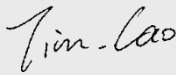




Test report No:

25A0215R.702A

TEST REPORT

Product Name	WiFi BT Module
Trademark	Hisense
Model and /or type reference	MWH660B
FCC ID	2AJVQ-MWH660B
Applicant's name / address	Qingdao Intelligent & Precise Electronics Co., Ltd. No.218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, Shandong Province, China
Test method requested, standard	47 CFR FCC Part 15 (Section 15.247) ANSI C63.10: 2020
Verdict Summary	IN COMPLIANCE
Tested By (name / position & signature)	Tim Cao / Project Manager 
Approved by (name / position & signature)	Frank He / Technical Manager 
Date of issue	2025-11-11
Report Version	V1.0
Report template No.	Template_FCC Part 15C-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

Test Location A	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Test Facility A	A2LA (Certificate No. 3235.01) CNAS (Certificate No. L5313) FCC - Designation Number: CN1199 Test Firm Registration Number: 566524 ISED - CAB identifier: CN0040 IC#: 4075B
Test Location B	No. 8213, Fanhua Avenue, Baohe District, Hefei City, Anhui Province, China
Test Facility B	A2LA (Certificate No. 6579.01) CNAS (Certificate No. L21125) FCC - Designation Number: CN1231 Test Firm Registration Number: 690292 ISED - CAB identifier: CN0175 IC#: 32222
Date(receive sample)	Oct. 13, 2025
Date (start test)	Oct. 15, 2025
Date (finish test)	Nov. 04, 2025

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
25A0215R.702A	V1.0	Initial issue of report.	2025-11-11

TEST SUMMARY

Requirement – Test Item	Standard(s)	Location	Verdict	Remark
20dB Emission Bandwidth	FCC 15.247(a)(1)	A	PASS	Test data please refer to Appendix A
Maximum conducted output power	FCC 15.247(b)(1)	A	PASS	Test data please refer to Appendix B
Carrier Frequency Separation	FCC 15.247(a)(1)	A	PASS	Test data please refer to Appendix C
Time of Occupancy (Dwell Time)	FCC 15.247(a)(1)(iii)	A	PASS	Test data please refer to Appendix D
Number of Hopping Frequencies	FCC 15.247(a)(1)(iii)	A	PASS	Test data please refer to Appendix E
Band edge measurements	FCC 15.247(d)	B	PASS	Test data please refer to Appendix F
Conducted Spurious Emission	FCC 15.247(d) FCC 15.209	A	PASS	Test data please refer to Appendix G
Duty Cycle	ANSI C63.10	A	PASS	Test data please refer to Appendix H
Emissions in Restricted Bands	FCC 15.247(b)(3)	B	PASS	Test data please refer to Appendix I
AC Power Line Conducted Emission	FCC 15.207	N/A	N/A	Note ¹⁾
Antenna Requirement	FCC 15.203	PASS	PASS	---
Notes: 1. EUT is DC powered. 2. Radiated Emission and Radiated Emission Band Edge were completed at Test Location B, and other tests were completed at Test Location A.				

USED EQUIPMENT

Test Location A: Conducted Test/ TR8

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Wireless Connectivity Tester	R&S	CMW 270	102593	2025.05.10	2026.05.09
High and low temperature and fast temperature change test box	ASTUOD	ASTD-FBT-225K	N/A	2025.03.15	2026.03.14
Temperature/Humidity Meter	RTS	RTS-8S	RF08	2025.06.17	2026.06.16
MAX Signal Analyzer	Agilent	N9020A	MY49100159	2025/10/15	2026/10/14
RF Control Unit	Tonscend	JS0806-2	22G8060594	2025.01.26	2026.01.25
Vector Signal Genertor	R&S	SMM 100A	101853	2025/9/20	2026/9/19
EXG-B MW Analog Signal Generator	Keysight	N5173B	MY61252566	2025.05.10	2026.05.09
Test Software	Tonscend	TS1120	JS1120-3	N/A	N/A

Test Location A: Radiated Emission(9KHz-1GHz) / AC2

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Anechoic chamber	Quietek	9m*6m*6m	AC2	2024.07.07	2029.07.06
EMI Test Receiver	R&S	ESCI	100573	2025.01.11	2026.01.10
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2025.03.24	2026.03.23
Temperature/Humidity Meter	RTS	RTS-1909	THM-021	2025.04.30	2026.04.29
Dekra test software	Dekra	N/A	N/A	N/A	N/A

Test Location B: Radiated Emission Band Edge / AC103

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Fully-anechoic chamber	Maorui	9m*6m*6m	AC103	2023.08.23	2028.08.22
MAX Signal Analyzer	Keysight	N9020B	MY63490118	2025.08.08	2026.08.07
Horn Antenna	RF SPIN	DRH18-E	KV2D11A18ES	2025.09.06	2026.09.05
Low Noise Amplifier	Tonscend	TAP01018048S	AP23J8060307	2025.10.17	2026.10.16
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	01312	2025.10.18	2026.10.17
Low Noise Amplifier	ESE	LNA1840	LNA23070301	2025.10.17	2026.10.16
Temperature/Humidity Meter	RITERS	RTS-8S	029	2025.08.25	2026.08.24
Temperature/Humidity Meter	RITERS	RTS-8S	010	2025.08.25	2026.08.24
Test Software	Tonscend	J536	JS36-RSE	N/A	N/A

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Test item Test Location A	Uncertainty
AC Power Line Conducted Emission	9kHz~150kHz: 2.8 dB 150kHz~30MHz: 2.4 dB
Peak Power Output	± 1.3 dB
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 3.5 dB 300MHz~1GHz: 3.6 dB Vertical: 30MHz~200MHz: 3.6 dB 300MHz~1GHz: 3.5 dB
Radiated Emission(1GHz~26.5GHz)	Horizontal: 1GHz~18GHz: 5.0 dB Vertical: 1GHz~18GHz: 4.8 dB Horizontal: 18GHz~26.5GHz: 5.3 dB Vertical: 18GHz~26.5GHz: 4.9 dB
RF antenna conducted test	± 1.3 dB
Carrier Frequency Separation	± 1.0 kHz
Number of Hopping Frequencies	± 1.0 kHz
Time of Occupancy (Dwell Time)	± 0.10 us
Radiated Emission Band Edge	± 3.9 dB
DTS Bandwidth	± 1.0 kHz
Occupied Bandwidth	± 1.0 kHz
Power Density	± 1.3 dB

Test item Test Location B	Uncertainty
Radiated Emission(30MHz~1GHz)	Horizontal: 30MHz~200MHz: 4.86 dB 300MHz~1GHz: 4.86 dB Vertical: 30MHz~200MHz: 4.92 dB 300MHz~1GHz: 4.92 dB
Radiated Emission(1GHz~40GHz)	Horizontal: 1GHz~18GHz: 5.99 dB Vertical: 1GHz~18GHz: 5.76 dB Horizontal: 18GHz~40GHz: 5.99 dB Vertical: 18GHz~40GHz: 5.76 dB
Radiated Emission Band Edge	± 5.99 dB

1 GENERAL INFORMATION

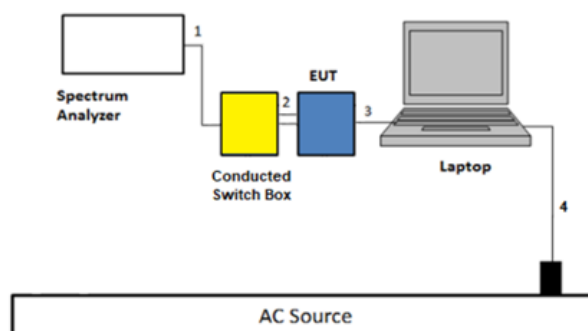
Product Name	WiFi BT Module
Model No.	MWH660B
Trademark.	Hisense
FCC ID.....	2AJVQ-MWH660B
Manufacturer	Qingdao Intelligent & Precise Electronics Co., Ltd.
Manufacturer Address	No.218, Qianwangang Road, Economic and Technological Development Zone, Qingdao, Shandong Province, China
Power Supply	4.5~5.5 Vdc
Wireless specification	Bluetooth
Operating frequency range(s)	2402~2480MHz
Type of modulation	GFSK
Number of channels	79
Data Rate	GFSK 1Mbit/s, Pi/4 DQPSK 1Mbit/s, 8DPSK 3Mbit/s
Antenna type	PCB Antenna
Antenna Gain	0.38 dBi
Remark: 1. As above information is provided and confirmed by the applicant. DEKRA is not liable to the accuracy, suitability, reliability or/and integrity of the information.	

Power setting in test

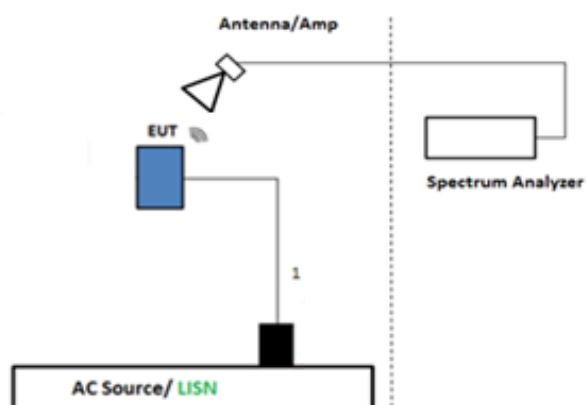
Mode	Power setting
BR / EDR	Default

2 DESCRIPTION OF TEST SETUP

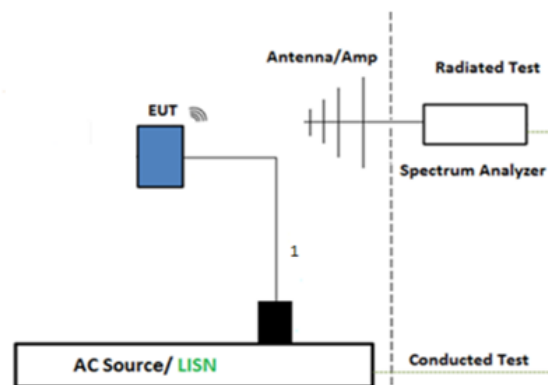
Auxiliary equipment	Type / Version	Manufacturer	Supplied by
(1) Notebook	Think pad x220	Lenovo	Adapter
(2) Ethernet cable	N/A	N/A	N/A
(3) Ethernet cable	N/A	N/A	N/A
Software	Type / Version	Manufacturer	Supplied by
MT7920_QA-Tool	3.0.0.13	MEDIATEK	N/A



Conducted RF



Radiated Test Above 1GHz



Radiated Test Below 1GHz

Accessories Information	Cable		
	Length used during test [m]	Attached during test	Shielded
(2) Ethernet cable	1	☒	☒
(3) Ethernet cable	8	☒	☒

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15 Subpart C Section 15.247	2020	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.
ANSI C63.10	2020	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

4 TEST RESULTS

4.1 AC Power Line Conducted Emission

VERDICT: N/A

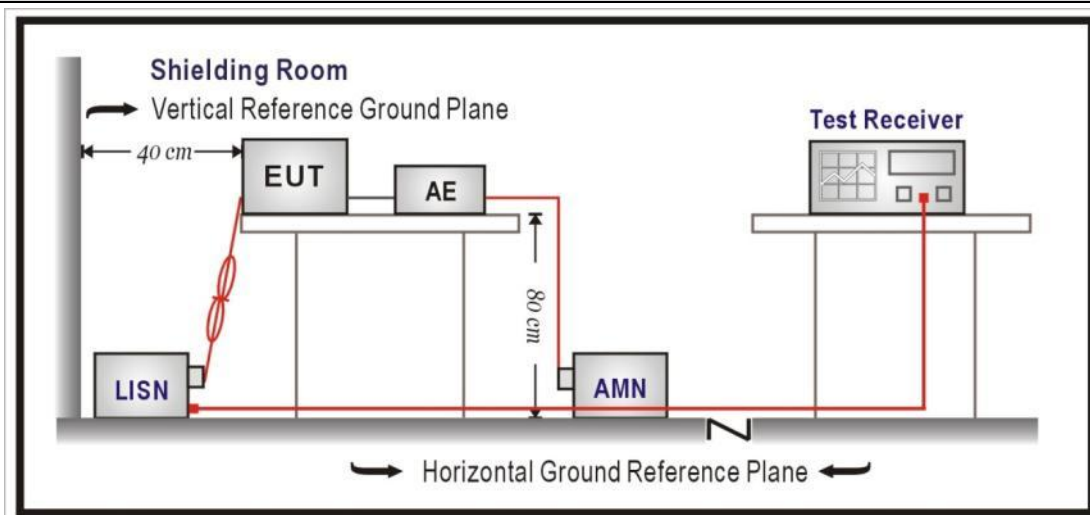
4.1.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.207	
Frequency range [MHz]	Limit: QP [dB(μV) ¹⁾]	Limit: AV [dB(μV) ¹⁾]
0,15 - 0,50	66 - 56 ²⁾	56 - 46 ²⁾
0,50 - 5,0	56	46
5,0 - 30	60	50

¹⁾ At the transition frequency, the lower limit applies.

²⁾ The limit decreases linearly with the logarithm of the frequency.

