

Prüfbericht-Nr.: Test report no.:	CN24GZY8 001	Auftrags-Nr.: Order no.:	326030380	Seite 1 von 66 Page 1 of 66
Kunden-Referenz-Nr.: Client reference no.:	/	Auftragsdatum: Order date:	2024-06-11	
Auftraggeber: Client:	Nanjing Chervon Industry Co.,Ltd No.529 Jiang-jun Rd., Jiangning Economic & Technical Development Zone, Nanjing, Jiangsu 211106 China			
Prüfgegenstand: Test item:	FLEX 24V Backpack Radio			
Bezeichnung / Typ-Nr.: Identification / Type no.:	FX5361			
Auftrags-Inhalt: Order content:	Complete test report			
Prüfgrundlage: Test specification:	FCC CFR47 Part 15, Subpart C Section 15.247 ANSI C63.10: 2013			
Wareneingangsdatum: Date of sample receipt:	2024-09-05			
Prüfmuster-Nr.: Test sample no.:	A003810635-001			
Prüfzeitraum: Testing period:	Refer to test report			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:	X <u>Tianlin Li</u>		genehmigt von: authorized by:	X <u>Hongfei Wu</u>
Datum: Date:	2024-11-18	Signed by: Tianlin Li	Datum: Date:	2024-11-18
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: WDUFX5361 Internal Model No: C1020			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet			
* 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			
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. This test report only relates to the a. m. 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.				

Prüfbericht-Nr.: CN24GZY8 001
Test report no.:

Seite 2 von 66
Page 2 of 66

Anmerkungen Remarks

1	Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <i>The equipment used during the specified testing period was calibrated according to our 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 our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i>
2	Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: go.tuv.com/digital-signature <i>As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: go.tuv.com/digital-signature</i>
3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019. <i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i>

TEST SUMMARY

5.1.1 Antenna Requirement*RESULT: Pass***5.1.2 20dB & 99% BANDWIDTH***RESULT: Pass***5.1.3 PEAK OUTPUT POWER***RESULT: Pass***5.1.4 FREQUENCY SEPARATION***RESULT: Pass***5.1.5 NUMBER OF HOPPING FREQUENCY***RESULT: Pass***5.1.6 TIME OF OCCUPANCY***RESULT: Pass***5.1.7 CONDUCTED BAND EDGE AND OUT-OF BAND EMISSIONS***RESULT: Pass***5.2.1 CONDUCTED EMISSION***RESULT: Pass***5.3.1 RADIATED BAND-EDGE***RESULT: Pass***5.3.2 RADIATED SPURIOUS EMISSION***RESULT: Pass*

Contents

1.	GENERAL REMARKS.....	5
1.1	COMPLEMENTARY MATERIALS	5
2.	TEST SITES.....	5
2.1	TEST FACILITIES	5
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	6
2.3	TRACEABILITY	6
2.4	CALIBRATION.....	6
2.5	MEASUREMENT UNCERTAINTY	7
3.	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES.....	9
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	9
4.	TEST SET-UP AND OPERATION MODES	10
4.1	PRINCIPLE OF CONFIGURATION SELECTION.....	10
4.2	TEST OPERATION AND TEST SOFTWARE	10
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	10
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	10
5.	TEST RESULTS	11
5.1	CONDUCTED TESTING AT ANTENNA PORT.....	11
5.1.1	<i>Antenna Requirement</i>	<i>11</i>
5.1.2	<i>20dB & 99% Bandwidth.....</i>	<i>12</i>
5.1.3	<i>Peak Output Power.....</i>	<i>25</i>
5.1.4	<i>Frequency Separation.....</i>	<i>26</i>
5.1.5	<i>Number of Hopping Frequency.....</i>	<i>33</i>
5.1.6	<i>Time of Occupancy.....</i>	<i>36</i>
5.1.7	<i>Conducted Band Edge and out-of Band Emissions</i>	<i>39</i>
5.2	EMISSION IN THE FREQUENCY RANGE UP TO 30MHZ	45
5.2.1	<i>Conducted Emission.....</i>	<i>45</i>
5.3	EMISSION IN THE FREQUENCY RANGE ABOVE 30MHZ	48
5.3.1	<i>Radiated Band-Edge.....</i>	<i>48</i>
5.3.2	<i>Radiated Spurious Emission.....</i>	<i>53</i>
6.	LIST OF TABLES.....	66
7.	LIST OF FIGURES	66

1. General Remarks

1.1 Complementary Materials

Null.

2. Test Sites

2.1 Test Facilities

TÜV Rheinland (Shanghai) Co., Ltd.
No.14 building and north half of No.10 workshop building, No.525, Yuewang Lingang South Road, Pingqian (Taicang) Modern Industrial Park, Shaxi Town, Taicang City, Jiangsu Province, P.R. China

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The Federal Communications Commission has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance with the requirements of section 2.948 of the FCC rules. The description of the test facility is listed under FCC registration number 930979.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Equip.	Description	Model	Manufacturer	Due Date
G1811378	3m semi-anechoic chamber	SAC3	Frankonia	12/03/2028
G1811425	Bilog antenna	CBL 6112D	Teseq	04/20/2026
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	07/24/2025
G1825372	Preamplifier	EMC184045SE	Taiwan EMCI	07/24/2025
9059157	Double ridged broadband horn antenna	BBHA 9120 D	Schwarzbeck	03/16/2025
G1831065	Broadband horn antenna	BBHA 9170	Schwarzbeck	06/18/2028
G1822702	Spectrum analyser	FSV40	Rohde&Schwarz	07/15/2025
9053474	Signal generator	SMB100B (6 GHz)	Rohde & Schwarz	12/15/2024
9053476	Vector Signal generator	SMW200A	Rohde & Schwarz	12/15/2024
9053477	OSP	OSP-B157W8	Rohde & Schwarz	12/15/2024
9047770	Wireless connectivity tester	CMW270	Rohde & Schwarz	08/23/2025
G1811401	Power sensor	E9300H	Agilent	07/16/2025
G1811400	Single-channel power meter	E4418B	Agilent	07/16/2025
G1811391	EMI test receiver	ESCI	Rohde&Schwarz	10/16/2024
Software				
	EMC measurement software	EMC32 (Ver 10.60.20)	Rohde&Schwarz	NA
	EMC measurement software	EMC32 (Ver 11.40.00)	Rohde&Schwarz	NA

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

Table 2: Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	±0.39dB
	> 1GHz	±0.68dB
Conducted Emission	150kHz - 30MHz	±3.39dB
Radiated Emission	9kHz - 30MHz	±2.93dB
	30MHz - 1GHz	±5.34dB
	> 1GHz	±5.40dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a FLEX 24V Stackpack Radio which support Bluetooth function.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Description of EUT	
Product Name:	FLEX 24V Stackpack Radio
Model No.:	FX5361
Operation Voltage:	DC 24V (Li-ion Battery) AC 110~127V, 60Hz
Test Voltage:	DC 3.3V for conduct RF testing AC 110V, 60 Hz for conducted emission and radiated test
Extreme Temperature	0~40°C
Technical Specification of Bluetooth Classic	
Frequency Range:	2402~2480MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK
Antenna Type:	PCB Antenna
Antenna Gain:	-0.68 dBi (provided by client)

Note:

The structure parts will not affect to the RF preformance, So, the motherboard of the product is chosen for most conducted tests, the model FX5361 is chosen for conduct emission and radiated tests.

Table 4: RF Channel List

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

3.3 Independent Operation Modes

Test frequencies are lowest channel: 2402 MHz, middle channel: 2441 MHz, highest channel: 2480 MHz and hopping mode.

The basic operation modes are:

- A. On, Bluetooth Classic transmitting mode
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.10: 2013.

Test Software: Frequency Tool V0.3.2

Table 5: Power parameter value

Packet Type	Channel Frequency [MHz]	Power Parameter Value
1-DH5	Transmitting mode	0
	Hopping mode	0
2-DH5	Transmitting mode	0
	Hopping mode	0

4.3 Special Accessories and Auxiliary Equipment

Table 6: Auxiliary Equipment

Equipment	Manufacturer	Model
Laptop	Lenovo	21AJ-S57N0J

4.4 Countermeasures to achieve EMC Compliance

Null.

5. Test Results

5.1 Conducted Testing at Antenna Port

5.1.1 Antenna Requirement

RESULT:**Pass**

According to the manufacturer declared, the EUT has one PCB antenna, the directional gain of antenna is -0.68 dBi and the antenna is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Table 7: Antenna Requirement

FCC 15.203 – Antenna Requirement 1	
Requirement:	No antenna other than that furnished by the responsible party shall be used with the device
Results:	Antenna type: PCB antenna
Verdict:	Pass

FCC 15.204 – Antenna Requirement 2	
Requirement:	An intentional radiator may be operated only with the antenna with which it is authorized. If an antenna is marketed with the intentional radiator, it shall be of a type which is authorized with the intentional radiator.
Results:	Only one PCB antenna can be used
Verdict:	Pass

5.1.2 20dB & 99% Bandwidth**RESULT:****Pass**

Date of testing : 2024-09-12
Ambient temperature : 20.3°C
Relative humidity : 48.3%
Atmospheric pressure : 101kPa
Test requirement : FCC Part 15.247(a)(1)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : A

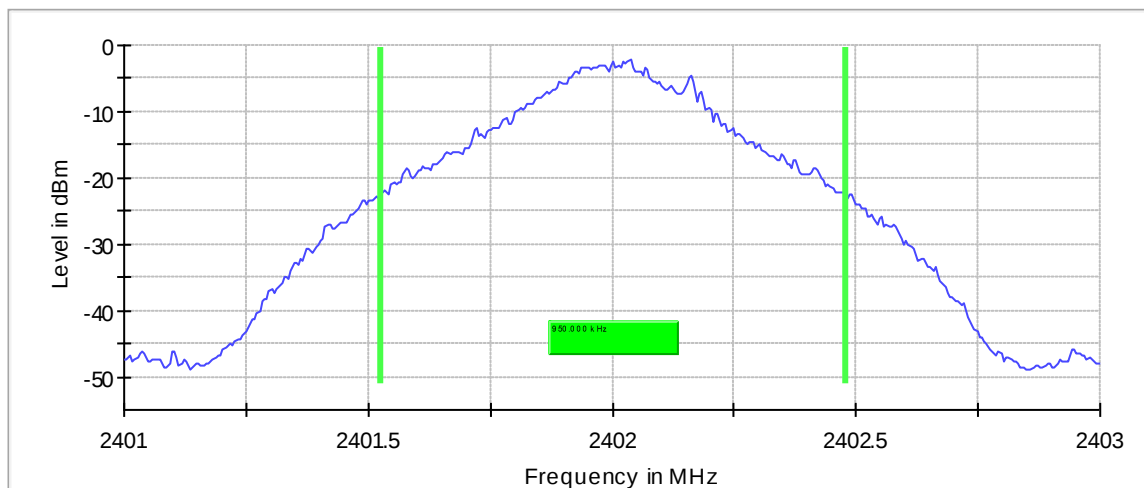
20dB Bandwidth, 1-DH5, 2402MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.950000	---	---	2401.527500	2402.477500

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-2.2	PASS

20 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweptime	189.648 s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	49 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.36 dB	0.50 dB

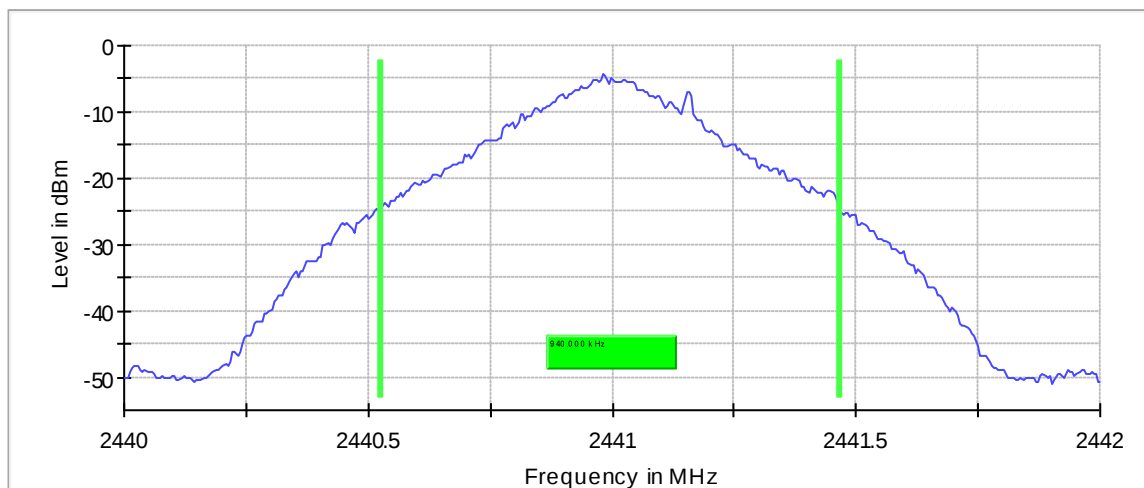
20dB Bandwidth, 1-DH5, 2441MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.940000	---	---	2440.527500	2441.467500

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	-4.3	PASS

20 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
Sweeptime	189.648 s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	47 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.50 dB	0.50 dB

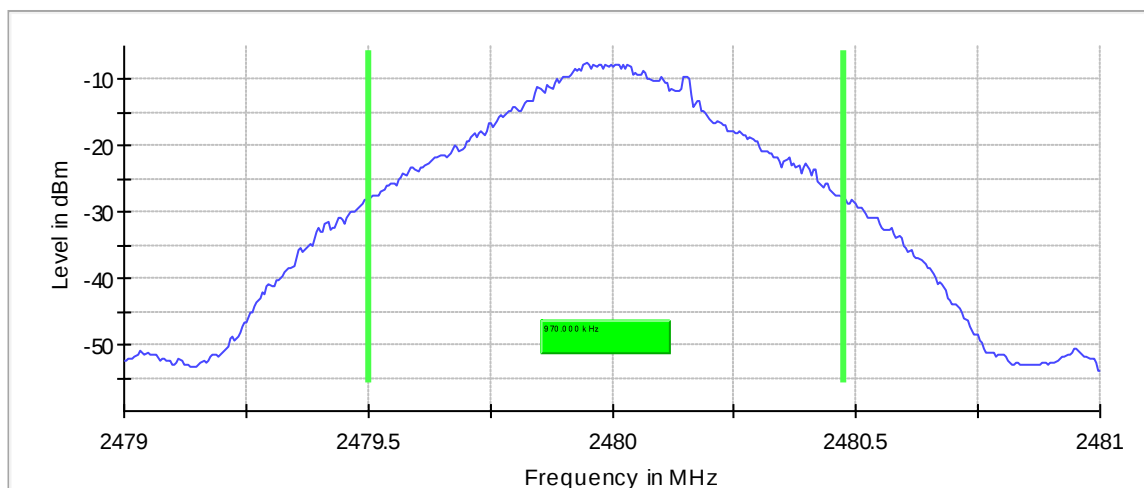
20dB Bandwidth, 1-DH5, 2480MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.970000	---	---	2479.502500	2480.472500

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-7.5	PASS

20 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	63 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.45 dB	0.50 dB

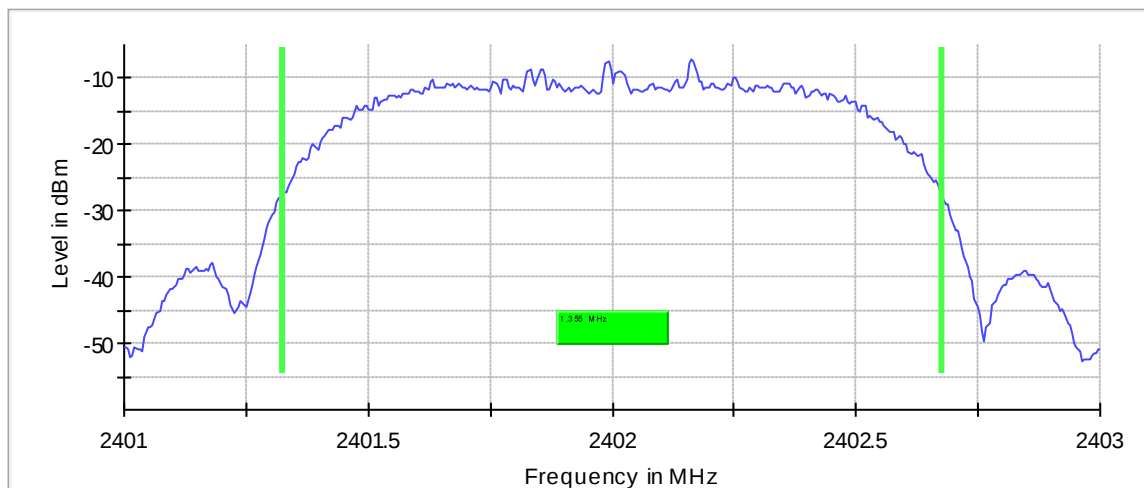
20dB Bandwidth, 2-DH5, 2402MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.355000	---	---	2401.322500	2402.677500

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	-7.3	PASS

20 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	82 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.05 dB	0.50 dB

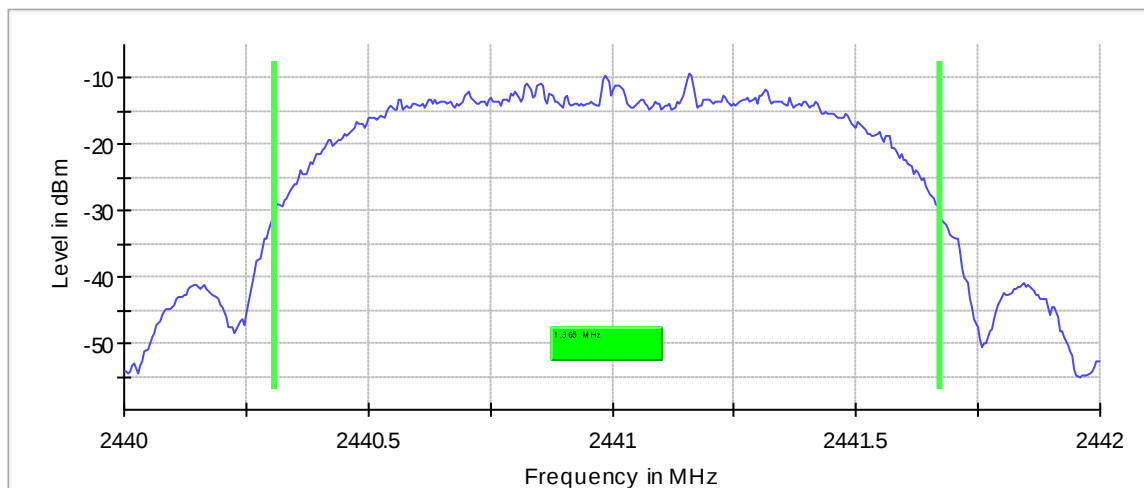
20dB Bandwidth, 2-DH5, 2441MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.365000	---	---	2440.307500	2441.672500

