


<b>Prüfbericht-Nr.:</b> Test report no.:	<b>CN2281CG 001</b>	<b>Auftrags-Nr.:</b> Order no.:	<b>244377666</b>	<b>Seite 1 von 35</b> Page 1 of 35
<b>Kunden-Referenz-Nr.:</b> Client reference no.:	<b>1288983</b>	<b>Auftragsdatum:</b> Order date:	<b>2021-11-29</b>	
<b>Auftraggeber:</b> Client:	<b>IKEA of Sweden AB</b> Box 702, SE-343 81, Älmhult, Sweden			
<b>Prüfgegenstand:</b> Test item:	VAPPEBY Lamp BT speaker outdoor			
<b>Bezeichnung / Typ-Nr.:</b> Identification / Type no.:	E2004 FCC ID: FHO-E2004 IC: 10912A-E2004			
<b>Auftrags-Inhalt:</b> Order content:	C2PC			
<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 2, February 2017 ANSI C63.10: 2013			
<b>Wareneingangsdatum:</b> Date of sample receipt:	2021-12-17			
<b>Prüfmuster-Nr.:</b> Test sample no.:	A003185981-001			
<b>Prüfzeitraum:</b> Testing period:	Refer to test report			
<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:	X <u>Hongfei Wu</u>	<b>genehmigt von:</b> authorized by:	X <u>Elliot Zhang</u>	
<b>Datum:</b> Date:	2022-03-15 <small>Signed by: Hongfei Wu</small>	<b>Ausstellungsdatum:</b> Issue date:	2022-03-15 <small>Signed by: Elliot Zhang</small>	
<b>Stellung / Position:</b>	PE	<b>Stellung / Position:</b>	Reviewer	
<b>Sonstiges /</b> <i>Other:</i>	HVIN: E2004 This report is for Class II permission change application due to the antenna matching circuit of the product changed and add an alternative battery. So, only radiated tests and conducted emission were performed and recorded in the report.			
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	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
<p><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 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.</i></p>				

## TEST SUMMARY

### 5.1.1 CONDUCTED EMISSION

*RESULT: Pass*

### 5.2.1 RADIATED BAND-EDGE

*RESULT: Pass*

### 5.2.2 RADIATED SPURIOUS EMISSION

*RESULT: Pass*

## Contents

<b>1.</b>	<b>GENERAL REMARKS .....</b>	<b>4</b>
<b>1.1</b>	<b>COMPLEMENTARY MATERIALS .....</b>	<b>4</b>
<b>2.</b>	<b>TEST SITES .....</b>	<b>4</b>
<b>2.1</b>	<b>TEST FACILITIES.....</b>	<b>4</b>
<b>2.2</b>	<b>LIST OF TEST AND MEASUREMENT INSTRUMENTS.....</b>	<b>5</b>
<b>2.3</b>	<b>TRACEABILITY .....</b>	<b>5</b>
<b>2.4</b>	<b>CALIBRATION .....</b>	<b>5</b>
<b>2.5</b>	<b>MEASUREMENT UNCERTAINTY.....</b>	<b>6</b>
<b>3.</b>	<b>GENERAL PRODUCT INFORMATION .....</b>	<b>7</b>
<b>3.1</b>	<b>PRODUCT FUNCTION AND INTENDED USE .....</b>	<b>7</b>
<b>3.2</b>	<b>RATINGS AND SYSTEM DETAILS .....</b>	<b>7</b>
<b>3.3</b>	<b>INDEPENDENT OPERATION MODES .....</b>	<b>8</b>
<b>3.4</b>	<b>NOISE GENERATING AND NOISE SUPPRESSING PARTS .....</b>	<b>8</b>
<b>3.5</b>	<b>SUBMITTED DOCUMENTS.....</b>	<b>8</b>
<b>4.</b>	<b>TEST SET-UP AND OPERATION MODES .....</b>	<b>9</b>
<b>4.1</b>	<b>PRINCIPLE OF CONFIGURATION SELECTION.....</b>	<b>9</b>
<b>4.2</b>	<b>TEST OPERATION AND TEST SOFTWARE .....</b>	<b>9</b>
<b>4.3</b>	<b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b>	<b>9</b>
<b>4.4</b>	<b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....</b>	<b>9</b>
<b>5.</b>	<b>TEST RESULTS .....</b>	<b>10</b>
<b>5.1</b>	<b>EMISSION IN THE FREQUENCY RANGE UP TO 30MHZ .....</b>	<b>10</b>
5.1.1	<i>Conducted Emission.....</i>	<i>10</i>
<b>5.2</b>	<b>EMISSION IN THE FREQUENCY RANGE ABOVE 30MHZ.....</b>	<b>13</b>
5.2.1	<i>Radiated Band-Edge .....</i>	<i>13</i>
5.2.2	<i>Radiated Spurious Emission.....</i>	<i>16</i>
<b>6.</b>	<b>LIST OF TABLES .....</b>	<b>35</b>
<b>7.</b>	<b>LIST OF FIGURES .....</b>	<b>35</b>

## 1. General Remarks

### 1.1 Complementary Materials

Null.

## 2. Test Sites

### 2.1 Test Facilities

TÜV Rheinland (Shanghai) Co., Ltd.

Shanghai TUV Rheinland Building No. 177, 178 Lane 777, West Guangzhong Rd, Jing'an District, Shanghai, 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 958801.

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 2932F.

## 2.2 List of Test and Measurement Instruments

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

Instrument	Manufacturer	Type No.	Asset No.	Cali. Due Date
3m modified semi-anechoic chamber	Frankonia	SAC3	G1811378	2022-06-27
Bilog antenna	Teseq	CBL 6112D	G1811425	2023-03-10
EMI test receiver	Rohde & Schwarz	ESCI	G1811402	2022-09-01
Spectrum analyser	Rohde & Schwarz	FSV40	G1822702	2023-11-04
Preamplifier	Taiwan EMCI	EMC184045SE	G1825372	2023-03-06
Log periodic antenna	Rohde & Schwarz	HL050	G1811417	2023-03-10
Broadband Horn Antenna	Schwarzbeck	BBHA 9170	9170-305	2023-07-09
Preamplifier	Taiwan EMCI	EMC051845SE	G1825371	2023-03-06
EMI test receiver	R&S	ESIB26	G1811380	2023-03-06
Artificial main network	R&S	ENV432	G1830003	2022-11-01
EMC measurement software	R&S	EMC32 (Ver 10.20.01)	G1824845	N/A

## 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
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 Bluetooth speaker.

For details refer to the User Manual and Circuit Diagram.

#### 3.2 Ratings and System Details

**Table 3: Technical Specification of EUT**

General Description of EUT	
Product Name:	VAPPEBY Lamp BT speaker outdoor
Model No.:	E2004
Operating Voltage:	DC 7.2V (Li-ion Battery)
Technical Specification of Bluetooth Classic	
Frequency Range:	2402 to 2480MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Data Rate:	1Mbps(GFSK), 2Mbps( $\pi/4$ DQPSK), 3Mbps(8DPSK)
Antenna Type:	PCB Antenna
Antenna Gain:	-3.07 dBi (Provided by the Client)

### 3.3 Independent Operation Modes

Table 4: Independent Operation Modes

Test Mode	Data Rate	Channel
TM1	1-DH5	00
TM2	1-DH5	39
TM3	1-DH5	78
TM4	2-DH5	00
TM5	2-DH5	39
TM6	2-DH5	78
TM7	3-DH5	00
TM8	3-DH5	39
TM9	3-DH5	78
TM10	Normal Operating Mode	

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

### 3.5 Submitted Documents

- Bill of Material
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label



## 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 used: BT FCC tool, V2.21

**Table 5: Power parameter value**

Channel Frequency [MHz]	Power Parameter Value
2402	3
2441	3
2480	3

### 4.3 Special Accessories and Auxiliary Equipment

Null.

### 4.4 Countermeasures to achieve EMC Compliance

Null.

