

<b>Prüfbericht-Nr.:</b> Test report no.:	<b>CN25E11U 001</b>	<b>Auftrags-Nr.:</b> Order no.:	326066292	Seite 1 von 39 Page 1 of 39
<b>Kunden-Referenz-Nr.:</b> Client reference no.:	1288983	<b>Auftragsdatum:</b> Order date:	2024-12-02	
<b>Auftraggeber:</b> Client:	<b>IKEA of Sweden AB</b> Box 702, SE-343 81 Älmhult, Sweden			
<b>Prüfgegenstand:</b> Test item:	Matter Motion sensor			
<b>Bezeichnung / Typ-Nr.:</b> Identification / Type no.:	E2494			
<b>Auftrags-Inhalt:</b> Order content:	Test Report			
<b>Prüfgrundlage:</b> Test specification:	FCC CFR47 Part 15, Subpart C Section 15.247 RSS-Gen Issue 5, Amendment 2, February 2021 RSS-247 Issue 3, August 2023 ANSI C63.10: 2013			
<b>Wareneingangsdatum:</b> Date of sample receipt:	2024-12-09	Refer to photo document.		
<b>Prüfmuster-Nr.:</b> Test sample no.:	A003884628-010~011			
<b>Prüfzeitraum:</b> Testing period:	2025-01-04 ~ 2025-01-07			
<b>Ort der Prüfung:</b> Place of testing:	TÜV Rheinland (Shanghai) Co., Ltd.			
<b>Prüflaboratorium:</b> Testing laboratory:	TÜV Rheinland (Shanghai) Co., Ltd.			
<b>Prüfergebnis*:</b> Test result*:	Pass			
<b>geprüft von:</b> tested by:	<input checked="" type="checkbox"/> <u>Hongfei Wu</u>	<b>genehmigt von:</b> authorized by:	<input checked="" type="checkbox"/> <u>Yanli Fan</u>	
<b>Datum:</b> Date:	2025-07-15 <small>Signed by: Hongfei Wu</small>	<b>Datum:</b> Date:	2025-07-15 <small>Signed by: Yanli Fan</small>	
<b>Stellung / Position:</b>	Sachverständige(r)/Expert	<b>Stellung / Position:</b>	Sachverständige(r)/Expert	
<b>Sonstiges / Other:</b>	FCC ID: FHO-E2494 IC: 10912A-E2494 HVIN: E2494 PMN: MYGGSPRAY			
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> 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
<b>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.</b> <i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

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**Anmerkungen**  
*Remarks*

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<p>4</p>	<p>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 115:2023, 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.</p> <p><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 115:2023, 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></p>

## TEST SUMMARY

**5.1.1 ANTENNA REQUIREMENT***RESULT: Pass***5.1.2 6dB & 99% BANDWIDTH***RESULT: Pass***5.1.3 OUTPUT POWER***RESULT: Pass***5.1.4 POWER SPECTRAL DENSITY***RESULT: Pass***5.1.5 CONDUCTED BAND EDGE AND OUT-OF BAND EMISSIONS***RESULT: Pass***5.2.1 CONDUCTED EMISSION***RESULT: N/A***5.3.1 RADIATED BAND-EDGE***RESULT: Pass***5.3.2 RADIATED SPURIOUS EMISSION***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

## 2. Test Sites

### 2.1 Test Facilities

TÜV Rheinland (Shanghai) Co., Ltd.  
Workshop14, North Half of Workshop 10 and Workshop 16, Pingqian (Taicang) Modern Industrial Park, No.525, Yuewang Lingang South Road, Shaxi, Taicang, Jiangsu, 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.

The Innovation, Science and Economic Development Canada has reviewed the technical characteristics of the radiated and conducted emission facility, and has found these test facilities to be in compliance. The description of the test facility is listed under chambers filing number 33038.

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

Equip.	Description	Model	Manufacturer	Due Date DD.MM.YYYY
G1811378	3m semi-anechoic chamber	SAC3	Frankonia	03.12.2026
G1811391	EMI test receiver	ESCI	Rohde & Schwarz	17.10.2025
G1811425	Bilog antenna	CBL 6112D	Teseq	20.04.2026
G1825371	Preamplifier	EMC051845SE	Taiwan EMCI	24.07.2025
G1822694	Double ridged broadband horn antenna	BBHA 9120 D	Schwarzbeck	24.03.2026
G1825372	Preamplifier	EMC184045SE	Taiwan EMCI	24.07.2025
G1831065	Broadband horn antenna	BBHA 9170	Schwarzbeck	18.06.2028
G1822702	Spectrum analyser	FSV40	Rohde & Schwarz	15.07.2025
9053477	OSP	OSP-B157W8	Rohde & Schwarz	10.12.2025
9053474	Signal generator	SMB100B (6 GHz)	Rohde & Schwarz	10.12.2025
9053476	Vector Signal generator	SMW200A	Rohde & Schwarz	10.12.2025
9047770	Wireless connectivity tester	CMW270	Rohde & Schwarz	23.08.2025
software				
	RF measurement software	WMS32-WB (11.40.00)	Rohde & Schwarz	NA
	EMI measurement software	EMC32-MEB (10.60.20)	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 Matter Motion sensor which supports Bluetooth, Zigbee and Thread.

The aim of this report is to evaluate RF character of BLE of the EUT.

#### 3.2 Ratings and System Details

**Table 3: Technical Specification of EUT**

General Description of EUT	
Product Name:	Matter Motion sensor
Model No.:	E2494
Operation Voltage:	DC 3V (2*AAA battery)
RF Technical:	1) BLE 2) Zigbee 3) Thread
Technical Specification of BLE	
Frequency Range:	2402~2480MHz
Modulation Type:	GFSK
Data Rate:	1Mbps
Antenna Type:	PCB Antenna
Antenna Gain:	0.61 dBi (declared by client)

**Table 4: Operation Channel List**

RF Channel	Frequency [MHz]						
<b>00</b>	<b>2402</b>	10	2422	20	2442	30	2462
01	2404	11	2424	21	2444	31	2464
02	2406	12	2426	22	2446	32	2466
03	2408	13	2428	23	2448	33	2468
04	2410	14	2430	24	2450	34	2470
05	2412	15	2432	25	2452	35	2472
06	2414	16	2434	26	2454	36	2474
07	2416	17	2436	27	2456	37	2476
08	2418	18	2438	28	2458	38	2478
09	2420	<b>19</b>	<b>2440</b>	29	2460	<b>39</b>	<b>2480</b>

### 3.3 Independent Operation Modes

Test frequencies are lowest channel: 2402 MHz, middle channel: 2440 MHz and highest channel: 2480 MHz

The basic operation modes are:

A. BLE transmitting mode

### 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: sscm 5.13.1

**Table 5: Power parameter value**

Mode	Power Parameter Setting Value
BLE	4 dBm

### 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 internal PCB antenna, the directional gain of antenna is 0.61 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

#### RSS-Gen 6.4 – External Control

**Requirement:** The device shall not have any external controls accessible to the user that enable it to be adjusted, selected or programmed to operate in violation of the regulatory requirements, including RSS-Gen and the applicable RSSs

**Results:** The device does not have any transmitter external controls accessible to the user that can be adjusted and operated in violation of the limits of this standard.

