
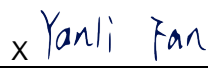


<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	<b>CN21BLDK 001</b>	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	<b>244342625</b>	Seite 1 von 123 Page 1 of 123	
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	<b>P00338203</b>	<b>Auftragsdatum:</b> <i>Order date:</i>	<b>2021-06-29</b>		
<b>Auftraggeber:</b> <i>Client:</i>	<b>Beijing Roborock Technology Co., Ltd.</b> Floor 6, Suite 6016, 6017, 6018, Building C, Kangjian Baosheng Plaza, No. 8 Heiquan Road, Haidian District, 100192 Beijing, P. R. China				
<b>Prüfgegenstand:</b> <i>Test item:</i>	Robotic Vacuum Cleaner				
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	roborock S6 Pure, roborock S4 Max FCC ID:2AN2O-RSW03 IC:23317-RSW03				
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	Complete test				
<b>Prüfgrundlage:</b> <i>Test specification:</i>	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> <i>Date of sample receipt:</i>	2021-07-06				
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	A003084721-005				
<b>Prüfzeitraum:</b> <i>Testing period:</i>	Refer to test report				
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	TÜV Rheinland (Shanghai) Co., Ltd.				
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.				
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass				
<b>geprüft von:</b> <i>tested by:</i>	 X Yanli Fan				<b>genehmigt von:</b> <i>authorized by:</i>
<b>Datum:</b> <i>Date:</i>	2021-09-23	<b>Ausstellungsdatum:</b> <i>Issue date:</i>	2021-09-23		
<b>Stellung / Position:</b>	PE/Yanli Fan	<b>Stellung / Position:</b>	Reviewer/Hongfei Wu		
<b>Sonstiges /</b> <i>Other:</i>	HVIN: BL-M6158NS1 The purpose of this report is to perform the C2PC tests since the host of the wireless module and antenna gain were changed, so only the related tests were performed.				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <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				
<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>					

V05

## TEST SUMMARY

### 5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

### 5.2.1 CONDUCTED EMISSION

RESULT: Pass

### 5.3.1 RADIATED BAND-EDGE

RESULT: Pass

### 5.3.2 RADIATED SPURIOUS EMISSION

RESULT: Pass

## Contents

<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>CONDUCTED TESTING AT ANTENNA PORT .....</b>	<b>10</b>
5.1.1	<i>Antenna Requirement.....</i>	<i>10</i>
<b>5.2</b>	<b>EMISSION IN THE FREQUENCY RANGE UP TO 30MHZ.....</b>	<b>12</b>
5.2.1	<i>Conducted Emission.....</i>	<i>12</i>
<b>5.3</b>	<b>EMISSION IN THE FREQUENCY RANGE ABOVE 30MHZ .....</b>	<b>15</b>
5.3.1	<i>Radiated Band-Edge .....</i>	<i>15</i>
5.3.2	<i>Radiated Spurious Emission.....</i>	<i>24</i>
<b>6.</b>	<b>LIST OF TABLES .....</b>	<b>121</b>
<b>7.</b>	<b>LIST OF FIGURES .....</b>	<b>121</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	2021-09-18
Spectrum analyser	Rohde & Schwarz	FSV40	G1822702	2021-11-01
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	2023-07-08
Preamplifier	Taiwan EMCI	EMC051845SE	G1825371	2023-03-06
Spectrum Analyzer	Keysight	N9020A	MY54500180	2021-09-08
Thermohygrometer	Testo	608-H1	1241320614	2021-10-13
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
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 Robotic Vacuum Cleaner which supports Wi-Fi.

The aim of this report is to evaluate the RF characteristic of the Wi-Fi Part of this EUT.

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:	Robotic Vacuum Cleaner
Model No.:	roborock S6 Pure, roborock S4 Max
Rated Voltage:	DC 20V, 1.2A
Extreme operating temperature:	4~40°C
Technical Specification of W-LAN	
Frequency Range:	2412 to 2462 MHz for 802.11b/g/n-HT20 2422 to 2452 MHz for 802.11n-HT40
Modulation Type:	DSSS (CCK, DQPSK, DBPSK) OFDM (QPSK/BPSK/16QAM/64QAM)
Antenna Type:	Internal antenna
Antenna Gain:	3.87 dBi
Receiver Category:	1

### 3.3 Independent Operation Modes

**Table 4: Independent Operation Modes**

Test Mode Tx	Operating Mode	Channel Number	Channel Frequency [MHz]
TM1	802.11b	1	2412
TM2	802.11b	6	2437
TM3	802.11b	11	2462
TM4	802.11g	1	2412
TM5	802.11g	6	2437
TM6	802.11g	11	2462
TM7	802.11n-HT20	1	2412
TM8	802.11n-HT20	6	2437
TM9	802.11n-HT20	11	2462
TM10	802.11n-HT40	3	2422
TM11	802.11n-HT40	6	2437
TM12	802.11n-HT40	9	2452
TM13	Normal		

### 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.

### 4.3 Special Accessories and Auxiliary Equipment

Null.

### 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 antenna, the directional gain of antenna is 3.87 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 5: 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:	Internal 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 internal 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	

**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:	Internal antenna
b) Manufacture:	N/A
c) Model No.:	N/A
d) Gain with reference to an isotropic radiator:	3.87

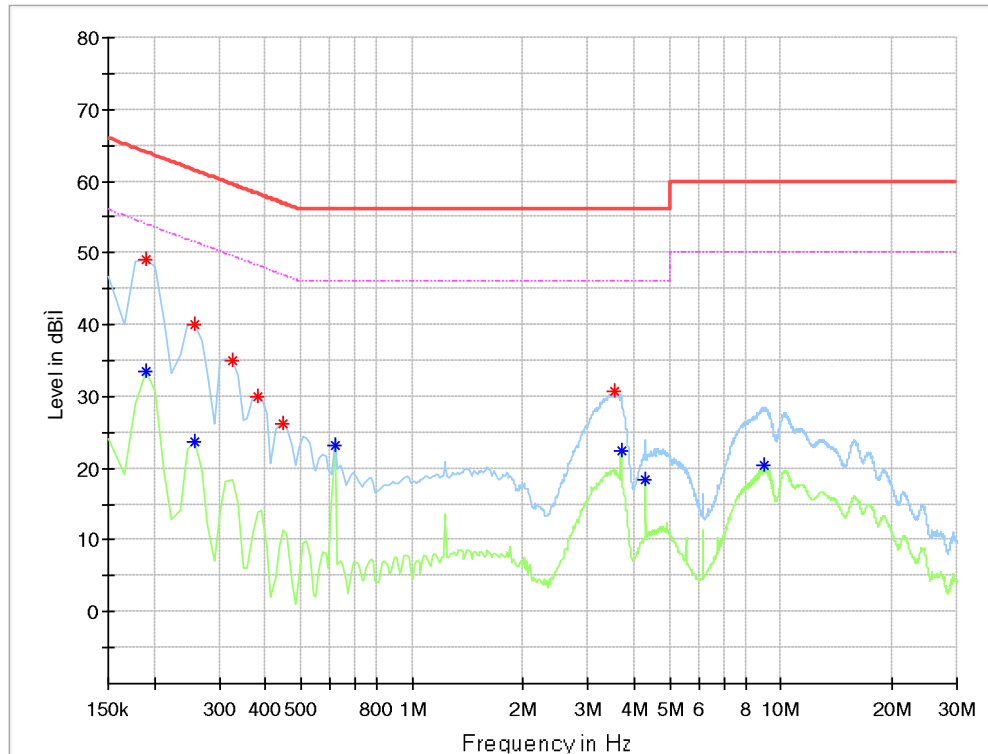
Verdict: PASS

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

### 5.2.1 Conducted Emission

**RESULT:****Pass**

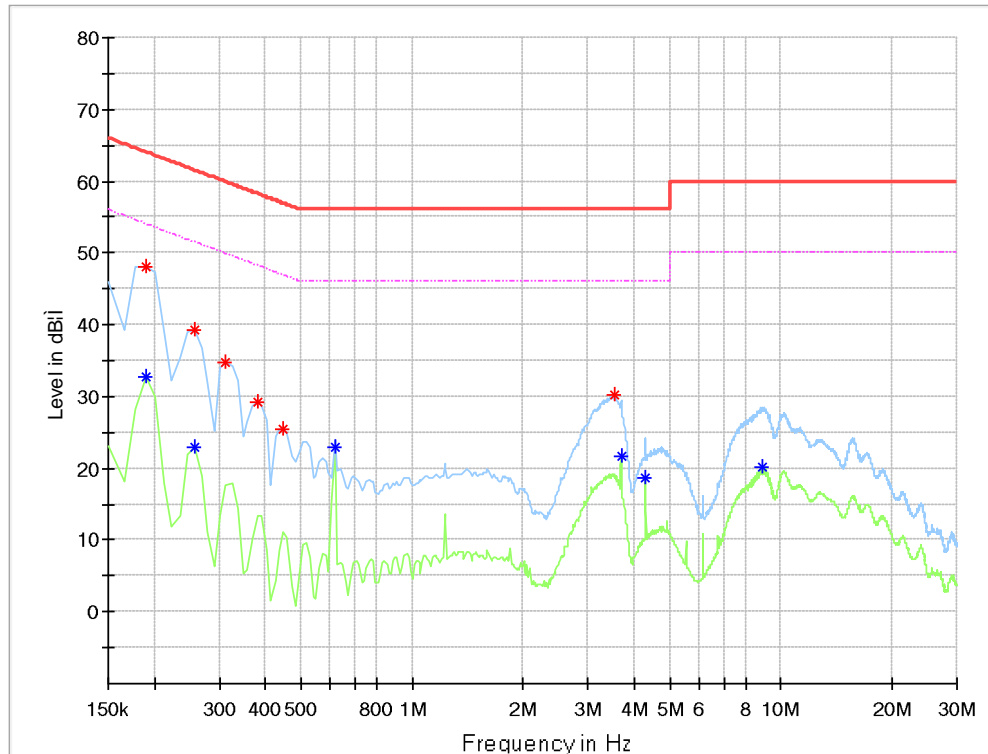
Date of testing	:	2021-08-20
Ambient temperature	:	26.1°C
Relative humidity	:	32.7%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.207 (a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.8
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	AC 120V/60Hz
Test modes applied	:	TM13

**Figure 1: Conducted Emission, L**

**Final\_Result\_QPK**

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Line
0.189375	49.09	64.06	14.98	L
0.256875	40.04	61.53	21.49	L
0.324375	35.10	59.59	24.50	L
0.380625	30.00	58.27	28.27	L
0.448125	26.26	56.91	30.65	L
3.553125	30.62	56.00	25.38	L

**Final\_Result\_CAV**

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line
4.295625	18.42	46.00	27.58	L
9.031875	20.39	50.00	29.61	L
3.688125	22.31	46.00	23.69	L
0.616875	23.08	46.00	22.92	L
0.256875	23.6	51.53	27.93	L
0.189375	33.41	54.06	20.65	L

**Figure 2: Conducted Emission, N**

**Final\_Result\_QPK**

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Line
0.189375	48.20	64.06	15.87	N
0.256875	39.25	61.53	22.28	N
0.313125	34.64	59.89	25.25	N
0.380625	29.18	58.27	29.09	N
0.448125	25.44	56.91	31.47	N
3.541875	30.17	56.00	25.83	N

**Final\_Result\_CAV**

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Line
4.295625	18.65	46.00	27.35	N
8.908125	20.09	50.00	29.91	N
3.688125	21.71	46.00	24.29	N
0.256875	22.91	51.53	28.62	N
0.616875	23.05	46.00	22.95	N
0.189375	32.62	54.06	21.44	N

## 5.3 Emission in the Frequency Range above 30MHz

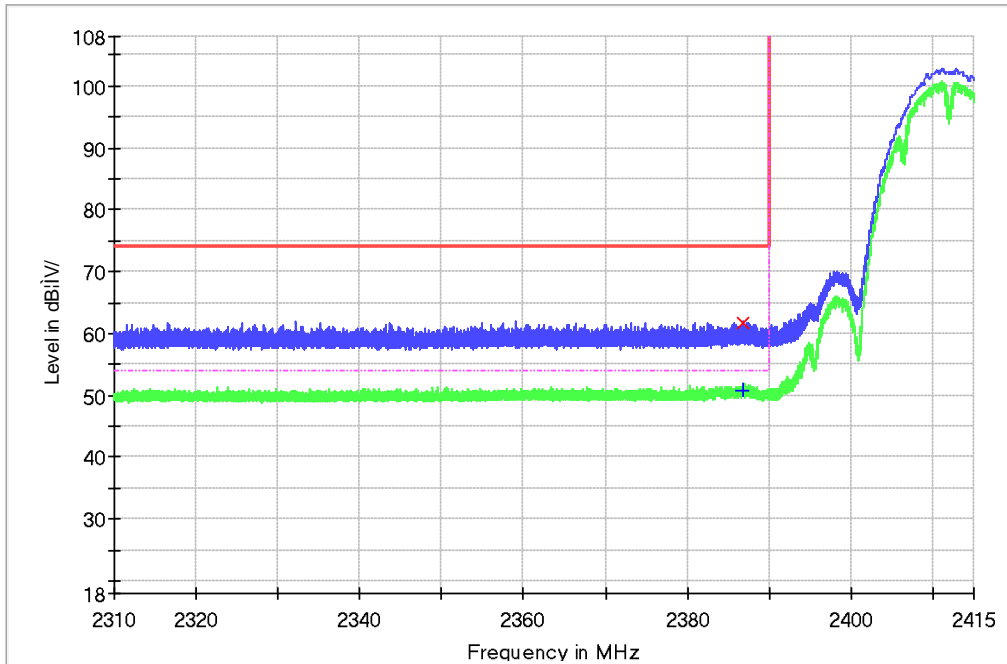
### 5.3.1 Radiated Band-Edge

**RESULT:****Pass**

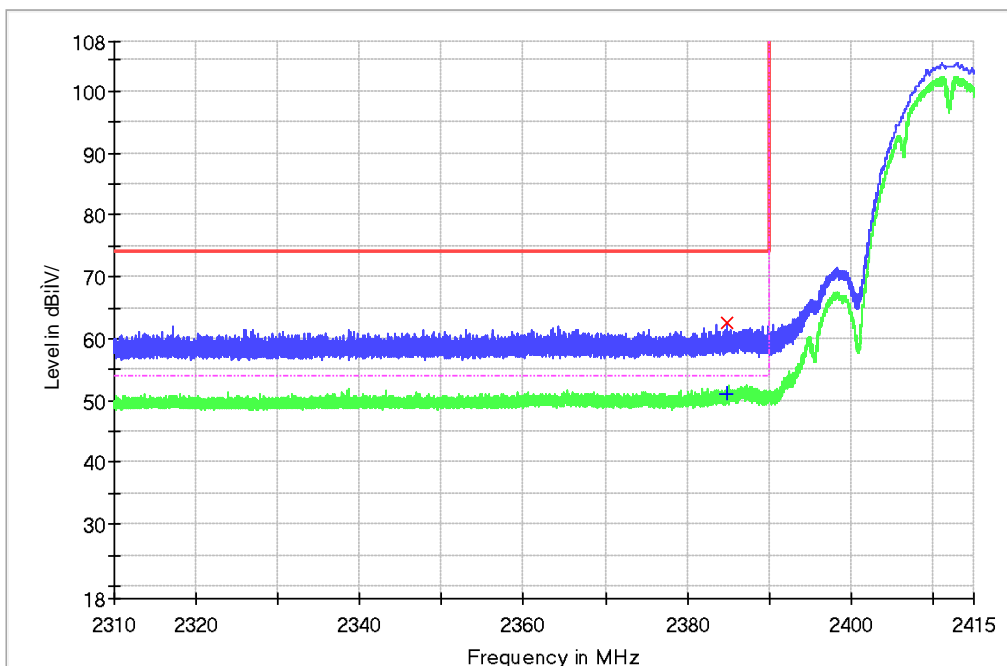
Date of testing	:	2021-07-27
Ambient temperature	:	26.1°C
Relative humidity	:	32.7%
Atmospheric pressure	:	101kPa
Test requirement	:	FCC Part 15.247(d) FCC Part 15.205(a) FCC Part 15.209(a) RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.9 RSS-Gen Issue 5, Amendment 2, February 2021, Clause 8.10 RSS-247 Issue 2, February 2017, Clause 5.5
Test procedure	:	ANSI C63.10: 2013
Test voltage	:	AC 120V/60Hz
Test modes applied	:	TM1, TM3, TM4, TM6, TM7, TM9, TM10, TM12

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

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Figure 4: Radiated Band-Edge, TM1, V**

