4400.0	23600 - 24000
8.362 - 8.366	74.8 - 75.2	1300.0 - 1427.0	4500.0 - 5150.0	31200 - 31800
8.37625 - 8.38675	108 - 121.94	1435.0 - 1626.5	5350.0 - 5460.0	36430 - 36500
8.41425 - 8.41475	123 - 138	1645.5 - 1646.5	7250.0 - 7750.0	Above 38600

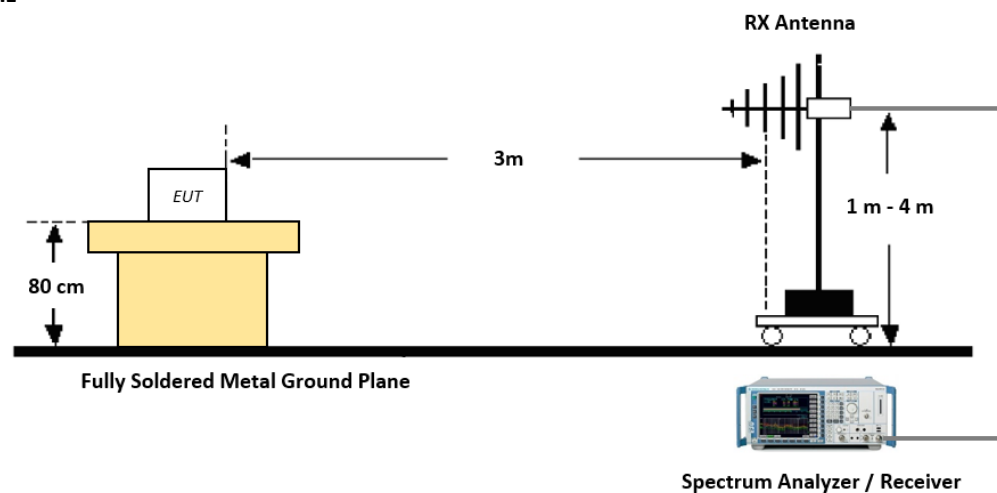
ISED: RSS-GEN Section 8.10				
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.090 - 0.110	8.37625 - 8.38675	108 – 138	1660 - 1710	8025 - 8500
0.495 - 0.505	8.41425 - 8.41475	149.9 - 150.05	1718.8 - 1722.2	9000 - 9200
2.1735 - 2.1905	12.29 - 12.293	156.52475 - 156.52525	2200 - 2300	9300 - 9500
3.020 - 3.026	12.51975 - 12.52025	156.7 - 156.9	2310 - 2390	10600 - 12700
4.125 - 4.128	12.57675 - 12.57725	162.0125 - 167.17	2483.5 - 2500	13250 - 13400
4.17725 - 4.17775	13.36 - 13.41	167.72 - 173.2	2655 - 2900	14470 - 14500
4.20725 - 4.20775	16.42 - 16.423	240 - 285	3260 - 3267	15350 - 16200
5.677 - 5.683	16.69475 - 16.69525	322 - 335.4	3332 - 3339	17700 - 21400
6.215 - 6.218	16.80425 - 16.80475	399.9 - 410	3345.8 - 3358	22010 - 23120
6.26775 - 6.26825	25.5 - 25.67	608 - 614	3500 - 4400	23600 - 24000
6.31175 - 6.31225	37.5 - 38.25	960 - 1427	4500 - 5150	31200 - 31800
8.291 - 8.294	73 - 74.6	1435 - 1626.5	5350 - 5460	36430 - 36500
8.362 - 8.366	74.8 - 75.2	1645.5 - 1646.5	7250 - 7750	Above 38600

TEST SETUP

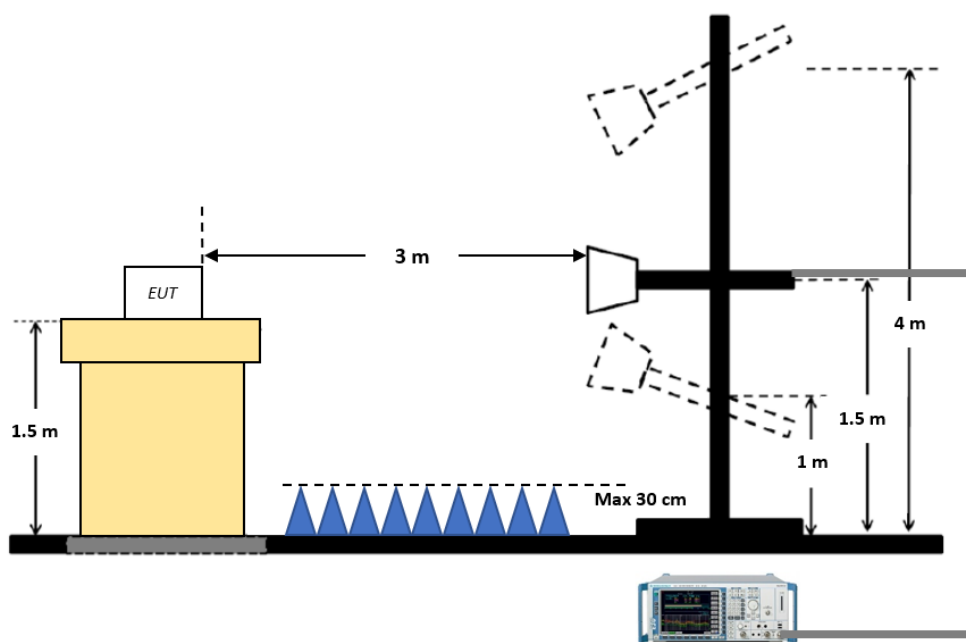
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE OF RADIATED SPURIOUS EMISSION (BELOW 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor (0.009 MHz – 0.490 MHz) = $40 \cdot \log(3 \text{ m}/300 \text{ m}) = -80 \text{ dB}$
Measurement Distance: 3 m
7. Distance Correction Factor (0.490 MHz – 30 MHz) = $40 \cdot \log(3 \text{ m}/30 \text{ m}) = -40 \text{ dB}$
Measurement Distance: 3 m
8. Spectrum Setting
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Max hold
 - RBW = 9 kHz
 - VBW $\geq 3 \cdot \text{RBW}$
9. Total = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L)
10. There is a comparison data both open-field test site and alternative test site – semi-Anechoic chamber according to 414788 D01. And the results are properly calibrated.