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2441.000000	-9.4	PASS

20 dB Bandwidth



Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	56 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.17 dB	0.50 dB

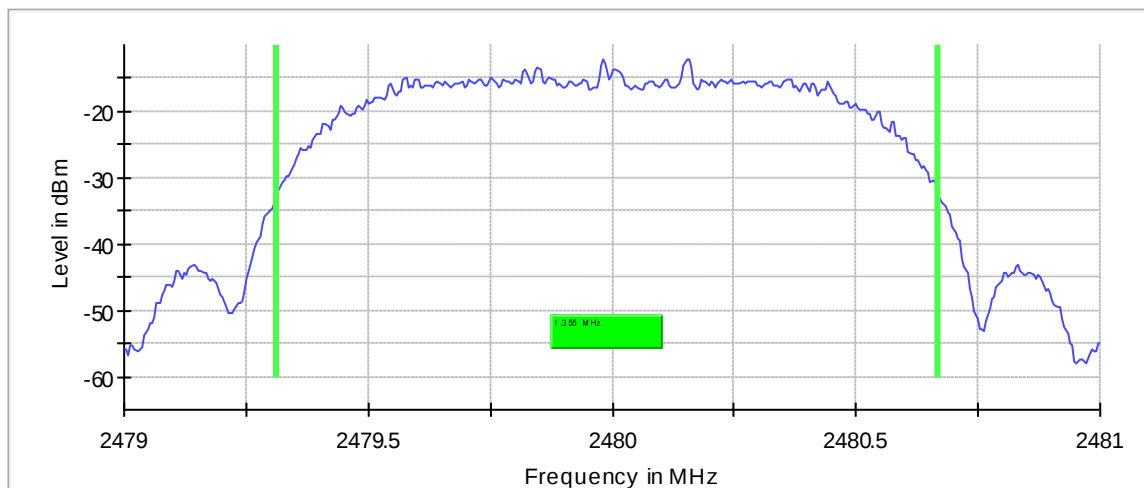
20dB Bandwidth, 2-DH5, 2480MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.355000	---	---	2479.312500	2480.667500

(continuation of the "6 dB Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	-12.0	PASS

20 dB Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	117 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.00 dB	0.50 dB

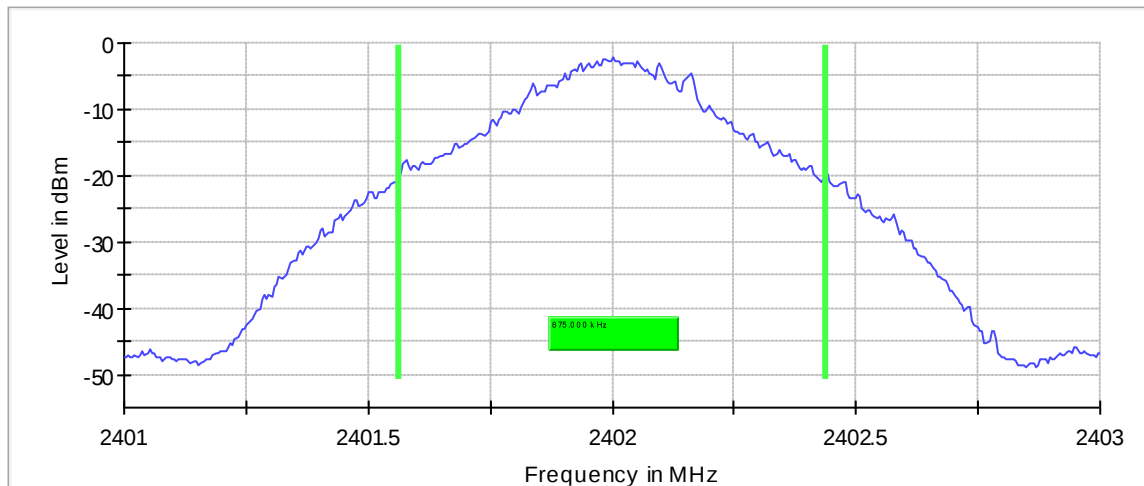
99% Occupied Channel Bandwidth, 1-DH5, 2402MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.875000	---	---	2401.562500	2402.437500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 渭s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	41 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

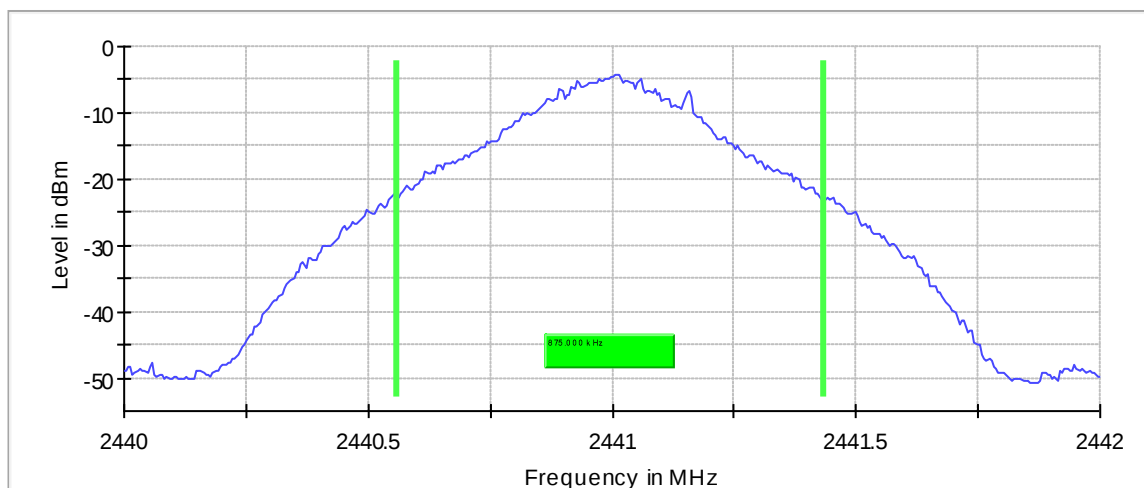
99% Occupied Channel Bandwidth, 1-DH5, 2441MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	0.875000	---	---	2440.557500	2441.432500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 μ s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	46 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

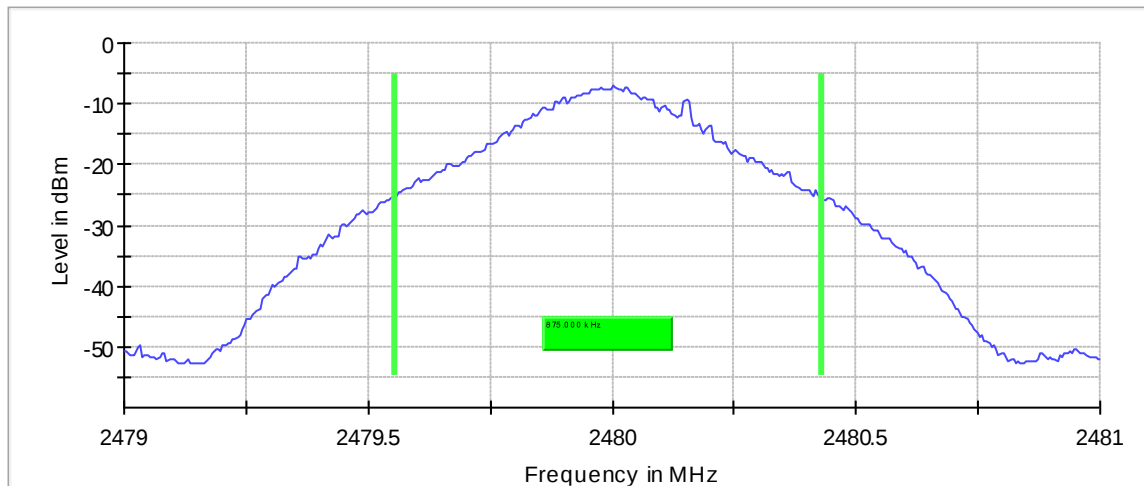
99% Occupied Channel Bandwidth, 1-DH5, 2480MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.875000	---	---	2479.552500	2480.427500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 渭s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	66 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.14 dB	0.30 dB

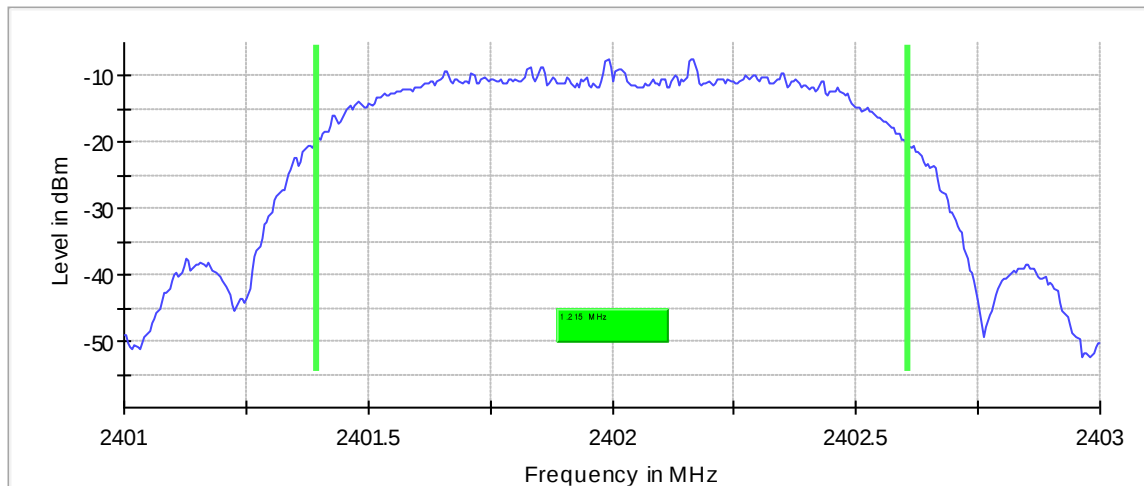
99% Occupied Channel Bandwidth, 2-DH5, 2402MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.215000	---	---	2401.392500	2402.607500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 μs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	99 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.26 dB	0.30 dB

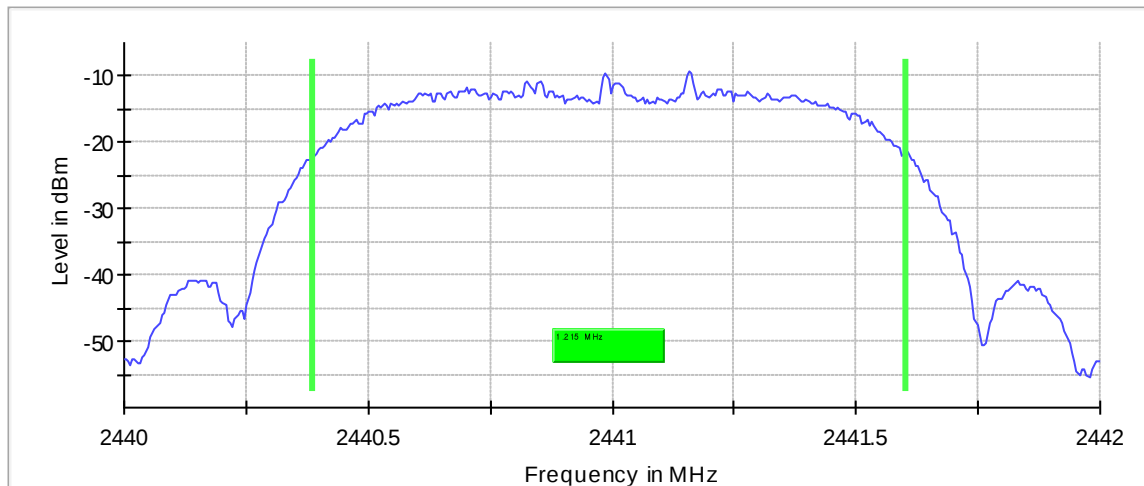
99% Occupied Channel Bandwidth, 2-DH5, 2441MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2441.000000	1.215000	---	---	2440.387500	2441.602500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 渭s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	76 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

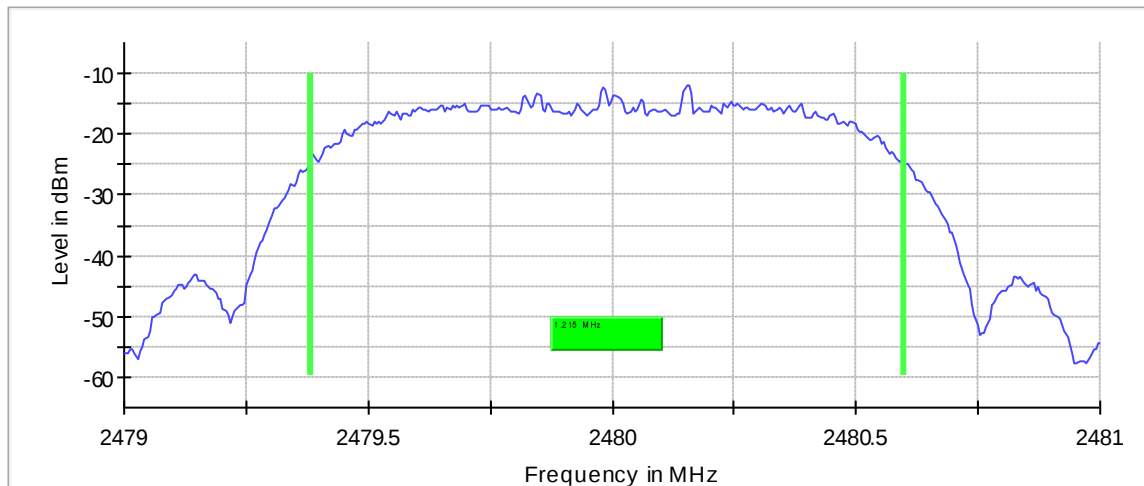
99% Occupied Channel Bandwidth, 2-DH5, 2480MHz

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.215000	---	---	2479.382500	2480.597500

(continuation of the "99 % Bandwidth" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

99 % Bandwidth


Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47900 GHz	2.47900 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 渭s	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	500	500
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	59 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.05 dB	0.30 dB

5.1.3 Peak Output Power

RESULT:**Pass**

Date of testing : 2024-09-12
Ambient temperature : 20.3°C
Relative humidity : 48.3%
Atmospheric pressure : 101kPa
Test requirement : FCC Part 15.247(b)(1)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : A

Table 8: Peak Output Power

Test Mode	Frequency [MHz]	Maximum Peak Conducted Output Power [dBm]	Limit [dBm]	Maximum EIRP [dBm]	EIRP Limit [dBm]
1-DH5	2402	1.80	21	1.12	27
1-DH5	2441	-0.50	21	-1.13	27
1-DH5	2480	-3.10	21	-3.78	27
2-DH5	2402	1.40	21	0.72	27
2-DH5	2441	-0.70	21	-1.38	27
2-DH5	2480	-3.30	21	-3.98	27

Note:

1. The cable loss is taken into account in results.
2. EIRP=Conducted Output Power + Antenna Gain (-0.68dBi), which is far below the 0.5W (27dBm).