**Verdict:** PASS

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Page 13 of 39**RSS-Gen 6.8 – Antenna Requirement**

Requirement: When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

Results:

a) Antenna Type:	PCB Antenna
b) Manufacture:	N/A
c) Model No.:	N/A
d) Gain with reference to an isotropic radiator:	0.61 dBi

Verdict: **PASS**

**5.1.2 6dB & 99% Bandwidth****RESULT:****Pass**

Date of testing : 2025-01-07  
Ambient temperature : 24.2°C  
Relative humidity : 59.5%  
Atmospheric pressure : 101kPa  
Test requirement : FCC Part 15.247(a)(2)  
RSS-247 Issue 3, August 2023, Clause 5.2(a)  
Test procedure : ANSI C63.10: 2013  
Test voltage : DC 3V  
Test modes applied : A

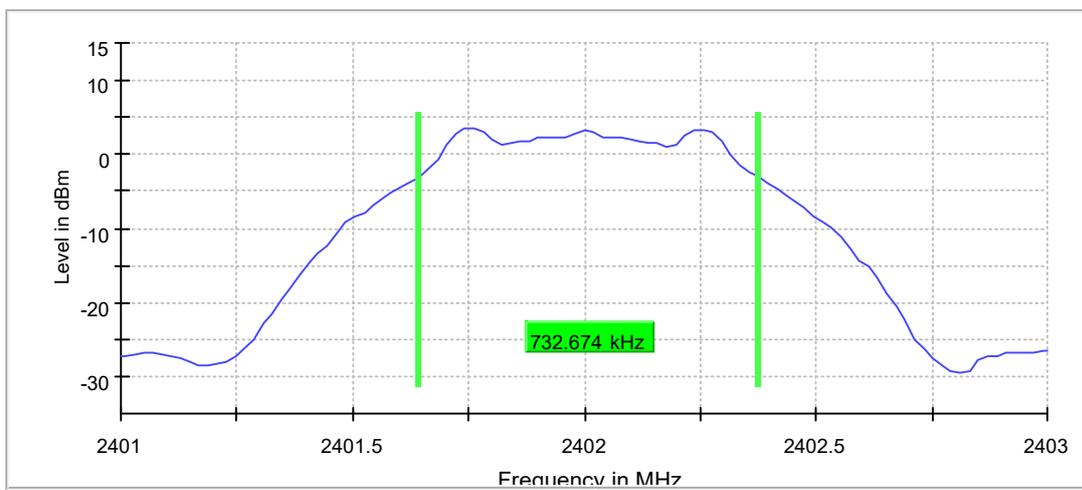
**6dB Bandwidth, 2402MHz**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	0.732674	0.500000	---	2401.643564	2402.376238

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2402.000000	3.7	PASS

6 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	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweeptime	18.938 µs	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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	14 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.32 dB	0.50 dB

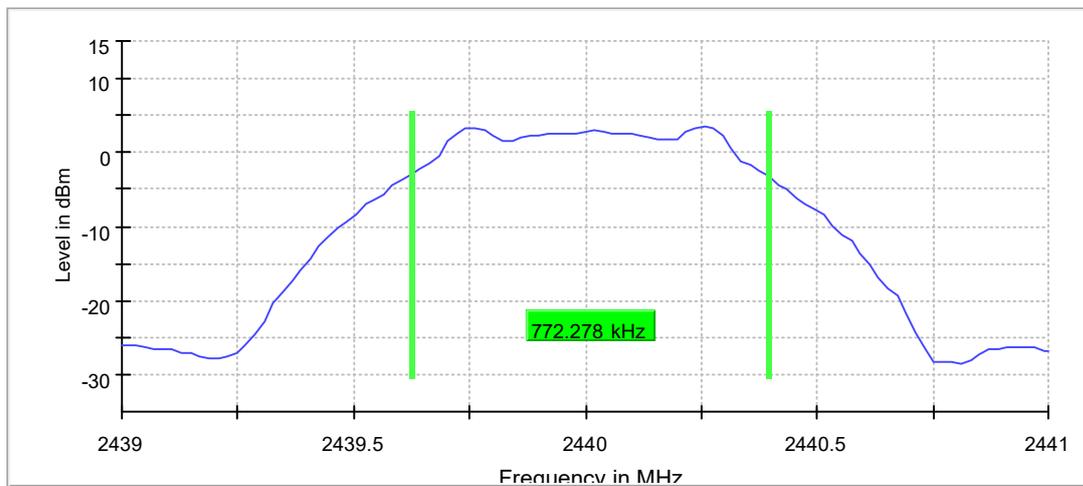
**6dB Bandwidth, 2440MHz**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	0.772278	0.500000	---	2439.623762	2440.396040

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2440.000000	3.5	PASS

6 dB Bandwidth


**Measurement**

Setting	Instrument Value	Target Value
Start Frequency	2.43900 GHz	2.43900 GHz
Stop Frequency	2.44100 GHz	2.44100 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweeptime	18.938 µs	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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.45 dB	0.50 dB

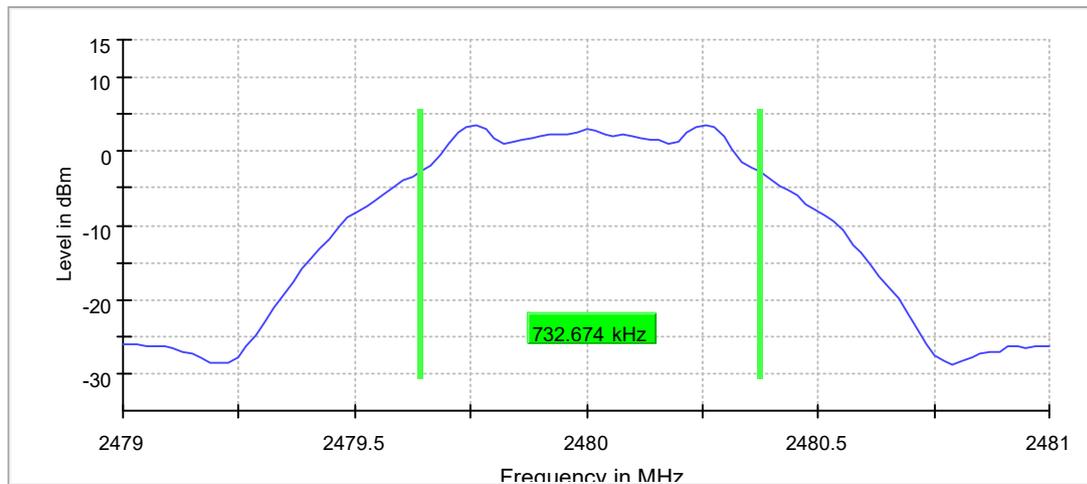
**6dB Bandwidth, 2480MHz**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	0.732674	0.500000	---	2479.643564	2480.376238

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

DUT Frequency (MHz)	Max Level (dBm)	Result
2480.000000	3.5	PASS

6 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	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
Sweptime	18.938 µs	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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	18 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.04 dB	0.50 dB

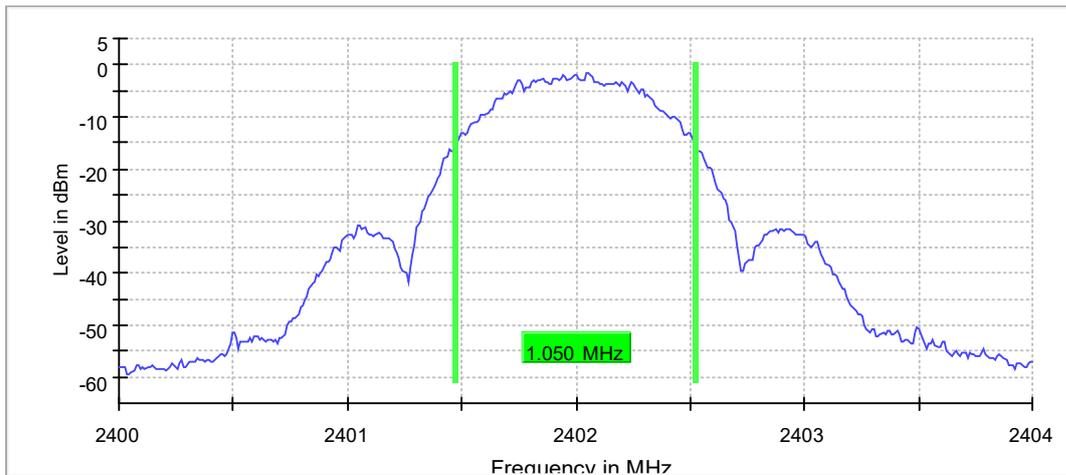
**99% Occupied Channel Bandwidth, 2402MHz**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2402.000000	1.050000	---	---	2401.475000	2402.525000

(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	2.40000 GHz	2.40000 GHz
Stop Frequency	2.40400 GHz	2.40400 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	37 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.15 dB	0.30 dB