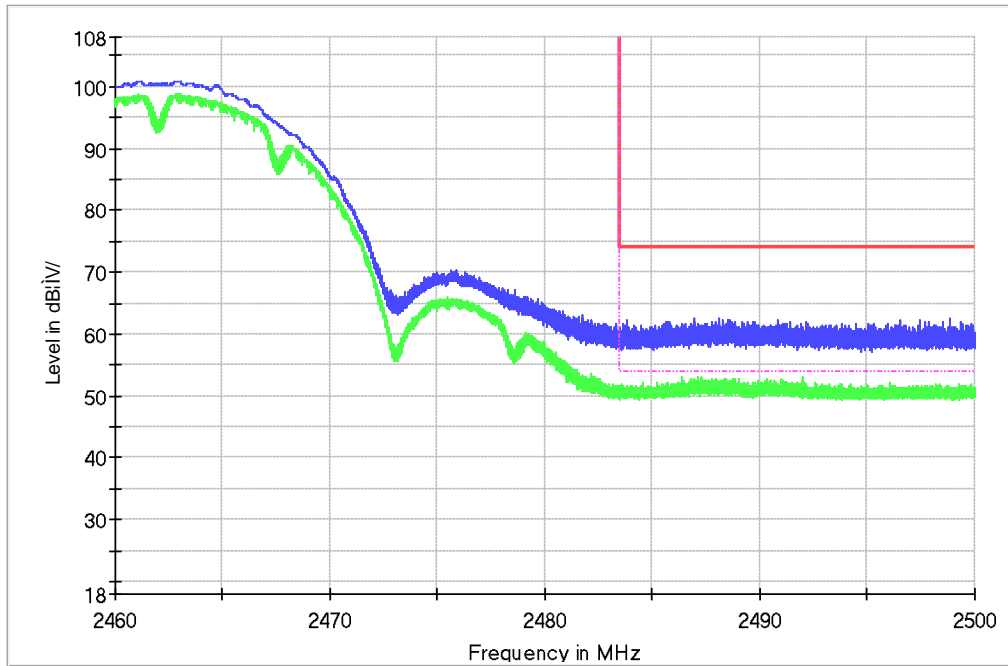
RE\_1-18GHz\_HL050\_FSV40\_Pre



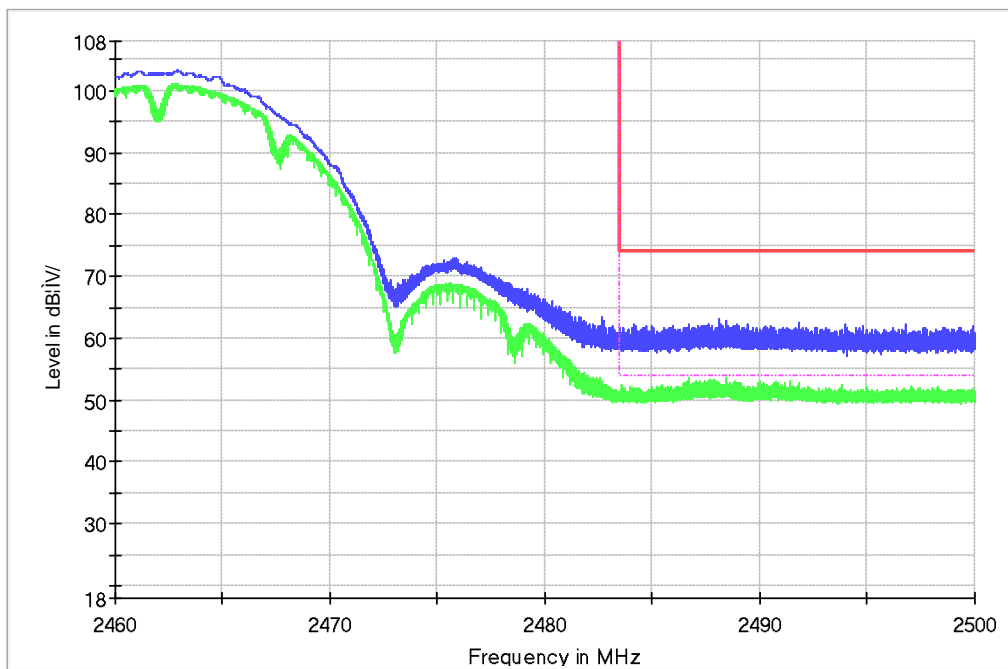


**Figure 5: Radiated Band-Edge, TM3, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre

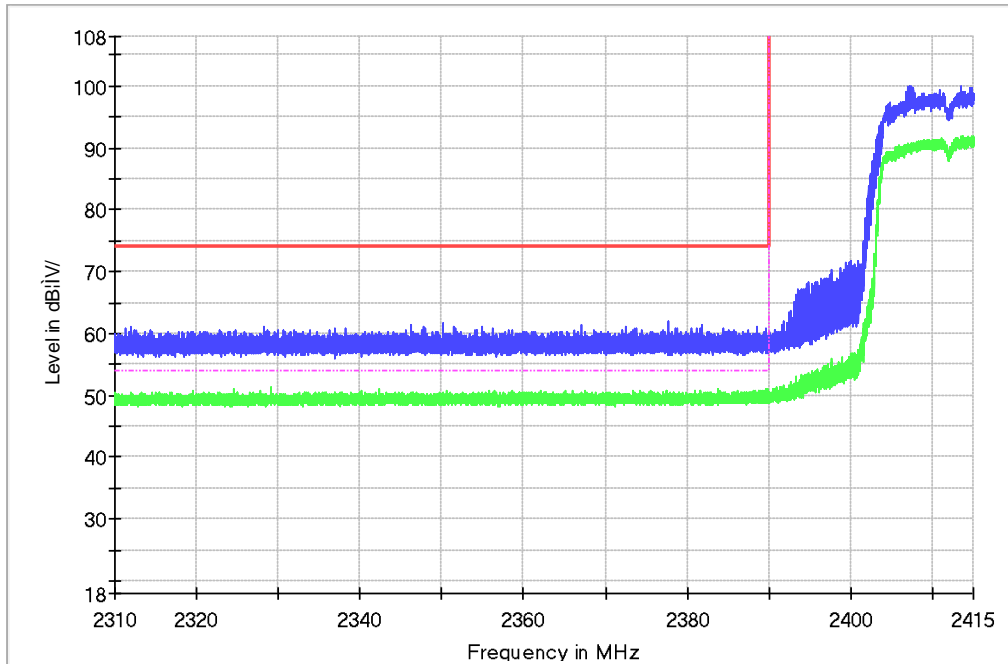

**Figure 6: Radiated Band-Edge, TM3, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre



**Figure 7: Radiated Band-Edge, TM4, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Figure 8: Radiated Band-Edge, TM4, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre

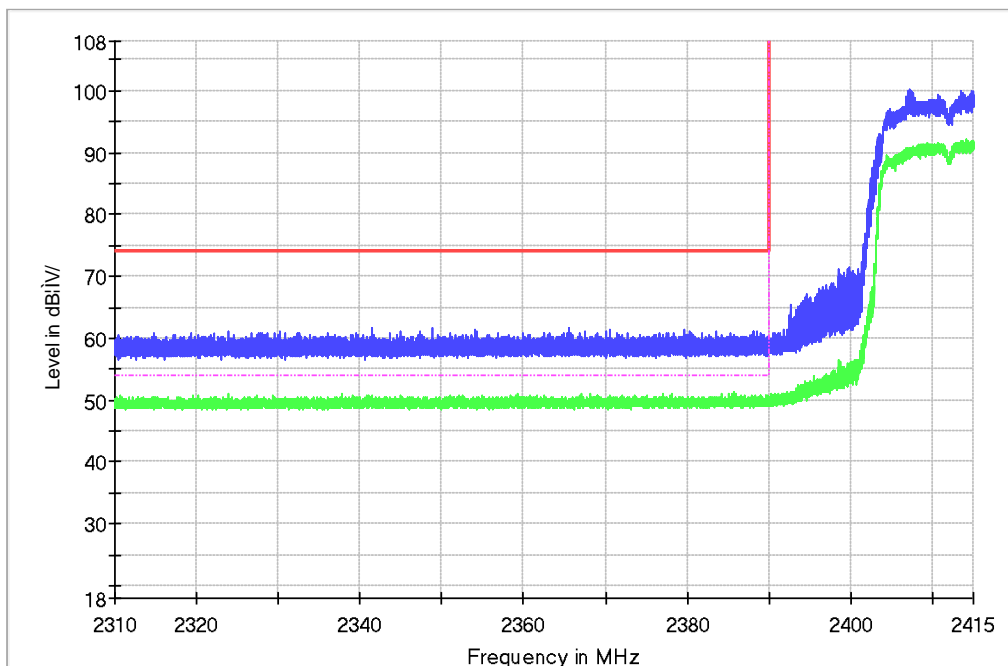


Figure 9: Radiated Band-Edge, TM6, H

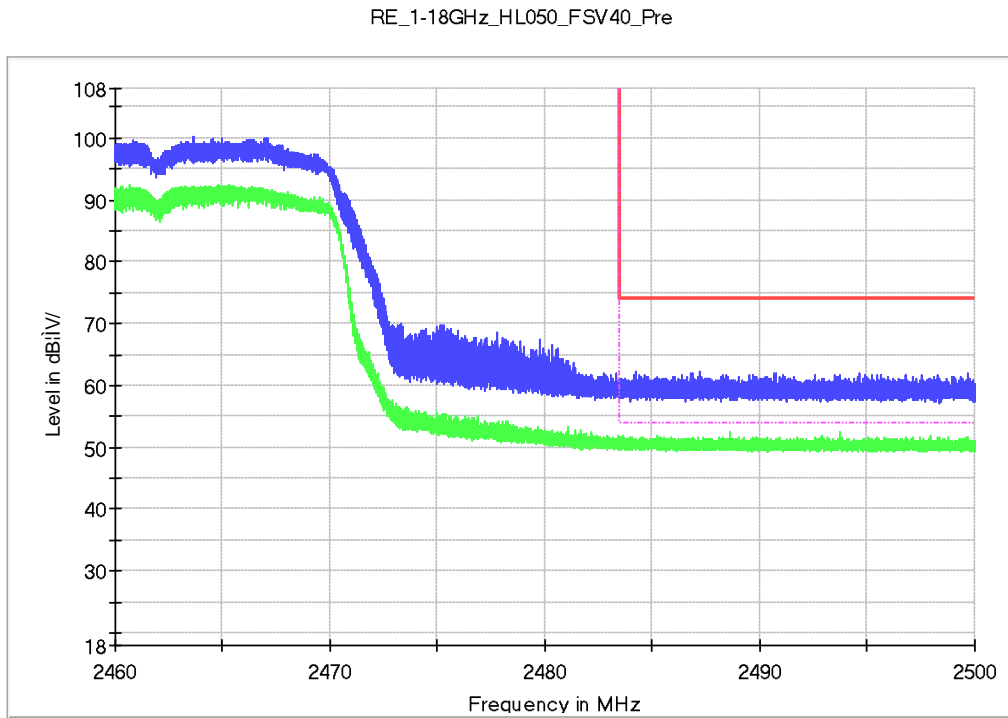
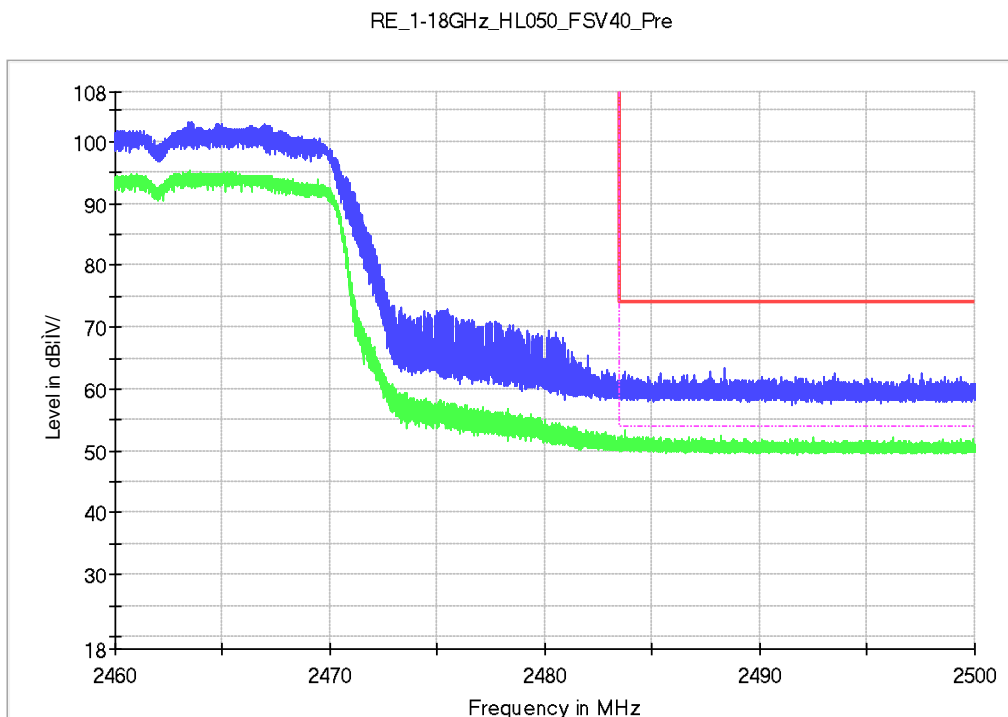
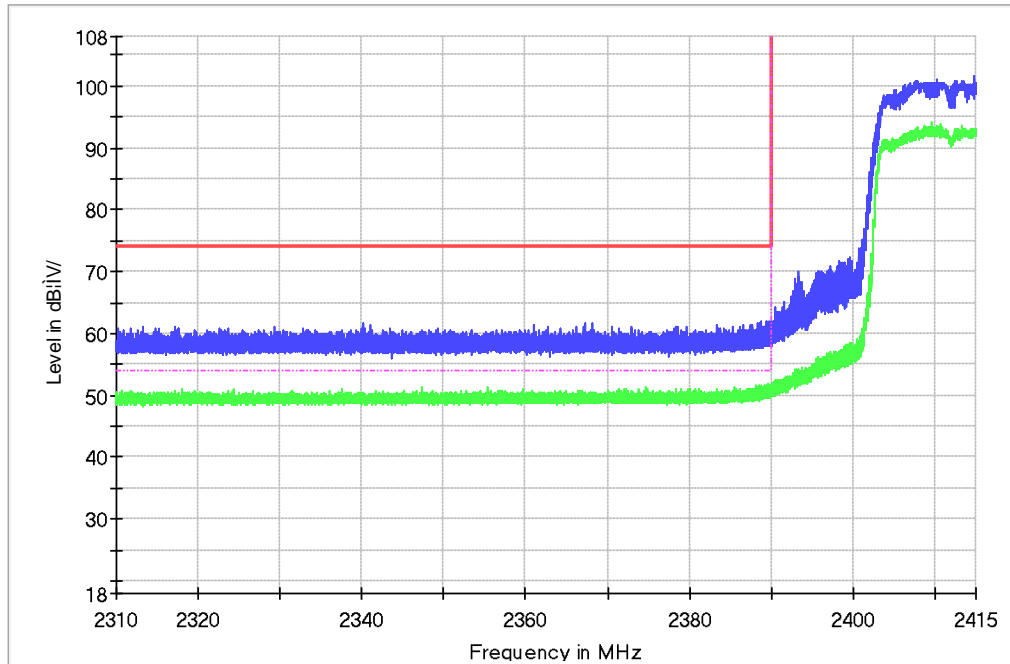


Figure 10: Radiated Band-Edge, TM6, V



**Figure 11: Radiated Band-Edge, TM7, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Figure 12: Radiated Band-Edge, TM7, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre

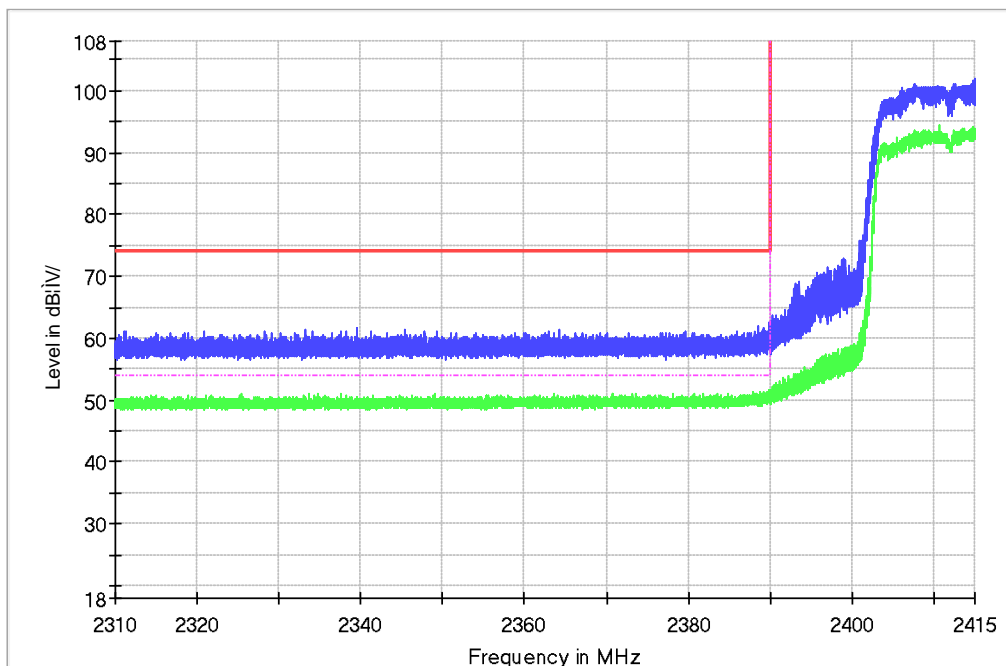


Figure 13: Radiated Band-Edge, TM9, H

RE\_1-18GHz\_HL050\_FSV40\_Pre

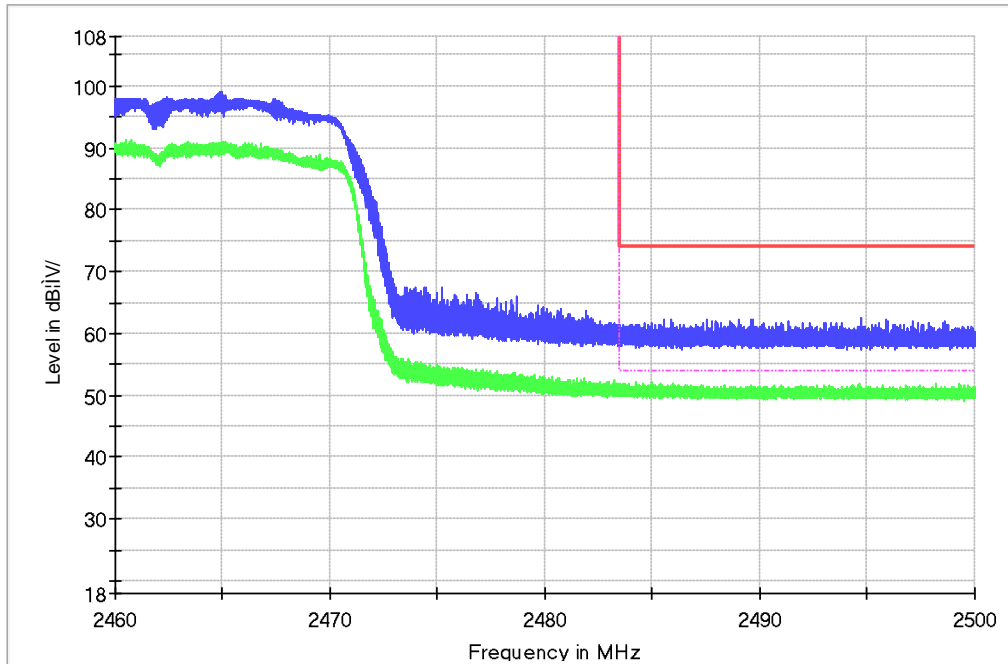


Figure 14: Radiated Band-Edge, TM9, V

RE\_1-18GHz\_HL050\_FSV40\_Pre

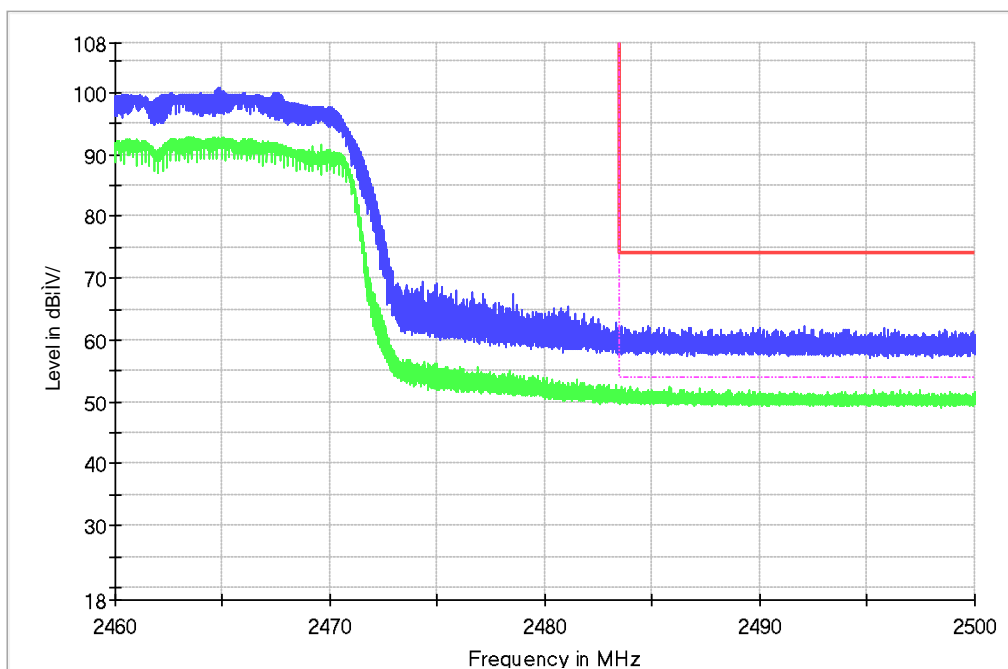


Figure 15: Radiated Band-Edge, TM10, H

RE\_1-18GHz\_HL050\_FSV40\_Pre

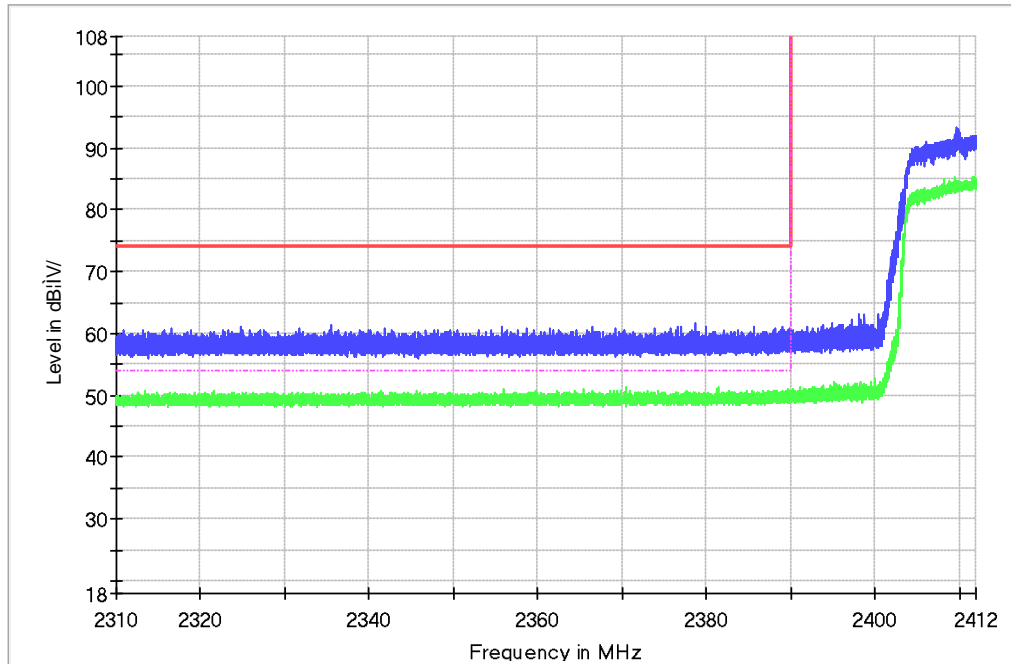
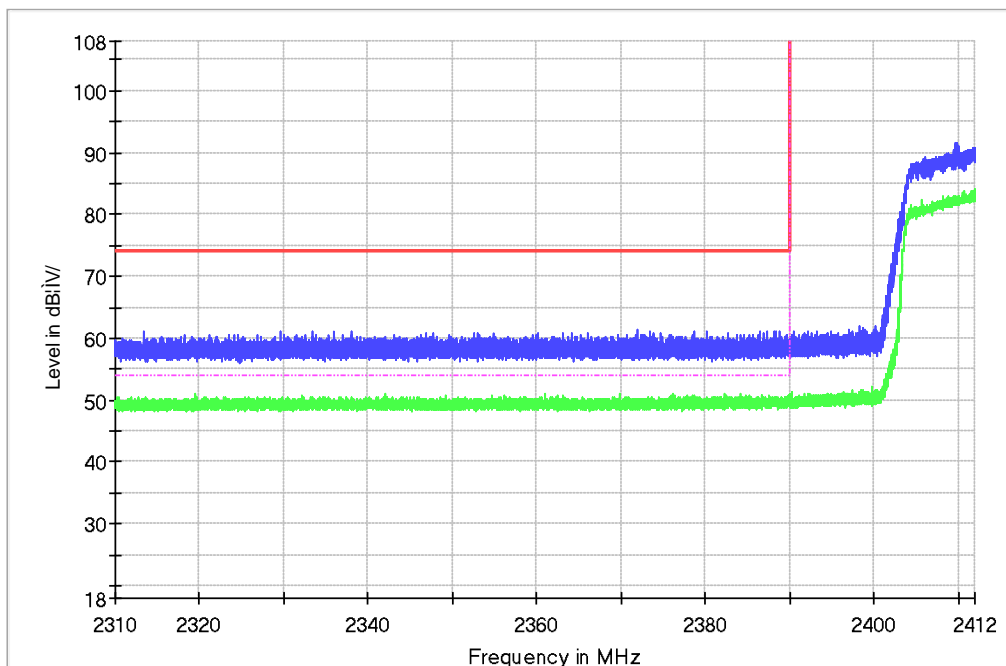


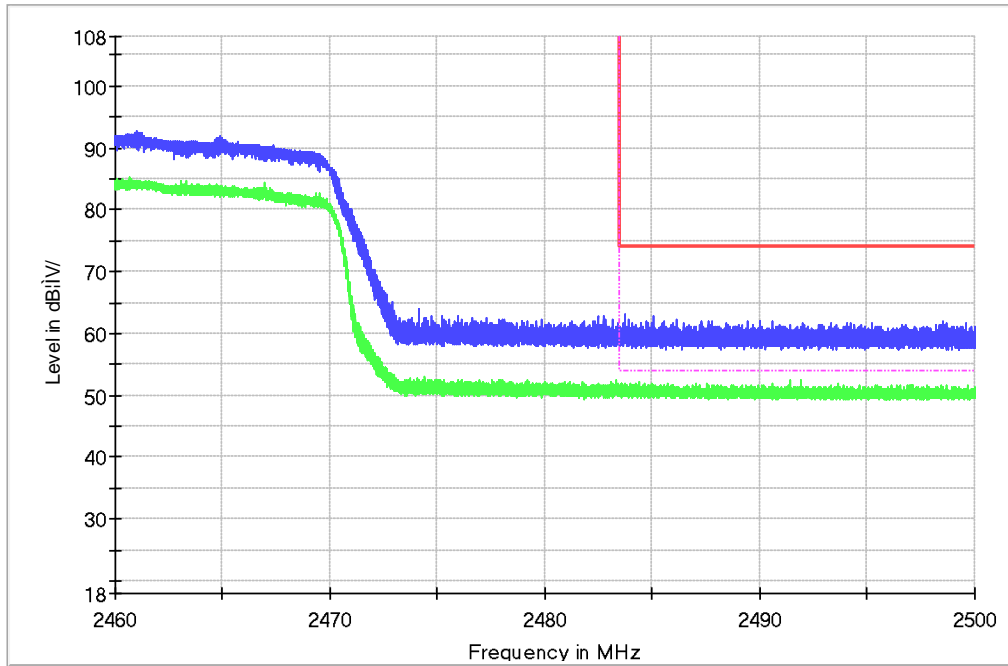
Figure 16: Radiated Band-Edge, TM10, V

RE\_1-18GHz\_HL050\_FSV40\_Pre

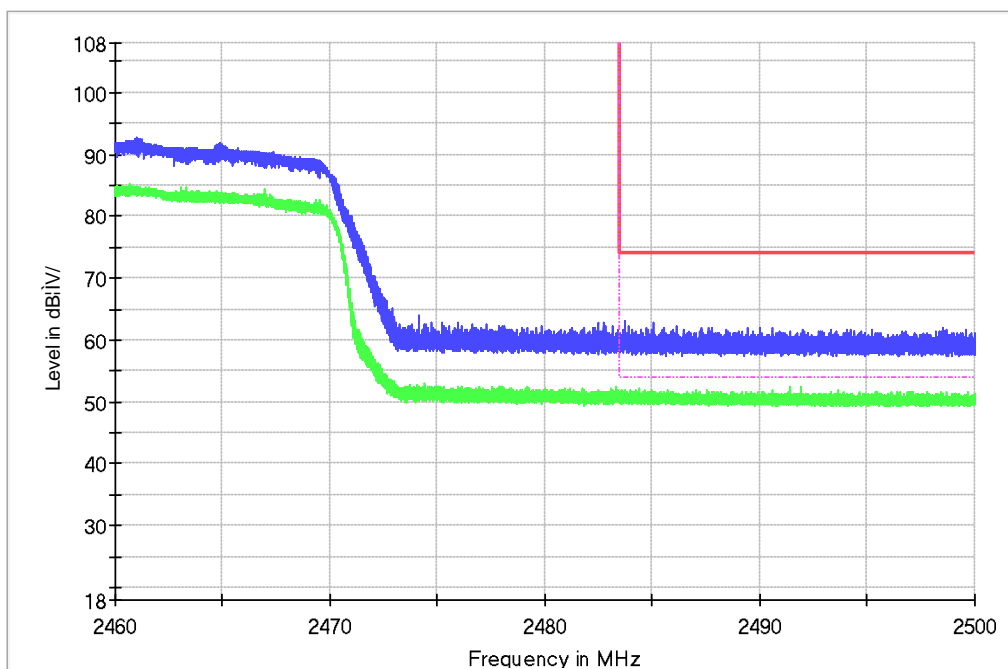


**Figure 17: Radiated Band-Edge, TM12, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Figure 18: Radiated Band-Edge, TM12, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre



### 5.3.2 Radiated Spurious Emission

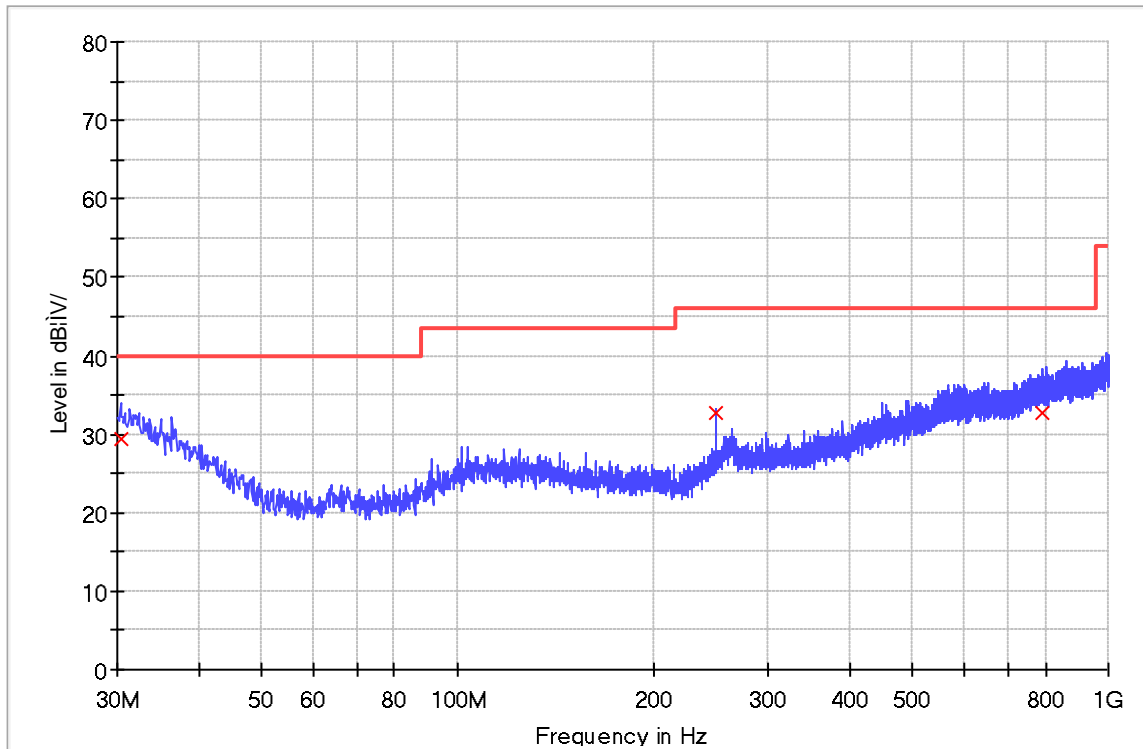
**RESULT:****Pass**

Date of testing	:	2021-08-19
Ambient temperature	:	26.1°C
Relative humidity	:	32.7%
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	:	AC 120V/60Hz
Test modes applied	:	TM1 to TM12



**Figure 19: Radiated Spurious Emission, TM1, 30MHz to 1GHz, H**

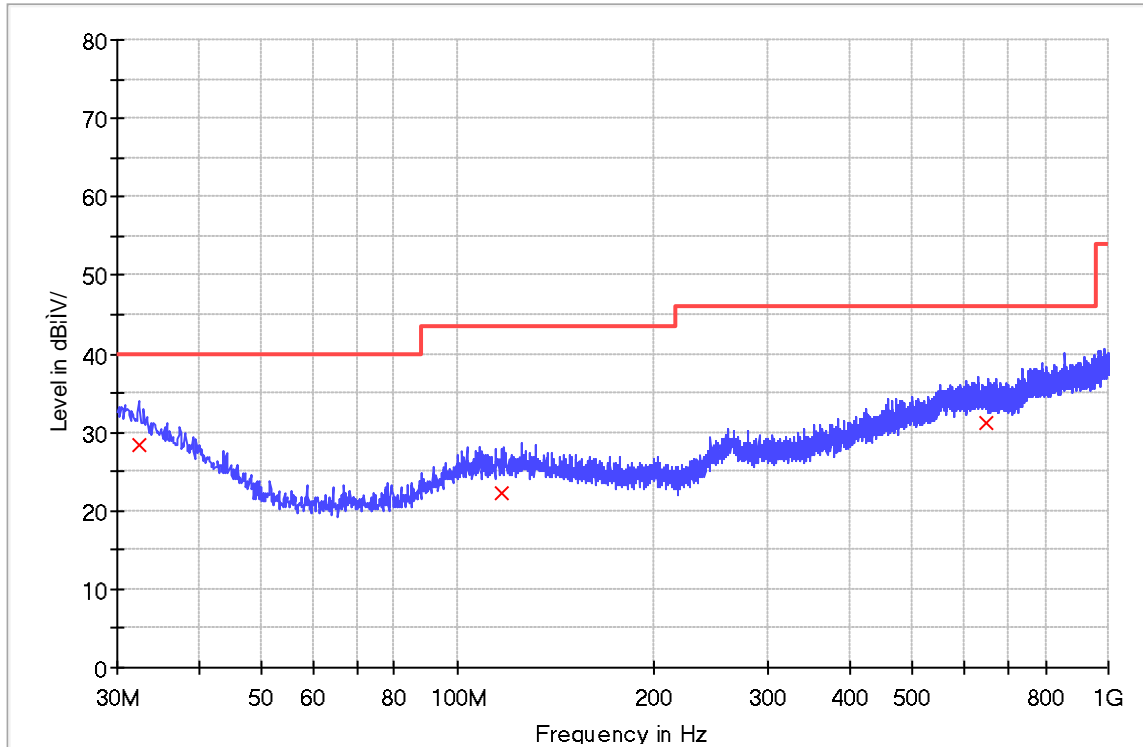
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.363750	29.3	H	25.2	10.7	40.0
249.947500	32.8	H	19.3	13.2	46.0
789.752500	32.8	H	27.6	13.2	46.0

