



MEASUREMENT REPORT

FCC PART 15.247 Bluetooth

Report No.: S20250626670301

Issue Date: 07-01-2025

Applicant: Huizhou Foryou General Electronics Co., Ltd.
Address: No.2 District A, Foryou Industry Park, No. 1 North Shangxia Road, Dongjiang Hi tech Industry Park, Huizhou city, Guangdong Province, China 516005
FCC ID: 2AEIN-YJ5320K00
Product: MONITOR WITH RECEIVER
Model No.: KW-Z900W
FCC Classification: FCC Part 15 Spread Spectrum Transmitter (DSS)
FCC Rule Part(s): Part 15 Subpart C (15.247)
Test Procedure(s): ANSI C63.10-2013, KDB 558074 D01v05r02
Result: Pass
Item Receipt Date: Feb. 12, 2025
Test Date: Feb. 24, 2025~ May.10, 2025

Compiled By

Stone Zhang

(Stone Zhang)
Senior Test Engineer

Approved By

Line Chen

(Line Chen)
Engineer Manager

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of Fangguang Inspection & Testing Co., Ltd. Wuxi Branch

The test report must not be used by the client to claim product certifications, approval, or endorsement by NVLAP, NIST or any agency of U.S. Government.

Revision History

Report No.	Version	Description	Issue Date
S20250626670301	Rev. 01	/	07-01-2025

CONTENTS

Description	Page
§2.1033 General Information	5
1. Introduction	6
1.1. Scope	6
1.2. FANGGUANG Test Location	6
2. Product Information	7
2.1. Equipment Description	7
2.2. Product Specification Subjective to this Standard	7
2.3. Operation Frequency / Channel List	9
2.4. Pseudorandom Frequency Hopping Sequence	10
2.5. Device Capabilities	10
2.6. Description of Test Software	12
2.7. Test Configuration	12
2.8. EMI Suppression Device(s)/Modifications	13
2.9. EUT Photo	13
2.10. Labeling Requirements	14
2.11. Calculation with all conversion and correction factors used	14
3. Description of Test	15
3.1. Evaluation Procedure	15
4. Antenna Requirements	16
5. Test Equipment Calibration Date	17
6. Measurement Uncertainty	19
7. Test Result	20
7.1. Summary	20
7.2. 20dB Bandwidth Measurement	22
7.2.1. Test Limit	22
7.2.2. Test Setting	22
7.2.3. Test Setup	22
7.2.4. Test Result	23
7.3. Output Power Measurement	28
7.3.1. Test Limit	28
7.3.2. Test Setting	28
7.3.3. Test Setup	28
7.3.4. Test Result	29
7.4. Carrier Frequency Separation Measurement	30
7.4.1. Test Limit	30

7.4.2.	Test Setting	30
7.4.3.	Test Setup	30
7.4.4.	Test Result	31
7.5.	Number of Hopping Channels Measurement	33
7.5.1.	Test Limit	33
7.5.2.	Test Setting	33
7.5.3.	Test Setup	33
7.5.4.	Test Result	34
7.6.	Time of Occupancy Measurement	36
7.6.1.	Test Limit	36
7.6.2.	Test Setting	36
7.6.3.	Test Setup	37
7.6.4.	Test Result	38
7.7.	Band-edge Compliance & Conducted Spurious Emissions Measurement	48
7.7.1.	Test Limit	48
7.7.2.	Test Setting	48
7.7.3.	Test Setup	48
7.7.4.	Test Result	49
7.8.	Radiated Spurious Emission Measurement	71
7.8.1.	Test Limit	71
7.8.2.	Test Setting	72
7.8.3.	Test Setup	76
7.8.4.	Data Sample	78
7.8.5.	Test Result	80
7.9.	Radiated Restricted Band Edge Measurement	99
7.9.1.	Test Setting	100
7.9.2.	Test Setup	101
7.9.3.	Test Result	102
7.10.	AC Conducted Emissions Measurement	118
7.10.1.	Test Limit	118
7.10.2.	Test Setup	118
7.10.3.	Test Result	119
8.	Conclusion	120