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
☒	ANSI C63.10	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

4.2 Emissions in restricted frequency bands**VERDICT: PASS****4.2.1 Limit****Standard** FCC Part 15 Subpart C Paragraph 15.205; 15.209

Restricted Bands of operation for FCC

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6
13.36 – 13.41	--	--	--

Restricted Band Emissions Limit

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

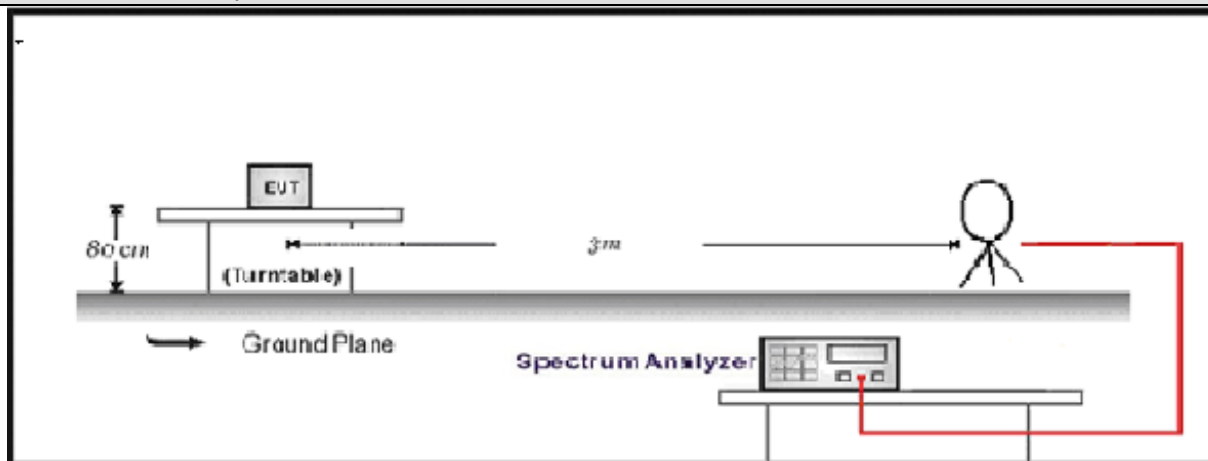
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation

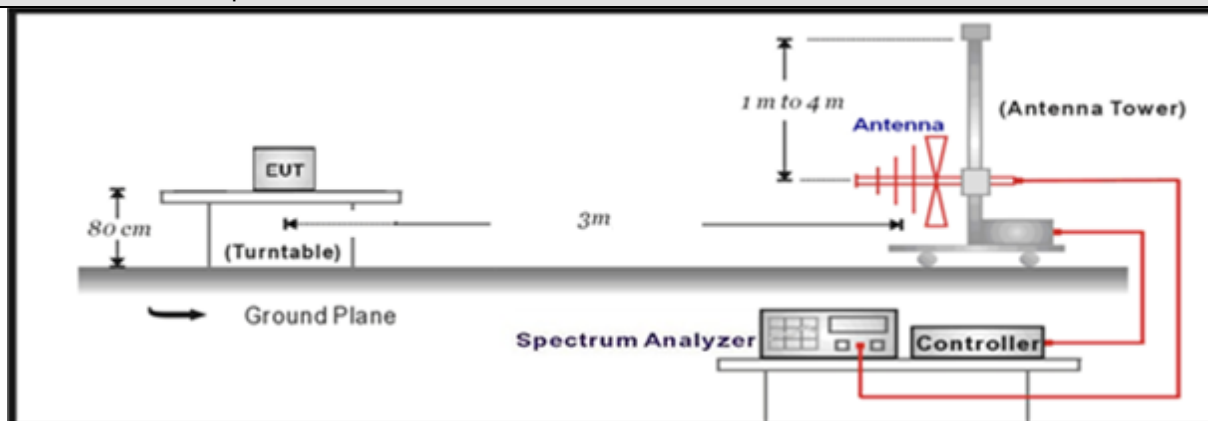
factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.2.2 Test Setup

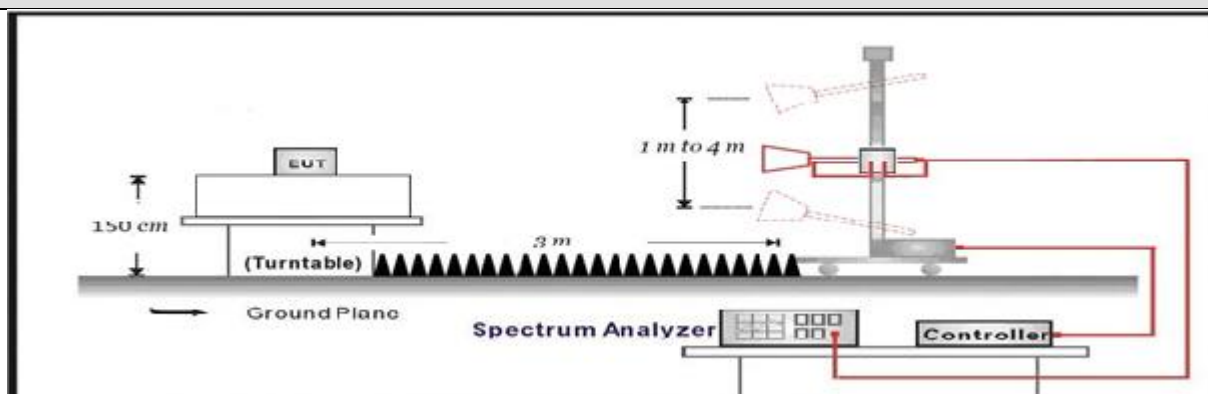
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.2.3 Test Procedure

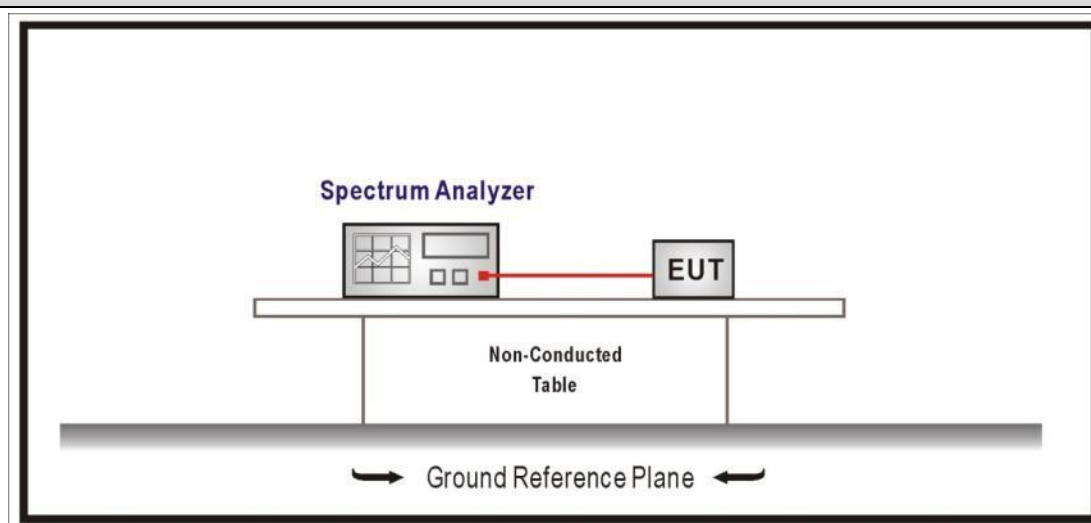
	References Rule		Chapter	Description
☒	ANSI C63.10		11.12	Emissions in restricted frequency bands
	☒	ANSI C63.10	11.12.1	Radiated emission measurements
	☒	ANSI C63.10	6.3	Radiated spurious emission test
	☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.3 Emissions in non-restricted frequency band**VERDICT: PASS****4.3.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(d)
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30dBc(Note1)
RF Output power(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

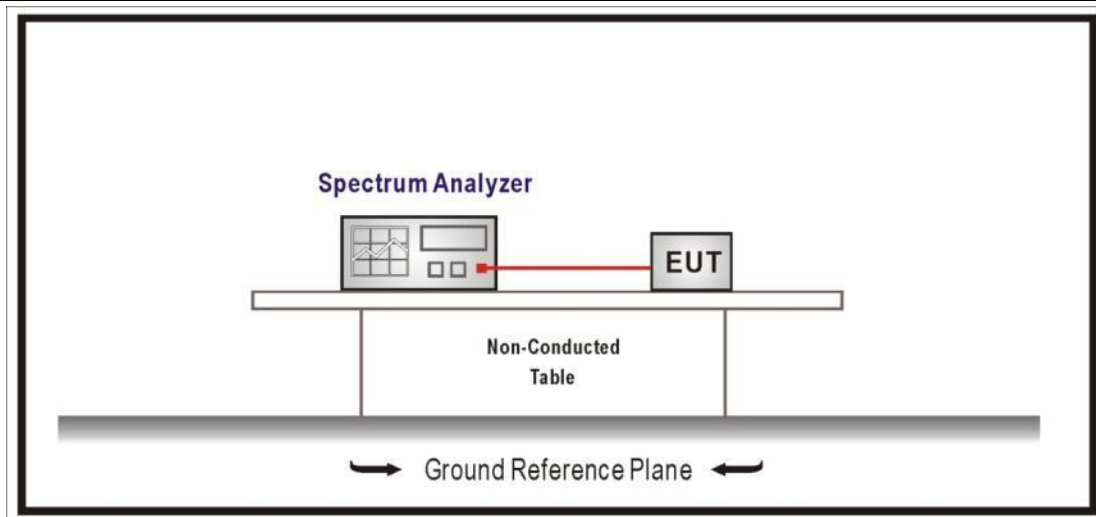
Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

4.3.2 Test Setup**4.3.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	7.8.7	Conducted spurious emissions test methodology
☒ ANSI C63.10	7.8.7.1	General
☒ ANSI C63.10	7.8.7.2	Band-edges

4.4 Duty cycle**VERDICT: PASS****4.4.1 Limit**

N/A

4.4.2 Test Setup**4.4.3 Test Procedure**

References Rule		Chapter	Description
☒	ANSI C63.10	11.6	Duty cycle (D), transmission duration (T), and maximum power control level

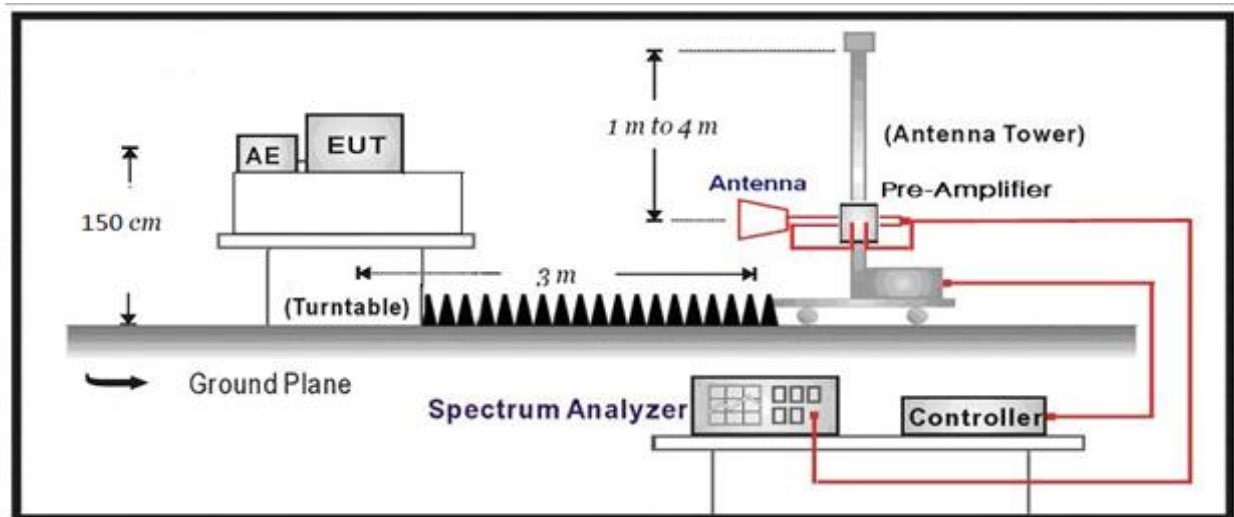
4.5 Radiated Emission Band Edge**VERDICT: PASS****4.5.1 Limit**

Standard		FCC Part 15 Subpart C Paragraph 15.247(d) , 15.205, 15.209		
Frequency bands (MHz)	Detector	Limit (dB μ V/m)	RBW (MHz)	Distance (m)
2310-2390	PK	74	1	3
2483.5-2500	AV	54	1	3

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

4.5.2 Test Setup

Above 1GHz Test Setup:

**4.5.3 Test Procedure**

	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.8	Band-edge testing

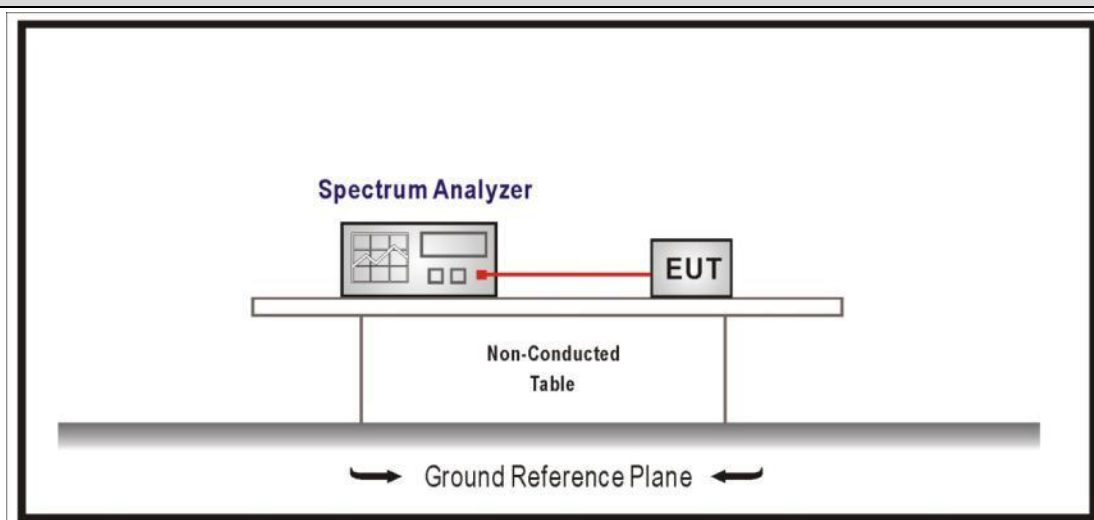
4.6 20dB Emission Bandwidth**VERDICT: PASS****4.6.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247 (a)(2)
-----------------	---

Systems using digital modulation techniques operate in the 2400-2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz

Standard	ANSI C63.10 Paragraph 6.7
-----------------	---------------------------

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs. The occupied bandwidth should be within the required frequency range.

