



Prüfbericht-Nr.: <i>Test report no.:</i>	CN23BV1T 001	Auftrags-Nr.: <i>Order no.:</i>	168452191	Page 1 of 24 <i>Seite 1 von 24</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2023-11-13	
Auftraggeber: <i>Client:</i>	Harman International Industries, Inc 8500 Balboa Blvd, Northridge, California, 91329, United States			
Prüfgegenstand: <i>Test item:</i>	Bluetooth Module			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	QCC5181 (Trademark: JBL)			
Auftrags-Inhalt: <i>Order content:</i>	Type test			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 RSS-247 Issue 3 August 2023 CFR47 FCC Part 15: Subpart C Section 15.207 RSS-Gen Issue 5 March 2019 CFR47 FCC Part 15: Subpart C Section 15.209			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2023-11-13	Refer to photos document		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003599668			
Prüfzeitraum: <i>Testing period:</i>	2023-11-13 – 2023-11-24			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	X 	genehmigt von: <i>authorized by:</i>	X 	
Datum: <i>Date:</i> 2023-12-07	Signed by: Harry W. C. Wu	Ausstellungsdatum: <i>Issue date:</i> 2023-12-07	Signed by: Alex Lan	
Stellung / Position:	Project Manager	Stellung / Position:	Reviewer	
Sonstiges / <i>Other:</i>	FCC ID: API-QCC5181 IC: 6132A-QCC5181 HVIN: QCC5181			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* 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
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v05

Remarks
Anmerkungen

<p>1</p>	<p>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.</p> <p><i>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></p>
<p>2</p>	<p>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.</p> <p><i>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.</i></p>
<p>3</p>	<p>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</p> <p><i>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></p>
<p>4</p>	<p>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.</p> <p><i>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></p>

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Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 99% BANDWIDTH

RESULT: Pass

5.1.4 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.5 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.6 20dB BANDWIDTH

RESULT: Pass

5.1.7 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.8 FREQUENCY STABILITY

RESULT: Pass

5.1.9 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.10 TIME OF OCCUPANCY

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results.

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District,
Shenzhen, Guangdong, China/518110

FCC Registration No.: 694916

IC Registration No.: 25069 and the CAB identifier is CN0078.

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (TS8997)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
Wireless Connectivity Tester	R&S	CMW270	101375	25.07.2024
Signal Analyzer	R&S	FSV 40	101441	25.07.2024
Vector Signal Generator	R&S	SMBV100A	263301	25.07.2024
Signal Generator	R&S	SMB100A	115186	25.07.2024
OSP	R&S	OSP 150	101017	13.11.2024
Control PC	DELL	OptiPlex 7050	FTJZ9P2	N/A
Test Software	R&S	WMS32 (V11.00.00)	N/A	N/A
Power Meter	R&S	NRP2	107105	13.11.2024
Power Sensor	R&S	NRP-Z81	105677	25.07.2024
Humid & Temp Programmable Tester	BOST	NTH090-60	19040801	15.03.2024
Shielding Room 8#	Albatross	SR8	APC17151-SR8	22.06.2024
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	25.07.2024
Signal Analyzer	R&S	FSV 40	101439	25.07.2024
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	25.07.2024
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	25.07.2024
Amplifier	R&S	SCU-18F	180070	25.07.2024
Amplifier	R&S	SCU40A	100475	25.07.2024
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	06.08.2024
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	06.08.2024
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	27.08.2024
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	06.08.2024
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	22.06.2024

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2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, 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

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table

Parameter	Uncertainty (k=2)
Occupied Channel Bandwidth	± 2.08 %
RF output power, conducted	± 0.99 dB
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	± 4.17 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No.362, Huanguan Middle Road, Songyuansha Community, Guanhu Subdistrict, Longhua District, Shenzhen, Guangdong, China/518110 is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

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3 General Product Information

3.1 Product Function and Intended Use

The EUT is Bluetooth Module, which supports Bluetooth dual mode technology.
 For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	Bluetooth Module
Type Designation	QCC5181
Trademark	JBL
FCC ID	API-QCC5181
IC	6132A-QCC5181
HVIN	QCC5181
Extreme Temperature Range	-10°C to +85°C
Operating Voltage	DC 3.3-5.0V
Technical Specification of Classical Bluetooth	
Bluetooth Core Version	Bluetooth 5.4
Operating Frequency band	2402 ~ 2480 MHz
Channel Number	79 channels
Channel separation	1MHz
Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Antenna Type	Dipole Antenna
Antenna Gain	1.24 dBi (Provided by the Client)
Technical Specification of Bluetooth Low Energy	
Bluetooth Core Version	Bluetooth 5.4
Operating Frequency band	2402 ~ 2480 MHz for 1Mbps 2404 ~ 2478 MHz for 2Mbps
Channel Number	40 channels for 1Mbps 38 channels for 2Mbps
Channel separation	2MHz
Data rate	1Mbps, 2Mbps
Modulation	GFSK
Antenna Type	Dipole Antenna
Antenna Gain	1.24 dBi (Provided by the Client)

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Table 3: RF Channel and Frequency of Classic Bluetooth

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	20	2422.00	40	2442.00	60	2462.00
01	2403.00	21	2423.00	41	2443.00	61	2463.00
02	2404.00	22	2424.00	42	2444.00	62	2464.00
03	2405.00	23	2425.00	43	2445.00	63	2465.00
04	2406.00	24	2426.00	44	2446.00	64	2466.00
05	2407.00	25	2427.00	45	2447.00	65	2467.00
06	2408.00	26	2428.00	46	2448.00	66	2468.00
07	2409.00	27	2429.00	47	2449.00	67	2469.00
08	2410.00	28	2430.00	48	2450.00	68	2470.00
09	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00	--	--

Table 4: RF Channel and Frequency of Bluetooth Low Energy

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
00	2402.00	10	2422.00	20	2442.00	30	2462.00
01	2404.00	11	2424.00	21	2444.00	31	2464.00
02	2406.00	12	2426.00	22	2446.00	32	2466.00
03	2408.00	13	2428.00	23	2448.00	33	2468.00
04	2410.00	14	2430.00	24	2450.00	34	2470.00
05	2412.00	15	2432.00	25	2452.00	35	2472.00
06	2414.00	16	2434.00	26	2454.00	36	2474.00
07	2416.00	17	2436.00	27	2456.00	37	2476.00
08	2418.00	18	2438.00	28	2458.00	38	2478.00
09	2420.00	19	2440.00	29	2460.00	39	2480.00

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3.3 Independent Operation Modes

The basic operation modes are:

- A. On
 - 1. Bluetooth transmitting mode (BR & EDR mode)
 - a) Low Channel
 - b) Middle Channel
 - c) High Channel
- B. On, Transmitting on Hopping channel
- C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- Schematics
- Technical Description
- FCC/IC Label and Location Info
- Photo Document
- User Manual

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4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation 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.

According to clause 3.1, all test items were applied on model QCC5181.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N or Rating
Laptop	Lenovo	T480	PF-16A6N8

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 30MHz)

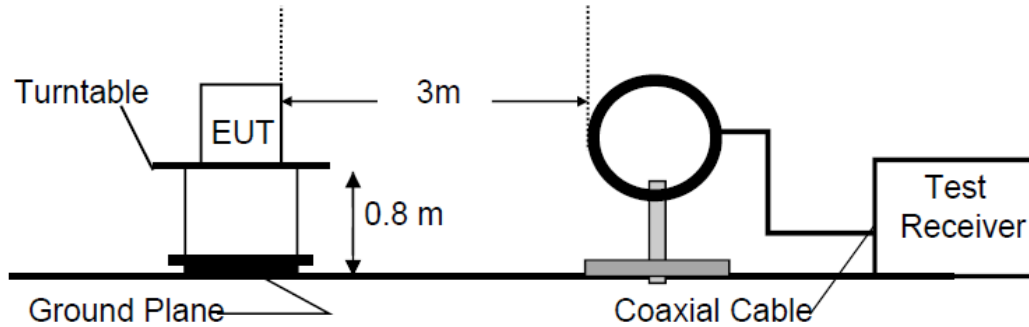


Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

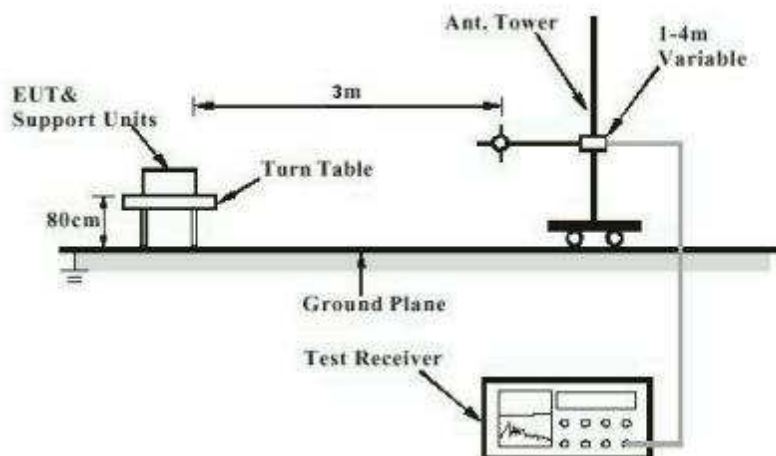
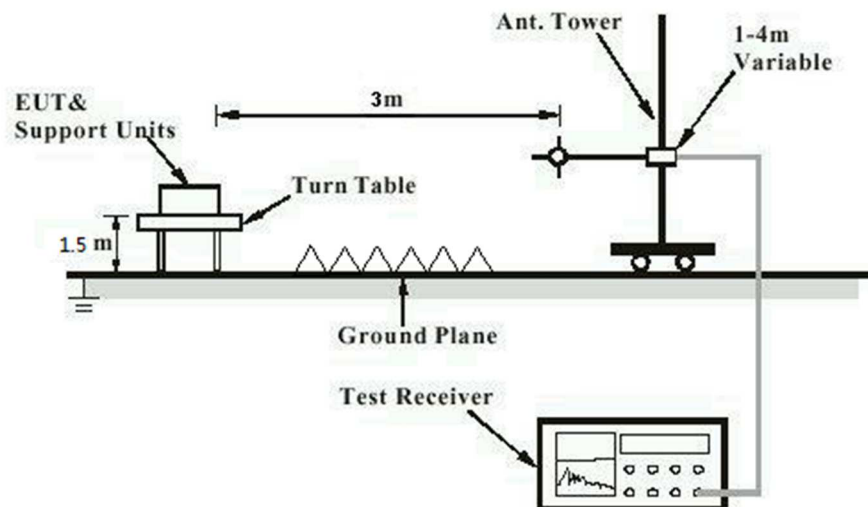


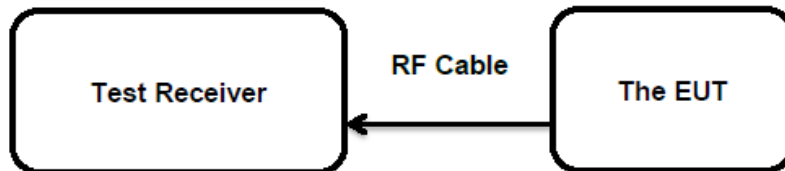
Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



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Diagram of Measurement Configuration for Conducted Transmitter Measurement



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5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(b)(4) and Part 15.203
RSS-Gen Clause 8.3

According to the manufacturer declared, the EUT has one Dipole Antenna, the directional gain of antenna is 1.24 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

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5.1.2 Maximum Conducted Output Power

RESULT: **Pass**

Test Specification

Test standard	FCC Part 15.247(b)(1) RSS-247 Clause 5.4(b)
Basic standard	ANSI C63.10: 2013
Limits	FHSS<0.125W(Maximum peak conducted output power) < 4 W (e.i.r.p.)
Kind of test site	Shielded Room

Test Setup

Date of testing	2023-11-13 to 2023-11-24
Input voltage	DC 5.0V
Operation mode	A.1
Test channel	Low / Middle / High
Ambient temperature	22.4 °C
Relative humidity	53 %
Atmospheric pressure	101 kPa

Table 6: Test Result of Maximum Conducted Output Power

Test Mode	Channel Frequency (MHz)	Measured Peak Output Power		Limit (W)
		(dBm)	(W)	
BR	2402	8.2	0.00661	< 0.125
	2441	7.7	0.00589	
	2480	7.5	0.00562	
EDR	2402	8.7	0.00741	
	2441	8.0	0.00631	
	2480	8.0	0.00631	
Maximum Measured Value		8.7	0.00741	

Note: The cable loss is taken into account in results and the maximum e.i.r.p. is 10.78 dBm less than 4W(36dBm).

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5.1.3 99% Bandwidth

RESULT: **Pass**

Test Specification

Test standard : RSS-Gen Clause 6.7
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
 Input voltage : DC 5.0V
 Operation mode : A.1
 Test channel : Low / Middle / High
 Ambient temperature : 22.4 °C
 Relative humidity : 53 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 7: Test Result of 99% Bandwidth

Test Mode	Channel Frequency (MHz)	Measured 99% Bandwidth	Limit
		(MHz)	
BR	2402	0.865000	/
	2441	0.865000	
	2480	0.865000	
EDR	2402	1.185000	/
	2441	1.185000	
	2480	1.185000	

Note: The fundamental emissions stay within the allocated band 2400-2483.5MHz

The Setting of RBW is 30 KHz.

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5.1.4 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(d)
RSS-247 Clause 5.5
Basic standard : ANSI C63.10: 2013
Limits : 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);
Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
Input voltage : DC 5.0V
Operation mode : A.1
Test channel : Low / Middle / High
Ambient temperature : 22.4 °C
Relative humidity : 53 %
Atmospheric pressure : 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to following test plot, and compliance is achieved as well.

For the measurement records, refer to the appendix B

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5.1.5 Radiated Spurious Emission

RESULT:

Pass

Test Specification

Test standard : FCC Part 15.247(d) & FCC Part 15.205
RSS-247 Clause 3.3

Basic standard : ANSI C63.10: 2013

Limits : Refer to 15.209(a) of FCC part 15.247(d)
RSS-Gen Table 6 & Table 7

Kind of test site : 3m Semi-anechoic Chamber

Test Setup

Date of testing : 2023-11-13 to 2023-11-24

Input voltage : DC 5.0V

Operation mode : A.1

Test channel : Low / Middle / High

Ambient temperature : Refer to test result

Relative humidity : Refer to test result

Atmospheric pressure : 101 kPa

Remark:

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For the measurement records, refer to the appendix B.

Prüfbericht-Nr.: CN23BV1T 001
Test report no.:

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5.1.6 20dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(a)(1)
 RSS-247 Clause 5.1(a)
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
 Input voltage : DC 5.0V
 Operation mode : A.1
 Test channel : Low / Middle / High
 Ambient temperature : 22.4 °C
 Relative humidity : 53 %
 Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 8: Test Result of -20dB Bandwidth

Test Mode	Channel Frequency (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
BR	2402	930	620.000	/
	2441	930	620.000	
	2480	930	620.000	
EDR	2402	1280	853.333	/
	2441	1280	853.333	
	2480	1275	850.000	

Note: The setting of RBW is 30 KHz.

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5.1.7 Carrier Frequency Separation

RESULT: **Pass**

Test Specification

Test standard : FCC Part 15.247(a)(1)
RSS-247 Clause 5.1(b)
Basic standard : ANSI C63.10: 2013
Limits : $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater
Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
Input voltage : DC 5.0V
Operation mode : B
Test channel : Low / Middle / High
Ambient temperature : 22.4 °C
Relative humidity : 53 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 9: Test Result of Carrier Frequency Separation

Test Mode	Channel	Result[MHz]	Limit[MHz]	Verdict
BR-DH5	Hop	1.010	≥ 0.620	PASS
EDR-3DH5	Hop	0.950	≥ 0.853	PASS

Note:

The limit is maximum $2/3$ of the 20 dB bandwidth: 853KHz.

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Test report no.:

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5.1.8 Frequency stability

RESULT: **Pass**

Test Specification

Test standard : RSS-247 Clause 8.11
Basic standard : ANSI C63.10: 2013
Limits : within at least the central 80% of its permitted operating frequency band (2400-2483.5MHz)
Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
Input voltage : DC 5.0V
Operation mode : B
Ambient temperature : 22.4 °C
Relative humidity : 53 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Prüfbericht-Nr.: CN23BV1T 001
Test report no.:

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5.1.9 Number of Hopping Frequency

RESULT: **Pass**

Test Specification

Test standard : FCC part 15.247(a)(1)(iii)
RSS-247 Clause 5.1(d)
Basic standard : ANSI C63.10: 2013
Limits : ≥ 15 non-overlapping channels
Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
Input voltage : DC 5.0V
Operation mode : B
Ambient temperature : 22.4 °C
Relative humidity : 53 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

Table 10: Test Result of Number of Hopping Frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
2402 to 2480 MHz	79	≥ 15	Pass

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Test report no.:

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5.1.10 Time of Occupancy

RESULT: **Pass**

Test Specification

Test standard : FCC part 15.247(a)(1)(iii)
RSS-247 Clause 5.1(d)
Basic standard : ANSI C63.10: 2013
Limits : < 0.4s
Kind of test site : Shielded Room

Test Setup

Date of testing : 2023-11-13 to 2023-11-24
Input voltage : DC 5.0V
Operation mode : B
Test channel : Low / Middle / High
Ambient temperature : 22.4 °C
Relative humidity : 53 %
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix B.

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Test report no.:

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6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

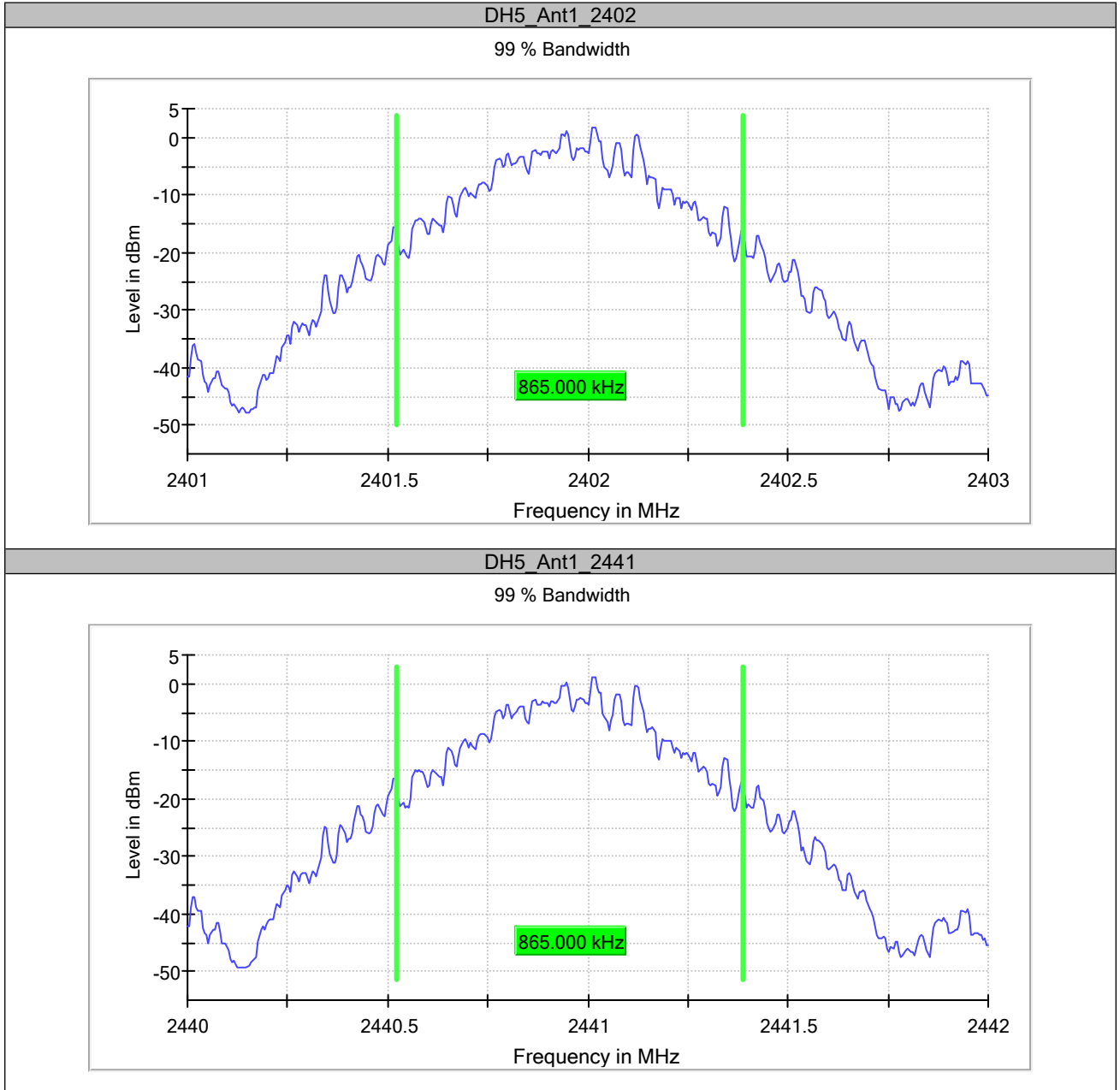
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Appendix B: Test Results