§2.1033 General Information

Applicant:	Huizhou Foryou General Electronics Co., Ltd.
Applicant Address:	No.2 District A, Foryou Industry Park, No. 1 North Shangxia Road, Dongjiang Hi tech Industry Park, Huizhou city, Guangdong Province, China 516005
Manufacturer:	Huizhou Foryou General Electronics Co., Ltd.
Manufacturer Address:	No.2 District A, Foryou Industry Park, No. 1 North Shangxia Road, Dongjiang Hi tech Industry Park, Huizhou city, Guangdong Province, China 516005
Factory:	Huizhou Foryou General Electronics Co., Ltd.
Factory Address:	No.2 District A, Foryou Industry Park, No. 1 North Shangxia Road, Dongjiang Hi tech Industry Park, Huizhou city, Guangdong Province, China 516005
Test Site:	Fanguang Inspection & Testing Co., Ltd.
LAB ID:	CN5037
Test Site Address:	No.8 Ningyun Rd., Xinwu District Wuxi, Jiangsu 214000 China
FCC Rule Part(s):	Part 15 Subpart C (15.247)
FCC ID:	2AEIN-YJ5320K00
Test Device Serial No.:	S/N.: / ☐ Production ☒ Pre-Production ☐ Engineering
FCC Classification:	Spread Spectrum Transmitter (DSS)

1. Introduction

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2. FANGGUANG Test Location

These measurement tests were performed at the Fangguang Inspection and testing Co.,LTD located at No.8 Ningyun Rd., Xinwu District Wuxi, Jiangsu 214000 China. The detailed description of the measurement facility was found to be in compliance with the requirements of ANSI C63.10-2013.

2. Product Information

2.1. Equipment Description

Product Name:	MONITOR WITH RECEIVER
Model Name:	KW-Z900W
Trade Mark:	JVC
Input Voltage Range:	DC 12V
Bluetooth Version:	5.3
Temperature Range:	-20℃~+80℃
Hardware Version:	V03
Software Version:	MCU: 00.20 MPU: 00.32
Note:	1. This information is provided by the Customer and its authenticity is the responsibility of the customer. This report is made solely on the basis of such data and/or information. We accept no responsibility for the authenticity and completeness of the above data and information and the validity of the results and/or conclusions.

2.2. Product Specification Subjective to this Standard

Operating Frequency:	2402~2480MHz
Channel Number:	79
Channel Spacing	1 MHz
Type of modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Data Rate:	1Mbps (GFSK), 2Mbps ($\pi/4$ DQPSK), 3Mbps (8DPSK)
Antenna Type:	Chip Antenna
Antenna Gain:	3.2dBi

Note: The maximum Antenna Gain was declared by the manufacturer.

The equipment under test (EUT) is the **MONITOR WITH RECEIVER**. The test data contained in this report pertains only to the emissions due to the EUT's Bluetooth transmitter.

- 15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.
- 15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate its channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.
- 15.247(h): The EUT employs Adaptive Frequency Hopping (AFH) which identifies sources of interference namely devices operating in 802.11 WLAN and excludes them from the list of available channels. The process of re-mapping reduces the number of test channels from 79 channels to a minimum number of 20 channels.

2.3. Operation Frequency / Channel List

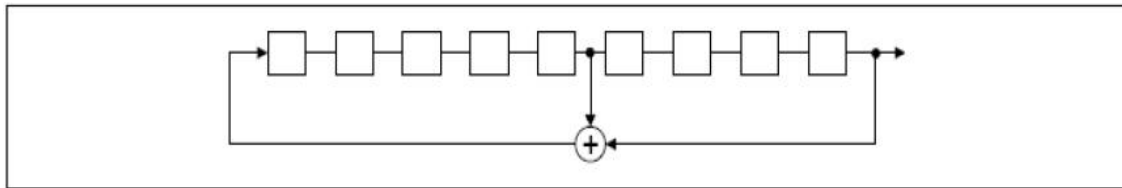
Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz
03	2405 MHz	04	2406 MHz	05	2407 MHz
06	2408 MHz	07	2409 MHz	08	2410 MHz
09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz
15	2417 MHz	16	2418 MHz	17	2419 MHz
18	2420 MHz	19	2421 MHz	20	2422 MHz
21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz
27	2429 MHz	28	2430 MHz	29	2431 MHz
30	2432 MHz	31	2433 MHz	32	2434 MHz
33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz
39	2441 MHz	40	2442 MHz	41	2443 MHz
42	2444 MHz	43	2445 MHz	44	2446 MHz
45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz
51	2453 MHz	52	2454 MHz	53	2455 MHz
54	2456 MHz	55	2457 MHz	56	2458 MHz
57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz
63	2465 MHz	64	2466 MHz	65	2467 MHz
66	2468 MHz	67	2469 MHz	68	2470 MHz
69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz
75	2477 MHz	76	2478 MHz	77	2479 MHz
78	2480 MHz	-	-	-	-

EUT was tested with Channel 0, 39 and 78.