4.6.2 Test Setup**4.6.3 Test Procedure**

	Reference Rule	Chapter	Description
☒	ANSI C63.10	7.8.6	Occupied bandwidth

4.7 Fundamental emission output power**VERDICT: PASS****4.7.1 Limit**

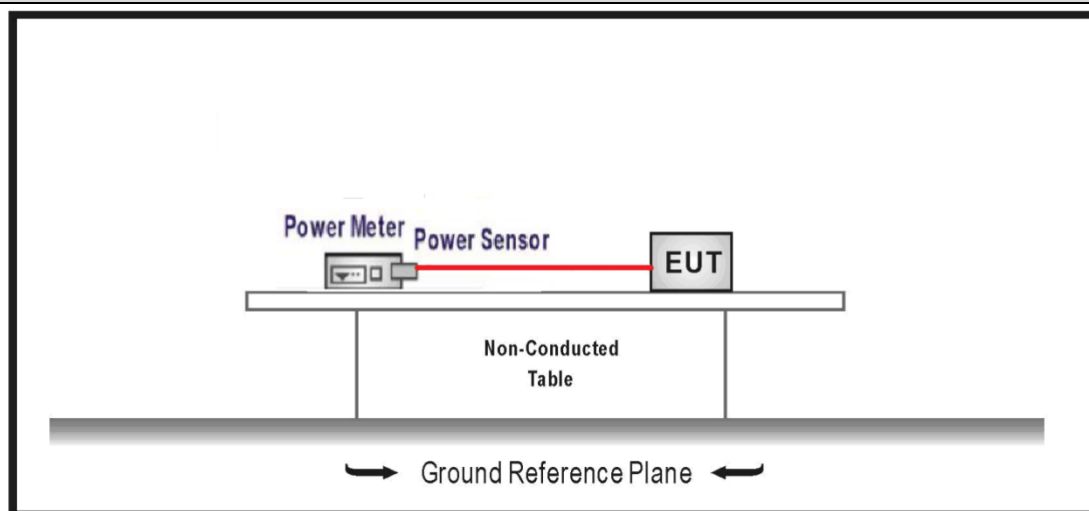
Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)
-----------------	---

Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Note 1 : GTX directional gain of transmitting antennas.

Note 2 : Pout is maximum conducted output power .

4.7.2 Test Setup**4.7.3 Test Procedure**

	References Rule			Chapter	Description
☒	ANSI C63.10			11.9	Fundamental emission output power
	☒	ANSI C63.10		11.9.1	Maximum peak conducted output power
		☐	ANSI C63.10	11.9.1.1	RBW $\geq$ DTS bandwidth
		☒	ANSI C63.10	11.9.1.2	PKPM1 Peak power meter method

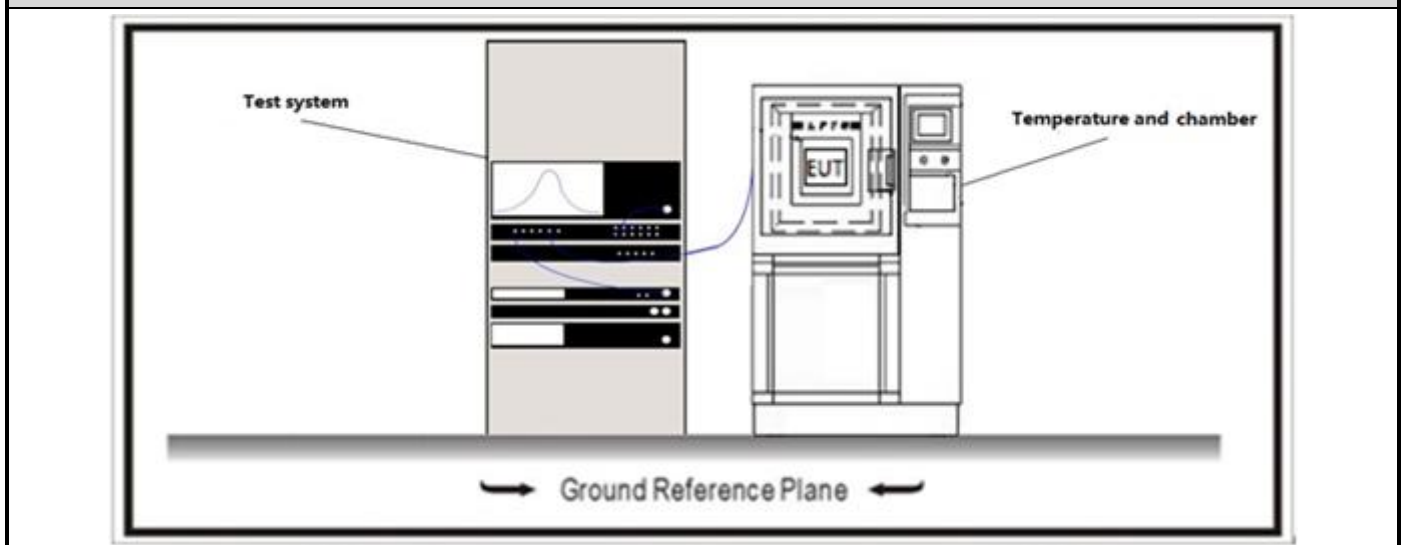
4.8 Carrier Frequency Separation

VERDICT: PASS

4.8.1 Limit

Standard	FCC Part 15 Subpart C Paragraph 15.247(a);
☐	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

4.8.2 Test Setup

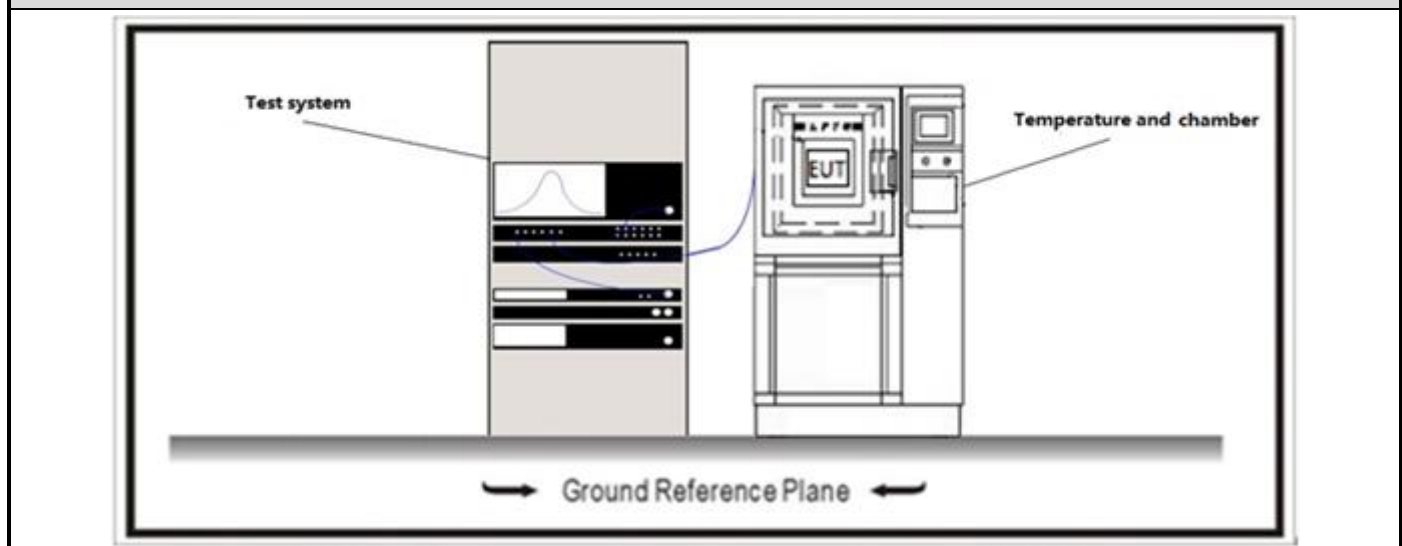


4.9.3 Test Procedure

References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.2	Carrier frequency separation

4.9 Time of Occupancy**VERDICT: PASS****4.9.1 Limit**

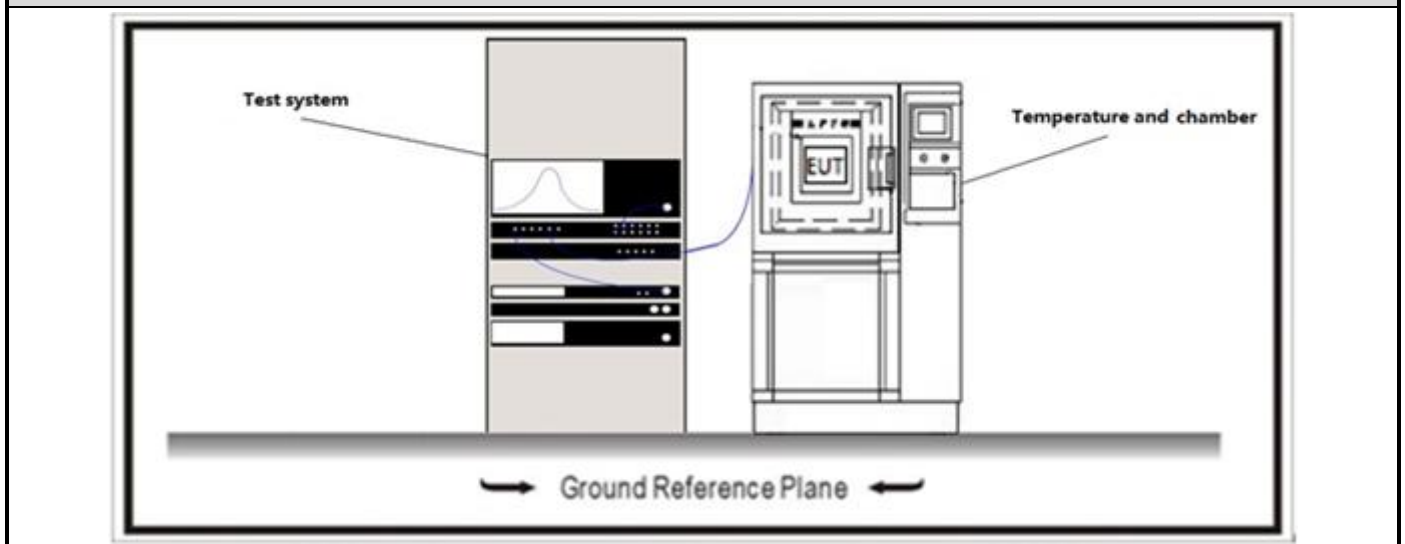
Standard	FCC Part 15 Subpart C Paragraph 15.247(a);
☒	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

4.9.2 Test Setup**4.9.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	7.8	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.4	Time of occupancy (dwell time)

4.10 Number of hopping Frequencies**VERDICT: PASS****4.10.1 Limit**

Standard	FCC Part 15 Subpart C Paragraph 15.247(a);
☒	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

4.10.2 Test Setup**4.10.3 Test Procedure**

References Rule	Chapter	Description
☒ ANSI C63.10	7.8.	Evaluation of frequency-hopping device parameters
☒ ANSI C63.10	7.8.3	Number of Hopping Frequencies

4.11 Antenna Requirement**VERDICT: PASS****4.11.1 Limit:****Standard**

FCC Part 15 Subpart C Paragraph 15.203

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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.11.2 Antenna Connector Construction:

- | | |
|-------------------------------------|--|
| ☐ | The use of a permanently attached antenna |
| ☐ | The antenna use of a unique coupling to the intentional radiator |
| ☒ | The use of a nonstandard antenna jack or electrical connector |

Please refer to the attached document "Internal Photograph" to show the antenna connector.

5 TEST SETUP PHOTO AND EUT PHOTO

Remark: The test setup photo and EUT Photo please see appendix.