TEST PROCEDURE OF RADIATED SPURIOUS EMISSION (30 MHz – 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. Spectrum Setting
 - (1) Measurement Type (Peak):
 - Measured Frequency Range: 30 MHz – 1 GHz
 - Detector = Peak
 - Trace = Max hold
 - RBW = 100 kHz
 - VBW $\geq 3 \cdot \text{RBW}$
 - (2) Measurement Type(Quasi-peak):
 - Measured Frequency Range: 30 MHz – 1 GHz
 - Detector = Quasi-Peak
 - RBW = 120 kHz
6. Total = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L)

TEST PROCEDURE OF RADIATED SPURIOUS EMISSION (ABOVE 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting

(1) Measurement Type (Peak):

- Measured Frequency Range: 1 GHz – 25 GHz
- Detector = Peak
- Trace = Max hold
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Average): Duty cycle $\geq 98\%$

- Measured Frequency Range: 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle $< 98\%$, duty cycle variations are less than $\pm 2\%$

- Measured Frequency Range: 1 GHz – 25 GHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

10. Measurement value only up to 6 maximum emissions noted or would be lesser if no specific emissions from the EUT are recorded (*i.e.*: margin > 20 dB from the applicable limit) and considered that is already beyond the background noise floor.

11. Sample Calculation

- (1) Total (Peak) = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L) - Amp Gain(G)
- (2) Total (Average, Duty $\geq 98\%$) = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L) - Amp Gain(G)
- (3) Total (Average, Duty $< 98\%$) = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L) - Amp Gain(G) + Duty Cycle Factor
- (4) Alternative Method: Total (Average) = Total (Peak) + $20 \log(\text{Duty Cycle})$

TEST PROCEDURE OF RADIATED RESTRICTED BAND EDGE

1. Radiated test is performed with hopping off (if there is any)
2. The EUT is placed on a turntable, which is 1.5 m above ground plane.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting

(1) Measurement Type(Peak):

- Detector = Peak
- Trace = Max hold
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Average): Duty cycle $\geq 98\%$,

- Measured Frequency Range: 2310 MHz – 2390 MHz / 2483.5 MHz – 2500 MHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).

(3) Measurement Type(Average): Duty cycle $< 98\%$, duty cycle variations are less than $\pm 2\%$

- Measured Frequency Range: 2310 MHz – 2390 MHz / 2483.5 MHz – 2500 MHz
- Detector = RMS
- Averaging type = power (*i.e.*, RMS)
- RBW = 1 MHz
- VBW $\geq 3 \times$ RBW
- Sweep time = auto.
- Trace mode = average (at least 100 traces).
- Correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 % duty cycle.
- Duty Cycle Factor (dB) : Please refer to the please refer to section 9.1.

9. Measurement value only up to 6 maximum emissions noted or would be lesser if no specific emissions from the EUT are recorded (*i.e.*: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

10. Sample Calculation

- (1) Total (Peak) = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L)
- (2) Total (Average, Duty $\geq 98\%$) = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L) - Amp Gain(G)
- (3) Total (Average, Duty $< 98\%$) = Reading Value + Antenna Factor (A.F) + Cable Loss (C.L) - Amp Gain(G) + Duty Cycle Factor

7.4. AC POWER LINE CONDUCTED EMISSIONS

LIMIT

47 CFR § 15.207, RSS-GEN Section 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

*Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

TEST SETUP

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.

According to FCC KDB 174176 D01 Line Conducted FAQ v01r01 :

Devices Operating Above 30 MHz

For a device with a permanent or detachable antenna operating above 30 MHz, measurements must be performed with the antenna connected as specified in clause 6.2 of ANSI C63.10-2013.

Devices Operating Below 30 MHz

For a device with a permanent or detachable antenna operating at or below 30 MHz, the FCC will accept measurements performed with a suitable dummy load in lieu of the antenna under the following conditions:

- (1) Perform the AC power-line conducted tests with the antenna connected to determine compliance with Section 15.207 limits outside the transmitter's fundamental emission band;
- (2) Retest with a dummy load in lieu of the antenna to determine compliance with Section 15.207 limits within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network which simulates the antenna in the fundamental frequency band. All measurements must be performed as specified in clause 6.2 of ANSI C63.10-2013.

Sample Calculation

Quasi-peak(Final Result) = Reading Value + Correction Factor

8. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	ISED Part Section(s)	Test Limit	Test Result
Duty Cycle	See note 1	-	Reporting purposes only	PASS
20 dB BW / 99% OBW	See note 2	RSS-GEN 6.7	Reporting purposes only -	PASS
Radiated Emissions	§15.249 (a) (c)	RSS-GEN 8.9, 8.10 and RSS-210 Annex B.10(a)	See 7.3	PASS
AC Power line Conducted Emissions	§15.207	RSS-GEN, 8.8	cf. Section 7.4	PASS

Note:

1. ANSI C63.10 Section 11.6
2. ANSI C63.10 Sections 6.9.2 and 6.9.3

WORST CASE CONFIGURATION

RADIATED TEST

1. EUT Axis

All X, Y, and Z positions for horizontal / vertical antenna polarization were investigated to find the worst-case position. X position was selected for the final evaluation.