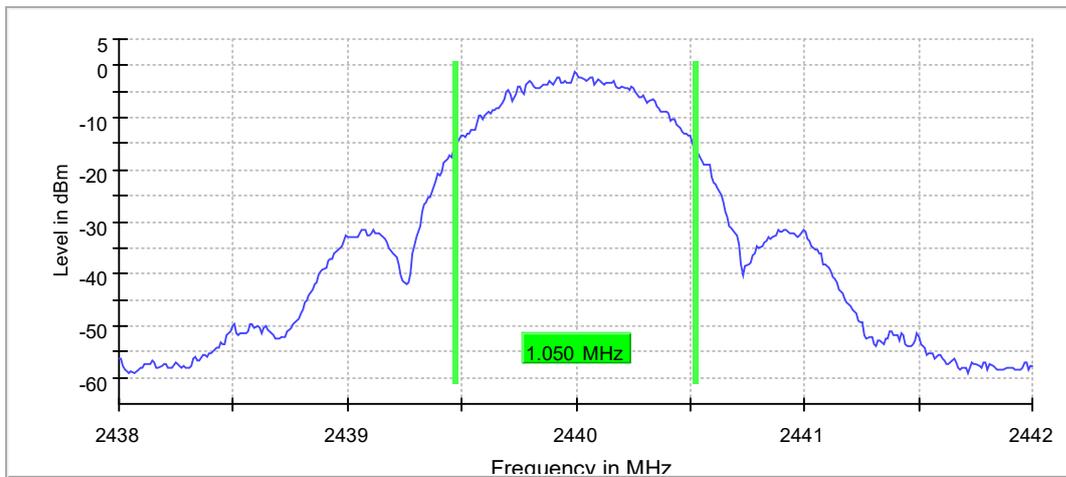
**99% Occupied Channel Bandwidth, 2440MHz**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2440.000000	1.050000	---	---	2439.475000	2440.525000

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

DUT Frequency (MHz)	Result
2440.000000	PASS

99 % Bandwidth


**Measurement**

Setting	Instrument Value	Target Value
Start Frequency	2.43800 GHz	2.43800 GHz
Stop Frequency	2.44200 GHz	2.44200 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	37 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

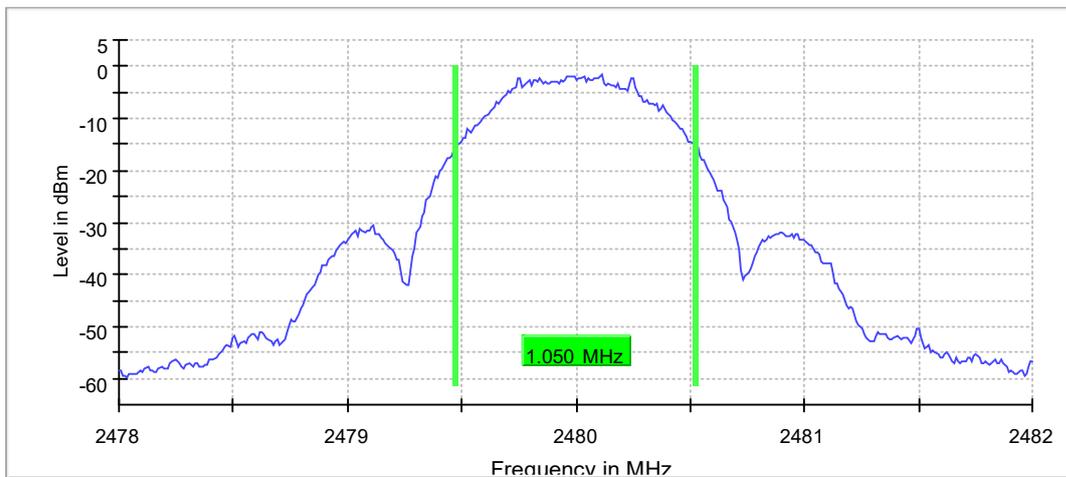
**99% Occupied Channel Bandwidth, 2480MHz**

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)
2480.000000	1.050000	---	---	2479.475000	2480.525000

(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	2.47800 GHz	2.47800 GHz
Stop Frequency	2.48200 GHz	2.48200 GHz
Span	4.000 MHz	4.000 MHz
RBW	20.000 kHz	>= 20.000 kHz
VBW	100.000 kHz	>= 60.000 kHz
SweepPoints	400	~ 400
Sweeptime	94.824 µs	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	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	56 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.00 dB	0.30 dB

### 5.1.3 Output Power

**RESULT:****Pass**

Date of testing : 2025-01-07  
Ambient temperature : 24.2°C  
Relative humidity : 59.5%  
Atmospheric pressure : 101kPa  
Test requirement : FCC Part 15.247(b)(3)  
RSS-247 Issue 3, August 2023, Clause 5.4(d)  
Test procedure : ANSI C63.10: 2013  
Test voltage : DC 3V  
Test modes applied : A

**Table 8: Peak Output Power**

Frequency [MHz]	Peak Conducted Output Power [dBm]	Limit [dBm]
2402	3.9	30
2440	4.2	30
2480	3.6	30

**Note:**

1. The cable loss is taken into account in results.
2. EIRP=Conducted Output Power + Antenna Gain (0.61dBi), which is far below the 4 W (36dBm).

### 5.1.4 Power Spectral Density

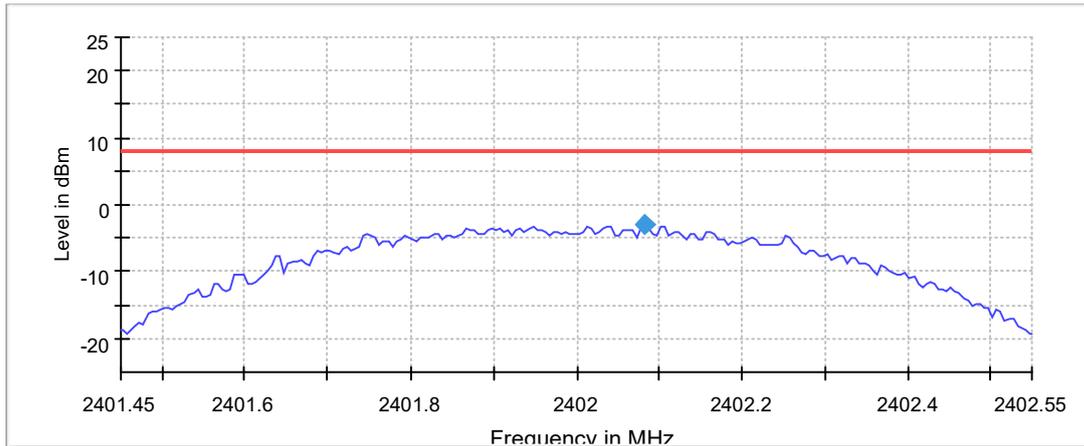
**RESULT:****Pass**

Date of testing : 2025-01-07  
Ambient temperature : 24.2°C  
Relative humidity : 59.5%  
Atmospheric pressure : 101kPa  
Test requirement : FCC Part 15.247(e)  
RSS-247 Issue 3, August 2023, Clause 5.2(b)  
Test procedure : ANSI C63.10: 2013  
Test voltage : DC 3V  
Test modes applied : A

**Power Spectral Density, 2402MHz**

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402.000000	2402.082426	-3.082	8.0	PASS

Peak Power Spectral Density



— Limit      — Sum Level      ◆ PSD

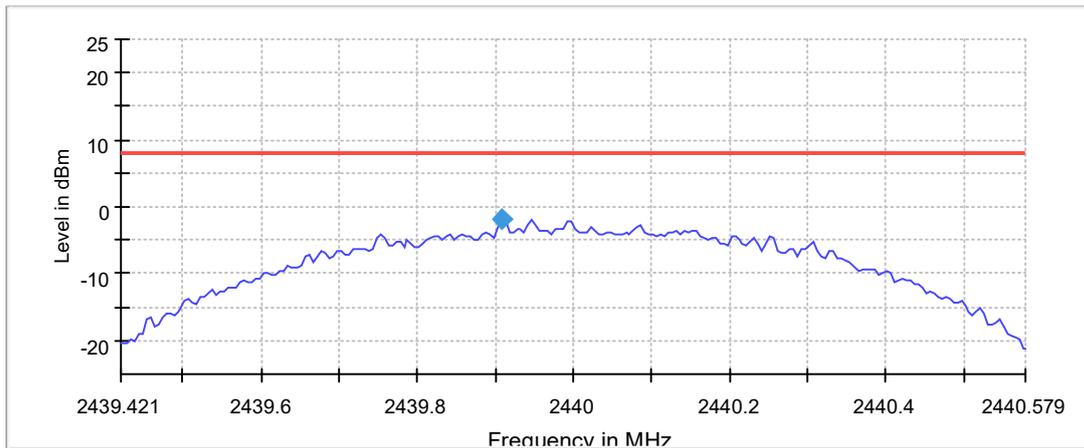
**Measurement**

Setting	Instrument Value	Target Value
Start Frequency	2.40145 GHz	2.40145 GHz
Stop Frequency	2.40255 GHz	2.40255 GHz
Span	1.099 MHz	1.099 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	220	~ 220
Sweeptime	1.100 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	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	44 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.11 dB	0.50 dB