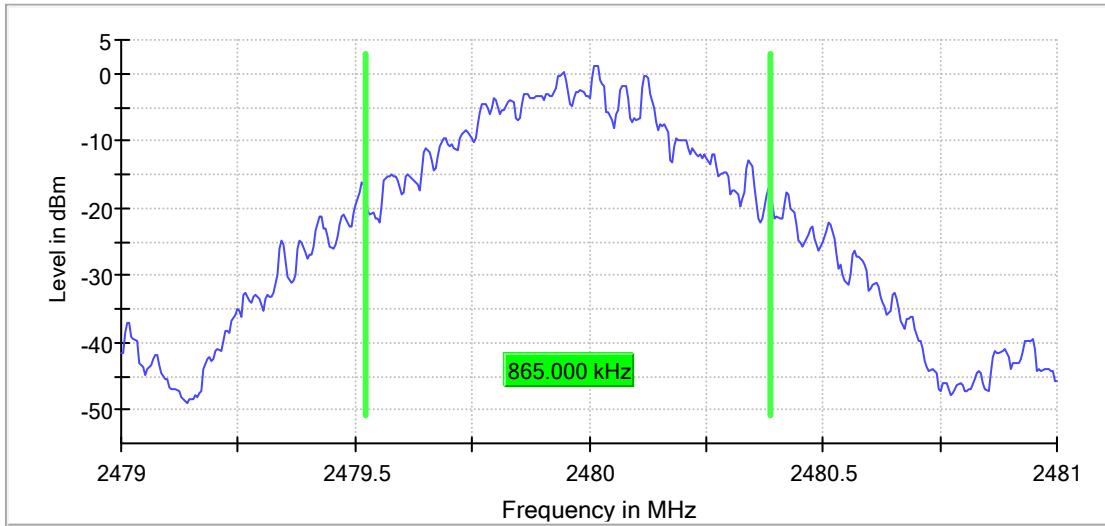
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Appendix B.1: Test Results of 99% Bandwidth



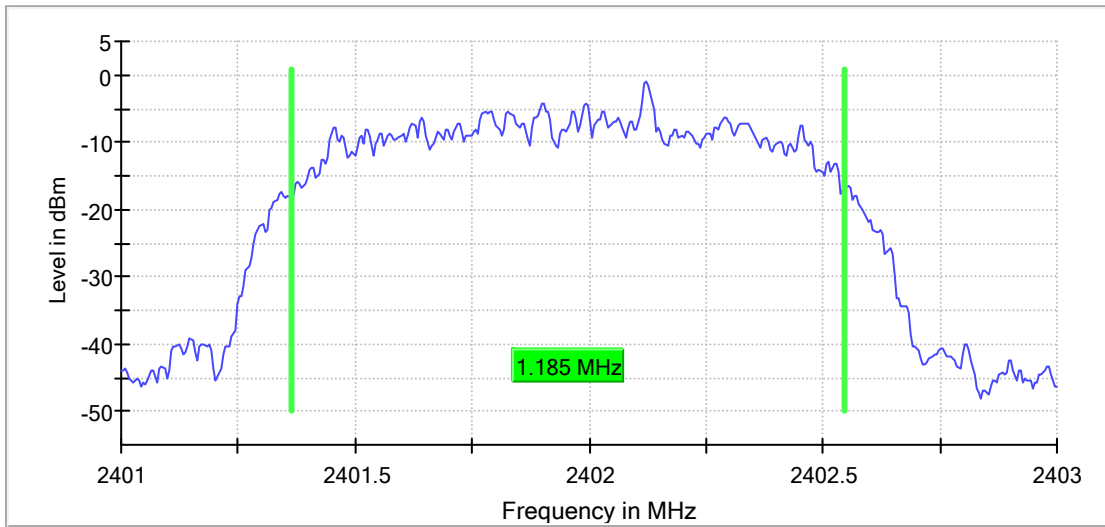
DH5_Ant1_2480

99 % Bandwidth

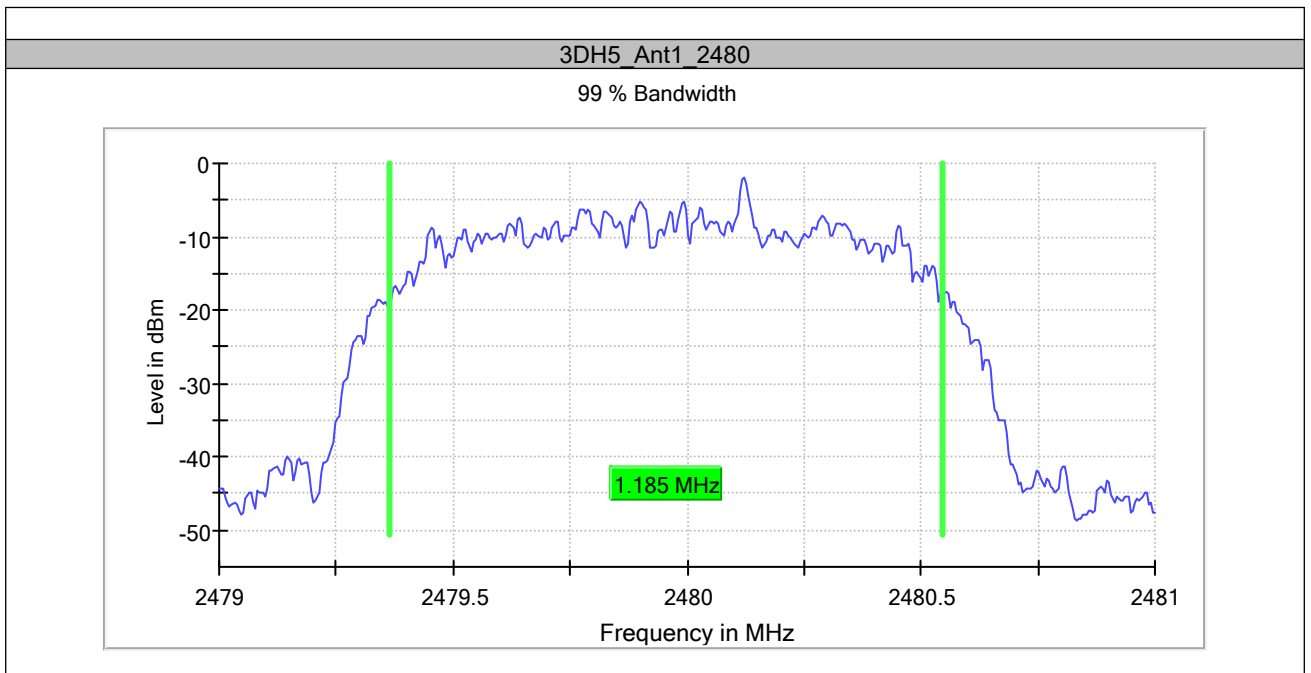
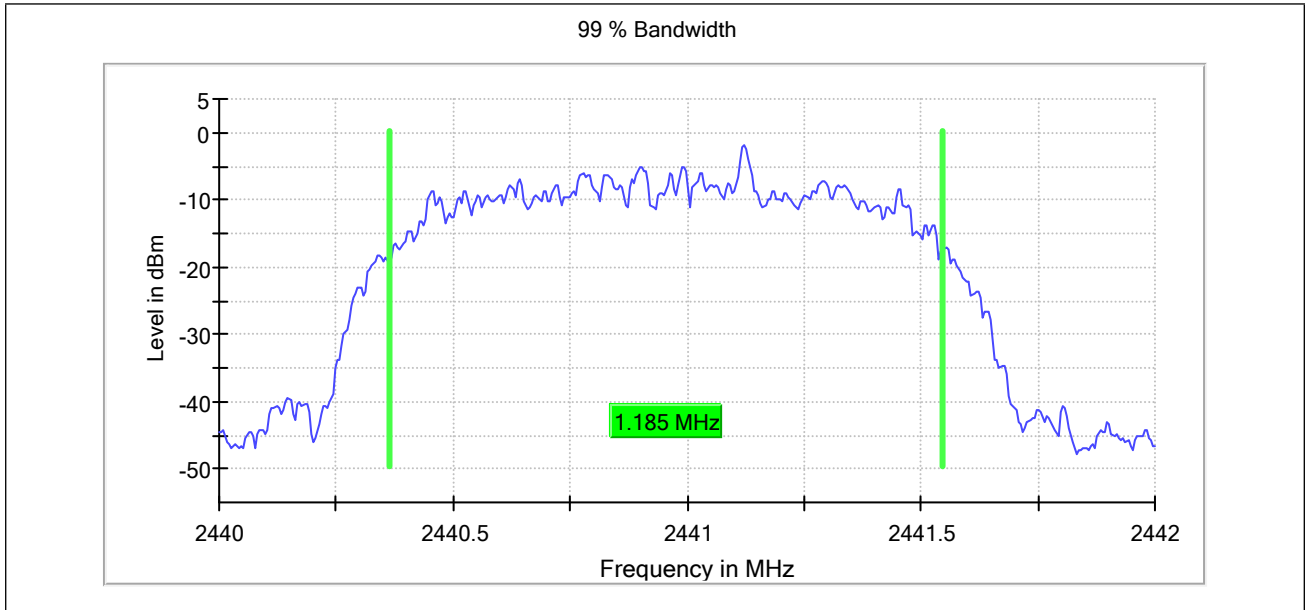


3DH5_Ant1_2402

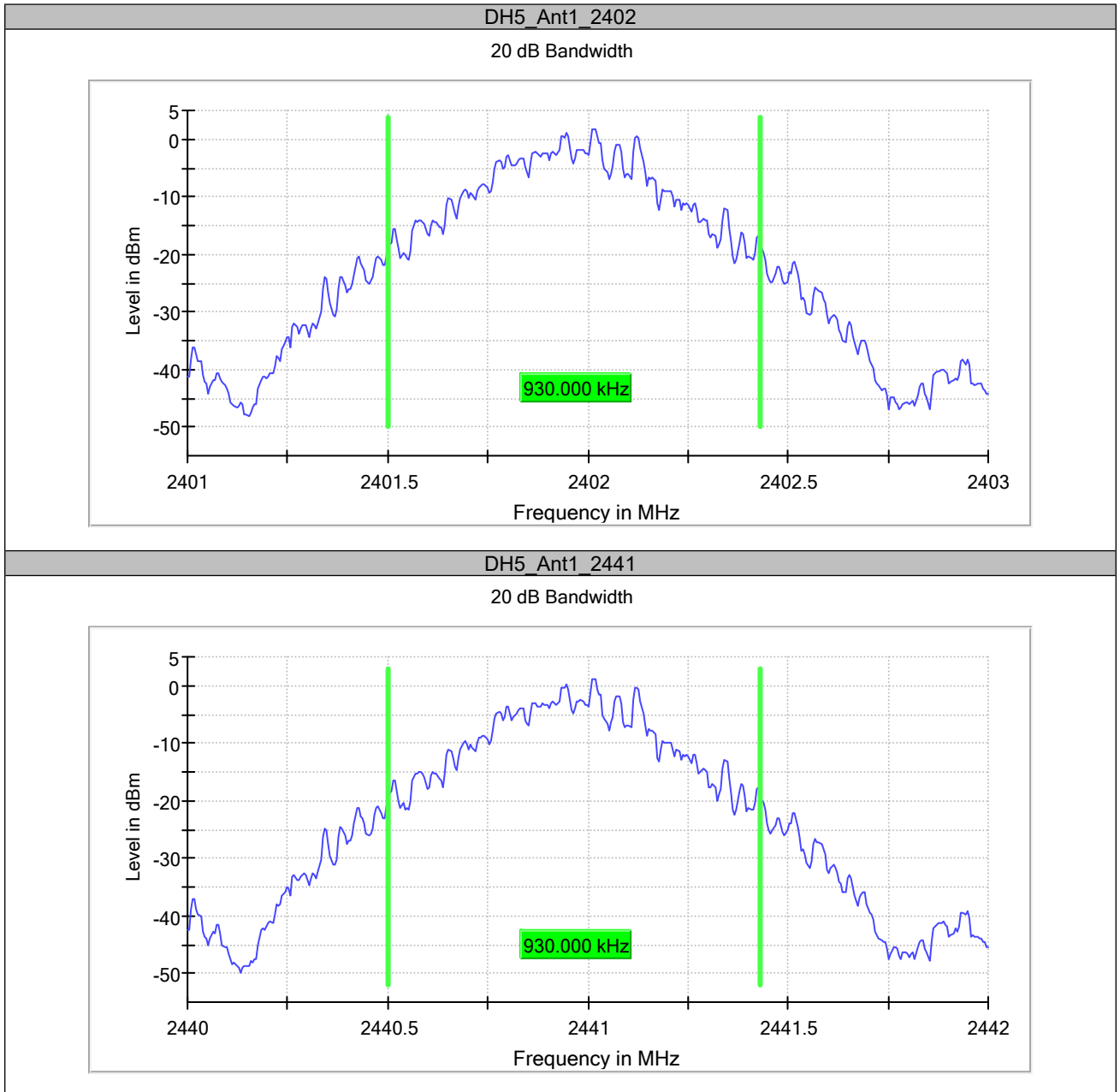
99 % Bandwidth



3DH5_Ant1_2441

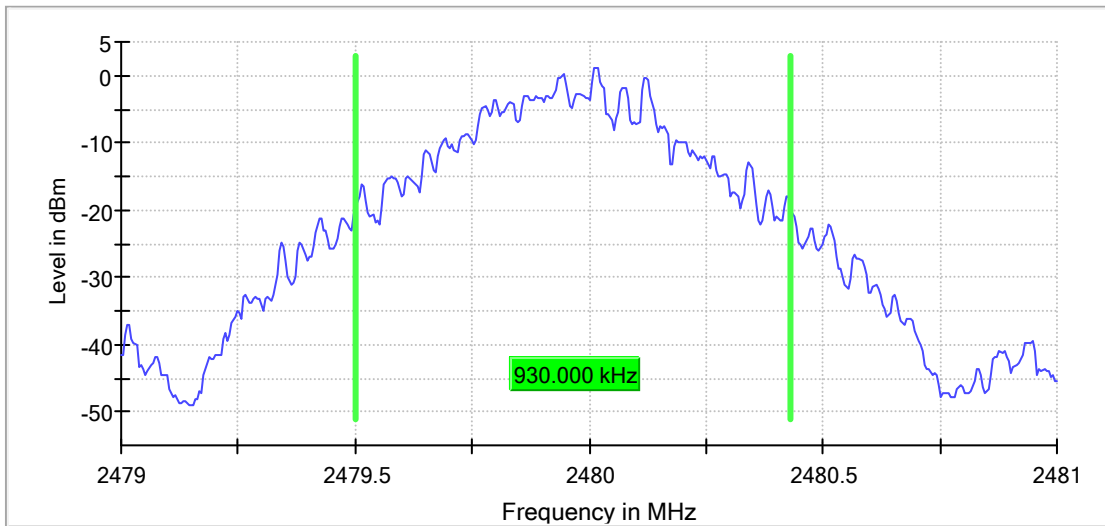


Appendix B.2: Test Results of 20dB Bandwidth



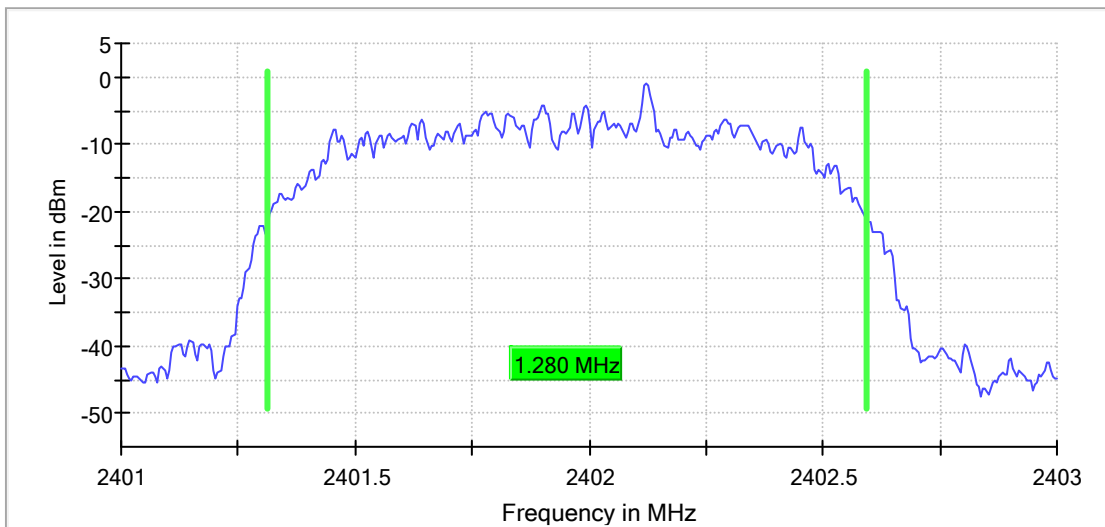
DH5_Ant1_2480

20 dB Bandwidth



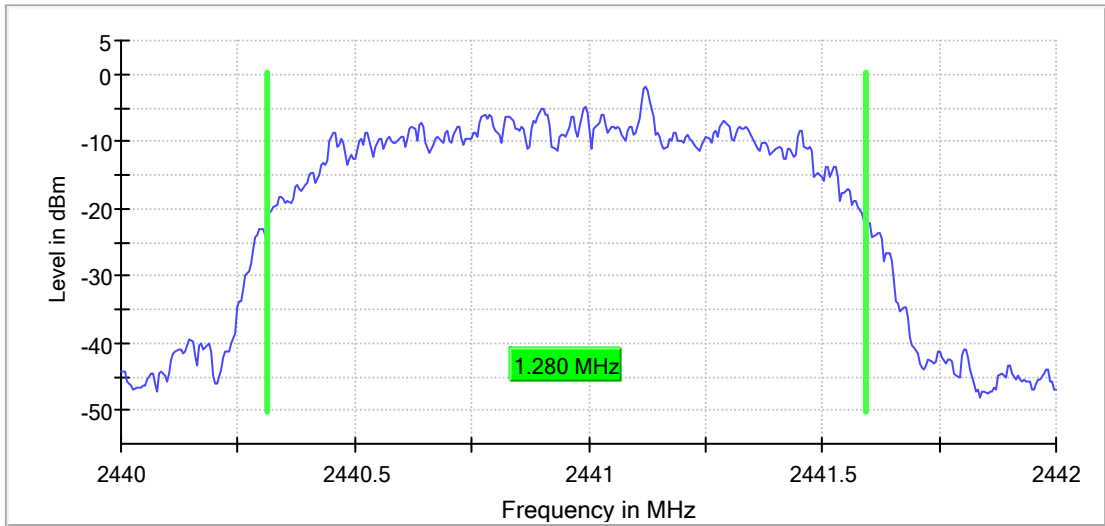
3DH5_Ant1_2402

20 dB Bandwidth



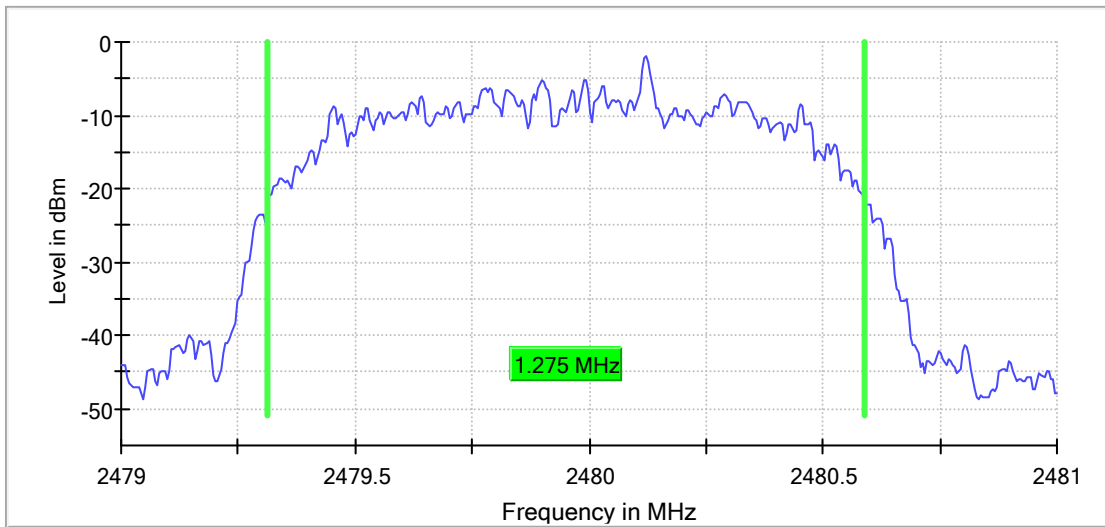
3DH5_Ant1_2441

20 dB Bandwidth



3DH5_Ant1_2480

20 dB Bandwidth



Appendix B.3: Test Results of Frequency stability

Test Channel (MHz)	2402
--------------------	------

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
DC 3.3V	2401.998	2	0.83	10
DC 3.8V	2401.998	2	0.83	
DC 5.0V	2401.998	2	0.83	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2401.997	3	1.25	10
-20	2401.998	2	0.83	
-10	2401.997	3	1.25	
0	2401.997	2	0.83	
10	2401.998	2	0.83	
20	2401.998	2	0.83	
30	2401.998	2	0.83	
40	2401.998	2	0.83	
50	2401.998	2	0.83	
55	2401.998	2	0.83	

Test Channel (MHz)	2441
--------------------	------

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
DC 3.3V	2440.997	-3	-1.23	10
DC 3.8V	2440.997	-3	-1.23	
DC 5.0V	2440.997	-3	-1.23	

Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2440.996	-4	-1.64	10
-20	2440.997	-3	-1.23	
-10	2440.998	-2	-0.82	
0	2440.998	-2	-0.82	
10	2440.998	-2	-0.82	
20	2440.998	-2	-0.82	
30	2440.998	-2	-0.82	
40	2440.999	-1	-0.41	
50	2440.999	-1	-0.41	
55	2440.999	-1	-0.41	

Test Channel (MHz)	2480
--------------------	------

Test result of frequency tolerance of voltage variation

Voltage	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
DC 3.3V	2479.999	-1	-0.40	10
DC 3.8V	2479.998	-2	-0.81	
DC 5.0V	2479.999	-1	-0.40	

