



Test Report No.: <i>Prüfbericht-Nr.:</i>	JP26DH30 001	Order No.: <i>Auftrags-Nr.:</i>	150328345	Page 1 of 97 <i>Seite 1 von 97</i>
Client Reference No.: <i>Kunden-Referenz-Nr.:</i>	N/A	Order Date: <i>Auftragsdatum:</i>	2026-03-25	
Client: <i>Auftraggeber:</i>	Faurecia Clarion Electronics Co., Ltd. 7-2 Shintoshin, Chuo-ku, Saitama-shi, Saitama 330-0081 Japan			
Test Item: <i>Prüfgegenstand:</i>	Car Audio			
Identification / Type No.: <i>Bezeichnung / Typ-Nr.:</i>	P2601	Serial No.: <i>Serien-Nr.:</i>	See Section 4.3	
Order Content: <i>Auftrags-Inhalt:</i>	Wireless Testing			
Test Specification: <i>Prüfgrundlage:</i>	FCC 47 CFR Part 15, Subpart C, Section 15.247 RSS-247 (Issue 4): 2025			
Date of Sample Receipt: <i>Wareneingangsdatum:</i>	2026-06-11	-/-		
Test Sample No.: <i>Prüfmuster-Nr.:</i>	A004305038-001 to 009, A004318673-001			
Testing Period: <i>Prüfzeitraum:</i>	2026-06-19 to 2026-07-02			
Place of Testing: <i>Ort der Prüfung:</i>	Yokohama EMC Laboratory			
Testing Laboratory: <i>Prüflaboratorium:</i>	TÜV Rheinland Japan Ltd.			
Test Result*: <i>Prüfergebnis*:</i>	Pass			
compiled by: <i>zusammengestellt von:</i>	<i>Hidetoshi Sasaki</i> Hidetoshi Sasaki	authorized by: <i>genehmigt von:</i>	<i>Daisuke Watanuki</i> Daisuke Watanuki	
Date: 2026-08-17 <i>Datum:</i>		Issue Date: 2026-08-17 <i>Ausstellungsdatum:</i>		
Position / Stellung:	Project Engineer	Position / Stellung:	Authorizer	
Other / Sonstiges: This test report covers DSS (FHSS) transmitter portions of the EUT for the application.				
Condition of the test item at delivery: <i>Zustand des Prüfgegenstandes bei Anlieferung:</i>		Test item complete and undamaged <i>Prüfmuster vollständig und unbeschädigt</i>		
* Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested * Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet				
This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark. <i>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</i>				

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Revisions

Report No.	Issue date	Changes / Remarks
JP26DH30 001	2026-08-17	Original document

Remarks

1	The equipment used during the specified testing period was calibrated according to the test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of the laboratory's management system.
2	Unless otherwise specified by the applied standard(s), the decision rule used in this test report for statements of conformity based on numerical measurement results is the "Zero Guard Band"/"Simple Acceptance" rule in accordance with ILAC G8:2019 and IEC Guide 115:2021. When the "Zero Guard Band" rule is applied, measurement uncertainty is not taken in account. For additional information on the risk resulting from the application of the "Zero Guard Band" decision rule, refer to ILAC G8:2019.

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1. General Remarks

1.1 Test Specifications

Table 1: Test Summary

Test	Specifications	Result
Radio: FCC 47 CFR Part 15, Subpart C, Section 15.247 RSS-247 (Issue 4): 2025 RSS-Gen (Issue 5): 2018+Amendment 1:2019+Amendment 2:2021 ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 KDB Publication No. 558074 D01 (v05r02): Guidance for Compliance Measurement on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operation under Section 15.247 of the FCC Rules		
Supply Voltage Requirements FCC §15.31(e)	See the section 5.1.	Pass
Antenna Requirements FCC §15.203	See the section 5.2.	Pass
Restricted Bands of Operation FCC §15.205 RSS-Gen §8.10	See the section 5.3.	Pass
Maximum Peak Output Power FCC §15.247(b)(1) RSS-247 §6.2.3.2	0.125W (21dBm) (Peak Conducted) 4W (36dBm) (Peak EIRP) for ISSED	Pass
Carrier Frequency Separation FCC §15.247(a)(1) and §15.215(c) RSS-247 §6.2.3.1 a	See the section 5.5.	Pass
Number of Hopping Frequency FCC §15.247(a)(1)(iii) RSS-247 §6.2.3.1 b	≥15 channels	Pass
Average Time of Occupancy (Dwell Time) FCC §15.247(a)(1)(iii) RSS-247 §6.2.3.1 b	0.4 seconds Maximum within a 0.4 seconds period multiplied by the number of hopping channels employed.	Pass
99% Bandwidth RSS-Gen §6.7	-/-	For. Ref.

Test	Specifications	Result
Duty Cycle	-/-	For. Ref.
Conducted Spurious Emissions FCC §15.247(d) RSS-247 §6.6	20dBc (Peak) 30MHz - 25GHz (10 th Harmonics)	Pass
Radiated Spurious Emissions of Transmitter FCC §15.209 and §15.247(d) RSS-247 §6.6 and RSS-Gen §8.9, 8.10	9kHz - 25GHz	Pass
Conducted Emission on AC Power Ports of Transmitter FCC §15.207(a) and RSS-Gen §8.8	150kHz - 30MHz Not applicable since the EUT is not the device that is designed to be connected to the public utility (AC) power line.	N/A

1.2 Test Report Purpose

The purpose of this test report is to show compliance of the EUT (Equipment Under Test) with the requirements of the FCC rules and ISSED standards listed in section 1.1.

This test report covers the Bluetooth Classic functionality of the product, which supports multiple wireless connectivity options including Bluetooth (Classic) and WLAN (2.4 GHz and 5 GHz).

The EUT can transmit simultaneously using Bluetooth Classic and either 2.4 GHz WLAN or 5 GHz WLAN. This report covers simultaneous transmission of Bluetooth and 2.4 GHz WLAN. For simultaneous transmission of Bluetooth and 5 GHz WLAN, refer to JP26BN8I 001.

1.3 Complementary Materials

There is no attachment to this test report.

2. Test Sites

2.1 Test Facilities

TÜV Rheinland Japan Ltd. – Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

The test facility is accredited by VLAC (member of ILAC) under accreditation number VLAC-017-1 according to ISO/IEC 17025:2017.

The test facility is recognized by the Federal Communications Commission (FCC) as Accredited Testing Laboratory under Designation Number JP0017 and test firm registration number 386498.

The test site is registered by Innovation, Science and Economic Development Canada (ISED) under OATS filing number 3466B-1.

2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Model Name	Serial Number	Equip. ID	Cal. Interval	Cal. Date	Next Cal.
For Antenna Port Conducted Emission							
EMI Receiver	Rohde & Schwarz	ESW 26	101316	RF-0812	1 year	2026-06-16	2027-06-16
EMI Receiver	Rohde & Schwarz	ESW 44	103396	RF-1250	1 year	2026-05-27	2027-05-27
Temperature Chamber	Voetsch	VT 4018	58566025 090010	BT-8012	1 year	2025-07-04	2026-07-04
For Radiated Emission (RE)							
Path Loss Correction Factors for RE above 1GHz	-	-	-	RF-0995	1 year	2025-11-06	2026-11-06
RE Meas. Software	Toyo Corporation	ES10/RE-AJ	0600-0179-80	RF-1263	N/A	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESW 44	103396	RF-1250	1 year	2026-05-27	2027-05-27
Horn Antenna, 1-8GHz	Schwarzbeck	BBHA9120 D	9120D-2280	RF-0845	1 year	2026-02-27	2027-02-27
MMW PreAmp 0-50GHz	NEXTEM	RFA-1050000-40	RFA-1905-01	RF-1140	1 year	2025-11-06	2026-11-06

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Kind of Equipment	Manufacturer	Model Name	Serial Number	Equip. ID	Cal. Interval	Cal. Date	Next Cal.
Horn Antenna, 1-18GHz	Schwarzbeck	BBHA9120 D	9120D-2280	RF-0845	1 year	2026-02-27	2027-02-27
Horn Antenna, 6-18GHz (RX)	Schwarzbeck Mess-Elektronik	BBHA9120 C	00775	RF-1315	2 years	2025-10-31	2027-10-31
Pre-amplifier for RF-1315 (6-18 GHz)	TOYO Corporation	HAP06-18W	B1510452 210-123	RF-1318	1 year	2025-11-05	2026-11-05
High Pass Filter, 8-18GHz	Micro-Tronics	HPM50107	G089	RF-1095	N/A	N/A	N/A
Horn Antenna, 18-26.5GHz (RX)	AMETEK	ANT-SGH-18-26.5	11568	RF-1316	1 year	2025-10-31	2026-10-31
Pre-amplifier for RF-1316 (18-26.5 GHz)	Toyo Corporation	HAP18-26W	B2010482 210-125	RF-1319	1 year	2025-11-05	2026-11-05
Horn Antenna, 26.5 -40GHz (RX)	AMETEK	ANT-SGH-26.5-40	11894	RF-1317	1 year	2026-02-27	2027-02-27
Pre-amplifier for RF-1317, 26.5-40GHz	TOYO Corporation	HAP26-40W	B3208602 210-126	RF-1320	1 year	2026-03-09	2027-03-09
Band Reject Filter, 2.4-2.5GHz	Micro-Tronics	BRM50702	G488	RF-0933	1 year	2025-09-19	2026-09-19
Constant Voltage Constant Frequency Stabilizers and Power Accessories							
CVCF (10m Chamber)	NF Corporation	ES2000U	9067307	RF-0212	1 year	2026-03-06	2027-03-06
CVCF Booster (10m Chamber)	NF Corporation	ES2000B	9074408	RF-0213	1 year	2026-03-06	2027-03-06
Regulated DC Power Supply	Kikusui	PAN 110-5A	DK000274	RF-1112	N/A	N/A	N/A
True RMS Multimeter (10m Chamber)	Fluke	87V	97680450	RF-0282	1 year	2026-04-17	2027-04-17
True RMS Multimeter	Fluke	83V	66970372	RF-1382	1 year	2026-01-26	2027-01-26

Conformance of the used measurement and test equipment with the requirements of ISO/IEC 17025 has been confirmed before testing.

2.3 Measurement Uncertainty

Table 3: Measurement Uncertainty

Measurement Type	Frequency Range	Uncertainty (k=2)
Conducted Emission on RF Ports	30MHz-26.5GHz	±2.58dB
Magnetic Field Strength	9kHz - 30MHz	±4.79dB
Radiated Emission up to 1GHz	30MHz - 1GHz (3m Distance)	±6.01dB (Vertical) ±4.95dB (Horizontal)
Radiated Emission above 1GHz	1 - 6GHz	±5.17dB
	6 - 18GHz	±4.96dB
	18 - 40GHz	±5.05dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a Car Audio to be installed in vehicles with wireless connectivity of Bluetooth Classic, WLAN (2.4GHz and 5GHz) and GNSS.

3.2 Ratings and System Details

Radio standard:	Bluetooth Ver.5.0 DH5, 2DH5, 3DH5
Frequency range:	2402 - 2480MHz
Specified output power:	0.87dBm (conducted peak power)
Antenna gain:	-1.83dBi
Antenna type:	Film Antenna
Antenna mounting type:	Internal
Modulation type:	GFSK (1Mbps), $\pi/4$ -DQPSK (2Mbps), 8DPSK (3Mbps)
Signal spreading:	FHSS (coupled with modulation type above)
Transmit speed:	DH5: 1Mbps, 2DH5: 2Mbps, 3DH5: 3Mbps
Number of channels:	79
Channel spacing:	1MHz
FCC classification:	DSS (Spread Spectrum Transmitter)
ISED classification:	Bluetooth Device, Vehicle Device, RSS-247 Non-DFS
Emission designator:	F1D (GFSK) and G1D ($\pi/4$ -DQPSK & 8DPSK)
Simultaneous transmission:	WLAN 5GHz or WLAN 2.4GHz and Bluetooth can transmit simultaneously.
Rated voltage:	DC 12V
Rated input Current:	3A
Protection class:	III
Test voltage:	DC 13.2V for radio testing

3.3 Noise Generating and Noise Suppressing Parts

The highest frequency generated or used by the EUT is 5825MHz as intentional radiator portion.

3.4 Submitted Documents and Information

Following documents have been submitted by the client:

Following information provided in this test report has been submitted by the client, and the laboratory assumes no responsibility for its accuracy:

- client name and address;
- EUT identification, ratings, system details, and description of product function, operation and intended use;
- information related to noise generating and noise suppressing parts (if any).

4. Test Setup and Operation Modes

4.1 Principle of Test Configuration Selection

Radio: The test methodology used is based on the requirements of 47 CFR Part 15, sections 15.31, 15.33, 15.35, 15.205, 15.207, 15.209 and 15.247.
The test methodology used is based on the requirements of RSS-Gen, sections 3.2 and RSS-247.

The test methods, which have been used, are based on ANSI C63.10 and KDB 558074 D01.