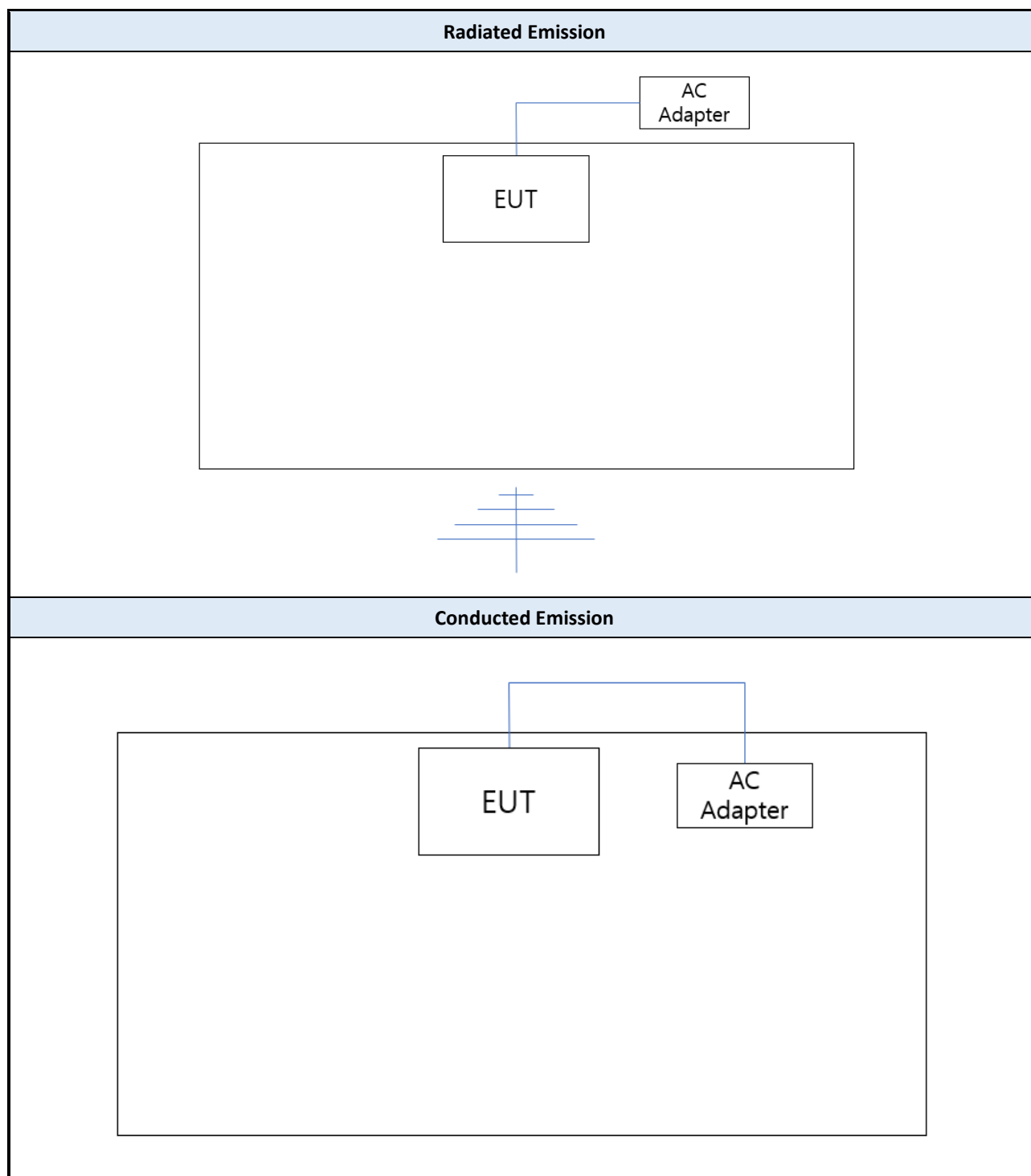
CONDUCTED TEST

1. AC line conducted emission test was performed at the worst-case channel

OUTPUT POWER SETTING

The output is preset as declared by the manufacturer

TEST CONFIGURATION



LIST OF SUPPORT EQUIPMENT

Equipment Type	Model No.	Serial No.	Manufacturer	Qty	Note
EUT AC Adapter	AQ27A-59CFA	-	PHIHONG TECH CO LTD	1	

9.2. 99% BANDWIDTH / 20 dB BANDWIDTH

9.2.1 99% BANDWIDTH

Frequency (MHz)	20% Bandwidth (MHz)
2 402	1.0399
2 441	1.0385
2 480	1.0443



Note(s):
For reporting purposes only.

9.2.2 20 dB BANDWIDTH

Frequency (MHz)	20% Bandwidth (MHz)
2 402	1.105
2 441	1.106
2 480	1.108



Note(s):
For reporting purposes only.

9.3. RADIATED EMISSIONS

9.2.1 FUNDAMENTAL FREQUENCY RADIATED EMISSION

Frequency (GHz)	Detector	Reading (dBuV)	Factor (dB)	D.C.C.F (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2.402	PK	97.21	-8.32		88.89	114	25.11
2.402	AV	97.21	-8.32	-4.1	84.79	94	9.21
2.441	PK	96.96	-8.12		88.84	114	25.16
2.441	AV	96.96	-8.12	-4.1	84.74	94	9.26
2.480	PK	96.47	-7.84		88.63	114	25.37
2.480	AV	96.47	-7.84	-4.1	84.53	94	9.47

Note(s):

1. PK = Peak Detector
2. AV = Measured Peak Reading + Duty Cycle Correction Factor
3. D.C.C.F = Duty Cycle Correction Factor = -4.1 dB
4. Measurements were performed for all polarization states, and the maximum measured value was recorded.



9.2.2 BAND-EDGE

Test Mode ANT
Operating Frequency 2402 MHz

Frequency (MHz)	Detector	Reading (dBuV)	Factor (dB)	D.C.C.F (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2 380.283	PK	50.7	-8.42		42.28	114	71.72
2 380.283	AV	50.7	-8.42	-4.1	38.18	94	55.82
2 386.157	PK	50.24	-8.41		41.83	114	72.17
2 386.157	AV	50.24	-8.41	-4.1	37.73	94	56.27