**Figure 20: Radiated Spurious Emission, TM1, 30MHz to 1GHz, V**

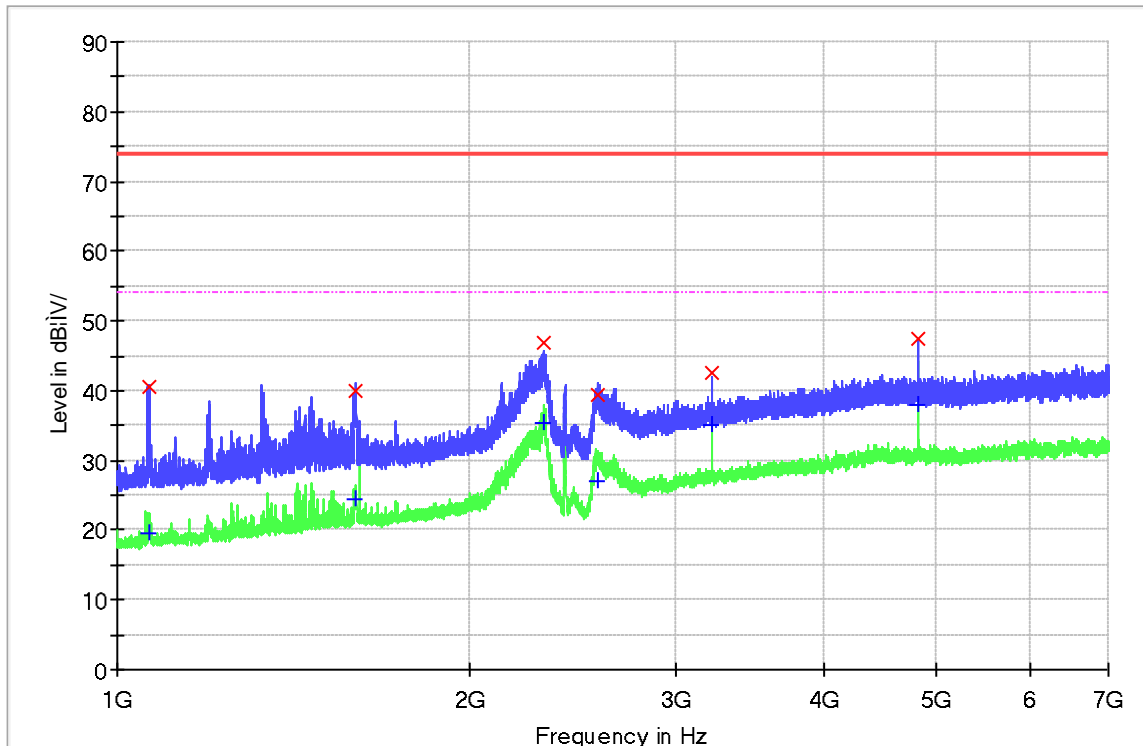
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
32.425000	28.3	V	24.2	11.7	40.0
116.693750	22.2	V	18.6	21.3	43.5
649.951250	31.2	V	26.3	14.8	46.0

**Figure 21: Radiated Spurious Emission, TM1, 1GHz to 7GHz, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

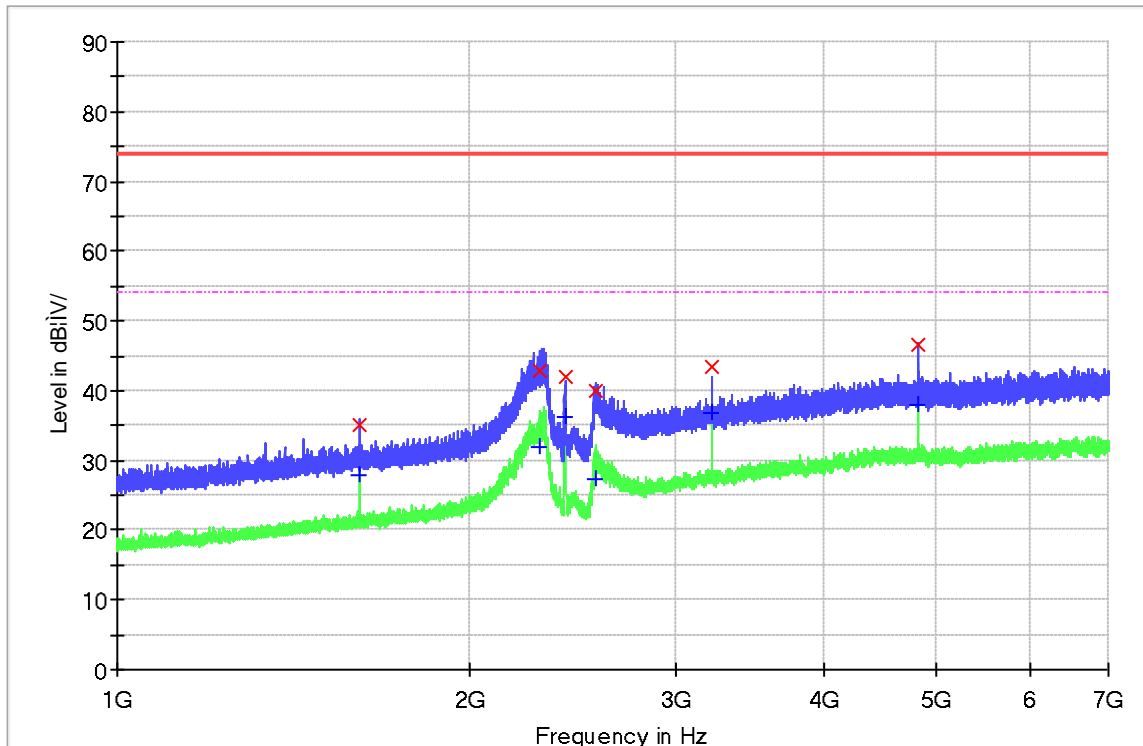
Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1064.687500	40.6	H	-22.1	33.4	74.0
1597.937500	40.1	H	-18.3	33.9	74.0
2313.625000	46.8	H	-14.9	27.2	74.0
2568.250000	39.4	H	-13.8	34.6	74.0
3215.687500	42.6	H	-10.7	31.4	74.0
4824.062500	47.5	H	-6.5	26.5	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1064.687500	19.5	H	-22.1	34.5	54.0
1597.937500	24.5	H	-18.3	29.5	54.0
2313.625000	35.2	H	-14.9	18.8	54.0
2568.250000	26.9	H	-13.8	27.1	54.0
3215.687500	35.2	H	-10.7	18.8	54.0
4824.062500	37.9	H	-6.5	16.1	54.0

**Figure 22: Radiated Spurious Emission, TM1, 1GHz to 7GHz, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1608.062500	35.2	V	-18.3	38.8	74.0
2296.187500	42.8	V	-15.0	31.2	74.0
2409.062500	42.1	V	-14.4	31.9	74.0
2555.312500	40.0	V	-13.9	34.0	74.0
3215.875000	43.4	V	-10.7	30.6	74.0
4824.062500	46.7	V	-6.5	27.3	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1608.062500	27.9	V	-18.3	26.1	54.0
2296.187500	31.8	V	-15.0	22.2	54.0
2409.062500	36.2	V	-14.4	17.8	54.0
2555.312500	27.3	V	-13.9	26.7	54.0
3215.875000	36.9	V	-10.7	17.1	54.0
4824.062500	38.0	V	-6.5	16.0	54.0

Figure 23: Radiated Spurious Emission, TM1, 7GHz to 18GHz, H

RE\_1-18GHz\_HL050\_FSV40\_Pre

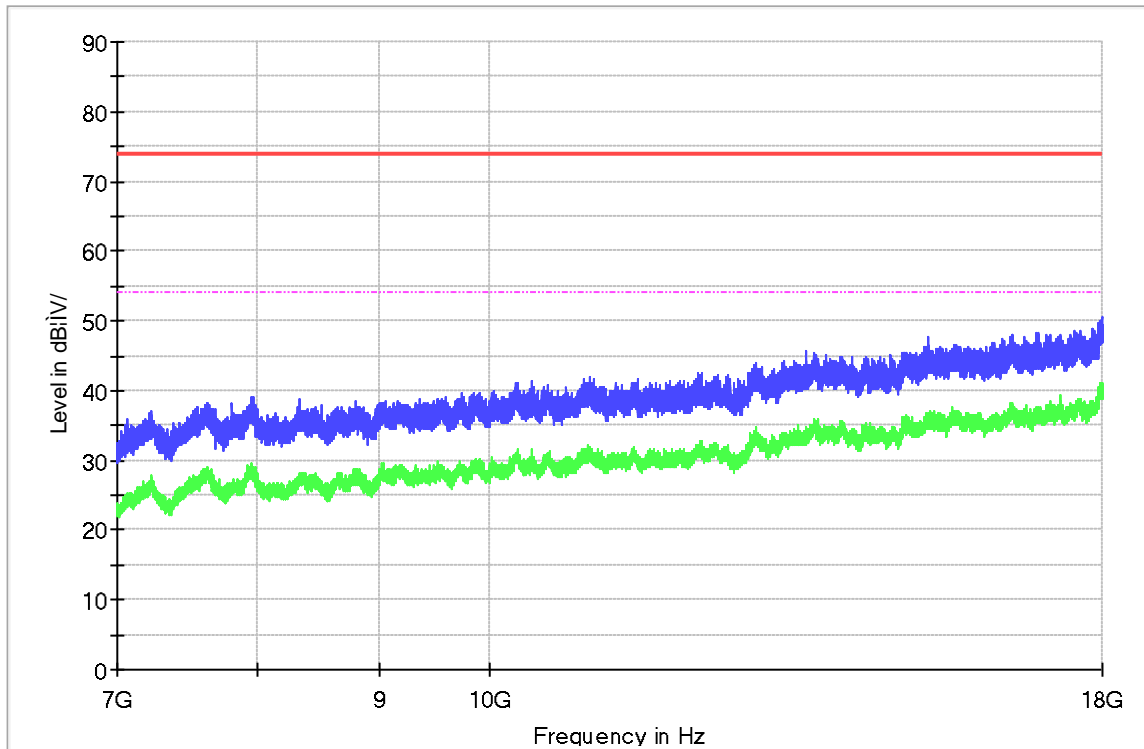


Figure 24: Radiated Spurious Emission, TM1, 7GHz to 18GHz, V

RE\_1-18GHz\_HL050\_FSV40\_Pre

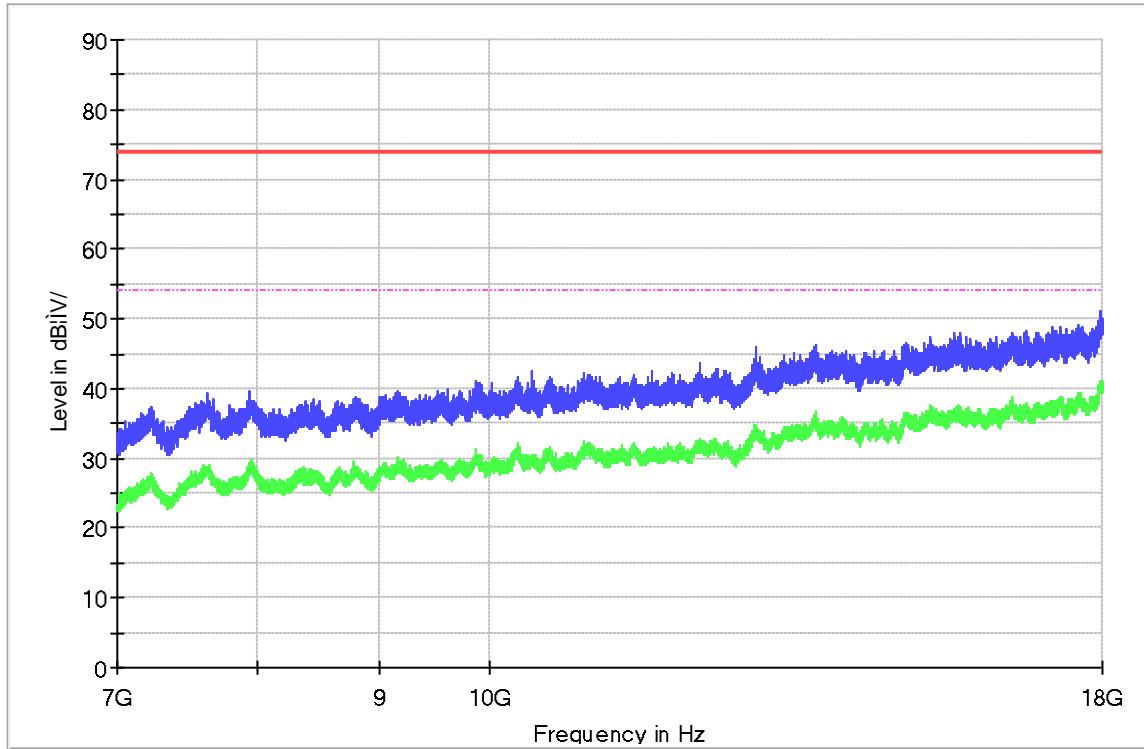


Figure 25: Radiated Spurious Emission, TM1, 18GHz to 25GHz, H

RE\_18-40GHz\_9170\_FSV40\_Pre

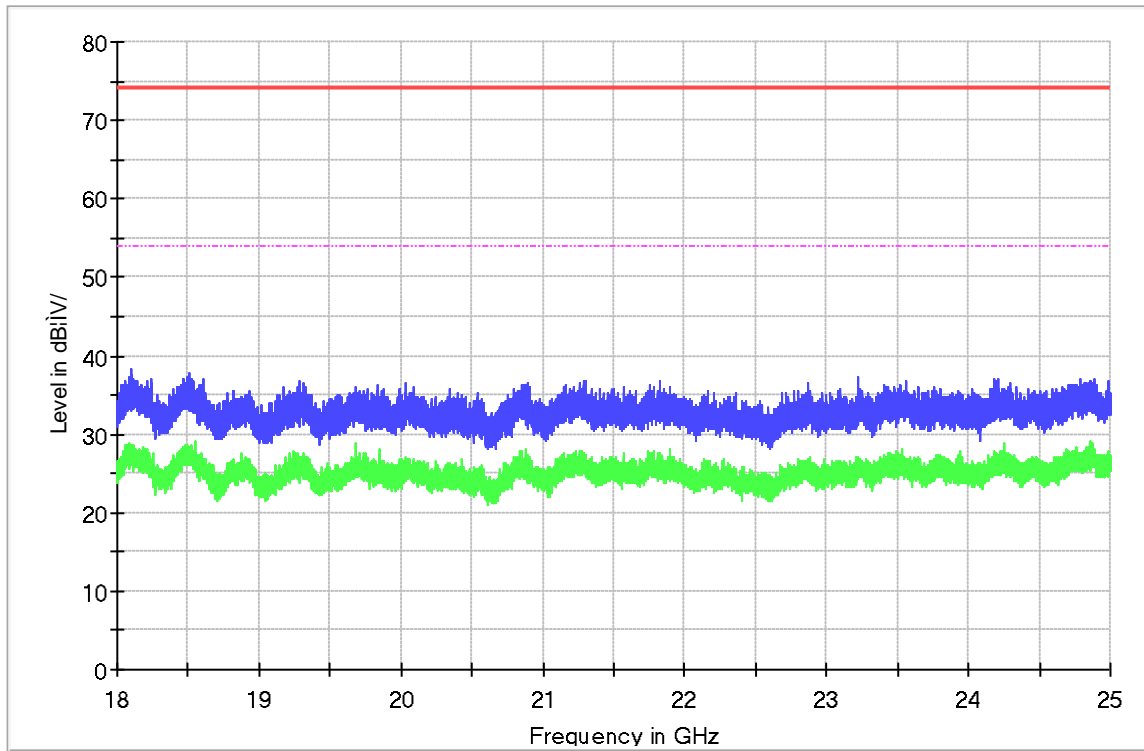
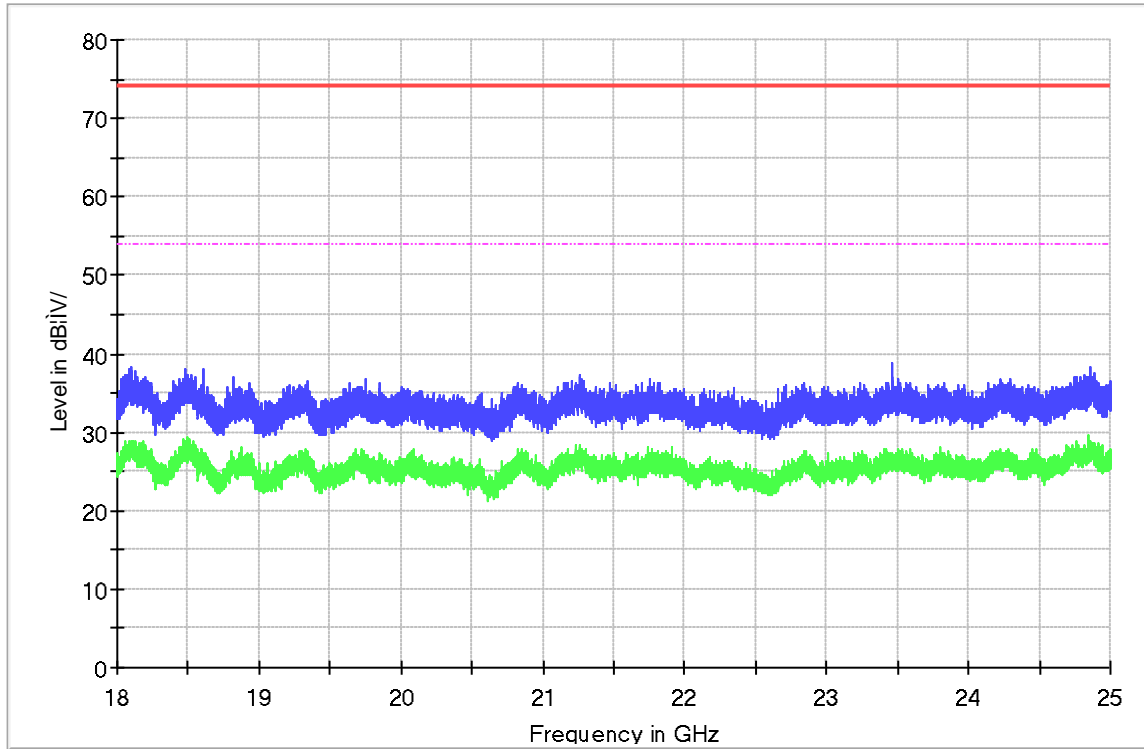