**Power Spectral Density, 2440MHz**

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2440.000000	2439.907626	-2.022	8.0	PASS

Peak Power Spectral Density



— Limit    
 — Sum Level    
 ◆ PSD

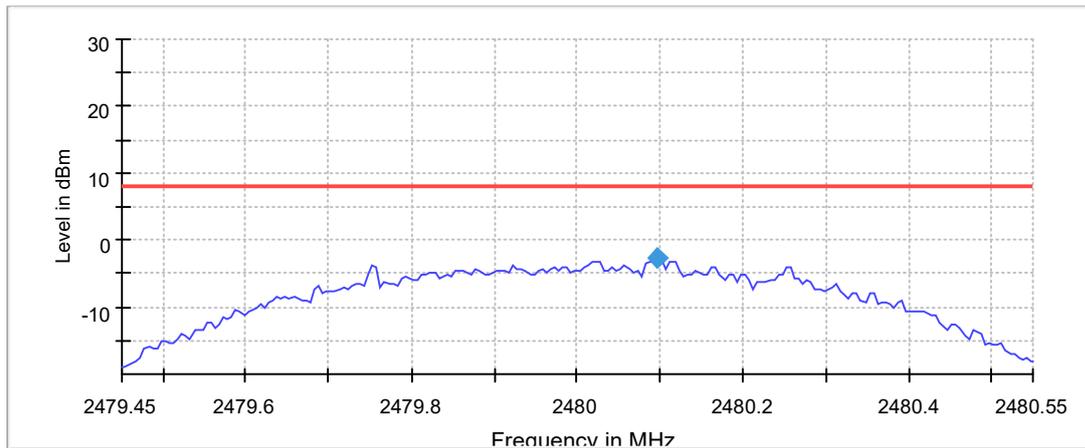
**Measurement**

Setting	Instrument Value	Target Value
Start Frequency	2.43942 GHz	2.43942 GHz
Stop Frequency	2.44058 GHz	2.44058 GHz
Span	1.158 MHz	1.158 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	232	~ 232
Sweeptime	1.160 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	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	47 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.48 dB	0.50 dB

**Power Spectral Density, 2480MHz**

DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2480.000000	2480.097412	-2.652	8.0	PASS

Peak Power Spectral Density

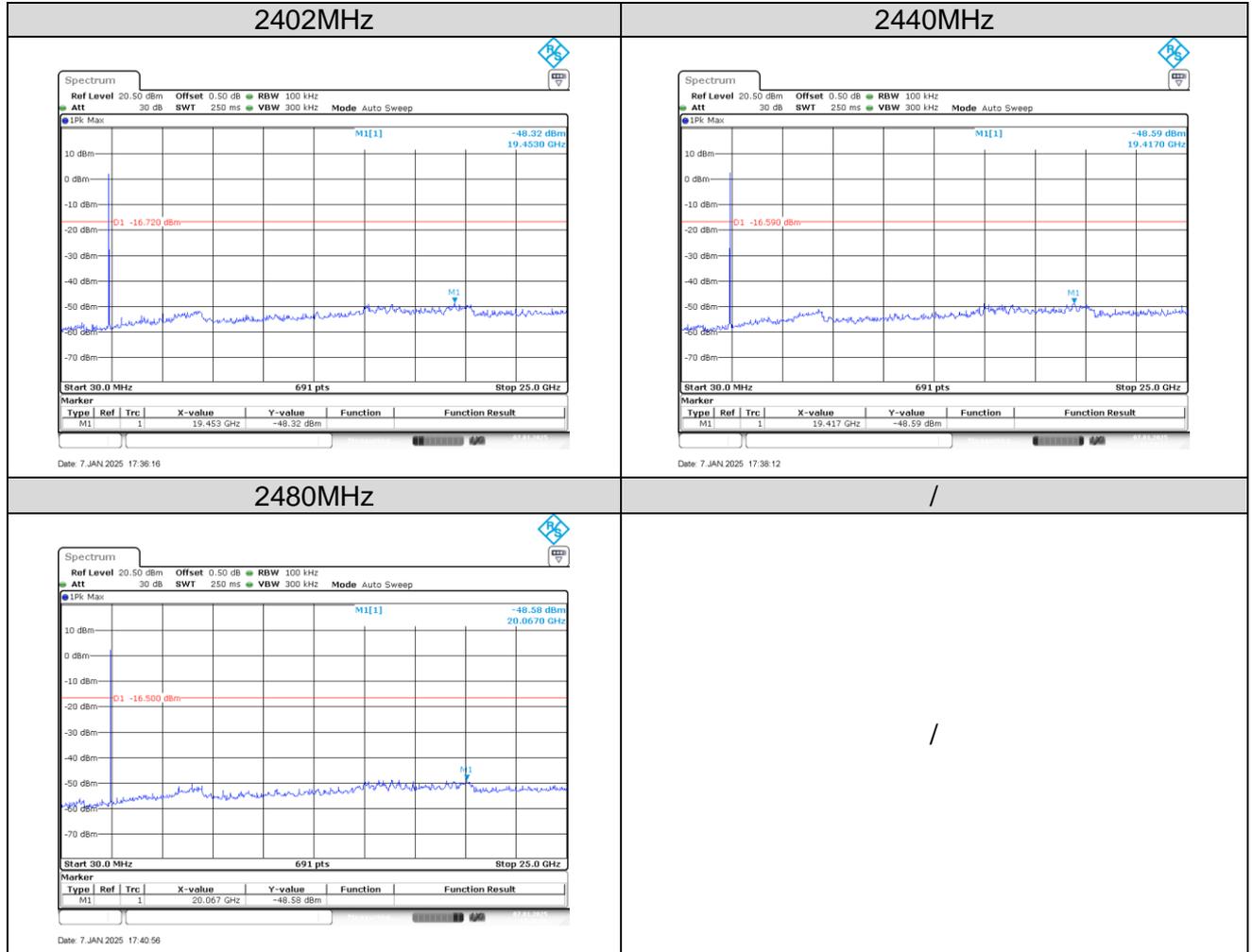
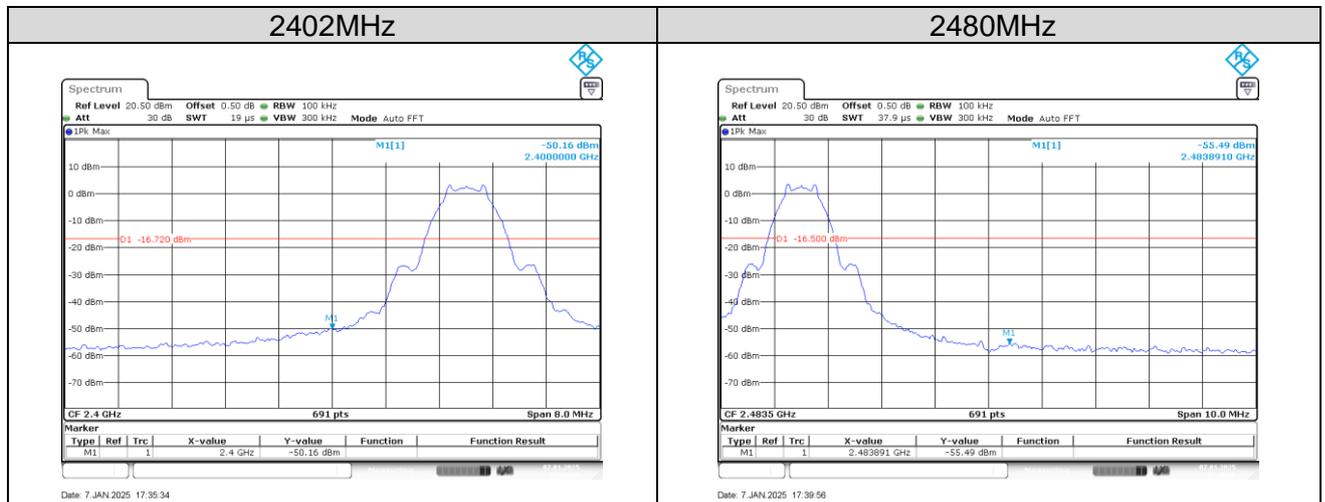