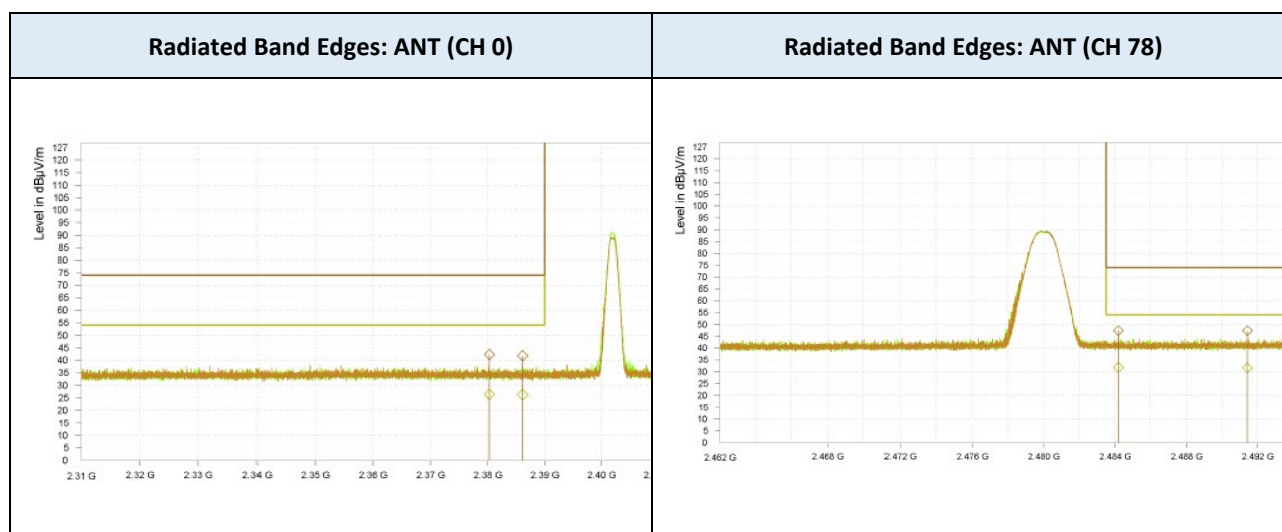
Test Mode ANT
Operating Frequency 2480 MHz

Frequency (MHz)	Detector	Reading (dBuV)	Factor (dB)	D.C.C.F (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2 484.200	PK	55.16	-7.82		47.34	114	66.66
2 484.200	AV	55.16	-7.82	-4.1	43.24	94	50.76
2 491.446	PK	55.1	-7.8		47.3	114	66.7
2 491.446	AV	55.1	-7.8	-4.1	43.2	94	50.8

Note(s):

1. PK = Peak Detector
2. AV = Measured Peak Reading + Duty Cycle Correction Factor
3. D.C.C.F = Duty Cycle Correction Factor = -4.1 dB
4. Measurements were performed for all polarization states, and the maximum measured value was recorded.

TEST PLOTS



9.2.3 RADIATED SPRUIOUS EMISSION

Frequency Range: Below 1 GHz

Test Mode ANT
Operating Frequency 2402 MHz (CH 0)

Frequency (MHz)	Polarization	Reading (dBuV)	Corr. ¹⁾ (dB)	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement Type
No major peaks found							

Test Mode ANT
Operating Frequency 2441 MHz (CH 39)

Frequency (MHz)	Polarization	Reading (dBuV)	Corr. ¹⁾ (dB)	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement Type
No major peaks found							

Test Mode ANT
Operating Frequency 2480 MHz (CH 78)

Frequency (MHz)	Polarization	Reading (dBuV)	Corr. ¹⁾ (dB)	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Measurement Type
No major peaks found							

Note(s) :

1. Correction Factor: Antenna Factor + Cable loss + Preamplifier Gain

Frequency Range : 1 GHz – 18 GHz

Test Mode ANT
Operating Frequency 2402 MHz

Frequency (MHz)	Detector	Polarization	Reading (dBuV)	Factor (dB)	D.C.C.F (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
3 132.300	PK	V	66.01	-19.39		46.62	74	27.38
3 132.300	AV	V	66.01	-19.39	-4.1	42.52	54	11.48
3 132.400	PK	H	66.03	-19.33		46.7	74	27.30
3 132.400	AV	H	66.03	-19.33	-4.1	42.6	54	11.40
4 799.000	PK	H	58.12	-16.64		41.48	74	32.52
4 799.000	AV	H	58.12	-16.64	-4.1	37.38	54	16.62
4 809.000	PK	V	57.89	-16.68		41.21	74	32.79
4 809.000	AV	V	57.89	-16.68	-4.1	37.11	54	16.89
7 204.300	PK	H	56.47	-10.42		46.05	74	27.95
7 204.300	AV	H	56.47	-10.42	-4.1	41.95	54	12.05
7 206.700	PK	V	66.70	-19.95		46.75	74	27.25
7 206.700	AV	V	66.70	-19.95	-4.1	42.65	54	11.35

Test Mode ANT
Operating Frequency 2441 MHz

Frequency (MHz)	Detector	Polarization	Reading (dBuV)	Factor (dB)	D.C.C.F (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
3 132.300	PK	H	63.53	-19.34		44.19	74	29.81
3 132.300	AV	H	63.53	-19.34	-4.1	40.09	54	13.91
3 132.400	PK	V	64.8	-19.39		45.41	74	28.59
3 132.400	AV	V	64.8	-19.39	-4.1	41.31	54	12.69
4 877.600	PK	V	57.62	-16.33		41.29	74	32.71
4 877.600	AV	V	57.62	-16.33	-4.1	37.19	54	16.81
4 880.000	PK	H	58.02	-16.24		41.78	74	32.22
4 880.000	AV	H	58.02	-16.24	-4.1	37.68	54	16.32
7 316.900	PK	H	56.71	-10.47		46.24	74	27.76
7 316.900	AV	H	56.71	-10.47	-4.1	42.14	54	11.86
7 325.000	PK	V	56.14	-10.32		45.82	74	28.18
7 325.000	AV	V	56.14	-10.32	-4.1	41.72	54	12.28