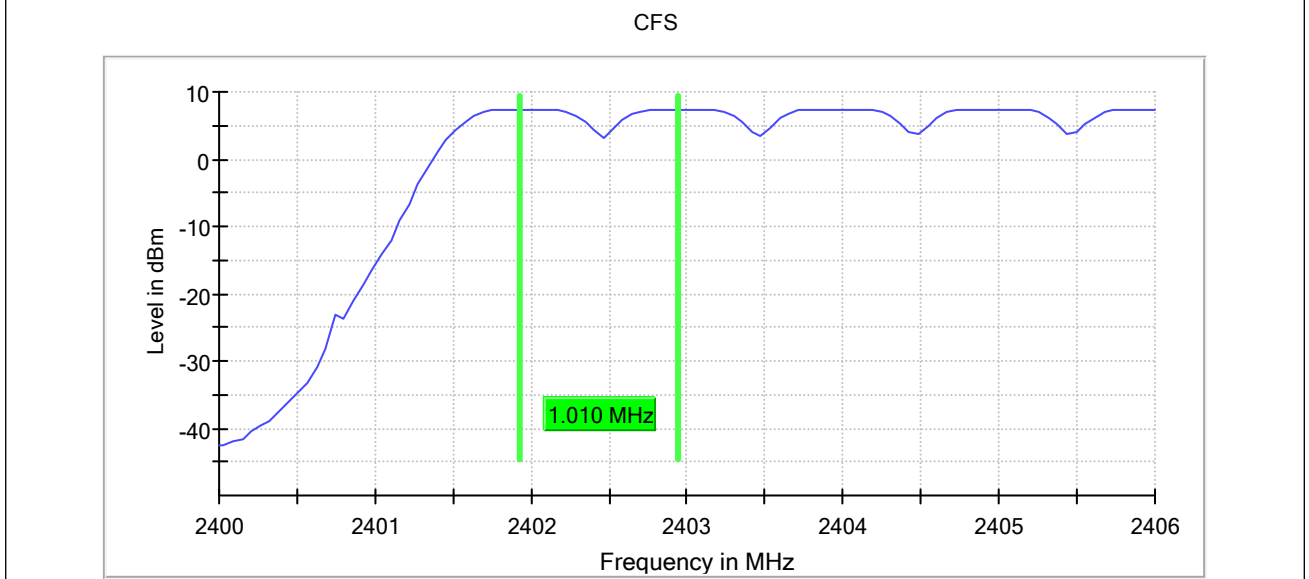
Test result of frequency tolerance of temperature variation

Temperature (°C)	Test result (MHz)	Deviation Frequency (KHz)	Test result (ppm)	Limit (ppm)
-30	2479.998	-2	-0.81	10
-20	2479.998	-2	-0.81	
-10	2479.998	-2	-0.81	
0	2479.999	-1	-0.40	
10	2479.999	-1	-0.40	
20	2479.999	-1	-0.40	
30	2479.998	-2	-0.81	
40	2479.999	-1	-0.40	
50	2479.999	-1	-0.40	
55	2479.999	-1	-0.40	

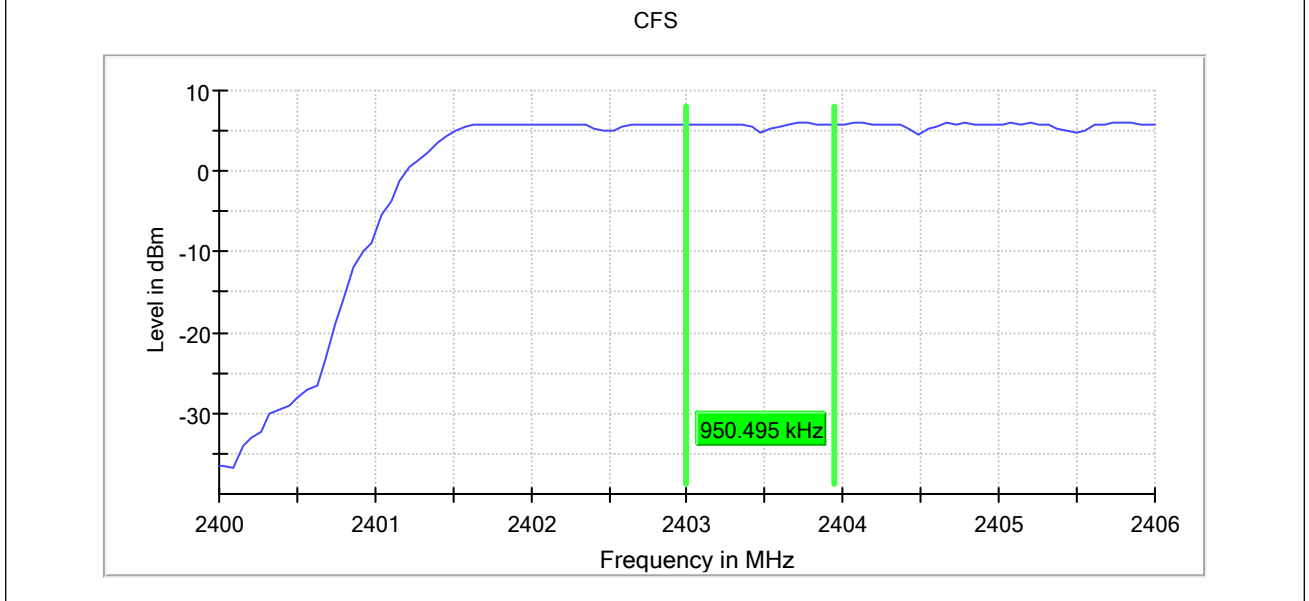
Appendix B.4: Test Results of Carrier Frequency Separation

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.010	≥0.620	PASS
3DH5	Ant1	Hop	0.950	≥0.853	PASS

DH5_Ant1_Hop

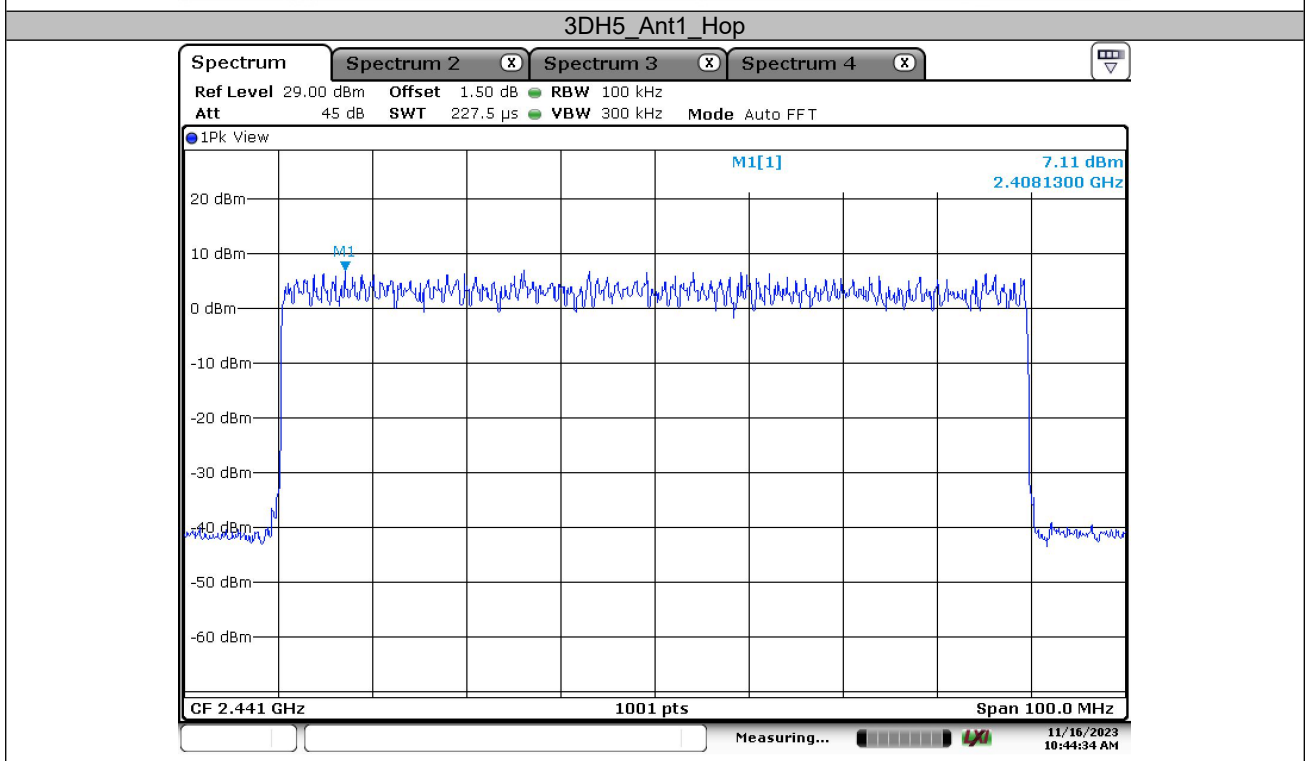
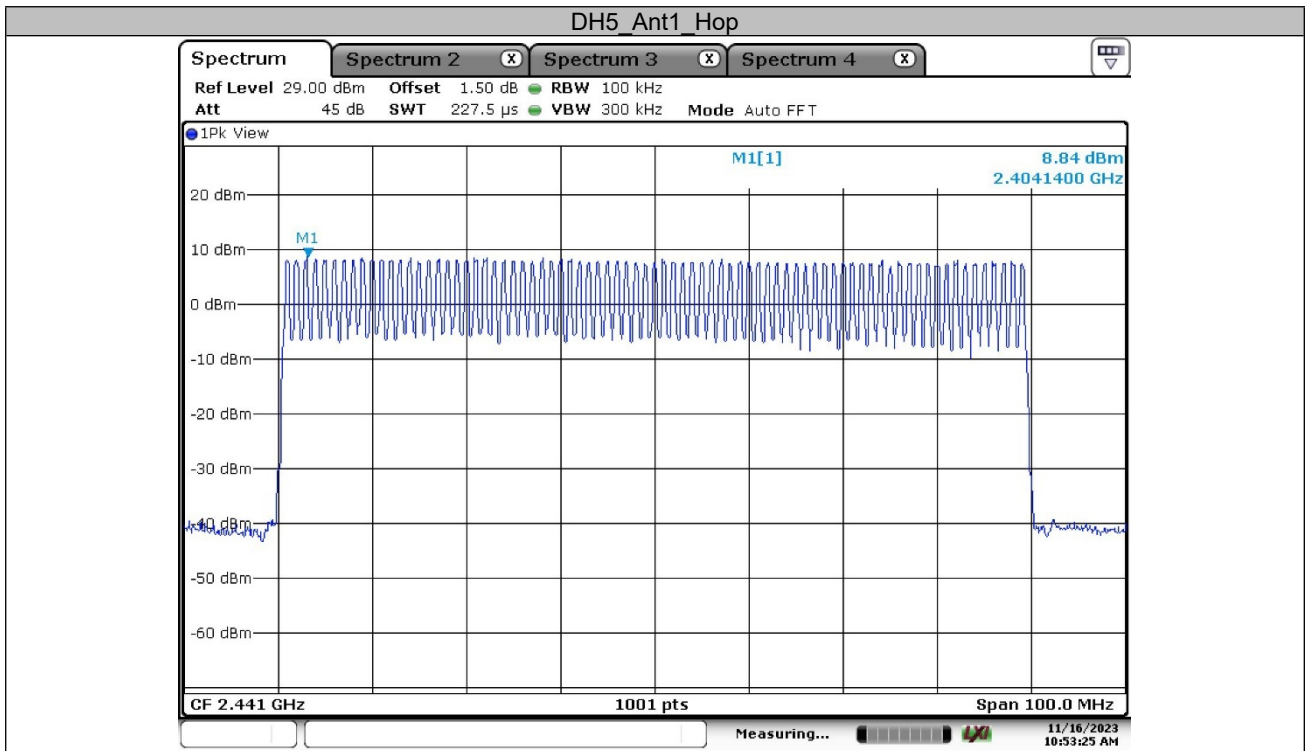


3DH5_Ant1_Hop



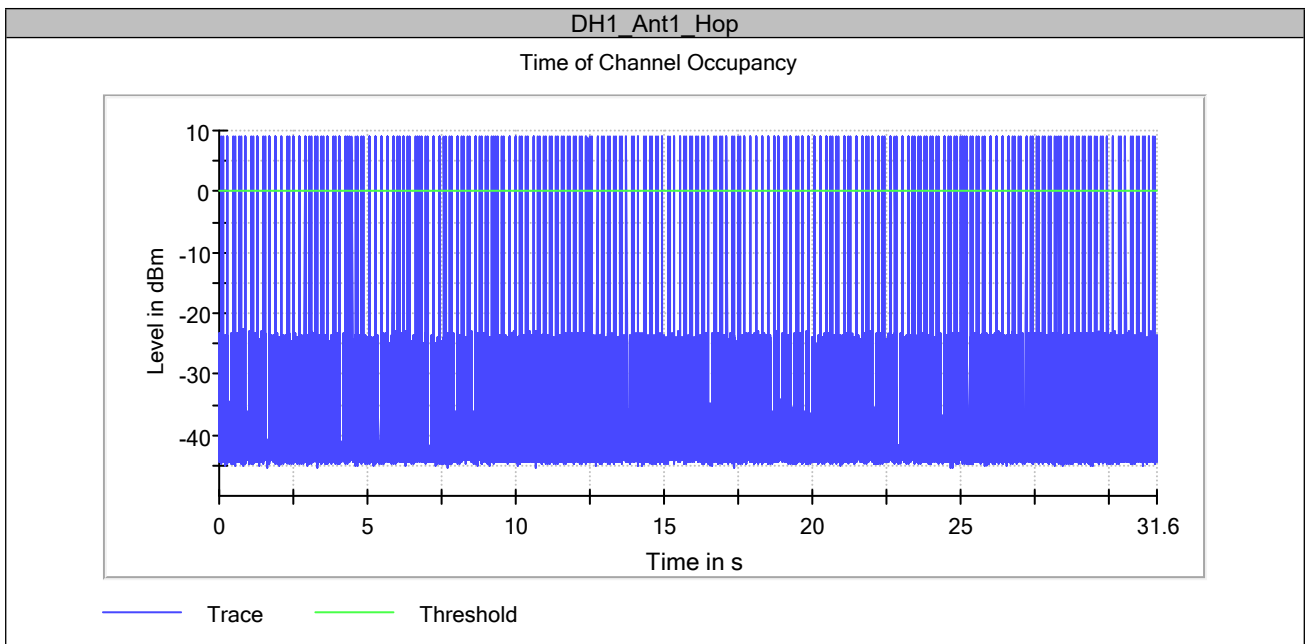
Appendix B.5: Test Results of Number of Hopping Frequency

TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	≥15	PASS
3DH5	Ant1	Hop	79	≥15	PASS



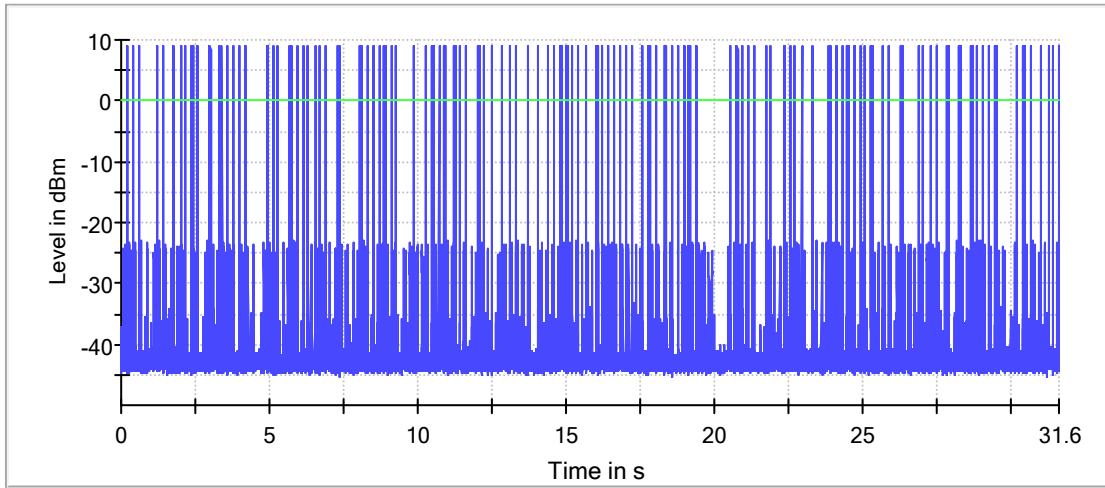
Appendix B.6: Test Results of Time of Occupancy

TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Hop	0.392	319	0.125	≤0.4	PASS
DH3	Ant1	Hop	1.648	154	0.254	≤0.4	PASS
DH5	Ant1	Hop	2.896	103	0.298	≤0.4	PASS
3DH1	Ant1	Hop	0.345	319	0.110	≤0.4	PASS
3DH3	Ant1	Hop	1.377	161	0.222	≤0.4	PASS
3DH5	Ant1	Hop	2.385	106	0.253	≤0.4	PASS



DH3_Ant1_Hop

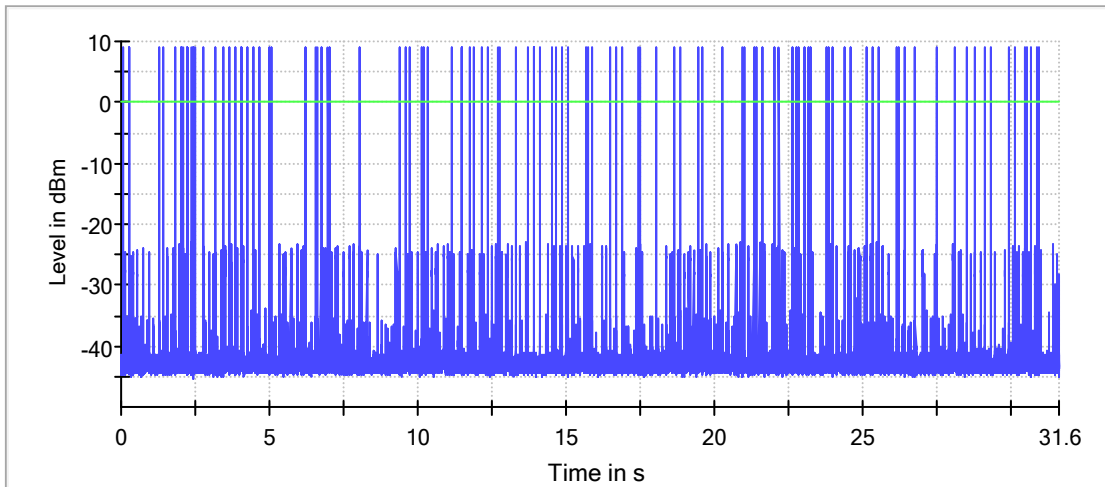
Time of Channel Occupancy(2)



Trace Threshold

DH5_Ant1_Hop

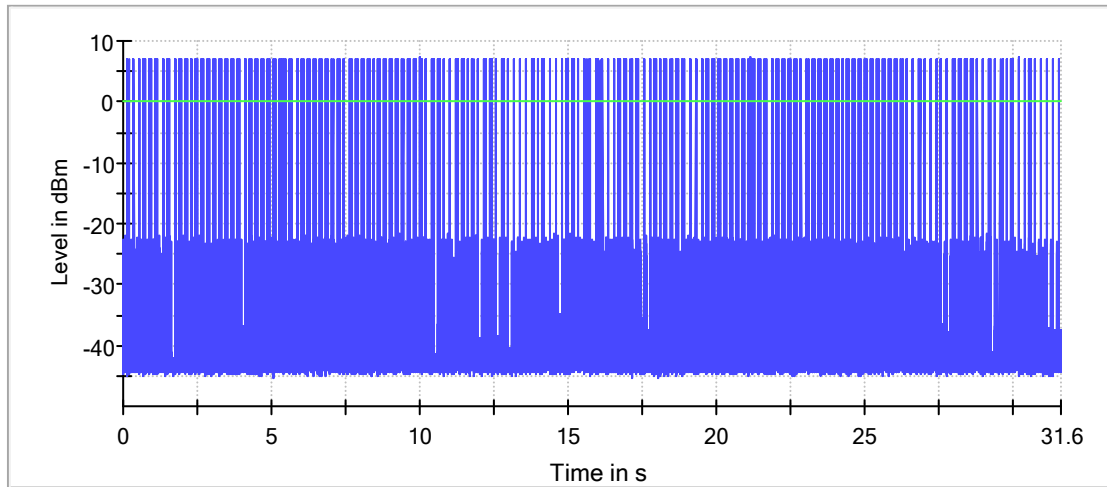
Time of Channel Occupancy(3)