Figure 26: Radiated Spurious Emission, TM1, 18GHz to 25GHz, V

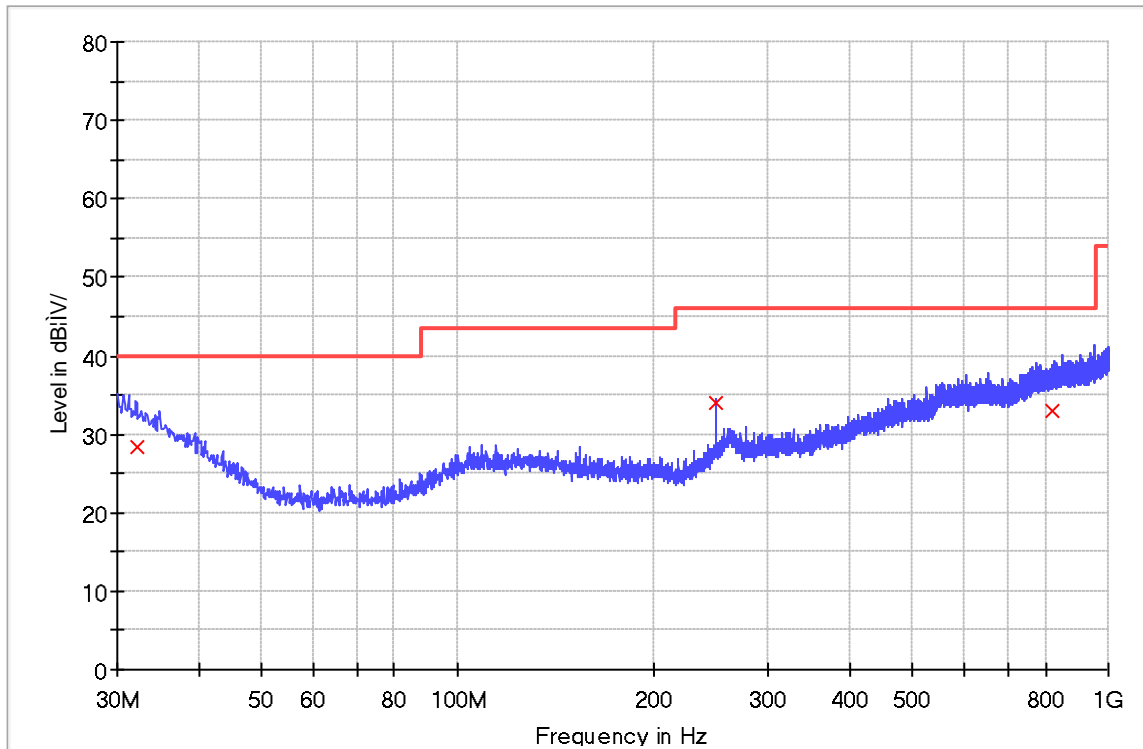
RE\_18-40GHz\_9170\_FSV40\_Pre





**Figure 27: Radiated Spurious Emission, TM2, 30MHz to 1GHz, H**

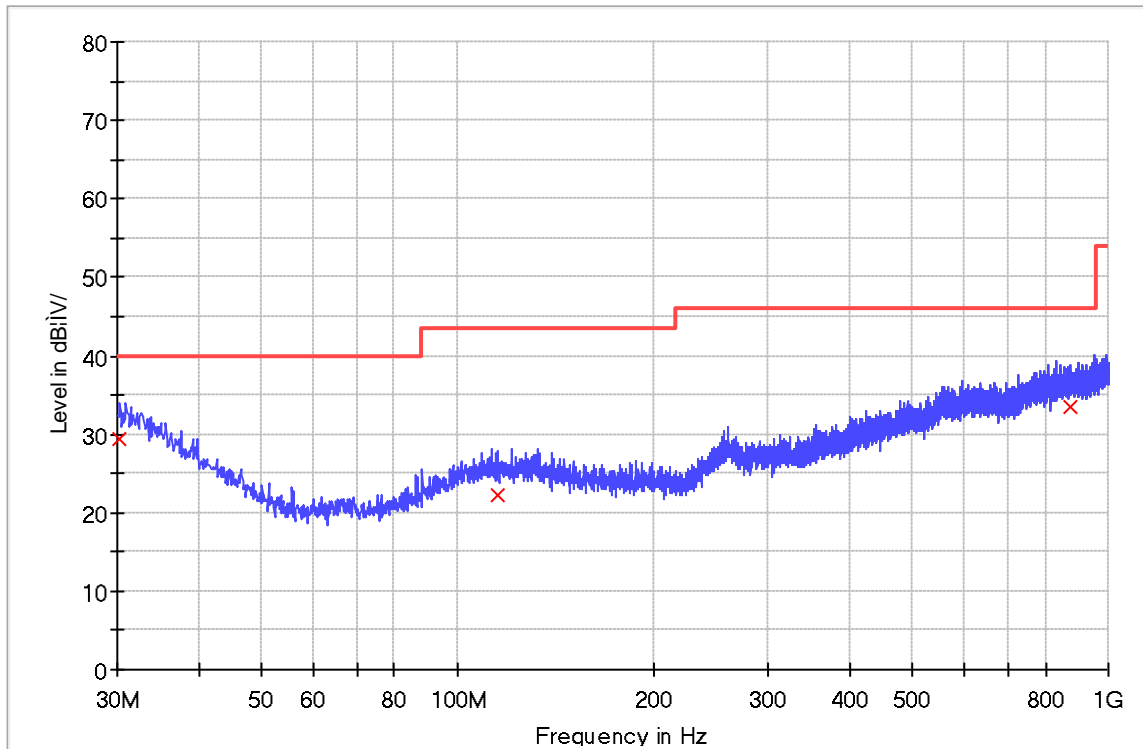
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
32.182500	28.4	H	24.4	11.6	40.0
249.947500	34.1	H	19.3	11.9	46.0
822.005000	32.9	H	27.5	13.1	46.0

**Figure 28: Radiated Spurious Emission, TM2, 30MHz to 1GHz, V**

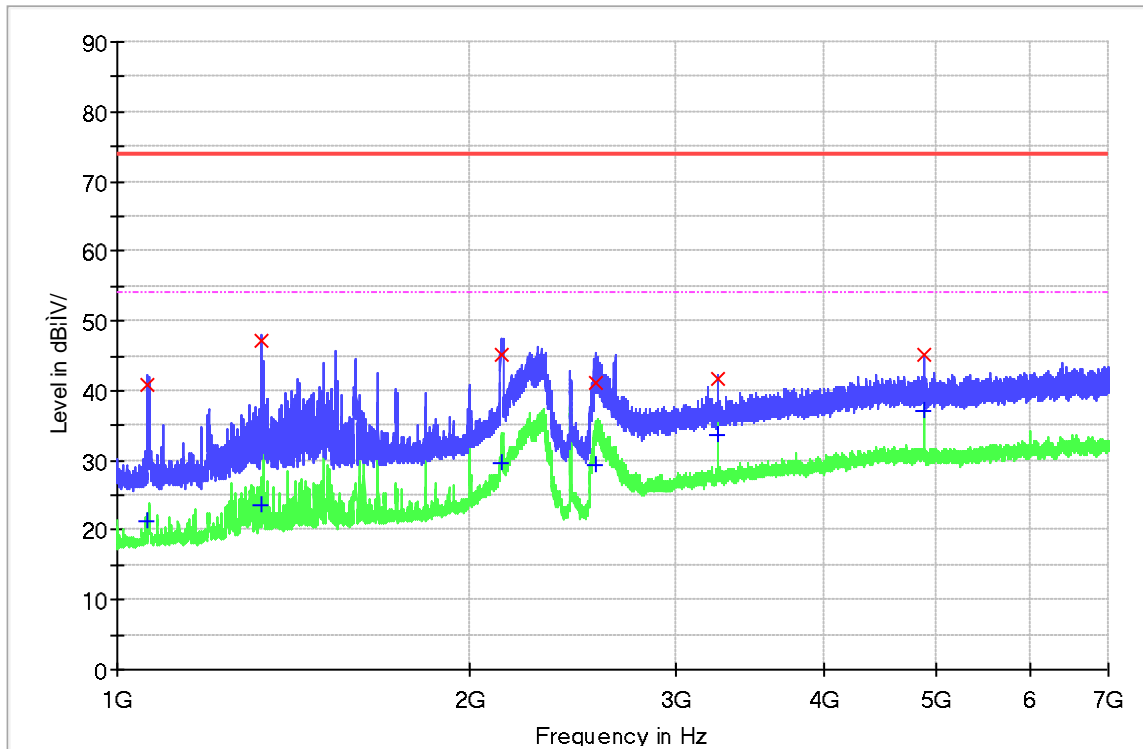
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.242500	29.4	V	25.3	10.6	40.0
115.238750	22.4	V	18.6	21.2	43.5
876.567500	33.5	V	28.0	12.5	46.0

**Figure 29: Radiated Spurious Emission, TM2, 1GHz to 7GHz, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

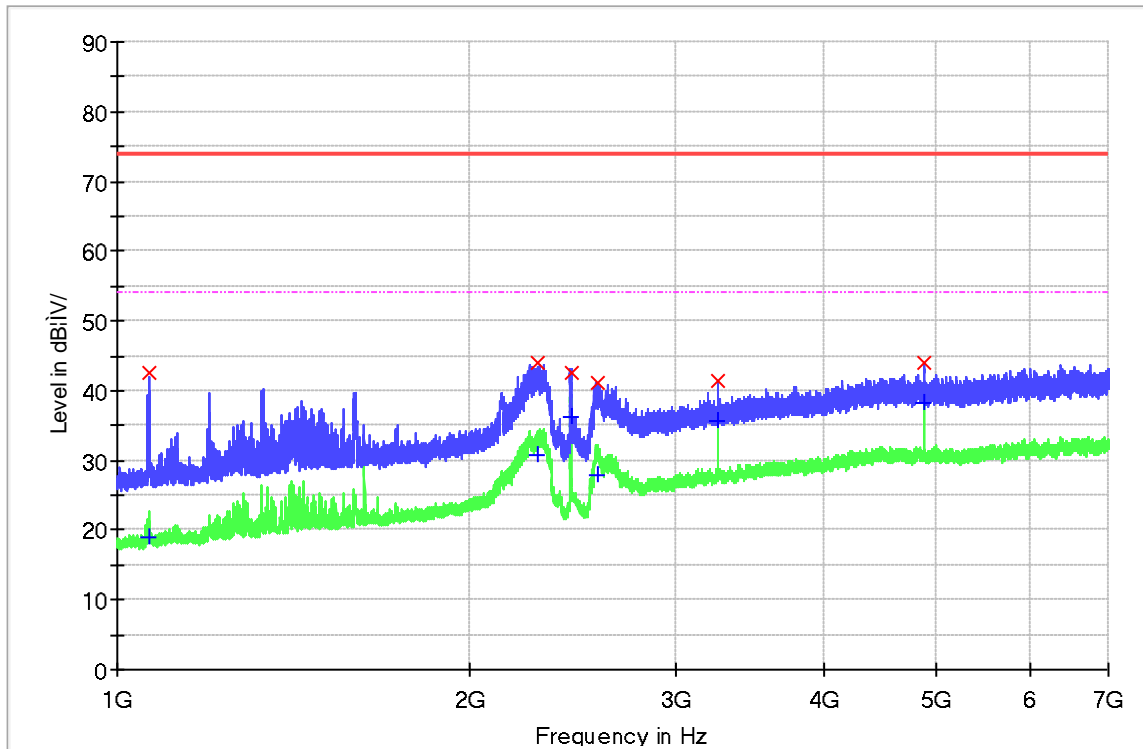
Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1062.250000	40.7	H	-22.1	33.3	74.0
1329.062500	47.3	H	-20.2	26.7	74.0
2124.062500	45.2	H	-15.8	28.8	74.0
2562.625000	41.2	H	-13.8	32.8	74.0
3249.250000	41.6	H	-10.6	32.4	74.0
4874.125000	45.3	H	-6.5	28.7	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1062.250000	21.2	H	-22.1	32.8	54.0
1329.062500	23.5	H	-20.2	30.5	54.0
2124.062500	29.7	H	-15.8	24.3	54.0
2562.625000	29.4	H	-13.8	24.6	54.0
3249.250000	33.7	H	-10.6	20.3	54.0
4874.125000	37.2	H	-6.5	16.8	54.0

**Figure 30: Radiated Spurious Emission, TM2, 1GHz to 7GHz, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1064.687500	42.6	V	-22.1	31.4	74.0
2282.125000	43.9	V	-15.1	30.1	74.0
2436.437500	42.5	V	-14.3	31.5	74.0
2573.875000	41.1	V	-13.8	32.9	74.0
3249.250000	41.3	V	-10.6	32.7	74.0
4873.750000	43.9	V	-6.5	30.1	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1064.687500	19.0	V	-22.1	35.0	54.0
2282.125000	30.7	V	-15.1	23.3	54.0
2436.437500	36.4	V	-14.3	17.6	54.0
2573.875000	27.9	V	-13.8	26.1	54.0
3249.250000	35.6	V	-10.6	18.4	54.0
4873.750000	38.3	V	-6.5	15.7	54.0