Test Mode ANT
 Operating Frequency 2480 MHz

Frequency (MHz)	Detector	Polarization	Reading (dBuV)	Factor (dB)	D.C.C.F (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
3 132.300	PK	H	64.51	-19.34		45.17	74	28.83
3 132.300	AV	H	64.51	-19.34	-4.1	41.07	54	12.93
3 132.400	PK	V	64.57	-19.39		45.18	74	28.82
3 132.400	AV	V	64.57	-19.39	-4.1	41.08	54	12.92
4 957.200	PK	V	58.32	-16.33		41.99	74	32.01
4 957.200	AV	V	58.32	-16.33	-4.1	37.89	54	16.11
4 963.300	PK	H	57.64	-15.90		41.74	74	32.26
4 963.300	AV	H	57.64	-15.90	-4.1	37.64	54	16.36
7 430.300	PK	H	56.55	-10.61		45.94	74	28.06
7 430.300	AV	H	56.55	-10.61	-4.1	41.84	54	12.16
7 435.400	PK	V	56.96	-10.82		46.14	74	27.86
7 435.400	AV	V	56.96	-10.82	-4.1	42.04	54	11.96

Frequency Range : 1 GHz – 18 GHz

Test Mode ANT
Operating Frequency 2402 MHz (CH 0)

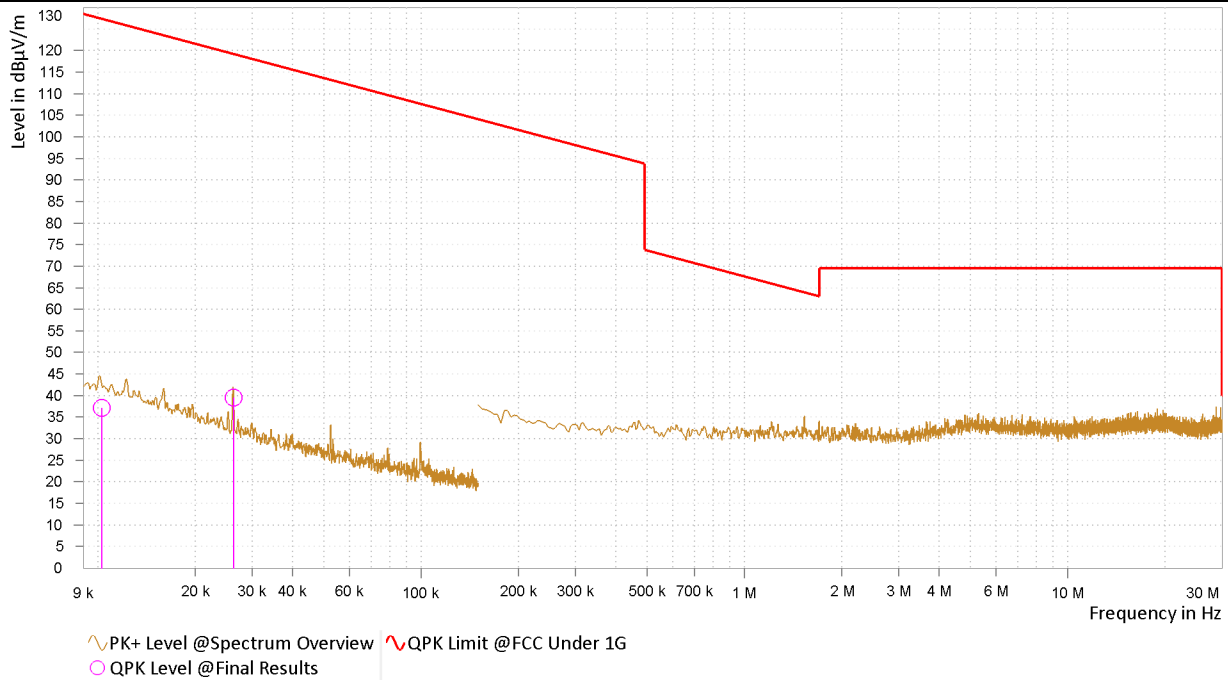
Frequency (MHz)	Polarization	Reading (dBuV)		Factor (dB)	Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
		AV	PK	Corr. ¹⁾	AV	PK	AV	PK	AV	PK
23 883.138	H	43.04	55.44	-0.03	43.01	55.41	54	74	10.99	18.59
25 381.592	V	44.39	56.72	0.35	44.74	57.07	54	74	9.26	16.93

Note(s):

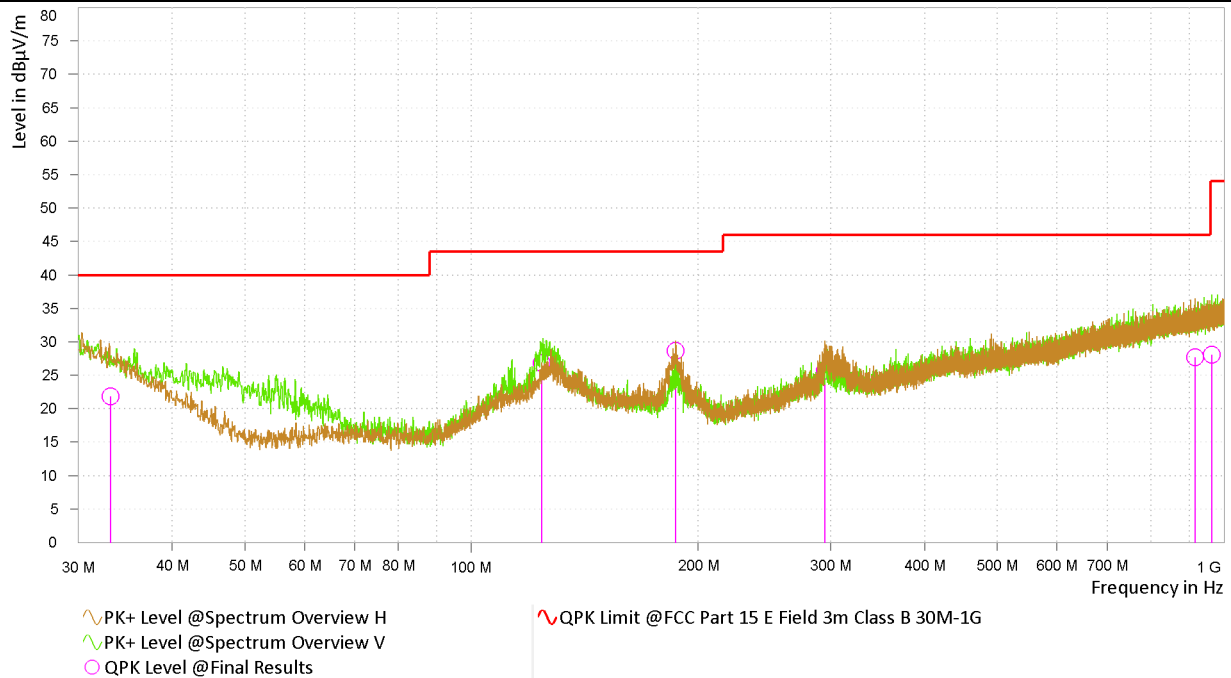
1. PK = Peak Detector
2. AV = Average Detector
3. The test was performed under worst-case conditions.