For details, see under each test item.

4.2 Operation Modes

The operation modes used for testing are:

- A. EUT transmits (TX mode), with full power, at lowest channel (2402MHz), a continuous modulated signal streaming.
- B. EUT transmits (TX mode), with full power, at middle channel (2441MHz), a continuous modulated signal streaming.
- C. EUT transmits (TX mode), with full power, at highest channel (2480MHz), a continuous modulated signal streaming.
- H. EUT transmits (TX mode), with full power, continuous modulated signal streaming while hopping on all channels.

Configurations:

- BDR 1 Mbps (DH1, DH3, DH5)
- EDR 2 Mbps (2DH1, 2DH3, 2DH5)
- EDR 3 Mbps (3DH1, 3DH3, 3DH5)

Note: The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel).

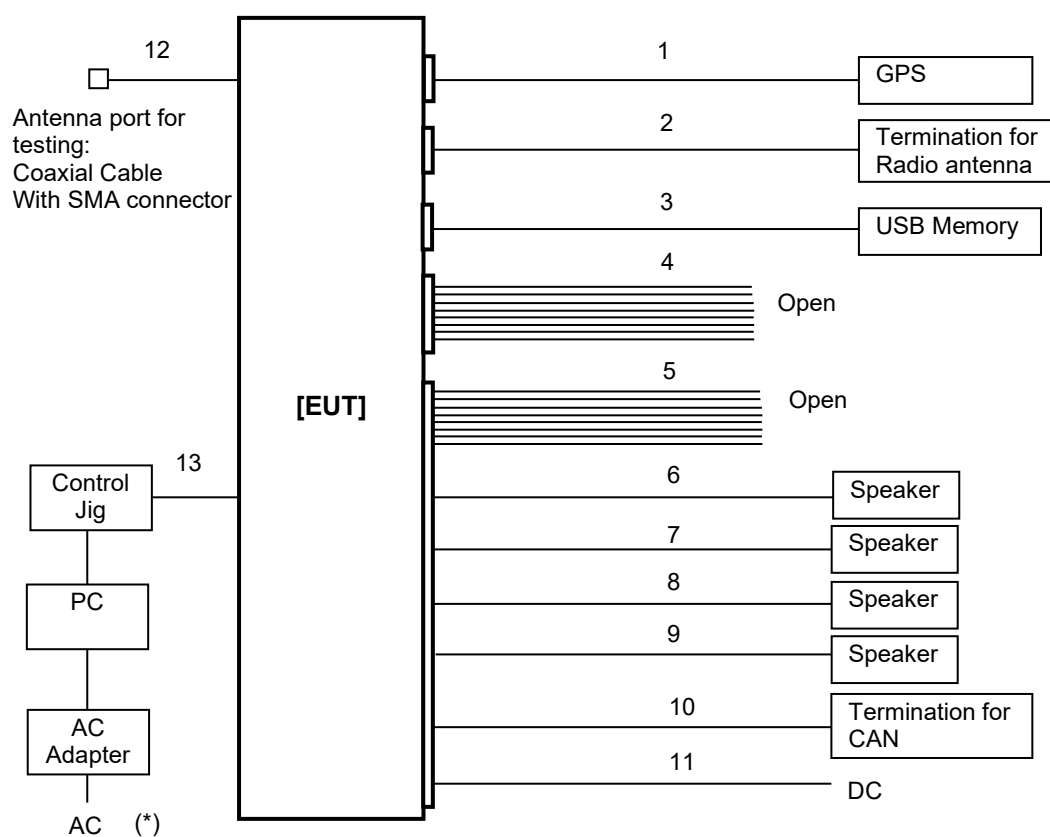
Within each modulation type, the packet configuration that produced the highest peak output power was selected as the representative configuration. DH5 was selected for BDR, 2DH5 for EDR at 2 Mbps, and 3DH1 for EDR at 3 Mbps.

4.3 Physical Configuration for Testing

The EUT was tested on a stand-alone basis and the test system was configured in a typical fashion (as a customer would normally use it).

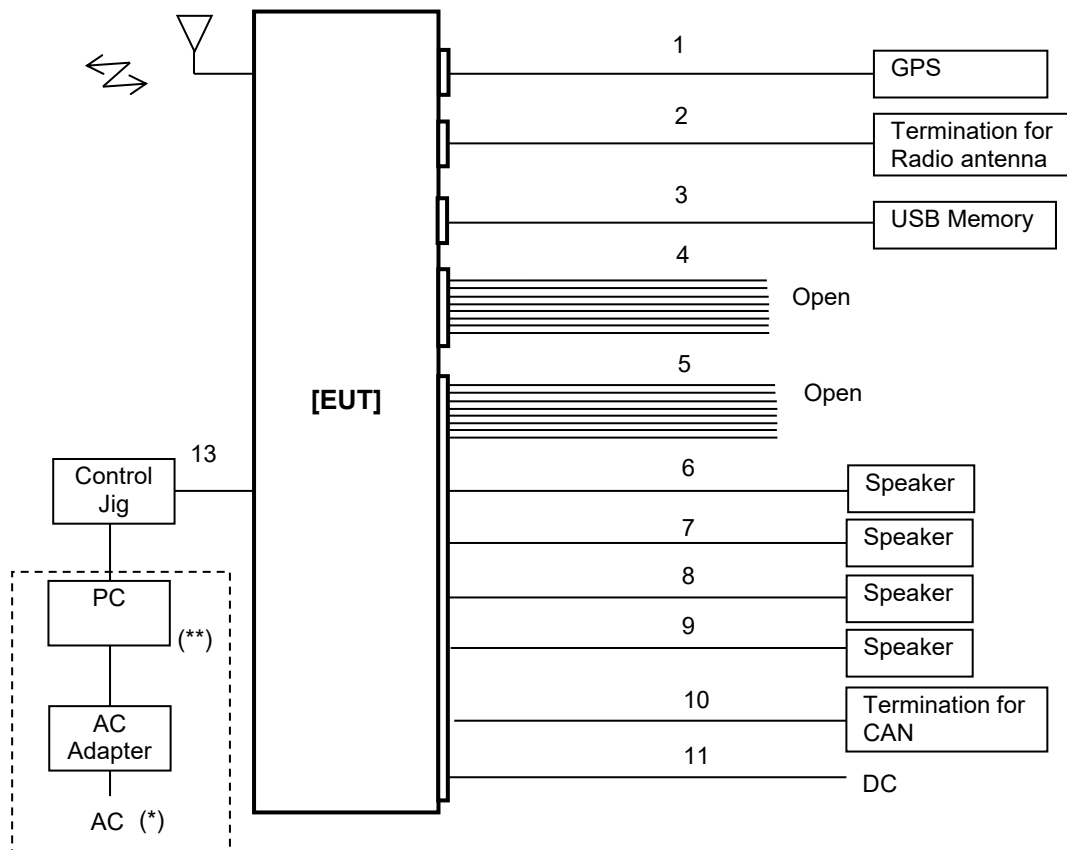
The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.10.

Figure 1: Block Diagram (Conducted Test)



(*): AC adapter is used only for the auxiliary PC and is not part of the EUT power input.

Figure 2: Block Diagram (Radiated Test)



(*): AC adapter is used only for the auxiliary PC and is not part of the EUT power input.

(**): PC was disconnected during the test.

Table 4: Serial Number of the EUT

Serial Number	Test
2051	For Conducted Test
2075	For Radiated Test

Table 5: Interfaces present on the EUT

No.	Interface	Cable Length for Testing, Shielding	Interface Classification
1.	GPS	2.5m, shielded	Signal port
2.	Radio Antenna	0.3m, shielded	Signal port
3.	USB	2.0m, shielded	Signal port
4.	Signal	1.2m, un-shielded	Signal port
5.	Signal	1.2m, un-shielded	Signal port
6.	Signal	1.2m, un-shielded	Signal port
7.	Signal	1.2m, un-shielded	Signal port
8.	Signal	1.2m, un-shielded	Signal port
9.	Signal	1.2m, un-shielded	Signal port
10.	Signal	1.2m, un-shielded	Signal port
11.	DC	1.2m, un-shielded	DC port
12.	Coaxial cable	0.2m	For conducted testing purpose only
13.	Control cable	0.3m	For testing purpose only

Note: Cables No. 5 through No. 11 are connected to the same single connector.

For more details, refer to section: Photographs of the Test Setup.

4.4 Test Software

The EUT was provided by the manufacturer with suitable internal software to allow operation in all the required modes.

Software used for testing: Tera Term version 4.106 by Tera Term Project. This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed in section 4.2 as appropriate.

4.5 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- Product: Laptop PC
Manufacturer: hp
Model: HSN-I14C-5
Rated Voltage: DC 19.5V or 20V
Input Current: 2.31A or 2.25A
Protection Class: III
Serial Number: JPH9029GYQ

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2. Product: AC Adapter for PC
Manufacturer: hp
Model: HSTNN-CA41
Rated Voltage: AC 100-240V
Input Current: 1.4A
Frequency: 50-60Hz
Protection Class: II
Serial Number: CT:WDVTN0CGC9X1DN 0C
3. Product: GPS
Manufacturer: Faurecia Clarion Electronics Co., Ltd.
Model: 096-0146-00
Protection Class: III
Serial Number: 18600003
4. Product: Termination for Radio Antenna
Manufacturer: TAMAGAWA
Model: CT-01BP
Power: 1W
Protection Class: III
Serial Number: None
5. Product: USB Memory
Manufacturer: BUFFALO INC.
Model: RUF3-C
Rated Voltage: DC5V
Input Current: 0.5A
Protection Class: III
Serial Number: I2091801559
6. Product: Speaker
Manufacturer: Tiaoping
Model: TP1371
Power: 35W
Protection Class: III
Serial Number: None
7. Product: Speaker
Manufacturer: Tiaoping
Model: TP1371
Power: 35W
Protection Class: III
Serial Number: None

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8. Product: Speaker
Manufacturer: Tiaoping
Model: TP1371
Power: 35W
Protection Class: III
Serial Number: None
9. Product: Speaker
Manufacturer: Tiaoping
Model: TP1371
Power: 35W
Protection Class: III
Serial Number: None
10. Product: Termination for CAN
Manufacturer: Faurecia Clarion Electronics Co., Ltd.
Model: None
Rated Voltage: DC12V
Protection Class: III
11. Product: Control Jig
Manufacturer: Faurecia Clarion Electronics Co., Ltd.
Model: None
Rated Voltage: DC5V
Protection Class: III

4.6 Countermeasures to achieve Compliance

No additional measures were employed to achieve compliance.

5. Test Results RADIO

5.1 Supply Voltage Requirements

RESULT:

Pass

Requirements:

FCC §15.31(e)

For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Verdict:

The EUT has an internal voltage regulator to supply the RF circuit. Hence it complies with the supply voltage requirements.

5.2 Antenna Requirements

RESULT:

Pass

Requirements:

FCC §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.

All antennas for use with the EUT must be listed in the application, including a test report.

Verdict:

As per the guidance by KDB Publication No. 353028 D01, three ways can be used for a Part 15 Intentional radiator. a) Antenna permanently attached is applicable to the EUT.

The EUT has an internal antenna which is not user accessible. Hence it complies with the antenna requirements.

5.3 Restricted Bands of Operation

RESULT:

Pass

Requirements:

FCC §15.205 and RSS-Gen §8.10

Only spurious emissions are permitted in any of the restricted frequency bands, unless otherwise specified.

Verdict:

The Operation frequency range of the EUT is 2402 – 2480MHz as Bluetooth Classic, only spurious emissions may be found in the restricted bands below 25GHz. Hence the EUT complies with the restricted frequency band requirement.

5.4 Maximum Peak Output Power

RESULT:

Pass

Date of testing: 2026-06-19, 2026-06-29, 2026-06-30
2026-07-02

Ambient temperature: 23, 23, 28, 27°C
Relative humidity: 64, 59, 46, 49%
Atmospheric pressure: 1009, 1009, 1006, 1002hPa

Requirements:

FCC §15.247(b)(1) and RSS-247 §6.2.3.2

For frequency hopping systems operating in the 2400-2483.5MHz band employing at least 75 non-overlapping hopping channels, the maximum peak conducted output power shall be 1W (30dBm). For other hopping systems operating in the 2400-2483.5MHz band, the maximum peak conducted output power shall be 0.125W (21dBm). The e.i.r.p. shall not exceed 4 W for ISED.

If transmitting antennas of directional gain greater than 6dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Test procedure:

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 §7.8.5, KDB 558074 D01.

The EUT had its hopping function disabled. The maximum peak output power was measured at the antenna port with a spectrum analyzer using a peak detector. The resolution bandwidth (RBW) was set more than its 20dB bandwidth, (3MHz) and the video bandwidth (VBW) were set to more than RBW, 3MHz.

The readings of the measurements take into account the loss generated by all the involved cables.

The results shown below indicate that the worst-case output power occurs at the DH5 data rate for the DH radio, at 2DH5 for the 2DH radio, and at 3DH1 for the 3DH radio. Therefore, all other measurements for evaluating the radio characteristics of the EUT were performed using these data rates.