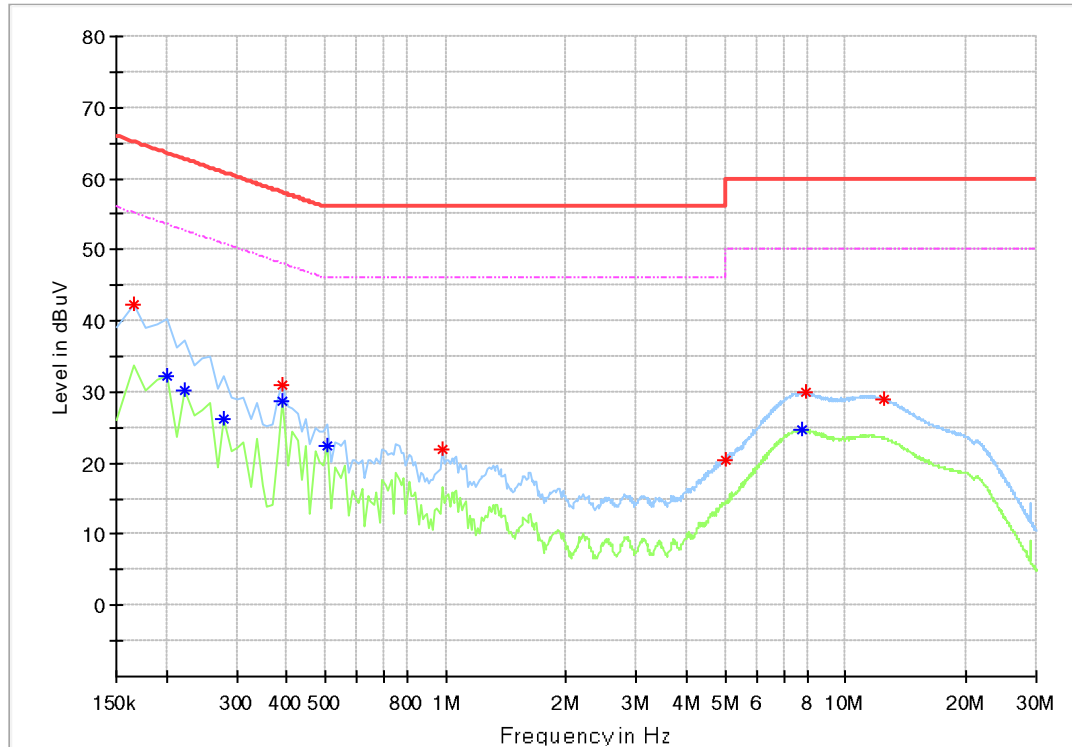
## 5. Test Results

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

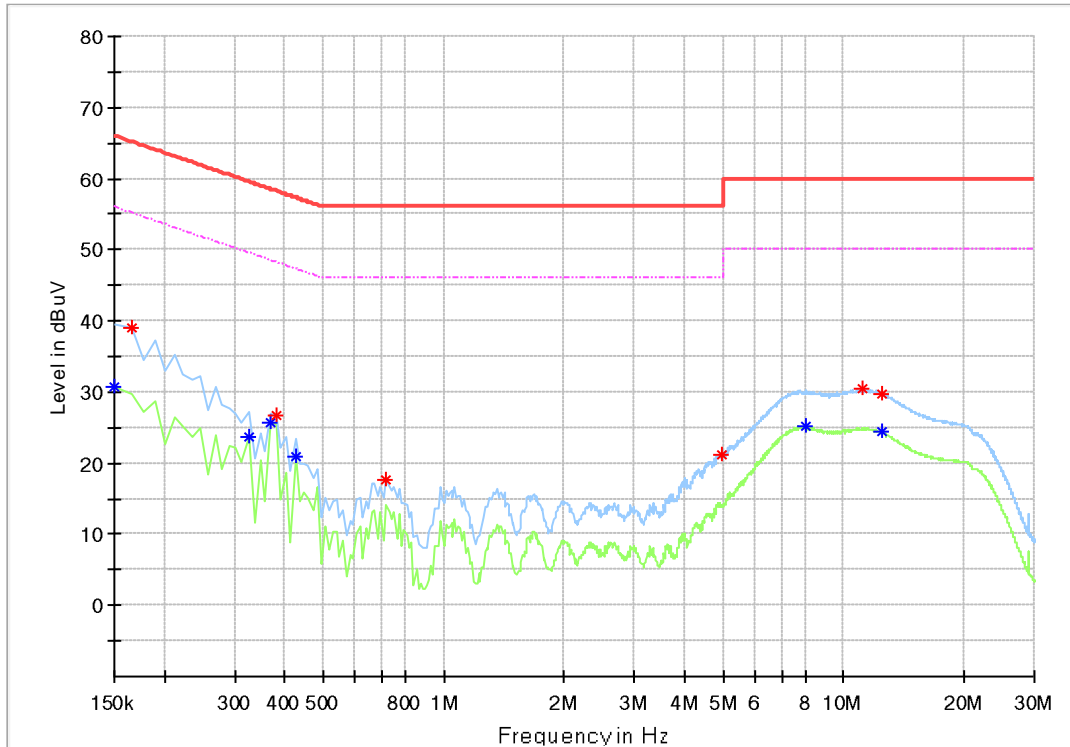
#### 5.1.1 Conducted Emission

**RESULT:****Pass**

Date of testing	:	2022-03-15
Ambient temperature	:	21°C
Relative humidity	:	37%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.207 (a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.8
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	AC 120V/60Hz
Test modes applied	:	TM10

**Figure 1: Conducted Emission, L**

**Critical\_Freqs**

Frequency (MHz)	Quasi Peak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line
4.993125	20.42	---	56.00	35.58	L1
0.976875	21.89	---	56.00	34.11	L1
12.429375	29.08	---	60.00	30.92	L1
7.951875	30.01	---	60.00	29.99	L1
0.391875	31.01	---	58.02	27.01	L1
0.166875	42.22	---	65.12	22.90	L1
0.200625	---	32.33	53.59	21.25	L1
0.223125	---	30.10	52.70	22.60	L1
0.279375	---	26.24	50.83	24.60	L1
0.391875	---	28.61	48.02	19.41	L1
0.504375	---	22.54	46.00	23.46	L1
7.771875	---	24.81	50.00	25.19	L1

**Figure 2: Conducted Emission, N**

**Critical\_Freqs**

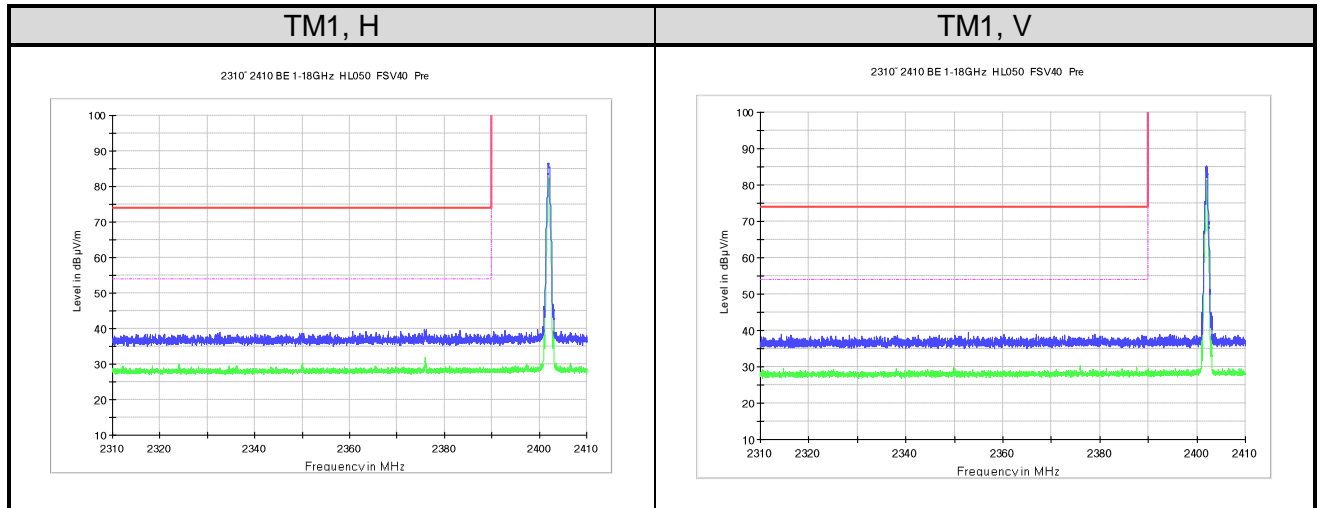
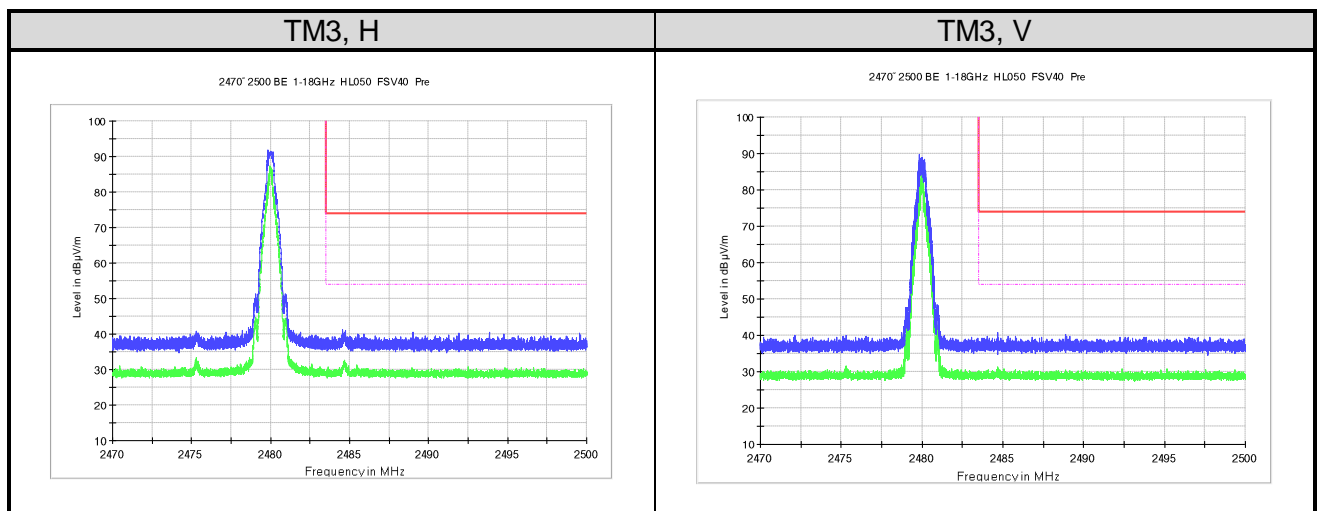
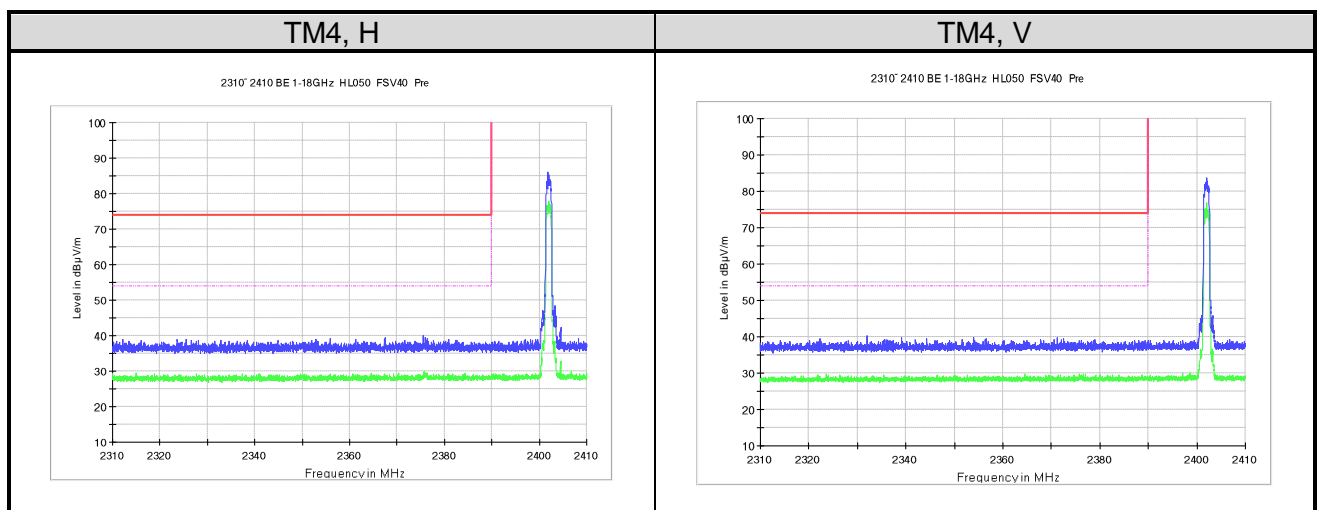
Frequency (MHz)	Quasi Peak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line
0.718125	17.64	---	56.00	38.36	N
4.970625	21.28	---	56.00	34.73	N
0.380625	26.71	---	58.27	31.56	N
12.418125	29.84	---	60.00	30.16	N
11.191875	30.37	---	60.00	29.63	N
0.166875	39.13	---	65.12	25.99	N
0.150000	---	30.71	56.00	25.29	N
0.324375	---	23.79	49.59	25.80	N
0.369375	---	25.70	48.52	22.81	N
0.425625	---	20.81	47.34	26.53	N
8.030625	---	25.13	50.00	24.87	N
12.418125	---	24.39	50.00	25.61	N