— Limit      — Sum Level      ◆ PSD

**Measurement**

Setting	Instrument Value	Target Value
Start Frequency	2.47945 GHz	2.47945 GHz
Stop Frequency	2.48055 GHz	2.48055 GHz
Span	1.099 MHz	1.099 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	220	~ 220
Sweeptime	1.100 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	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	27 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.32 dB	0.50 dB



**Figure 2: Conducted Spurious Emission**

**Figure 3: Conducted Band Edge**


## 5.2 Emission in the Frequency Range up to 30MHz

### 5.2.1 Conducted Emission

**RESULT:****N/A**

Date of testing : /  
Ambient temperature : /  
Relative humidity : /  
Atmospheric pressure : /  
Test requirement : FCC Part 15.207 (a)  
RSS-Gen Issue 5, Amendment 2, February 2021, Clause  
8.8  
Test procedure : KDB 558074 D01v05r02  
ANSI C63.10: 2013  
Test voltage : /  
Test modes applied : /

Note: This product is power by battery, so it is not applicable for this test.

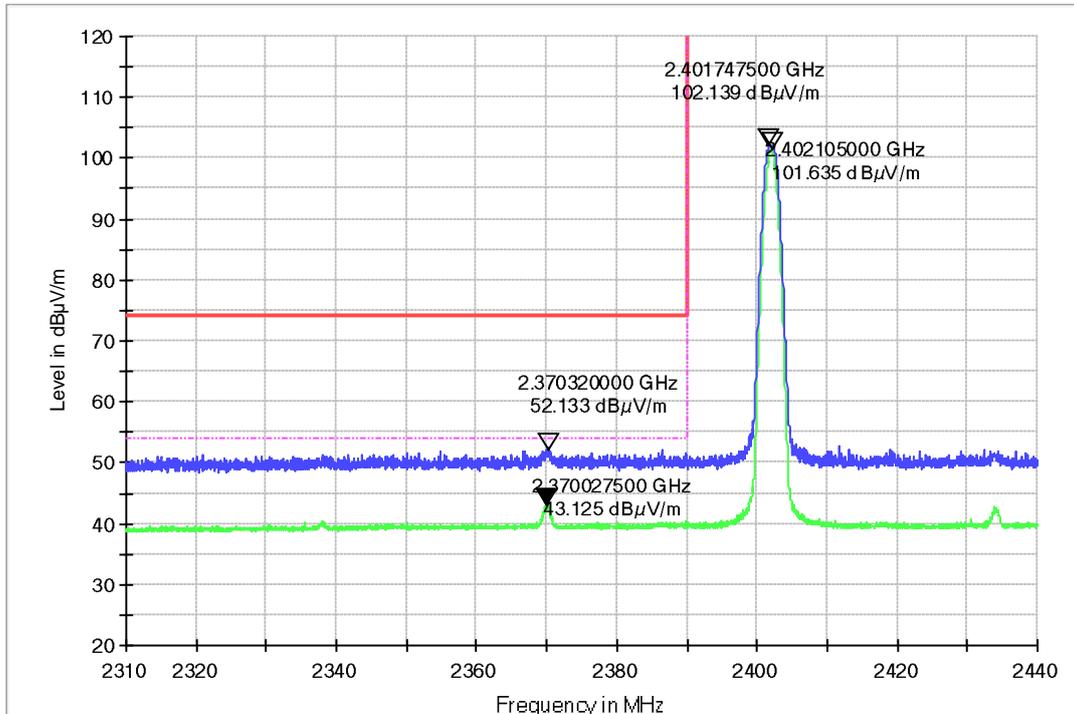
## 5.3 Emission in the Frequency Range above 30MHz

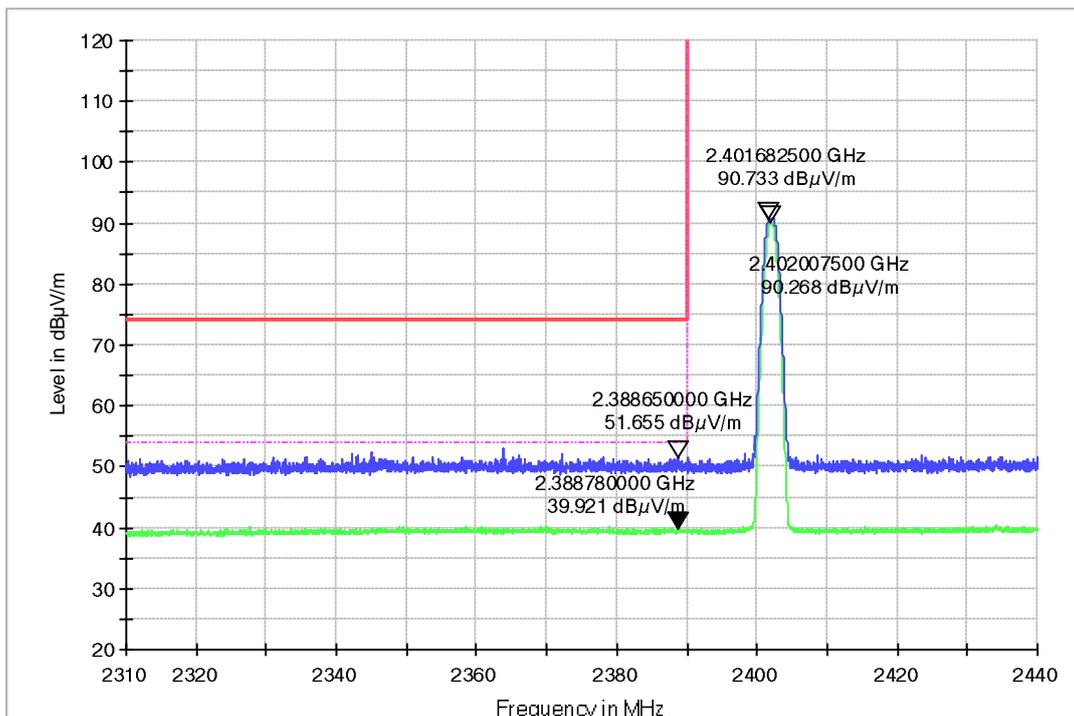
### 5.3.1 Radiated Band-Edge

**RESULT:****Pass**

Date of testing	:	2025-01-04
Ambient temperature	:	24.9°C
Relative humidity	:	59.2%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(d) FCC Part 15.205(a) FCC Part 15.209(a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.9 RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.10 RSS-247 Issue 3, August 2023, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 3V
Test modes applied	:	A