Table 6: Maximum Peak Output Power, DH5

Freq. [MHz]	Peak Output Power [dBm]	Peak Output Power Limit [dBm]	Peak Output Power Margin [dB]	Antenna Gain [dBi]	e.i.r.p. [dBm]	e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
2402	-1.13	21.00	22.13	-1.83	-3.0	36.0	39.0
2442	-0.84	21.00	21.84	-1.83	-2.7	36.0	38.7
2480	-0.74	21.00	21.74	-1.83	-2.6	36.0	38.6

Note:

Cable (including temporary RF cable) and attenuator loss has been compensated for Peak Output Power

$\text{e.i.r.p. [dBm]} = \text{Peak Output Power [dBm]} + \text{Antenna Gain [dBi]}$

Table 7: Maximum Peak Output Power, Mode B, all Data Rates

Data Rate	Peak Output Power [dBm]	Remark
DH1	-1.24	
DH3	-1.02	
DH5	-0.84	Worst Data Rate

Note:

Cable (including temporary RF cable) and attenuator loss has been compensated for Peak Output Power

Figure 3: Maximum Peak Output Power, DH5, Mode A (2402MHz)

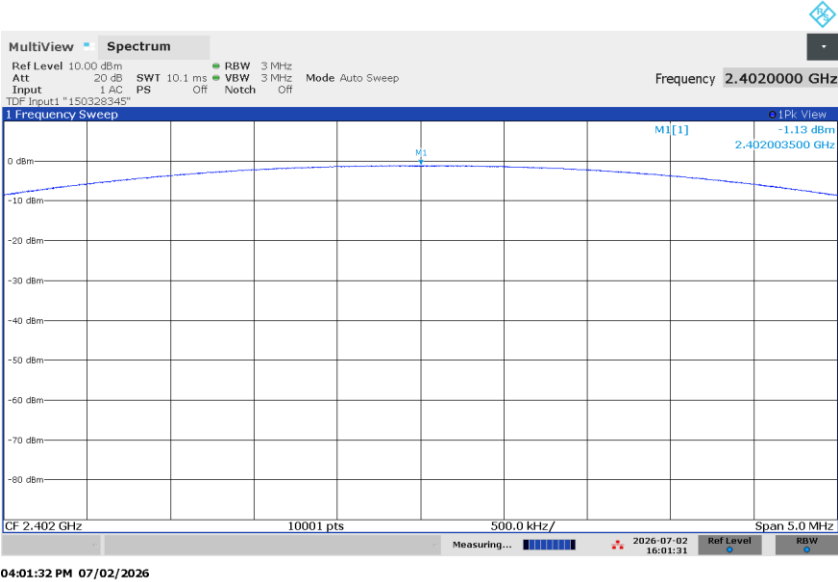


Figure 4: Maximum Peak Output Power, DH5, Mode B (2441MHz)

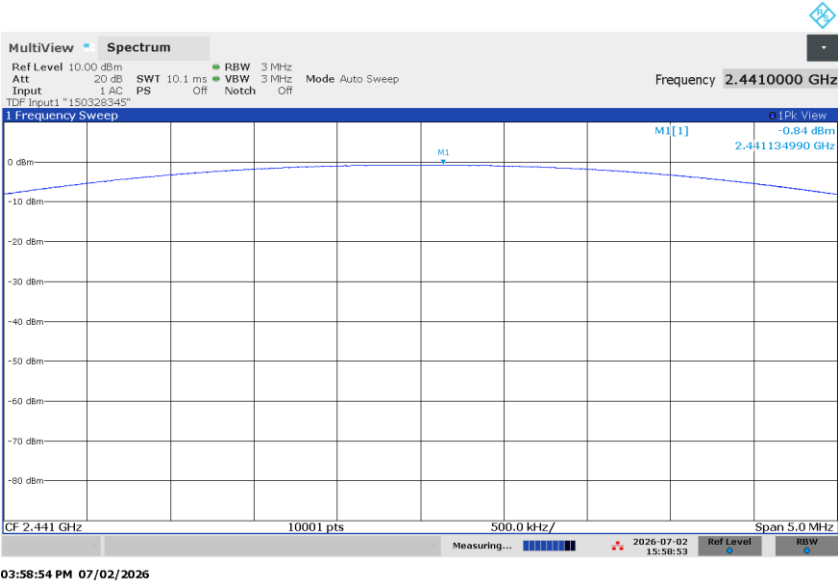
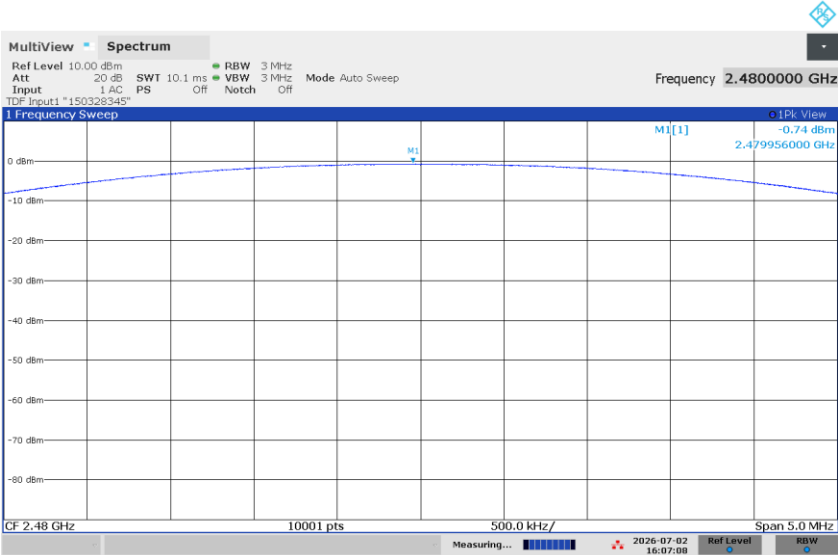


Figure 5: Maximum Peak Output Power, DH5, Mode C (2480MHz)



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Table 8: Maximum Peak Output Power, 2DH5

Freq. [MHz]	Peak Output Power [dBm]	Peak Output Power Limit [dBm]	Peak Output Power Margin [dB]	Antenna Gain [dBi]	e.i.r.p. [dBm]	e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
2402	0.52	21.00	20.48	-1.83	-1.3	36.0	37.3
2441	0.59	21.00	20.41	-1.83	-1.2	36.0	37.2
2480	0.37	21.00	20.63	-1.83	-1.5	36.0	37.5

Note:

Cable (including temporary RF cable) and attenuator loss has been compensated for Peak Output Power

$\text{e.i.r.p. [dBm]} = \text{Peak Output Power [dBm]} + \text{Antenna Gain [dBi]}$

Table 9: Maximum Peak Output Power, Mode B, all Data Rates

Data Rate	Peak Output Power [dBm]	Remark
2DH1	0.35	
2DH3	0.28	
2DH5	0.59	Worst Data Rate

Note:

Cable (including temporary RF cable) and attenuator loss has been compensated for Peak Output Power

Figure 6: Maximum Peak Output Power, 2DH5, Mode A (2402MHz)

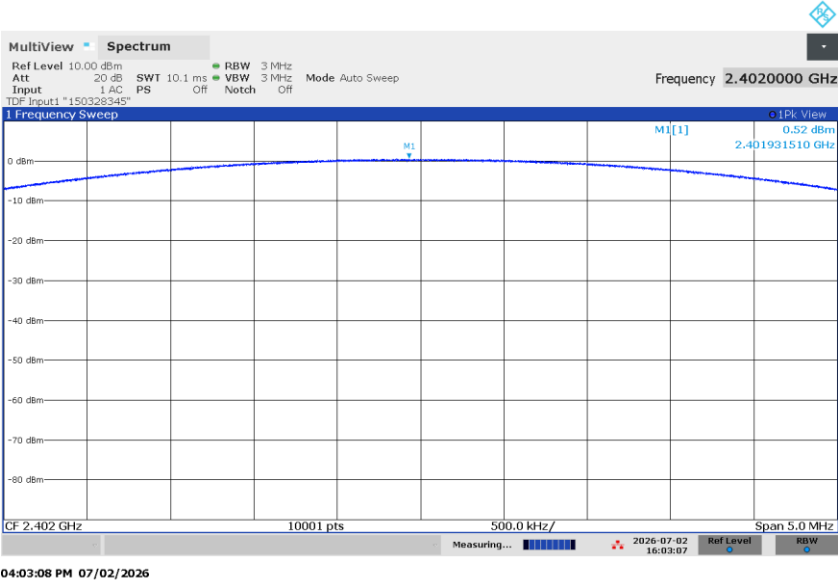


Figure 7: Maximum Peak Output Power, 2DH5, Mode B (2441MHz)

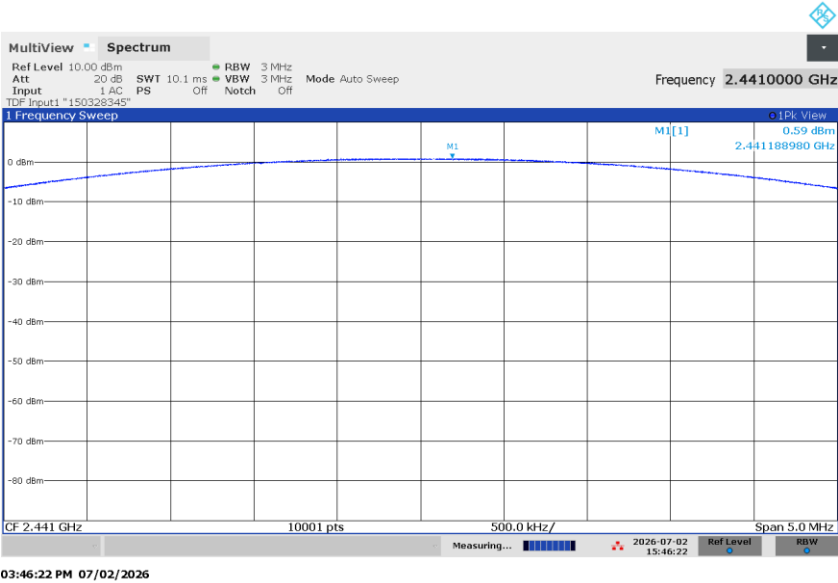
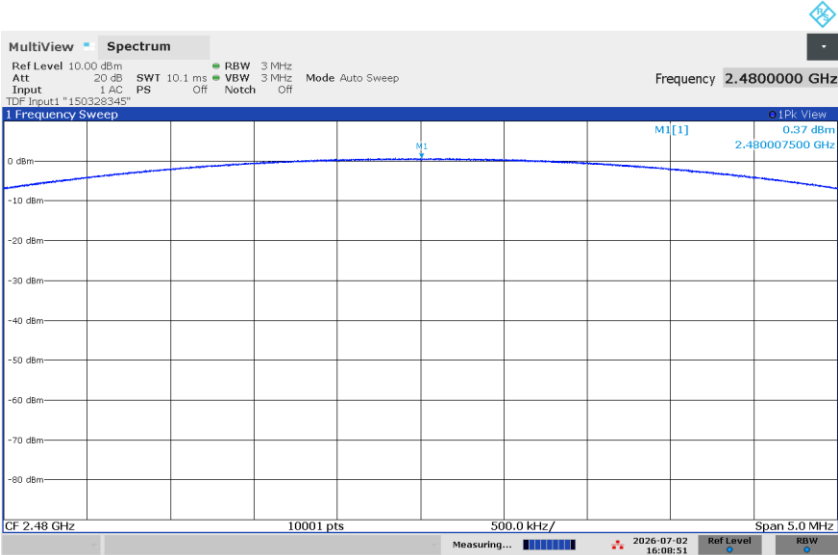


Figure 8: Maximum Peak Output Power, 2DH5, Mode C (2480MHz)



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Table 10: Maximum Peak Output Power, 3DH1

Freq. [MHz]	Peak Output Power [dBm]	Peak Output Power Limit [dBm]	Peak Output Power Margin [dB]	Antenna Gain [dBi]	e.i.r.p. [dBm]	e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
2402	0.58	21.00	20.42	-1.83	-1.3	36.0	37.3
2441	0.87	21.00	20.13	-1.83	-1.0	36.0	37.0
2480	0.72	21.00	20.28	-1.83	-1.1	36.0	37.1

Note:

Cable (including temporary RF cable) and attenuator loss has been compensated for Peak Output Power

$\text{e.i.r.p. [dBm]} = \text{Peak Output Power [dBm]} + \text{Antenna Gain [dBi]}$

The cells shaded in gray represent the highest power among all transmit speeds.