▣ TEST PLOTS

Radiated Spurious Emission 9 kHz – 30 MHz (Antenna Position Bent over) : ANT (CH 0)



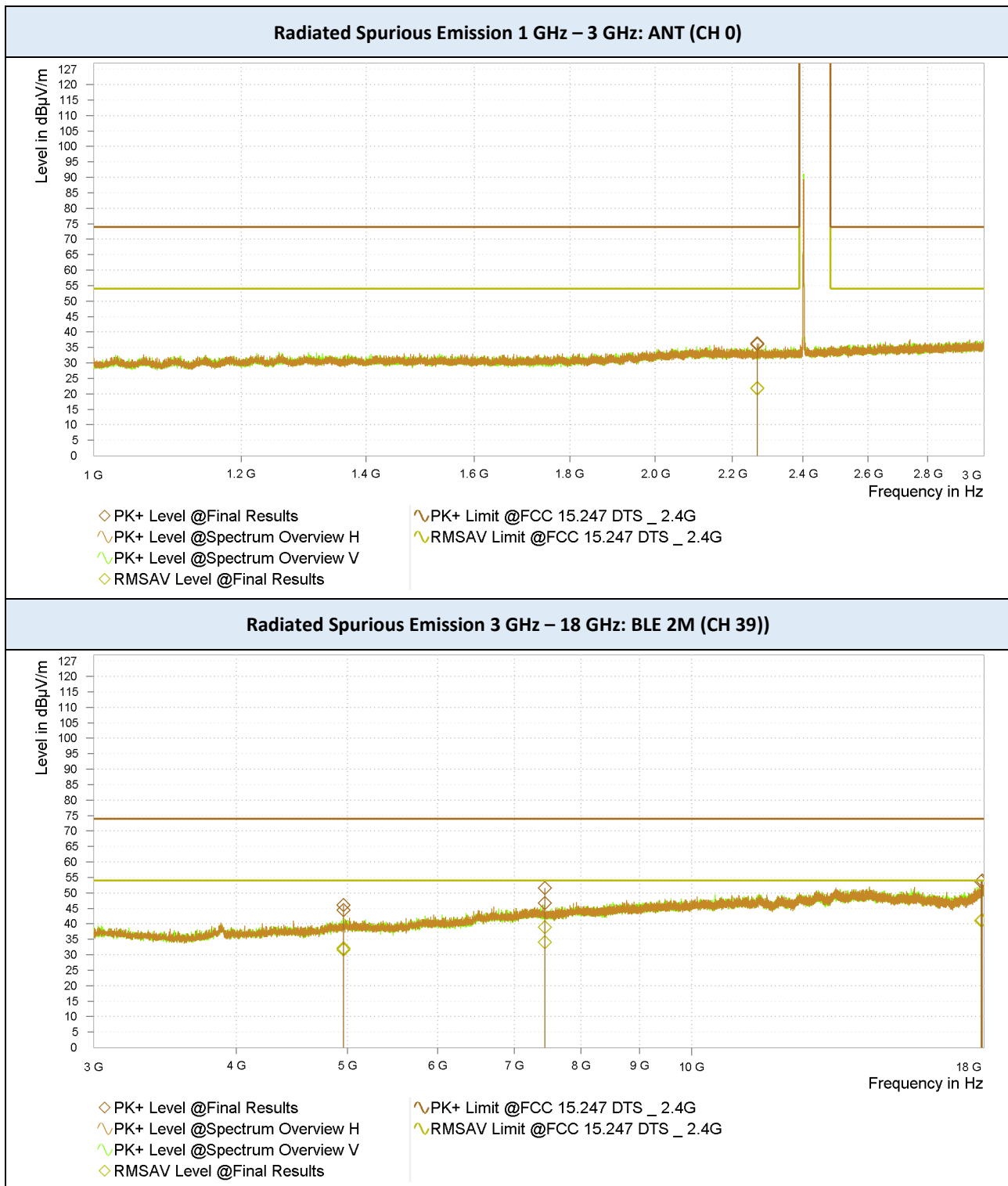
Radiated Spurious Emission 30 MHz – 1 GHz: ANT (CH 0)



Note(s):