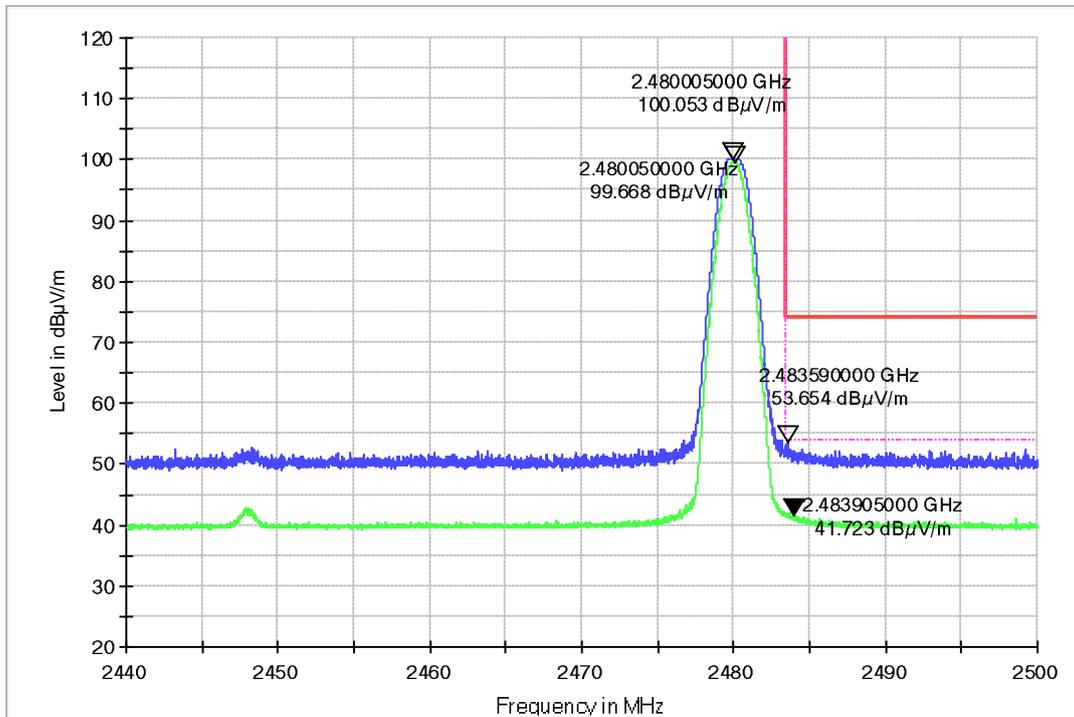
**Figure 4: Radiated Band-Edge, 2402MHz, H**

 2310<sup>-</sup> 2410 BE 1-18GHz\_HL050\_FSV40\_Pre

**Figure 5: Radiated Band-Edge, 2402MHz, V**

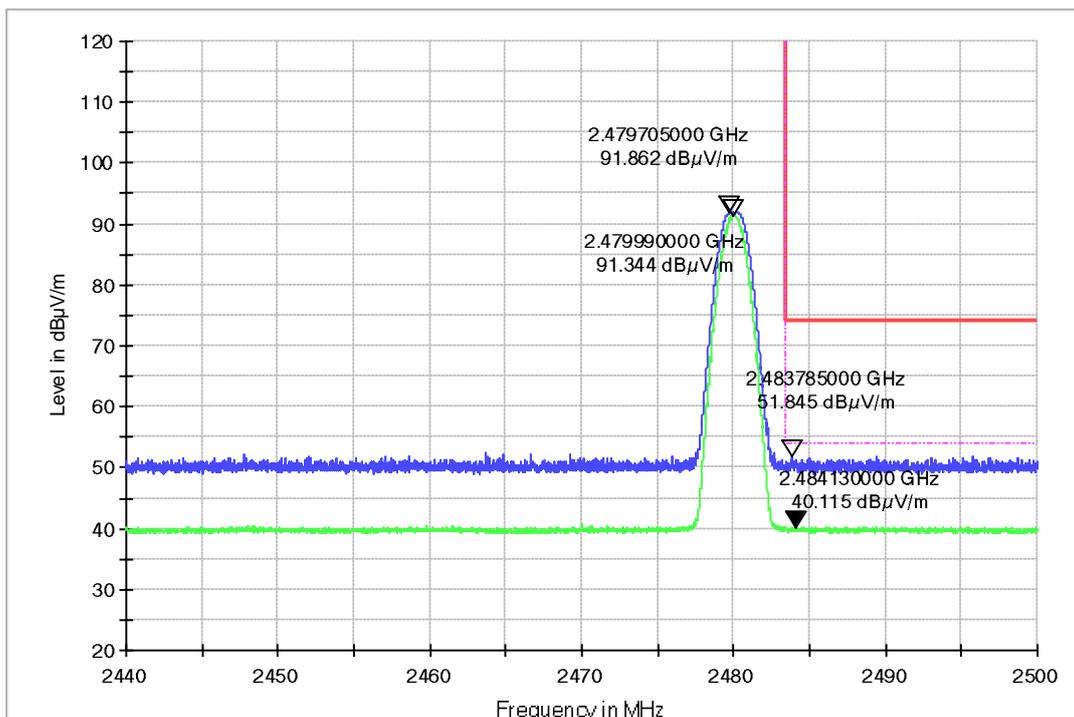
 2310<sup>-</sup> 2410 BE 1-18GHz\_HL050\_FSV40\_Pre


**Figure 6: Radiated Band-Edge, 2480MHz, H**

2470° 2500 BE\_1-18GHz\_HL050\_FSV40\_Pre


**Figure 7: Radiated Band-Edge, 2480MHz, V**

2470° 2500 BE\_1-18GHz\_HL050\_FSV40\_Pre



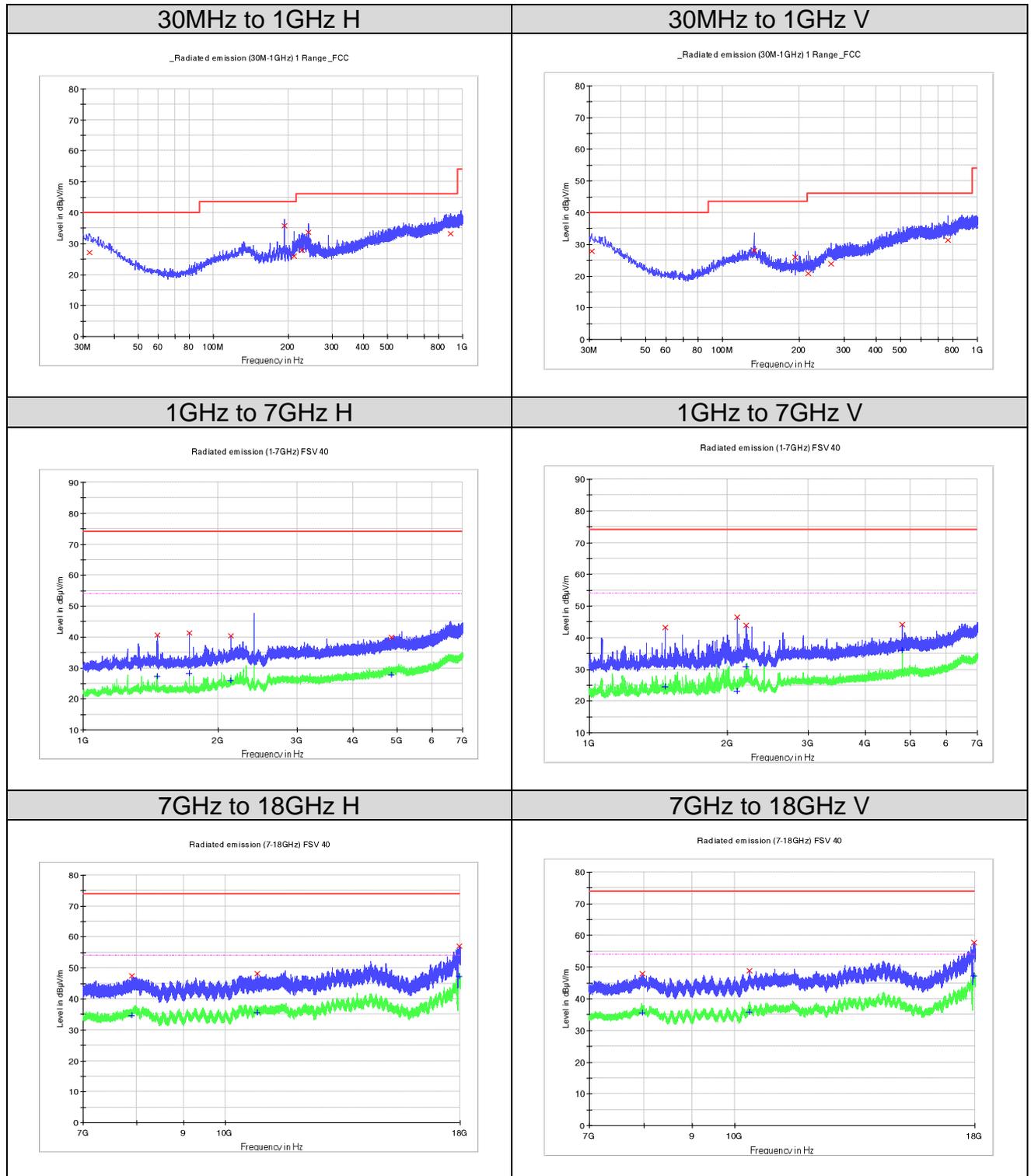
### 5.3.2 Radiated Spurious Emission

**RESULT:****Pass**

Date of testing : 2025-01-04  
Ambient temperature : 24.9°C  
Relative humidity : 59.2%  
Atmospheric pressure : 101kPa  
Test requirement : FCC Part 15.247(d)  
FCC Part 15.209(a)  
RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.9  
RSS-247 Issue 3, August 2023, Clause 5.5  
Test procedure : ANSI C63.10: 2013  
Test voltage : DC 3V  
Test modes applied : A