Appendix A: Test results of 20dB Emission Bandwidth

20dB Emission Bandwidth:

Test Result

TestMode	Frequency[MHz]	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	2402	0.834	2401.568	2402.402	---	---
	2441	0.843	2440.559	2441.402	---	---
	2480	0.843	2479.556	2480.399	---	---
2DH5	2402	1.341	2401.316	2402.657	---	---
	2441	1.320	2440.331	2441.651	---	---
	2480	1.341	2479.316	2480.657	---	---
3DH5	2402	1.104	2401.430	2402.534	---	---
	2441	1.005	2440.529	2441.534	---	---
	2480	1.119	2479.430	2480.549	---	---

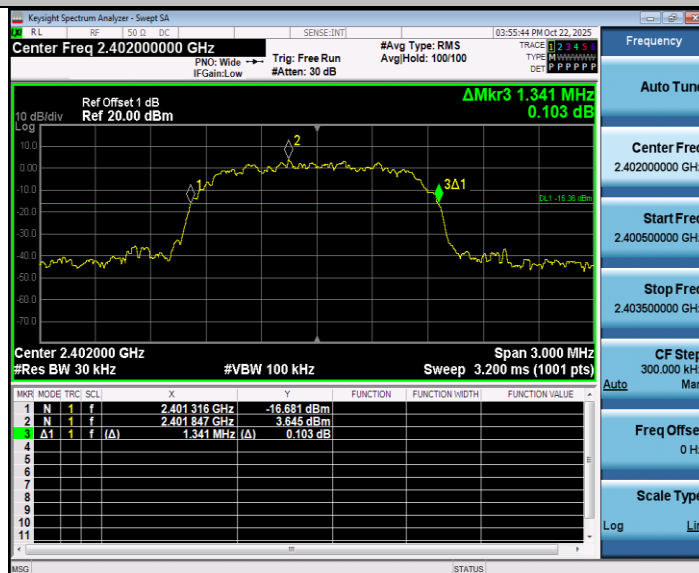
Test Graphs



DH5_Ant1_2480



2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



99% Occupied bandwidth:

Test Result

TestMode	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	2402	0.75347	2401.6174	2402.3709	---	---
	2441	0.75072	2440.6156	2441.3663	---	---
	2480	0.76077	2479.6109	2480.3717	---	---
2DH5	2402	1.1885	2401.3939	2402.5824	---	---
	2441	1.1803	2440.3967	2441.5770	---	---
	2480	1.1805	2479.3977	2480.5782	---	---
3DH5	2402	1.0073	2401.5133	2402.5206	---	---
	2441	1.0185	2440.4665	2441.4850	---	---
	2480	1.0774	2479.4515	2480.5289	---	---

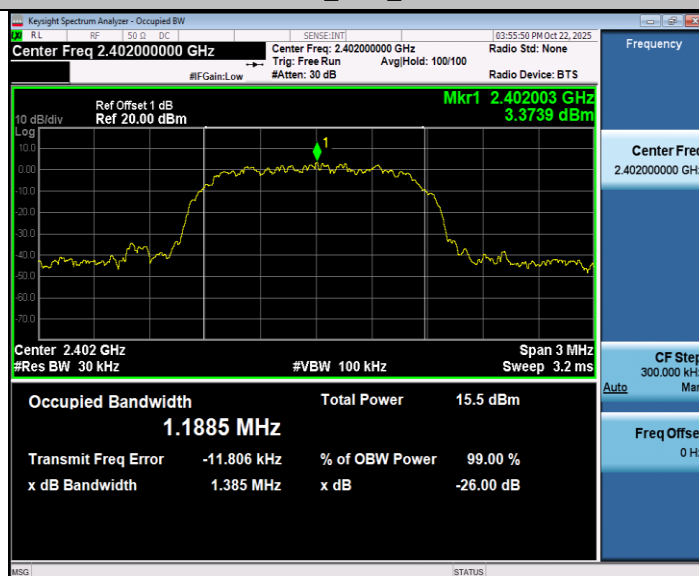
Test Graphs



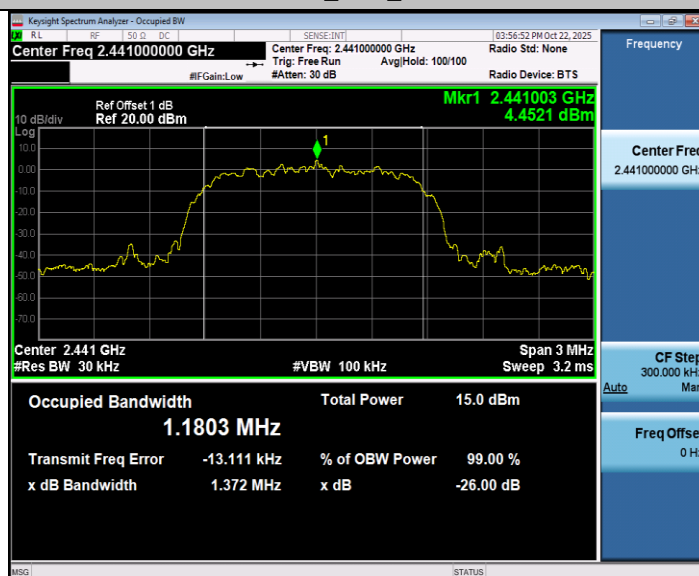
DH5_Ant1_2480



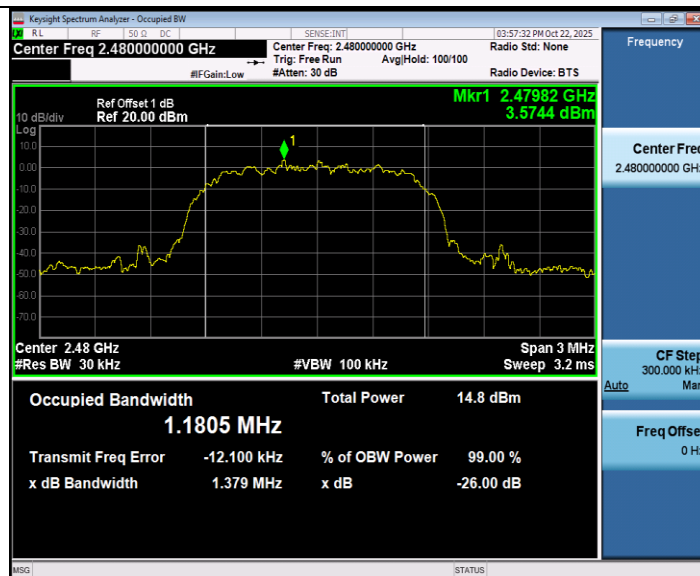
2DH5_Ant1_2402



2DH5_Ant1_2441



2DH5_Ant1_2480



3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Appendix B: Test results of Maximum conducted output power

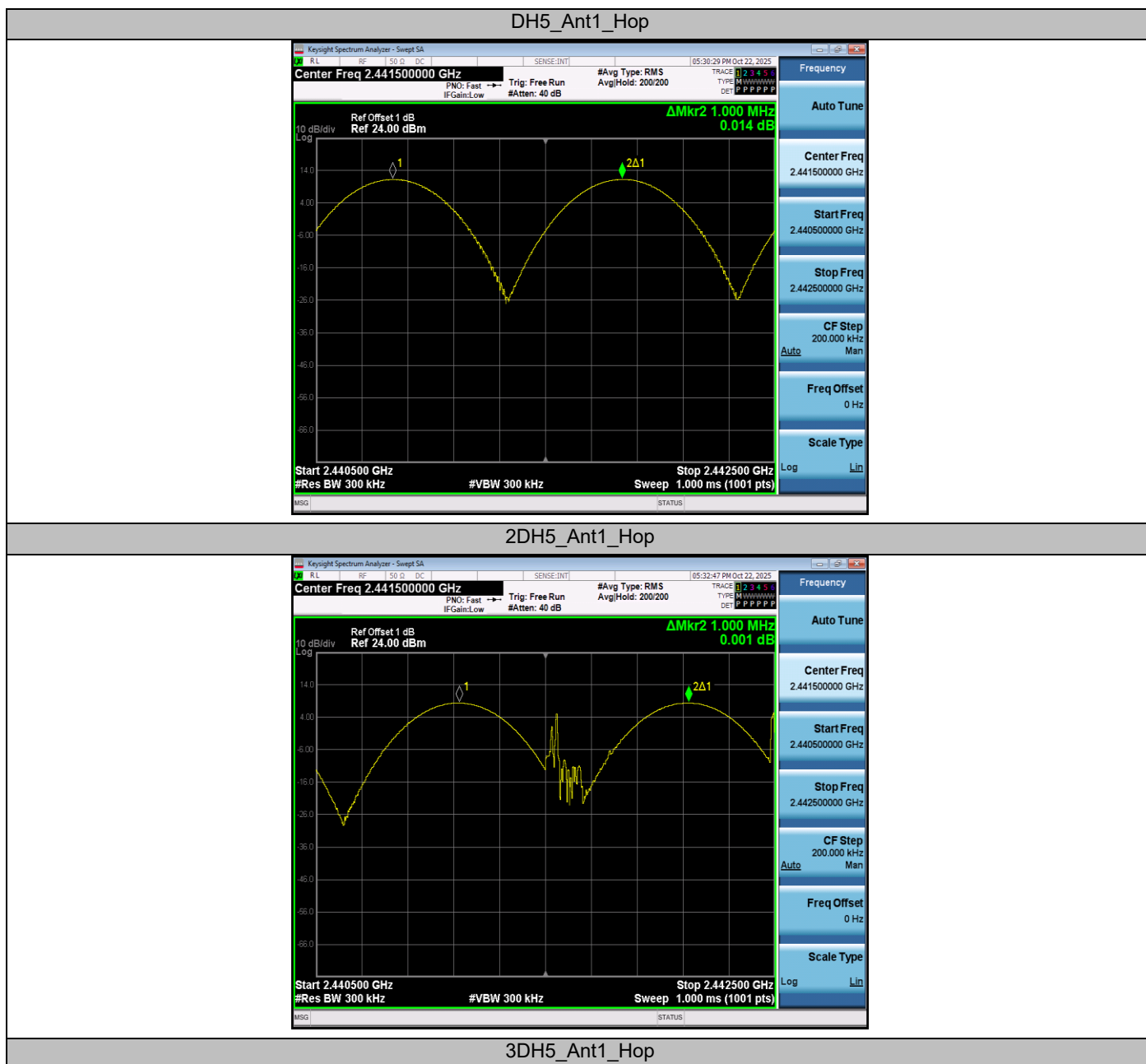
Mode	Channel	Frequency (MHz)	Measure result (dBm)	Limit (dBm)	Verdict
DH5	00	2402	12.54	≤30	Pass
	39	2441	11.91	≤30	Pass
	79	2480	11.93	≤30	Pass
2DH5	00	2402	10.81	≤30	Pass
	39	2441	10.67	≤30	Pass
	79	2480	10.66	≤30	Pass
3DH5	00	2402	10.69	≤30	Pass
	39	2441	10.96	≤30	Pass
	79	2480	10.91	≤30	Pass

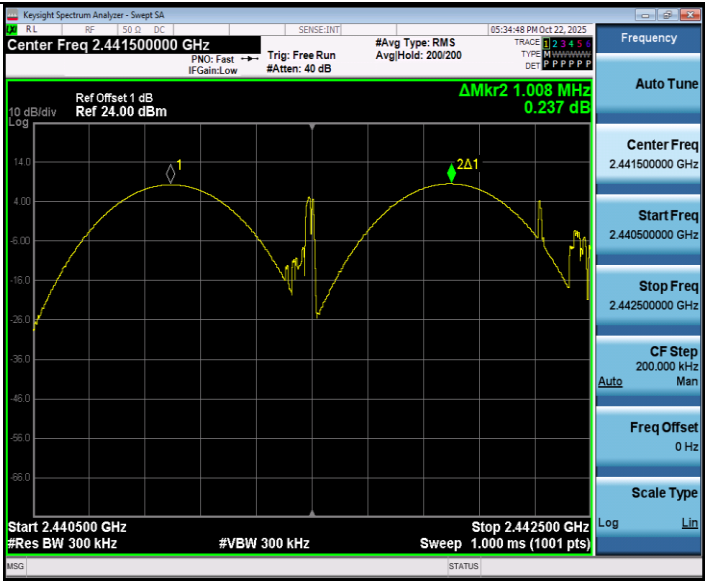
Appendix C: Test results of Carrier Frequency Separation

Test Result

TestMode	Frequency[MHz]	Result[MHz]	Limit[MHz]	Verdict
DH5	Hop	1	≥ 0.843	PASS
2DH5	Hop	1	≥ 0.894	PASS
3DH5	Hop	1.008	≥ 0.746	PASS