5.1.4 Frequency Separation

RESULT:**Pass**

Date of testing	:	2024-09-12
Ambient temperature	:	20.3°C
Relative humidity	:	48.3%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(a)(1)
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3.3V
Test modes applied	:	A

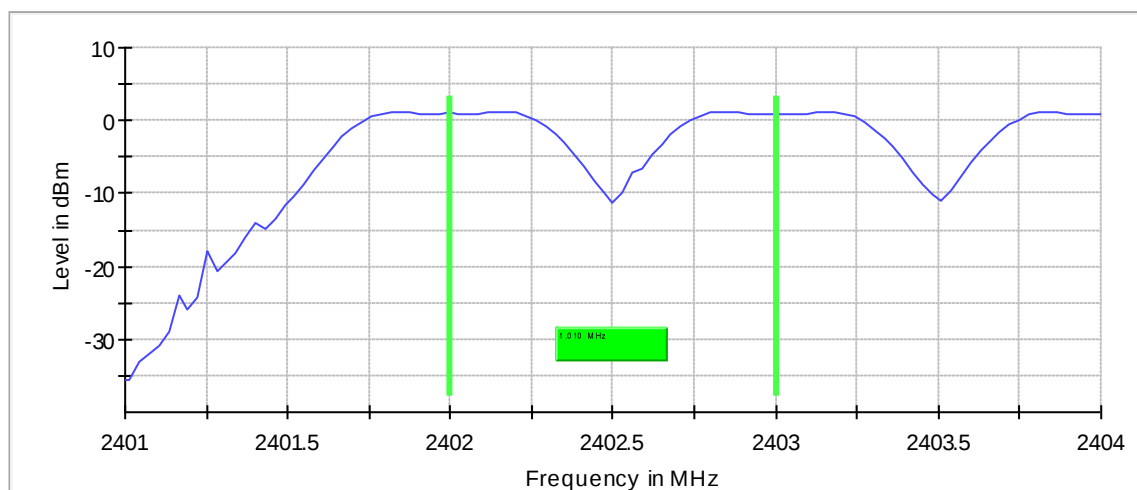
Carrier Frequency Separation (1-DH5, 2402 MHz)

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2402.000000	1.009900	0.633333	---	2401.995050	2403.004950

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	1.000 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	21 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.00 dB	0.50 dB

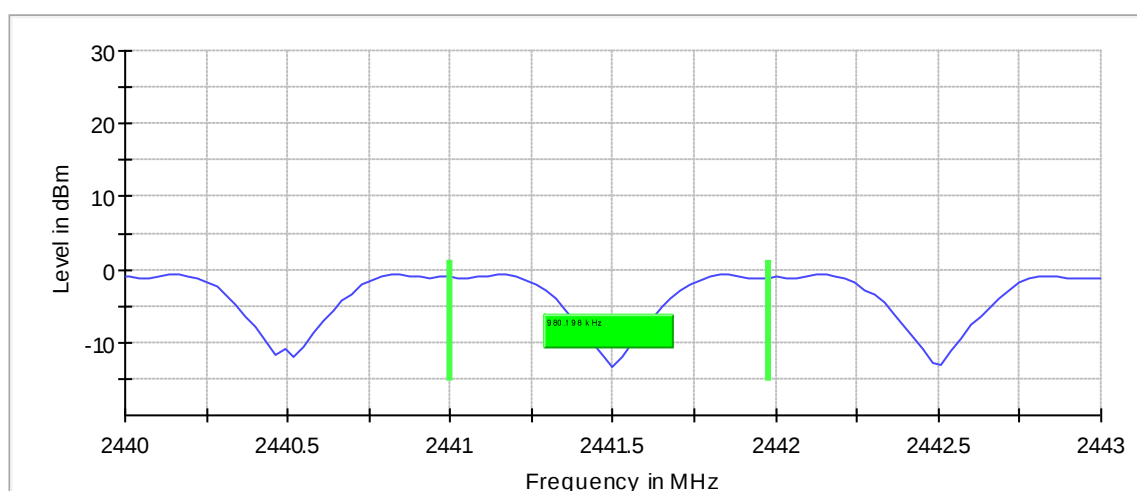
Carrier Frequency Separation (1-DH5, 2441 MHz)

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2441.000000	0.980198	0.626667	---	2440.995050	2441.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
Sweeptime	1.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	13 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.00 dB	0.50 dB

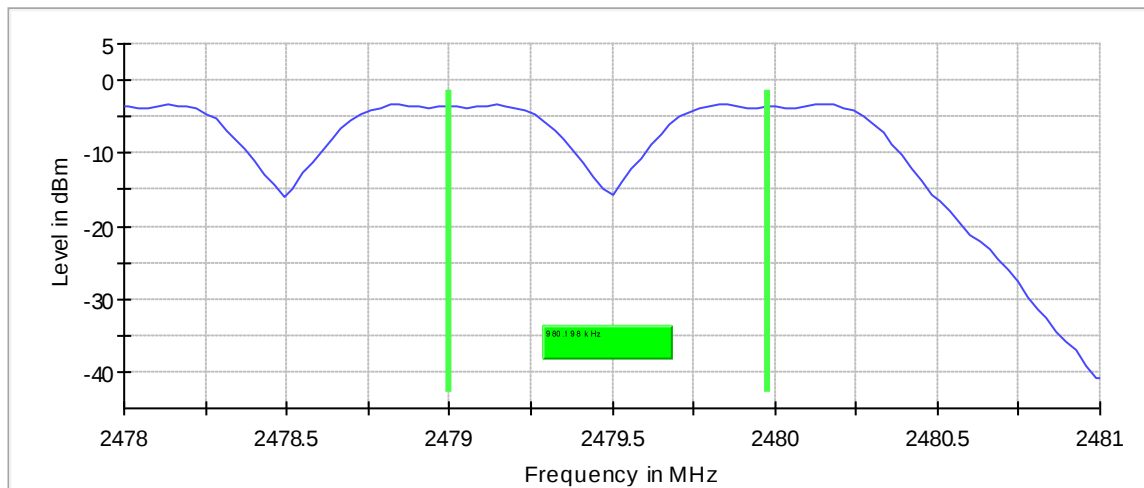
Carrier Frequency Separation (1-DH5, 2480 MHz)

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2480.000000	0.980198	0.646667	---	2478.995050	2479.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
Sweeptime	1.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	20 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.09 dB	0.50 dB

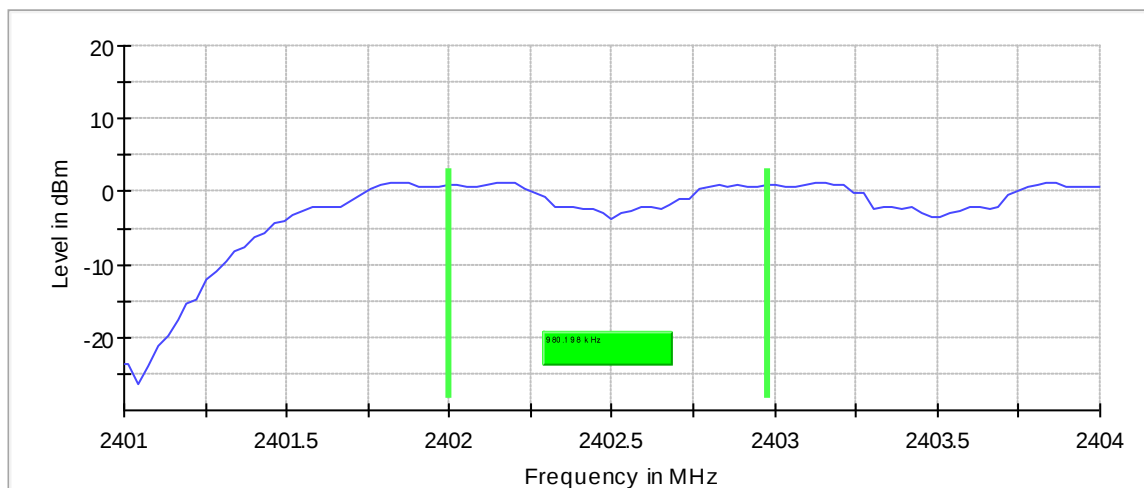
Carrier Frequency Separation (2-DH5, 2402 MHz)

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2402.000000	0.980198	0.903333	---	2401.995050	2402.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2402.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	1.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	54 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.04 dB	0.50 dB

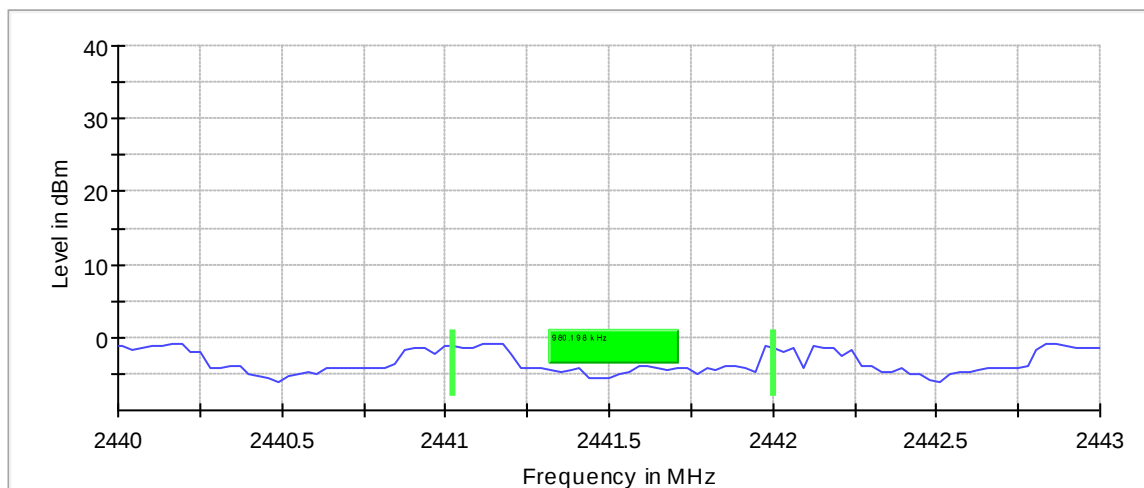
Carrier Frequency Separation (2-DH5, 2441 MHz)

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2441.000000	0.980198	0.910000	---	2441.024752	2442.004950

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2441.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.44000 GHz	2.44000 GHz
Stop Frequency	2.44300 GHz	2.44300 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
Sweptime	1.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.00 dB	0.50 dB

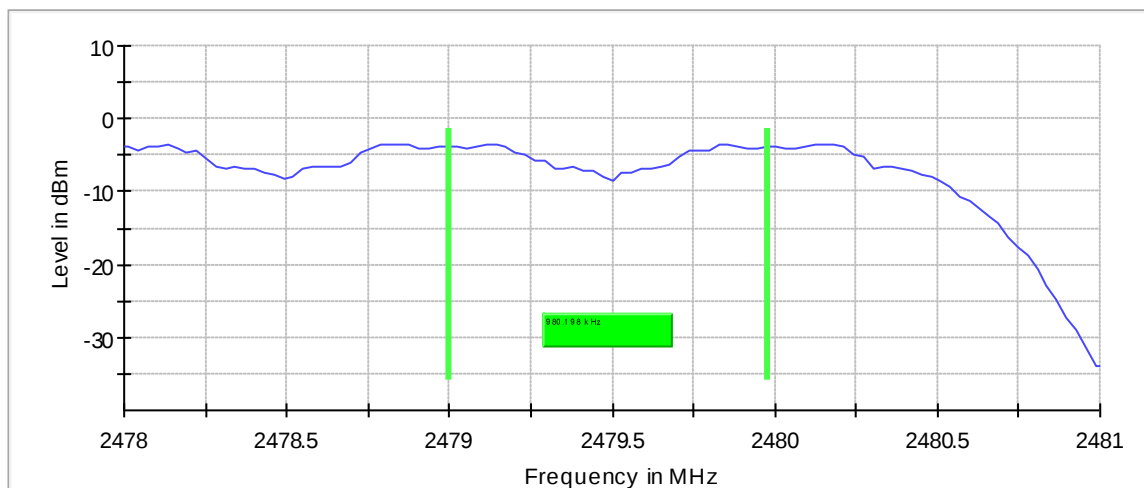
Carrier Frequency Separation (2-DH5, 2480 MHz)

DUT Frequency (MHz)	Frequency Separation (MHz)	Limit Min (MHz)	Limit Max (MHz)	Center Frequency low Channel (MHz)	Center Frequency high Channel (MHz)
2480.000000	0.980198	0.903333	---	2478.995050	2479.975248

(continuation of the "Result" table from column 6 ...)

DUT Frequency (MHz)	Result
2480.000000	PASS

CFS



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48100 GHz	2.48100 GHz
Span	3.000 MHz	3.000 MHz
RBW	300.000 kHz	<= 300.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	101	~ 10
SweepTime	1.000 ms	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	60 / max. 150	max. 150
Stable	10 / 10	10
Max Stable Difference	0.00 dB	0.50 dB

5.1.5 Number of Hopping Frequency

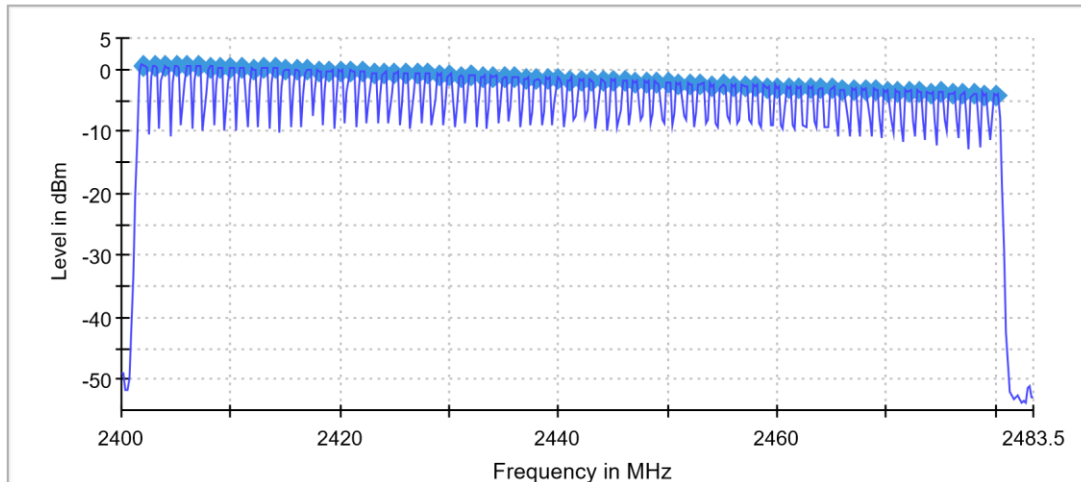
RESULT:**Pass**

Date of testing : 2024-09-12
Ambient temperature : 20.3°C
Relative humidity : 48.3%
Atmospheric pressure : 101kPa
Test requirement : FCC 15.247(a)(1)(iii)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : A

Hopping Frequencies (1-DH5)

Channels	Limit Min	Limit Max	Result
79	15	---	PASS

Sequence



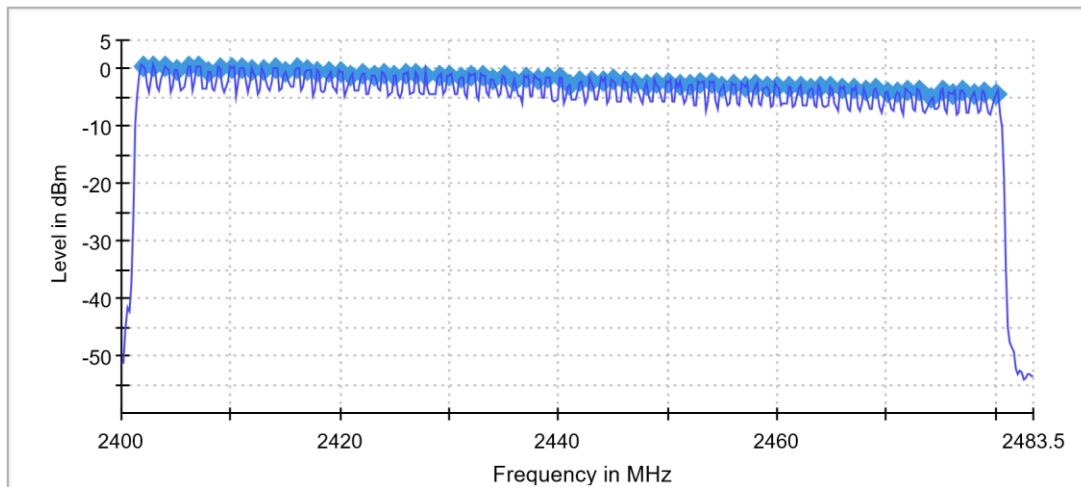
Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	200.000 kHz	≤ 299.000 kHz
VBW	200.000 kHz	≥ 200.000 kHz
SweepPoints	418	~ 418
Sweeptime	1.060 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	50 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.38 dB	0.50 dB

Hopping Frequencies (2-DH5)

Channels	Limit Min	Limit Max	Result
79	15	---	PASS

Sequence



Measurement

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	200.000 kHz	≤ 299.000 kHz
VBW	200.000 kHz	≥ 200.000 kHz
SweepPoints	418	~ 418
SweepTime	1.060 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	Sweep	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	105 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.50 dB

5.1.6 Time of Occupancy

RESULT:**Pass**

Date of testing : 2024-09-12
Ambient temperature : 20.3°C
Relative humidity : 48.3%
Atmospheric pressure : 101kPa
Test requirement : FCC 15.247(a)(1)(iii)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : A

Table 9: Time of Occupancy

Mode	Frequency [MHz]	Dwell Time [ms]	Number of Hops	Time of Occupancy [ms]	Limit [ms]
1-DH1	2441	0.430	227	97.610	400
1-DH3	2441	1.696	106	179.776	400
1-DH5	2441	2.957	114	337.098	400
2-DH1	2441	0.438	170	74.460	400
2-DH3	2441	1.696	138	234.048	400
2-DH5	2441	2.957	71	209.947	400