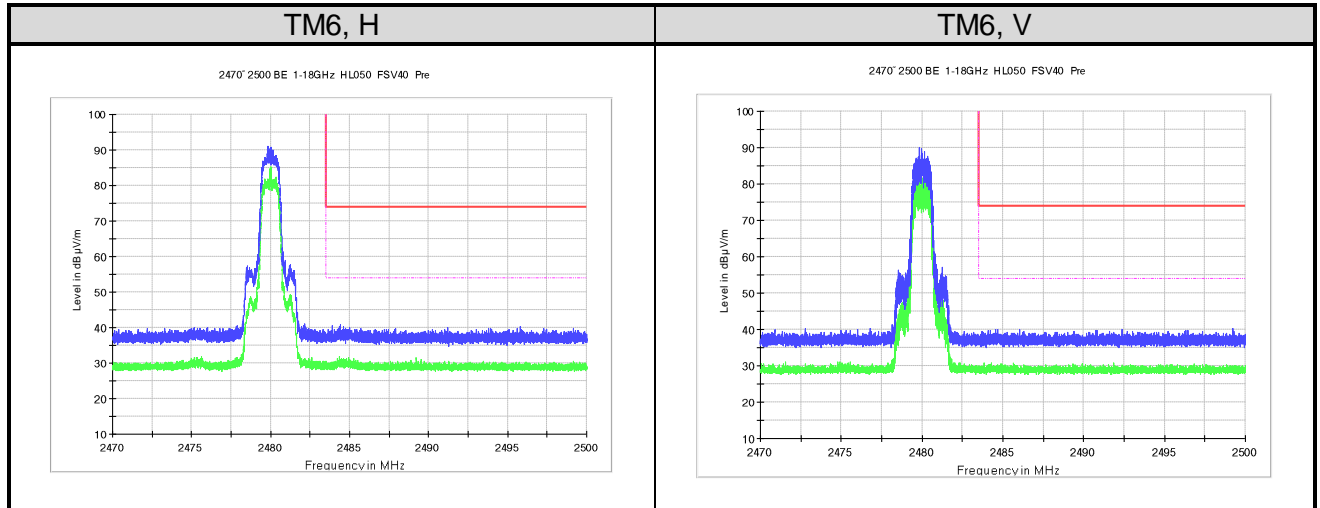
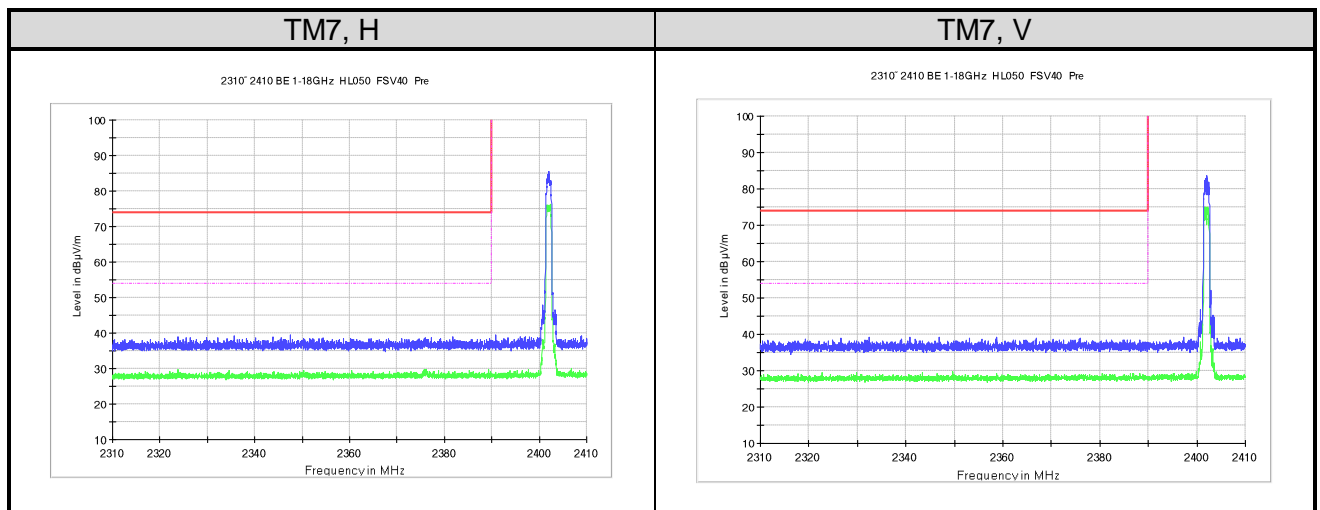
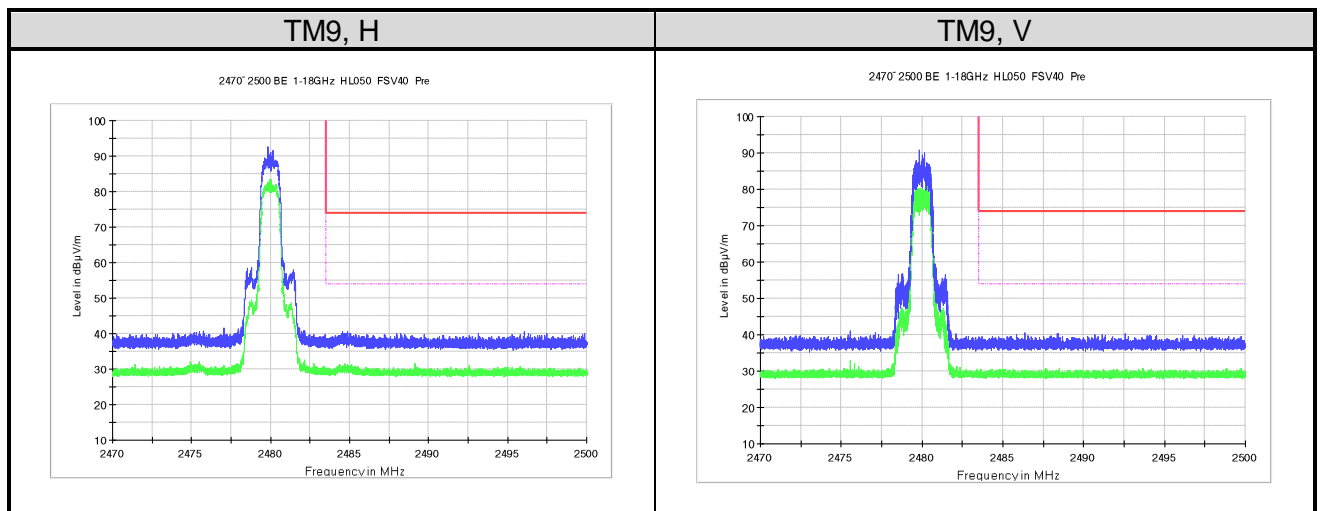
## 5.2 Emission in the Frequency Range above 30MHz

### 5.2.1 Radiated Band-Edge

**RESULT:****Pass**

Date of testing	:	2021-12-30
Ambient temperature	:	22.6°C
Relative humidity	:	41.9%
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 2, February 2017, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 7.2V
Test modes applied	:	TM1, TM3, TM4, TM6, TM7, TM9