Test Graphs



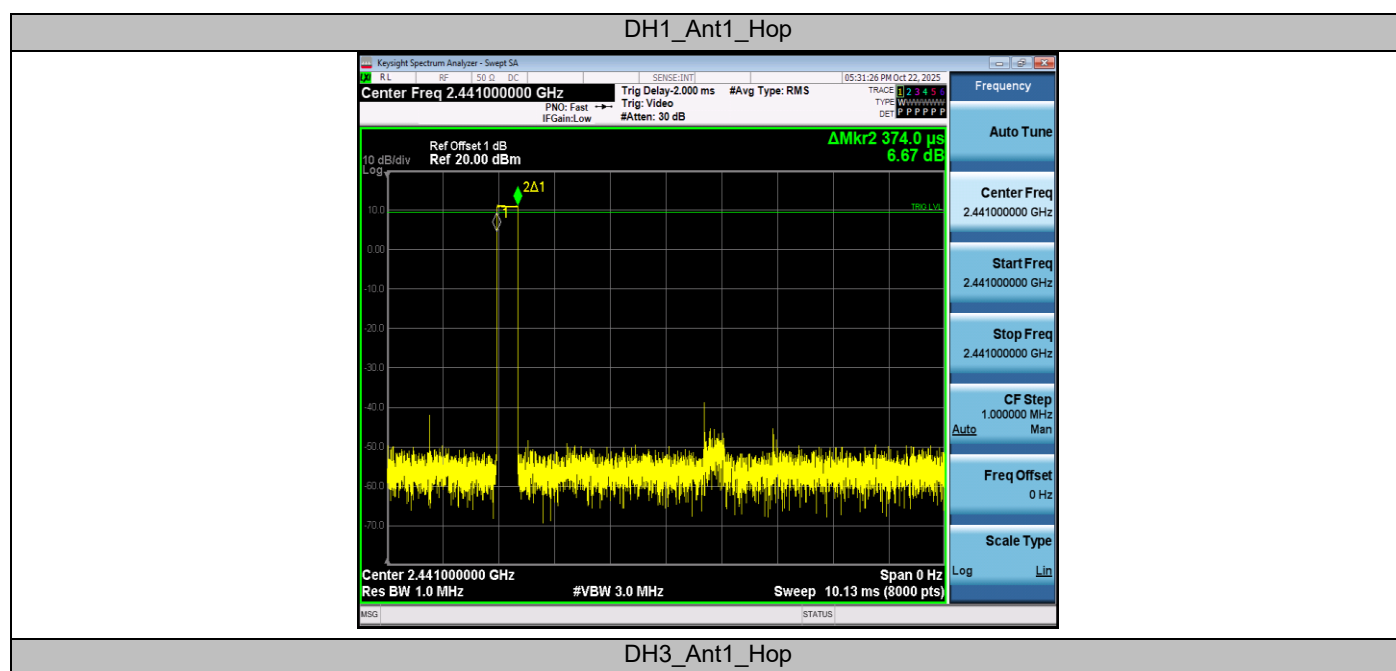


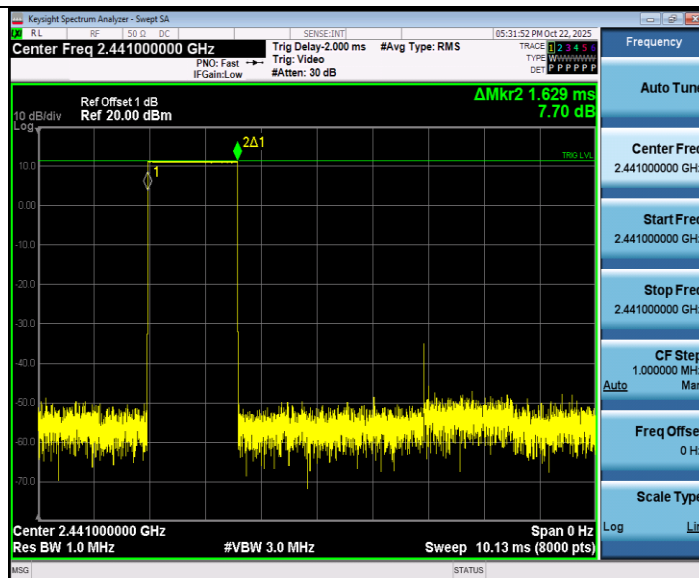
Appendix D: Test results of Time of Occupancy

Test Result

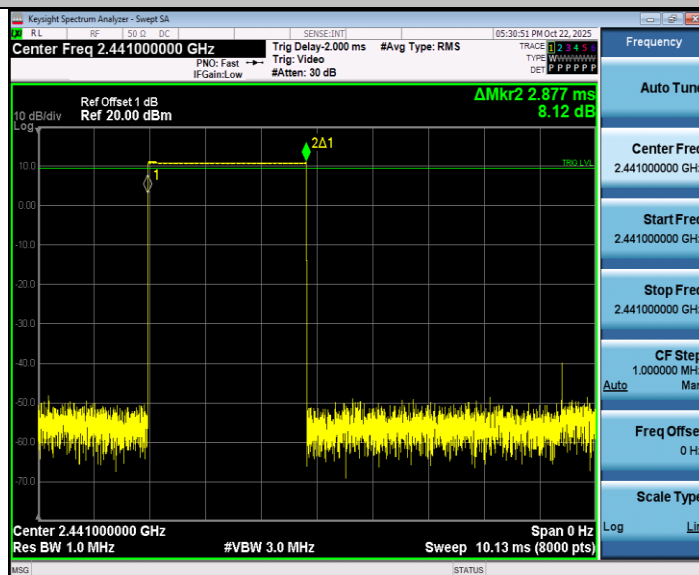
TestMode	Frequency[MHz]	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Hop	0.374	320	0.12	≤0.4	PASS
DH3	Hop	1.629	160	0.261	≤0.4	PASS
DH5	Hop	2.877	106.67	0.307	≤0.4	PASS
2DH1	Hop	0.381	320	0.122	≤0.4	PASS
2DH3	Hop	1.634	160	0.261	≤0.4	PASS
2DH5	Hop	2.877	106.67	0.307	≤0.4	PASS
3DH1	Hop	0.383	320	0.123	≤0.4	PASS
3DH3	Hop	1.633	160	0.261	≤0.4	PASS
3DH5	Hop	2.884	106.67	0.308	≤0.4	PASS

Test Graphs

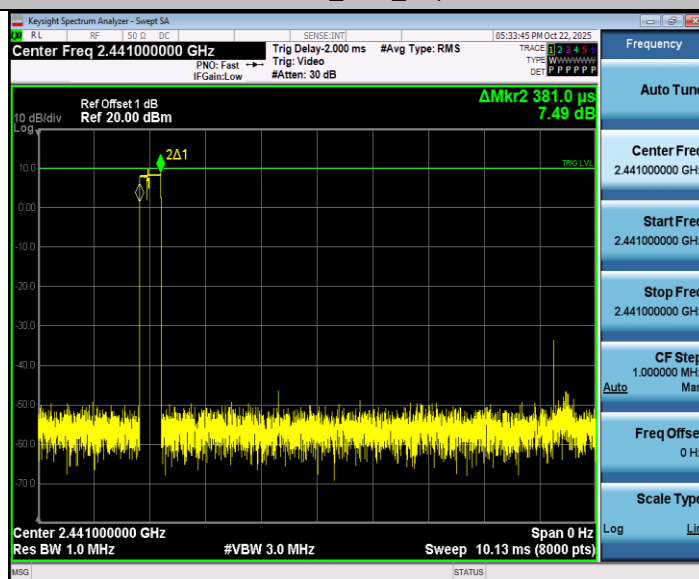




DH5_Ant1_Hop



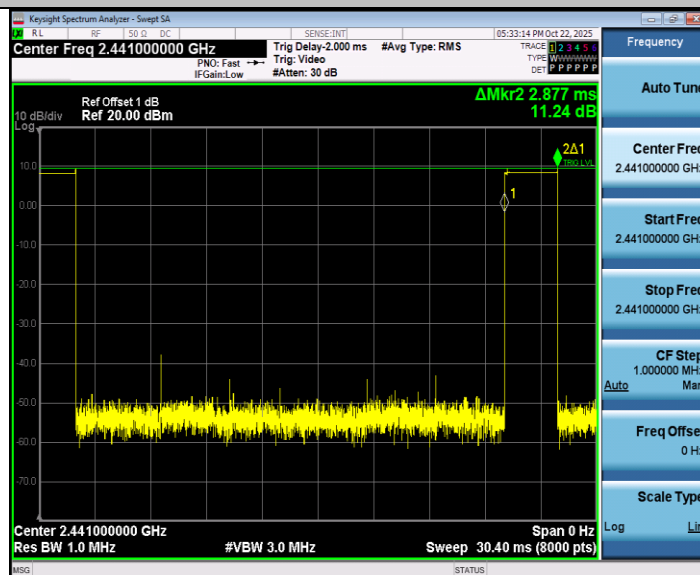
2DH1_Ant1_Hop



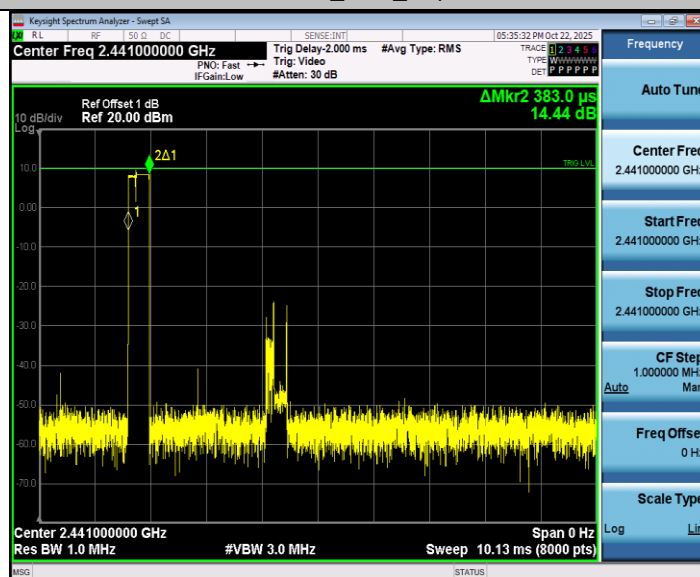
2DH3_Ant1_Hop



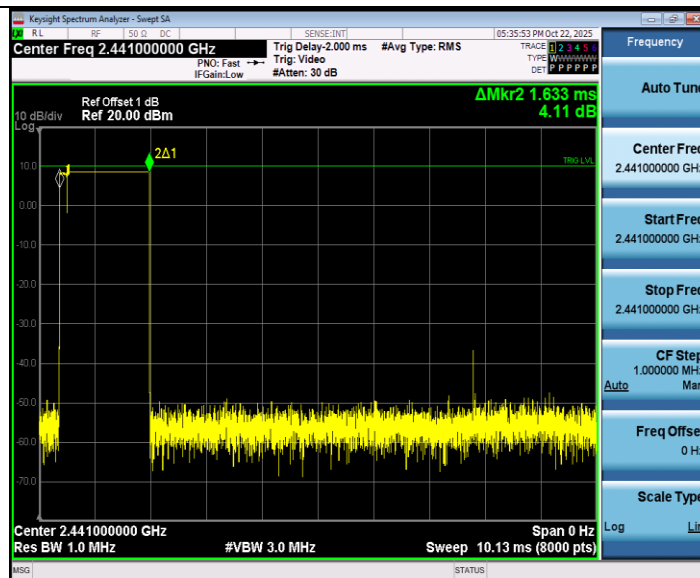
2DH5_Ant1_Hop



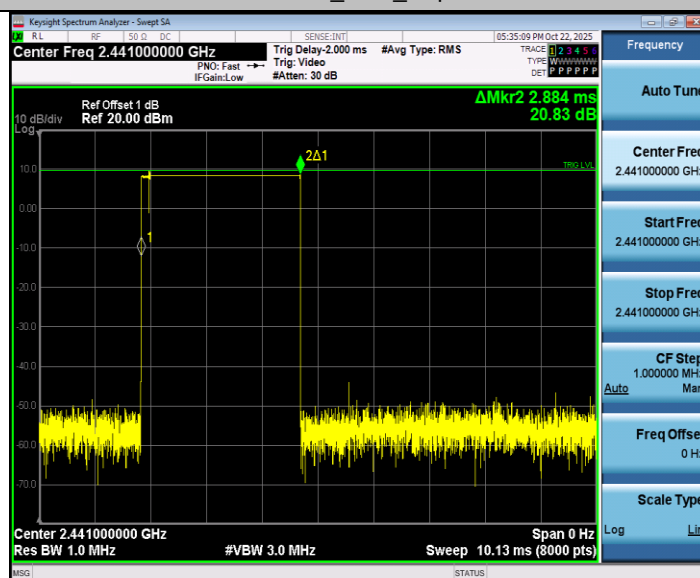
3DH1_Ant1_Hop



3DH3_Ant1_Hop



3DH5_Ant1_Hop



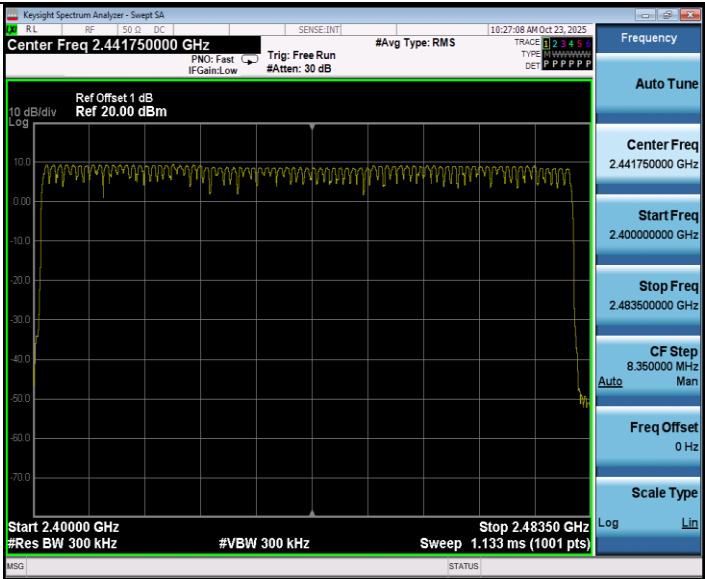
Appendix E: Test results of Number of Hopping Frequencies

Test Result

TestMode	Frequency[MHz]	Result[Num]	Limit[Num]	Verdict
DH5	Hop	79	≥15	PASS
2DH5	Hop	79	≥15	PASS
3DH5	Hop	79	≥15	PASS