**Note:**

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

**Figure 8: Radiated Spurious Emission, 2402MHz**


**Limit and Margin**  
**QP**

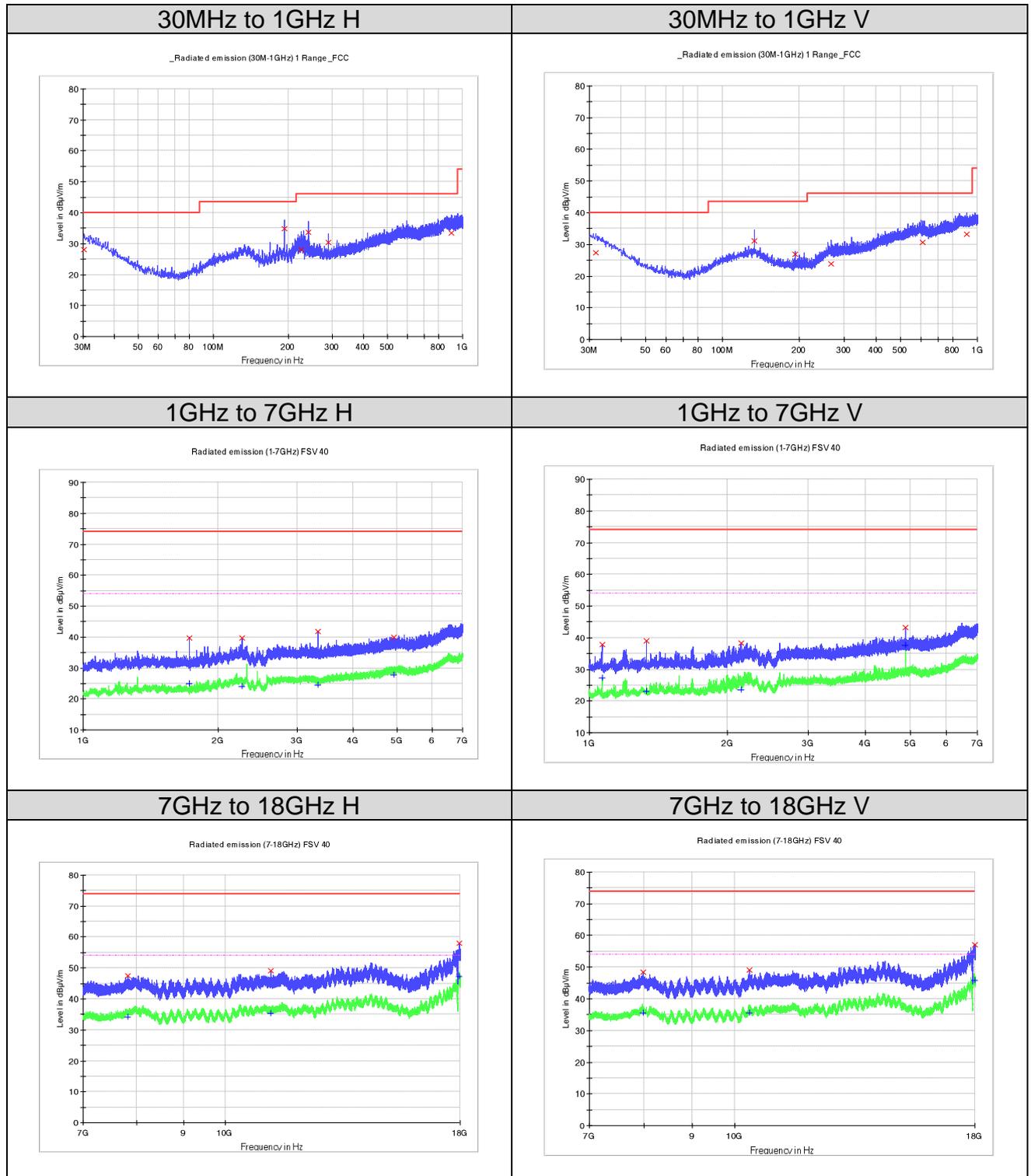
Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.940000	27.2	H	23.9	12.8	40.0
192.717500	35.9	H	15.9	7.7	43.5
210.905000	26.1	H	16.1	17.4	43.5
226.303750	27.9	H	16.7	18.1	46.0
240.732500	33.6	H	18.5	12.4	46.0
892.693750	33.3	H	28.7	12.7	46.0
30.606250	27.8	V	24.5	12.2	40.0
132.820000	28.1	V	18.5	15.4	43.5
192.353750	25.9	V	15.9	17.7	43.5
216.482500	20.8	V	16.0	25.2	46.0
266.195000	23.9	V	20.6	22.1	46.0
764.532500	31.4	V	27.8	14.6	46.0

**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1465.000000	40.6	H	-18.7	33.4	74.0
1726.900000	41.3	H	-18.9	32.7	74.0
2130.100000	40.4	H	-16.6	33.6	74.0
4871.200000	40.1	H	-11.3	34.0	74.0
7909.218750	47.4	H	-3.9	26.6	74.0
10831.093750	48.3	H	-2.7	25.8	74.0
17969.750000	57.2	H	11.8	16.8	74.0
1462.900000	43.2	V	-18.7	30.8	74.0
2101.000000	46.4	V	-16.9	27.6	74.0
2197.300000	43.9	V	-15.8	30.1	74.0
4804.000000	44.1	V	-11.4	29.9	74.0
7966.968750	47.9	V	-3.6	26.1	74.0
10351.906250	48.8	V	-2.7	25.2	74.0
17965.625000	57.7	V	11.8	16.3	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1465.000000	27.3	H	-18.7	26.7	54.0
1726.900000	28.3	H	-18.9	25.7	54.0
2130.100000	25.8	H	-16.6	28.2	54.0
4871.200000	27.9	H	-11.3	26.1	54.0
7909.218750	34.6	H	-3.9	19.5	54.0
10831.093750	35.7	H	-2.7	18.3	54.0
17969.750000	47.2	H	11.8	6.8	54.0
1462.900000	24.6	V	-18.7	29.4	54.0
2101.000000	23.2	V	-16.9	30.9	54.0
2197.300000	30.7	V	-15.8	23.3	54.0
4804.000000	35.9	V	-11.4	18.2	54.0
7966.968750	35.6	V	-3.6	18.4	54.0
10351.906250	35.7	V	-2.7	18.3	54.0
17965.625000	47.2	V	11.8	6.9	54.0