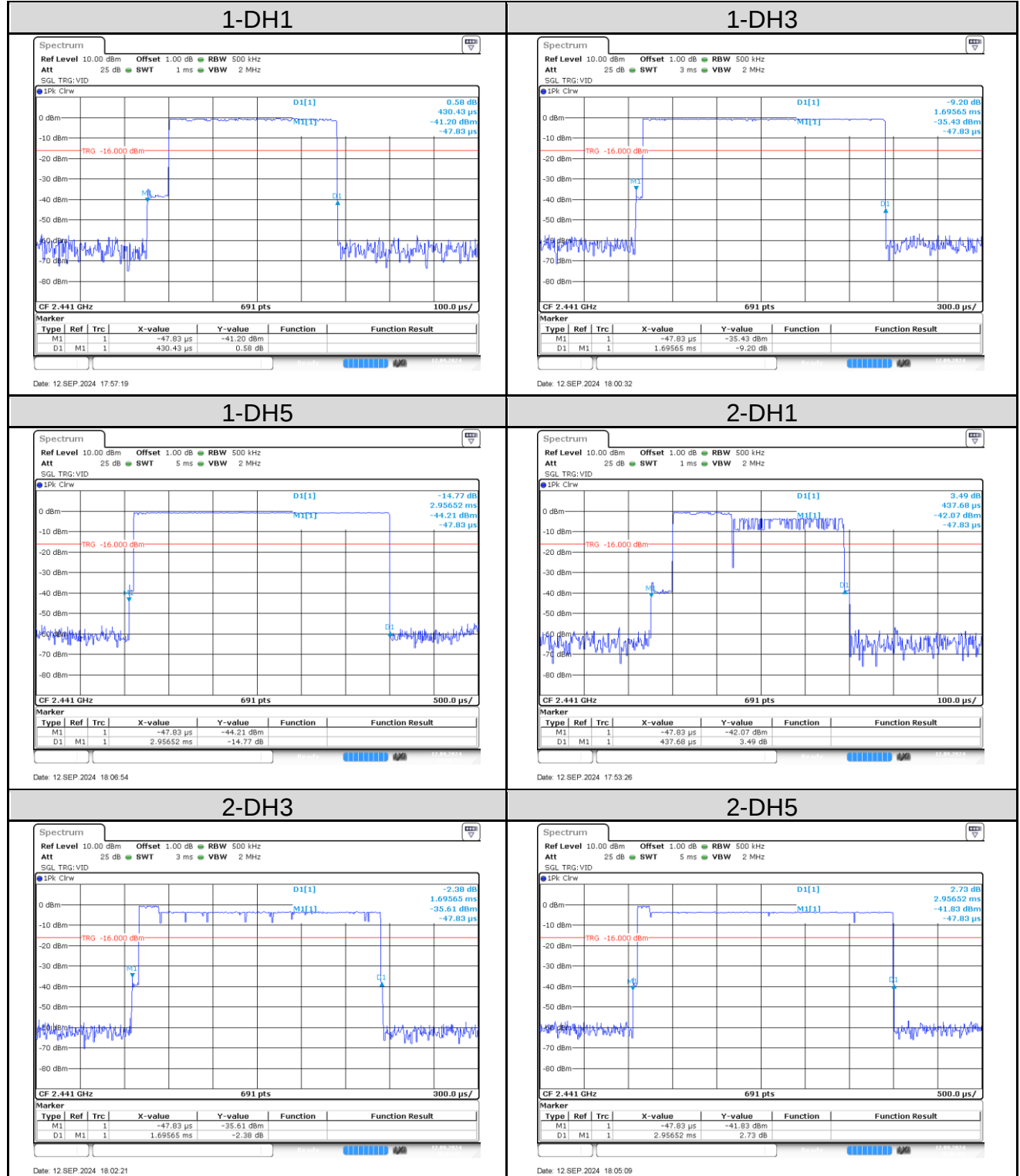
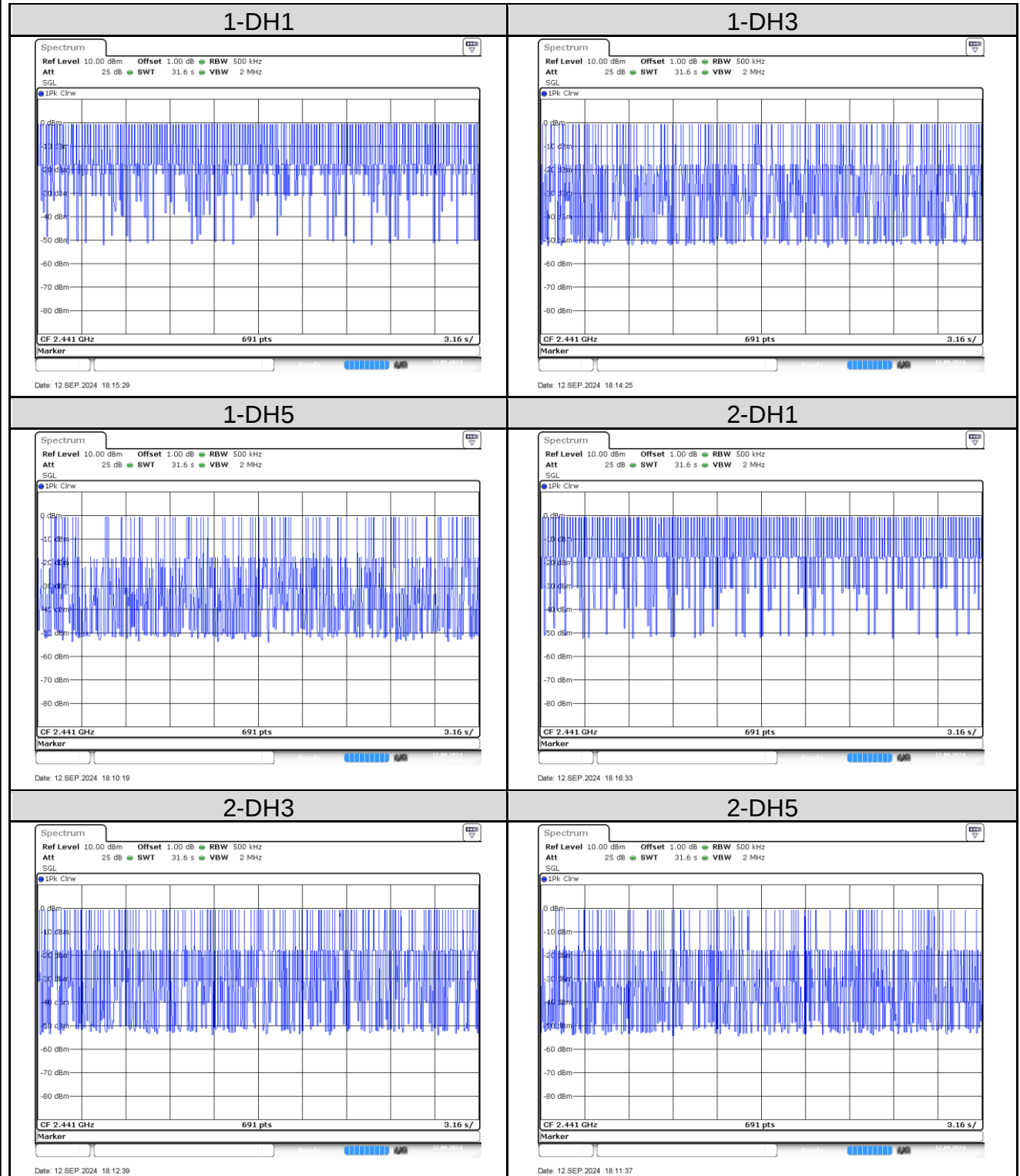
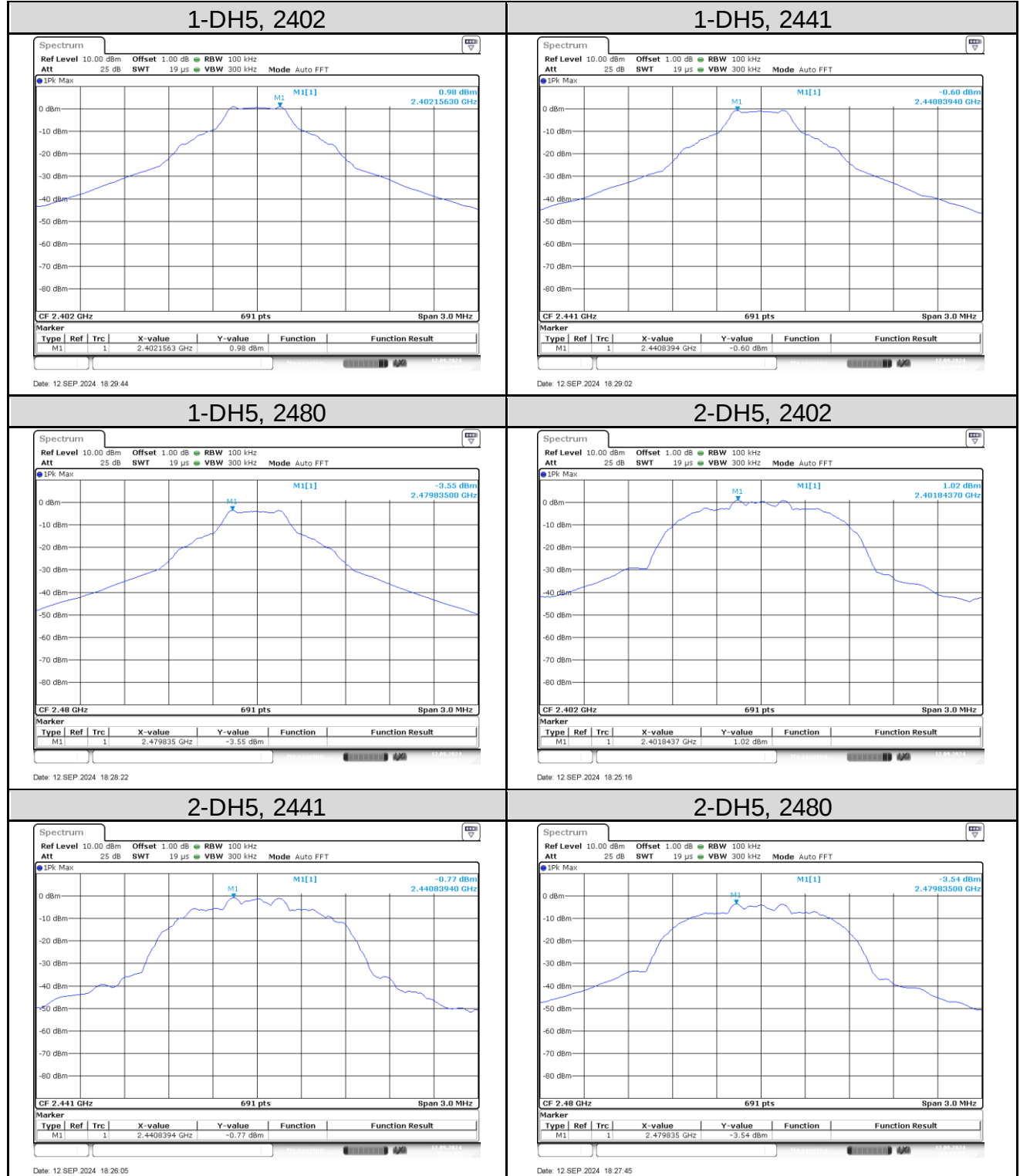
Figure 1: Dwell Time


Figure 2: Number of Hops


5.1.7 Conducted Band Edge and out-of Band Emissions

RESULT:**Pass**

Date of testing : 2024-09-12, 2024-09-20
Ambient temperature : 20.2°C~ 22.8°C
Relative humidity : 48.7%~ 53.6%
Atmospheric pressure : 101kPa
Test requirement : FCC Part 15.247(d)
Test procedure : ANSI C63.10: 2013
Test voltage : DC 3.3V
Test modes applied : A

Figure 3: Reference Level


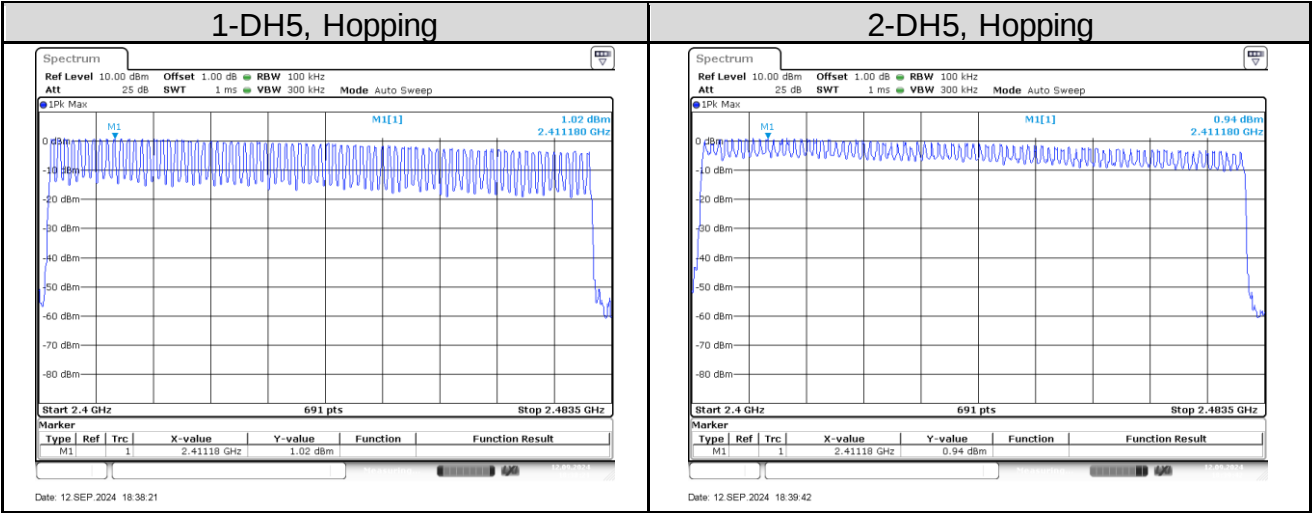
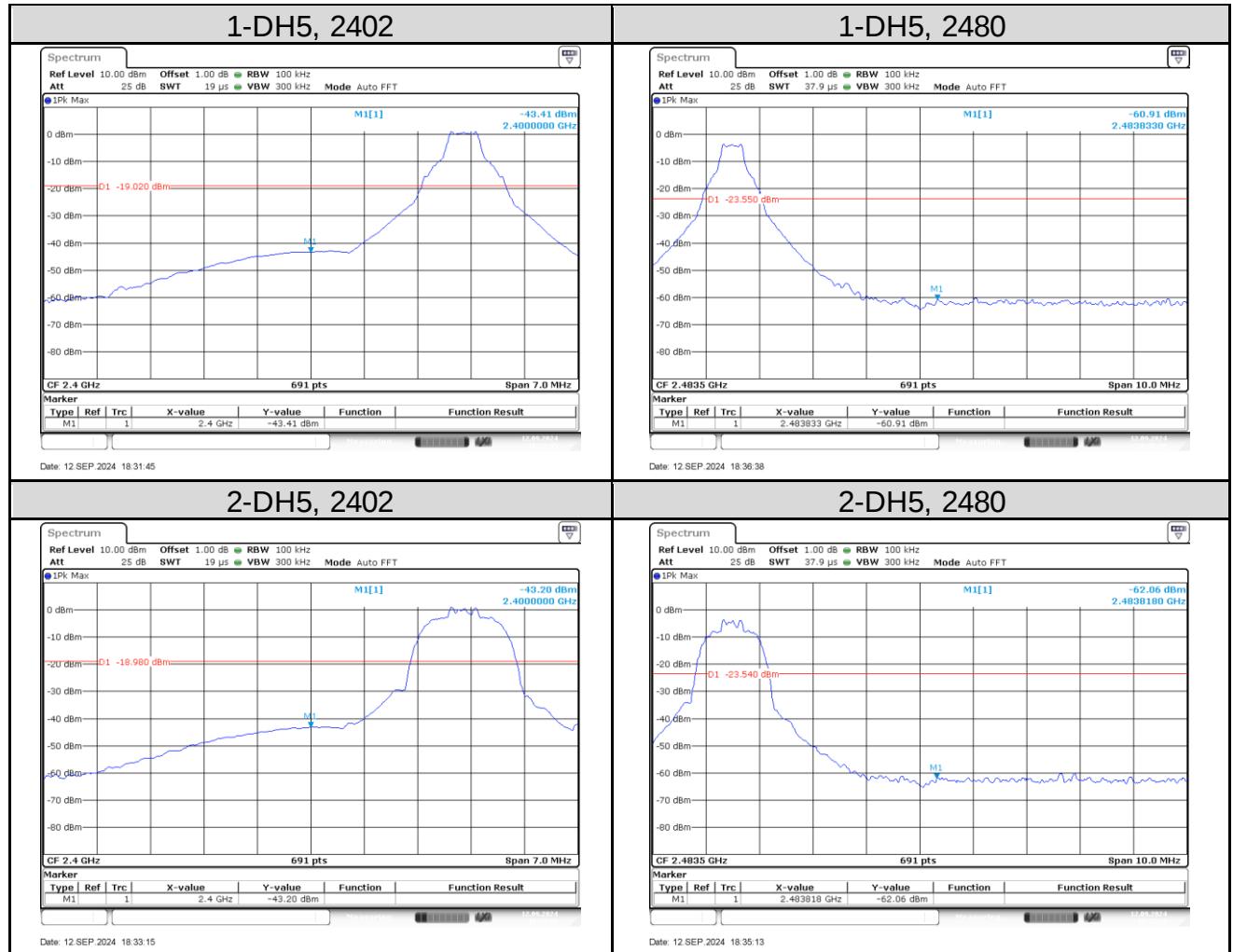