2.4. Pseudorandom Frequency Hopping Sequence

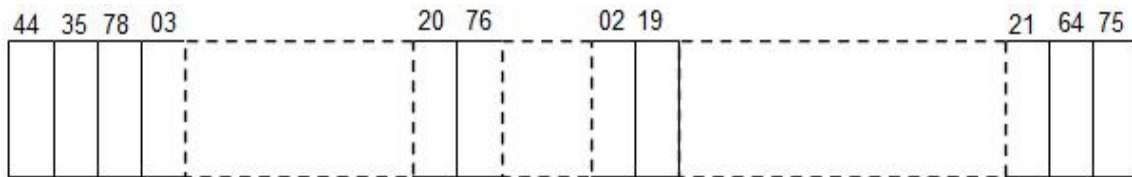
The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized 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.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

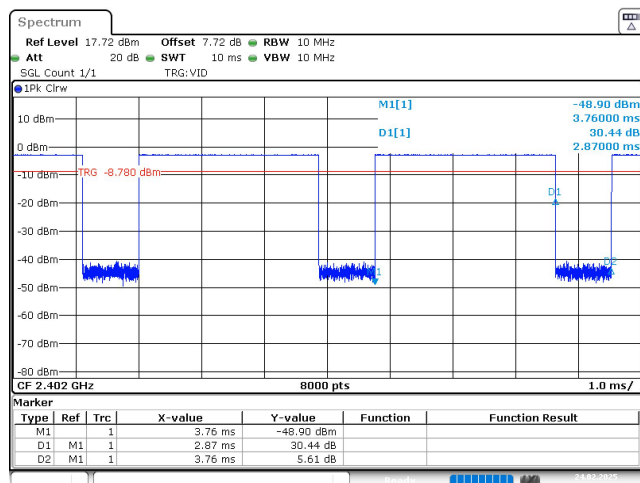
2.5. Device Capabilities

This device contains the following capabilities:Bluetooth (5.3)

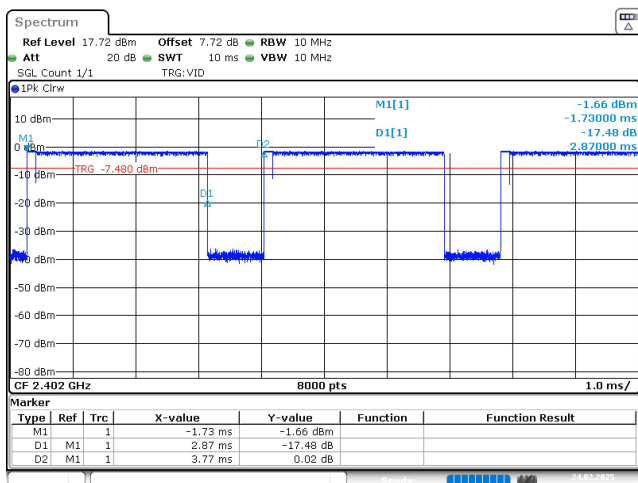
Note: The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 10MHz, VBW = 10MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Antenna	Frequency [MHz]	ON Time [ms]	Period [ms]	DC [%]	T [s]
DH5	Ant1	2402	2.87	3.76	76.33	0.00287
2DH5	Ant1	2402	2.87	3.77	76.13	0.00287
3DH5	Ant1	2402	2.87	3.77	76.13	0.00287