Table 11: Maximum Peak Output Power, Mode B, all Data Rates

Data Rate	Peak Output Power [dBm]	Remark
3DH1	0.87	Worst Data Rate
3DH3	0.72	
3DH5	0.73	

Note:

Cable (including temporary RF cable) and attenuator loss has been compensated for Peak Output Power

Figure 9: Maximum Peak Output Power, 3DH1, Mode A (2402MHz)

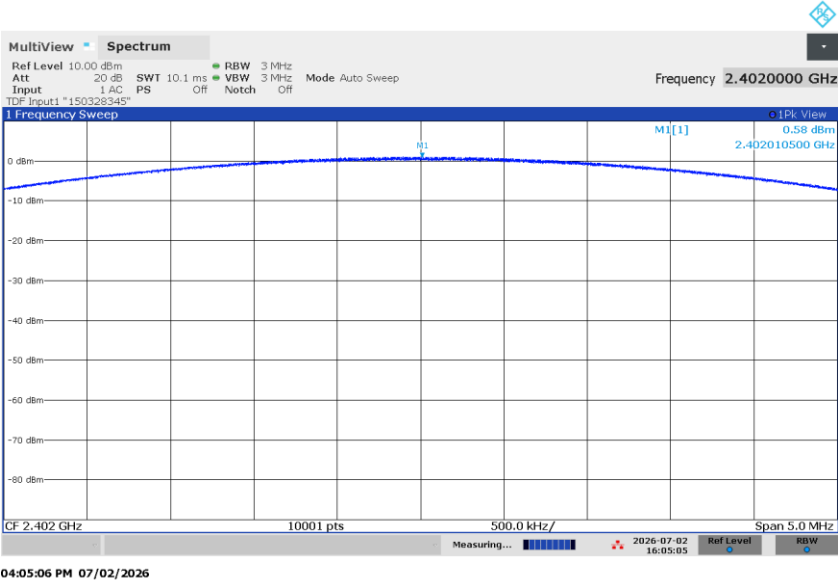


Figure 10: Maximum Peak Output Power, 3DH1, Mode B (2441MHz)

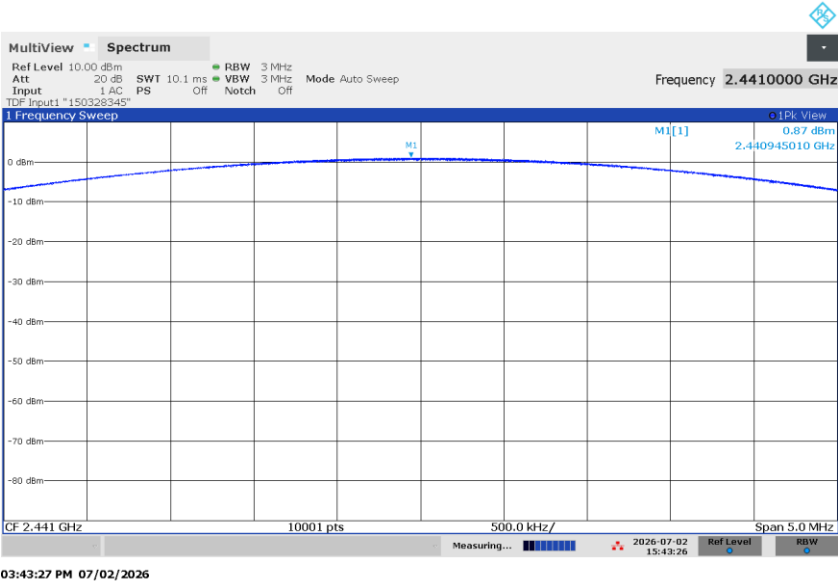
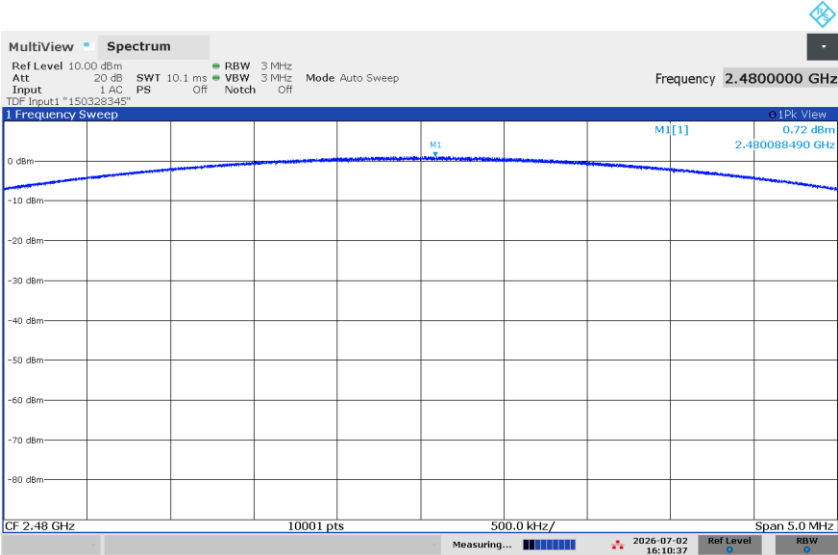


Figure 11: Maximum Peak Output Power, 3DH1, Mode C (2480MHz)



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5.5 Carrier Frequency Separation

RESULT:

Pass

Date of testing: 2026-06-19, 2026-06-29, 2026-06-30
2026-07-02

Ambient temperature: 23, 23, 28, 27°C
Relative humidity: 64, 59, 46, 49%
Atmospheric pressure: 1009, 1009, 1006, 1002hPa

Requirements:

FCC §15.215(c), §15.247(a)(1) and RSS-247 §6.2.3.1 a

Frequency hopping systems operating in the 2400-2483.5MHz band shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. In case of an output power less than 125mW, the frequency hopping system may have channels separated by a minimum of 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

Additionally, for FCC, 20dB bandwidth shall be contained within the frequency band designated in the rule section under which the equipment is operated.

Test procedure:

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 §7.8.2 and KDB 558074 D01.

The EUT had its hopping function disabled for 20dB bandwidth measurement. The 20dB bandwidth was measured at the antenna port with a spectrum analyzer at the following settings:

- For DH5, RBW = 30kHz, VBW = 100kHz, Peak detector with Max-hold
- For 3DH1, RBW = 50kHz, VBW = 200kHz, Peak detector with Max-hold

The RBW was set in the range from 1% to 5% of the observed OBW, VBW was set to at least three times of RBW. Markers were placed at the lowest and highest intersections of the trace by 20dB OBW function to obtain the value of the emission bandwidth.

Then, the EUT had its hopping function enabled. The carrier frequency separation was measured at the antenna port with a spectrum analyzer at the following settings:

- RBW = 100kHz, VBW = 300kHz, Peak detector with Max-hold

The RBW was set to best value to identify each individual channel and the VBW was set to at least three times of RBW. Markers placed between the peaks of the adjacent channels, manually.

Table 12: 20dB Bandwidth, DH5

Operating Frequency [MHz]	20dB Bandwidth [kHz]
2402	820.672
2441	817.852
2480	817.282

Figure 12: 20dB Bandwidth, DH5, Mode A (2402MHz)

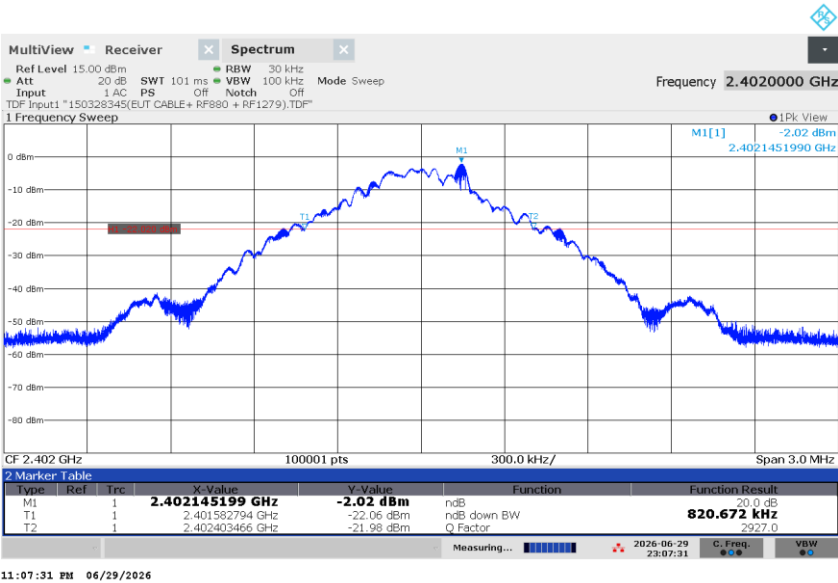


Figure 13: 20dB Bandwidth, DH5, Mode B (2441MHz)

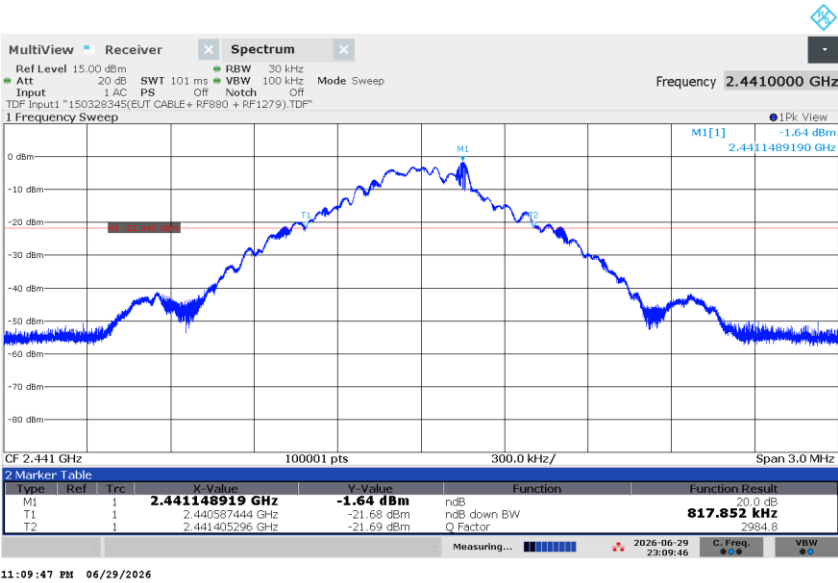


Figure 14: 20dB Bandwidth, DH5, Mode C (2480MHz)

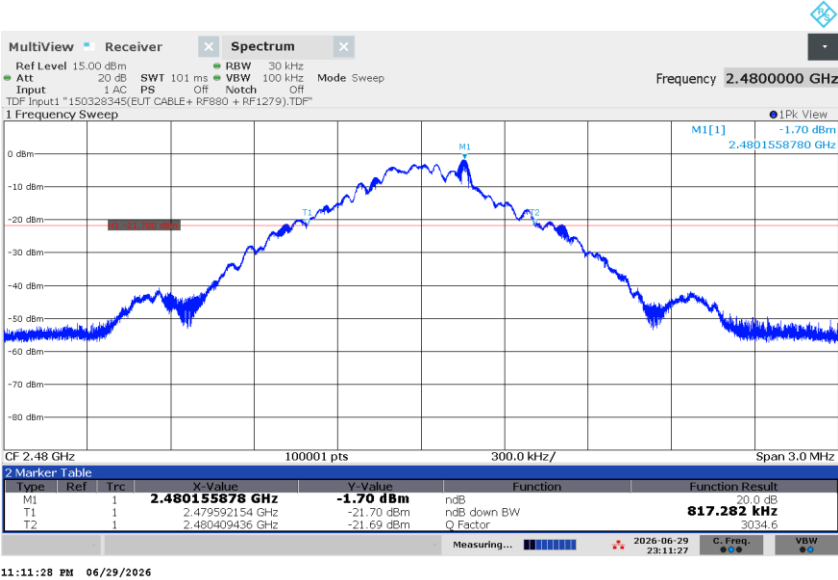


Table 13: 20dB Bandwidth, 3DH1

Operating Frequency [MHz]	20dB Bandwidth [MHz]
2402	1.271
2441	1.289
2480	1.267

Figure 15: 20dB Bandwidth, 3DH1, Mode A (2402MHz)

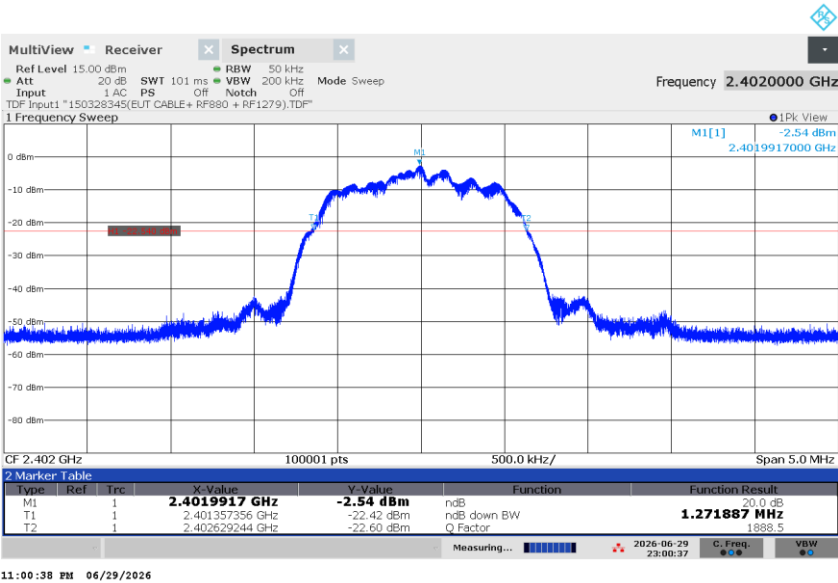


Figure 16: 20dB Bandwidth, 3DH1, Mode B (2441MHz)