Figure 4: Conducted Band Edge


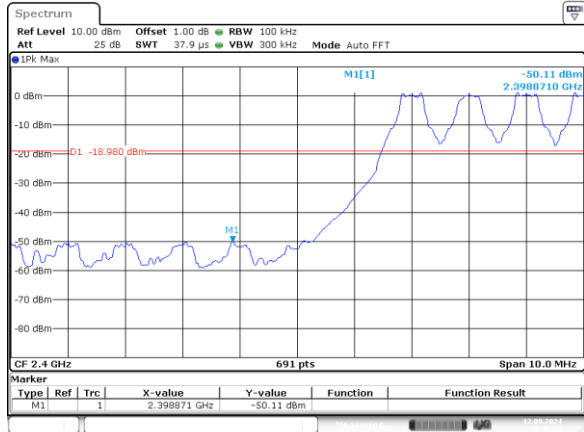
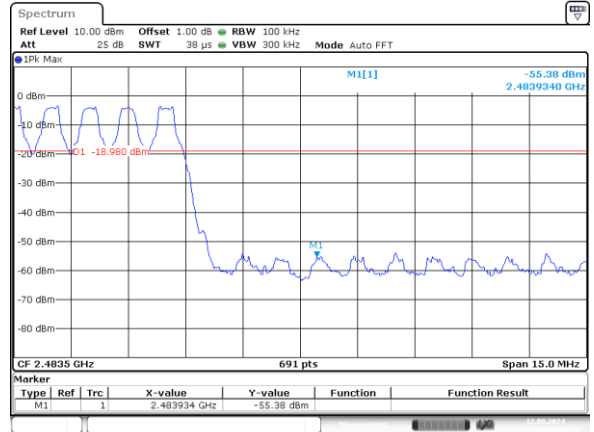
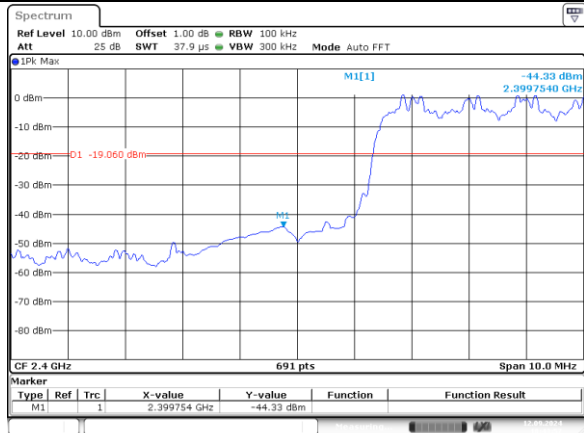
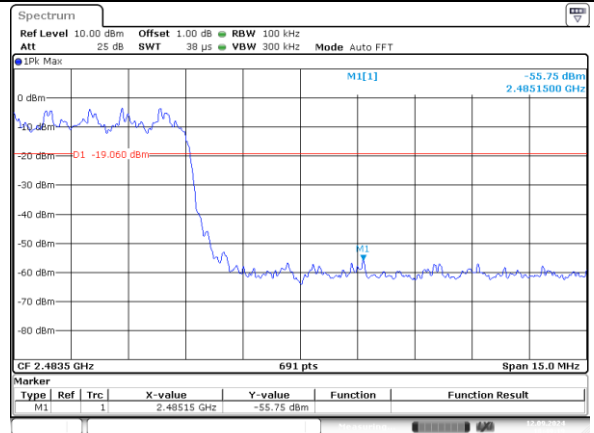
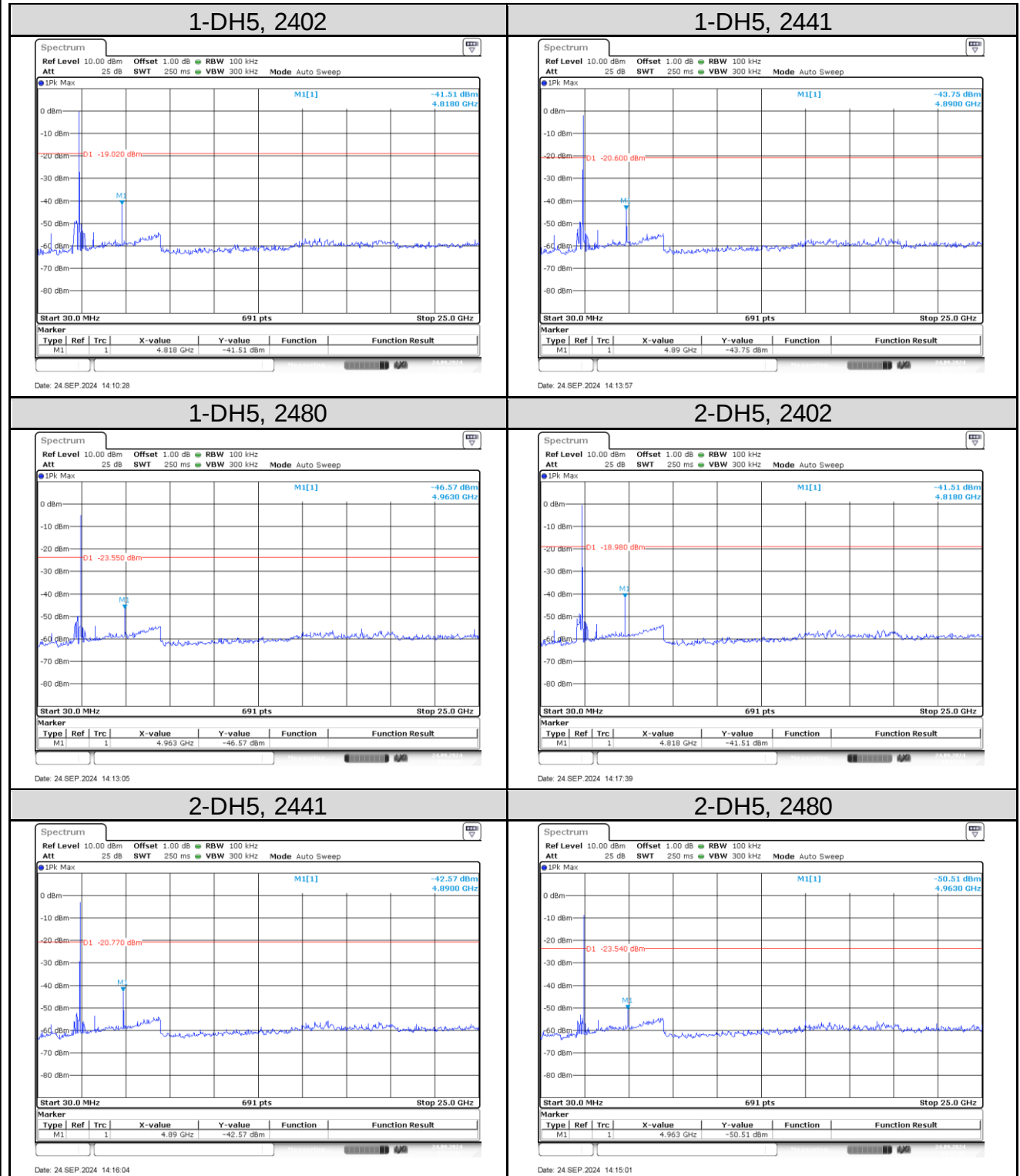
1-DH5, lower band

1-DH5, higher band

2-DH5 lower band

2-DH5 higher band


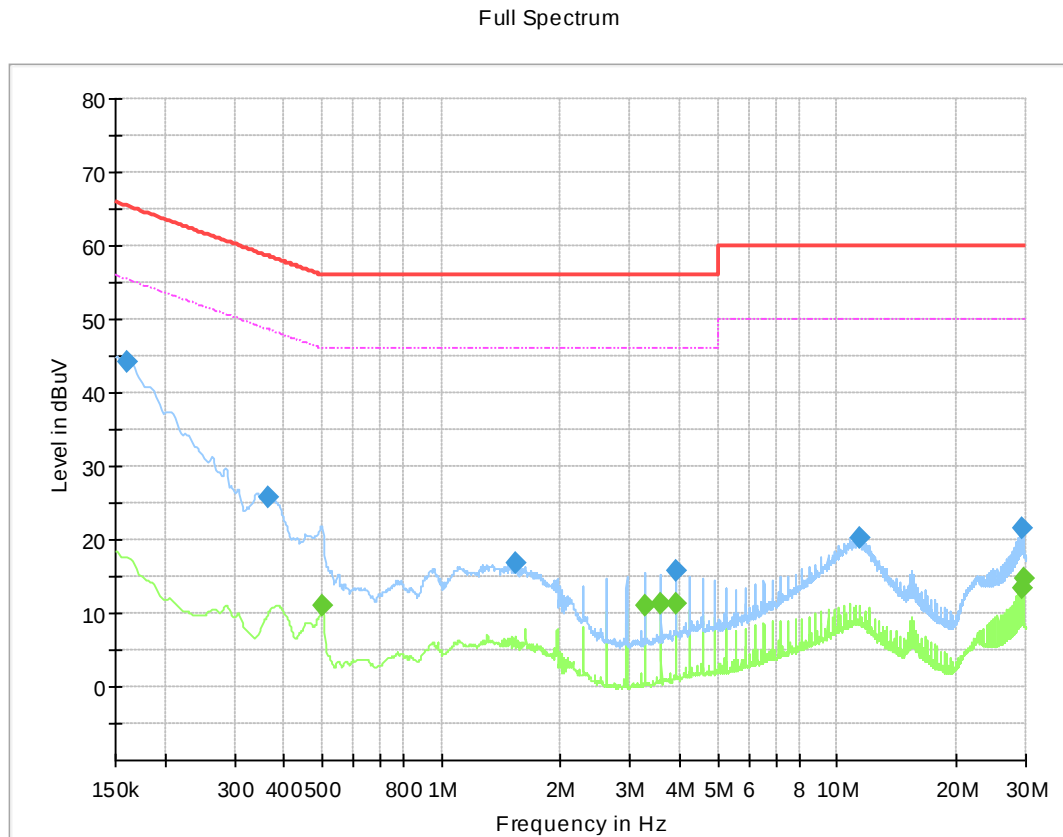
Figure 5: Conducted Spurious Emission


5.2 Emission in the Frequency Range up to 30MHz

5.2.1 Conducted Emission

RESULT:**Pass**

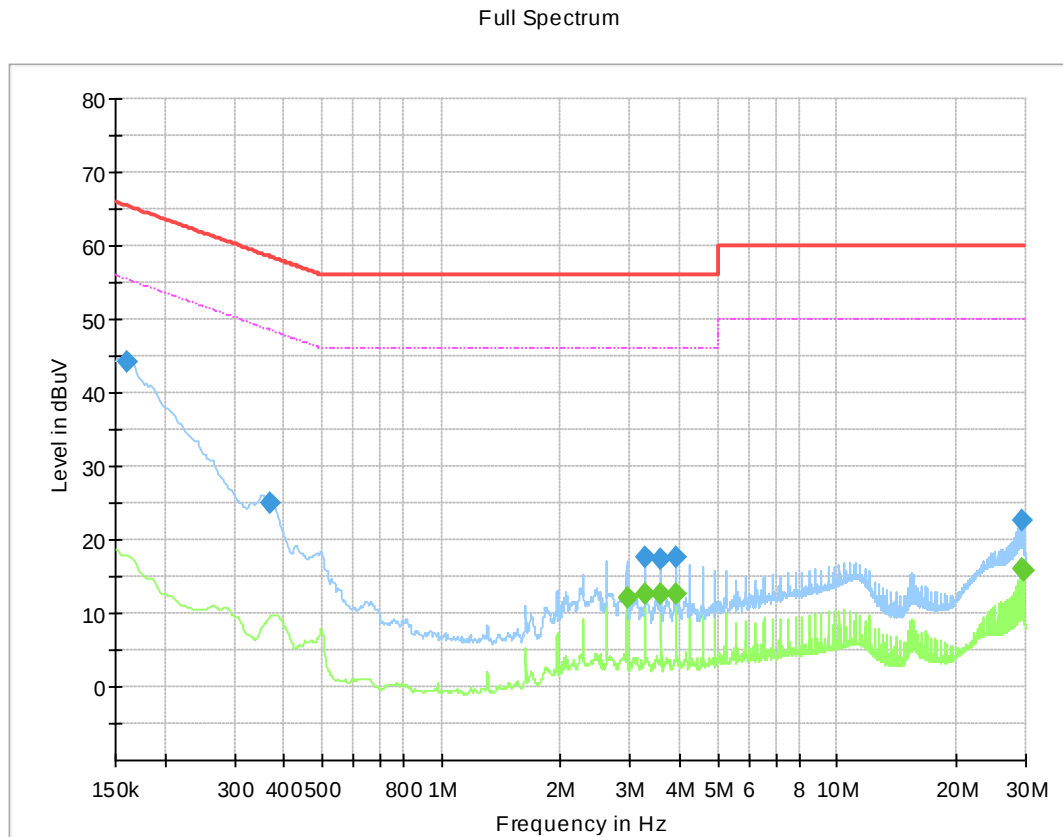
Date of testing	: 2024-09-13
Ambient temperature	: 20.9°C
Relative humidity	: 50.5%
Atmospheric pressure	: 101kPa
Test requirement	: FCC Part 15.207 (a)
Test procedure	: ANSI C63.10: 2013
Test voltage	: AC 120V, 60Hz
Test modes applied	: A

Figure 6: Conducted Emission, L

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.161250	44.28	65.40	21.12	1000.0	9.000	L1	10.3
0.363750	25.84	58.64	32.80	1000.0	9.000	L1	10.3
1.536000	16.75	56.00	39.25	1000.0	9.000	L1	10.3
3.921000	15.74	56.00	40.26	1000.0	9.000	L1	10.2
11.433750	20.27	60.00	39.73	1000.0	9.000	L1	10.8
29.404500	21.52	60.00	38.48	1000.0	9.000	L1	11.3

Final_Result_CAV

Frequency (MHz)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.498750	10.99	46.02	35.03	1000.0	9.000	L1	10.3
3.266250	11.15	46.00	34.85	1000.0	9.000	L1	10.2
3.594750	11.19	46.00	34.81	1000.0	9.000	L1	10.2
3.921000	11.31	46.00	34.69	1000.0	9.000	L1	10.2
29.402250	13.49	50.00	36.51	1000.0	9.000	L1	11.3
29.730750	14.86	50.00	35.14	1000.0	9.000	L1	11.3

Figure 7: Conducted Emission, N

Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.161250	44.21	65.40	21.18	1000.0	9.000	N	10.4
0.368250	25.02	58.54	33.52	1000.0	9.000	N	10.4
3.268500	17.63	56.00	38.37	1000.0	9.000	N	10.6
3.594750	17.27	56.00	38.73	1000.0	9.000	N	10.7
3.921000	17.74	56.00	38.26	1000.0	9.000	N	10.7
29.409000	22.67	60.00	37.33	1000.0	9.000	N	11.7

Final_Result_CAV

Frequency (MHz)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
2.940000	12.01	46.00	33.99	1000.0	9.000	N	10.6
3.268500	12.64	46.00	33.36	1000.0	9.000	N	10.6
3.594750	12.62	46.00	33.38	1000.0	9.000	N	10.7
3.921000	12.65	46.00	33.35	1000.0	9.000	N	10.7
29.409000	15.97	50.00	34.03	1000.0	9.000	N	11.7
29.735250	15.77	50.00	34.23	1000.0	9.000	N	11.7

5.3 Emission in the Frequency Range above 30MHz

5.3.1 Radiated Band-Edge

RESULT:**Pass**

Date of testing	:	2024-08-07
Ambient temperature	:	20.3°C
Relative humidity	:	48.8%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(d) FCC Part 15.205(a) FCC Part 15.209(a)
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	AC 120V, 60Hz
Test modes applied	:	A

Figure 8: Radiated Band-Edge, 1-DH5, 2402, H

Copy of 2310~2410 BE 1-18GHz_HL050_FSV40_Pre

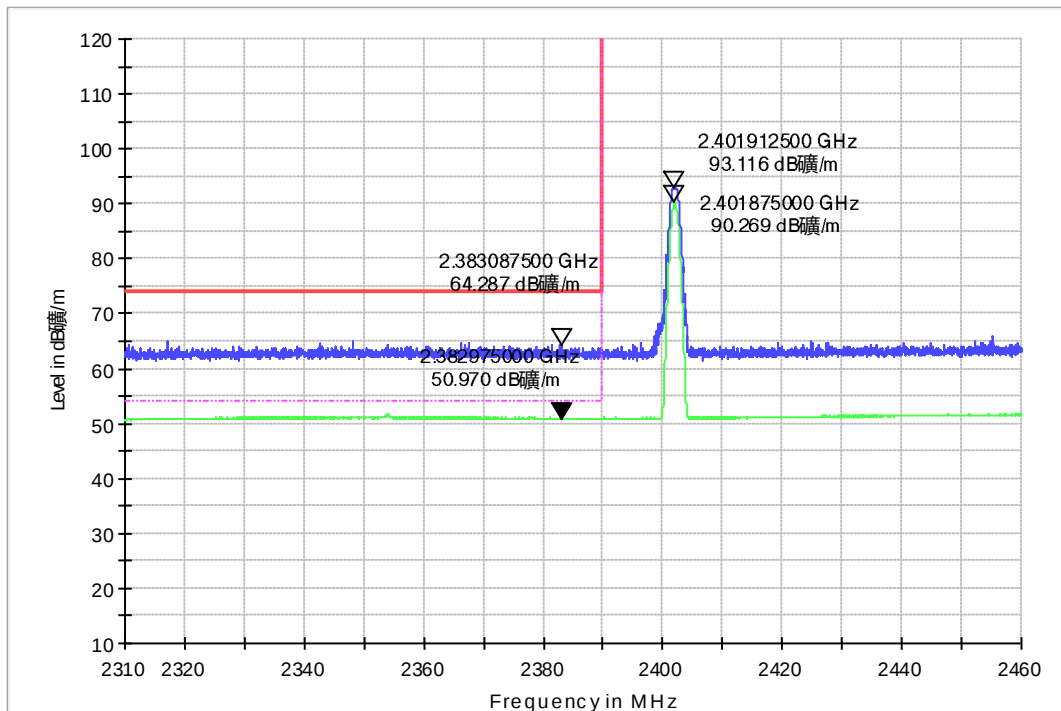


Figure 9: Radiated Band-Edge, 1-DH5, 2402, V

Copy of 2310~2410 BE 1-18GHz_HL050_FSV40_Pre

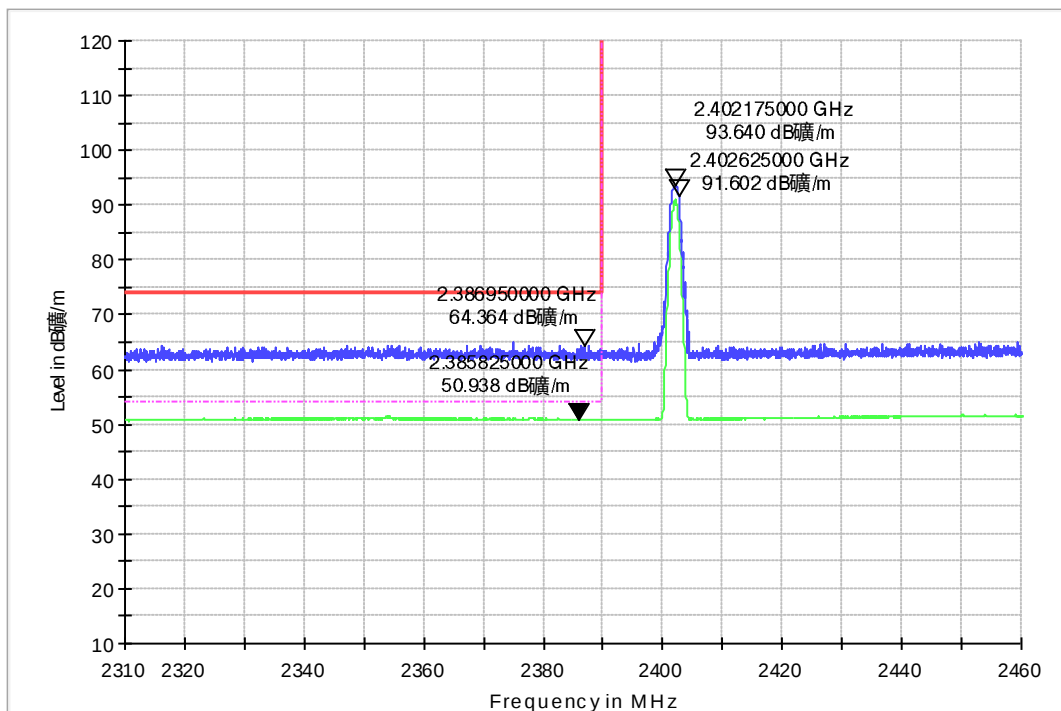
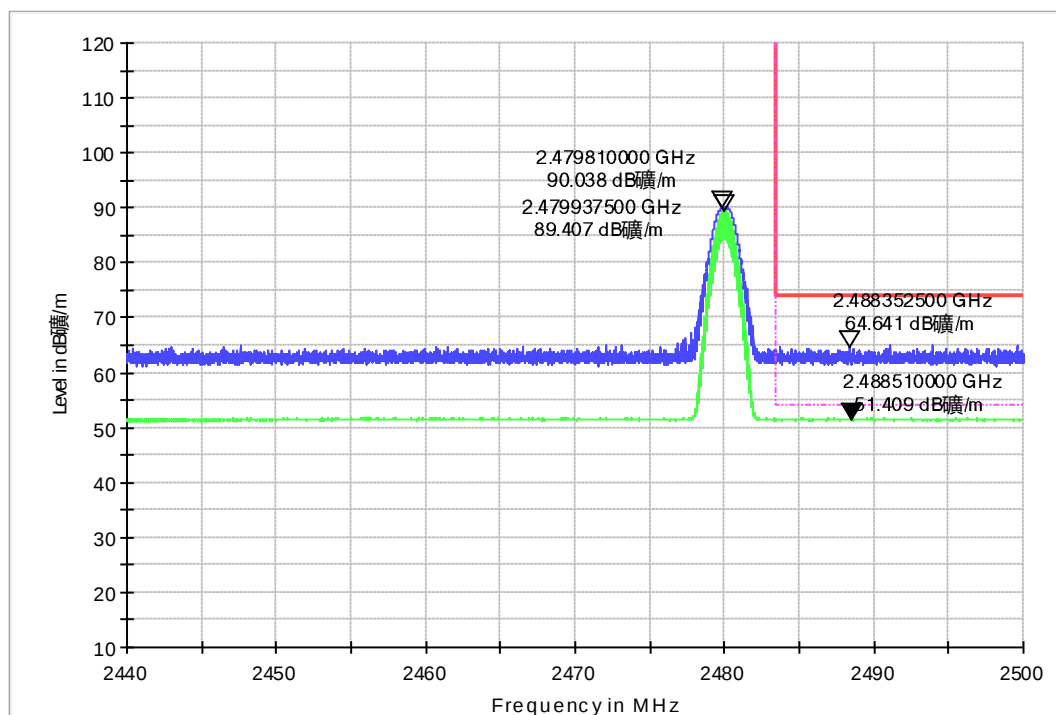