Test Graphs

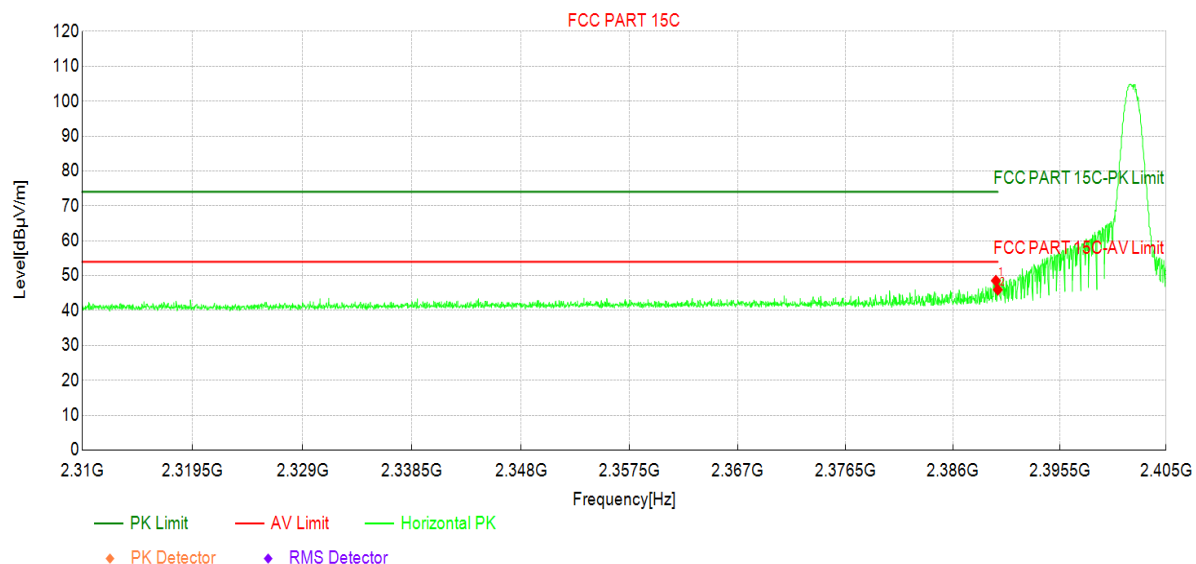




Appendix F: Test results of Band edge measurements

Transmit at 2402MHz by DH5

Test Graph

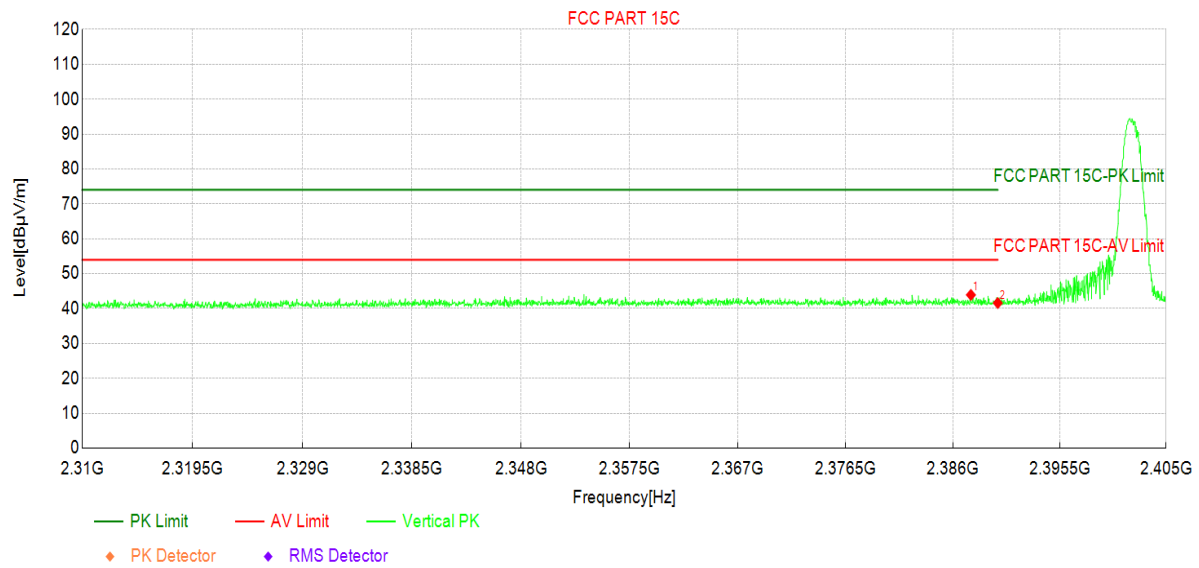


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2389.83	43.41	48.55	5.14	74.00	25.45	PK	Horizo	PASS
	2389.83	-	23.76	-	54.00	30.24	AV	Horizo	PASS
2	2390.00	40.83	45.97	5.14	74.00	28.03	PK	Horizo	PASS
	2390.00	-	21.18	-	54.00	32.82	AV	Horizo	PASS

Transmit at 2402MHz by DH5

Test Graph

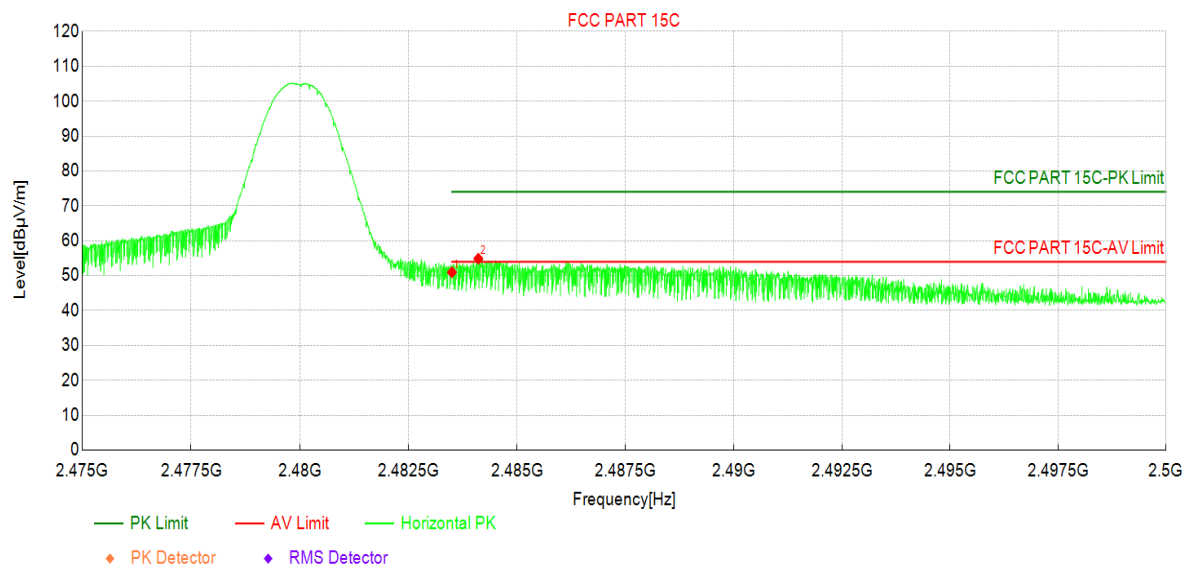


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2387.62	38.79	43.91	5.12	74.00	30.09	PK	Vertic	PASS
	2387.62	-	19.12	-	54.00	34.88	AV	Vertic	PASS
2	2390.00	36.45	41.59	5.14	74.00	32.41	PK	Vertic	PASS
	2390.00	-	16.80	-	54.00	37.20	AV	Vertic	PASS

Transmit at 2480MHz by DH5

Test Graph

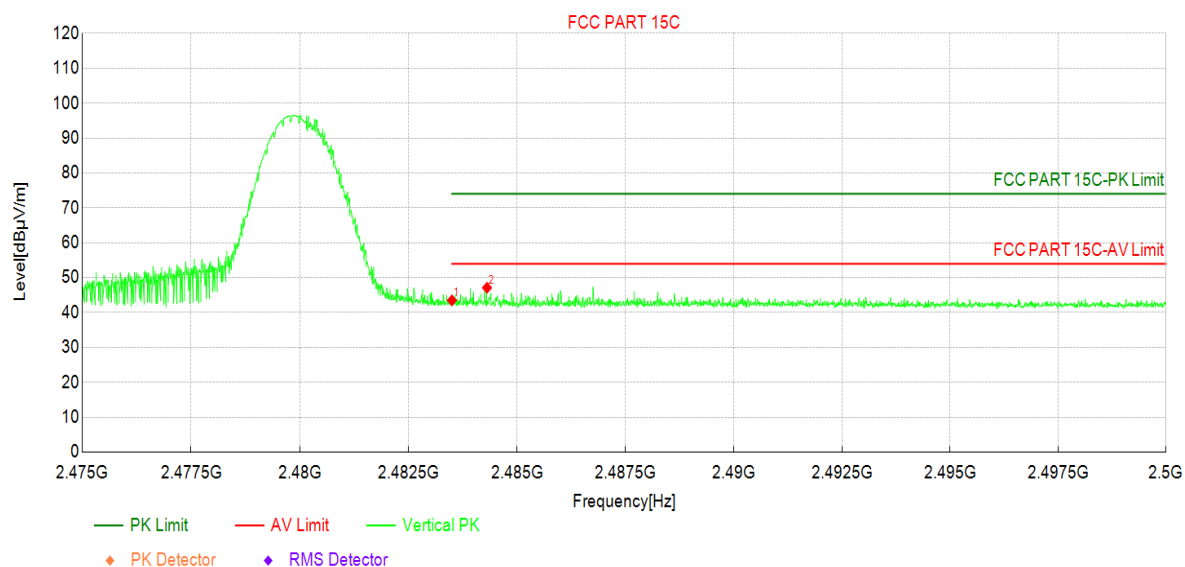


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2483.50	45.47	50.98	5.51	74.00	23.02	PK	Horizo	PASS
	2483.50	-	26.19	-	54.00	27.81	AV	Horizo	PASS
2	2484.11	49.35	54.87	5.52	74.00	19.13	PK	Horizo	PASS
	2484.11	-	30.08	-	54.00	23.92	AV	Horizo	PASS

Transmit at 2480MHz by DH5

Test Graph

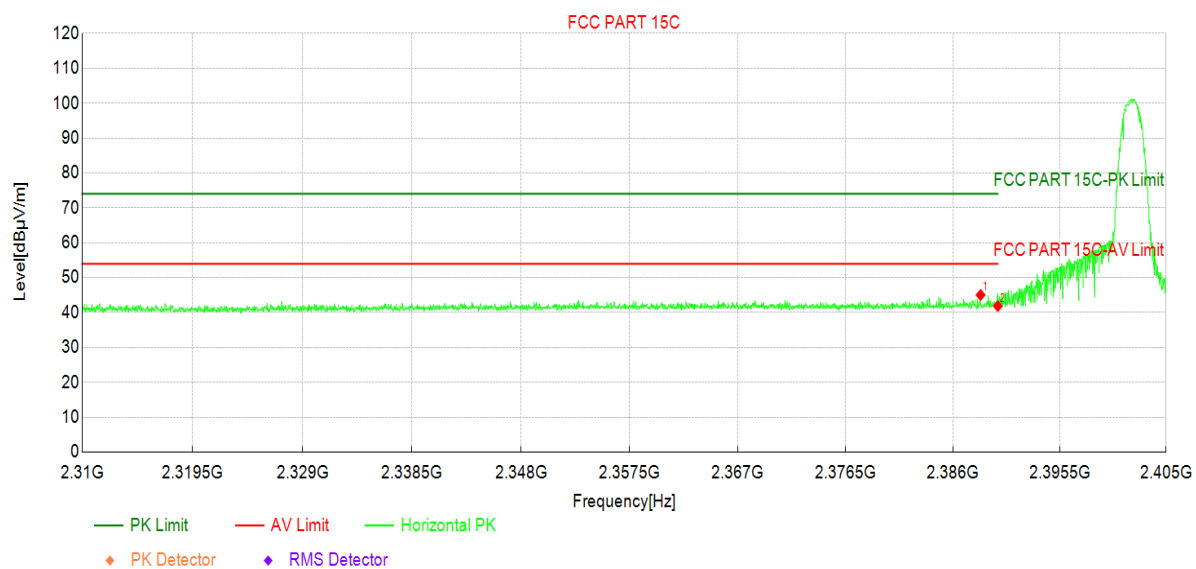


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2483.50	37.99	43.50	5.51	74.00	30.50	PK	Vertic	PASS
	2483.50	-	18.71	-	54.00	35.29	AV	Vertic	PASS
2	2484.31	41.58	47.10	5.52	74.00	26.90	PK	Vertic	PASS
	2484.31	-	22.31	-	54.00	31.69	AV	Vertic	PASS

Transmit at 2402MHz by 2DH5

Test Graph

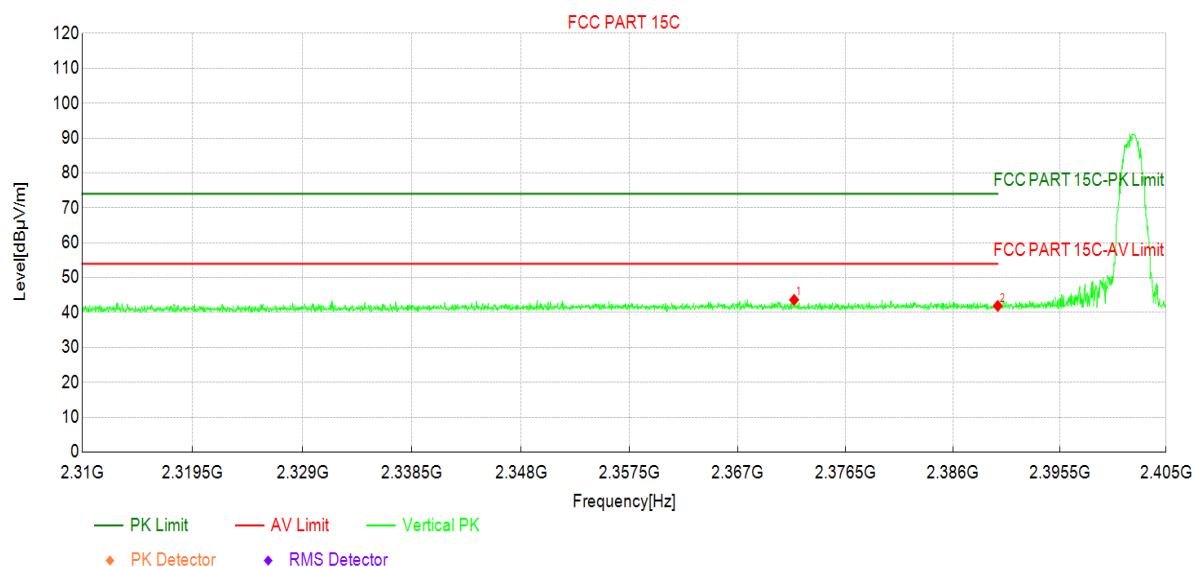


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2388.47	39.92	45.05	5.13	74.00	28.95	PK	Horizo	PASS
	2388.47	-	20.26	-	54.00	33.74	AV	Horizo	PASS
2	2390.00	36.73	41.87	5.14	74.00	32.13	PK	Horizo	PASS
	2390.00	-	17.08	-	54.00	36.92	AV	Horizo	PASS