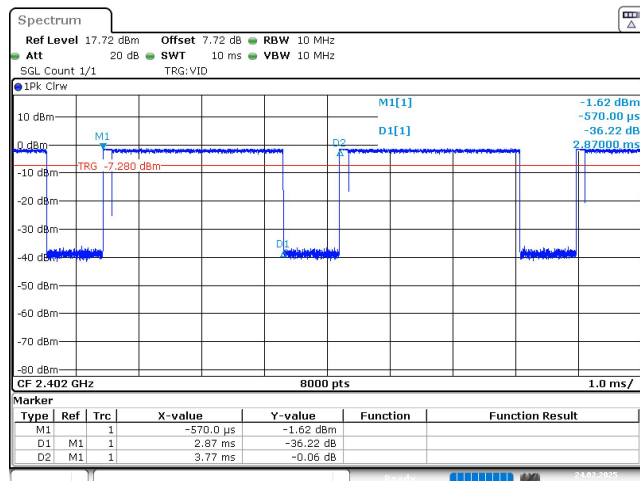
DH5_2402MHz



2DH5_2402MHz



3DH5_2402MHz

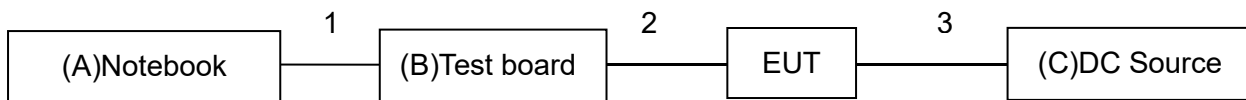


2.6. Description of Test Software

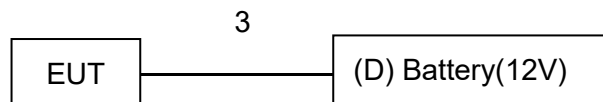
The test utility software used during testing was “RTLBTAPP.exe”, and the test software power level setting is Default.

2.7. Test Configuration

For 20dB Bandwidth& Carrier Frequencies Separated & Hopping Channel Number & Dwell Time & Conducted band edges and Spurious Emission & Duty Cycle & Maximum Peak Output Power:



For Radiated Spurious Emission&Restricted bands of operation:



2.8. EMI Suppression Device(s)/Modifications

No.	Name of equipment	Manufacturer	Model	Serial number	Note
A	Notebook	DELL	Latitude3300	2C6CFW2	/
B	Test board	/	/	/	/
C	DC Source	Keysight	E36131A	/	/
D	Battery(12V)	/	/	/	/

No.	Cable Type	Qty.	Shielded Type	Ferrite Core(Qty.)	Length
1	USB cable	1	No	0	1.0m
2	Serial cable	1	No	0	0.4m
3	DC cable	1	No	0	1.5m

Note: The notebook is just used to produce fixed frequency transmitting.

2.9. EUT Photo

The EUT external photo, internal photo and test setup photo, please refer to the plots in the S202506266703-A1/A2/A3.

2.10. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

2.11. Calculation with all conversion and correction factors used

For AC Line Conducted Emissions Test:

Measure Level (dB μ V) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

For Radiated Emissions Below 1GHz Test:

Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

For Radiated Emissions Above 1GHz Test:

Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

3. Description of Test

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the “Filing were used in the measurement of the EUT.

Deviation from measurement procedure.....None

4. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

“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.”

- Use a unique coupling to the intentional radiator.

5. Test Equipment Calibration Date

Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	FWXGJC-2016-181	1 year	2025/07/22
Two-Line V-Network	R&S	ENV 216	FWXGJC-2016-182	1 year	2025/07/23
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-385	1 year	2025/09/03

Radiated Emission

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Loop Antenna	Schwarzbeck	FMZB 1519B	FWXGJC-2018-015	1 year	2025/07/23
Bi-Log Antenna	R&S	VULB 9168	FGZZ-2024-036	1 year	2025/08/03
Broadband Horn Antenna	R&S	HF907	FWXGJC-2016-267-07	1 year	2025/07/26
Broadband Horn Antenna	Schwarzbeck	BBHA9170	FWXGJC-2018-016	1 year	2025/07/26
EMI Receiver	R&S	ESCI3	FGZZ-2024-033	1 year	2025/07/18
EXA Signal Analyzer	Keysight	N9020A	FWXGJC-2025-006	1 year	2025/07/14
EXA Signal Analyzer	Keysight	N9010B	FWXGJC-2018-010	1 year	2025/07/14
Pre-Amplifier	Tonscend	TAP0118048	FGZZ-2024-037	1 year	2025/08/19
Pre-Amplifier	Chengyi	EMC184055SE	FWXGJC-2018-018	1 year	2025/07/23
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-387	1 year	2025/09/03
Anechoic Chamber	SAEMC	FSAC318	FWXGJC-2024-035	3 year	2027/06/02

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Keysight	N9010B	FWXGJC-2018-010	1 year	2025/07/15
RF Control Unit	Toncend	JS0806-2	FWXGJC-2018-013	1 year	2025/07/26
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-385	1 year	2025/09/03
Spectrum Analyzer	R&S	FSV30	1321.3008K30-104381-rH	1 year	2025/09/22
Pulse power sensor	Anritsu	MA2411B	1126150	1 year	2025/12/07
Power meter	Anritsu	ML2495A	1204003	1 year	2025/12/07