Trace Threshold

3DH1_Ant1_Hop

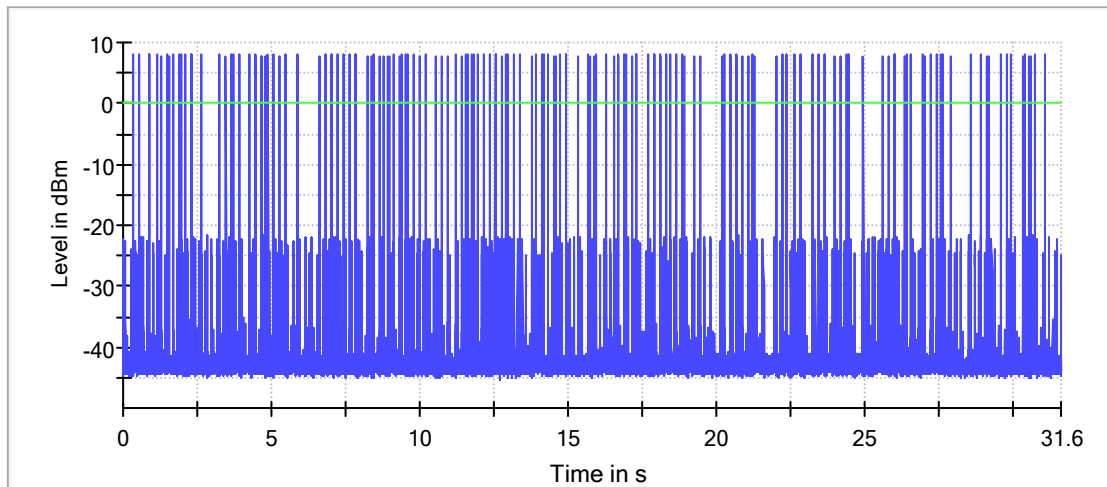
Time of Channel Occupancy



— Trace — Threshold

3DH3 Ant1 Hop

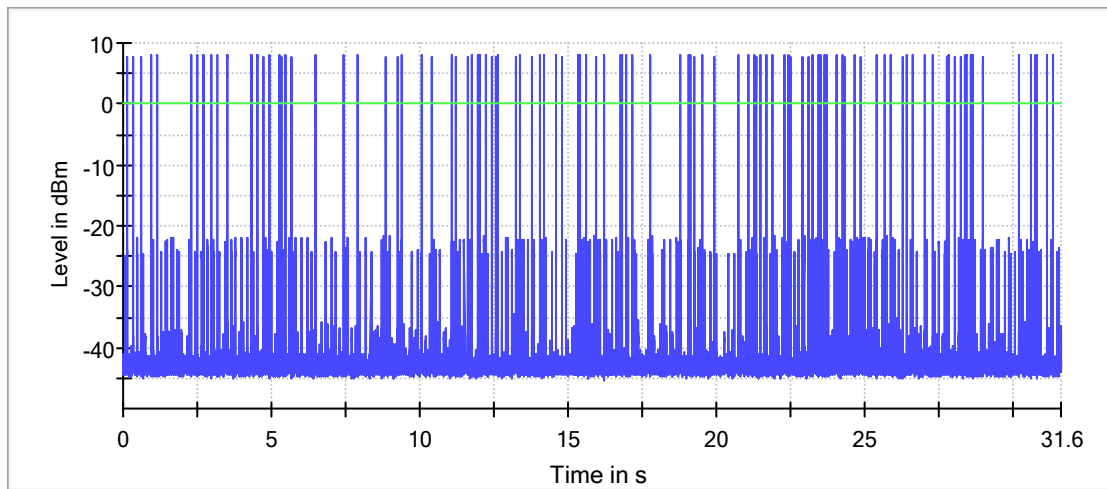
Time of Channel Occupancy(2)



— Trace — Threshold

3DH5 Ant1 Hop

Time of Channel Occupancy(3)

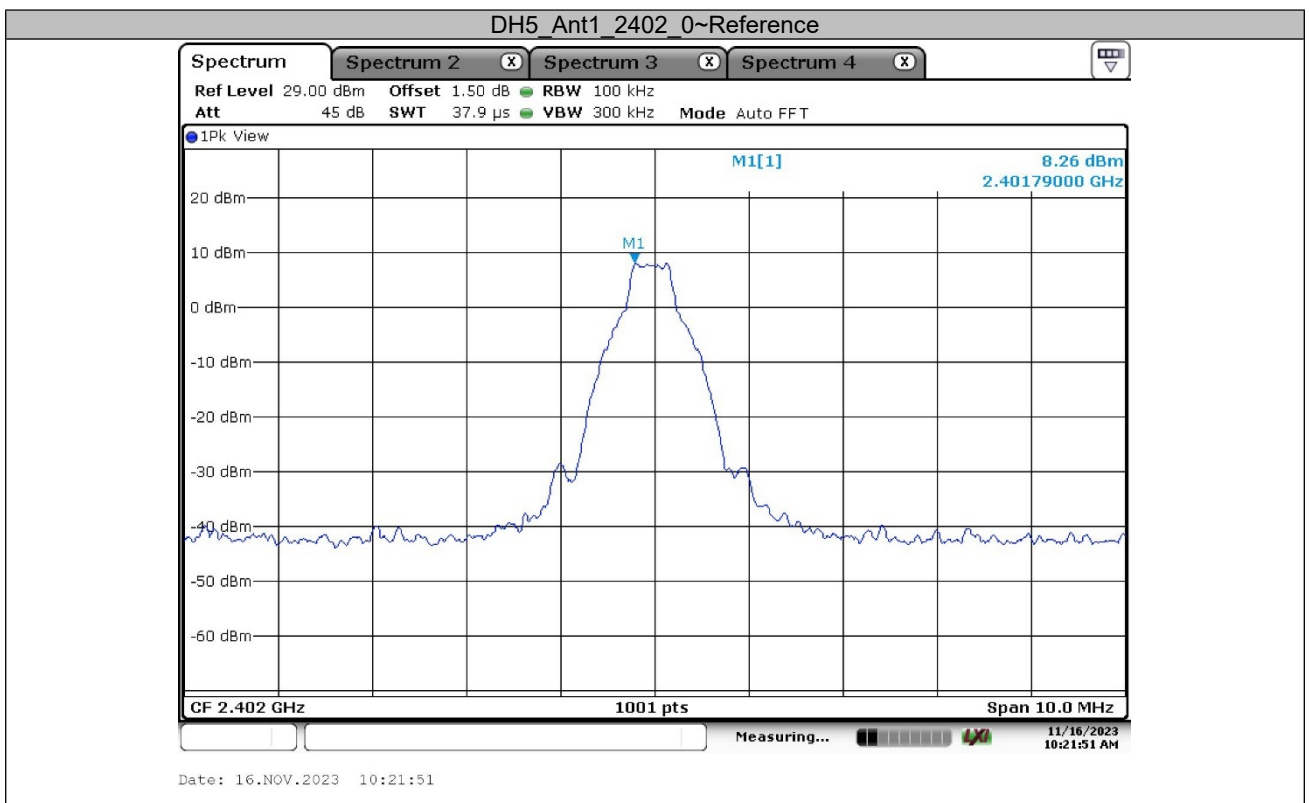


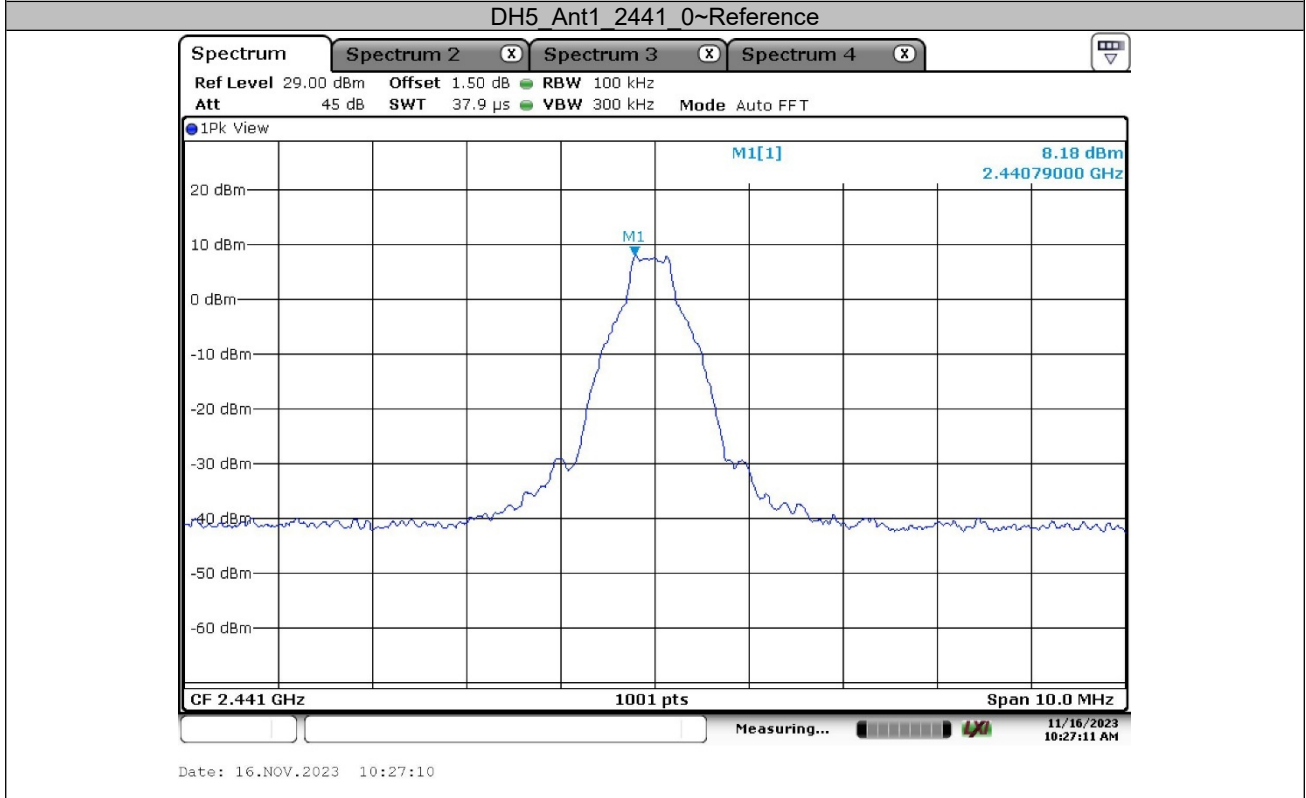
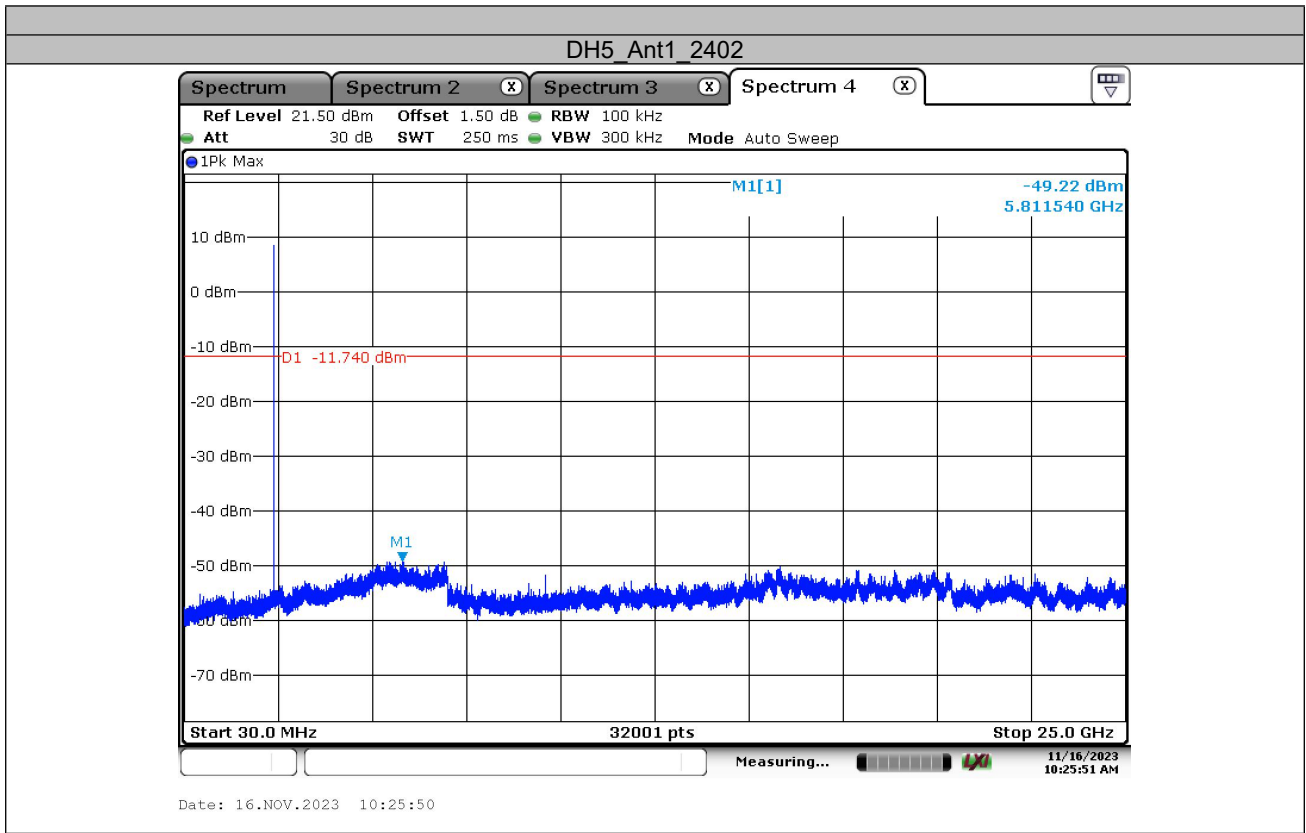
— Trace — Threshold

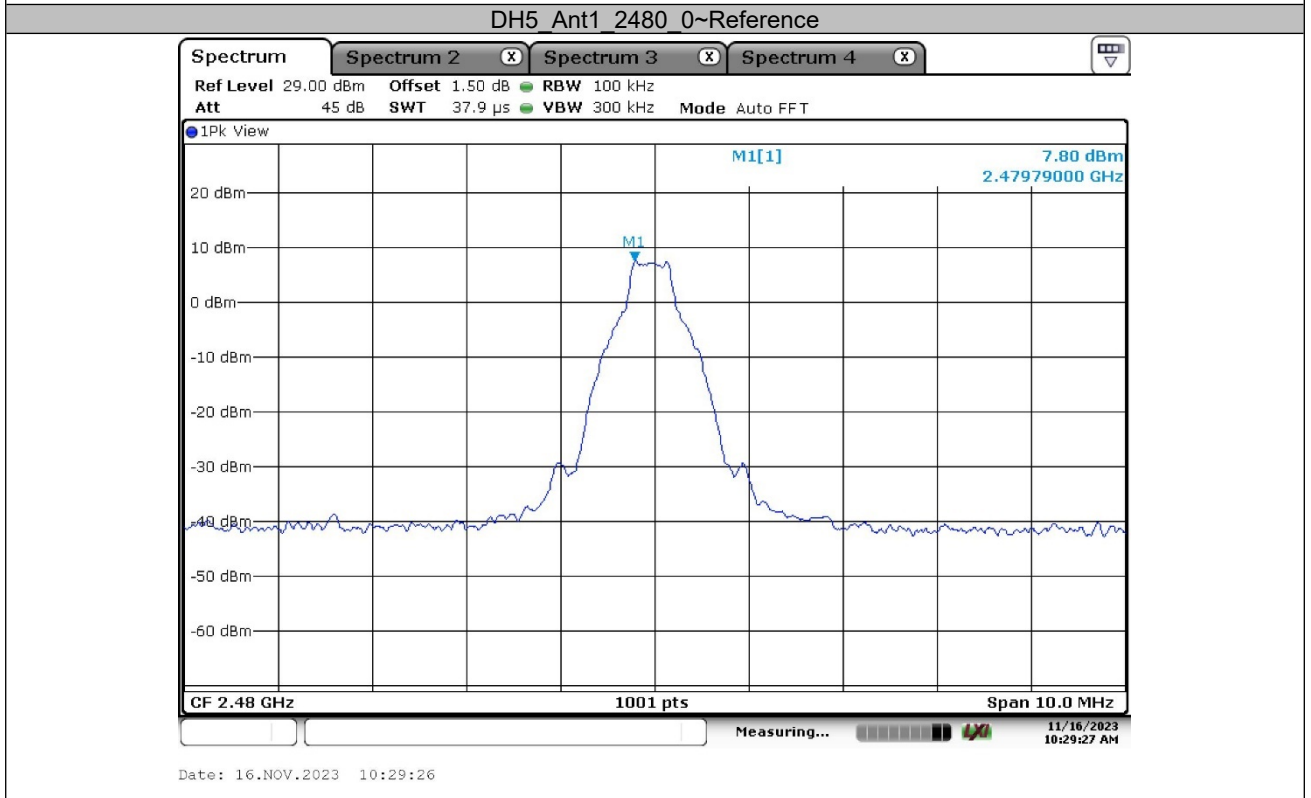
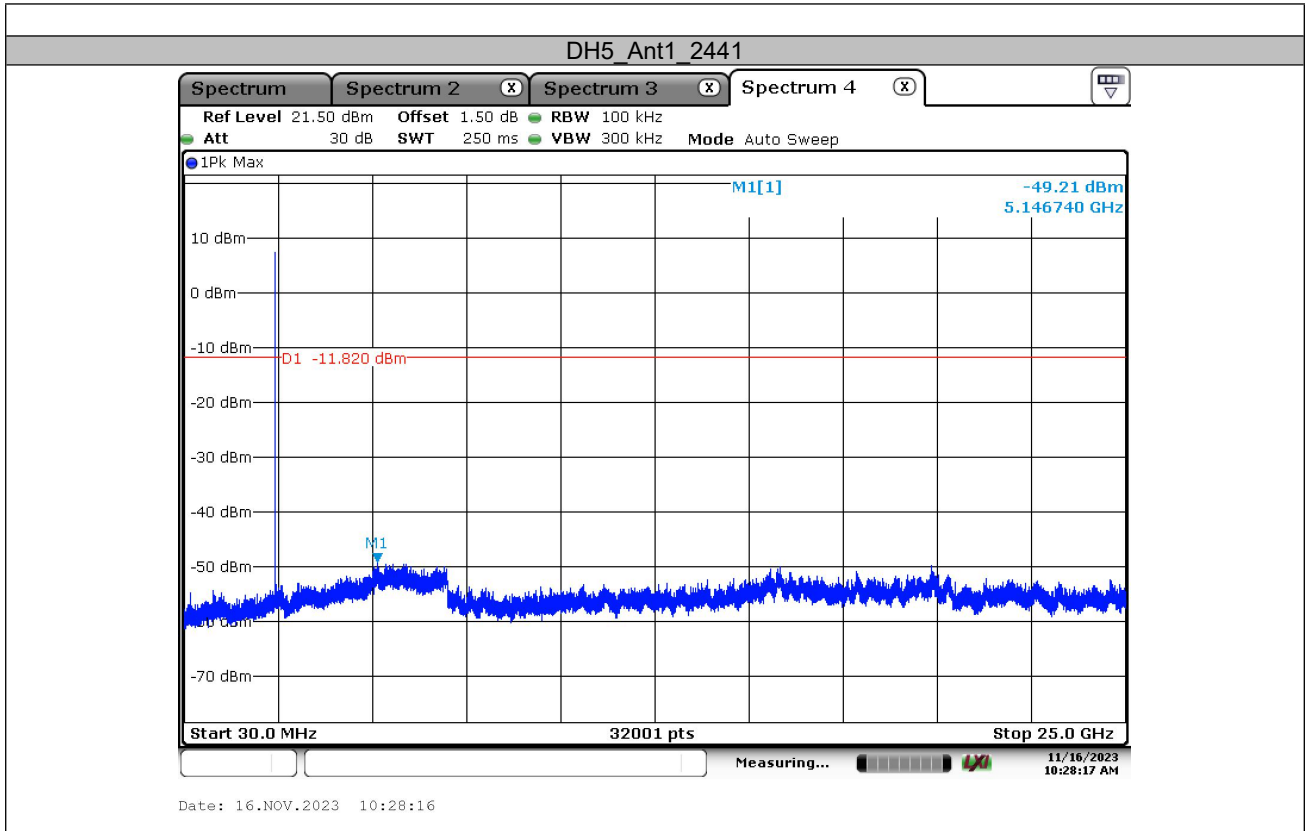
Appendix B.7: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