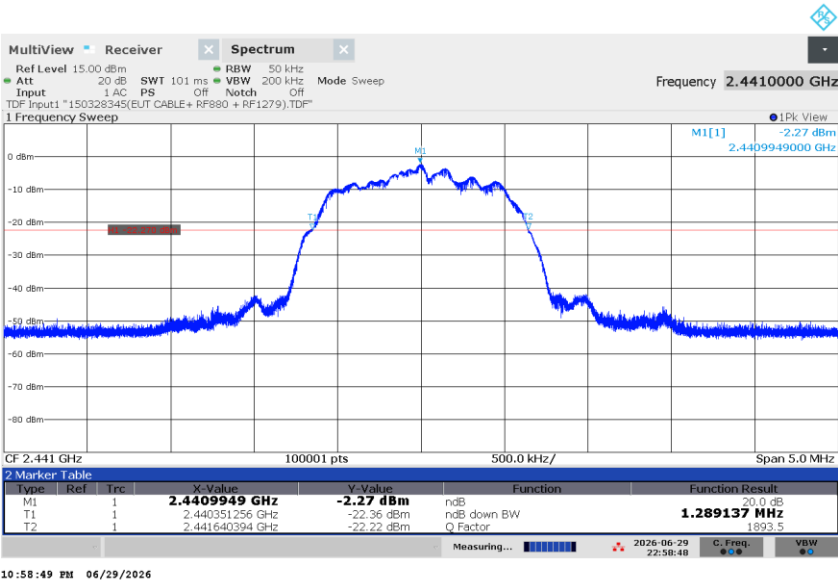
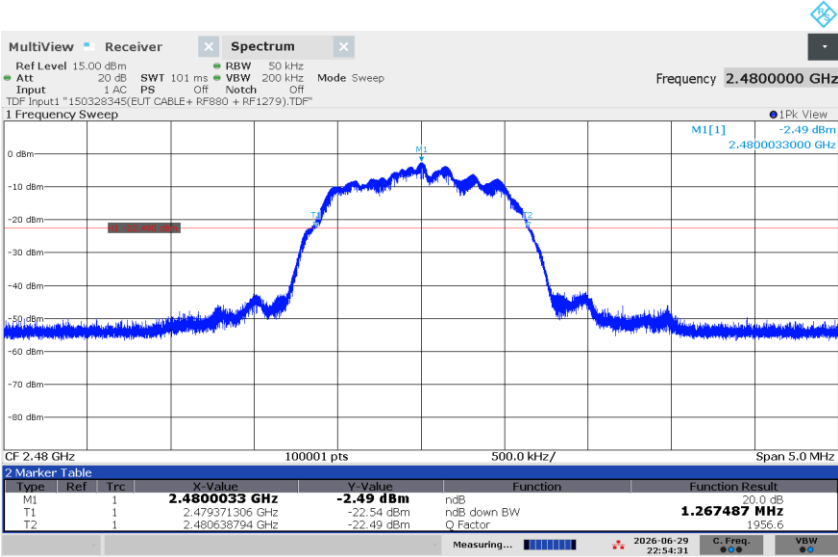


Figure 17: 20dB Bandwidth, 3DH1, Mode C (2480MHz)



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Table 14: Carrier Frequency Separation, DH5

Operating Frequency [MHz]	Carrier Frequency Separation [kHz]	20dB Bandwidth [kHz]	Limit [kHz]
2402	999.500	820.672	≥ 547.115
2441	996.500	817.852	≥ 545.235
2480	999.500	817.282	≥ 544.855

Note: Limit = 20dB bandwidth x 2/3 since it is greater than 25kHz and the output power is less than 125mW.

Figure 18: Carrier Frequency Separation, DH5, Mode A (2402MHz)

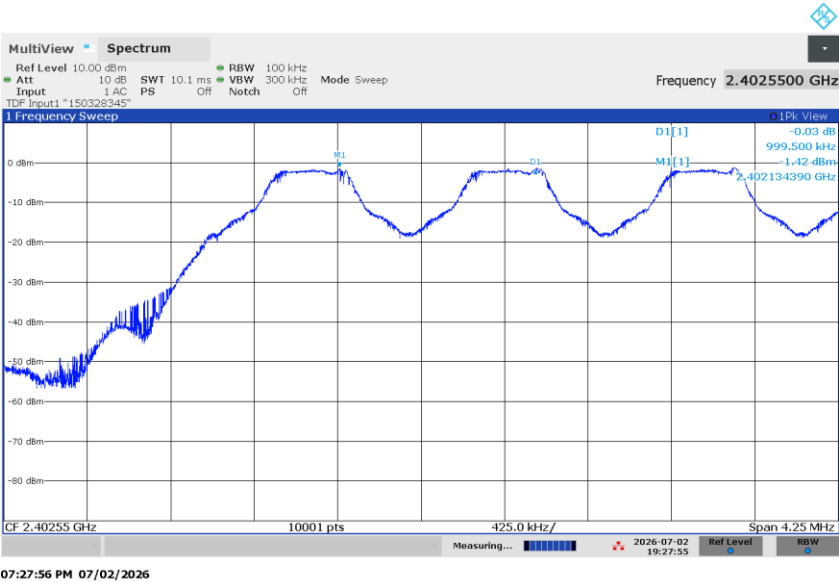


Figure 19: Carrier Frequency Separation, DH5, Mode B (2441MHz)

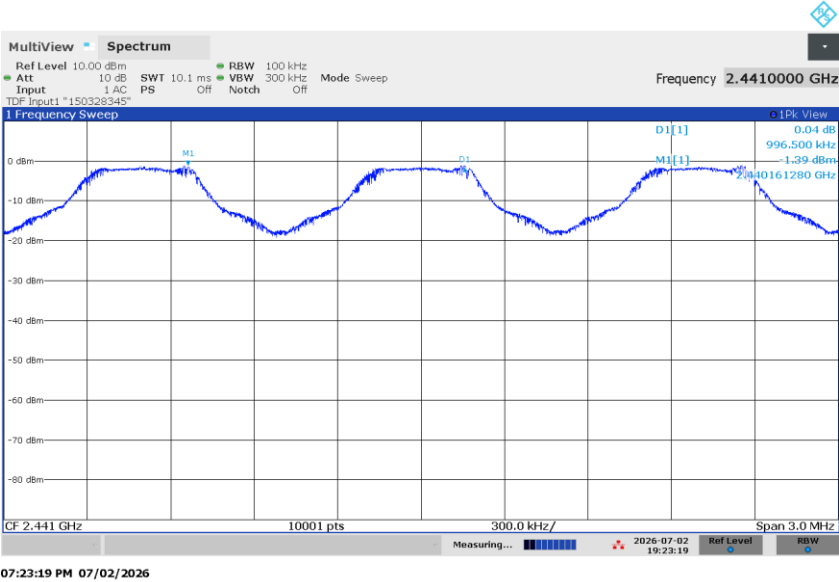


Figure 20: Carrier Frequency Separation, DH5, Mode C (2480MHz)

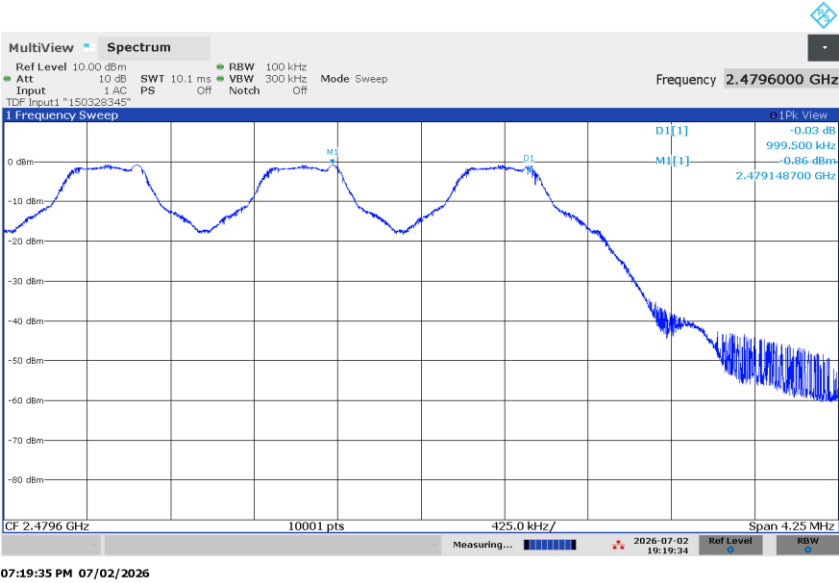
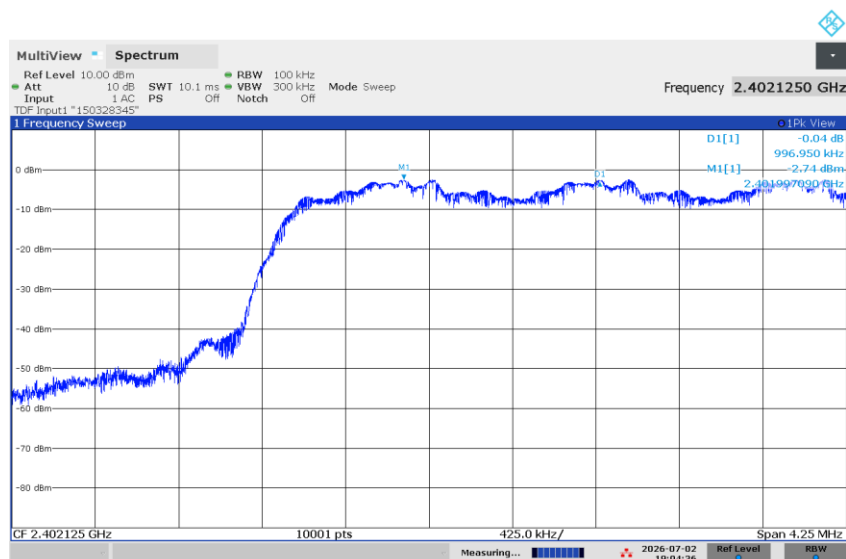


Table 15: Carrier Frequency Separation, 3DH1

Operating Frequency [MHz]	Carrier Frequency Separation [kHz]	20dB Bandwidth [MHz]	Limit [kHz]
2402	996.950	1.271	≥ 0.847
2441	995.900	1.289	≥ 0.859
2480	994.830	1.267	≥ 0.845

Note: Limit = 20dB bandwidth x 2/3 since it is greater than 25kHz and the output power is less than 125mW.

Figure 21: Carrier Frequency Separation, 3DH1, Mode A (2402MHz)



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Figure 22: Carrier Frequency Separation, 3DH1, Mode B (2441MHz)

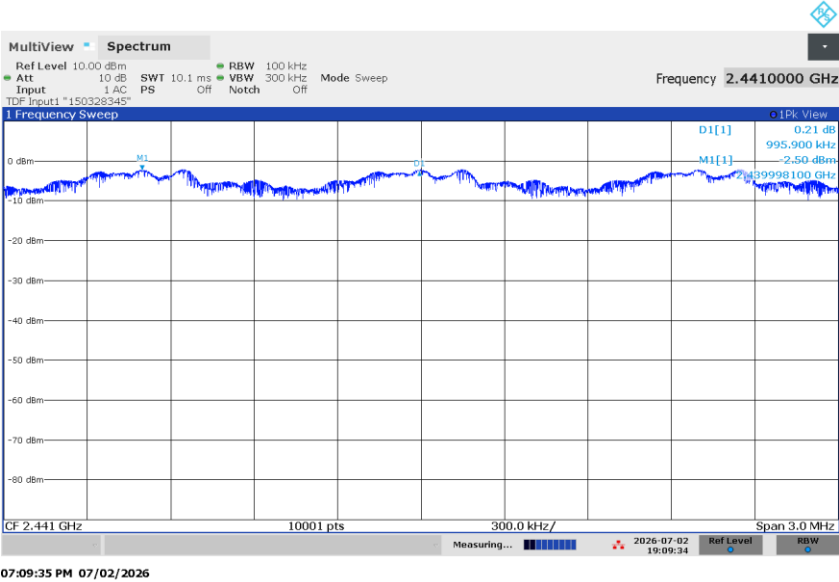
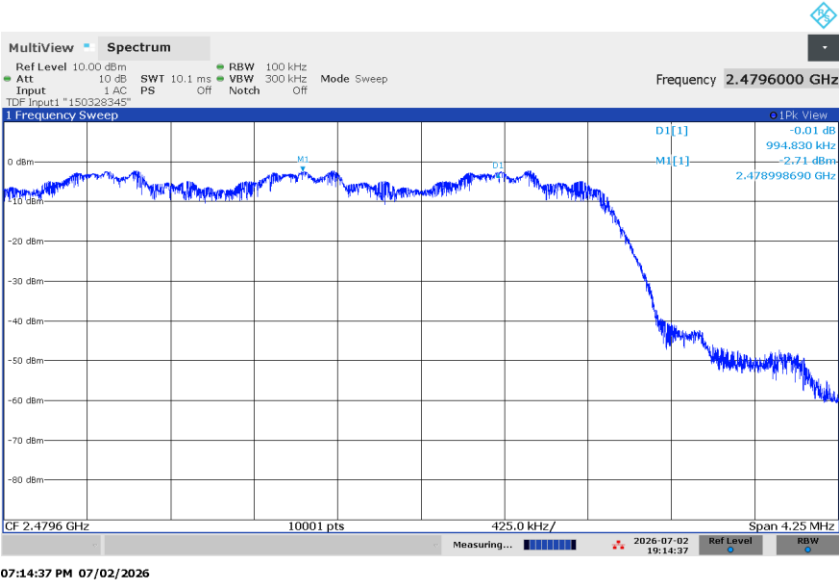