Figure 31: Radiated Spurious Emission, TM2, 7GHz to 18GHz, H

RE\_1-18GHz\_HL050\_FSV40\_Pre

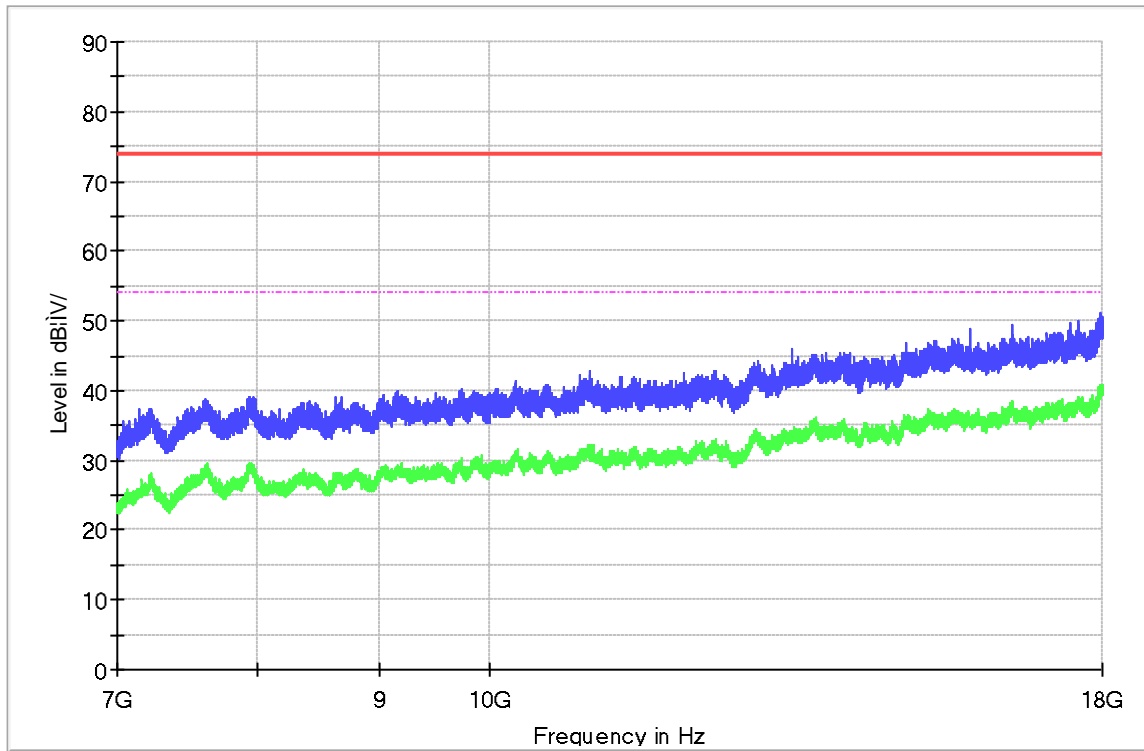


Figure 32: Radiated Spurious Emission, TM2, 7GHz to 18GHz, V

RE\_1-18GHz\_HL050\_FSV40\_Pre

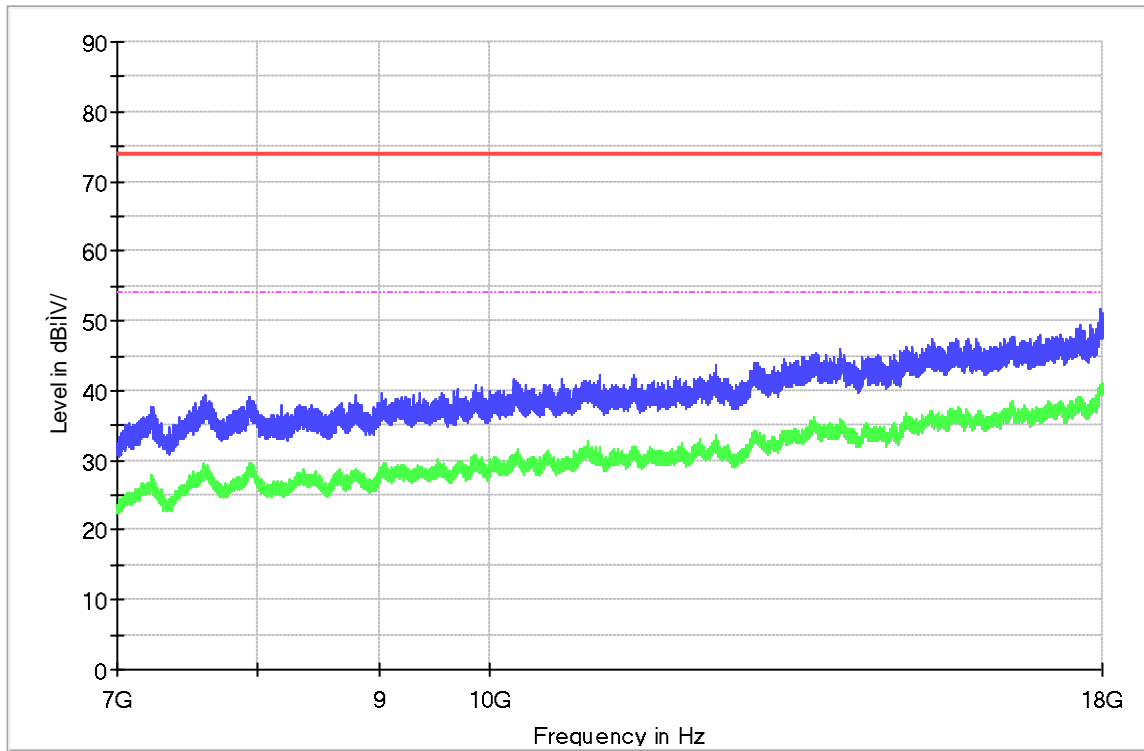


Figure 33: Radiated Spurious Emission, TM2, 18GHz to 25GHz, H

RE\_18-40GHz\_9170\_FSV40\_Pre

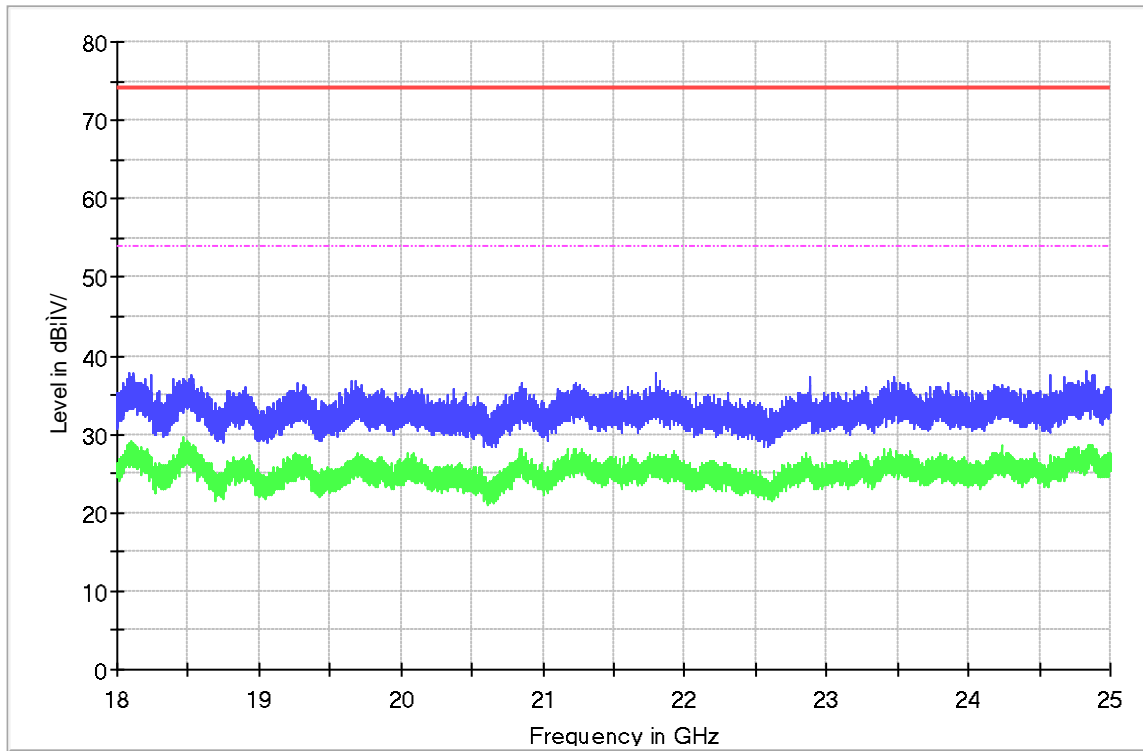
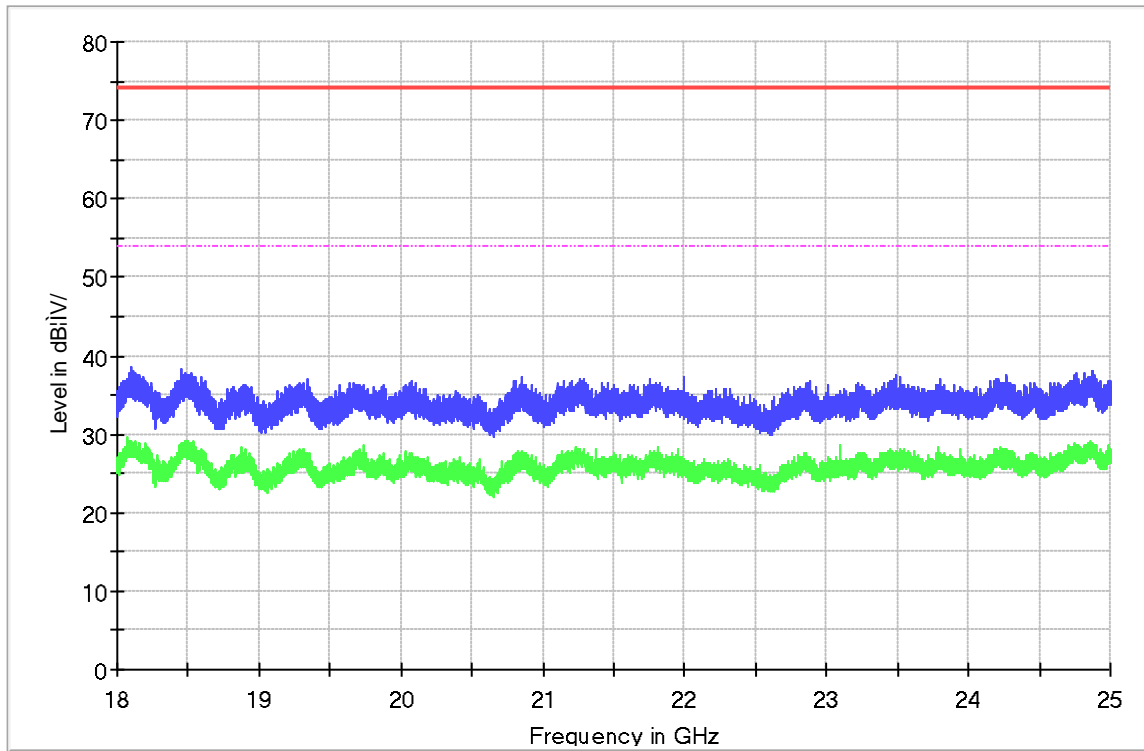


Figure 34: Radiated Spurious Emission, TM2, 18GHz to 25GHz, V

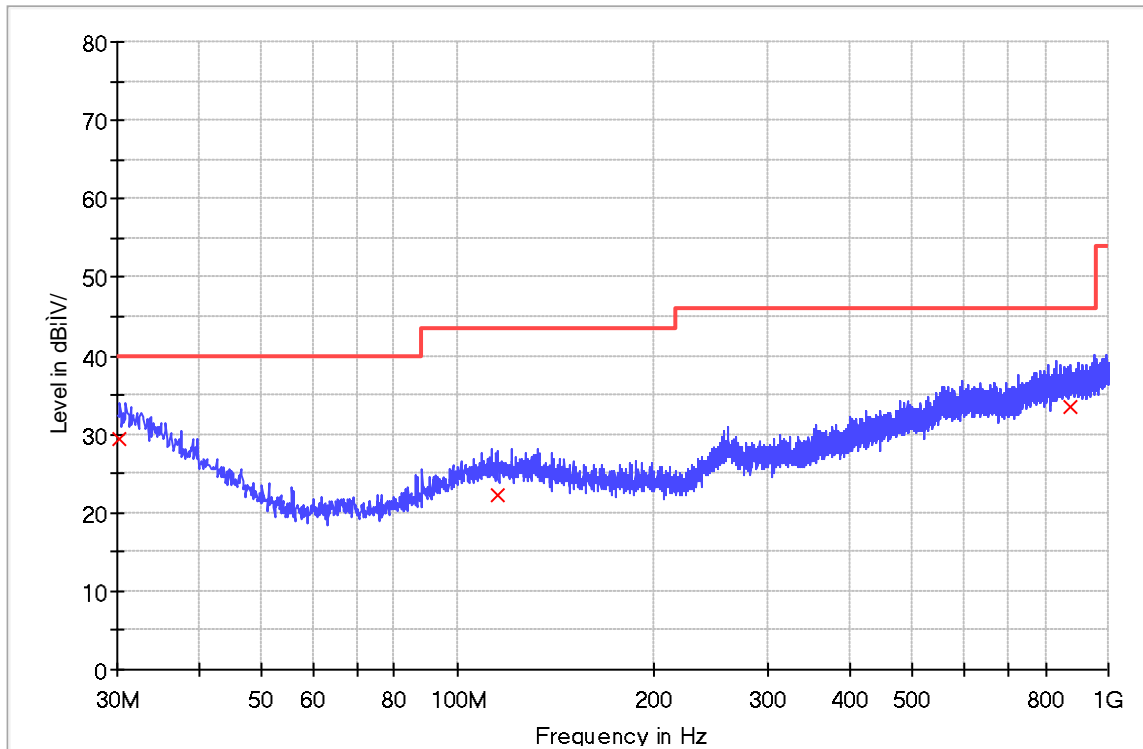
RE\_18-40GHz\_9170\_FSV40\_Pre





**Figure 35: Radiated Spurious Emission, TM3, 30MHz to 1GHz, H**

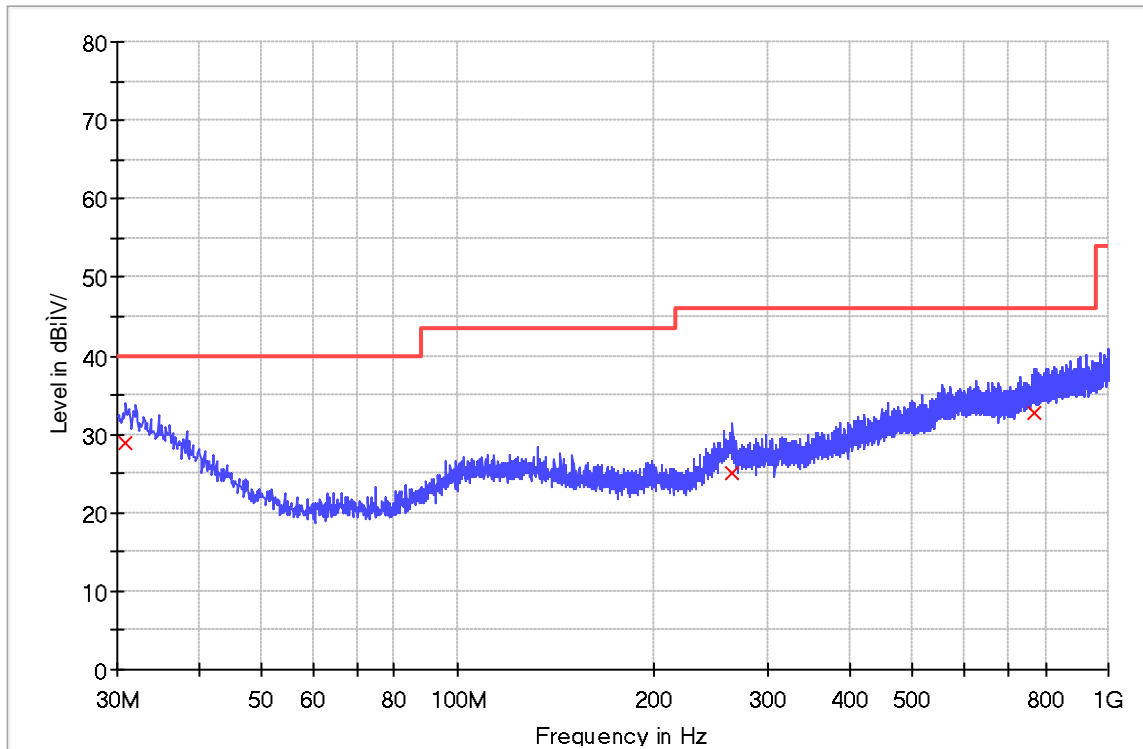
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.242500	29.4	H	25.3	10.6	40.0
115.238750	22.4	H	18.6	21.2	43.5
876.567500	33.5	H	28.0	12.5	46.0

**Figure 36: Radiated Spurious Emission, TM3, 30MHz to 1GHz, V**

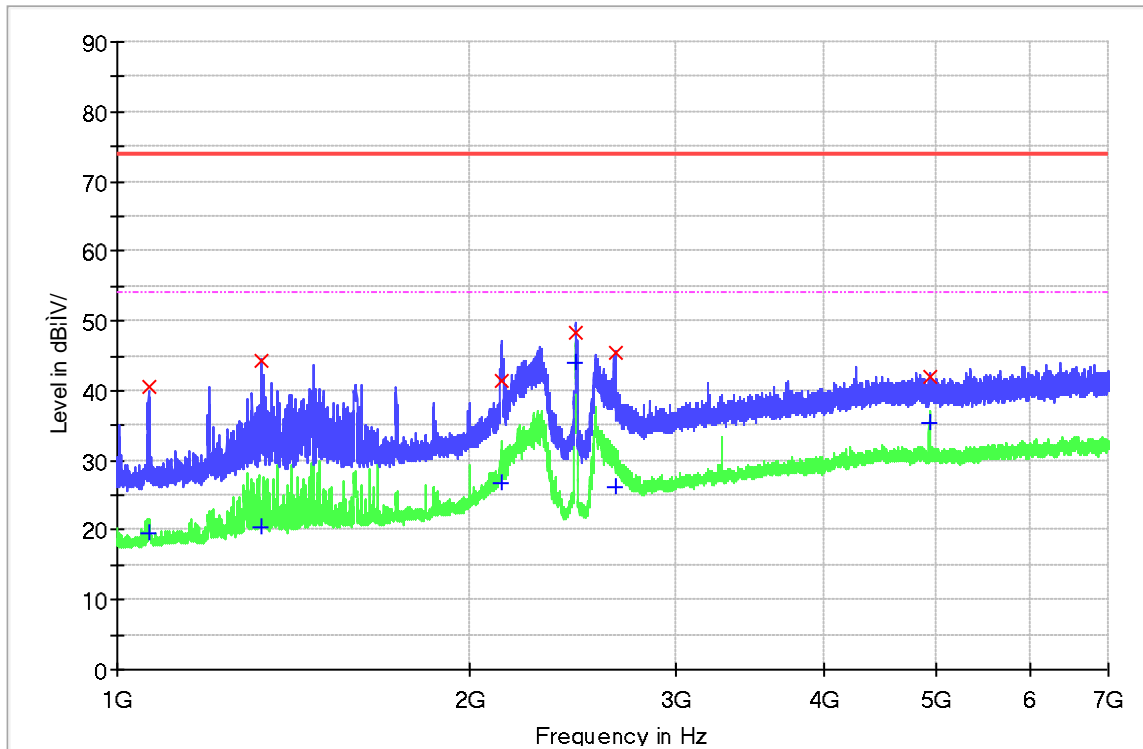
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
30.970000	29.0	V	24.9	11.0	40.0
264.861250	25.1	V	20.7	20.9	46.0
771.807500	32.6	V	27.4	13.4	46.0

**Figure 37: Radiated Spurious Emission, TM3, 1GHz to 7GHz, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

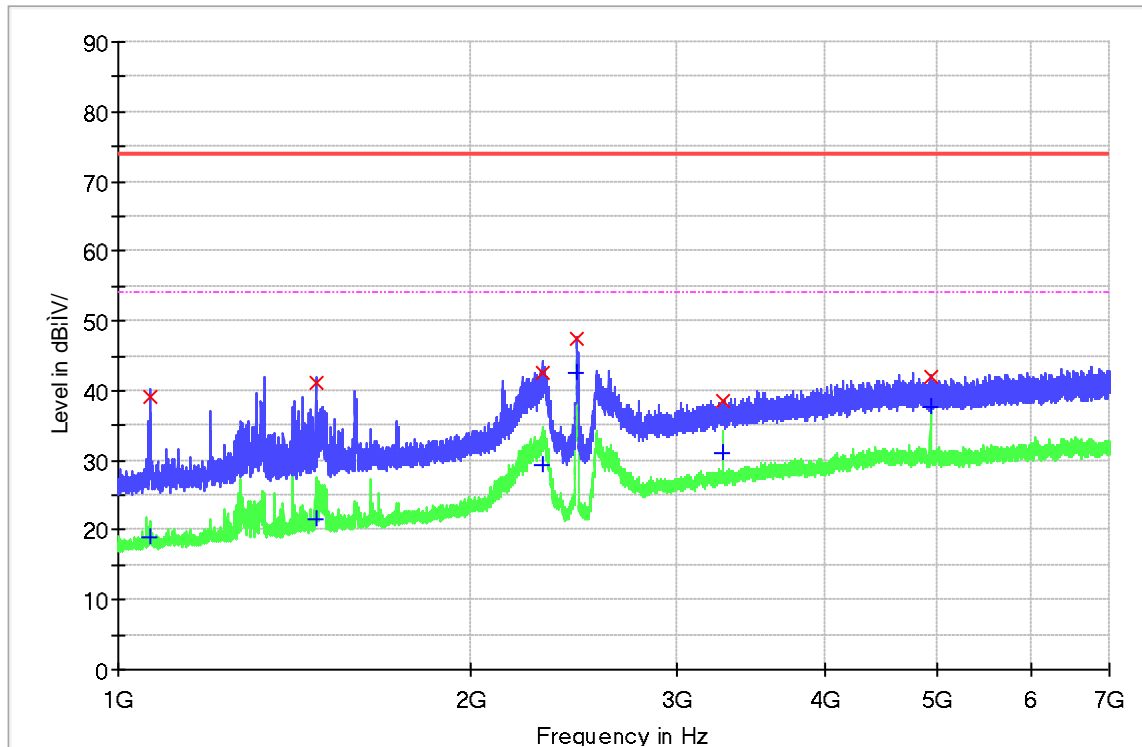
Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1063.000000	40.5	H	-22.1	33.5	74.0
1328.687500	44.3	H	-20.2	29.7	74.0
2128.562500	41.4	H	-15.7	32.6	74.0
2460.812500	48.3	H	-14.3	25.7	74.0
2662.750000	45.3	H	-13.3	28.7	74.0
4924.000000	41.9	H	-6.6	32.1	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1063.000000	19.6	H	-22.1	34.4	54.0
1328.687500	20.5	H	-20.2	33.5	54.0
2128.562500	26.8	H	-15.7	27.2	54.0
2460.812500	43.9	H	-14.3	10.1	54.0
2662.750000	26.3	H	-13.3	27.7	54.0
4924.000000	35.3	H	-6.6	18.7	54.0