**Figure 3: Radiated Band-Edge, TM1**

**Figure 4: Radiated Band-Edge, TM3**

**Figure 5: Radiated Band-Edge, TM4**


**Figure 6: Radiated Band-Edge, TM6**

**Figure 7: Radiated Band-Edge, TM7**

**Figure 8: Radiated Band-Edge, TM9**


## 5.2.2 Radiated Spurious Emission

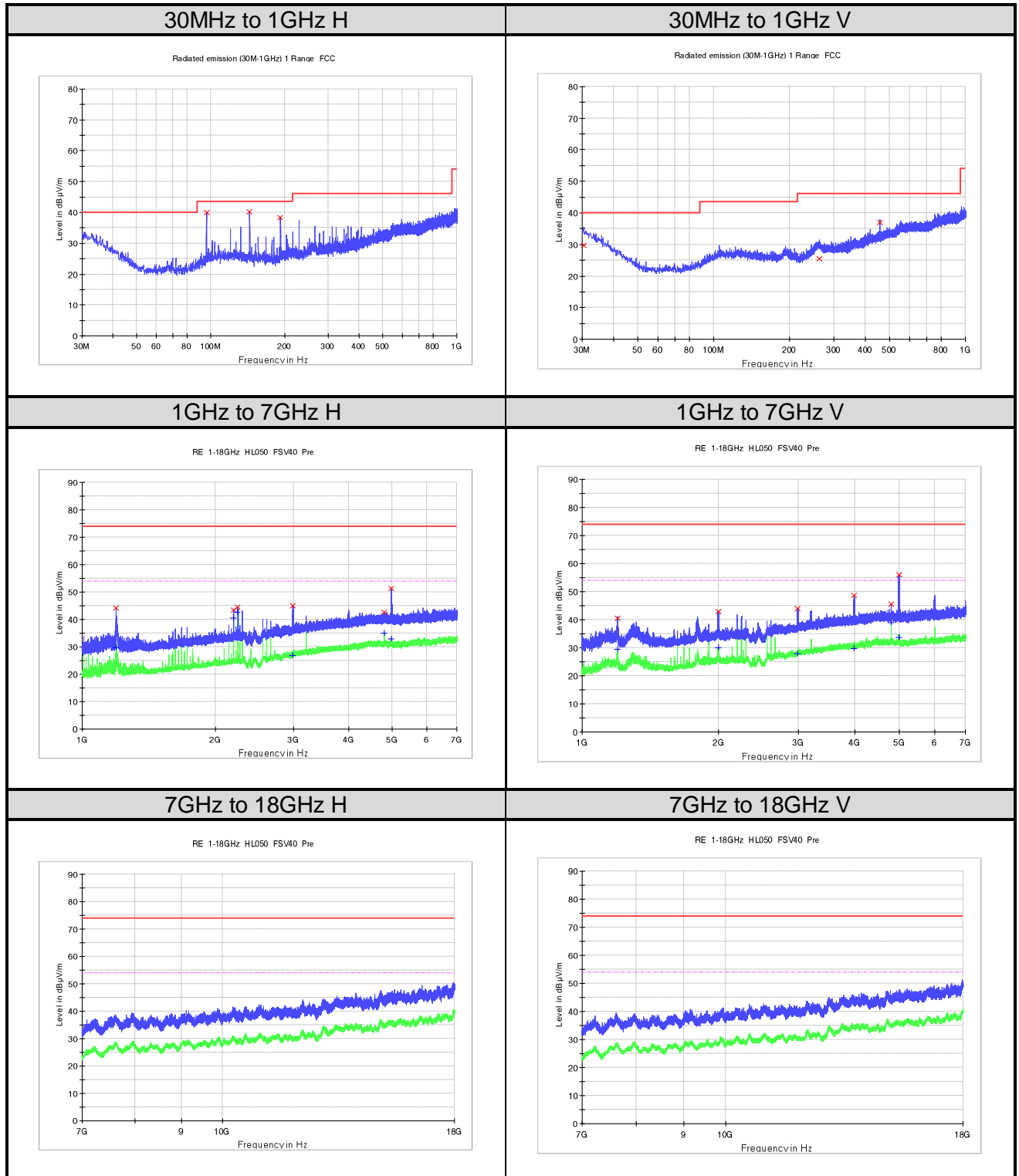
**RESULT:****Pass**

Date of testing	:	2021-12-30~2021-01-05
Ambient temperature	:	22.6~23.0°C
Relative humidity	:	41.9~47.4%
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 2, February 2017, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	DC 7.2V
Test modes applied	:	TM1 to TM9
Kind of test site	:	3m Anechoic Chamber

**Note:**

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



**Figure 9: Radiated Spurious Emission, TM1**


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

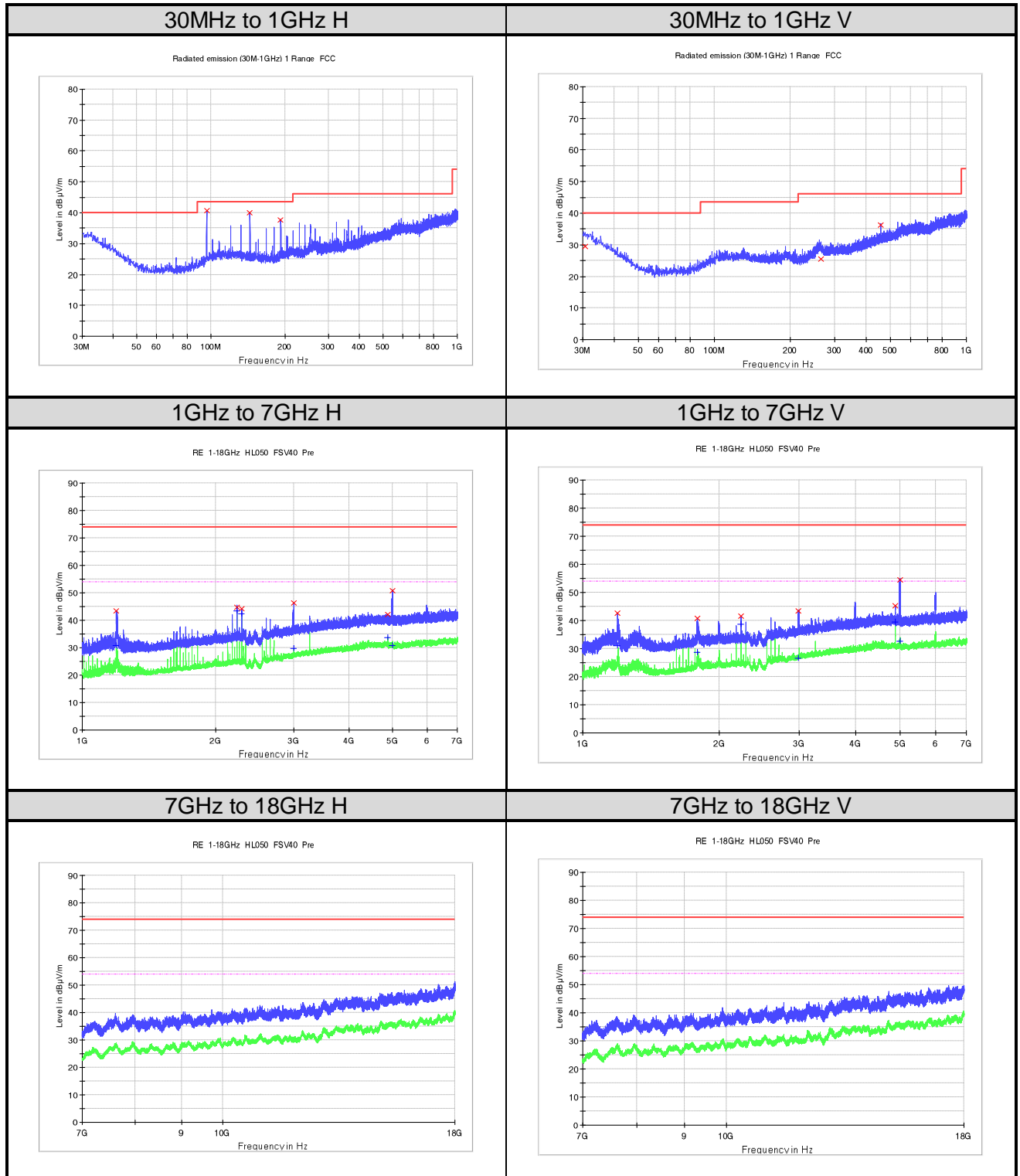
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dB $\mu$ V/m)
95.960000	40.1	H	16.8	3.4	43.5
143.975000	40.3	H	17.8	3.2	43.5
191.990000	38.3	H	15.9	5.2	43.5
30.363750	29.8	V	25.2	10.2	40.0
262.436250	25.5	V	20.7	20.5	46.0
457.770000	37.0	V	24.3	9.0	46.0

**PK**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dB $\mu$ V/m)
1194.250000	44.2	H	-21.3	29.8	74.0
2194.187500	43.5	H	-15.4	30.5	74.0
2245.750000	44.6	H	-15.2	29.4	74.0
2990.687500	44.9	H	-11.8	29.1	74.0
4803.625000	42.7	H	-6.5	31.3	74.0
4986.437500	51.3	H	-6.7	22.7	74.0
1196.312500	40.6	V	-21.3	33.4	74.0
1999.562500	42.8	V	-16.2	31.2	74.0
2987.312500	44.0	V	-11.8	30.0	74.0
3984.812500	48.6	V	-8.4	25.4	74.0
4803.812500	45.6	V	-6.5	28.4	74.0
4992.812500	56.0	V	-6.7	18.0	74.0

**AV**

Frequency (MHz)	Average (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dB $\mu$ V/m)
1194.250000	29.8	H	-21.3	24.2	54.0
2194.187500	40.6	H	-15.4	13.4	54.0
2245.750000	42.6	H	-15.2	11.4	54.0
2990.687500	26.9	H	-11.8	27.1	54.0
4803.625000	35.0	H	-6.5	19.0	54.0
4986.437500	32.8	H	-6.7	21.2	54.0
1196.312500	29.5	V	-21.3	24.5	54.0
1999.562500	30.0	V	-16.2	24.0	54.0
2987.312500	27.9	V	-11.8	26.1	54.0
3984.812500	29.8	V	-8.4	24.2	54.0
4803.812500	39.0	V	-6.5	15.0	54.0
4992.812500	33.7	V	-6.7	20.3	54.0

**Figure 10: Radiated Spurious Emission, TM2**


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

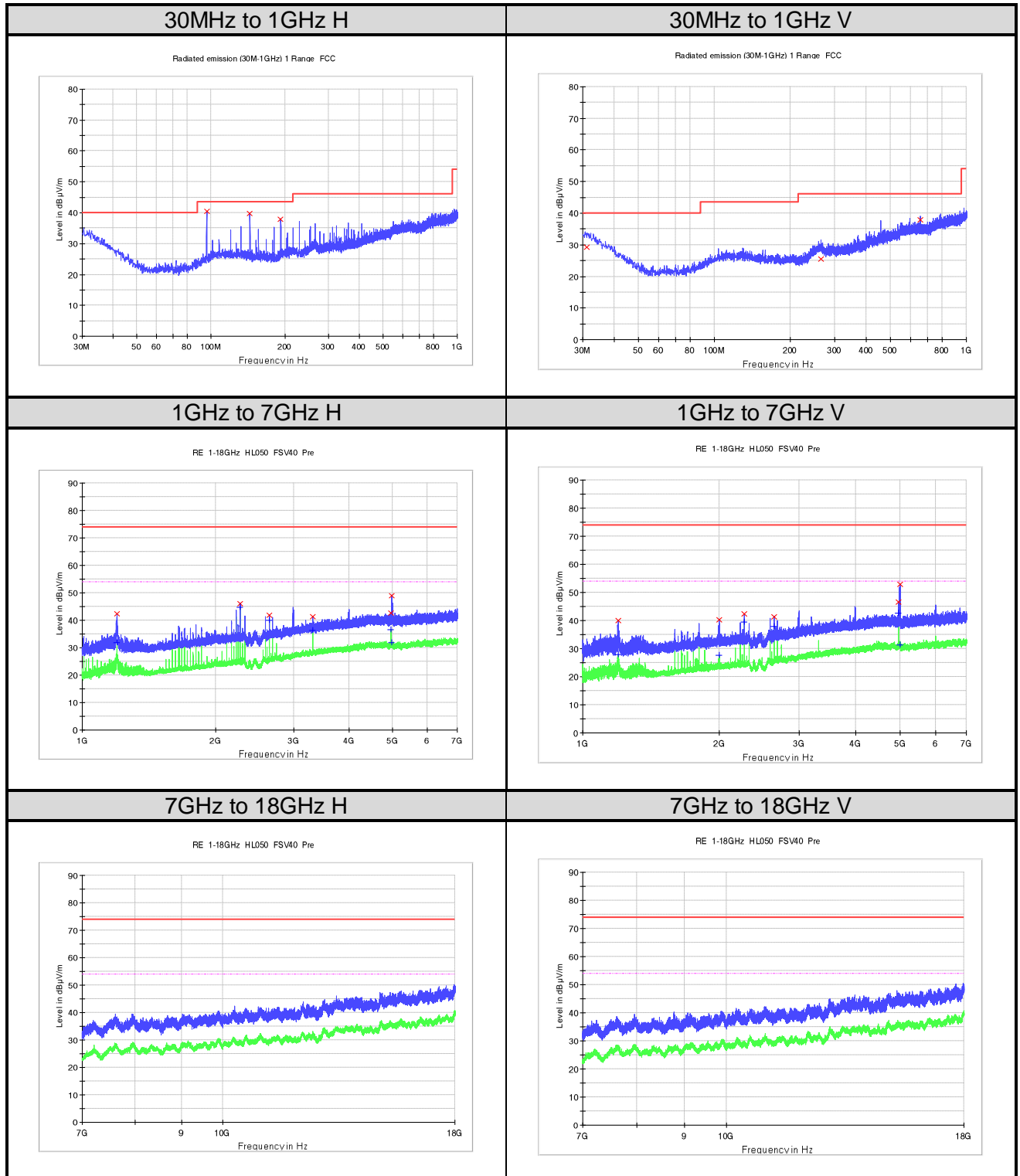
Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
95.960000	40.7	H	16.8	2.8	43.5
143.975000	40.0	H	17.8	3.5	43.5
191.990000	37.7	H	15.9	5.8	43.5
30.727500	29.6	V	25.0	10.4	40.0
264.982500	25.5	V	20.7	20.5	46.0
457.891250	36.3	V	24.3	9.7	46.0