**Figure 9: Radiated Spurious Emission, 2440MHz**


**Limit and Margin**  
**QP**

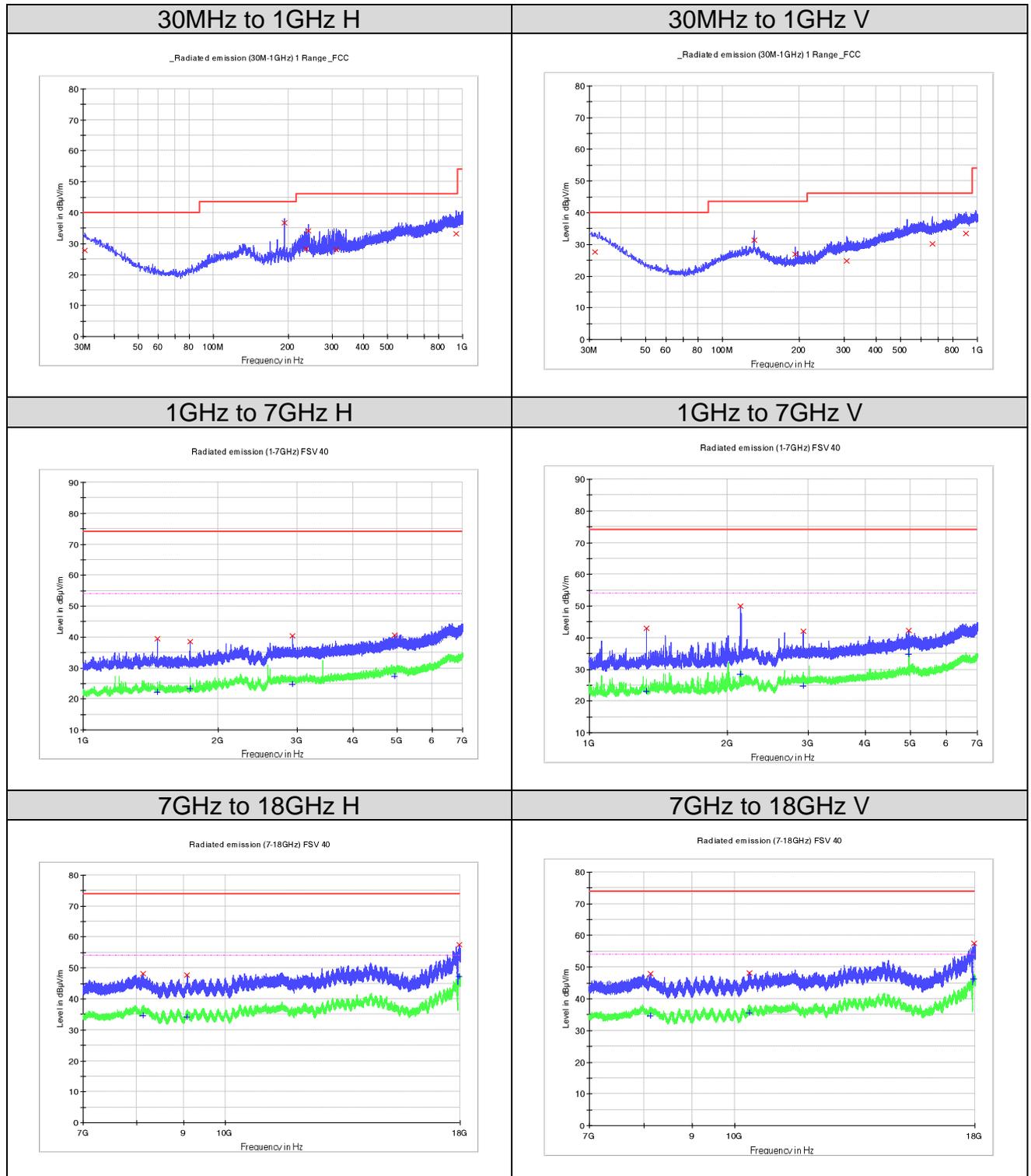
Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.242500	28.1	H	24.7	12.0	40.0
192.475000	34.9	H	15.9	8.6	43.5
224.363750	28.2	H	16.5	17.9	46.0
240.853750	33.8	H	18.5	12.2	46.0
288.747500	30.3	H	20.1	15.7	46.0
900.938750	33.4	H	28.9	12.6	46.0
31.818750	27.4	V	23.9	12.6	40.0
132.941250	31.0	V	18.5	12.5	43.5
192.717500	27.0	V	15.9	16.5	43.5
266.558750	23.9	V	20.5	22.1	46.0
611.272500	30.6	V	27.0	15.4	46.0
910.760000	33.3	V	28.8	12.7	46.0

**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1727.500000	39.8	H	-18.9	34.2	74.0
2259.100000	39.7	H	-15.6	34.3	74.0
3330.100000	41.8	H	-15.0	32.3	74.0
4927.000000	40.0	H	-11.2	34.0	74.0
7827.750000	47.4	H	-4.8	26.6	74.0
11197.531250	49.0	H	-2.8	25.0	74.0
17971.468750	57.9	H	11.9	16.1	74.0
1065.700000	37.7	V	-20.1	36.3	74.0
1330.300000	38.9	V	-18.8	35.1	74.0
2138.800000	38.3	V	-16.4	35.7	74.0
4880.800000	43.2	V	-11.3	30.8	74.0
7981.062500	48.4	V	-3.6	25.7	74.0
10366.687500	49.1	V	-2.7	24.9	74.0
17987.625000	57.0	V	12.2	17.0	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1727.500000	25.1	H	-18.9	28.9	54.0
2259.100000	23.9	H	-15.6	30.1	54.0
3330.100000	24.4	H	-15.0	29.6	54.0
4927.000000	27.8	H	-11.2	26.2	54.0
7827.750000	34.1	H	-4.8	19.9	54.0
11197.531250	35.4	H	-2.8	18.6	54.0
17971.468750	47.1	H	11.9	6.9	54.0
1065.700000	27.4	V	-20.1	26.6	54.0
1330.300000	23.0	V	-18.8	31.0	54.0
2138.800000	23.5	V	-16.4	30.5	54.0
4880.800000	37.6	V	-11.3	16.4	54.0
7981.062500	35.6	V	-3.6	18.4	54.0
10366.687500	35.5	V	-2.7	18.5	54.0
17987.625000	45.9	V	12.2	8.1	54.0

**Figure 10: Radiated Spurious Emission, 2480MHz**


**Limit and Margin**  
**QP**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.485000	27.9	H	24.6	12.1	40.0
192.717500	36.7	H	15.9	6.8	43.5
234.791250	28.3	H	17.8	17.8	46.0
240.853750	34.1	H	18.5	11.9	46.0
312.270000	28.1	H	20.6	17.9	46.0
942.163750	33.3	H	29.0	12.7	46.0
31.697500	27.5	V	24.0	12.5	40.0
133.062500	31.4	V	18.5	12.2	43.5
192.353750	26.9	V	15.9	16.7	43.5
306.328750	24.7	V	20.4	21.3	46.0
665.471250	30.2	V	26.4	15.8	46.0
901.666250	33.4	V	28.9	12.6	46.0

**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1465.000000	39.4	H	-18.7	34.6	74.0
1732.600000	38.6	H	-18.9	35.4	74.0
2929.600000	40.4	H	-15.1	33.6	74.0
4948.000000	40.5	H	-11.2	33.5	74.0
8138.156250	48.2	H	-4.3	25.8	74.0
9077.968750	47.8	H	-4.8	26.2	74.0
17969.062500	57.4	H	11.8	16.6	74.0
1333.900000	43.0	V	-18.8	31.0	74.0
2134.000000	50.1	V	-16.5	23.9	74.0
2925.700000	42.2	V	-15.1	31.9	74.0
4960.300000	42.2	V	-11.1	31.8	74.0
8131.968750	48.1	V	-4.3	25.9	74.0
10368.750000	48.3	V	-2.7	25.7	74.0
17953.593750	57.5	V	11.6	16.5	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1465.000000	22.1	H	-18.7	31.9	54.0
1732.600000	23.2	H	-18.9	30.8	54.0
2929.600000	24.7	H	-15.1	29.3	54.0
4948.000000	27.4	H	-11.2	26.6	54.0
8138.156250	34.6	H	-4.3	19.4	54.0
9077.968750	34.1	H	-4.8	19.9	54.0
17969.062500	47.3	H	11.8	6.7	54.0
1333.900000	23.1	V	-18.8	30.9	54.0
2134.000000	28.4	V	-16.5	25.6	54.0
2925.700000	24.7	V	-15.1	29.3	54.0
4960.300000	34.9	V	-11.1	19.1	54.0
8131.968750	34.6	V	-4.3	19.4	54.0
10368.750000	35.6	V	-2.7	18.4	54.0
17953.593750	46.3	V	11.6	7.7	54.0

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