Figure 23: Carrier Frequency Separation, 3DH1, Mode C (2480MHz)



5.6 Number of Hopping Frequency

RESULT:

Pass

Date of testing: 2026-06-19, 2026-06-29, 2026-06-30
2026-07-02

Ambient temperature: 23, 23, 28, 27°C
Relative humidity: 64, 59, 46, 49%
Atmospheric pressure: 1009, 1009, 1006, 1002hPa

Requirements:

FCC §15.215(c), §15.247(a)(1)(iii) and RSS-247 §6.2.3.1 b

Frequency hopping systems operating in the 2400-2483.5MHz band shall use at least 15 channels.

Test procedure:

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 §7.8.3 and KDB 558074 D01.

The EUT had its hopping function enabled. The number of hopping frequencies was measured at the antenna port with a spectrum analyzer at the following settings:

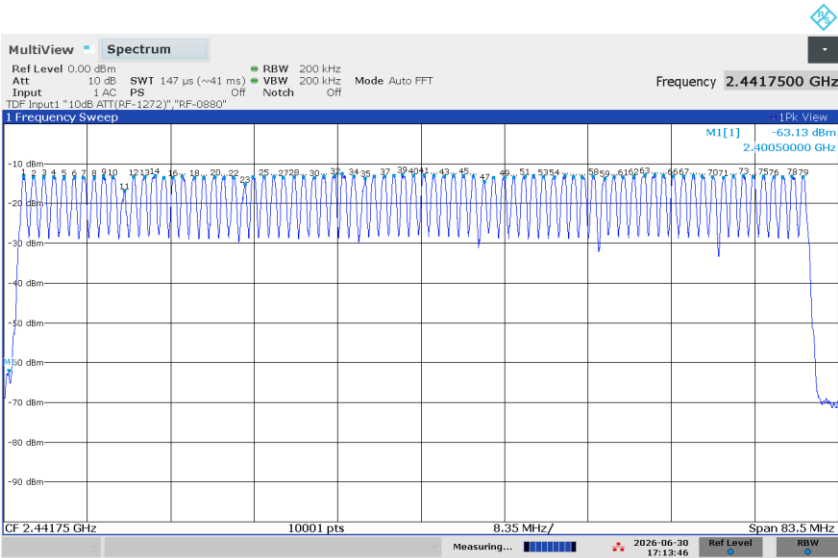
- RBW = 200kHz, VBW = 200kHz, Peak detector with Max-hold

The RBW was set to less than 30% of the channel spacing or the 20dB bandwidth, whichever is smaller.

Table 16: Number of Hopping Frequency, DH5

Operating Mode	Number of Hopping Frequency [channels]	Limit [channels]
Mode H (Hopping Enable)	79	≥ 15

Figure 24: Number of Hopping Frequency, DH5, Mode H

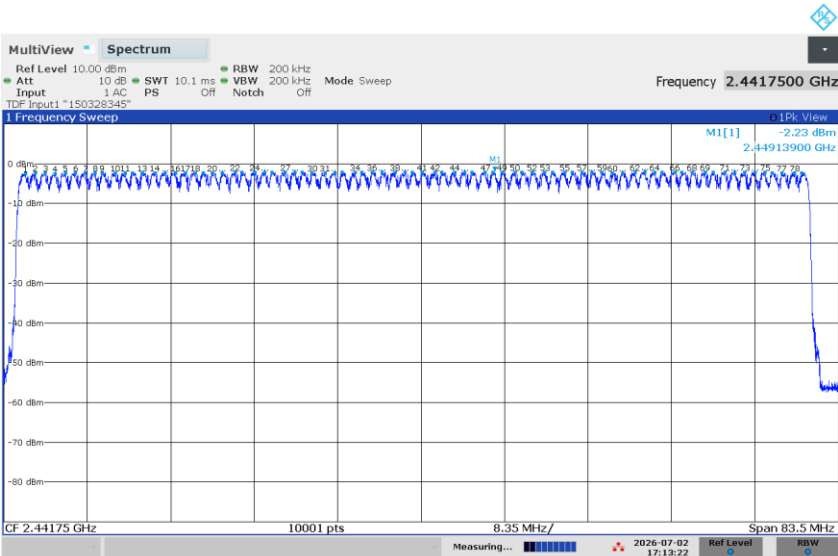


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Table 17: Number of Hopping Frequency, 3DH1

Operating Mode	Number of Hopping Frequency [channels]	Limit [channels]
Mode H (Hopping Enable)	79	≥ 15

Figure 25: Number of Hopping Frequency, 3DH1, Mode H



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5.7 Average Time of Occupancy (Dwell Time)

RESULT:

Pass

Date of testing: 2026-06-19, 2026-06-29, 2026-06-30
2026-07-02

Ambient temperature: 23, 23, 28, 27°C
Relative humidity: 64, 59, 46, 49%
Atmospheric pressure: 1009, 1009, 1006, 1002hPa

Requirements:

FCC §15.215(c), §15.247(a)(1)(iii) and RSS-247 §6.2.3.1 b

For frequency hopping systems operating in the 2400-2483.5MHz band, the average time of occupancy on any channel shall not be greater than 0.4s within a period of 0.4s multiplied by the number of hopping channels employed.

Test procedure:

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 §7.8.4 and KDB 558074 D01.

The EUT had its hopping function enabled. The time of occupancy was measured at the antenna port with a spectrum analyzer at the following settings:

- RBW = 100kHz, VBW = 300kHz, Peak detector with Single trace

In order to determine the number of hops on a channel in the observation period, the measurement was repeated using a longer sweep time on the spectrum analyzer.

The number of hops was counted on the channel across the sweep time.

The average number of hops on the same channel within the observation period (31.6 seconds) was calculated from the number of hops on the channel divided by the sweep time multiplied by the observation period.

Then, the average time of occupancy was calculated by multiplying the dwell time per hop by the number of hops in the observation period (31.6 seconds).

Note: The maximum and minimum available data rate settings were configured at Mode H.

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Table 18: Number of Hops on a Channel in the Regulatory Observation Period, DH

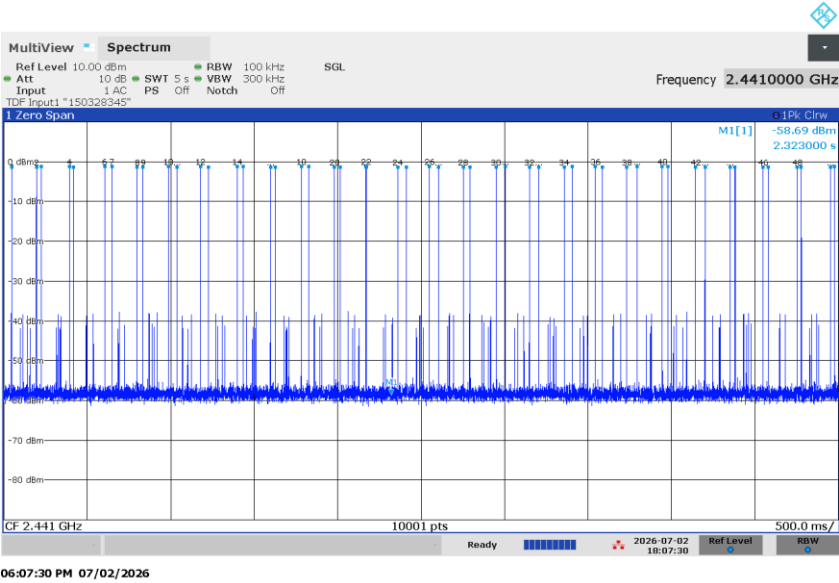
Packet Type	Packet Duration [ms]	Measured Number of Hops per Channel in 5s Period	Calculated Number of Hops per Channel in 31.6s Period	Average Time of Occupancy in 31.6s Period [ms]	Limit [ms]
DH1	0.419	50	316.000	132.293	400
DH3	1.675	27	170.640	285.771	400
DH5	2.923	16	101.120	295.554	400

Note: Calculated number of hops per channel in 31.6s period = Measured number of hops per channel in 5s period $\times$ (31.6s / 5s)
Average time of occupancy in 31.6s period = Packet duration $\times$ Calculated number of hops per channel in 31.6s period

Figure 26: Time of One Burst, DH1, Mode H



Figure 27: Number of Burst in one transmission, DH1, Mode H



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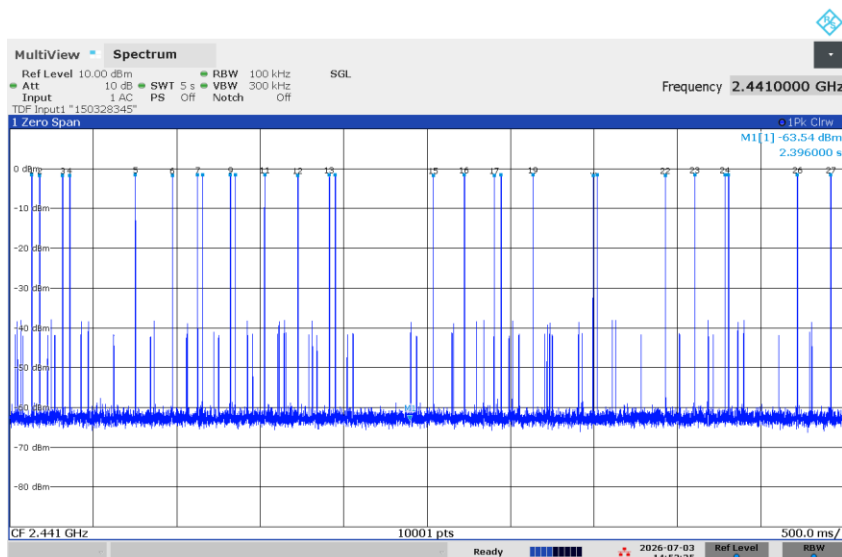
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Figure 28: Time of One Burst, DH3, Mode H



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Figure 29: Number of Burst in one transmission, DH3, Mode H



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Figure 30: Time of One Burst, DH5, Mode H



Figure 31: Number of Burst in one transmission, DH5, Mode H

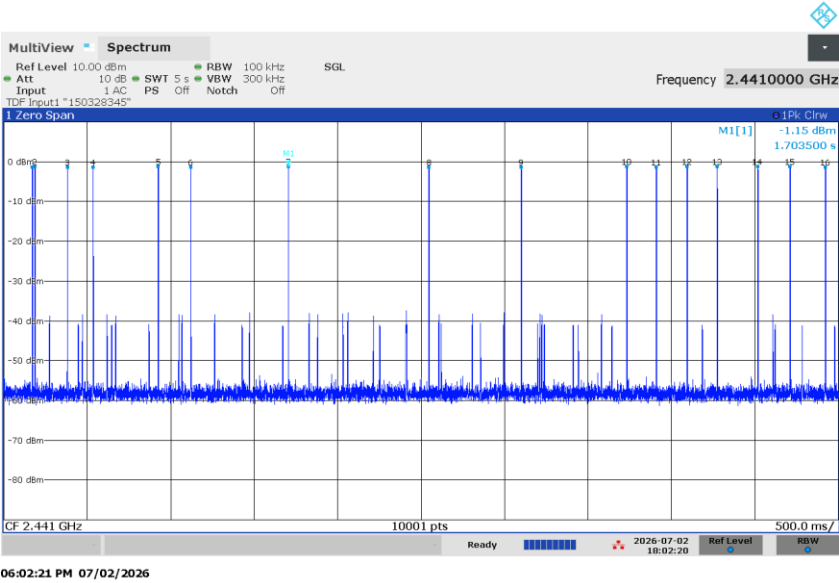


Table 19: Number of Hops on a Channel in the Regulatory Observation Period, 3DH

Packet Type	Packet Duration [ms]	Measured Number of Hops per Channel in 5s Period	Calculated Number of Hops per Channel in 31.6s Period	Average Time of Occupancy in 31.6s Period [ms]	Limit [ms]
3DH1	0.424	51	322.320	136.728	400
3DH3	1.675	30	189.600	317.637	400
3DH5	2.926	17	107.440	314.412	400