1. The worst-case plot are included in this report.

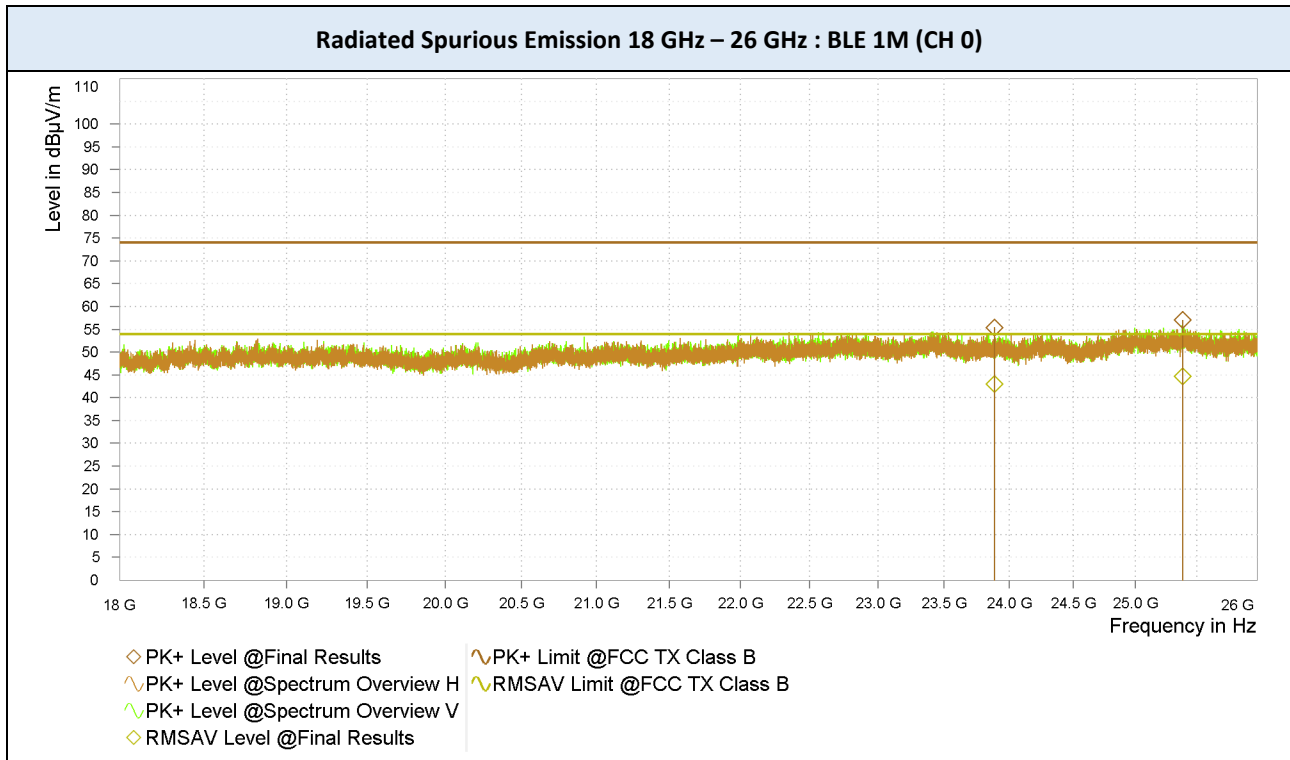
■ TEST PLOTS



Note:

1. The worst-case plot are included in this report.

▣ TEST PLOTS



9.4. POWERLINE CONDUCTED EMISSIONS

Frequency (MHz)	Line	Reading (dBμV)		Corr. ¹⁾ (dB)	Level (dBμV)		Limit (dBμV)		Margin (dB)	
		QP	CAV		QP	CAV	QP	CAV	QP	CAV
0.162	L1	34.8	15.1	9.6	44.4	24.7	65.4	55.4	21.0	30.7
0.212	L1	29.8	8.0	9.6	39.4	17.6	63.1	53.1	23.7	35.5
0.284	L1	25.3	4.0	9.6	34.9	13.6	60.7	50.7	25.8	37.1
0.525	L1	21.2	9.7	9.7	30.9	19.4	56	46	25.1	26.6
1.010	L1	12.4	3.3	9.7	22.1	13.0	56	46	33.9	33.0
1.332	L1	13.9	2.6	9.7	23.6	12.3	56	46	32.4	33.7
11.520	L1	5.5	-0.4	10.6	16.1	10.2	60	50	43.9	39.8
5.375	L1	7.6	0.7	10.1	17.7	10.8	60	50	42.3	39.2
0.162	L1	34.8	15.1	9.6	44.4	24.7	65.4	55.4	21.0	30.7

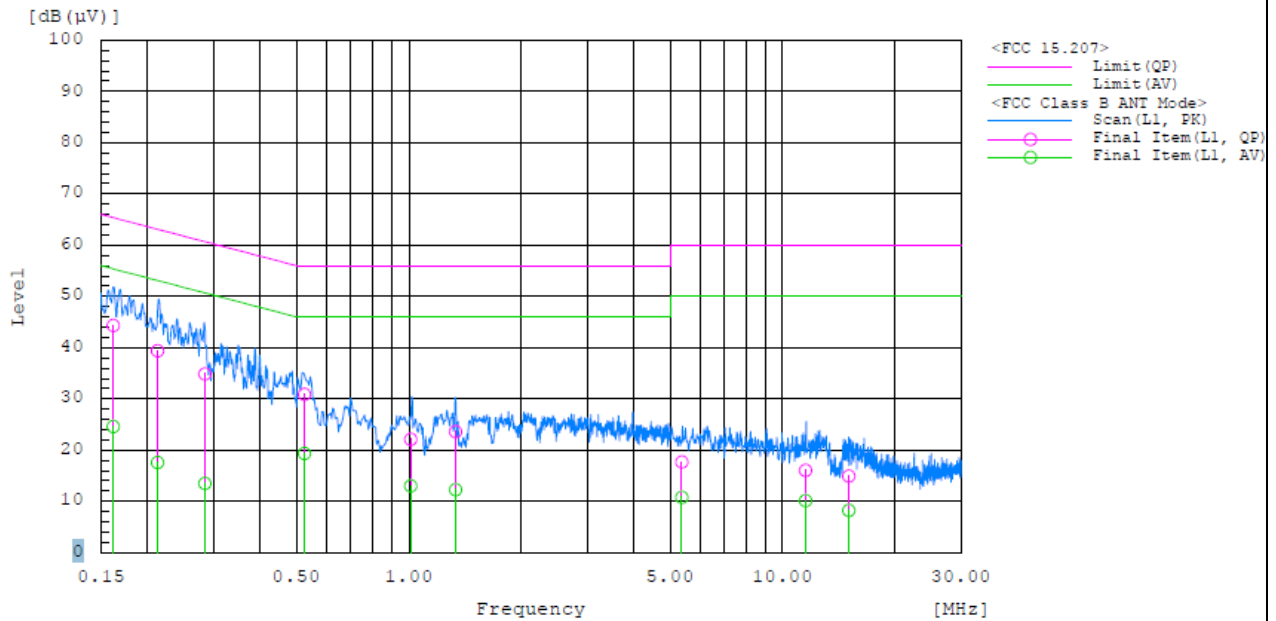
Frequency (MHz)	Line	Reading (dBμV)		Corr. ¹⁾ (dB)	Level (dBμV)		Limit (dBμV)		Margin (dB)	
		QP	CAV		QP	CAV	QP	CAV	QP	CAV
15.035	L1	4.2	-2.5	10.8	15.0	8.3	60	50	45.0	41.7
0.161	N	35.4	14.2	9.6	45.0	23.8	65.4	55.4	20.4	31.6
0.269	N	28.4	5.0	9.6	38.0	14.6	61.2	51.2	23.2	36.6
0.311	N	23.8	4.3	9.6	33.4	13.9	59.9	49.9	26.5	36.0
0.537	N	21.1	12.6	9.7	30.8	22.3	56	46	25.2	23.7
1.011	N	11.1	5.0	9.7	20.8	14.7	56	46	35.2	31.3
3.786	N	10.2	3.8	10.0	20.2	13.8	56	46	35.8	32.2
5.864	N	9.6	3.7	10.1	19.7	13.8	60	50	40.3	36.2
14.301	N	4.2	-0.5	10.9	15.1	10.4	60	50	44.9	39.6