**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1195.000000	43.3	H	-21.3	30.7	74.0
2232.625000	44.9	H	-15.2	29.1	74.0
2284.750000	44.2	H	-15.0	29.8	74.0
2998.750000	46.4	H	-11.8	27.6	74.0
4882.000000	42.1	H	-6.5	31.9	74.0
4992.812500	50.9	H	-6.7	23.1	74.0
1194.437500	42.6	V	-21.3	31.4	74.0
1789.187500	40.8	V	-17.5	33.2	74.0
2233.000000	41.5	V	-15.2	32.5	74.0
2986.562500	43.5	V	-11.8	30.5	74.0
4882.187500	45.2	V	-6.5	28.8	74.0
4996.562500	54.5	V	-6.7	19.5	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1195.000000	30.8	H	-21.3	23.2	54.0
2232.625000	43.3	H	-15.2	10.7	54.0
2284.750000	42.3	H	-15.0	11.7	54.0
2998.750000	29.7	H	-11.8	24.3	54.0
4882.000000	33.6	H	-6.5	20.4	54.0
4992.812500	30.9	H	-6.7	23.1	54.0
1194.437500	31.0	V	-21.3	23.0	54.0
1789.187500	28.8	V	-17.5	25.2	54.0
2233.000000	38.7	V	-15.2	15.3	54.0
2986.562500	26.6	V	-11.8	27.4	54.0
4882.187500	39.6	V	-6.5	14.4	54.0
4996.562500	32.6	V	-6.7	21.4	54.0

**Figure 11: Radiated Spurious Emission, TM3**


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

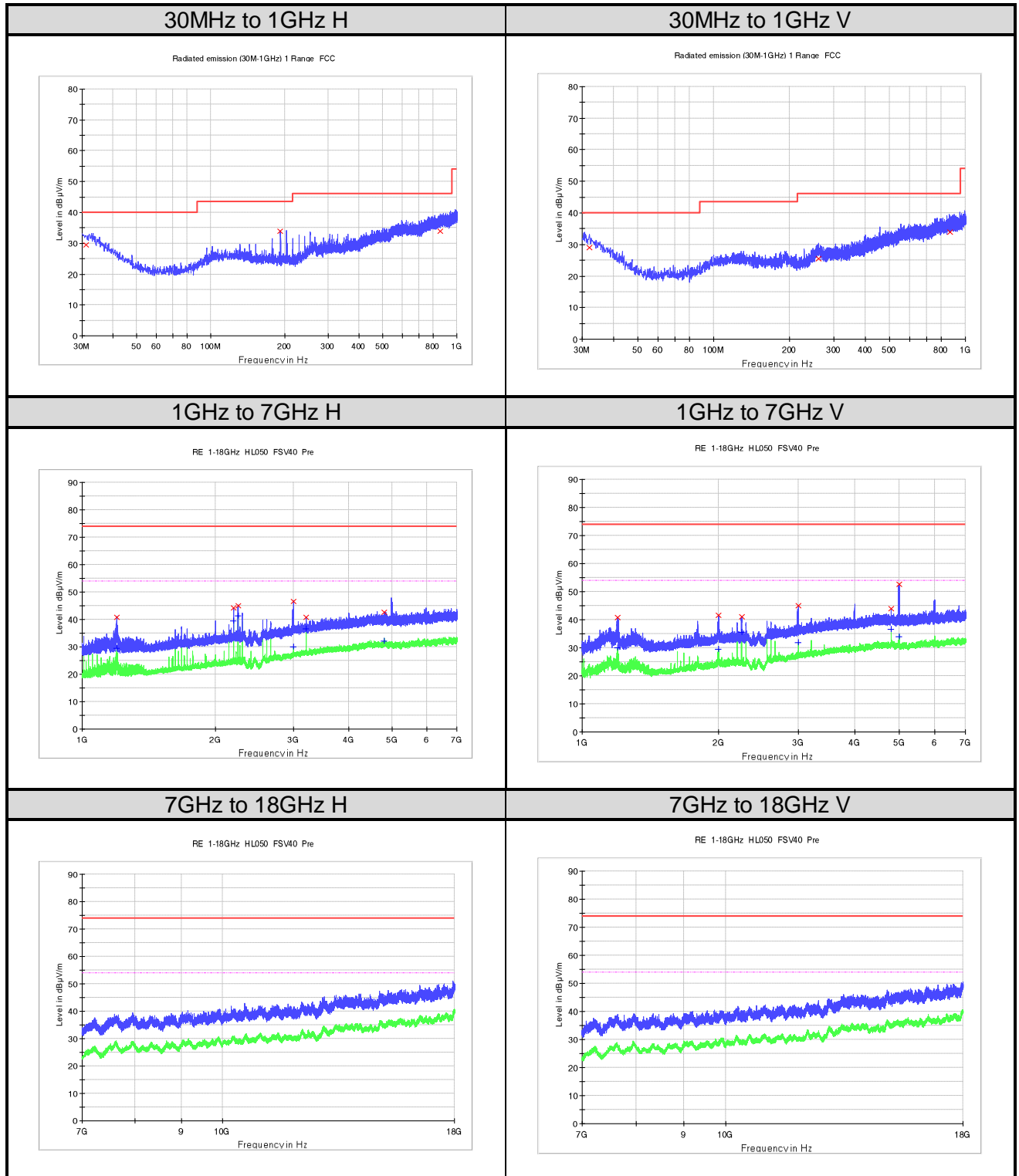
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dB $\mu$ V/m)
95.960000	40.5	H	16.8	3.0	43.5
143.975000	39.7	H	17.8	3.8	43.5
191.990000	37.8	H	15.9	5.7	43.5
31.212500	29.3	V	24.8	10.7	40.0
264.618750	25.6	V	20.7	20.4	46.0
655.892500	38.0	V	26.2	8.0	46.0

**PK**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dB $\mu$ V/m)
1199.875000	42.3	H	-21.2	31.7	74.0
2271.812500	46.2	H	-15.1	27.8	74.0
2635.562500	41.8	H	-13.4	32.2	74.0
3306.812500	41.4	H	-10.3	32.6	74.0
4960.187500	42.7	H	-6.6	31.3	74.0
4977.062500	49.0	H	-6.7	25.0	74.0
1196.125000	39.9	V	-21.3	34.1	74.0
1999.187500	40.3	V	-16.2	33.7	74.0
2272.000000	42.3	V	-15.1	31.7	74.0
2635.750000	41.3	V	-13.4	32.7	74.0
4960.187500	46.6	V	-6.6	27.4	74.0
4992.625000	52.8	V	-6.7	21.2	74.0

**AV**

Frequency (MHz)	Average (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dB $\mu$ V/m)
1199.875000	31.8	H	-21.2	22.2	54.0
2271.812500	44.8	H	-15.1	9.2	54.0
2635.562500	39.9	H	-13.4	14.1	54.0
3306.812500	36.4	H	-10.3	17.6	54.0
4960.187500	36.5	H	-6.6	17.5	54.0
4977.062500	31.9	H	-6.7	22.1	54.0
1196.125000	28.0	V	-21.3	26.0	54.0
1999.187500	27.6	V	-16.2	26.4	54.0
2272.000000	39.6	V	-15.1	14.4	54.0
2635.750000	37.9	V	-13.4	16.1	54.0
4960.187500	42.6	V	-6.6	11.4	54.0
4992.625000	31.3	V	-6.7	22.7	54.0

**Figure 12: Radiated Spurious Emission, TM4**


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

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.091250	29.4	H	24.9	10.6	40.0
191.990000	34.0	H	15.9	9.5	43.5
858.501250	33.9	H	28.0	12.1	46.0
32.061250	29.0	V	24.5	11.0	40.0
261.102500	25.6	V	20.7	20.4	46.0
872.081250	34.0	V	28.0	12.0	46.0