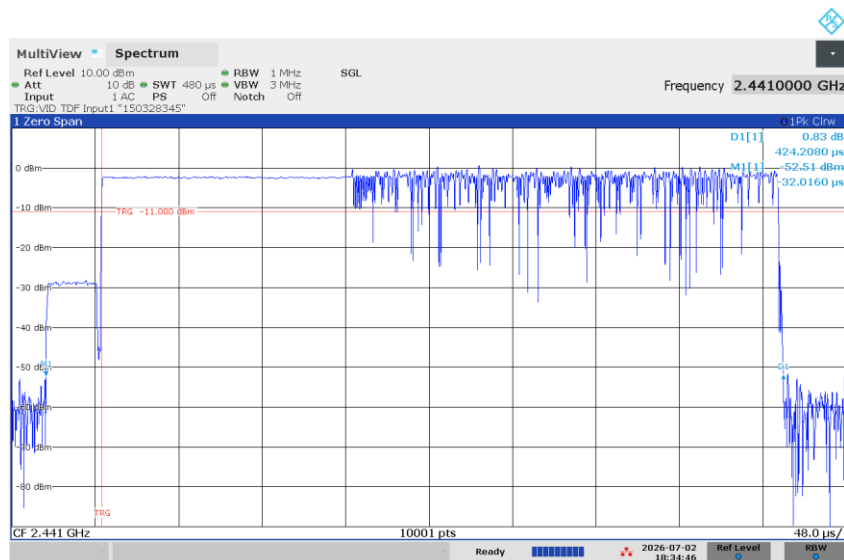
Note: Calculated number of hops per channel in 31.6s period = Measured number of hops per channel in 5s period $\times$ (31.6s / 5s)

Average time of occupancy in 31.6s period = Packet duration $\times$ Calculated number of hops per channel in 31.6s period

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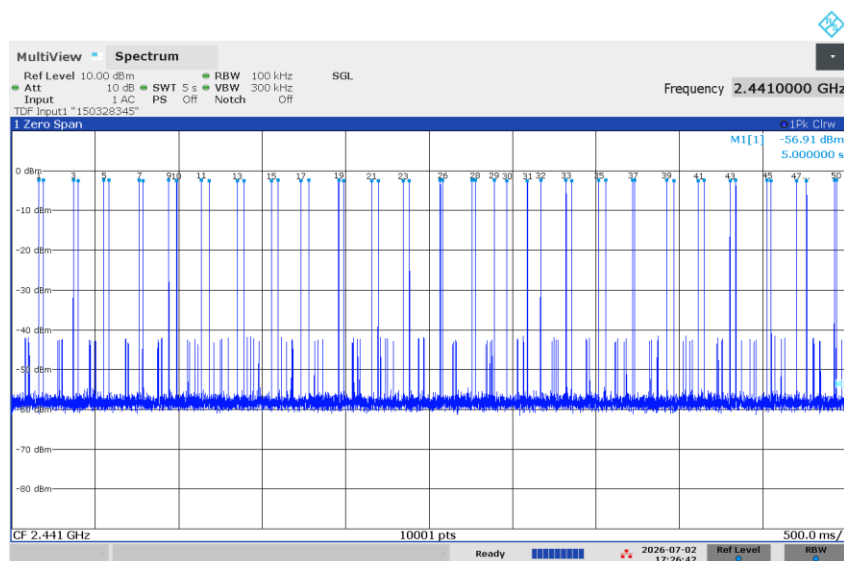
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Figure 32: Time of One Burst, 3DH1, Mode H



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Figure 33: Number of Burst in one transmission, 3DH1, Mode H

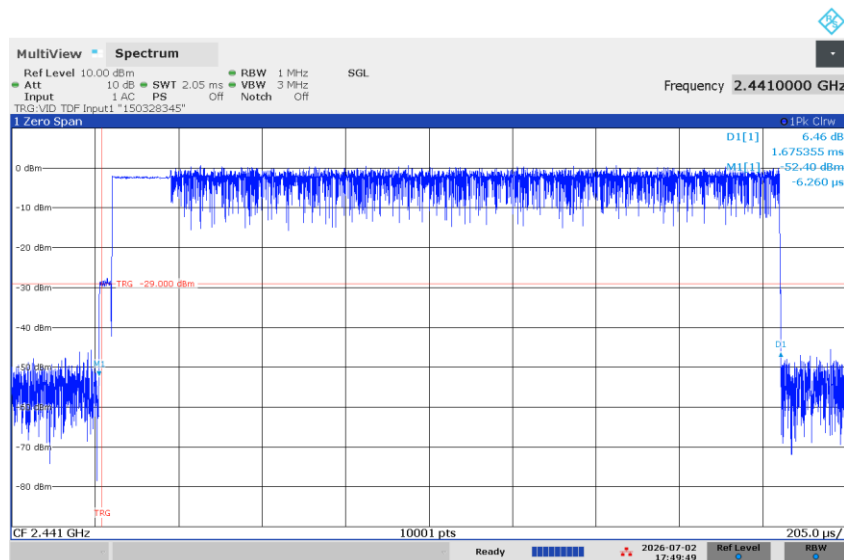


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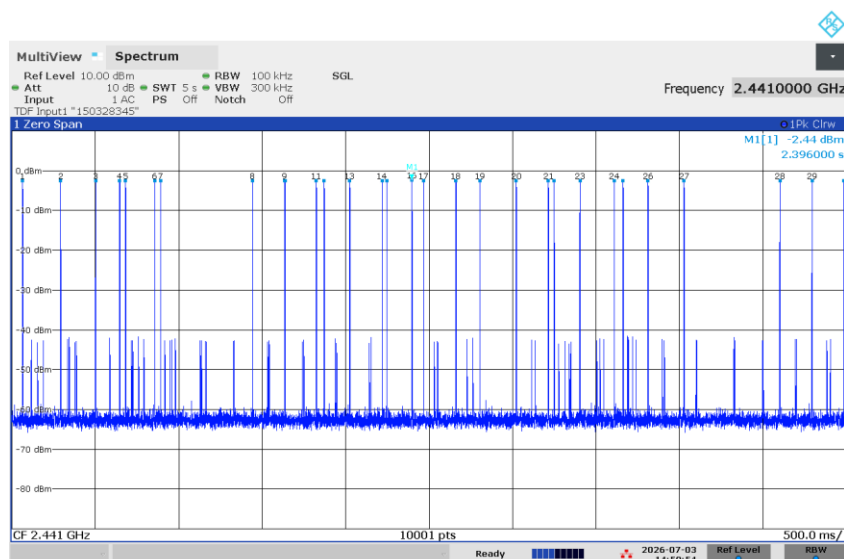
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Figure 34: Time of One Burst, 3DH3, Mode H



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Figure 35: Number of Burst in one transmission, 3DH3, Mode H



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Figure 36: Time of One Burst, 3DH5, Mode H

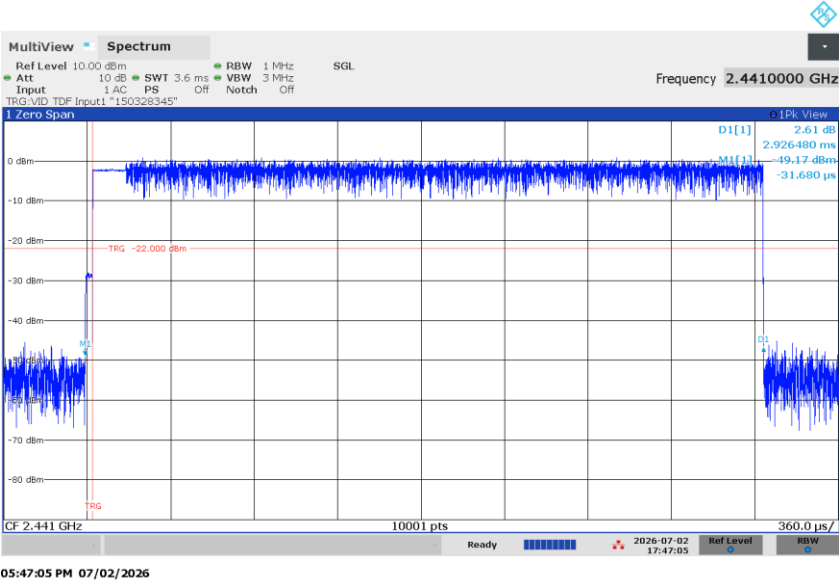
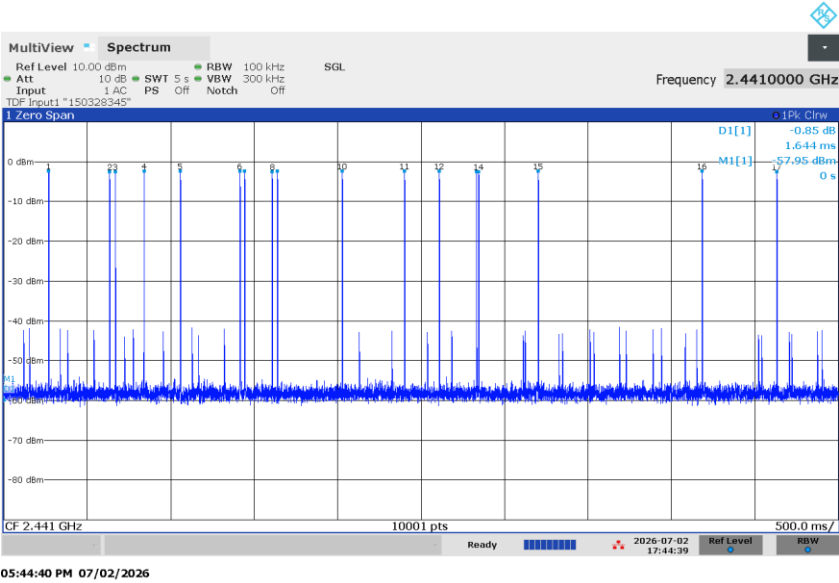


Figure 37: Number of Burst in one transmission, 3DH5, Mode H



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5.8 99% Bandwidth

RESULT:

For. Ref.

Date of testing: 2026-06-19, 2026-06-29, 2026-06-30
2026-07-02

Ambient temperature: 23, 23, 28, 27°C
Relative humidity: 64, 59, 46, 49%
Atmospheric pressure: 1009, 1009, 1006, 1002hPa

Requirements:

RSS-Gen §6.7

The 99% occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSS.

Test procedure:

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 §6.9.3

The 99% bandwidth was measured at the antenna port with a spectrum analyzer using with the following settings:

- RBW = 30kHz, VBW = 100kHz, Sample detector with single sweep

The RBW was set in the range from 1% to 5% of the observed OBW, VBW was set to at least three times of RBW.

Markers were placed at the lowest and highest intersections of the trace by 99% OBW function to obtain the value of the 99% emission bandwidth.