**Figure 38: Radiated Spurious Emission, TM3, 1GHz to 7GHz, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1063.375000	39.2	V	-22.1	34.8	74.0
1473.062500	41.0	V	-19.1	33.0	74.0
2303.687500	42.7	V	-15.0	31.3	74.0
2461.000000	47.6	V	-14.3	26.4	74.0
3282.625000	38.6	V	-10.4	35.4	74.0
4923.812500	41.9	V	-6.6	32.1	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1063.375000	18.9	V	-22.1	35.1	54.0
1473.062500	21.6	V	-19.1	32.4	54.0
2303.687500	29.3	V	-15.0	24.7	54.0
2461.000000	42.7	V	-14.3	11.3	54.0
3282.625000	31.0	V	-10.4	23.0	54.0
4923.812500	37.6	V	-6.6	16.4	54.0

Figure 39: Radiated Spurious Emission, TM3, 7GHz to 18GHz, H

RE\_1-18GHz\_HL050\_FSV40\_Pre

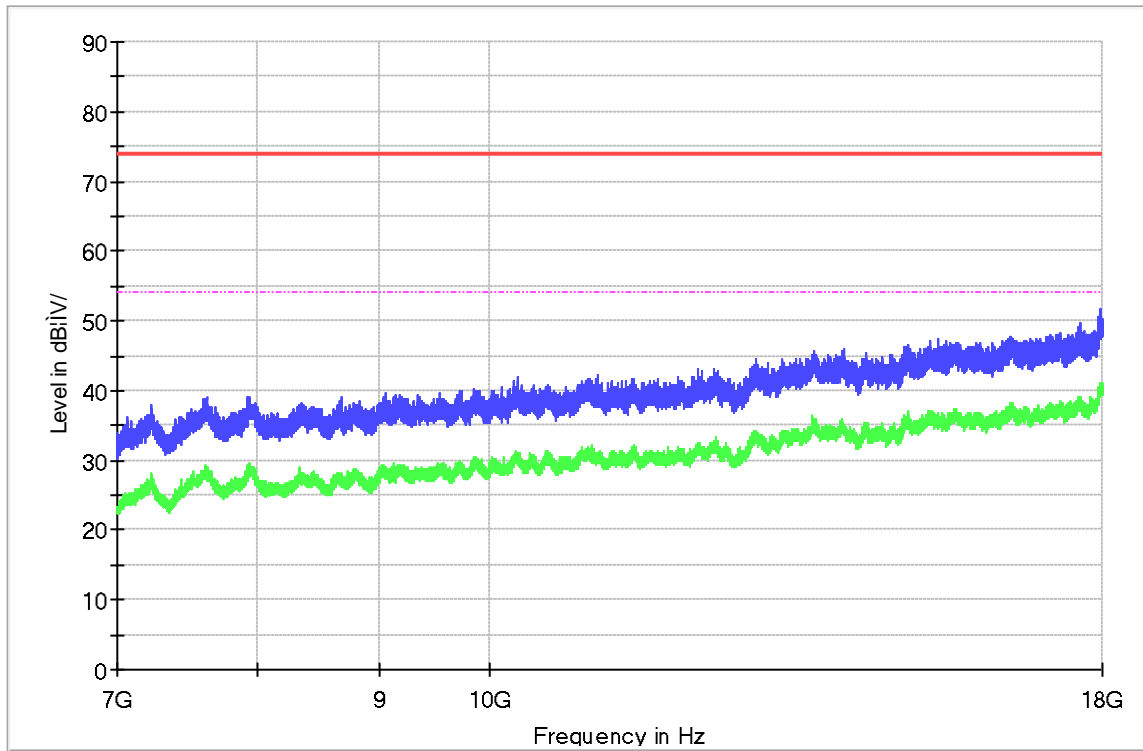


Figure 40: Radiated Spurious Emission, TM3, 7GHz to 18GHz, V

RE\_1-18GHz\_HL050\_FSV40\_Pre

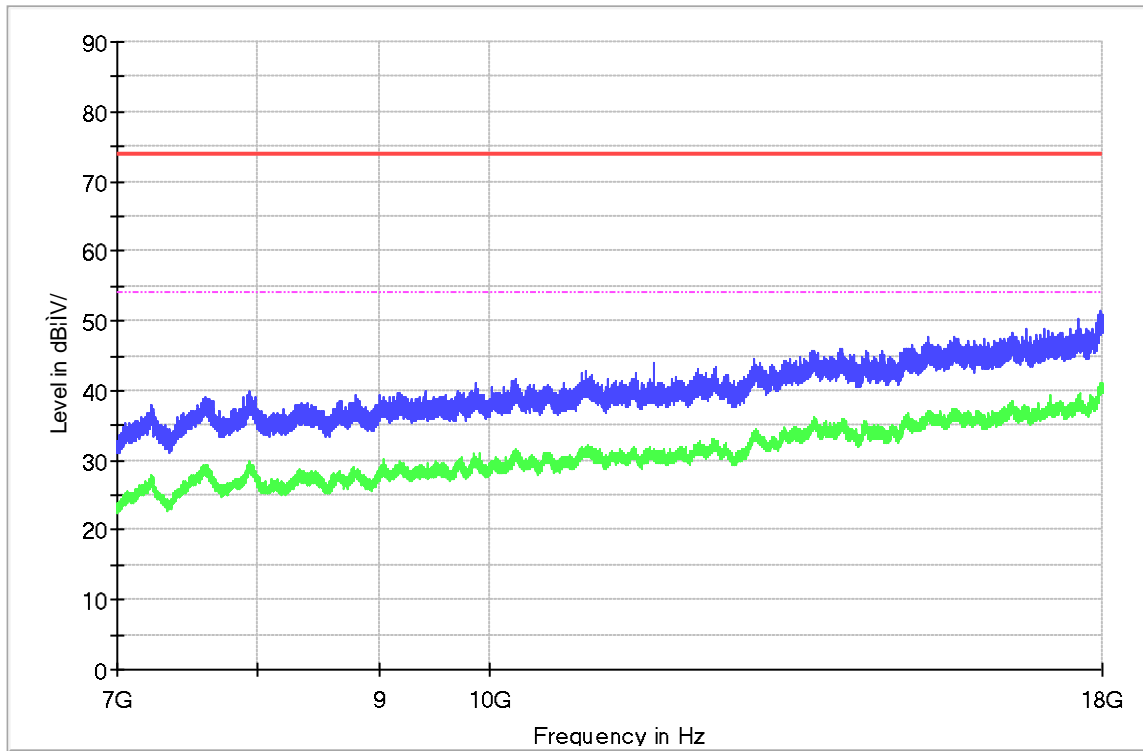


Figure 41: Radiated Spurious Emission, TM3, 18GHz to 25GHz, H

RE\_18-40GHz\_9170\_FSV40\_Pre

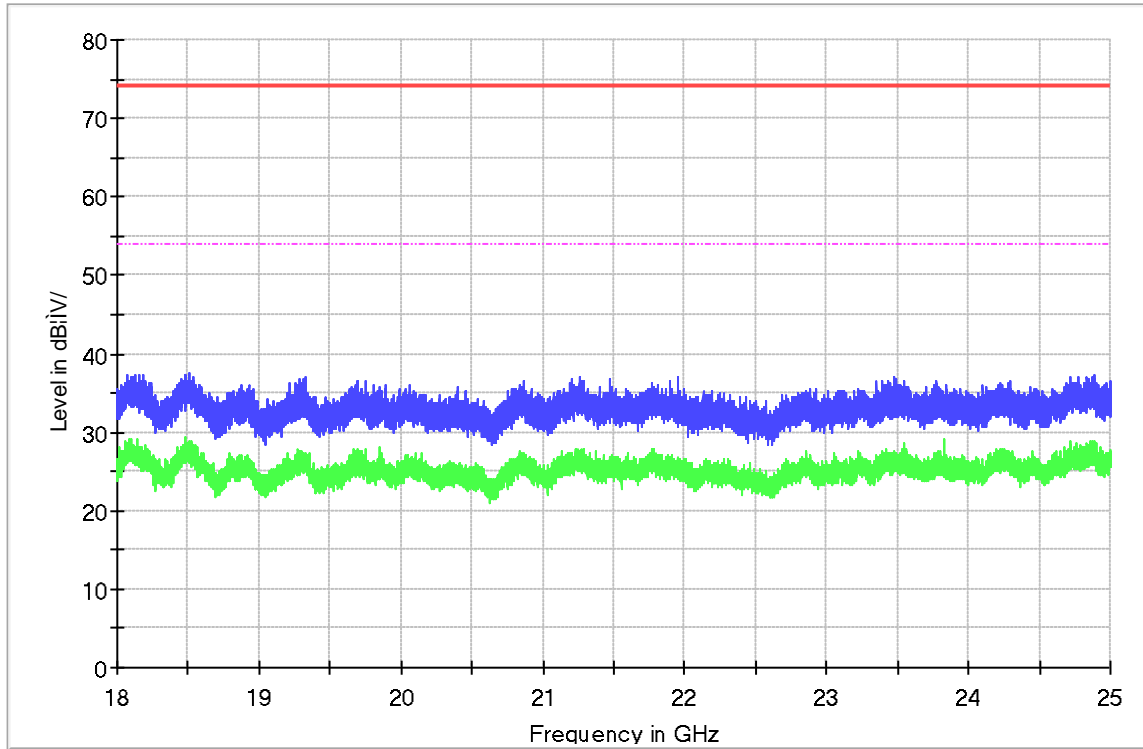
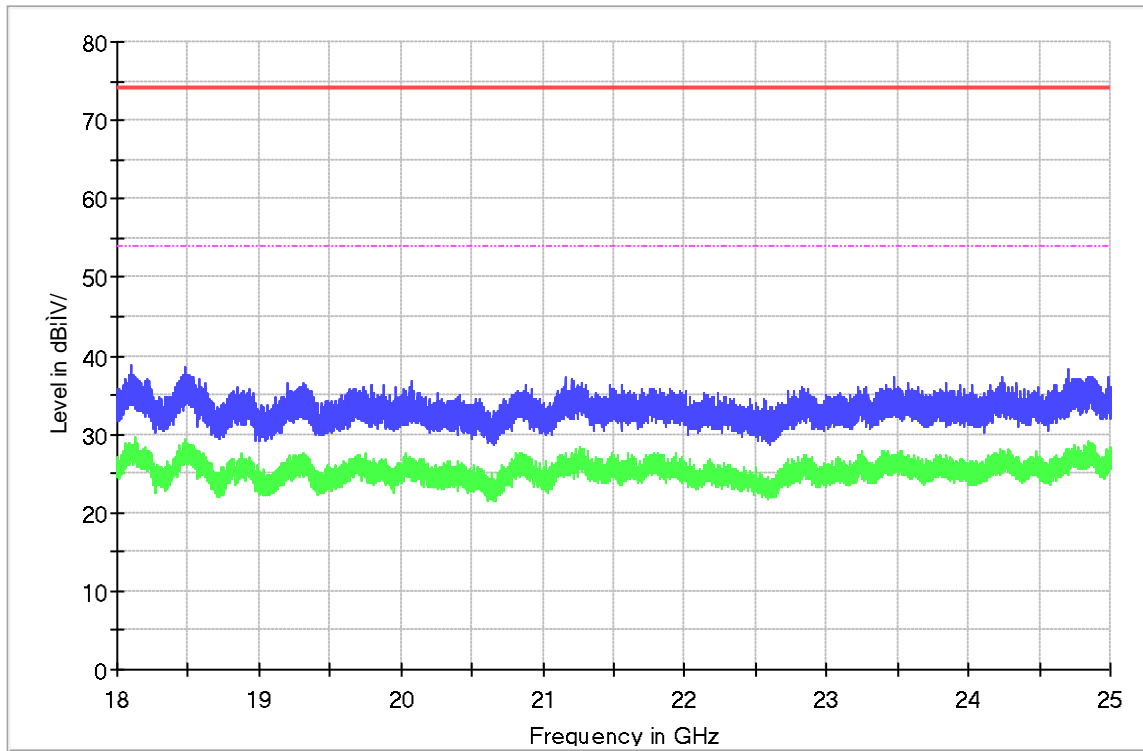


Figure 42: Radiated Spurious Emission, TM3, 18GHz to 25GHz, V

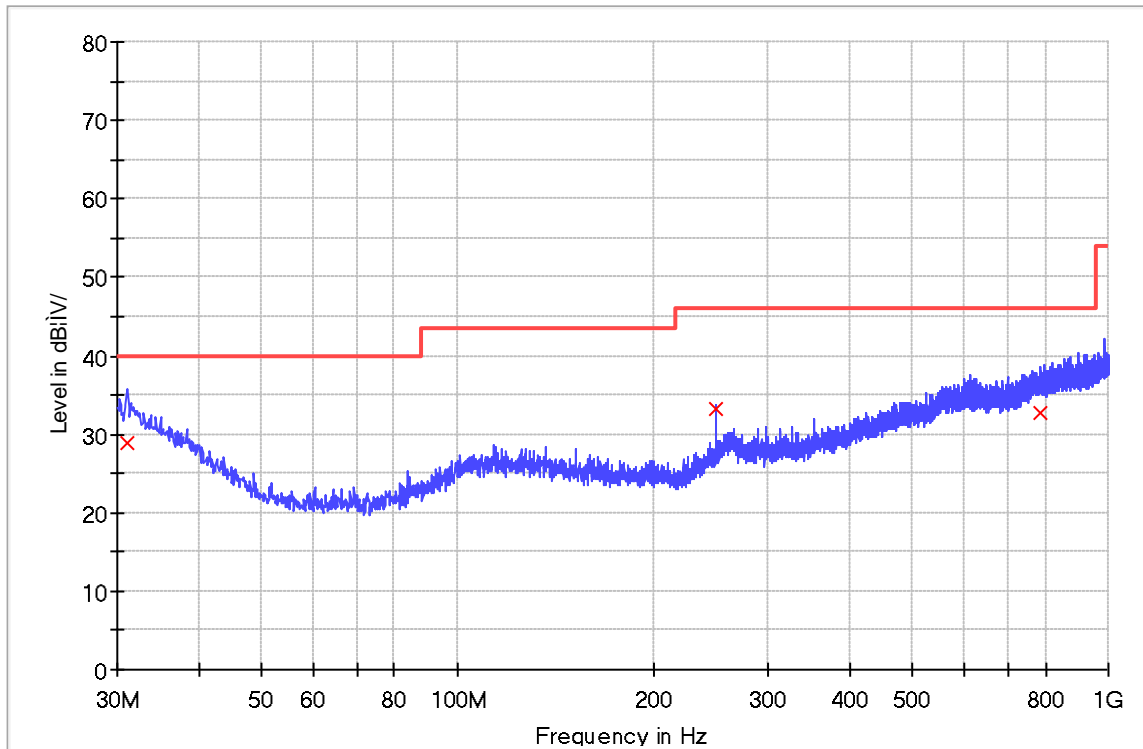
RE\_18-40GHz\_9170\_FSV40\_Pre





**Figure 43: Radiated Spurious Emission, TM4, 30MHz to 1GHz, H**

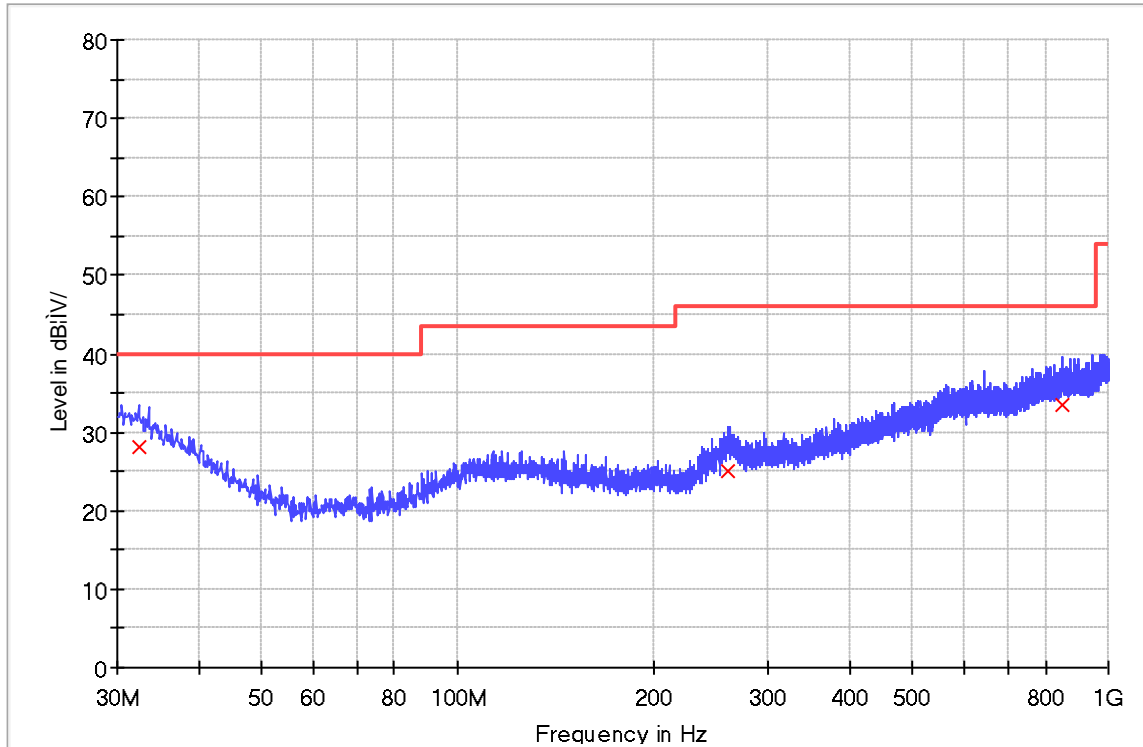
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.091250	29.0	H	24.9	11.0	40.0
249.947500	33.2	H	19.3	12.8	46.0
788.661250	32.8	H	27.5	13.2	46.0