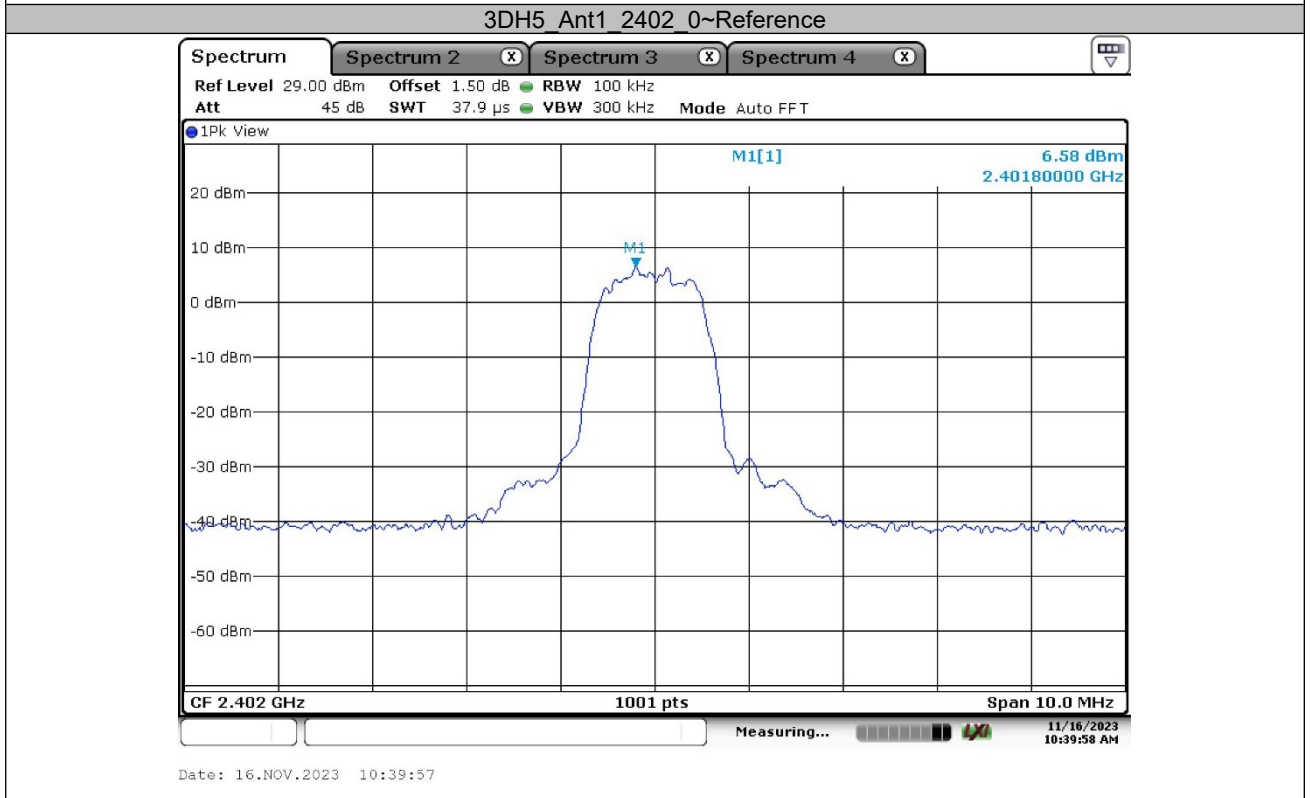
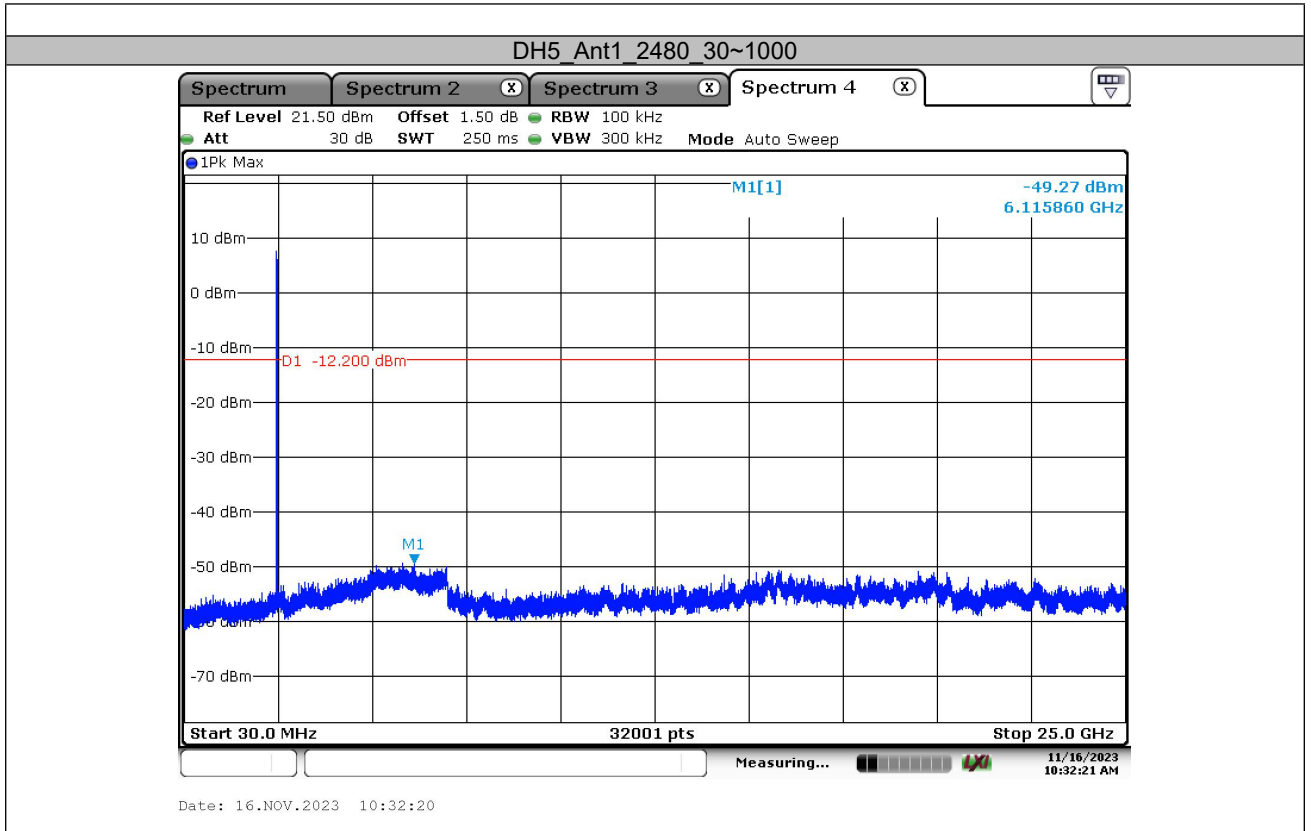
Conducted measurements

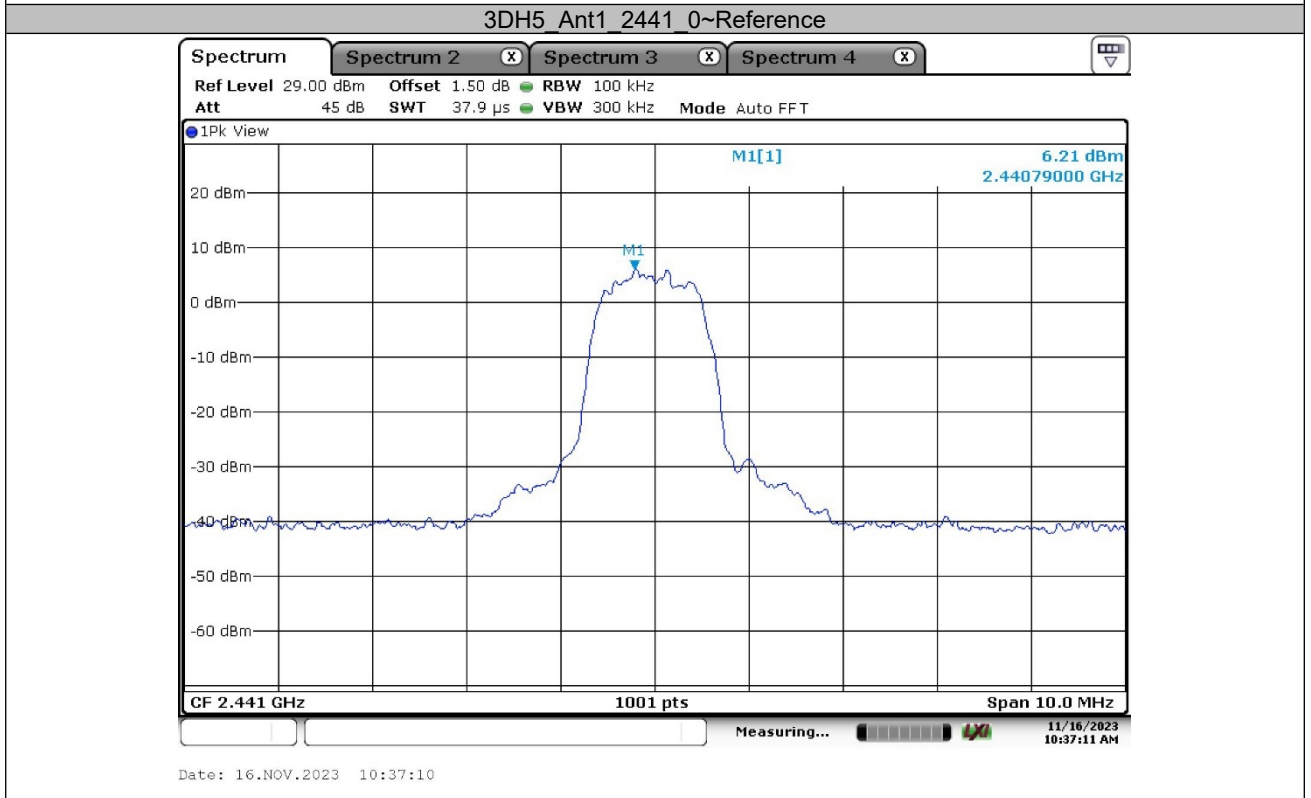
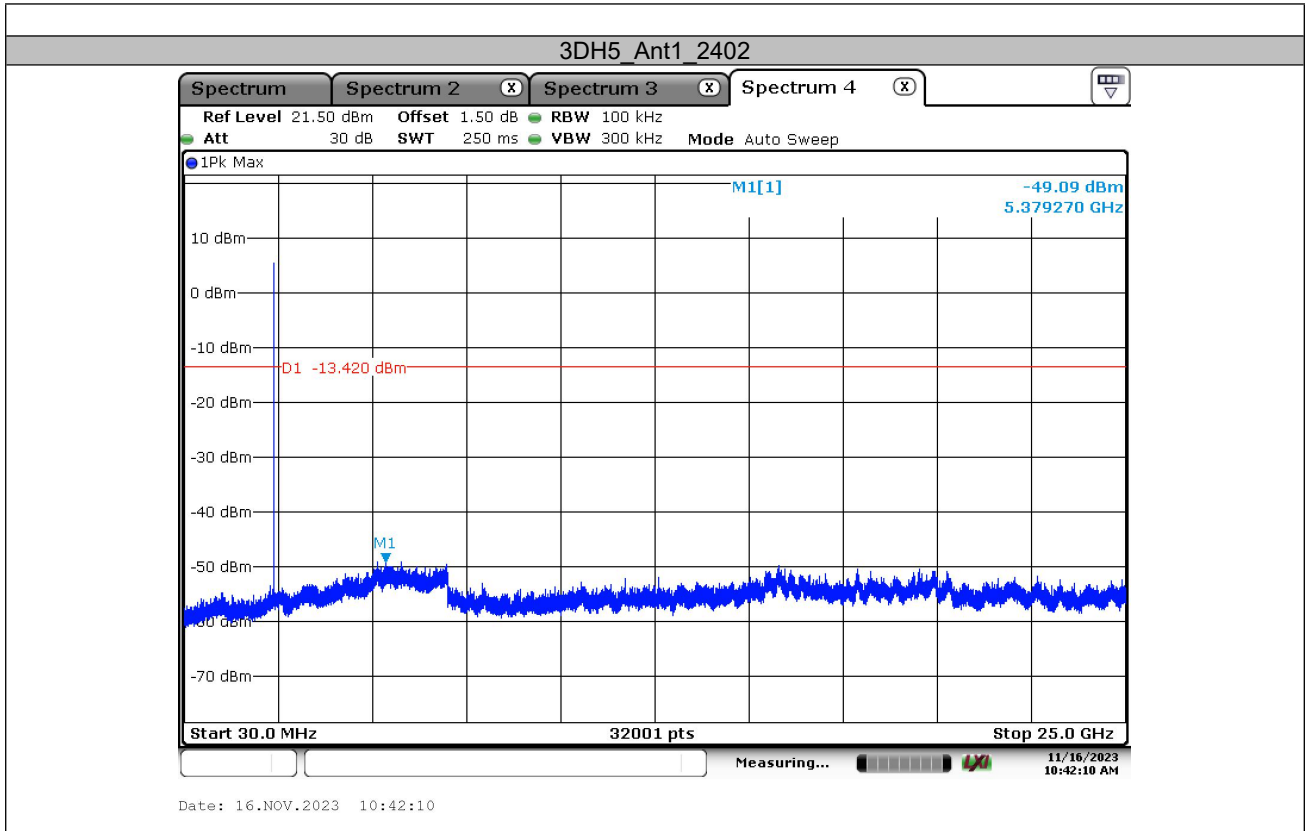
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	Reference	8.26	---	---	PASS
			30~25000	8.26	-49.22	≤-11.74	PASS
		2441	Reference	8.18	---	---	PASS
			30~25000	8.18	-49.21	≤-11.82	PASS
		2480	Reference	7.80	---	---	PASS
			30~25000	7.80	-49.27	≤-12.20	PASS
3DH5	Ant1	2402	Reference	6.58	---	---	PASS
			30~25000	6.58	-49.09	≤-13.42	PASS
		2441	Reference	6.21	---	---	PASS
			30~25000	6.21	-48.95	≤-13.79	PASS
		2480	Reference	5.69	---	---	PASS
			30~25000	5.69	-49.07	≤-14.31	PASS

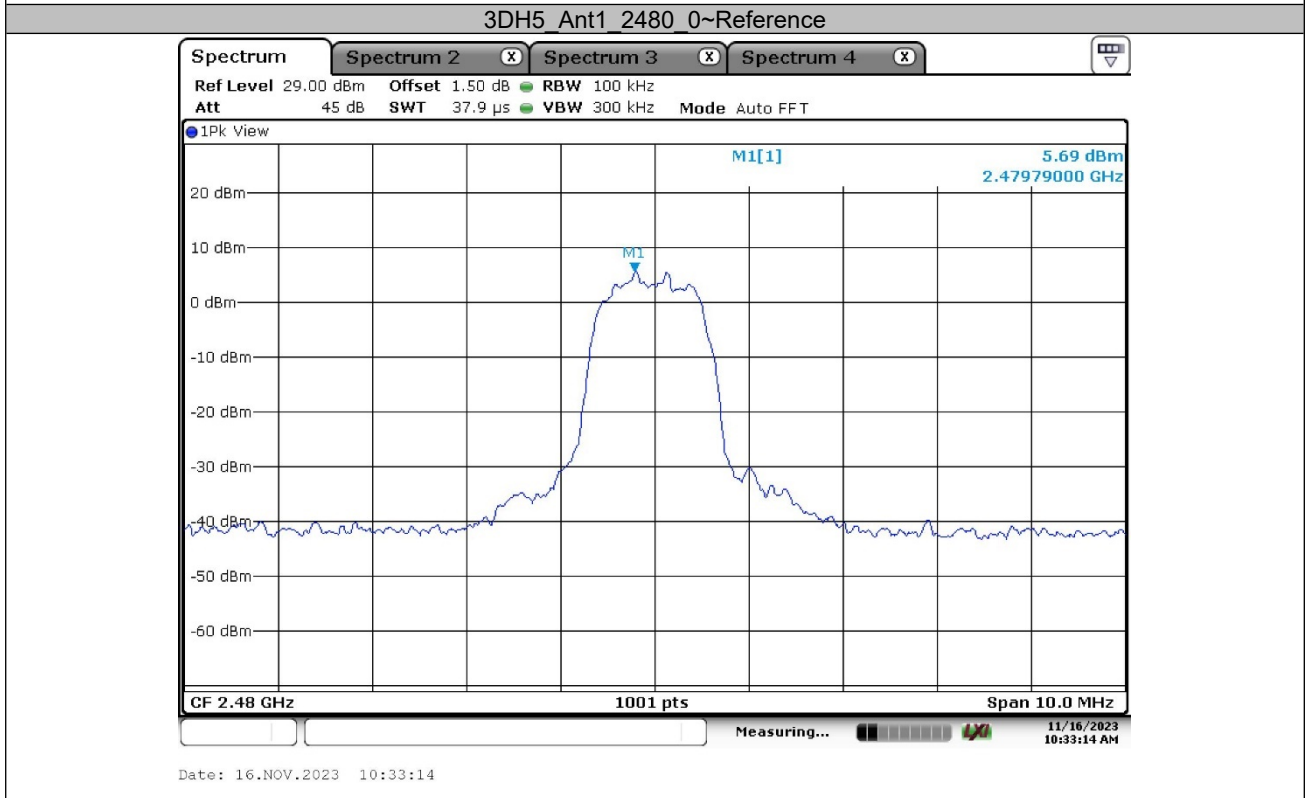
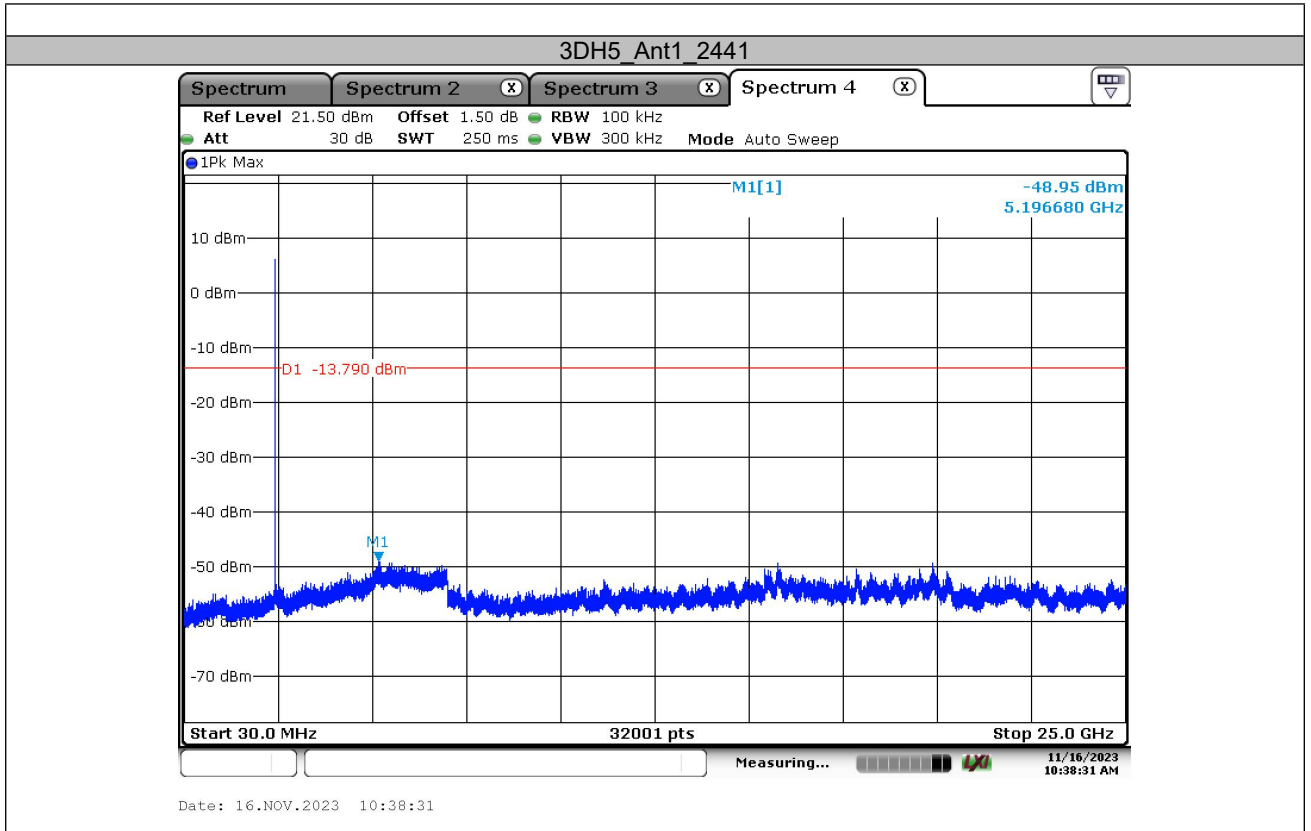