Test Software	Manufacturer	Version	Asset No.	Function
JS1120-3 Test System	tonscend	V3.3.10	/	Conducted Test
JS32	tonscend	V5.0.0	/	Radiated Emission
EMI Test Software	R&S	9.26.00	/	Conducted Emission

Auxiliary Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Filter	Tonscend	ZBSF6	07247867	1 year	2025/07/26
Filter	Tonscend	ZHPF6	07233297	1 year	2025/07/26
Attenuator	Tonscend	10dB	/	1 year	2025/07/26
RF Cable	Tonscend	T-1	/	1 year	2025/07/26

6. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 2.68dB
Radiated Emission Measurement (9kHz - 30MHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 3.06dB
Radiated Emission Measurement (30MHz -1GHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.01dB
Radiated Emission Measurement (1-18GHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.97dB
Radiated Emission Measurement (18-40GHz)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 5.32dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 30MHz-1GHz: 1.00 dB 1GHz-12.75GHz: 1.30 dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.60dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.80dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.20MHz
Frequency Stability
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.1×10^{-6} MHz

7. Test Result

7.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(1)	20dB Bandwidth	N/A	Conducted	PASS	Section 7.2
15.247(b)(1)	Peak Transmitter Output Power	<0.125 Watt if > 75 non-overlapping channels used		PASS	Section 7.3
15.247(a)(1)	Channel Separation	> 2/3 of 20 dB BW for systems with Output Power < 125mW		PASS	Section 7.4
15.247(a)(1)(i ii)	Number of Channels	> 15 Channels		PASS	Section 7.5
15.247(a)(1)(i ii)	Time of Occupancy	< 0.4 sec in 31.6 sec period		PASS	Section 7.6
15.247(d)	Band Edge / out-of-Band Emissions	Conducted $\geq$ 20dBc		PASS	Section 7.7
15.205, 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	Radiated	PASS	Section 7.8 Section 7.9
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	N/A	Section 7.10

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4) N/A is not applicable to this Equipment. This EUT is no AC mains power ports.

7.2. 20dB Bandwidth Measurement

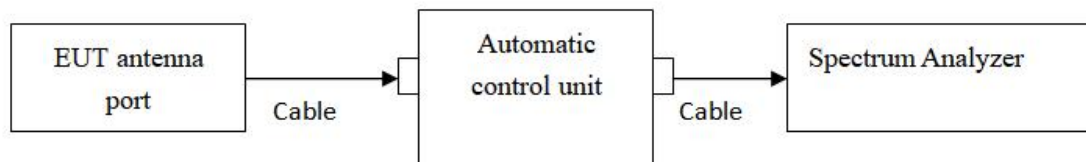
7.2.1. Test Limit

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.

7.2.2. Test Setting

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Set the spectrum analyzer as RBW=30 kHz, VBW=100 kHz, Span=3MHz, Sweep = auto. Allow the trace to stabilize, record 20dB bandwidth value
- 3) Repeat until all the test channels are investigated.