Transmit at 2402MHz by 2DH5

Test Graph

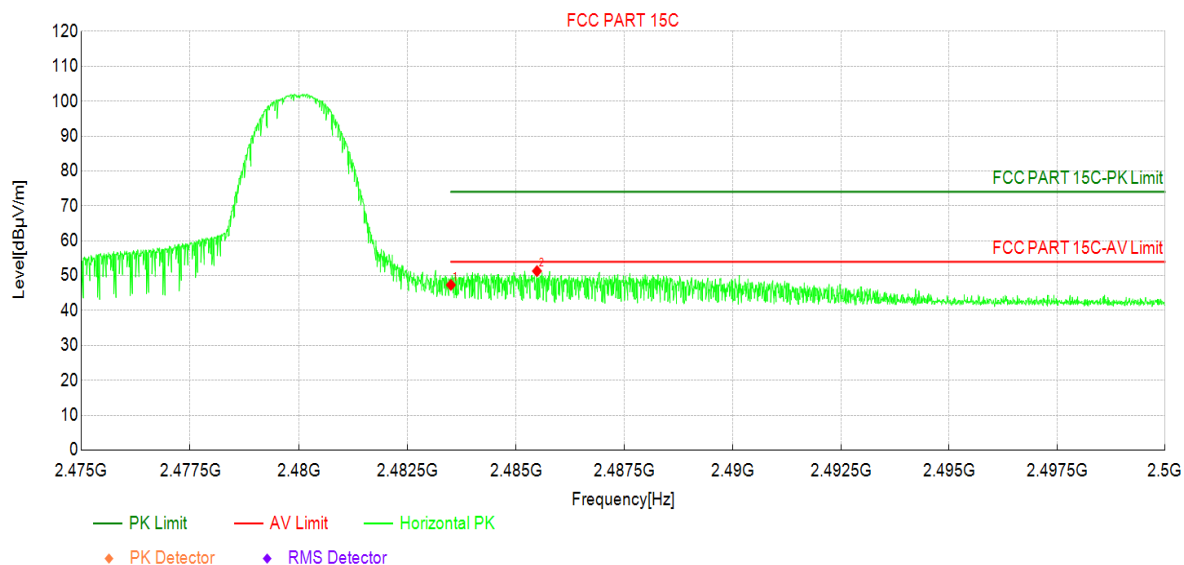


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2371.97	38.64	43.65	5.01	74.00	30.35	PK	Vertic	PASS
	2371.97	-	18.86	-	54.00	35.14	AV	Vertic	PASS
2	2390.00	36.76	41.90	5.14	74.00	32.10	PK	Vertic	PASS
	2390.00	-	17.11	-	54.00	36.89	AV	Vertic	PASS

Transmit at 2480MHz by 2DH5

Test Graph

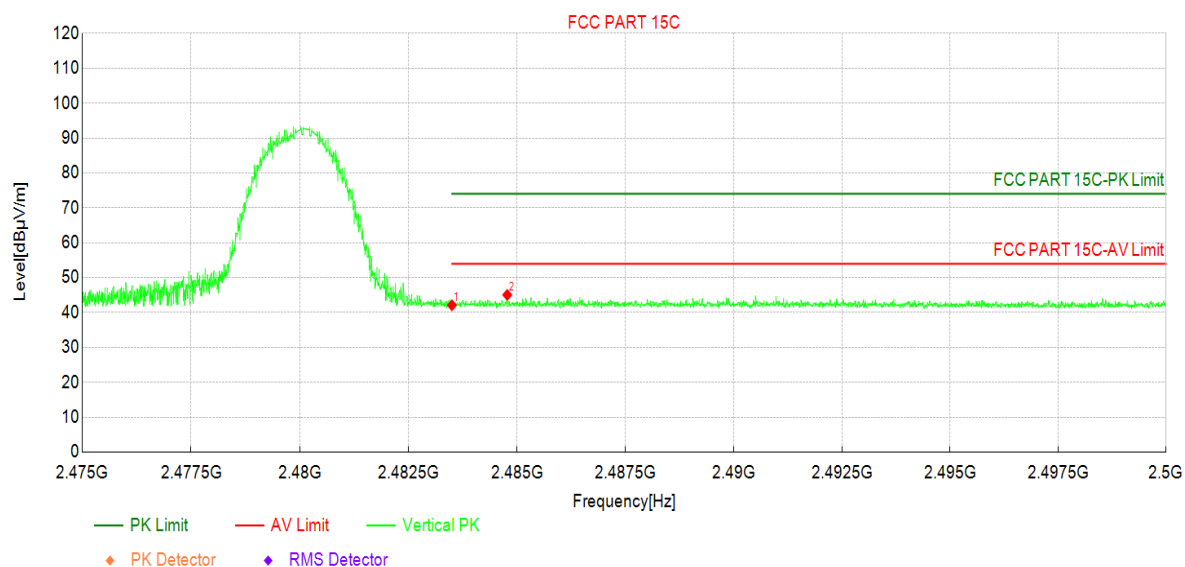


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2483.50	41.83	47.34	5.51	74.00	26.66	PK	Horizo	PASS
	2483.50	-	22.55	-	54.00	31.45	AV	Horizo	PASS
2	2485.48	45.78	51.31	5.53	74.00	22.69	PK	Horizo	PASS
	2485.48	-	26.52	-	54.00	27.48	AV	Horizo	PASS

Transmit at 2480MHz by 2DH5

Test Graph

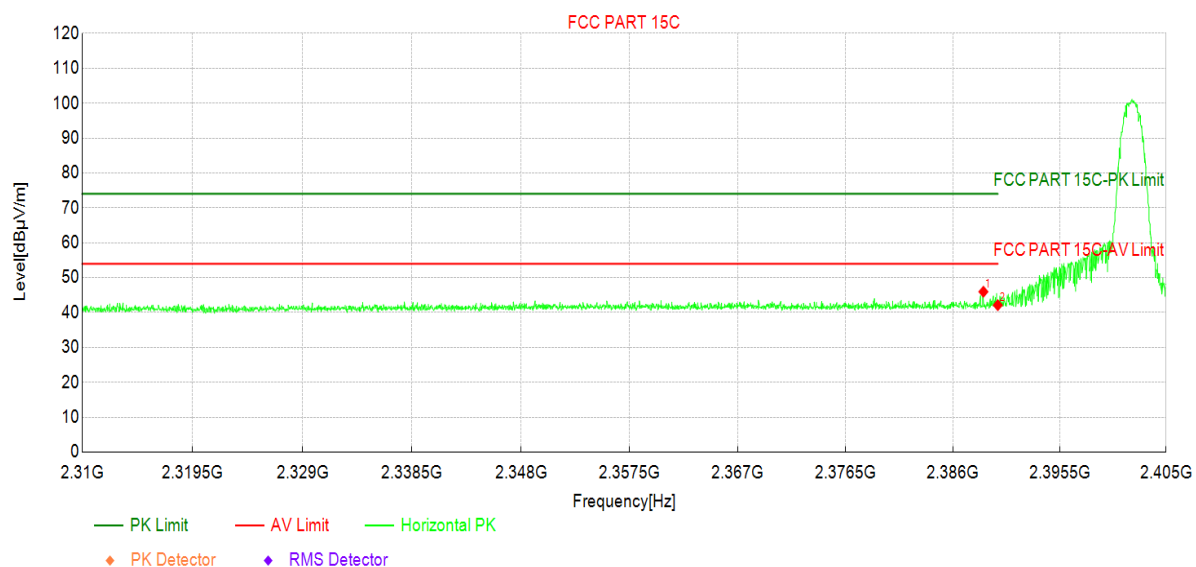


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2483.50	36.59	42.10	5.51	74.00	31.90	PK	Vertic	PASS
	2483.50	-	17.31	-	54.00	36.69	AV	Vertic	PASS
2	2484.78	39.53	45.06	5.53	74.00	28.94	PK	Vertic	PASS
	2484.78	-	20.27	-	54.00	33.73	AV	Vertic	PASS

Transmit at 2402MHz by 3DH5

Test Graph

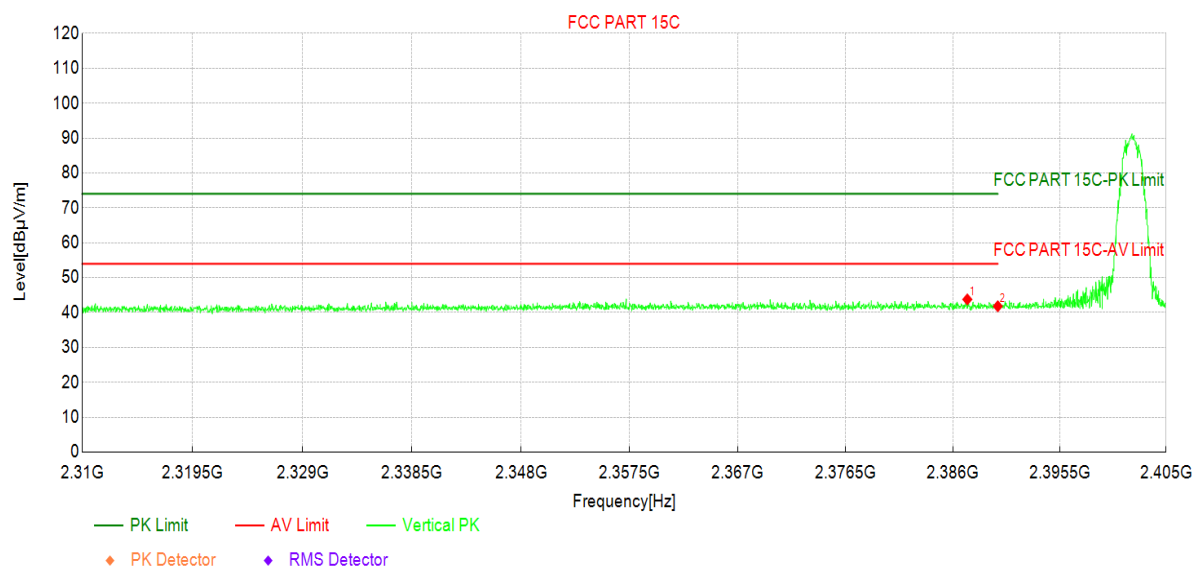


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2388.72	40.83	45.96	5.13	74.00	28.04	PK	Horizo	PASS
	2388.72	-	21.17	-	54.00	32.83	AV	Horizo	PASS
2	2390.00	36.98	42.12	5.14	74.00	31.88	PK	Horizo	PASS
	2390.00	-	17.33	-	54.00	36.67	AV	Horizo	PASS

Transmit at 2402MHz by 3DH5

Test Graph

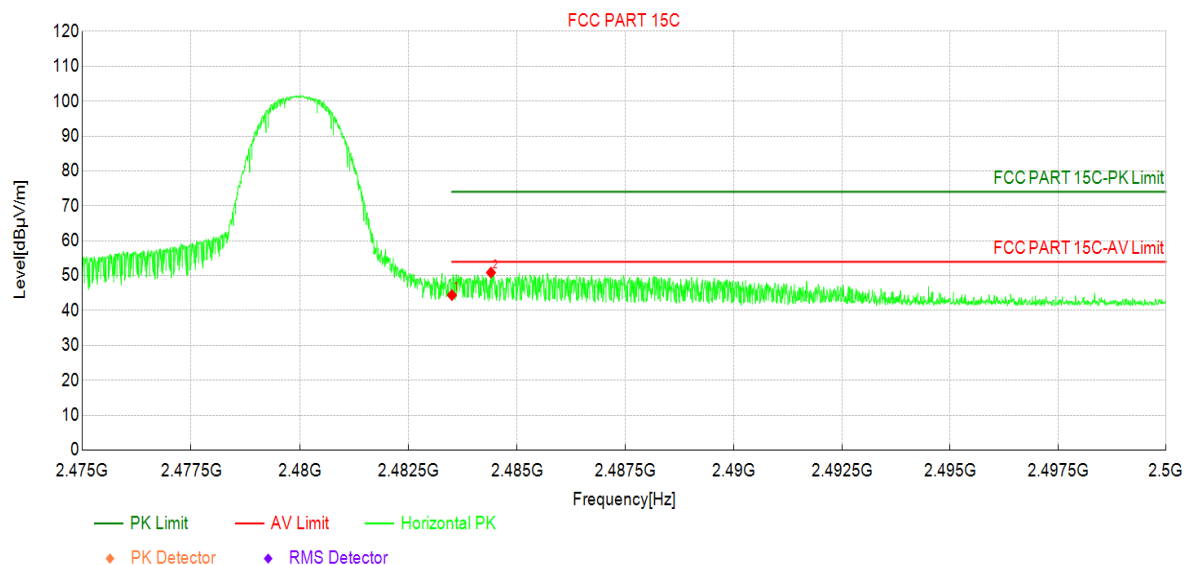


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2387.30	38.65	43.77	5.12	74.00	30.23	PK	Vertic	PASS
	2387.30	-	18.98	-	54.00	35.02	AV	Vertic	PASS
2	2390.00	36.67	41.81	5.14	74.00	32.19	PK	Vertic	PASS
	2390.00	-	17.02	-	54.00	36.98	AV	Vertic	PASS