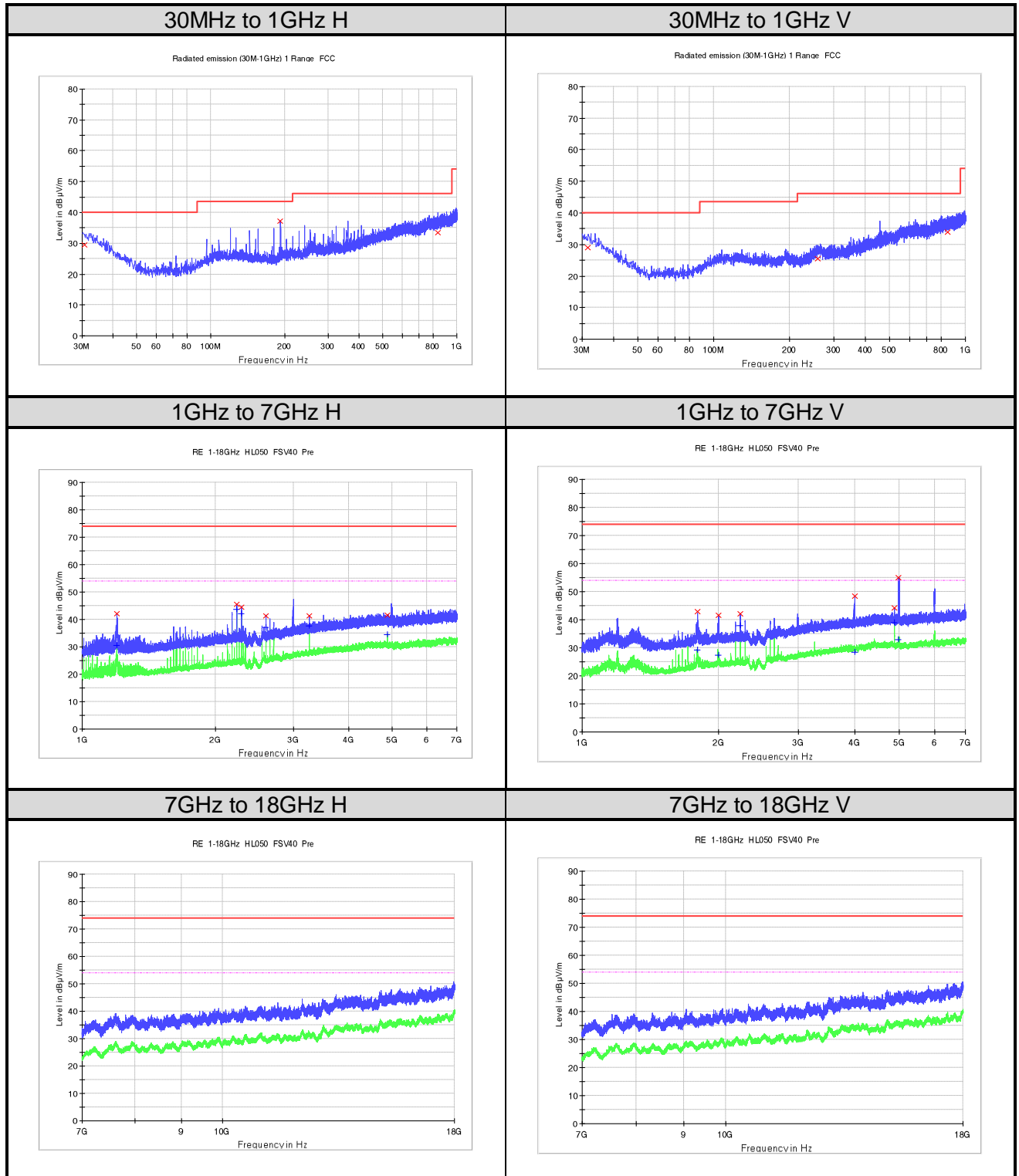
**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1195.562500	40.9	H	-21.3	33.1	74.0
2194.187500	44.2	H	-15.4	29.8	74.0
2246.312500	45.0	H	-15.2	29.0	74.0
2995.750000	46.7	H	-11.8	27.3	74.0
3202.562500	40.8	H	-10.8	33.2	74.0
4804.000000	42.7	H	-6.5	31.3	74.0
1196.312500	40.9	V	-21.3	33.1	74.0
1998.437500	41.5	V	-16.2	32.5	74.0
2245.937500	41.0	V	-15.2	33.0	74.0
2993.687500	44.9	V	-11.8	29.1	74.0
4803.437500	43.9	V	-6.5	30.1	74.0
4998.625000	52.6	V	-6.7	21.4	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1195.562500	29.5	H	-21.3	24.5	54.0
2194.187500	39.4	H	-15.4	14.6	54.0
2246.312500	41.3	H	-15.2	12.7	54.0
2995.750000	29.9	H	-11.8	24.1	54.0
3202.562500	36.7	H	-10.8	17.3	54.0
4804.000000	32.2	H	-6.5	21.8	54.0
1196.312500	29.9	V	-21.3	24.1	54.0
1998.437500	29.4	V	-16.2	24.6	54.0
2245.937500	35.6	V	-15.2	18.4	54.0
2993.687500	31.8	V	-11.8	22.2	54.0
4803.437500	36.7	V	-6.5	17.3	54.0
4998.625000	34.0	V	-6.7	20.0	54.0



**Figure 13: Radiated Spurious Emission, TM5**


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

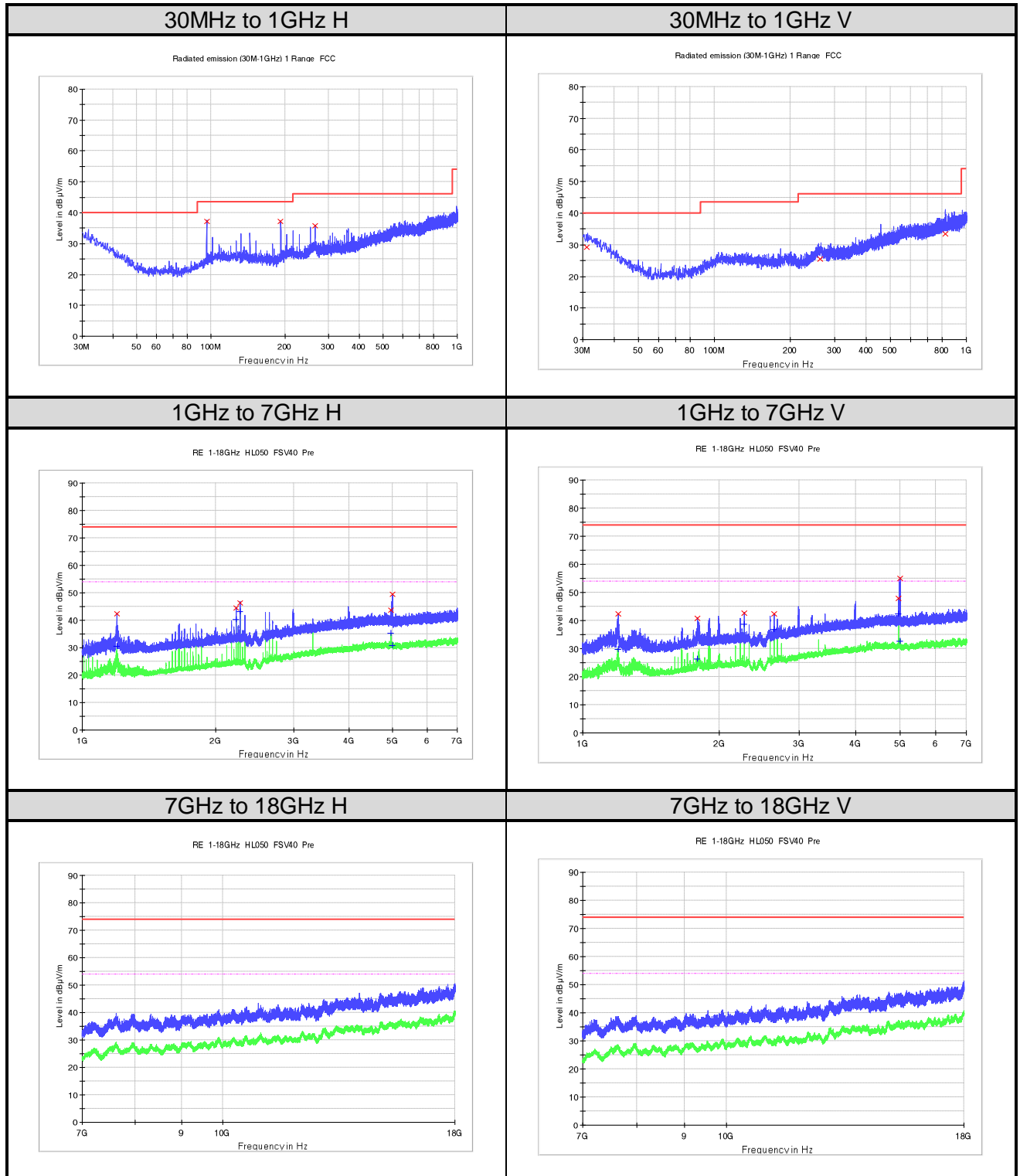
Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.727500	29.6	H	25.0	10.4	40.0
191.990000	37.3	H	15.9	6.2	43.5
837.767500	33.5	H	27.6	12.5	46.0
31.697500	29.1	V	24.6	10.9	40.0
258.435000	25.5	V	20.5	20.5	46.0
848.558750	33.8	V	27.8	12.2	46.0

**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1198.187500	42.2	H	-21.2	31.8	74.0
2233.187500	45.6	H	-15.2	28.4	74.0
2284.750000	44.6	H	-15.0	29.4	74.0
2596.750000	41.2	H	-13.6	32.8	74.0
3254.500000	41.4	H	-10.5	32.6	74.0
4882.000000	41.6	H	-6.5	32.4	74.0
1798.562500	42.8	V	-17.4	31.2	74.0
1999.375000	41.6	V	-16.2	32.4	74.0
2232.812500	42.0	V	-15.2	32.0	74.0
3997.000000	48.3	V	-8.4	25.7	74.0
4881.625000	44.2	V	-6.5	29.8	74.0
4987.937500	54.9	V	-6.7	19.1	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1198.187500	30.5	H	-21.2	23.5	54.0
2233.187500	43.6	H	-15.2	10.4	54.0
2284.750000	42.2	H	-15.0	11.8	54.0
2596.750000	37.1	H	-13.6	16.9	54.0
3254.500000	37.7	H	-10.5	16.3	54.0
4882.000000	34.6	H	-6.5	19.4	54.0
1798.562500	29.1	V	-17.4	24.9	54.0
1999.375000	27.5	V	-16.2	26.5	54.0
2232.812500	38.0	V	-15.2	16.0	54.0
3997.000000	28.4	V	-8.4	25.6	54.0
4881.625000	38.9	V	-6.5	15.1	54.0
4987.937500	32.9	V	-6.7	21.1	54.0