Figure 10: Radiated Band-Edge, 1-DH5, 2480, H

Copy of 2470~2500 BE_1-18GHz_HL050_FSV40_Pre


Figure 11: Radiated Band-Edge, 1-DH5, 2480, V

Copy of 2470~2500 BE_1-18GHz_HL050_FSV40_Pre

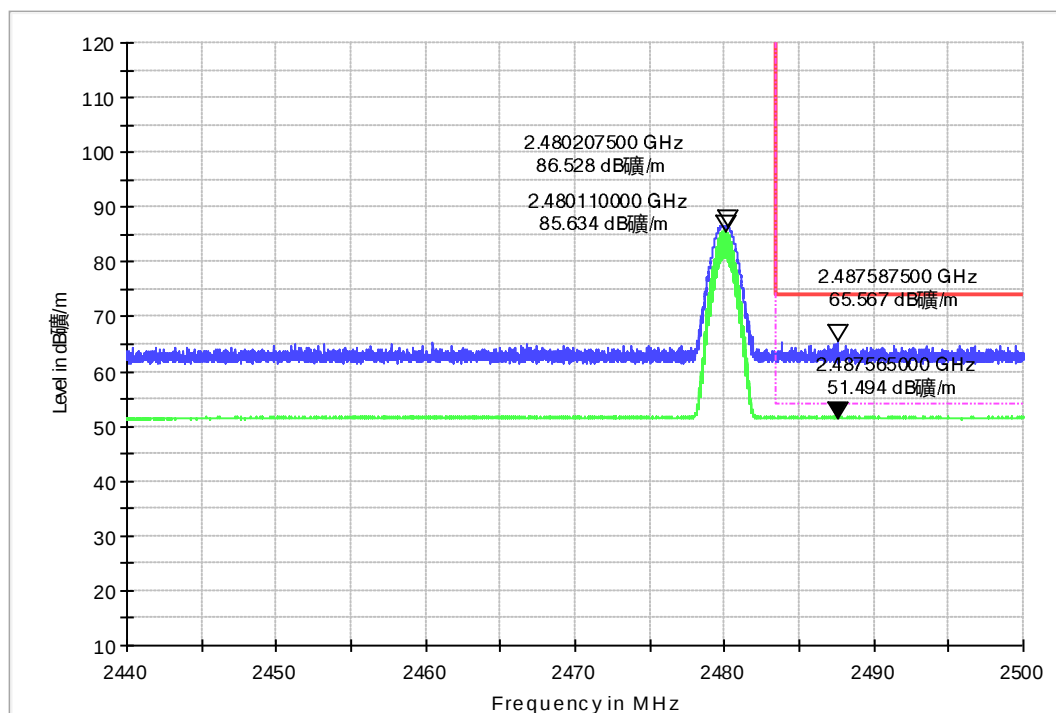


Figure 12: Radiated Band-Edge, 2-DH5, 2402, H

Copy of 2310~2410 BE 1-18GHz_HL050_FSV40_Pre

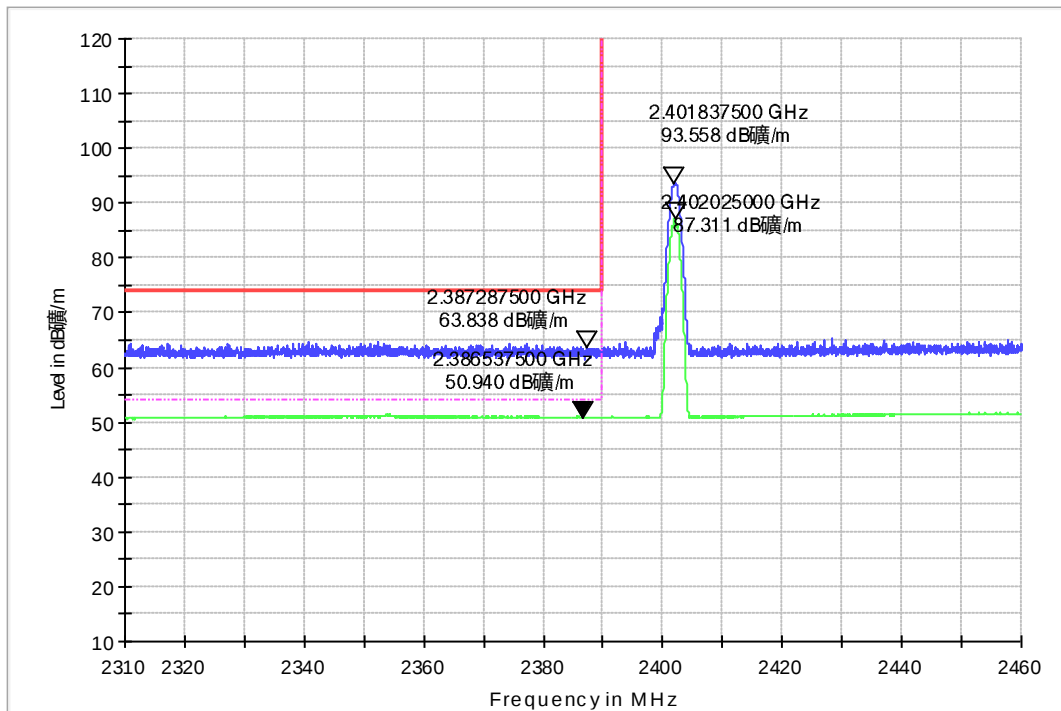


Figure 13: Radiated Band-Edge, 2-DH5, 2402, V

Copy of 2310~2410 BE 1-18GHz_HL050_FSV40_Pre

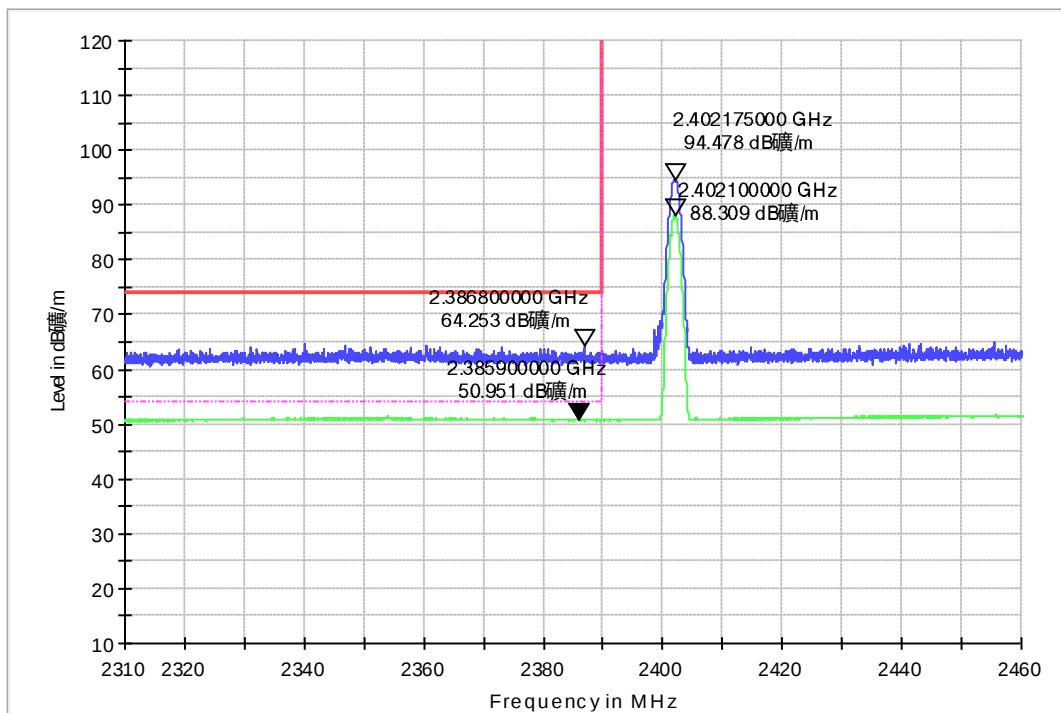
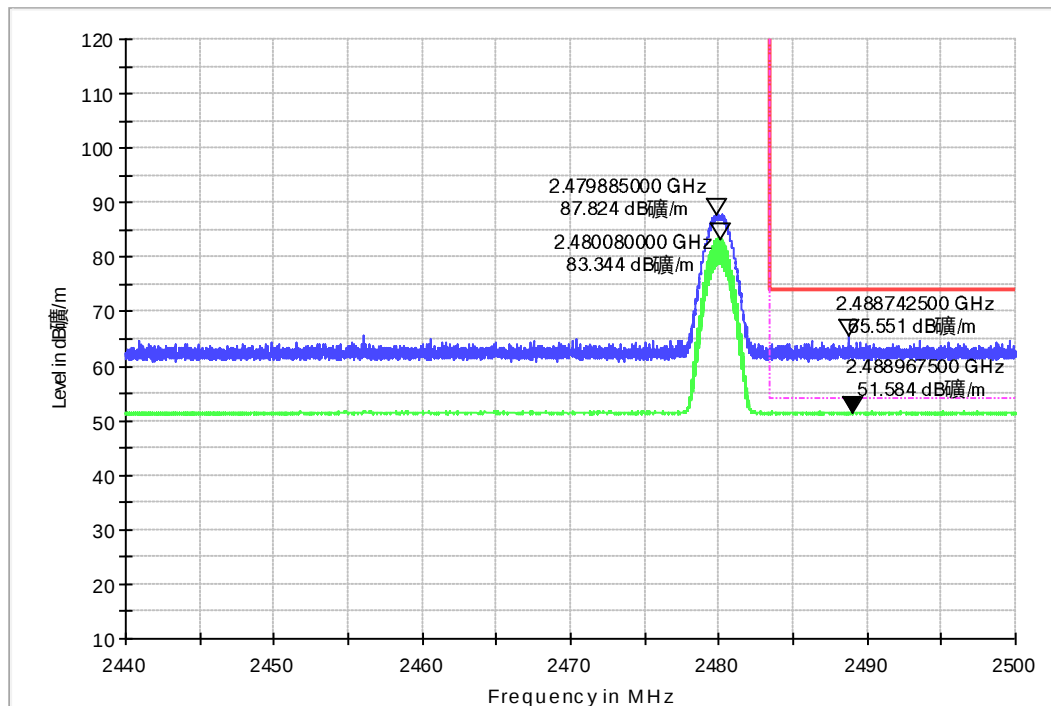
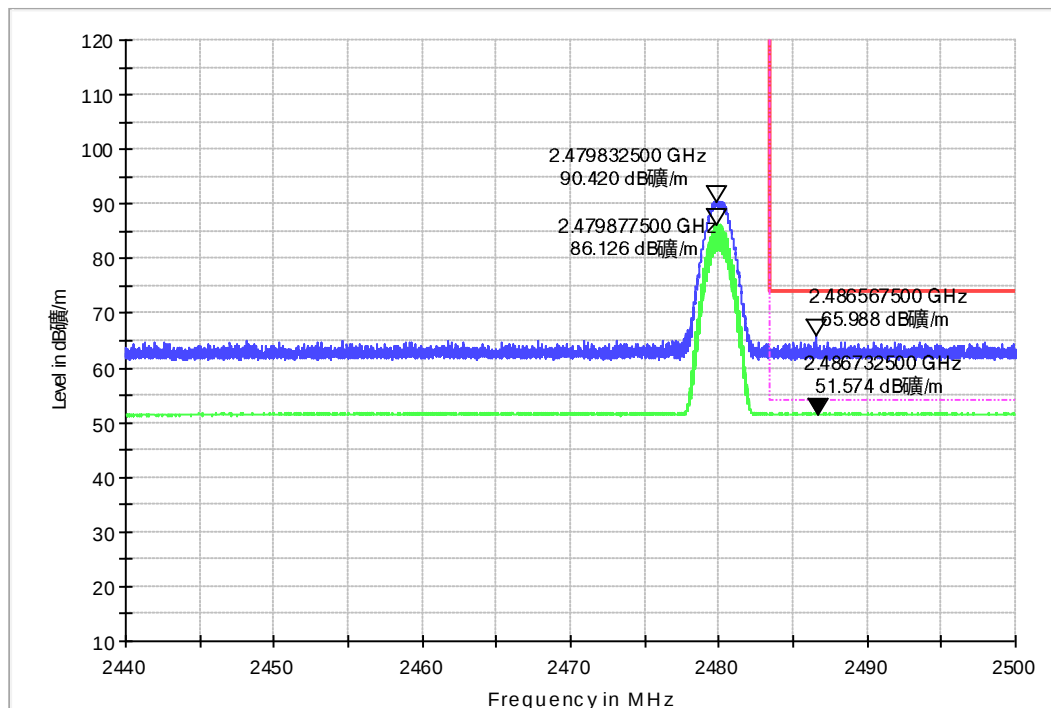


Figure 14: Radiated Band-Edge, 2-DH5, 2480, H

Copy of 2470~2500 BE_1-18GHz_HL050_FSV40_Pre


Figure 15: Radiated Band-Edge, 2-DH5, 2480, V

Copy of 2470~2500 BE_1-18GHz_HL050_FSV40_Pre



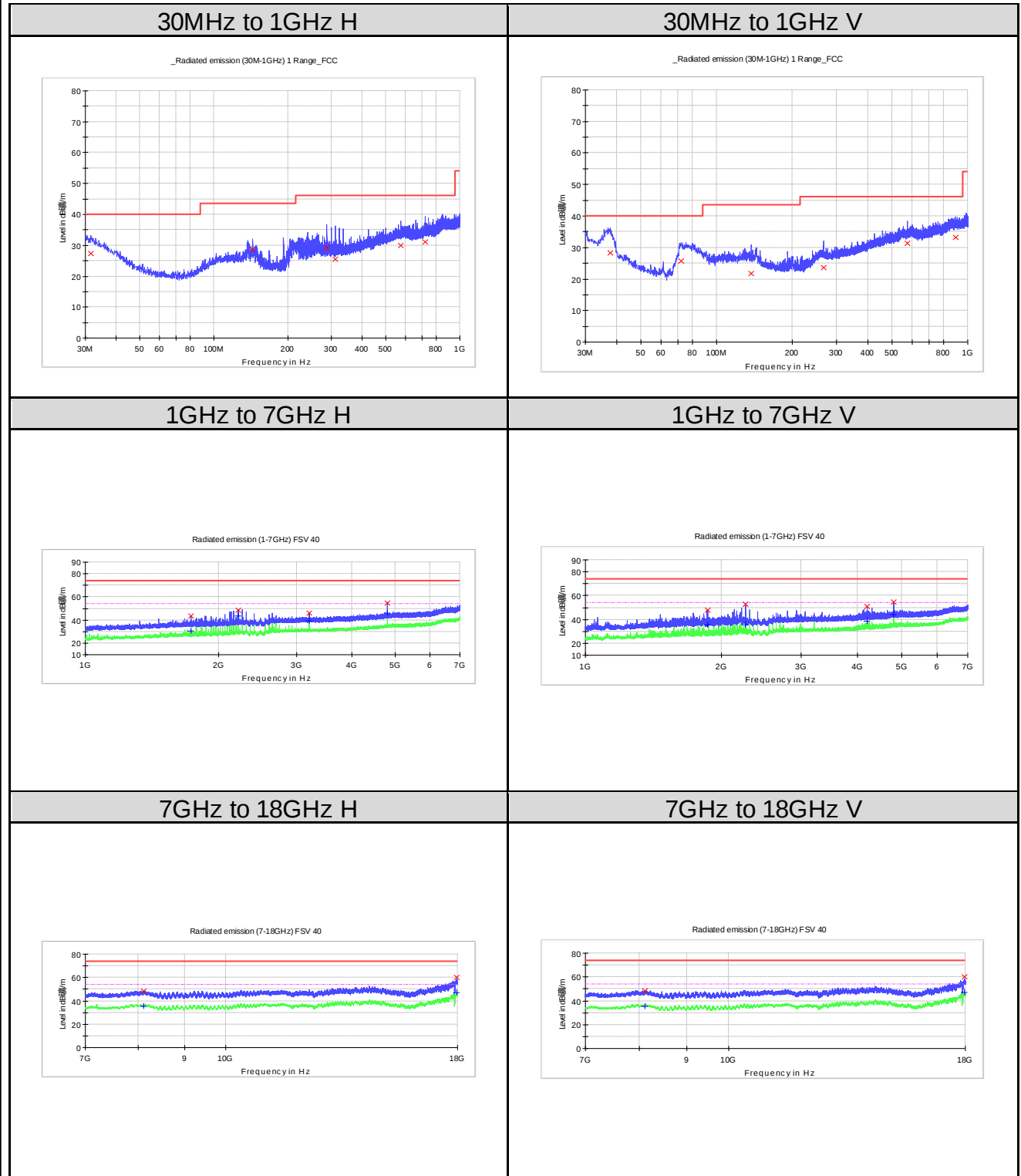
5.3.2 Radiated Spurious Emission

RESULT:**Pass**

Date of testing : 2024-09-14
Ambient temperature : 20.9°C
Relative humidity : 50.5%
Atmospheric pressure : 101kPa
Test requirement : FCC Part 15.247(d)
FCC Part 15.209(a)
Test procedure : ANSI C63.10: 2013
Test voltage : AC 120V, 60Hz
Test modes applied : A