Table 20: 99% Bandwidth, DH5

Operating Frequency [MHz]	99% Bandwidth [kHz]	Remarks (Emission Designator for ISSED)
2402	904.9167	Widest OBW (905K)
2441	903.2740	
2480	901.4212	

Figure 38: 99% Bandwidth, DH5, Mode A (2402MHz)

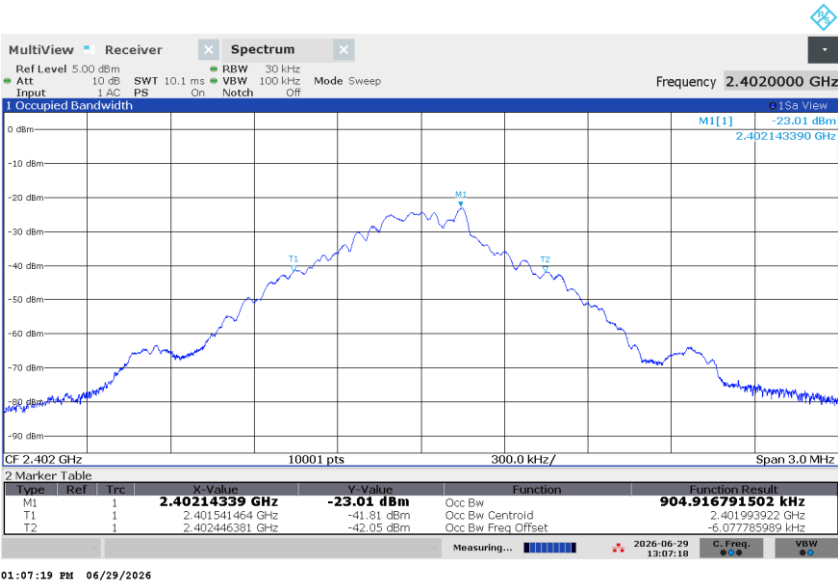


Figure 39: 99% Bandwidth, DH5, Mode B (2441MHz)

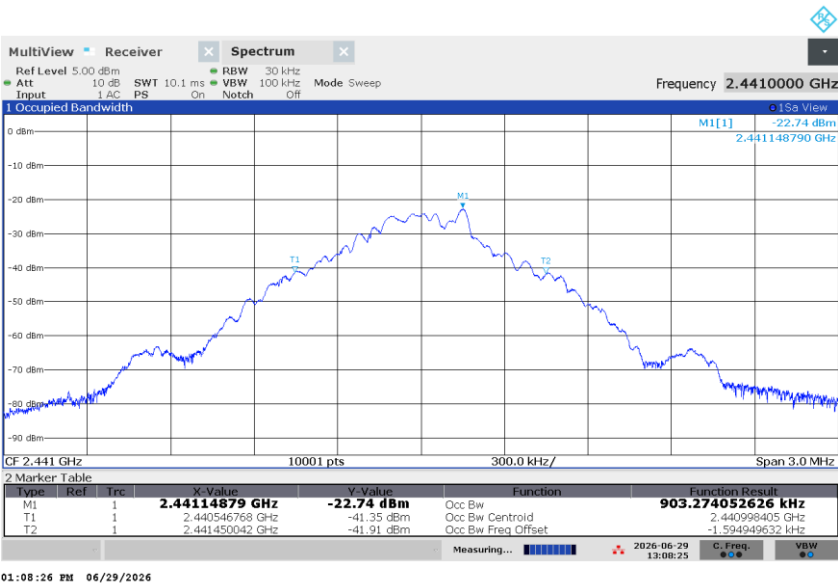
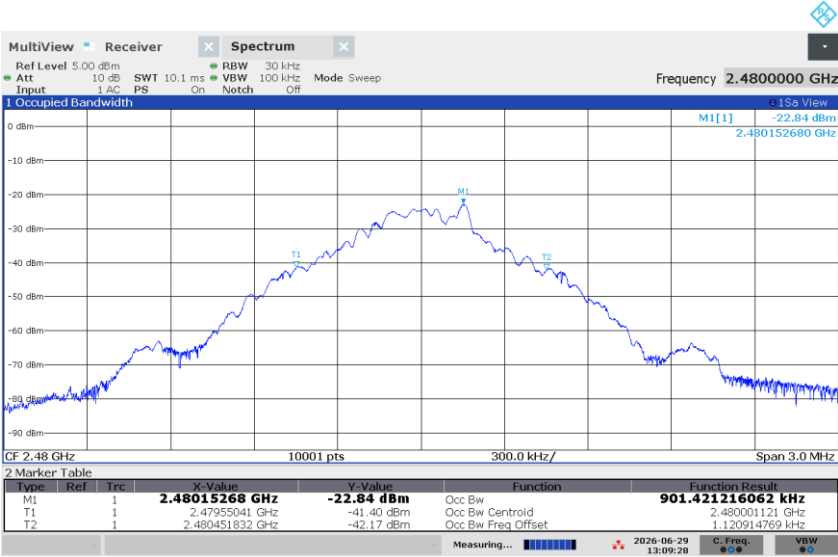


Figure 40: 99% Bandwidth, DH5, Mode C (2480MHz)



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Table 21: 99% Bandwidth, 3DH1

Operating Frequency [MHz]	99% Bandwidth [MHz]	Remarks (Emission Designator for ISSED)
2402	1.1766	
2441	1.1775	
2480	1.1777	Widest OBW (1M18)

Figure 41: 99% Bandwidth, 3DH1, Mode A (2402MHz)

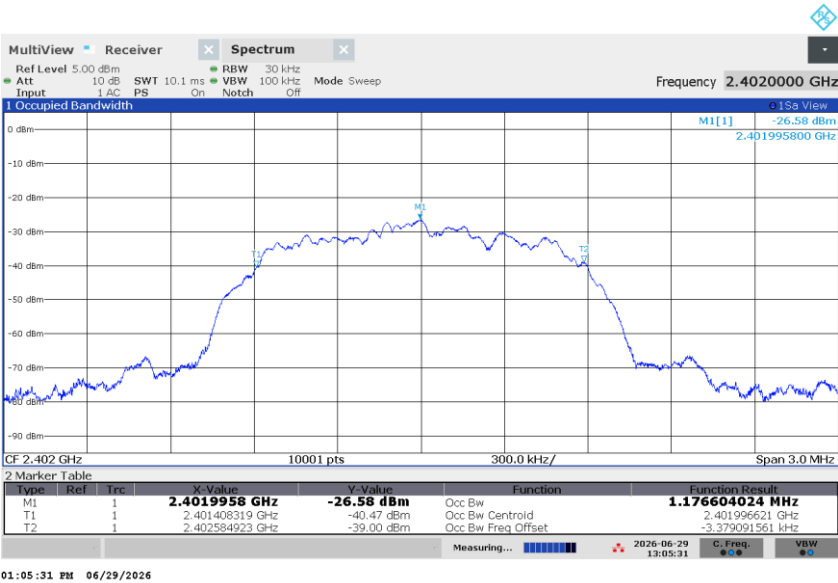


Figure 42: 99% Bandwidth, 3DH1, Mode B (2441MHz)

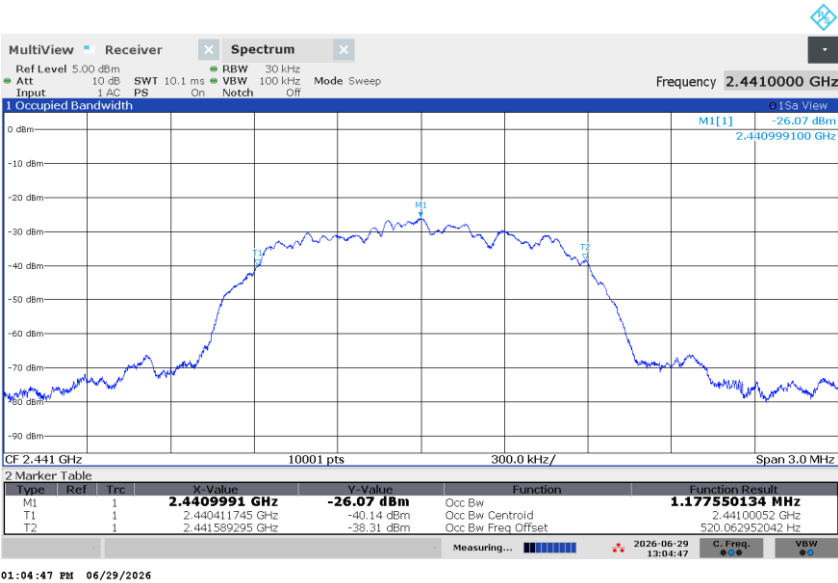
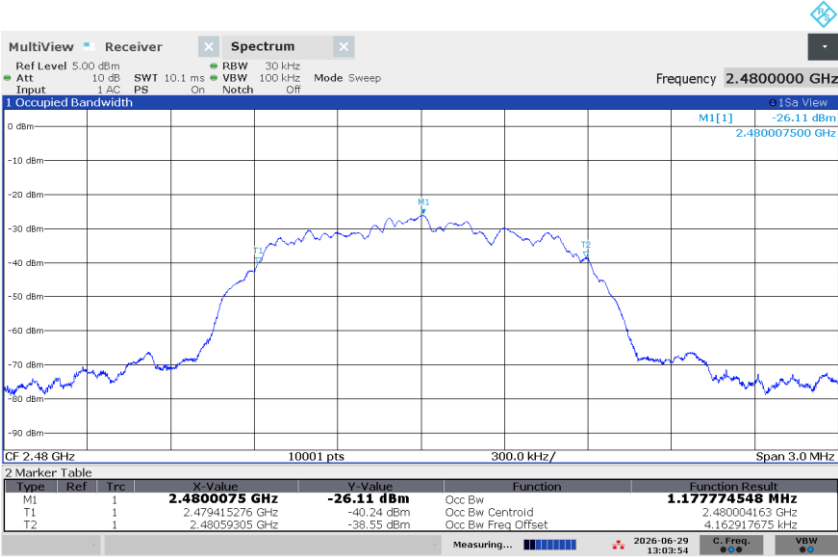


Figure 43: 99% Bandwidth, 3DH1, Mode C (2480MHz)



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5.9 Duty Cycle

RESULT:

For. Ref.

Date of testing: 2026-06-19, 2026-06-29, 2026-06-30
2026-07-02

Ambient temperature: 23, 23, 28, 27°C
Relative humidity: 64, 59, 46, 49%
Atmospheric pressure: 1009, 1009, 1006, 1002hPa

Requirements:

N/A, this test item was performed as reference.

Test procedure:

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 §7.5 and KDB 558074 D01.

Note:

Since this Radio is an FHSS device, an appropriate Duty Cycle Correction Factor (DCCF) may be applied to the average emission levels in the radiated spurious emission measurements described in Section 5.11 of this test report.

The following guidance of the section 9 b) of KDB 558074 D01 is applicable.

This DCCF can be applied when the unwanted emission limit is subject to an average field strength limit and the conditions specified in §15.35(c) can be satisfied.

However, in the radiated spurious emission tests, the spurious emission levels originating from this radio transmitter comply with the limit even without applying the DCCF.

Table 22: Duty Cycle, Mode B

Operating Frequency [MHz]	On-Time [ms]	Period [ms]	Duty Cycle [%]
DH5	2.904	3.755	77.34
2DH5	2.900	3.750	77.33
3DH1	0.396	1.250	31.68

Note: The duty cycle was measured at the data rate that produced the highest output power for each transmit speed.

Figure 44: Duty Cycle, DH5, Mode B (2441MHz)

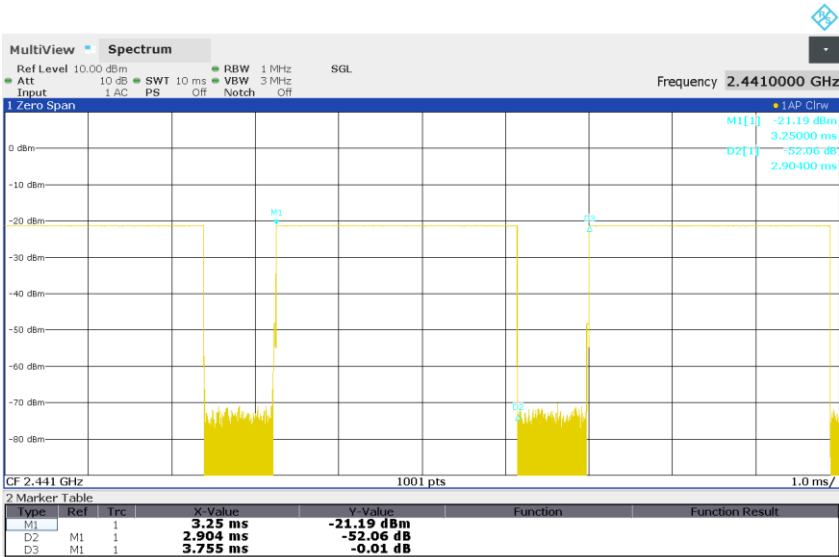


Figure 45: Duty Cycle, 2DH5, Mode B (2441MHz)

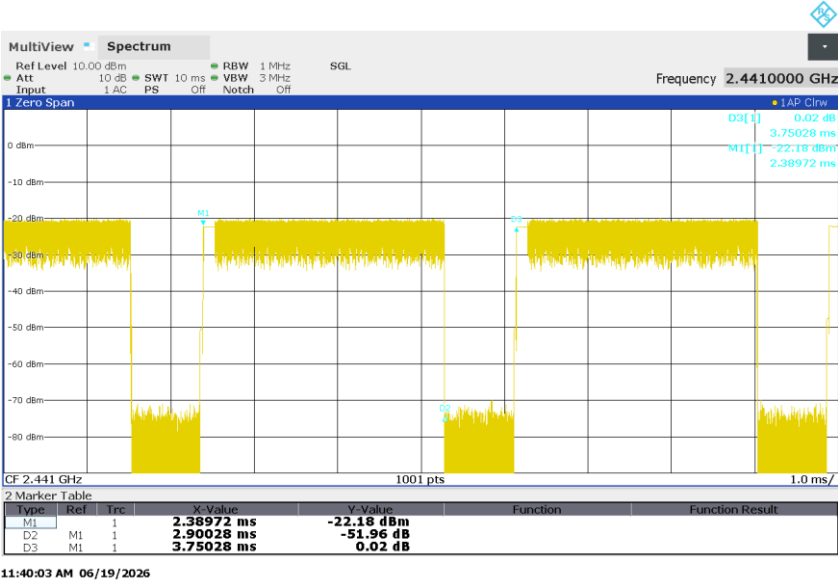


Figure 46: Duty Cycle, 3DH1, Mode B (2441MHz)