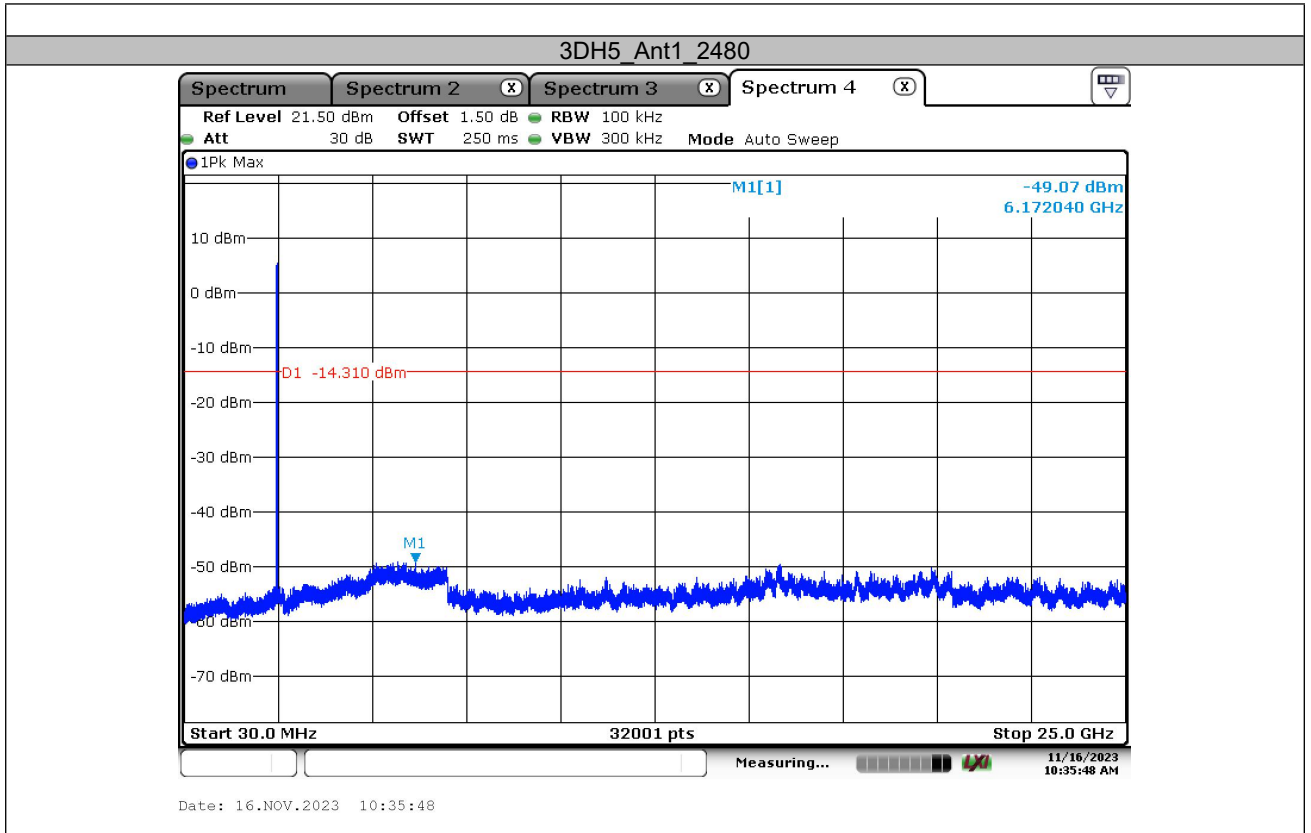






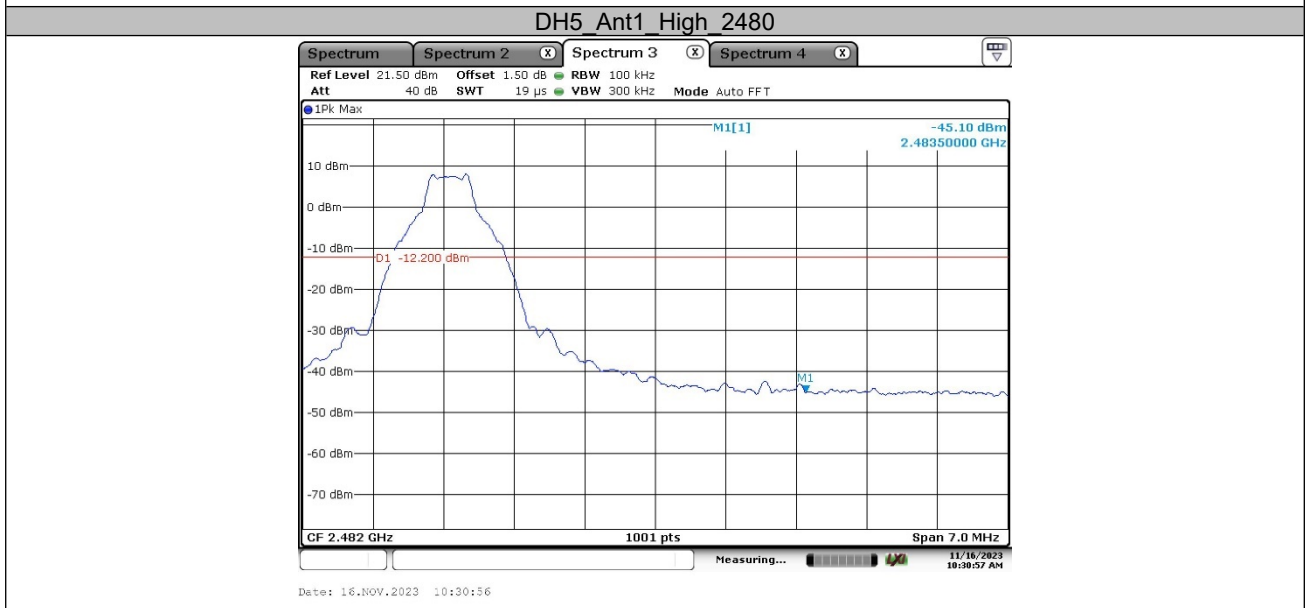
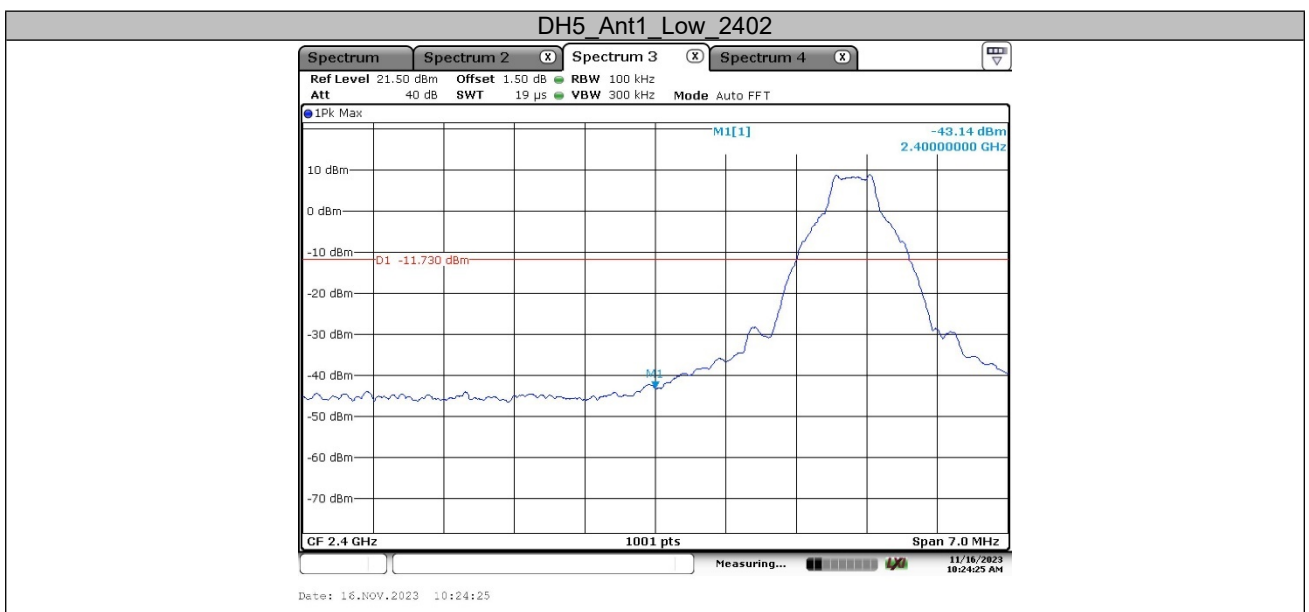


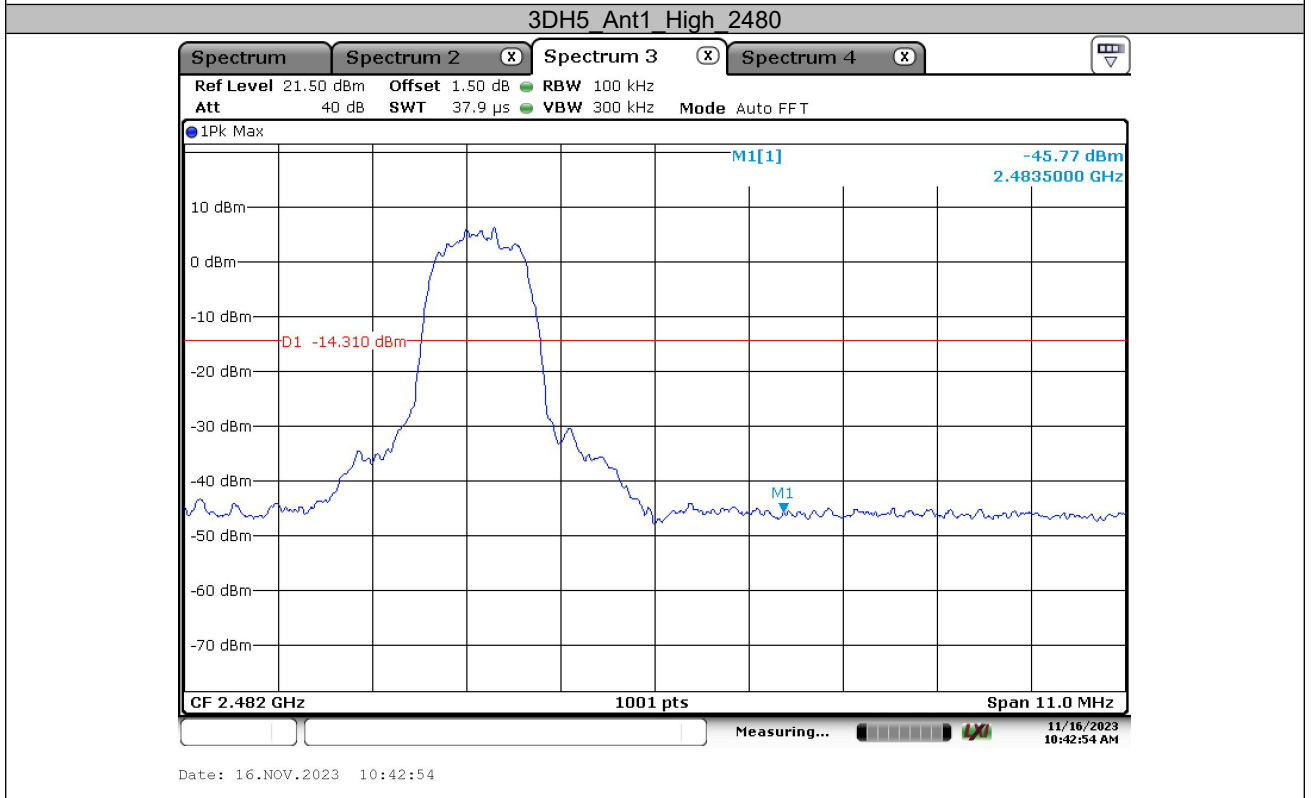
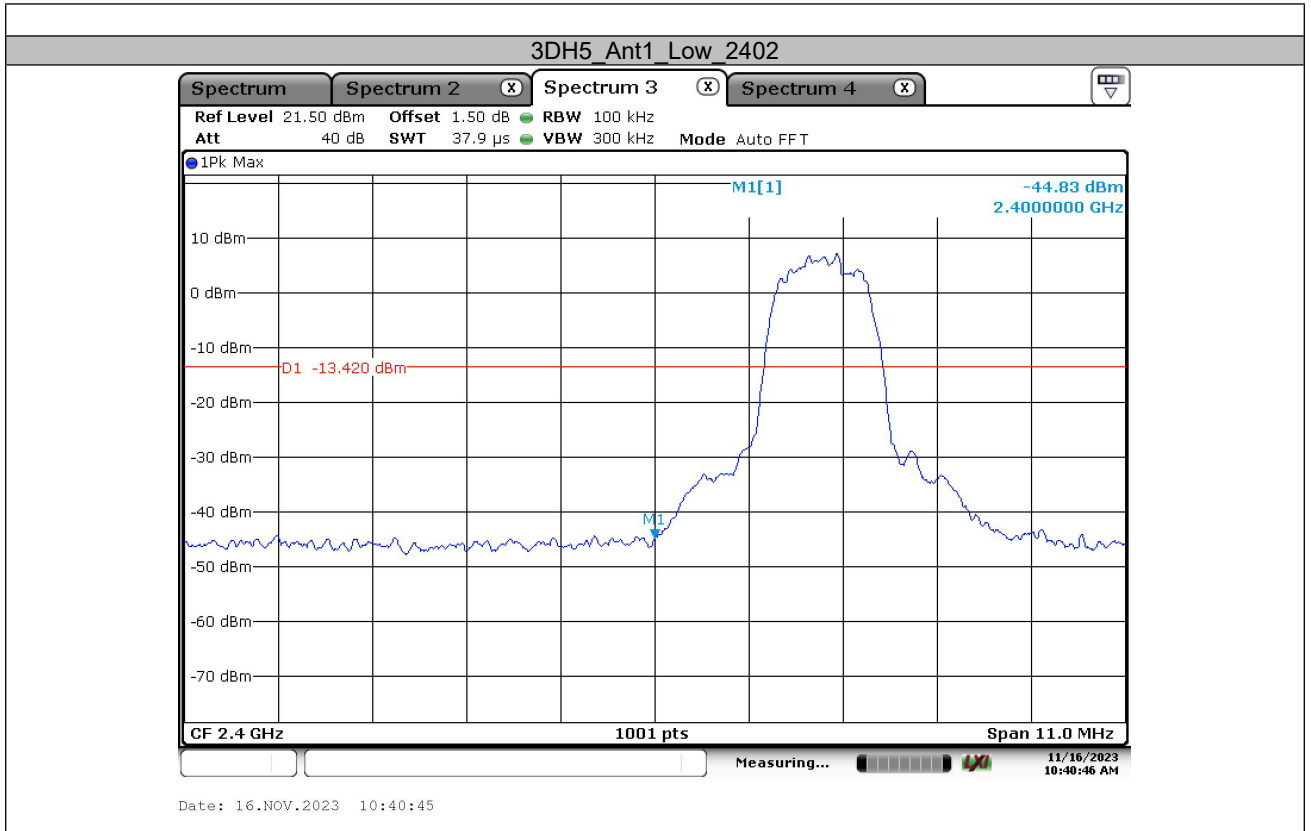


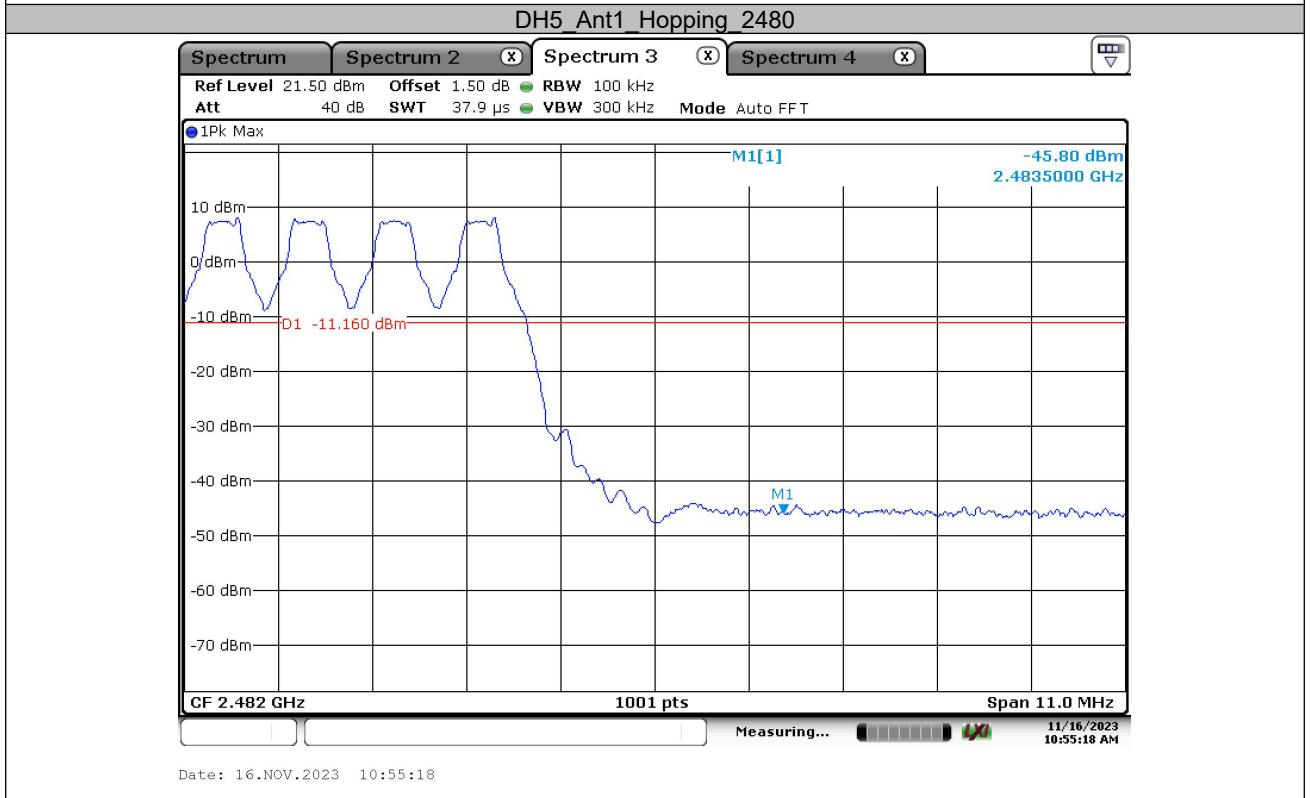
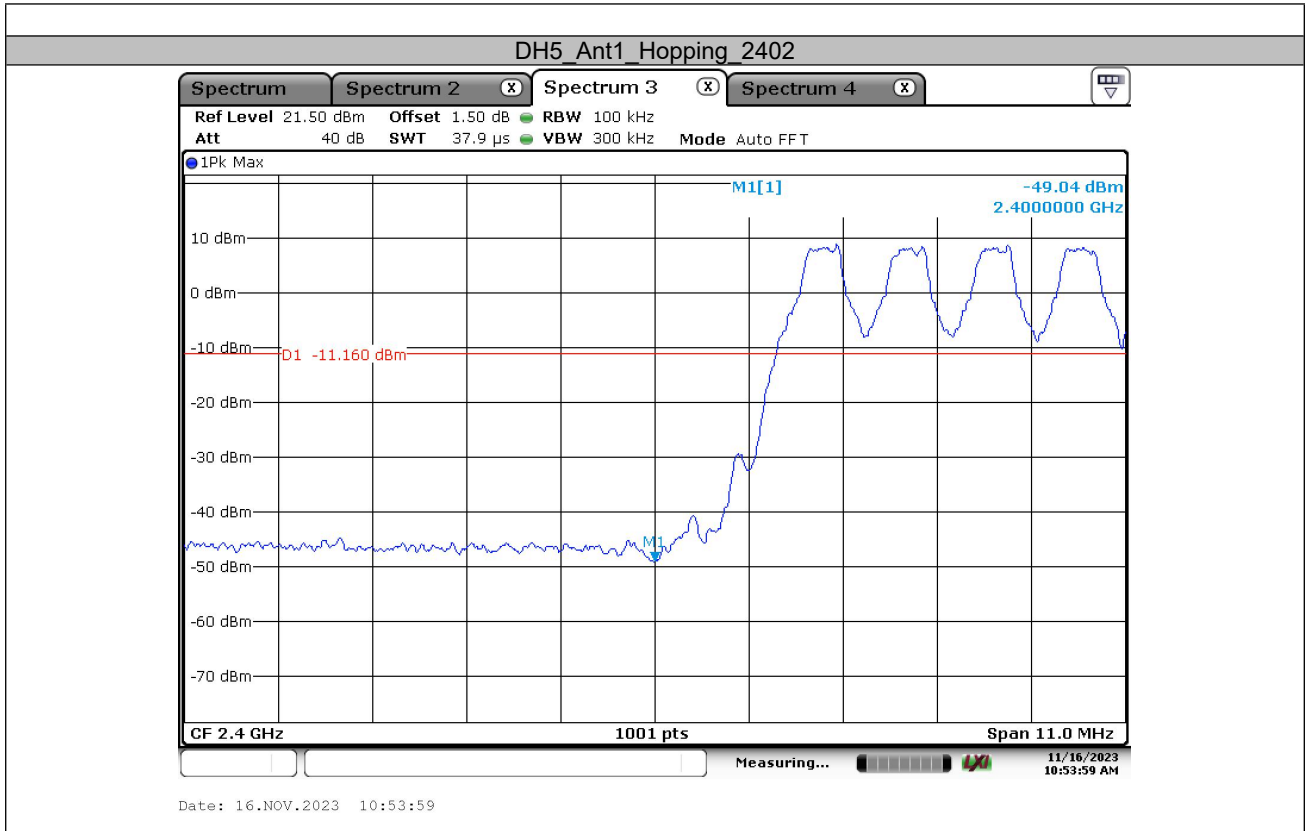


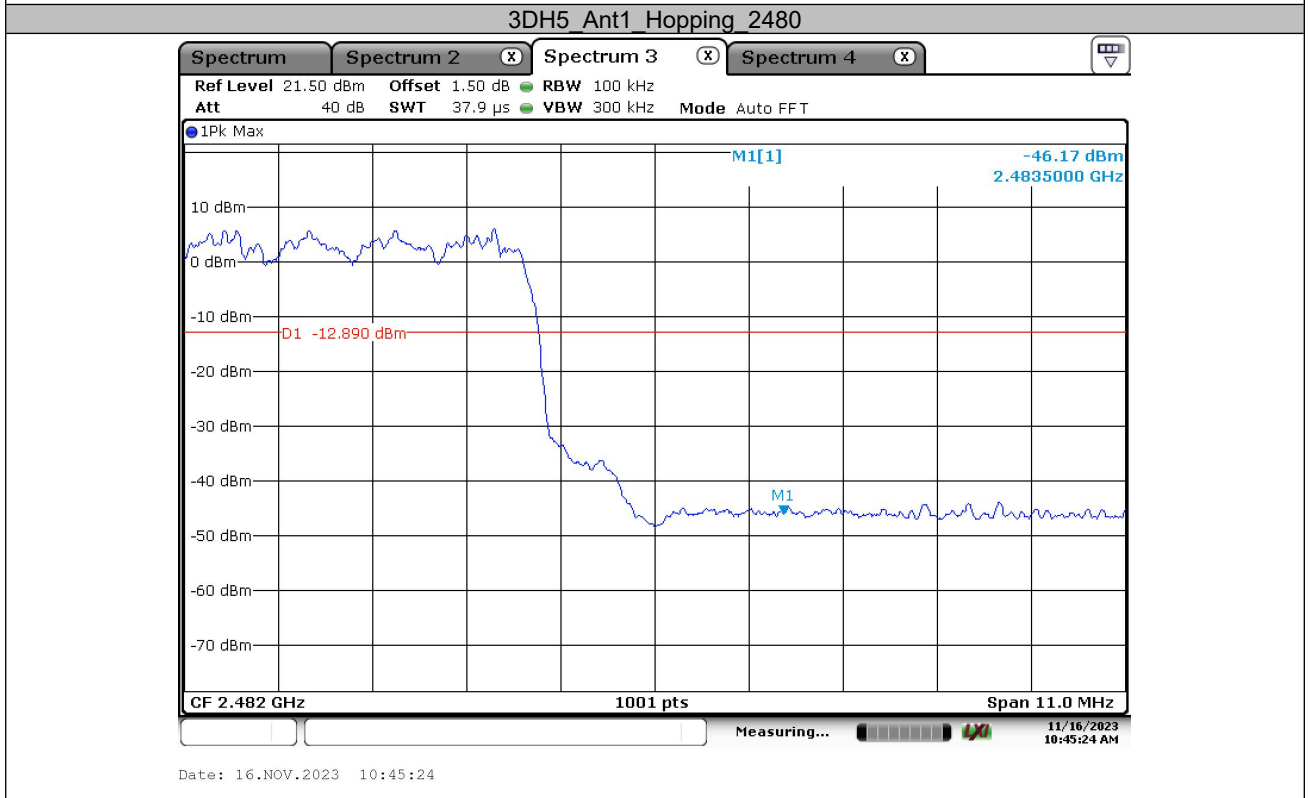
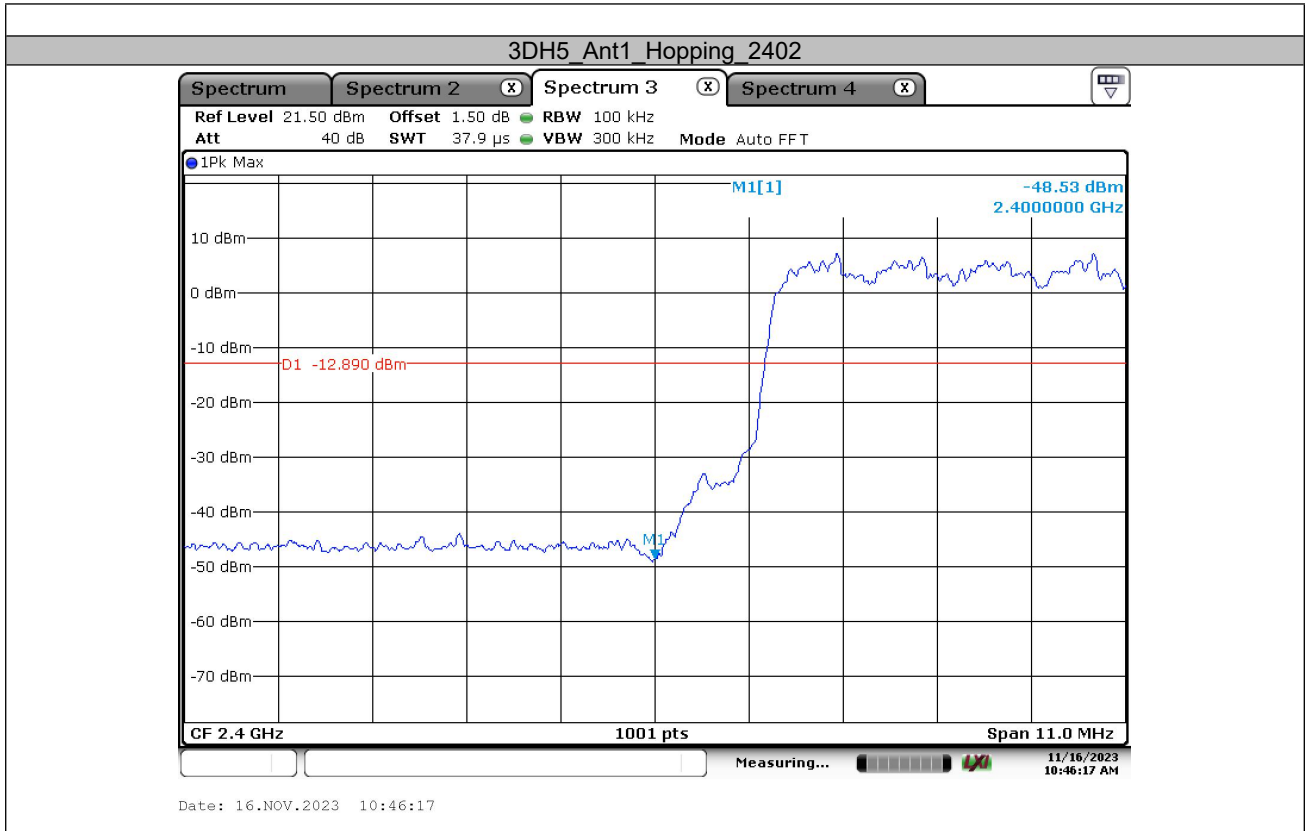
Band edge measurements

TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	8.27	-43.14	≤-11.73	PASS
DH5	Ant1	High	2480	7.80	-45.10	≤-12.20	PASS
3DH5	Ant1	Low	2402	6.58	-44.83	≤-13.42	PASS
3DH5	Ant1	High	2480	5.69	-45.77	≤-14.31	PASS
DH5	Ant1	Hopping	2402	8.84	-49.04	≤-11.16	PASS
DH5	Ant1	Hopping	2480	8.84	-45.80	≤-11.16	PASS
3DH5	Ant1	Hopping	2402	7.11	-48.53	≤-12.89	PASS
3DH5	Ant1	Hopping	2480	7.11	-46.17	≤-12.89	PASS









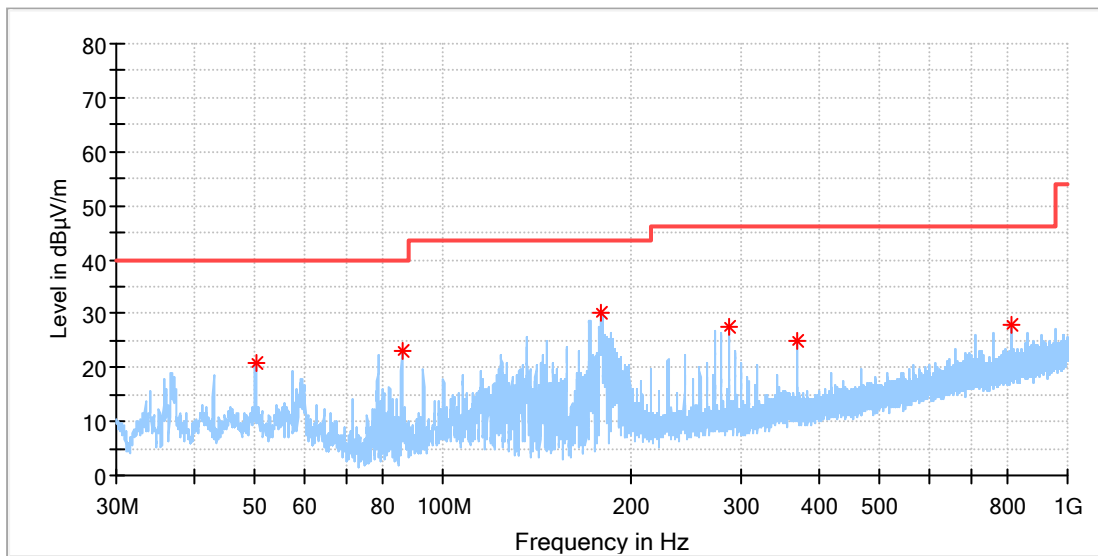
Appendix B.8: Test Results of Radiated Spurious Emissions

Note: 1. Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported. 2. This testing was carried out on different modulations, but only the worst case (GFSK) was presented in this report.

30MHz - 1GHz

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

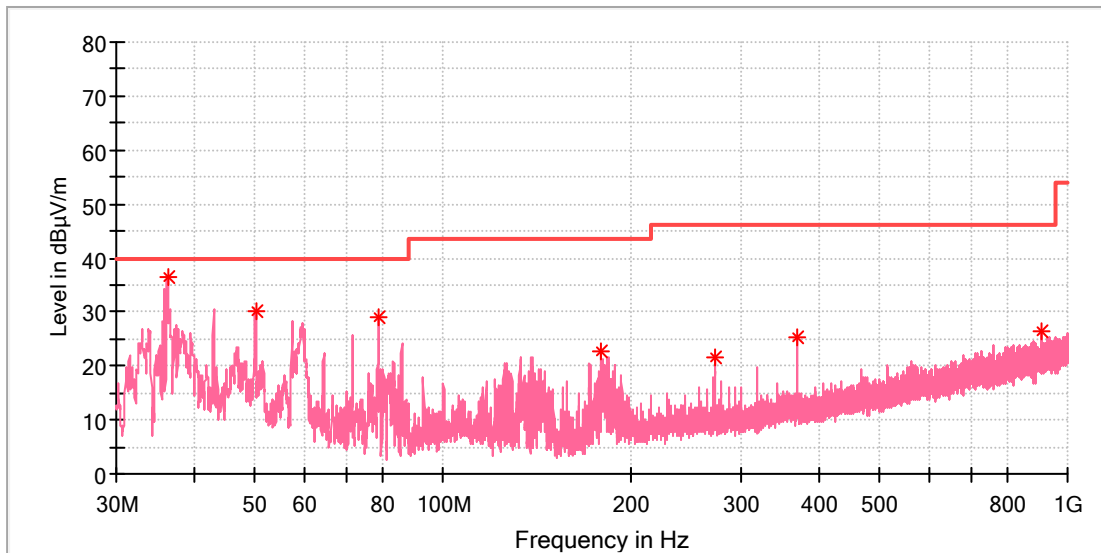


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
50.146154	20.98	40.00	19.02	100.0	H	222.0	-18.6
85.924231	23.18	40.00	16.82	100.0	H	222.0	-22.4
179.081539	30.08	43.50	13.42	100.0	H	334.0	-20.9
286.453077	27.71	46.00	18.29	100.0	H	62.0	-16.9
368.641923	25.05	46.00	20.95	100.0	H	87.0	-14.8
811.036539	27.87	46.00	18.13	100.0	H	5.0	-6.6

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	A003599668
Test Voltage::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

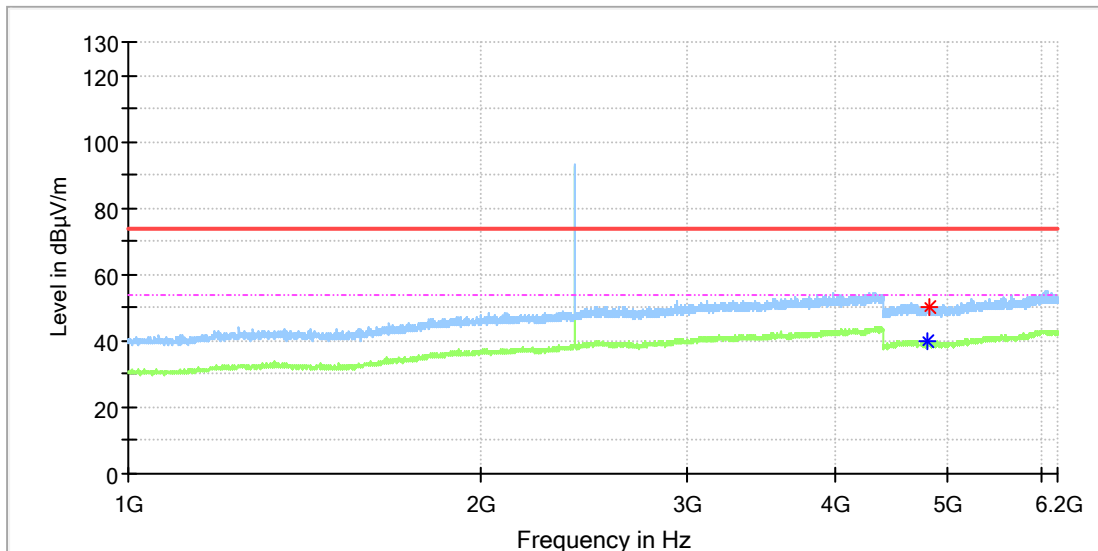
Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
36.267692	36.34	40.00	3.66	100.0	V	34.0	-21.7
50.146154	30.03	40.00	9.97	100.0	V	41.0	-18.6
78.798462	29.17	40.00	10.83	100.0	V	262.0	-23.7
179.118846	22.87	43.50	20.63	100.0	V	223.0	-20.9
272.201539	21.46	46.00	24.54	100.0	V	3.0	-17.2
368.641923	25.41	46.00	20.59	100.0	V	165.0	-14.8
907.215769	26.42	46.00	19.58	100.0	V	131.0	-5.3

1GHz - 18GHz

Note: The highest waveform in the figure is Bluetooth Fundamental.

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

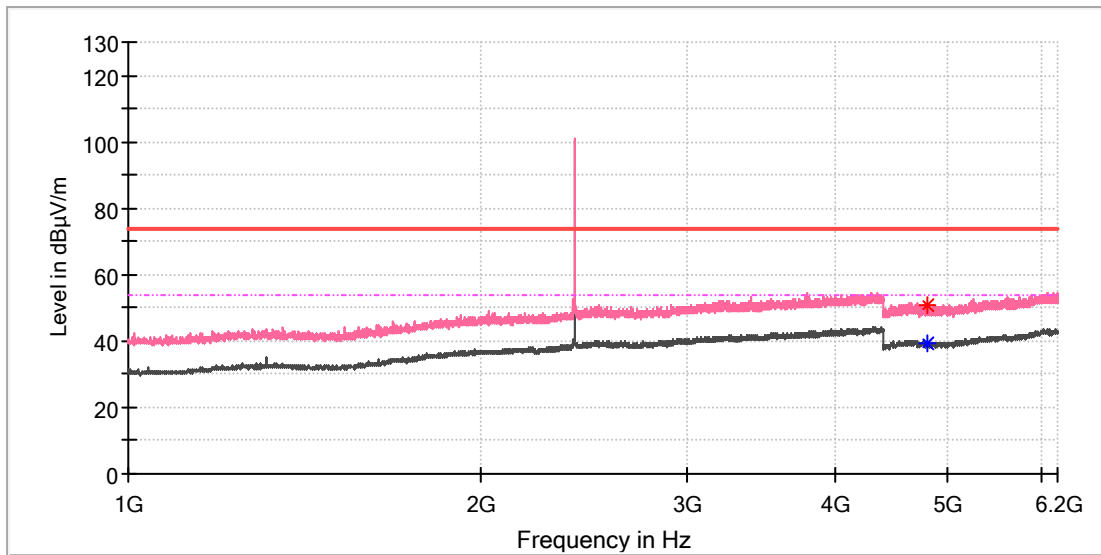


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4797.500000	---	39.78	54.00	14.22	150.0	H	309.0	11.8
4819.000000	50.46	---	74.00	23.54	150.0	H	103.0	11.8

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

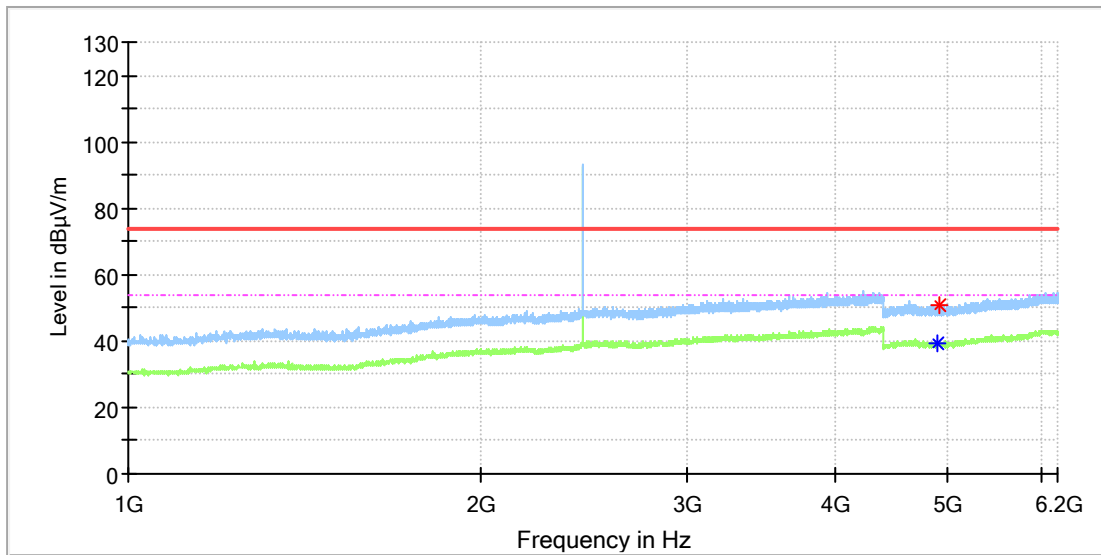


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4797.500000	50.84	---	74.00	23.16	150.0	V	109.0	11.8
4809.000000	---	39.41	54.00	14.59	150.0	V	275.0	11.8

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

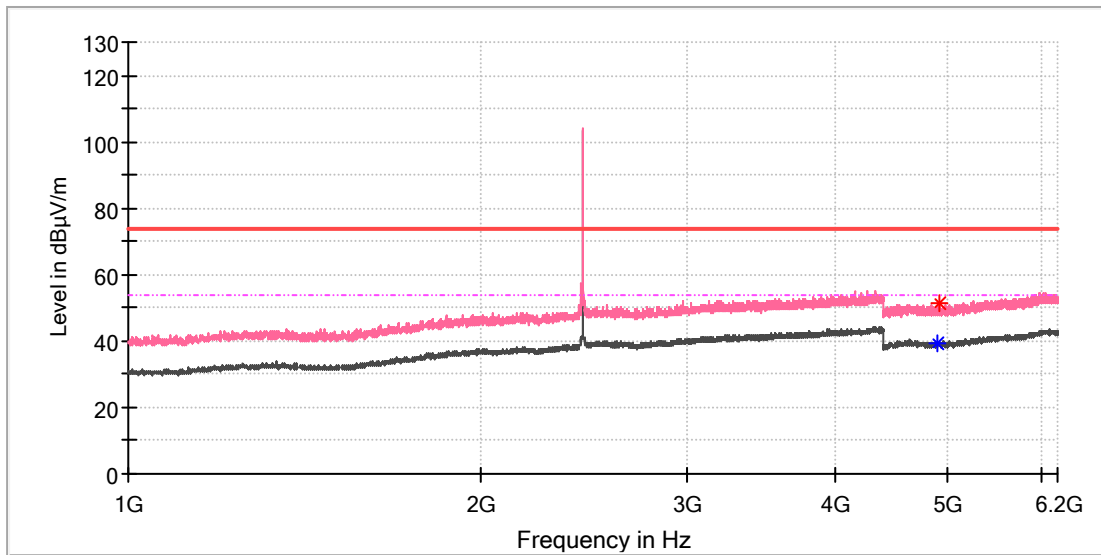


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4898.500000	---	39.38	54.00	14.62	150.0	H	49.0	11.8
4923.000000	51.06	---	74.00	22.94	150.0	H	62.0	11.8

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

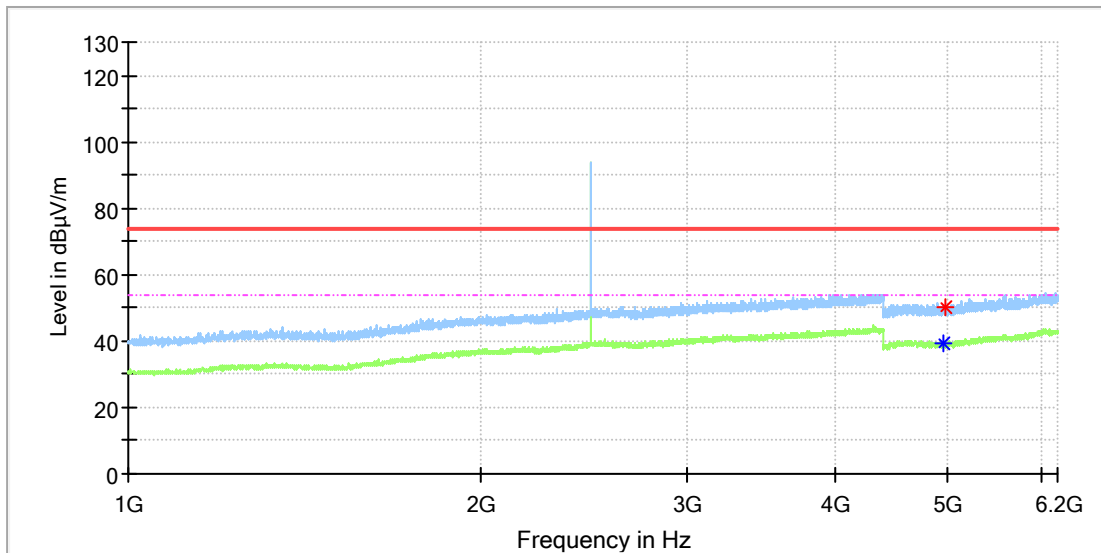


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4903.500000	---	39.49	54.00	14.51	150.0	V	112.0	11.8
4916.000000	51.58	---	74.00	22.42	150.0	V	54.0	11.8

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_High channel
Order No/Sample No:	A003599668
Test Voltage::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

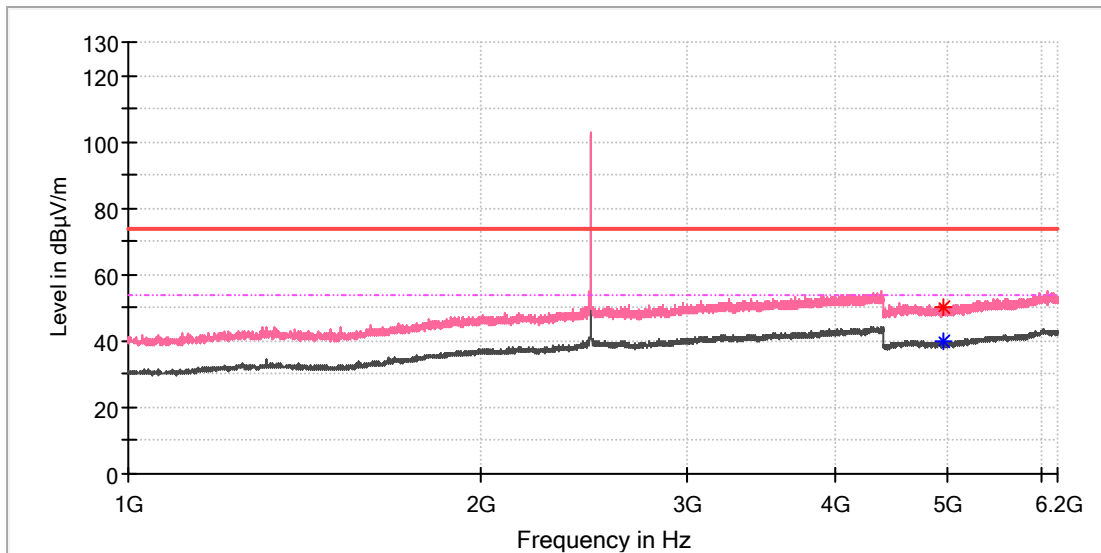


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4956.500000	---	39.39	54.00	14.61	150.0	H	160.0	11.8
4967.000000	50.48	---	74.00	23.52	150.0	H	91.0	11.8

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_High channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