Note:

1. For the frequency range from 18GHz to 25GHz, no emission was found.

Figure 16: Radiated Spurious Emission, 1-DH5, 2402MHz


Limit and Margin
QP

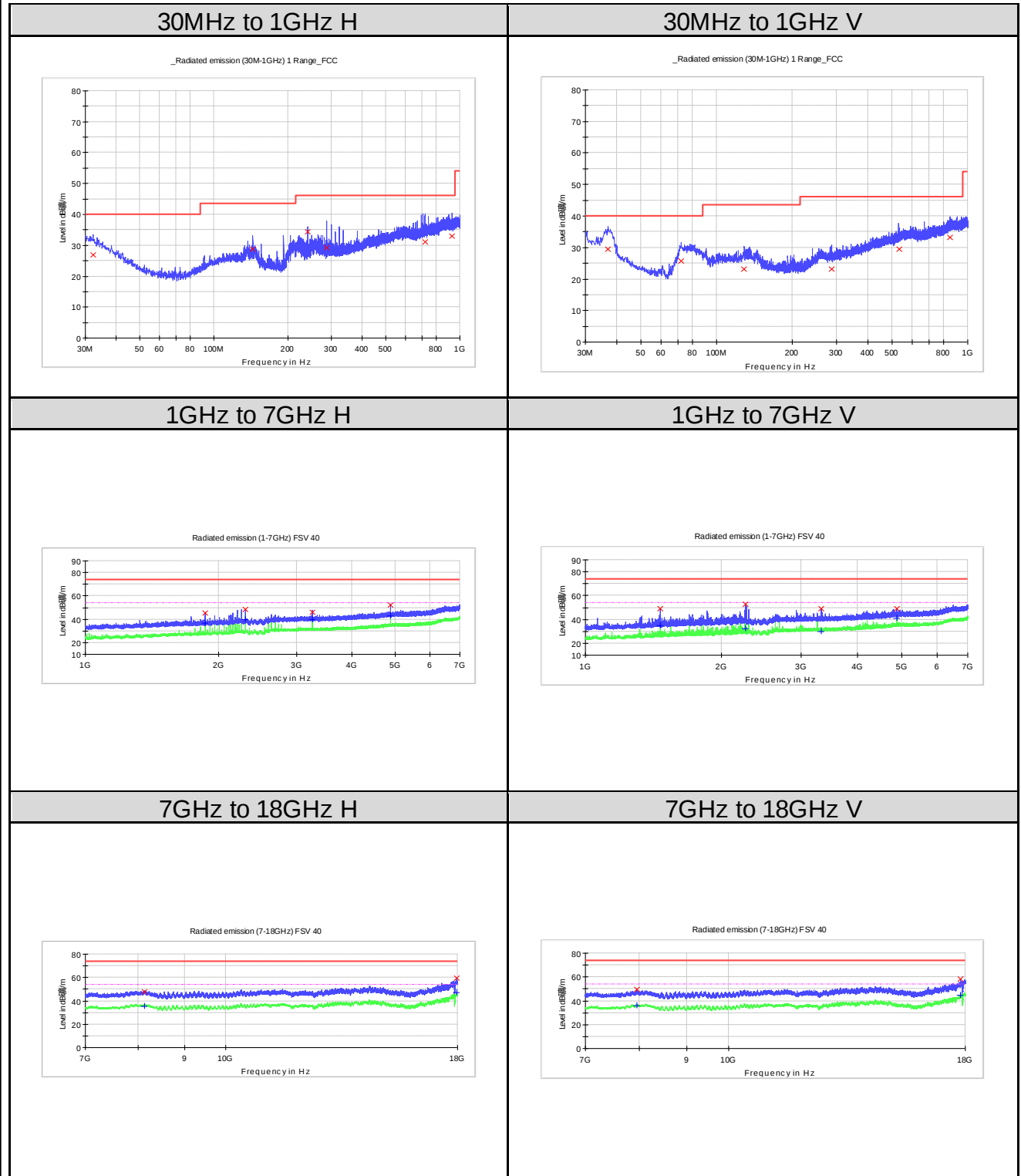
Frequency (MHz)	QuasiPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
31.576250	27.3	H	24.1	12.7	40.0
143.975000	28.8	H	17.9	14.7	43.5
288.020000	29.3	H	20.1	16.7	46.0
312.027500	25.6	H	20.6	20.4	46.0
576.110000	30.0	H	26.4	16.0	46.0
720.155000	31.0	H	27.2	15.0	46.0
37.638750	28.4	V	21.1	11.6	40.0
72.195000	25.8	V	12.8	14.2	40.0
137.306250	21.6	V	18.3	21.9	43.5
265.952500	23.7	V	20.6	22.3	46.0
576.110000	31.2	V	26.4	14.8	46.0
893.178750	33.2	V	28.8	12.8	46.0

PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1731.625000	43.3	H	-13.8	30.8	74.0
2209.937500	48.6	H	-11.9	25.4	74.0
3202.750000	45.8	H	-8.9	28.2	74.0
4803.625000	54.4	H	-4.7	19.6	74.0
8113.200000	48.5	H	-3.4	25.5	74.0
17957.100000	59.9	H	12.6	14.2	74.0
1861.375000	47.7	V	-13.5	26.3	74.0
2257.937500	52.8	V	-11.7	21.2	74.0
4199.875000	50.9	V	-6.8	23.1	74.0
4803.812500	54.9	V	-4.7	19.1	74.0
8124.200000	48.1	V	-3.5	25.9	74.0
17951.600000	60.0		12.5	14.0	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1731.625000	30.2	H	-13.8	23.8	54.0
2209.937500	43.4	H	-11.9	10.6	54.0
3202.750000	38.9	H	-8.9	15.1	54.0
4803.625000	46.1	H	-4.7	7.9	54.0
8113.200000	35.2	H	-3.4	18.8	54.0
17957.100000	47.1	H	12.6	6.9	54.0
1861.375000	35.7	V	-13.5	18.3	54.0
2257.937500	35.4	V	-11.7	18.6	54.0
4199.875000	38.6	V	-6.8	15.5	54.0
4803.812500	44.4	V	-4.7	9.7	54.0
8124.200000	35.4	V	-3.5	18.6	54.0
17951.600000	46.9	V	12.5	7.2	54.0

Figure 17: Radiated Spurious Emission, 1-DH5, 2441MHz


Limit and Margin
QP

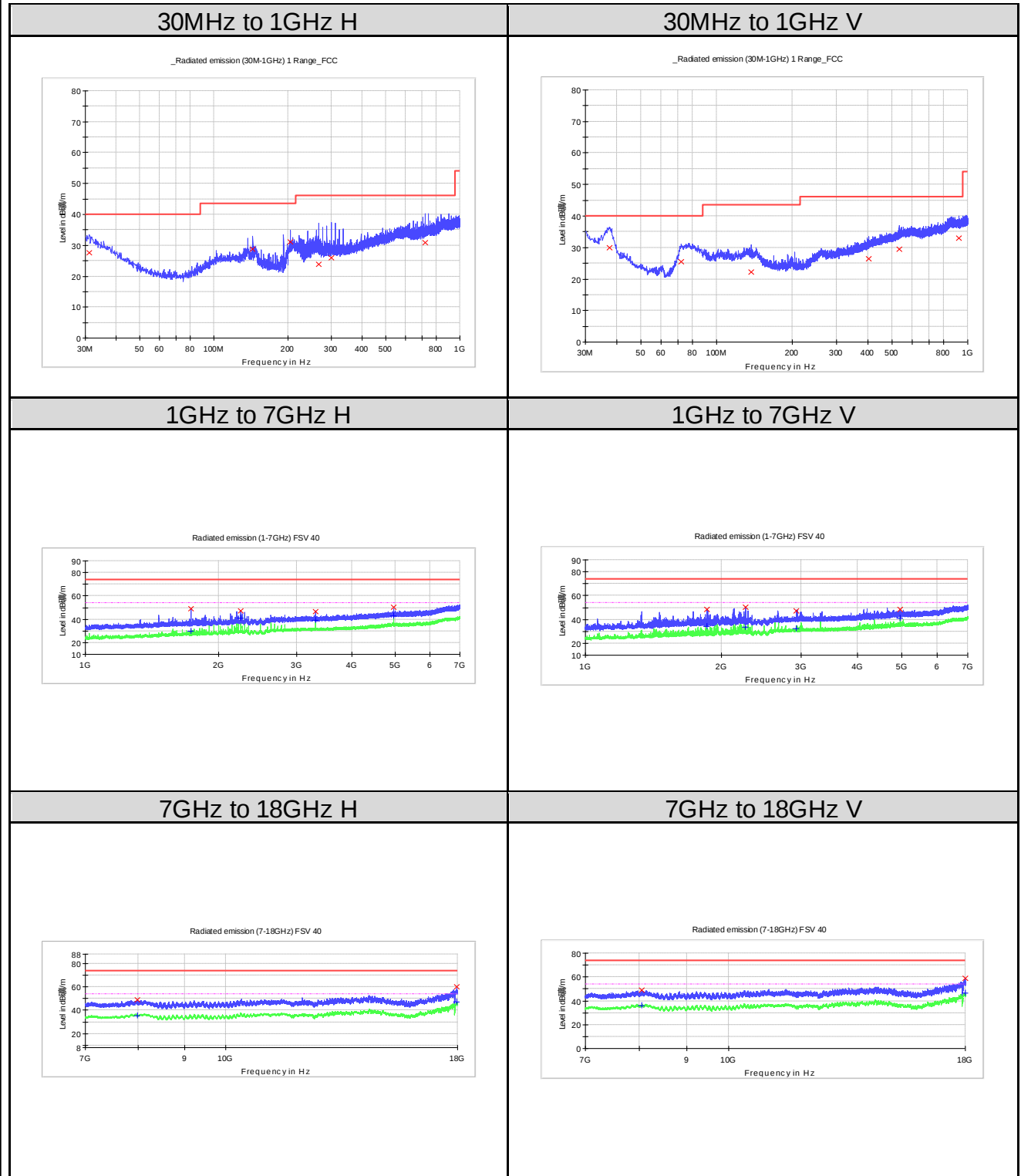
Frequency (MHz)	QuasiPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
32.182500	27.0	H	23.8	13.0	40.0
143.975000	28.9	H	17.9	14.6	43.5
240.005000	34.3	H	18.4	11.7	46.0
288.020000	29.3	H	20.1	16.7	46.0
720.155000	31.0	H	27.2	15.0	46.0
925.673750	33.0	H	28.8	13.0	46.0
36.911250	29.4	V	21.5	10.6	40.0
72.316250	25.7	V	12.8	14.3	40.0
128.818750	23.2	V	18.7	20.3	43.5
287.777500	23.2	V	20.1	22.8	46.0
532.945000	29.4	V	25.9	16.6	46.0
848.558750	33.1	V	29.0	12.9	46.0

PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1864.937500	45.5	H	-13.5	28.5	74.0
2296.937500	48.5	H	-11.6	25.6	74.0
3254.500000	46.2	H	-8.9	27.8	74.0
4882.375000	52.4	H	-4.5	21.6	74.0
8137.400000	47.8	H	-3.6	26.2	74.0
17959.850000	59.7	H	12.7	14.3	74.0
1466.312500	48.8	V	-14.9	25.2	74.0
2260.750000	52.8	V	-11.7	21.3	74.0
3320.125000	48.8	V	-8.8	25.2	74.0
4882.187500	49.0	V	-4.5	25.0	74.0
7949.850000	49.6	V	-3.0	24.4	74.0
17791.550000	58.1	V	9.6	15.9	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1864.937500	36.9	H	-13.5	17.1	54.0
2296.937500	39.8	H	-11.6	14.2	54.0
3254.500000	39.6	H	-8.9	14.5	54.0
4882.375000	43.1	H	-4.5	10.9	54.0
8137.400000	35.4	H	-3.6	18.6	54.0
17959.850000	47.1	H	12.7	6.9	54.0
1466.312500	34.6	V	-14.9	19.4	54.0
2260.750000	32.5	V	-11.7	21.5	54.0
3320.125000	30.1	V	-8.8	23.9	54.0
4882.187500	41.1	V	-4.5	12.9	54.0
7949.850000	36.2	V	-3.0	17.8	54.0
17791.550000	44.9	V	9.6	9.1	54.0

Figure 18: Radiated Spurious Emission, 1-DH5, 2480MHz


Limit and Margin
QP

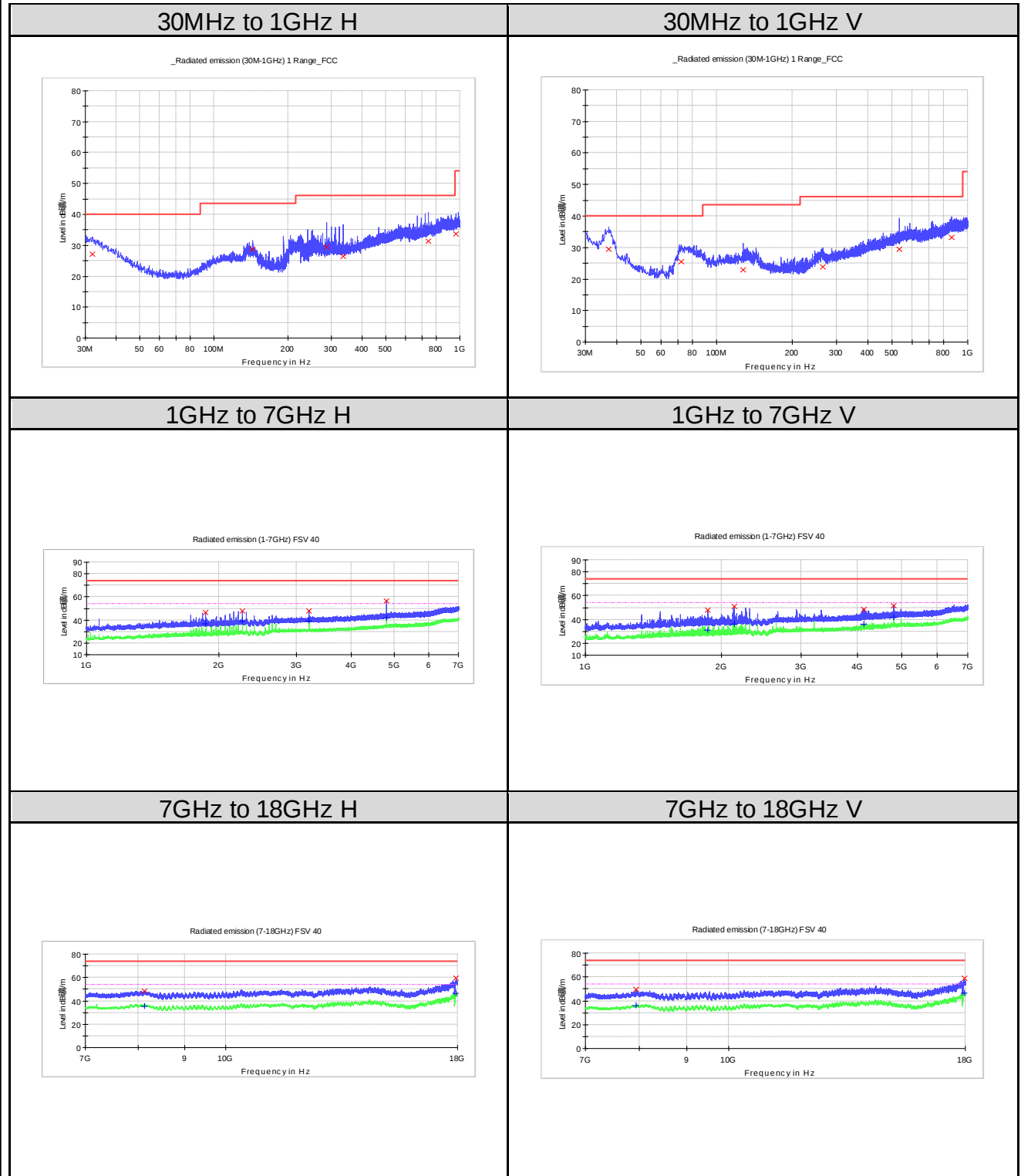
Frequency (MHz)	QuasiPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
31.091250	27.6	H	24.3	12.4	40.0
143.975000	28.8	H	17.9	14.7	43.5
203.993750	31.1	H	16.2	12.4	43.5
265.952500	23.9	H	20.6	22.1	46.0
300.023750	25.9	H	20.2	20.2	46.0
720.155000	31.0	H	27.2	15.0	46.0
37.396250	29.8	V	21.2	10.2	40.0
72.195000	25.5	V	12.8	14.5	40.0
137.427500	22.3	V	18.3	21.2	43.5
404.662500	26.5	V	23.3	19.5	46.0
533.187500	29.5	V	25.9	16.5	46.0
923.855000	33.1	V	28.8	13.0	46.0

PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1731.250000	49.3	H	-13.8	24.7	74.0
2239.750000	47.4	H	-11.8	26.6	74.0
3306.812500	46.7	H	-8.8	27.3	74.0
4960.187500	50.3	H	-4.3	23.7	74.0
7987.250000	48.8	H	-2.9	25.2	74.0
17953.250000	60.3	H	12.5	13.7	74.0
1859.125000	48.2	V	-13.5	25.8	74.0
2260.375000	50.2	V	-11.7	23.9	74.0
2927.125000	47.5	V	-9.6	26.5	74.0
4960.000000	48.5	V	-4.3	25.5	74.0
8060.400000	49.1	V	-3.1	24.9	74.0
17982.950000	59.0	V	13.1	15.0	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1731.250000	29.7	H	-13.8	24.3	54.0
2239.750000	40.9	H	-11.8	13.1	54.0
3306.812500	39.4	H	-8.8	14.6	54.0
4960.187500	43.1	H	-4.3	10.9	54.0
7987.250000	35.5	H	-2.9	18.5	54.0
17953.250000	47.0	H	12.5	7.0	54.0
1859.125000	34.2	V	-13.5	19.9	54.0
2260.375000	33.5	V	-11.7	20.5	54.0
2927.125000	32.5	V	-9.6	21.5	54.0
4960.000000	40.8	V	-4.3	13.2	54.0
8060.400000	36.1	V	-3.1	17.9	54.0
17982.950000	46.5	V	13.1	7.5	54.0

Figure 19: Radiated Spurious Emission, 2-DH5, 2402MHz


Limit and Margin
QP

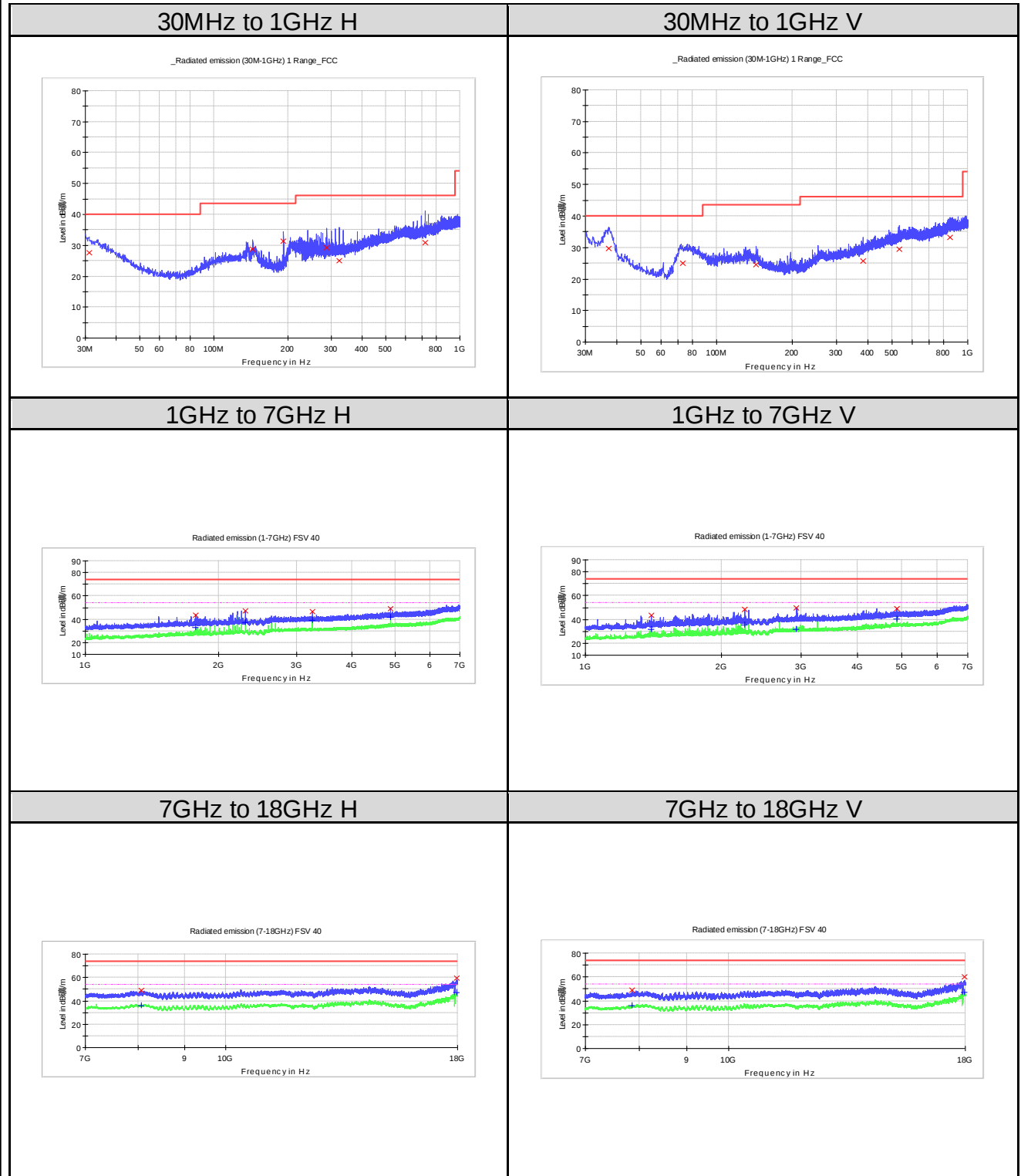
Frequency (MHz)	QuasiPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
32.061250	27.1	H	23.8	12.9	40.0
143.975000	28.7	H	17.9	14.8	43.5
288.020000	29.4	H	20.1	16.6	46.0
336.035000	26.5	H	21.1	19.5	46.0
744.162500	31.4	H	27.7	14.6	46.0
965.686250	33.7	H	29.5	20.3	54.0
37.153750	29.5	V	21.3	10.5	40.0
71.952500	25.6	V	12.7	14.4	40.0
127.363750	23.0	V	18.7	20.5	43.5
264.012500	23.9	V	20.8	22.1	46.0
533.187500	29.4	V	25.9	16.6	46.0
864.927500	33.2	V	28.8	12.8	46.0

PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1865.312500	46.6	H	-13.5	27.4	74.0
2257.937500	47.8	H	-11.7	26.2	74.0
3202.937500	48.1	H	-8.9	25.9	74.0
4803.625000	56.8	H	-4.7	17.2	74.0
8128.050000	48.6	H	-3.5	25.4	74.0
17921.350000	59.8	H	11.9	14.2	74.0
1862.875000	47.6	V	-13.5	26.4	74.0
2130.812500	50.8	V	-12.4	23.2	74.0
4120.187500	48.7	V	-6.9	25.3	74.0
4803.625000	51.3	V	-4.7	22.7	74.0
7947.100000	49.6	V	-3.0	24.5	74.0
17978.000000	59.2	V	13.0	14.8	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1865.312500	36.7	H	-13.5	17.3	54.0
2257.937500	38.9	H	-11.7	15.1	54.0
3202.937500	39.0	H	-8.9	15.0	54.0
4803.625000	41.8	H	-4.7	12.3	54.0
8128.050000	35.4	H	-3.5	18.6	54.0
17921.350000	46.8	H	11.9	7.2	54.0
1862.875000	30.8	V	-13.5	23.2	54.0
2130.812500	36.2	V	-12.4	17.8	54.0
4120.187500	35.8	V	-6.9	18.2	54.0
4803.625000	41.6	V	-4.7	12.4	54.0
7947.100000	36.1	V	-3.0	17.9	54.0
17978.000000	46.7	V	13.0	7.3	54.0

Figure 20: Radiated Spurious Emission, 2-DH5, 2441MHz


Limit and Margin
QP

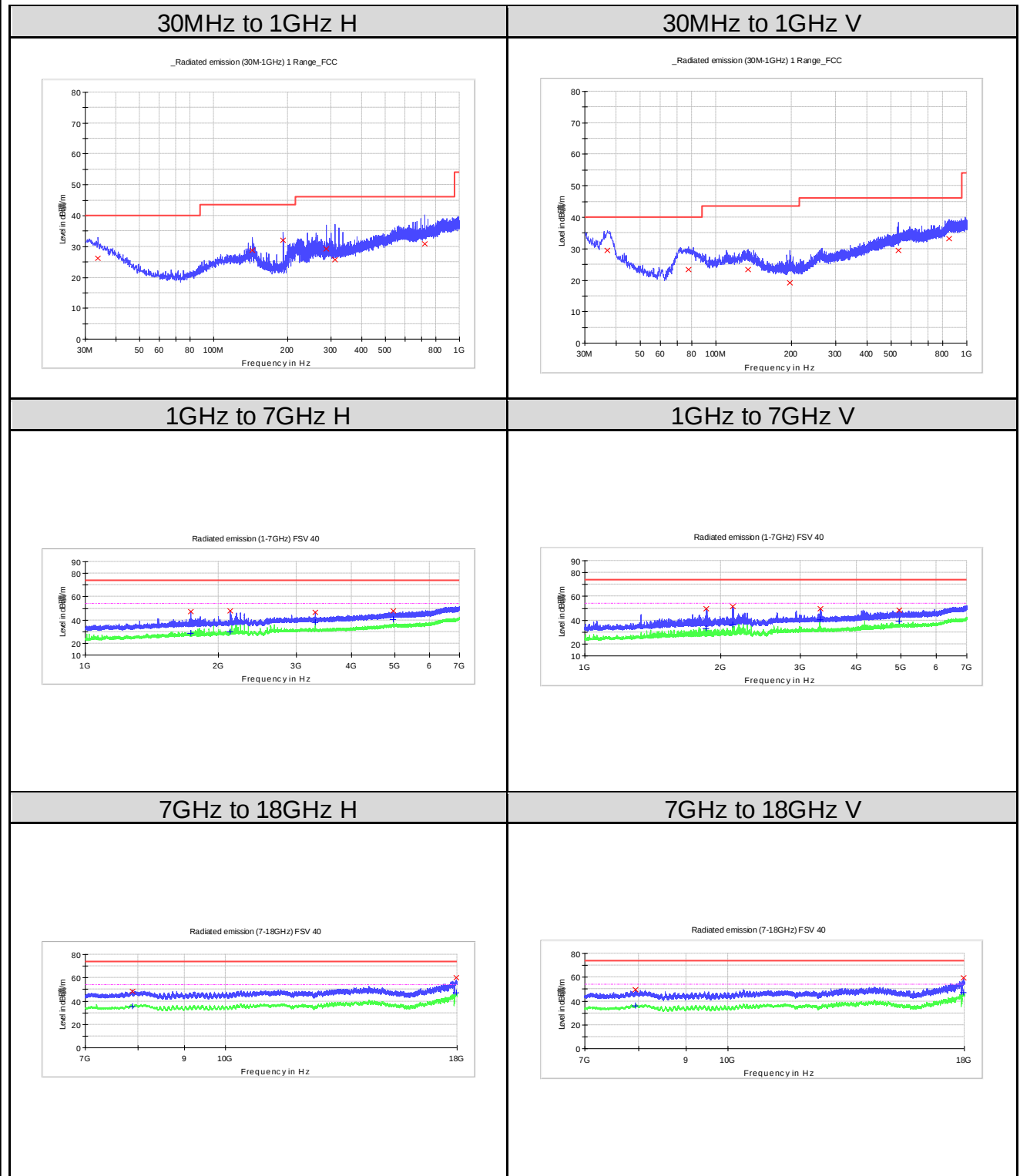
Frequency (MHz)	QuasiPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
31.091250	27.6	H	24.3	12.4	40.0
143.975000	28.8	H	17.9	14.7	43.5
191.990000	31.4	H	15.9	12.1	43.5
288.020000	29.3	H	20.1	16.7	46.0
324.031250	24.9	H	20.9	21.1	46.0
720.155000	31.0	H	27.2	15.0	46.0
37.032500	29.8	V	21.4	10.2	40.0
73.043750	25.0	V	12.9	15.0	40.0
143.975000	24.5	V	17.9	19.0	43.5
382.595000	25.6	V	22.5	20.4	46.0
532.702500	29.4	V	25.9	16.6	46.0
851.226250	33.2	V	29.0	12.8	46.0

PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1775.500000	43.2	H	-13.8	30.8	74.0
2296.375000	47.2	H	-11.6	26.9	74.0
3254.500000	46.7	H	-8.9	27.3	74.0
4882.375000	49.2	H	-4.5	24.8	74.0
8061.500000	48.8	H	-3.1	25.2	74.0
17976.350000	59.8	H	13.0	14.2	74.0
1396.562500	43.4	V	-15.4	30.6	74.0
2249.312500	48.5	V	-11.8	25.5	74.0
2930.312500	49.6	V	-9.6	24.4	74.0
4881.625000	49.3	V	-4.5	24.7	74.0
7861.850000	48.8	V	-3.7	25.2	74.0
17962.600000	60.3	V	12.7	13.7	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1775.500000	33.0	H	-13.8	21.0	54.0
2296.375000	37.2	H	-11.6	16.8	54.0
3254.500000	39.2	H	-8.9	14.9	54.0
4882.375000	41.8	H	-4.5	12.2	54.0
8061.500000	36.1	H	-3.1	17.9	54.0
17976.350000	46.9	H	13.0	7.2	54.0
1396.562500	32.0	V	-15.4	22.0	54.0
2249.312500	35.6	V	-11.8	18.4	54.0
2930.312500	31.6	V	-9.6	22.4	54.0
4881.625000	40.4	V	-4.5	13.6	54.0
7861.850000	35.7	V	-3.7	18.3	54.0
17962.600000	47.2	V	12.7	6.8	54.0

Figure 21: Radiated Spurious Emission, 2-DH5, 2480MHz


Limit and Margin
QP

Frequency (MHz)	QuasiPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
33.880000	26.2	H	23.0	13.8	40.0
143.975000	28.9	H	17.9	14.6	43.5
191.990000	32.1	H	15.9	11.4	43.5
288.020000	29.3	H	20.1	16.7	46.0
312.027500	25.7	H	20.6	20.4	46.0
720.155000	31.0	H	27.2	15.0	46.0
36.911250	29.4	V	21.5	10.6	40.0
77.530000	23.4	V	13.4	16.6	40.0
133.911250	23.5	V	18.4	20.1	43.5
196.597500	19.2	V	16.0	24.3	43.5
533.066250	29.5	V	25.9	16.5	46.0
851.711250	33.2	V	29.0	12.8	46.0

PK

Frequency (MHz)	MaxPeak (dBμV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBμV/m)
1729.375000	47.2	H	-13.8	26.8	74.0
2126.500000	47.8	H	-12.4	26.2	74.0
3306.625000	46.8	H	-8.8	27.3	74.0
4959.250000	47.6	H	-4.3	26.4	74.0
7885.500000	48.3	H	-3.4	25.7	74.0
17960.400000	59.9	H	12.7	14.1	74.0
1858.937500	49.4	V	-13.5	24.6	74.0
2124.625000	51.4	V	-12.5	22.6	74.0
3323.312500	49.9	V	-8.8	24.1	74.0
4959.437500	48.6	V	-4.3	25.4	74.0
7946.000000	49.4	V	-3.0	24.6	74.0
17974.150000	59.6	V	12.9	14.4	74.0

AV

Frequency (MHz)	Average (dBμV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
1729.375000	28.7	H	-19.6	33.8	54.0
2126.500000	29.8	H	-12.4	24.8	54.0
3306.625000	37.8	H	-9.9	26.1	54.0
4959.250000	40.3	H	3.6	15.4	54.0
7885.500000	35.3	H	-3.4	18.7	54.0
17960.400000	47.1	H	12.7	6.9	54.0
1858.937500	32.9	V	-13.5	21.1	54.0
2124.625000	36.3	V	-12.5	17.7	54.0
3323.312500	40.2	V	-8.8	13.8	54.0
4959.437500	39.1	V	-4.3	14.9	54.0
7946.000000	36.1	V	-3.0	17.9	54.0
17974.150000	46.9	V	12.9	7.1	54.0

6. List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Measurement Uncertainty.....	7
Table 3: Technical Specification of EUT.....	8
Table 4: RF Channel List.....	9
Table 5: Power parameter value.....	10
Table 6: Auxiliary Equipment.....	10
Table 7: Antenna Requirement.....	11
Table 8: Peak Output Power.....	25
Table 9: Time of Occupancy.....	36

7. List of Figures

Figure 1: Dwell Time.....	37
Figure 2: Number of Hops.....	38
Figure 3: Reference Level.....	40
Figure 4: Conducted Band Edge.....	42
Figure 5: Conducted Spurious Emission.....	44
Figure 6: Conducted Emission, L.....	46
Figure 7: Conducted Emission, N.....	47
Figure 8: Radiated Band-Edge, 1-DH5, 2402, H.....	49
Figure 9: Radiated Band-Edge, 1-DH5, 2402, V.....	49
Figure 10: Radiated Band-Edge, 1-DH5, 2480, H.....	50
Figure 11: Radiated Band-Edge, 1-DH5, 2480, V.....	50
Figure 12: Radiated Band-Edge, 2-DH5, 2402, H.....	51
Figure 13: Radiated Band-Edge, 2-DH5, 2402, V.....	51
Figure 14: Radiated Band-Edge, 2-DH5, 2480, H.....	52
Figure 15: Radiated Band-Edge, 2-DH5, 2480, V.....	52
Figure 16: Radiated Spurious Emission, 1-DH5, 2402MHz.....	54
Figure 17: Radiated Spurious Emission, 1-DH5, 2441MHz.....	56
Figure 18: Radiated Spurious Emission, 1-DH5, 2480MHz.....	58
Figure 19: Radiated Spurious Emission, 2-DH5, 2402MHz.....	60
Figure 20: Radiated Spurious Emission, 2-DH5, 2441MHz.....	62
Figure 21: Radiated Spurious Emission, 2-DH5, 2480MHz.....	64