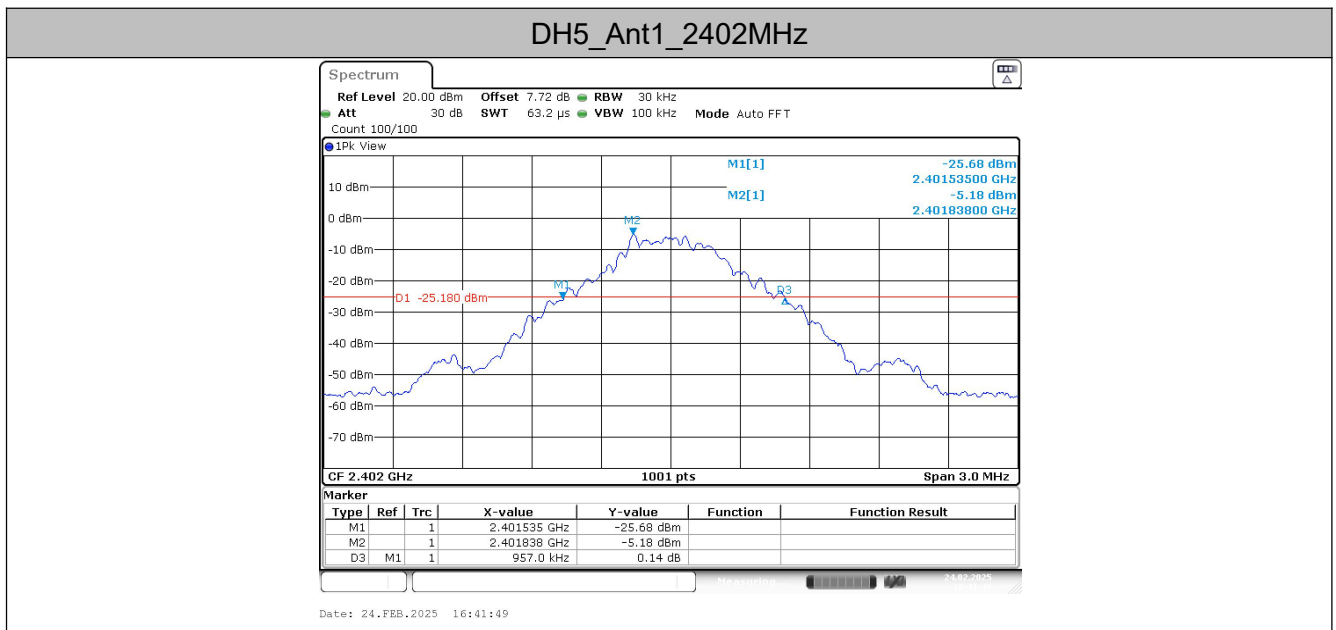
7.2.3. Test Setup



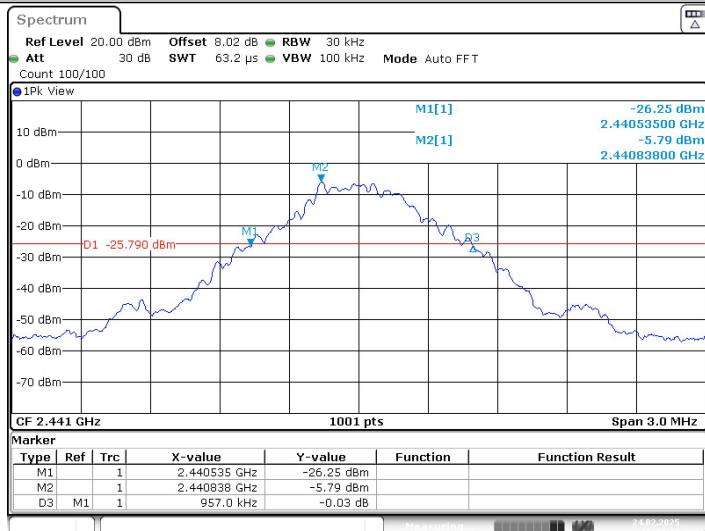
7.2.4. Test Result

Test Mode	Antenna	Channel	Frequency [MHz]	20 dB Bandwidth [MHz]
DH5	Ant1	Lowest	2402	0.96
		Middle	2441	0.96
		Highest	2480	0.96
2DH5	Ant1	Lowest	2402	1.26
		Middle	2441	1.31
		Highest	2480	1.31
3DH5	Ant1	Lowest	2402	1.28
		Middle	2441	1.34
		Highest	2480	1.34

Test Graphs

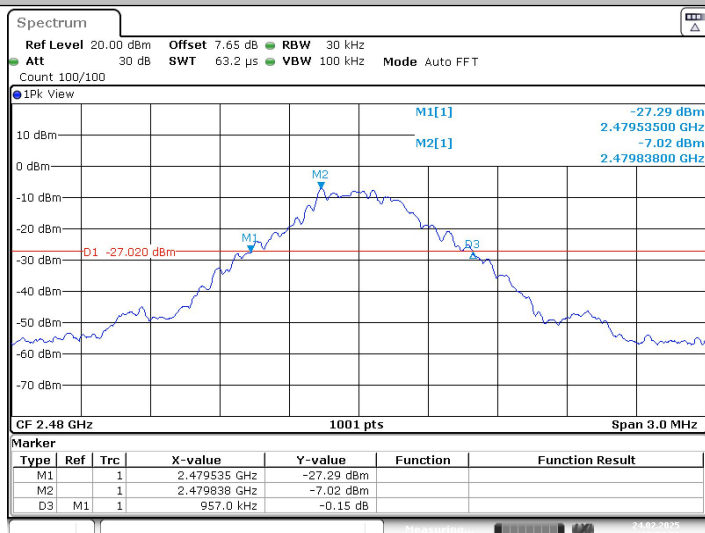


DH5_Ant1_2441MHz



Date: 24.FEB.2025 16:44:12

DH5_Ant1_2480MHz



Date: 24.FEB.2025 16:54:56