Transmit at 2480MHz by 3DH5

Test Graph

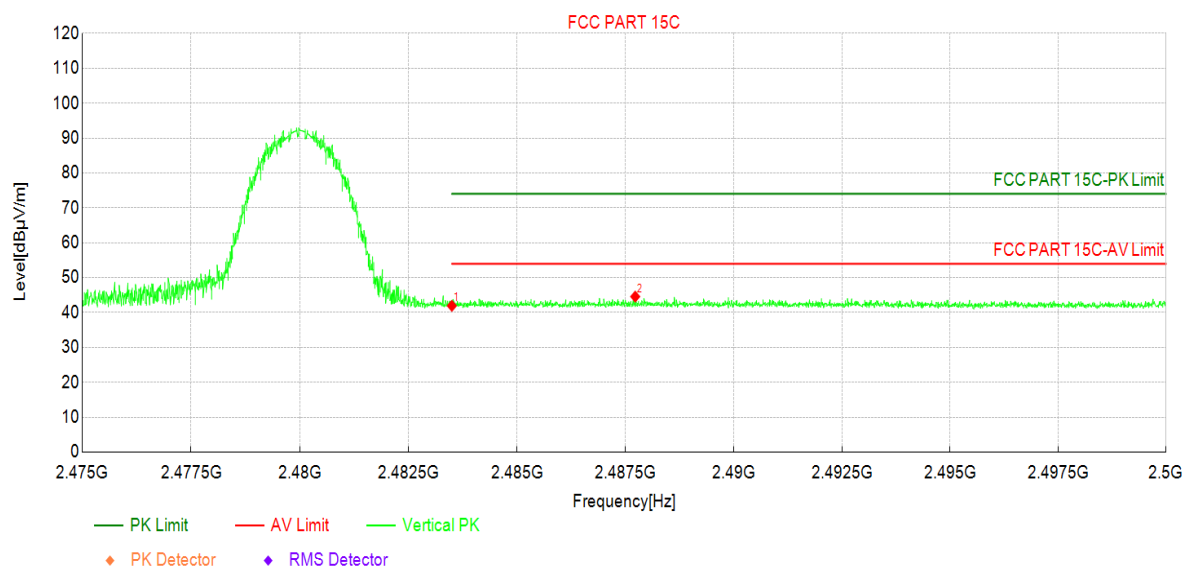


Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2483.50	38.92	44.43	5.51	74.00	29.57	PK	Horizo	PASS
	2483.50	-	19.64	-	54.00	34.36	AV	Horizo	PASS
2	2484.40	45.35	50.88	5.53	74.00	23.12	PK	Horizo	PASS
	2484.40	-	26.09	-	54.00	27.91	AV	Horizo	PASS

Transmit at 2480MHz by 3DH5

Test Graph



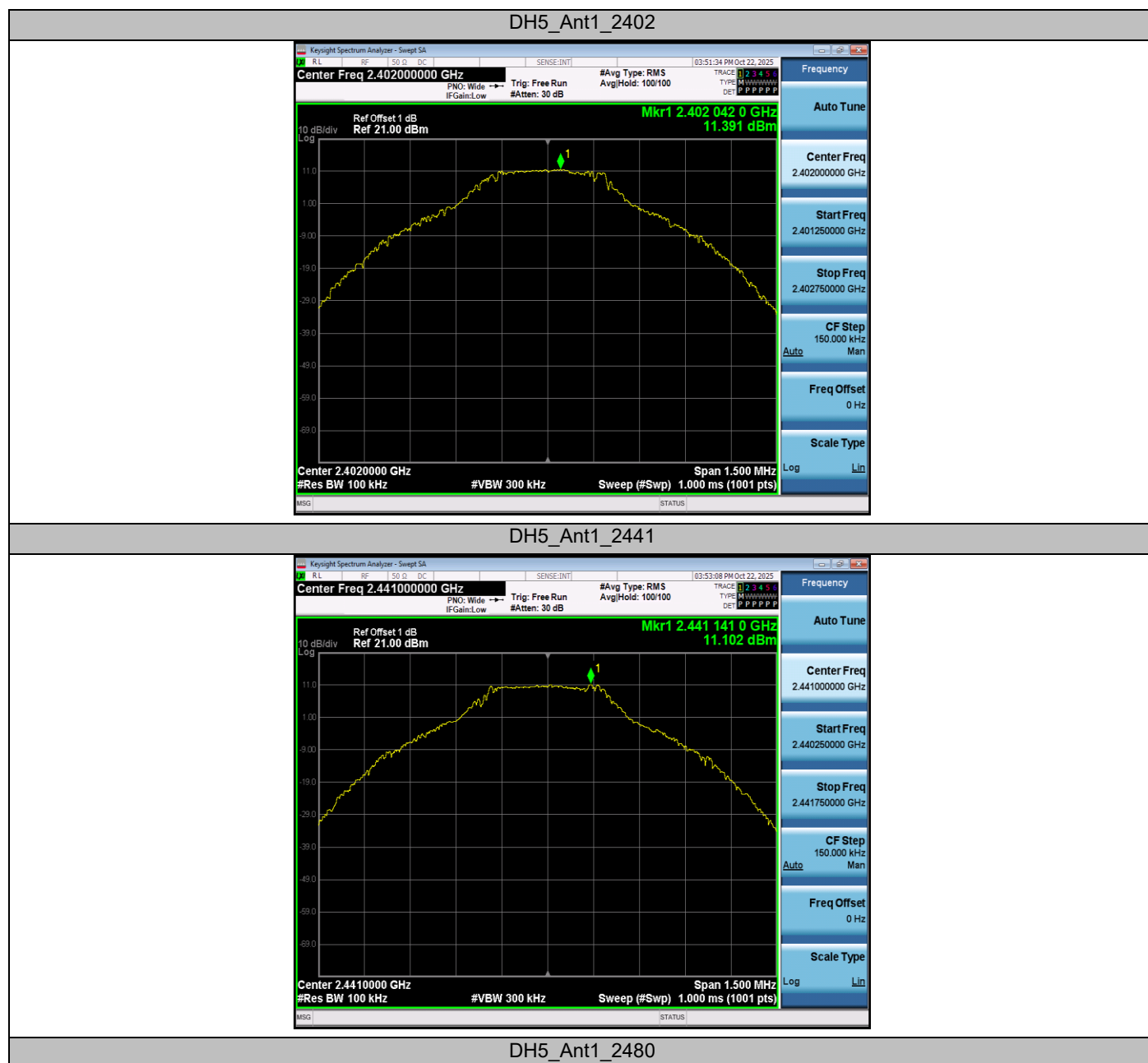
Data List

NO	Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Det	Pol	Verdict
1	2483.50	36.42	41.93	5.51	74.00	32.07	PK	Vertic	PASS
	2483.50	-	17.14	-	54.00	36.86	AV	Vertic	PASS
2	2487.73	39.05	44.58	5.53	74.00	29.42	PK	Vertic	PASS
	2487.73	-	19.79	-	54.00	34.21	AV	Vertic	PASS

Note: Level = Reading + Factor

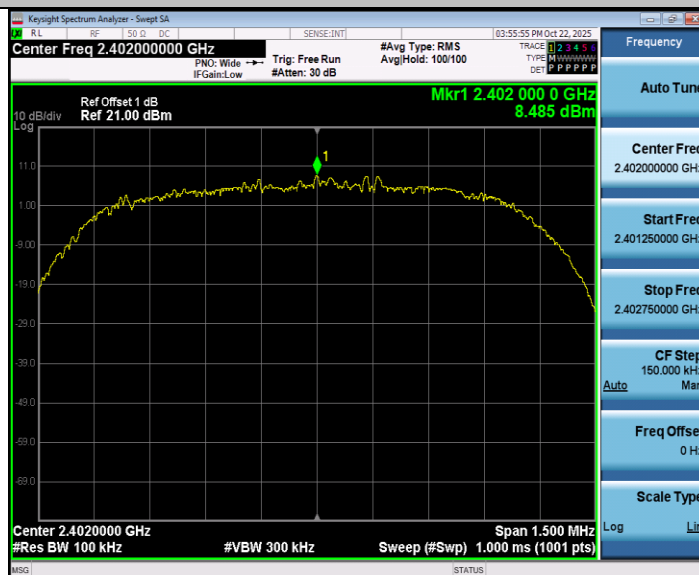
Appendix G: Test results of Conducted Spurious Emission

Test Graphs for Reference level





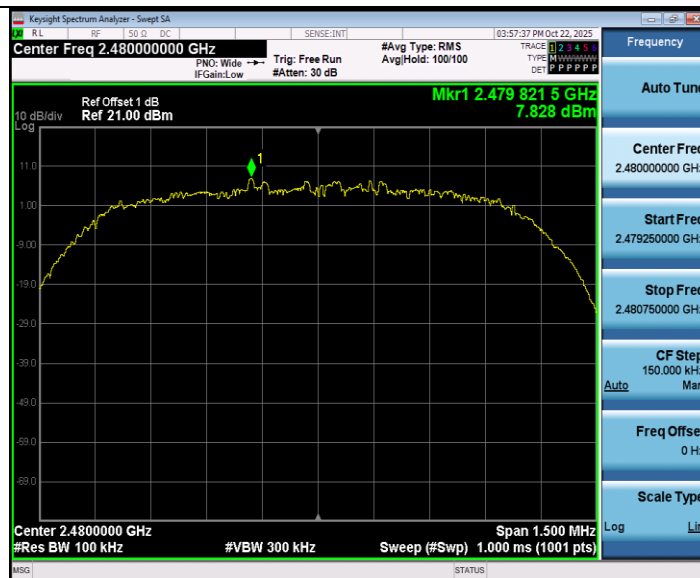
2DH5_Ant1_2402



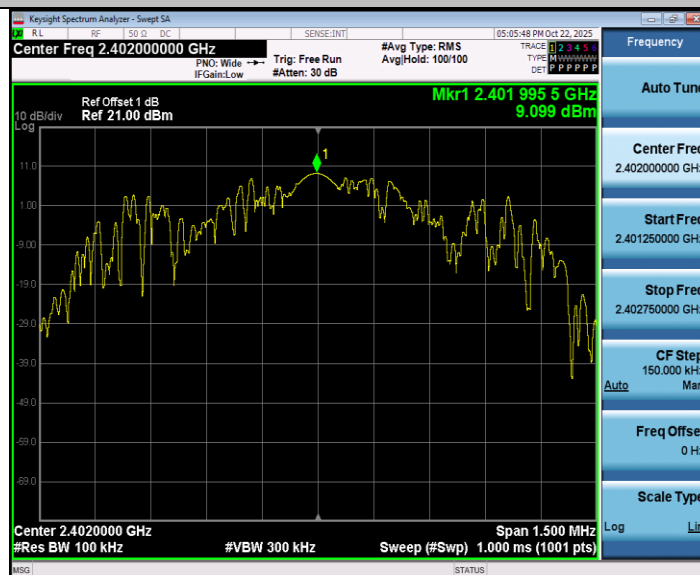
2DH5_Ant1_2441



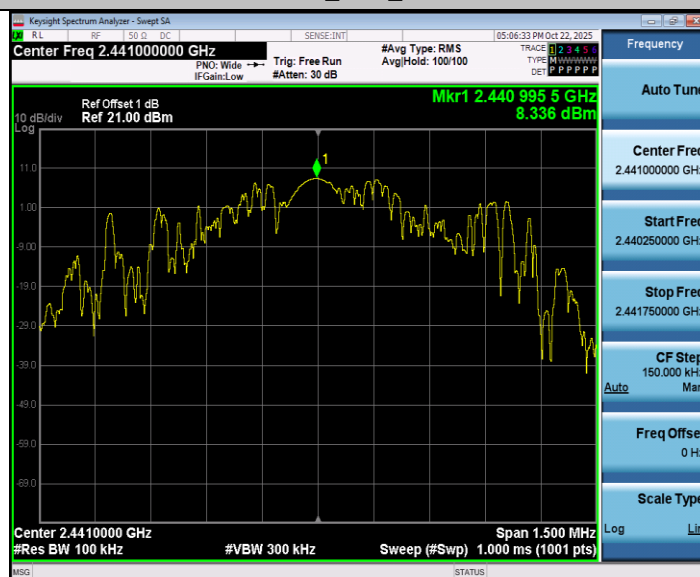
2DH5_Ant1_2480



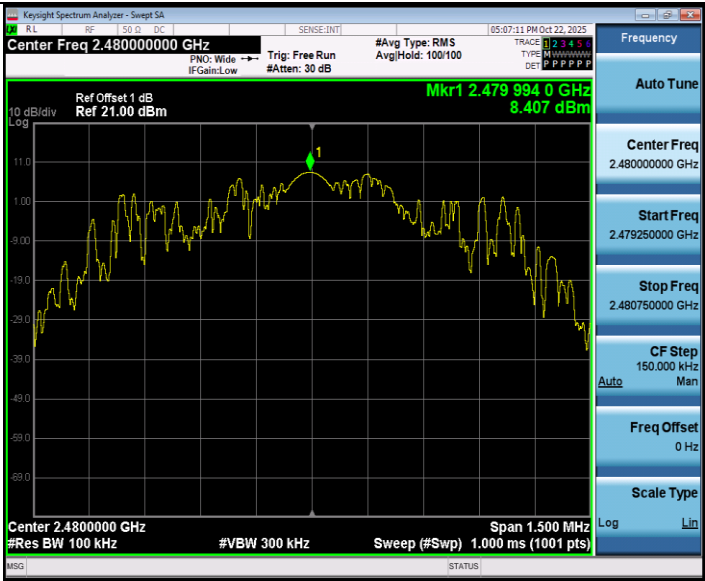
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



Test Graphs for Band edge