Note :

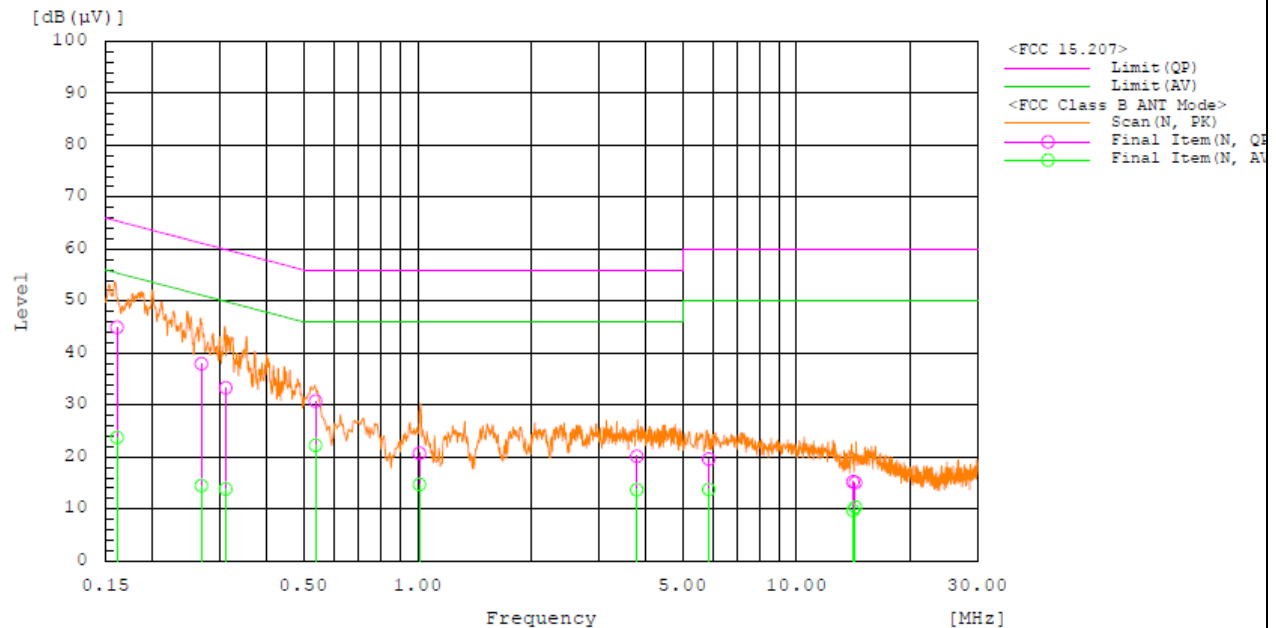
1. Quasi-peak (Final Result) = Reading Value + Correction Factor

■ TEST PLOTS

AC Line Conducted Emission (L1)



AC Line Conducted Emission (N)



10. LIST OF TEST EQUIPMENT

No.	Instrument	Model No.	Calibration Due (mm/dd/yy)	Manufacture	Serial No.
☒	Signal Analyzer (1 Hz ~ 44.0 GHz)	ESW44	08/05/2026	Rohde & Schwarz	103176
☒	Signal Analyzer (20 Hz ~ 26.5 GHz)	N9020A	10/09/2026	Keysight	MY53280148
☒	Attenuator (20 dB, DC ~ 26.5 GHz)	8493C 20 dB	10/14/2026	KEYSIGHT	9072
☒	Loop Antenna (0.009 ~ 30 MHz)	HLA 6121	03/03/2027	TESEQ	43964
☒	BI-LOG Antenna (30 MHz ~ 6 GHz)	JB6	02/27/2027	Sunol	A060916
☒	Horn Antenna (1 GHz ~ 18 GHz)	BBHA 9120 D	07/15/2027	Schwarzbeck	03023
☒	Horn Antenna (15 GHz ~ 40 GHz)	BBHA 9170	01/21/2027	Schwarzbeck	1342
☒	RF Switch Matrix System	HRSMS-VL	01/02/2027	HCT Ltd.	2-51-001
☒	EMI Test Receiver	ESR3	07/18/2026	Rohde & Schwarz	102363
☒	LISN	ENV216	08/28/2026	Rohde & Schwarz	101550
☒	Temperature & Humidity Chamber	SH-662	08/05/2026	ESPEC	93024017
☒	ESR Test Receiver	ESR3	07/18/2026	Rohde & Schwarz	102363
☒	Test Software	R&S*ELEKTRA	-	Rohde & Schwarz	-

Note(s) :

- Equipment listed above that calibrated during the testing period was set for test after the calibration.
- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

APPENDIX A. TEST SETUP PHOTOS

The setup photos are provided as a separate document.

APPENDIX B. PHOTOGRAPHS OF EUT

B.1. EXTERNAL PHOTOS

The external photos are provided as separate documents.

B.2. INTERNAL PHOTOS

The internal photos are provided as separate documents.

END OF TEST REPORT