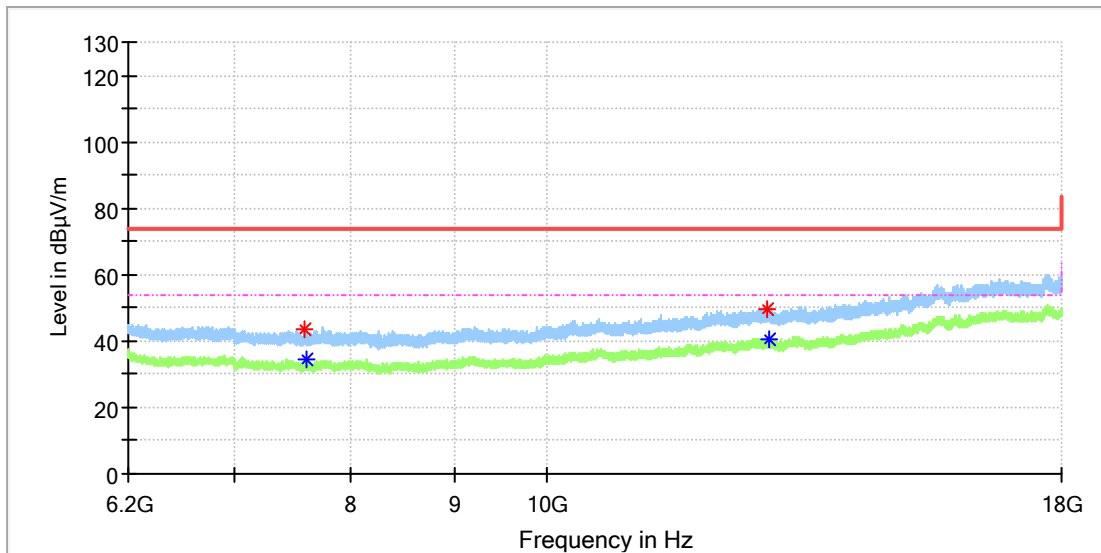


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
4959.500000	---	39.83	54.00	14.17	150.0	V	75.0	11.8
4963.000000	50.21	---	74.00	23.79	150.0	V	93.0	11.8

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

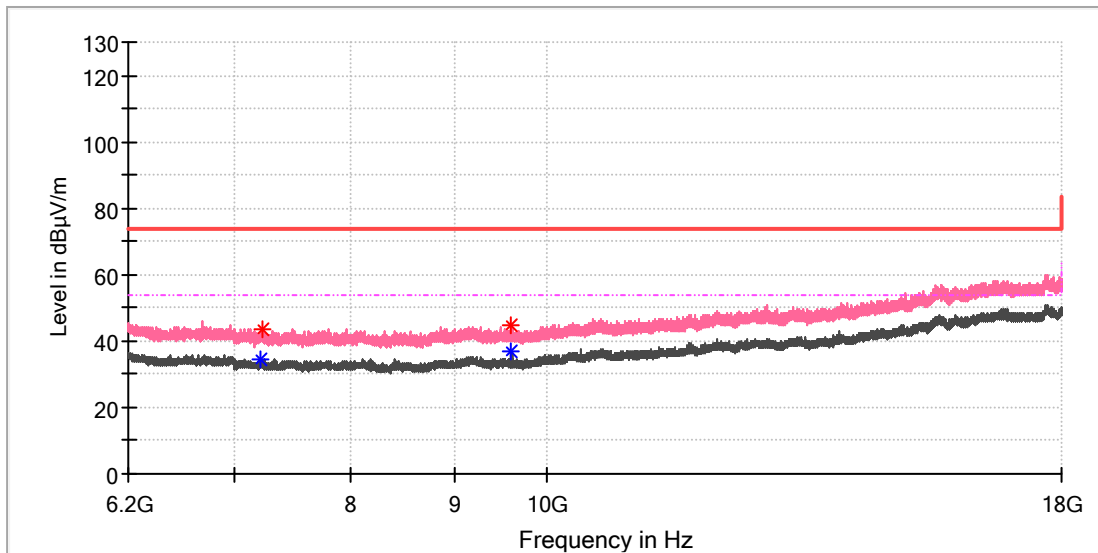


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7577.650000	43.60	---	74.00	30.40	150.0	H	68.0	8.7
7594.366667	---	34.33	54.00	19.67	150.0	H	0.0	8.7
12850.775000	49.77	---	74.00	24.23	150.0	H	116.0	15.4
12891.091667	---	40.69	54.00	13.31	150.0	H	45.0	15.5

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	A003599668
Test Voltage::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

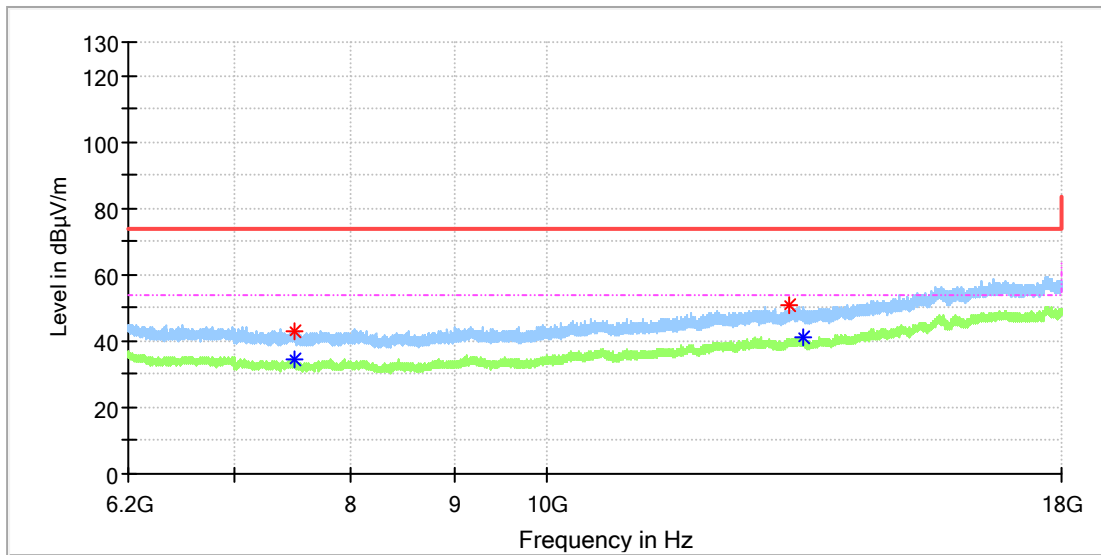


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7203.000000	---	34.46	54.00	19.54	150.0	V	248.0	8.8
7227.583333	43.59	---	74.00	30.41	150.0	V	37.0	8.7
9607.250000	44.66	---	74.00	29.34	150.0	V	260.0	10.4
9607.250000	---	37.02	54.00	16.98	150.0	V	260.0	10.4

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	A003599668
Test Voltage::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

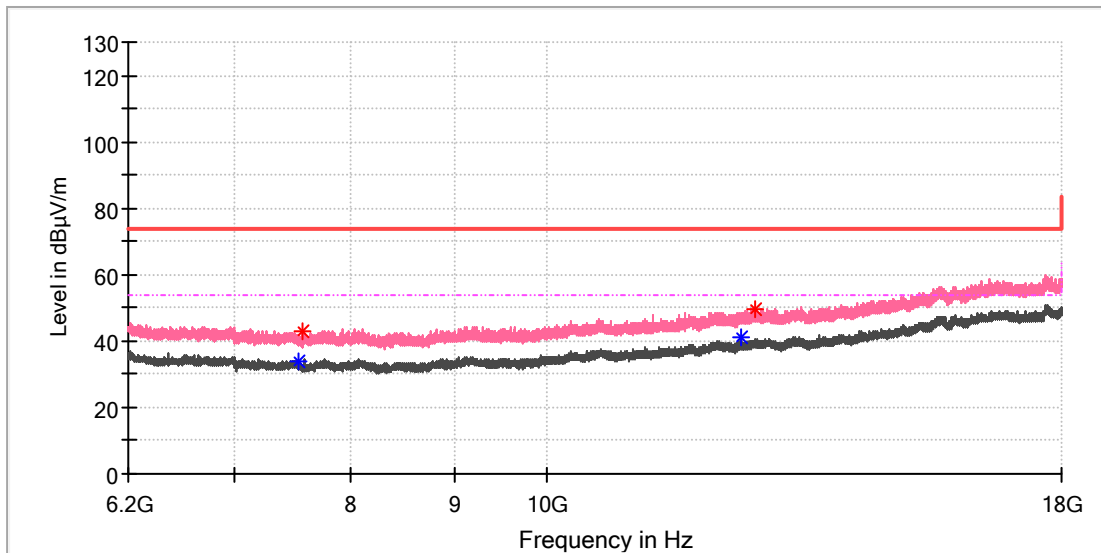


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7501.933333	---	34.48	54.00	19.52	150.0	H	237.0	8.7
7503.900000	43.13	---	74.00	30.87	150.0	H	263.0	8.7
13200.841667	50.73	---	74.00	23.27	150.0	H	131.0	15.5
13400.458333	---	41.04	54.00	12.96	150.0	H	275.0	15.6

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Mid channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

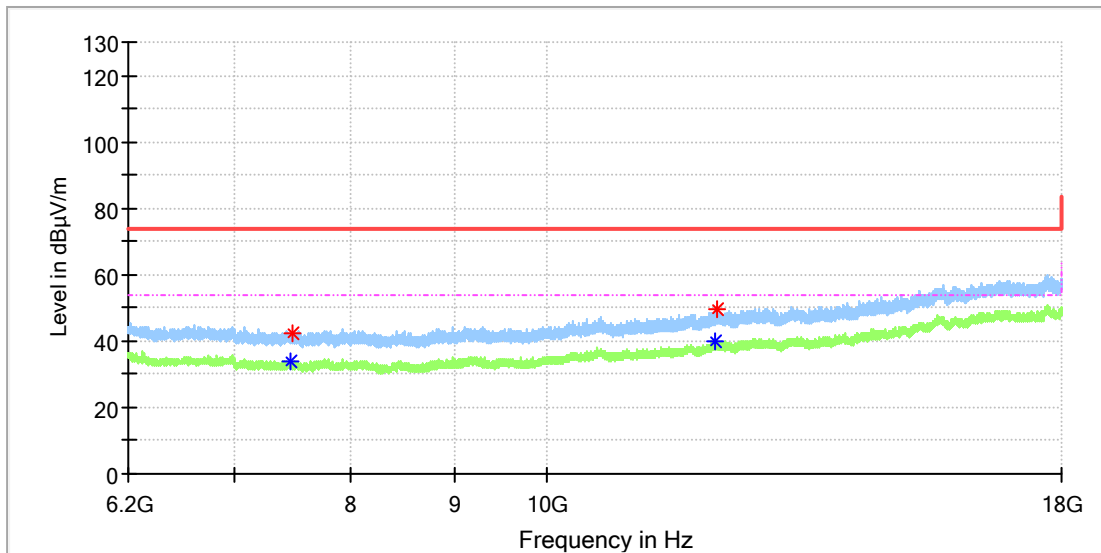


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7535.858333	---	34.09	54.00	19.91	150.0	V	49.0	8.7
7559.458333	42.78	---	74.00	31.22	150.0	V	173.0	8.7
12474.158333	---	40.90	54.00	13.10	150.0	V	136.0	14.6
12678.691667	49.84	---	74.00	24.16	150.0	V	73.0	15.1

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_High channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

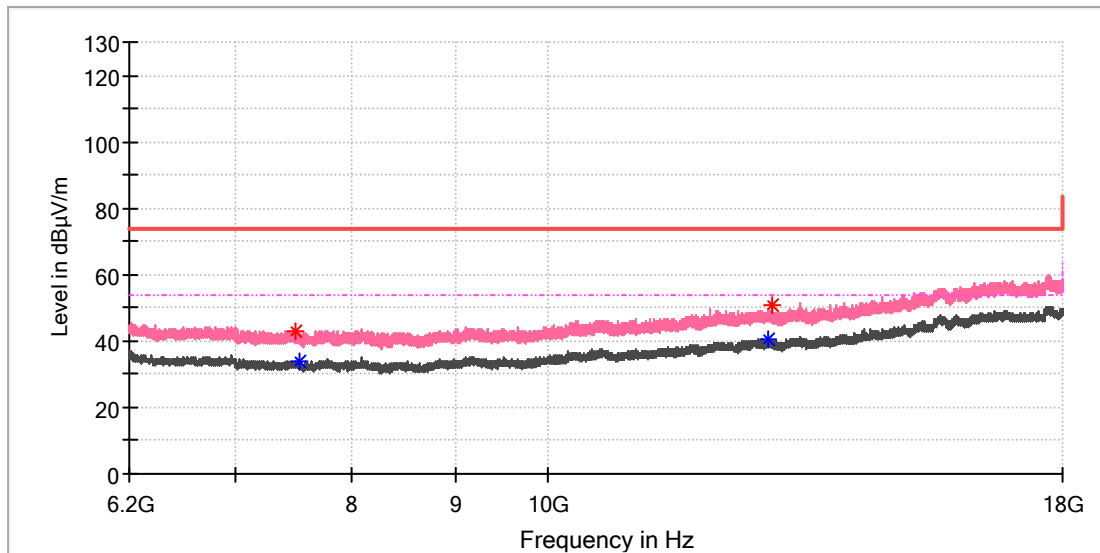


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7455.225000	---	33.93	54.00	20.07	150.0	H	260.0	8.5
7476.858333	42.41	---	74.00	31.59	150.0	H	123.0	8.6
12119.666667	---	40.02	54.00	13.98	150.0	H	337.0	14.3
12134.908333	49.50	---	74.00	24.50	150.0	H	174.0	14.3

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_High channel
Order No/Sample No:	A003599668
Test Voltage::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



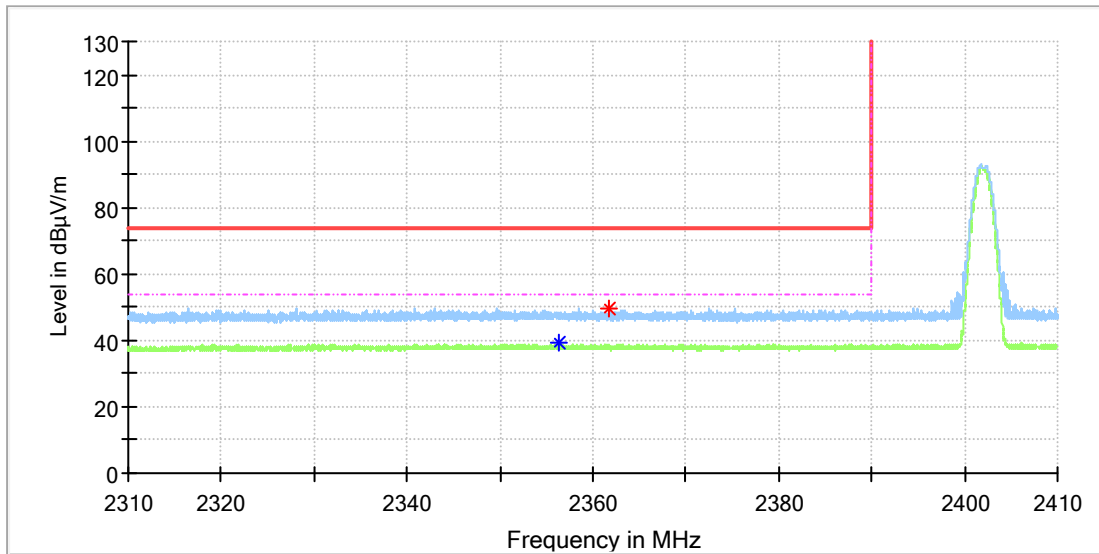
Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7493.575000	43.20	---	74.00	30.80	150.0	V	19.0	8.7
7535.858333	---	34.13	54.00	19.87	150.0	V	270.0	8.7
12845.858333	---	40.41	54.00	13.59	150.0	V	91.0	15.3
12918.133333	50.65	---	74.00	23.35	150.0	V	67.0	15.5

Appendix B.9: Test Results of Radiated Emissions in Restricted Bands

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Low channel
Order No./Sample No:	A003599668
Test Voltage::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

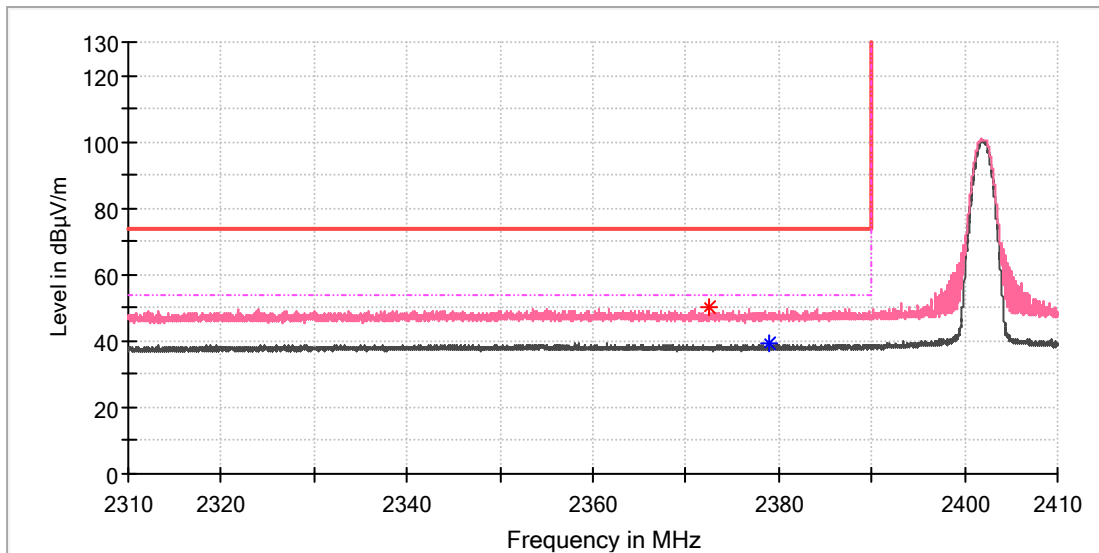


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2356.323530	---	39.13	54.00	14.87	150.0	H	251.0	6.9
2361.750000	49.84	---	74.00	24.16	150.0	H	165.0	6.9

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_Low channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

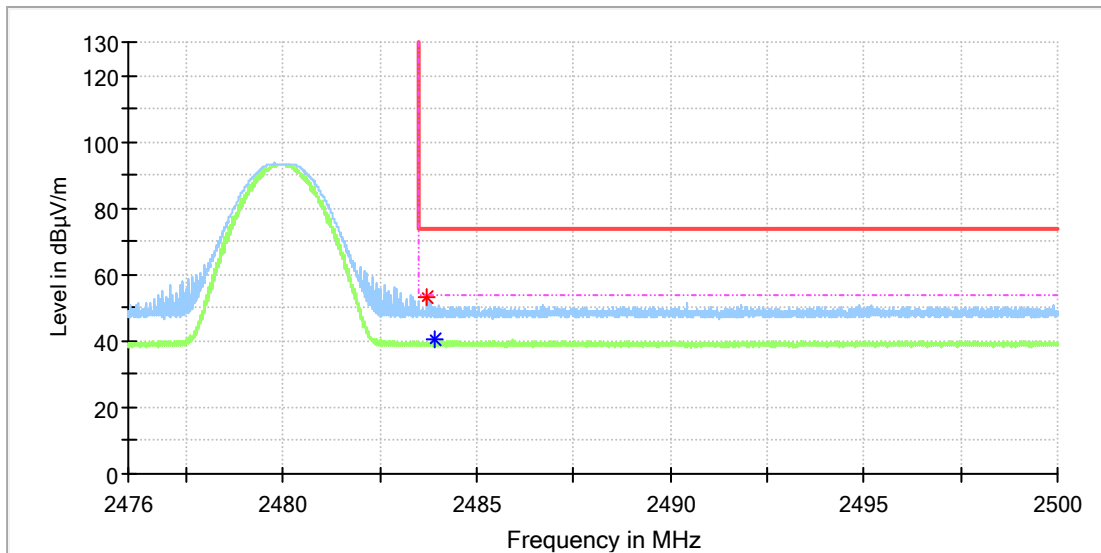


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2372.426471	49.94	---	74.00	24.06	150.0	V	53.0	6.9
2379.000000	---	39.33	54.00	14.67	150.0	V	242.0	7.0

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_High channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin

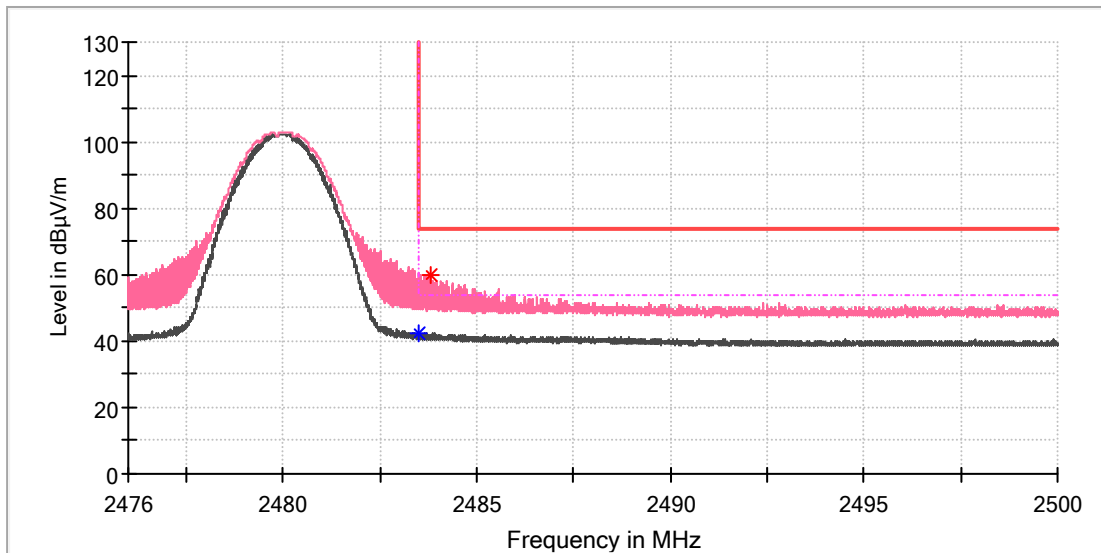


Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.725882	53.47	---	74.00	20.53	150.0	H	74.0	7.4
2483.891765	---	40.46	54.00	13.54	150.0	H	149.0	7.4

EUT Information

EUT Name:	Bluetooth Module
Model:	QCC5181
Test Mode:	BR_DH5_High channel
Order No/Sample No:	A003599668
Test Voltage:::	DC 5V
Remark:	Temp 23 Humi:56%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2483.514118	---	42.35	54.00	11.65	150.0	V	284.0	7.4
2483.810588	59.96	---	74.00	14.04	150.0	V	299.0	7.4