**Figure 14: Radiated Spurious Emission, TM6**


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

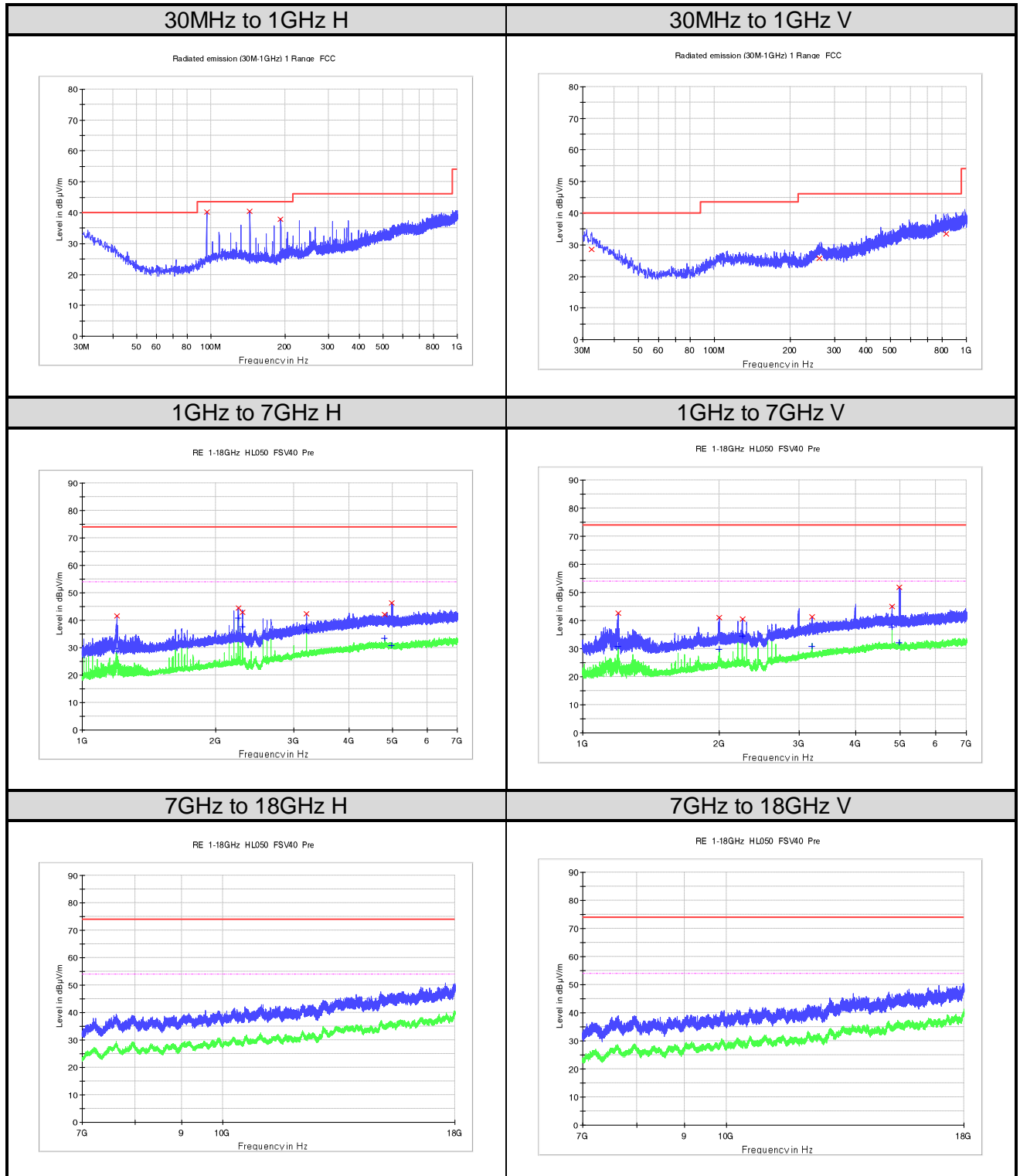
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dB $\mu$ V/m)
95.960000	37.2	H	16.8	6.3	43.5
191.990000	37.2	H	15.9	6.3	43.5
264.012500	35.7	H	20.7	10.3	46.0
31.212500	29.3	V	24.8	10.7	40.0
263.527500	25.6	V	20.7	20.4	46.0
826.006250	33.4	V	27.5	12.6	46.0

**PK**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dB $\mu$ V/m)
1196.687500	42.3	H	-21.3	31.7	74.0
2219.875000	44.6	H	-15.3	29.4	74.0
2272.187500	46.4	H	-15.1	27.6	74.0
4960.000000	43.8	H	-6.6	30.2	74.0
4994.875000	49.4	H	-6.7	24.6	74.0
1198.562500	42.3	V	-21.2	31.7	74.0
1791.625000	40.9	V	-17.4	33.1	74.0
2272.000000	42.7	V	-15.1	31.3	74.0
2635.750000	42.3	V	-13.4	31.7	74.0
4960.375000	47.9	V	-6.6	26.1	74.0
4999.187500	54.9	V	-6.7	19.1	74.0

**AV**

Frequency (MHz)	Average (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dB $\mu$ V/m)
1196.687500	30.5	H	-21.3	23.5	54.0
2219.875000	40.3	H	-15.3	13.7	54.0
2272.187500	43.2	H	-15.1	10.8	54.0
4960.000000	35.3	H	-6.6	18.7	54.0
4994.875000	30.8	H	-6.7	23.2	54.0
1198.562500	29.8	V	-21.2	24.2	54.0
1791.625000	26.3	V	-17.4	27.7	54.0
2272.000000	38.6	V	-15.1	15.4	54.0
2635.750000	36.8	V	-13.4	17.2	54.0
4960.375000	42.4	V	-6.6	11.6	54.0
4999.187500	32.6	V	-6.7	21.4	54.0

**Figure 15: Radiated Spurious Emission, TM7**


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

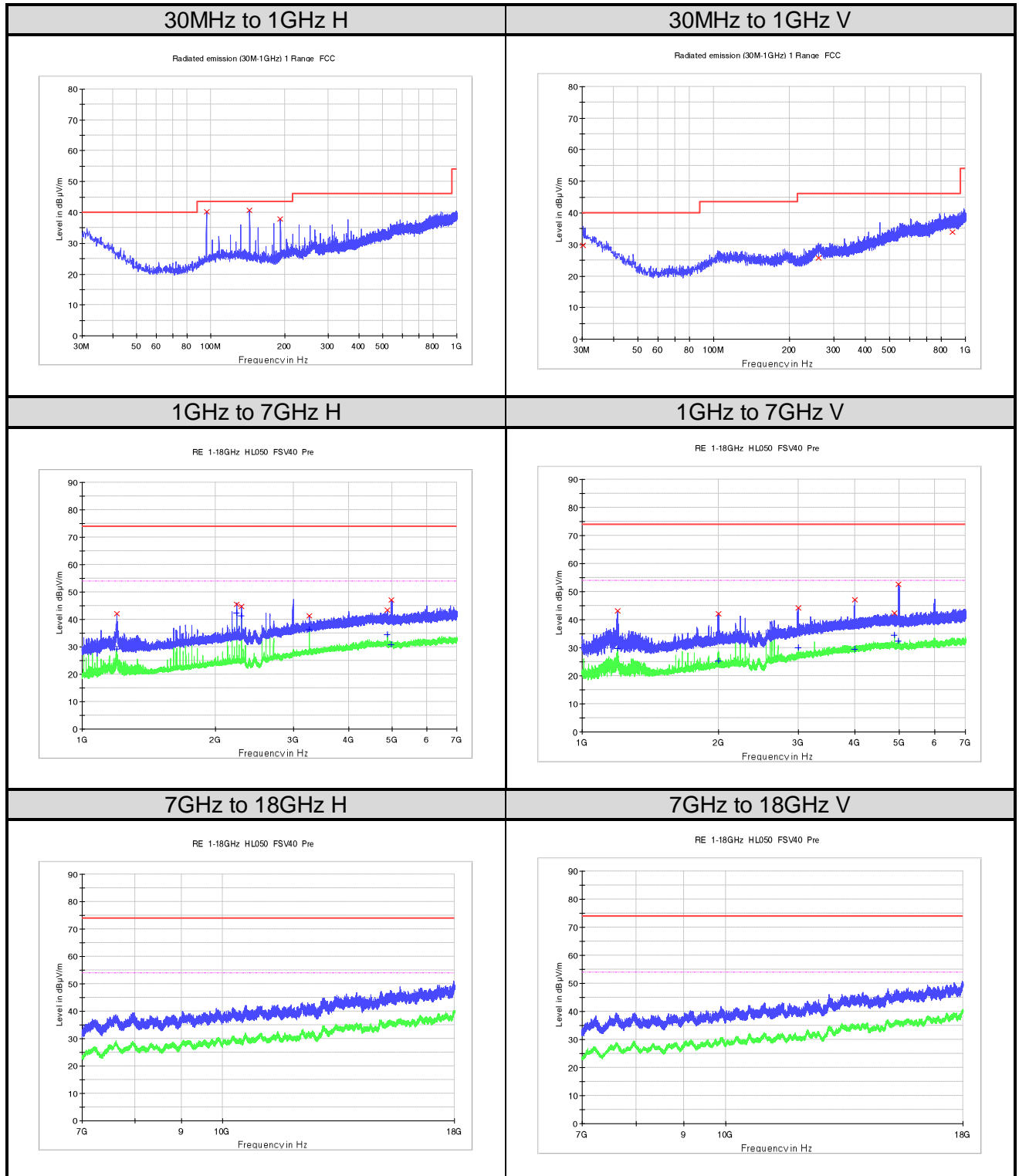
Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
95.960000	40.3	H	16.8	3.2	43.5
143.975000	40.4	H	17.8	3.1	43.5
191.990000	38.0	H	15.9	5.5	43.5
32.546250	28.6	V	24.1	11.4	40.0
260.981250	25.6	V	20.7	20.4	46.0
831.220000	33.4	V	27.5	12.6	46.0

**PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1199.125000	41.6	H	-21.2	32.4	74.0
2245.937500	44.4	H	-15.2	29.6	74.0
2297.875000	43.0	H	-15.0	31.0	74.0
3202.000000	42.4	H	-10.8	31.6	74.0
4803.800000	42.0	H	-6.5	32.0	74.0
4984.375000	46.3	H	-6.7	27.7	74.0
1195.375000	42.6	V	-21.3	31.4	74.0
1994.875000	41.1	V	-16.2	32.9	74.0
2245.937500	40.6	V	-15.2	33.4	74.0
3198.250000	41.2	V	-10.8	32.8	74.0
4804.187500	45.1	V	-6.5	28.9	74.0
4977.812500	51.9	V	-6.7	22.1	74.0

**AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1199.125000	28.6	H	-21.2	25.4	54.0
2245.937500	40.8	H	-15.2	13.2	54.0
2297.875000	37.7	H	-15.0	16.3	54.0
3202.000000	36.5	H	-10.8	17.5	54.0
4803.800000	33.4	H	-6.5	20.6	54.0
4984.375000	30.8	H	-6.7	23.2	54.0
1195.375000	30.7	V	-21.3	23.3	54.0
1994.875000	29.8	V	-16.2	24.2	54.0
2245.937500	34.6	V	-15.2	19.4	54.0
3198.250000	30.8	V	-10.8	23.2	54.0
4804.187500	37.6	V	-6.5	16.4	54.0
4977.812500	32.1	V	-6.7	21.9	54.0

**Figure 16: Radiated Spurious Emission, TM8**


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

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dB $\mu$ V/m)
95.960000	40.2	H	16.8	3.3	43.5
143.975000	40.6	H	17.8	2.9	43.5
191.990000	37.9	H	15.9	5.6	43.5
30.242500	29.8	V	25.3	10.2	40.0
260.011250	25.7	V	20.7	20.3	46.0
887.237500	34.0	V	28.0	12.0	46.0

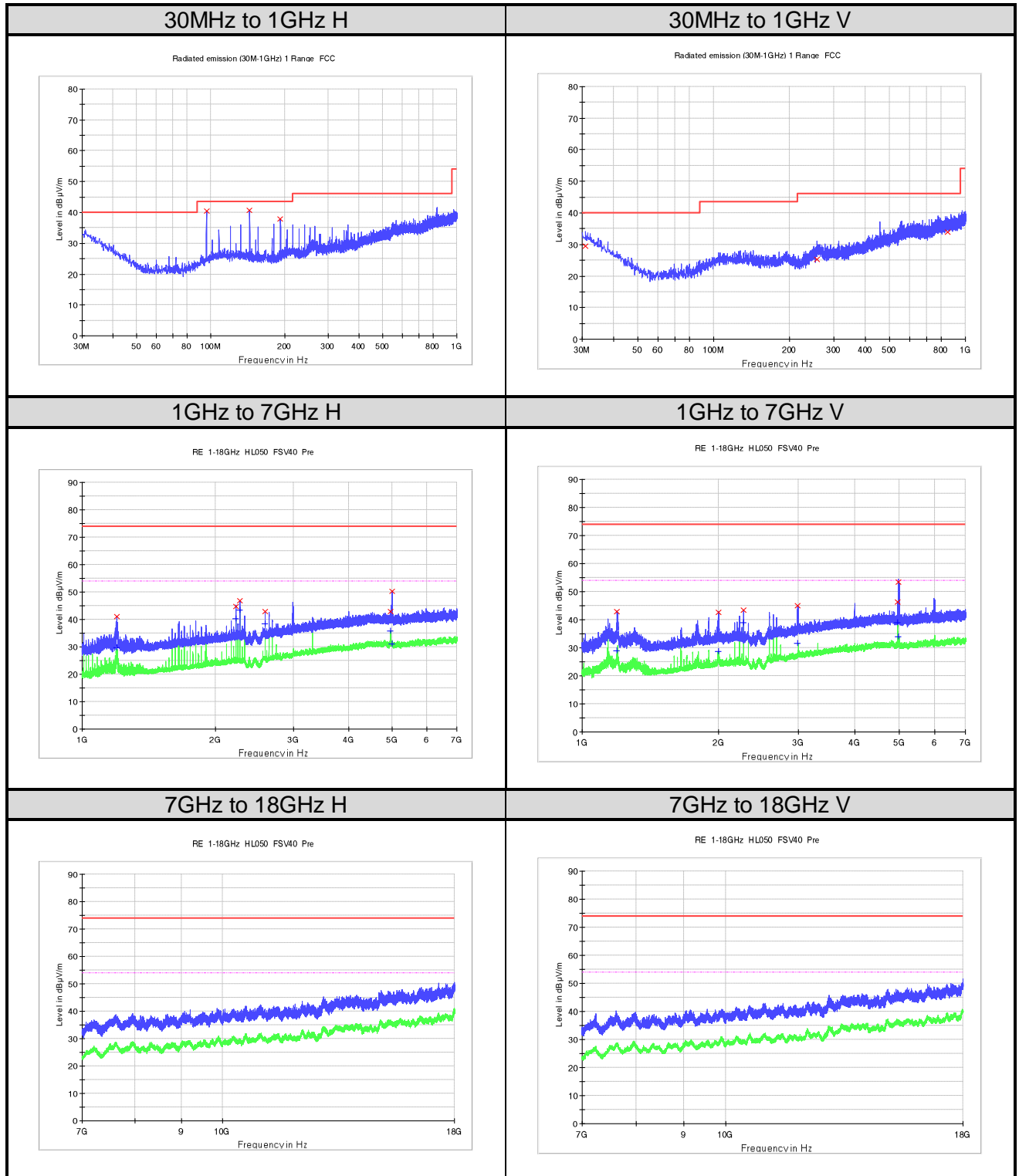
**PK**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dB $\mu$ V/m)
1195.937500	42.2	H	-21.3	31.8	74.0
2232.812500	45.6	H	-15.2	28.4	74.0
2284.750000	44.7	H	-15.0	29.3	74.0
3254.500000	41.2	H	-10.5	32.8	74.0
4881.812500	43.5	H	-6.5	30.5	74.0
4989.437500	47.0	H	-6.7	27.0	74.0
1195.562500	43.2	V	-21.3	30.8	74.0
1999.187500	42.2	V	-16.2	31.8	74.0
2994.062500	44.1	V	-11.8	29.9	74.0
3999.812500	47.0	V	-8.4	27.0	74.0
4881.812500	42.4	V	-6.5	31.6	74.0
4981.187500	52.7	V	-6.7	21.3	74.0

**AV**

Frequency (MHz)	Average (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dB $\mu$ V/m)
1195.937500	29.2	H	-21.3	24.8	54.0
2232.812500	42.4	H	-15.2	11.6	54.0
2284.750000	41.2	H	-15.0	12.8	54.0
3254.500000	36.3	H	-10.5	17.7	54.0
4881.812500	34.6	H	-6.5	19.4	54.0
4989.437500	30.9	H	-6.7	23.1	54.0
1195.562500	29.7	V	-21.3	24.3	54.0
1999.187500	25.3	V	-16.2	28.7	54.0
2994.062500	29.9	V	-11.8	24.1	54.0
3999.812500	29.6	V	-8.4	24.4	54.0
4881.812500	34.5	V	-6.5	19.5	54.0
4981.187500	32.5	V	-6.7	21.5	54.0



**Figure 17: Radiated Spurious Emission, TM9**


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

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dB $\mu$ V/m)
95.960000	40.5	H	16.8	3.0	43.5
143.975000	40.7	H	17.8	2.8	43.5
191.990000	37.9	H	15.9	5.6	43.5
30.970000	29.5	V	24.9	10.5	40.0
256.616250	25.2	V	20.2	20.8	46.0
851.711250	33.9	V	27.9	12.1	46.0

**PK**

Frequency (MHz)	MaxPeak (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dB $\mu$ V/m)
1199.312500	41.0	H	-21.2	33.0	74.0
2220.062500	44.7	H	-15.3	29.3	74.0
2271.625000	46.8	H	-15.1	27.2	74.0
2583.625000	43.0	H	-13.7	31.0	74.0
4960.000000	42.8	H	-6.6	31.2	74.0
4998.812500	50.3	H	-6.7	23.7	74.0
1195.000000	43.0	V	-21.3	31.0	74.0
1994.312500	42.7	V	-16.3	31.3	74.0
2271.812500	43.3	V	-15.1	30.7	74.0
2986.562500	44.9	V	-11.8	29.1	74.0
4959.812500	46.2	V	-6.6	27.8	74.0
4989.062500	53.4	V	-6.7	20.6	74.0

**AV**

Frequency (MHz)	Average (dB $\mu$ V/m)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dB $\mu$ V/m)
1199.312500	29.7	H	-21.2	24.3	54.0
2220.062500	40.3	H	-15.3	13.7	54.0
2271.625000	43.5	H	-15.1	10.5	54.0
2583.625000	38.5	H	-13.7	15.5	54.0
4960.000000	35.7	H	-6.6	18.3	54.0
4998.812500	31.0	H	-6.7	23.0	54.0
1195.000000	28.9	V	-21.3	25.1	54.0
1994.312500	28.6	V	-16.3	25.4	54.0
2271.812500	38.9	V	-15.1	15.1	54.0
2986.562500	31.6	V	-11.8	22.4	54.0
4959.812500	39.0	V	-6.6	15.0	54.0
4989.062500	33.9	V	-6.7	20.1	54.0

## 6. List of Tables

Table 1: List of Test and Measurement Equipment .....	5
Table 2: Measurement Uncertainty .....	6
Table 3: Technical Specification of EUT .....	7
Table 4: Independent Operation Modes.....	8
Table 5: Power parameter value.....	9

## 7. List of Figures

Figure 1: Radiated Band-Edge, TM1 .....	14
Figure 2: Radiated Band-Edge, TM3 .....	14
Figure 3: Radiated Band-Edge, TM4 .....	14
Figure 4: Radiated Band-Edge, TM6 .....	15
Figure 5: Radiated Band-Edge, TM7 .....	15
Figure 6: Radiated Band-Edge, TM9 .....	15
Figure 7: Radiated Spurious Emission, TM1 .....	17
Figure 8: Radiated Spurious Emission, TM2.....	19
Figure 9: Radiated Spurious Emission, TM3.....	21
Figure 10: Radiated Spurious Emission, TM4.....	23
Figure 11: Radiated Spurious Emission, TM5.....	25
Figure 12: Radiated Spurious Emission, TM6.....	27
Figure 13: Radiated Spurious Emission, TM7.....	29
Figure 14: Radiated Spurious Emission, TM8.....	31
Figure 15: Radiated Spurious Emission, TM9.....	33