**Figure 44: Radiated Spurious Emission, TM4, 30MHz to 1GHz, V**

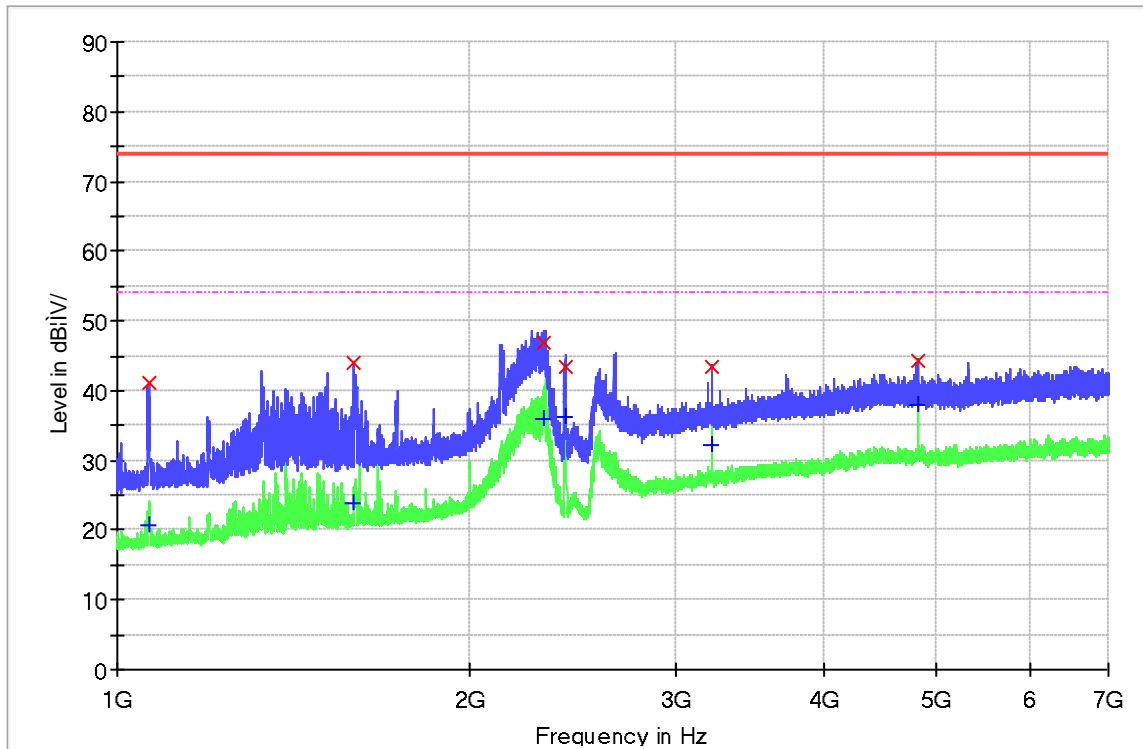
\_Radiated emission (30M-1GHz) 1 Range


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
32.425000	28.2	V	24.2	11.8	40.0
260.981250	25.1	V	20.7	20.9	46.0
849.286250	33.4	V	27.9	12.6	46.0

**Figure 45: Radiated Spurious Emission, TM4, 1GHz to 7GHz, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

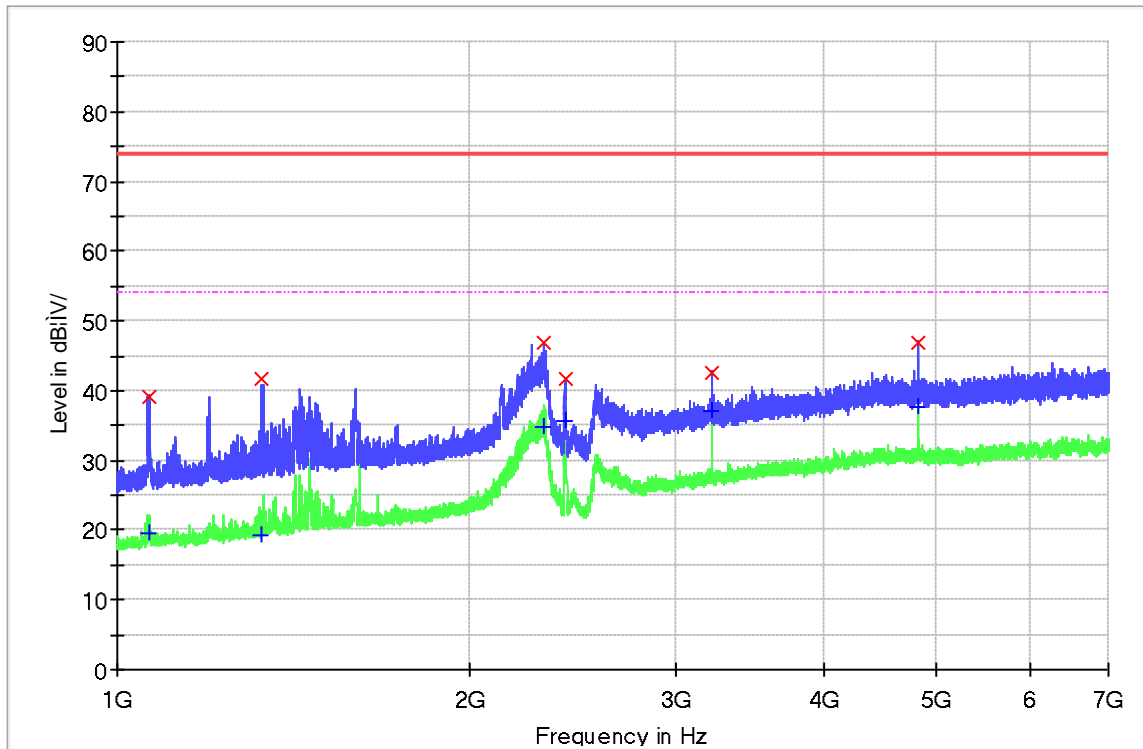
Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1066.000000	41.2	H	-22.1	32.8	74.0
1593.062500	43.9	H	-18.4	30.1	74.0
2313.250000	46.8	H	-14.9	27.2	74.0
2409.062500	43.5	H	-14.4	30.5	74.0
3216.062500	43.4	H	-10.7	30.6	74.0
4823.875000	44.2	H	-6.5	29.8	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1066.000000	20.8	H	-22.1	33.2	54.0
1593.062500	23.9	H	-18.4	30.1	54.0
2313.250000	36.0	H	-14.9	18.0	54.0
2409.062500	36.2	H	-14.4	17.8	54.0
3216.062500	32.1	H	-10.7	21.9	54.0
4823.875000	37.9	H	-6.5	16.1	54.0

**Figure 46: Radiated Spurious Emission, TM4, 1GHz to 7GHz, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1064.500000	39.2	V	-22.1	34.8	74.0
1329.062500	41.7	V	-20.2	32.3	74.0
2313.625000	46.7	V	-14.9	27.3	74.0
2409.062500	41.8	V	-14.4	32.2	74.0
3215.875000	42.5	V	-10.7	31.5	74.0
4824.062500	46.9	V	-6.5	27.1	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1064.500000	19.4	V	-22.1	34.6	54.0
1329.062500	19.4	V	-20.2	34.6	54.0
2313.625000	34.9	V	-14.9	19.1	54.0
2409.062500	35.6	V	-14.4	18.4	54.0
3215.875000	37.2	V	-10.7	16.8	54.0
4824.062500	37.8	V	-6.5	16.2	54.0

Figure 47: Radiated Spurious Emission, TM4, 7GHz to 18GHz, H

RE\_1-18GHz\_HL050\_FSV40\_Pre

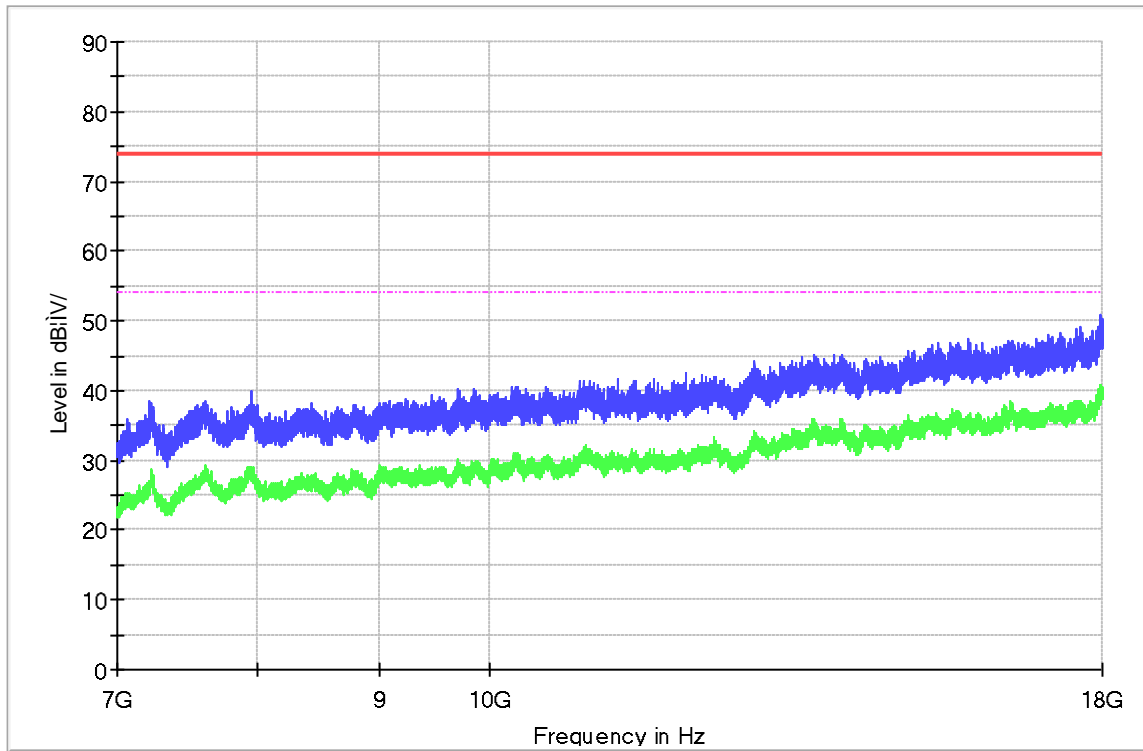
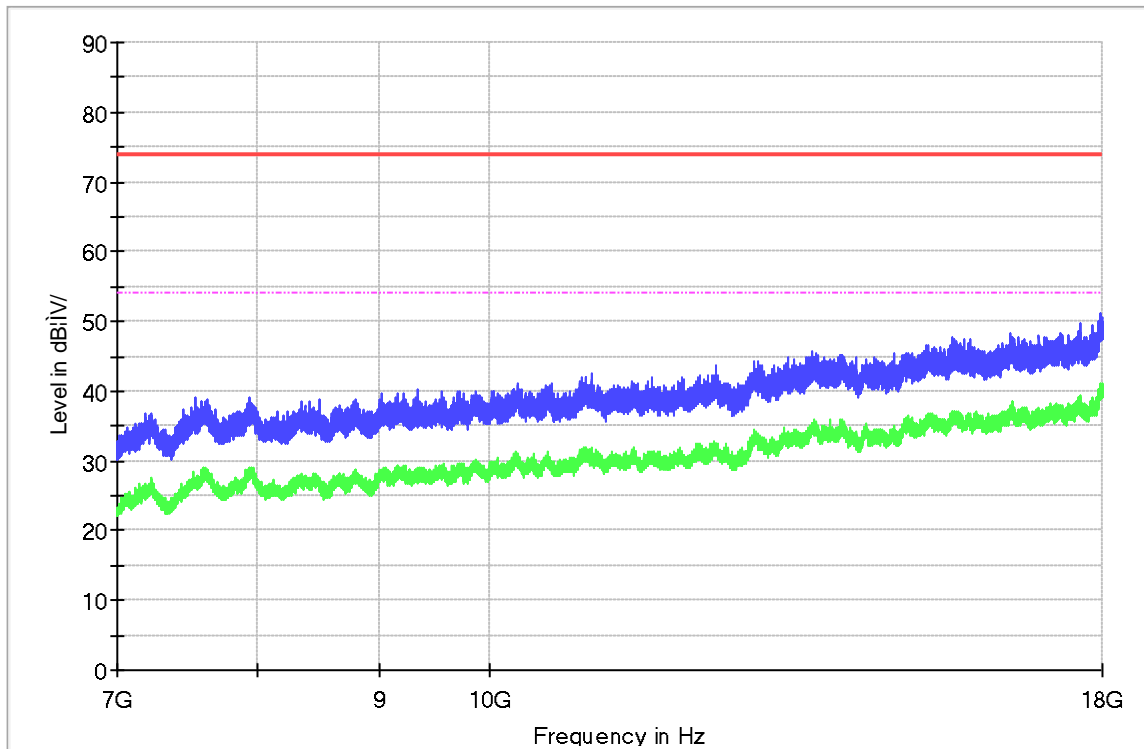


Figure 48: Radiated Spurious Emission, TM4, 7GHz to 18GHz, V

RE\_1-18GHz\_HL050\_FSV40\_Pre



**Figure 49: Radiated Spurious Emission, TM4, 18GHz to 25GHz, H**

RE\_18-40GHz\_9170\_FSV40\_Pre

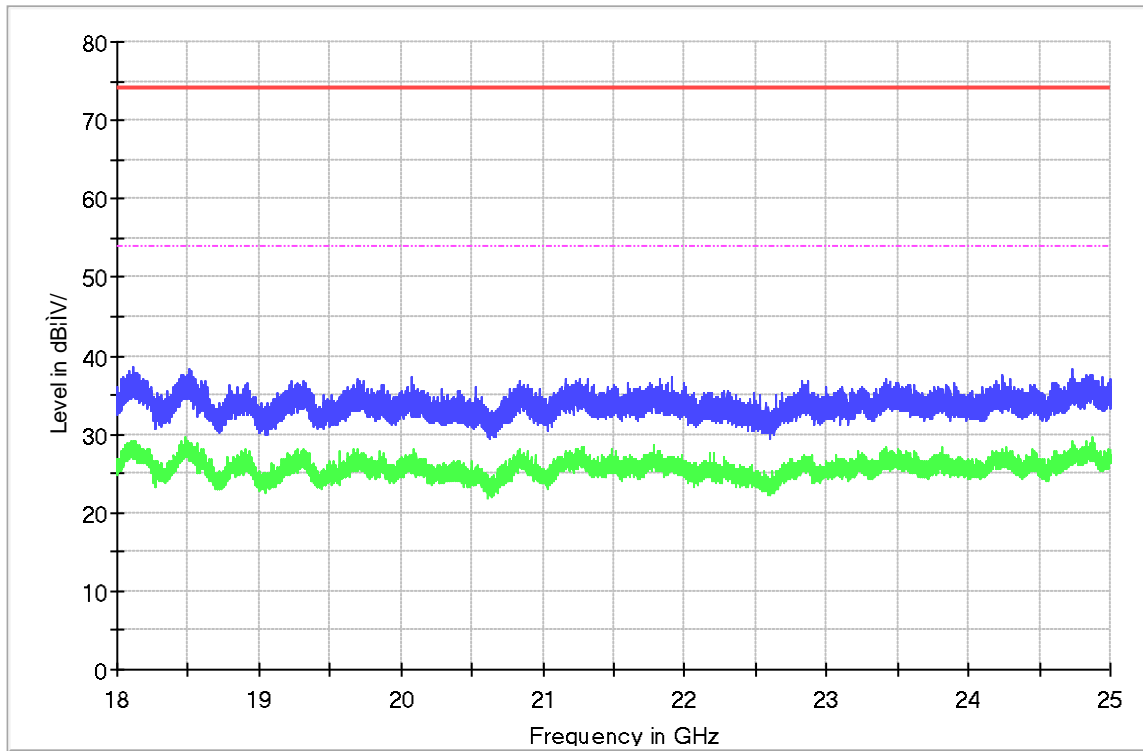
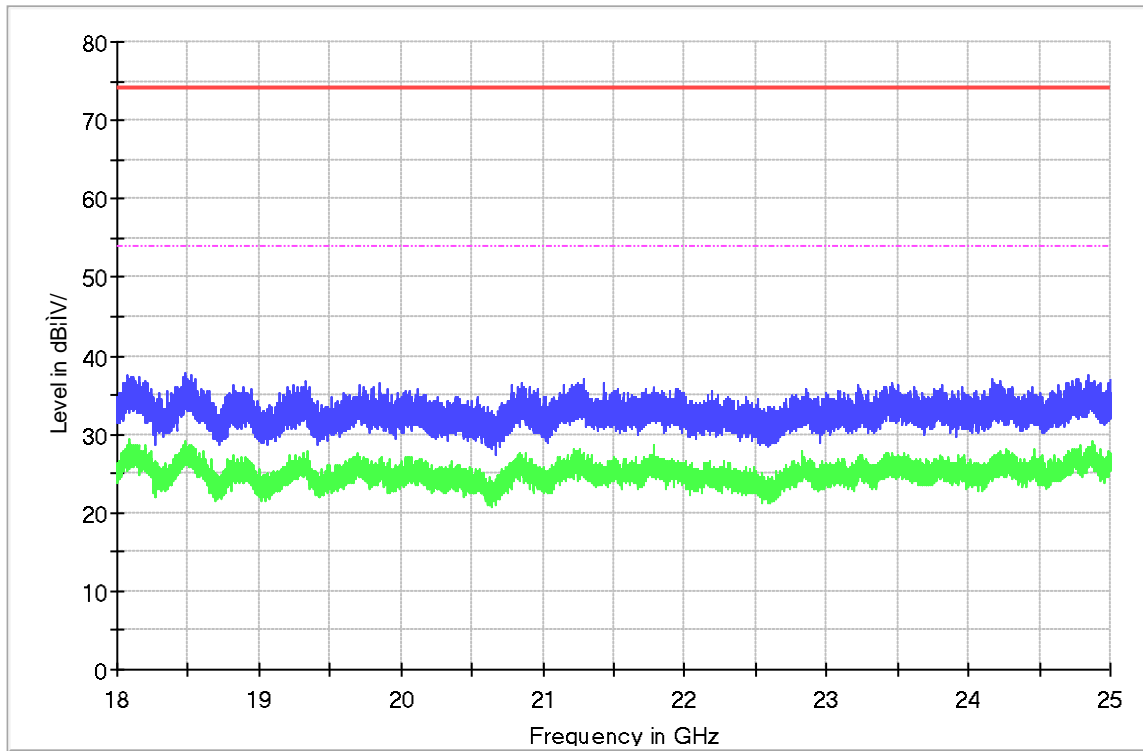


Figure 50: Radiated Spurious Emission, TM4, 18GHz to 25GHz, V

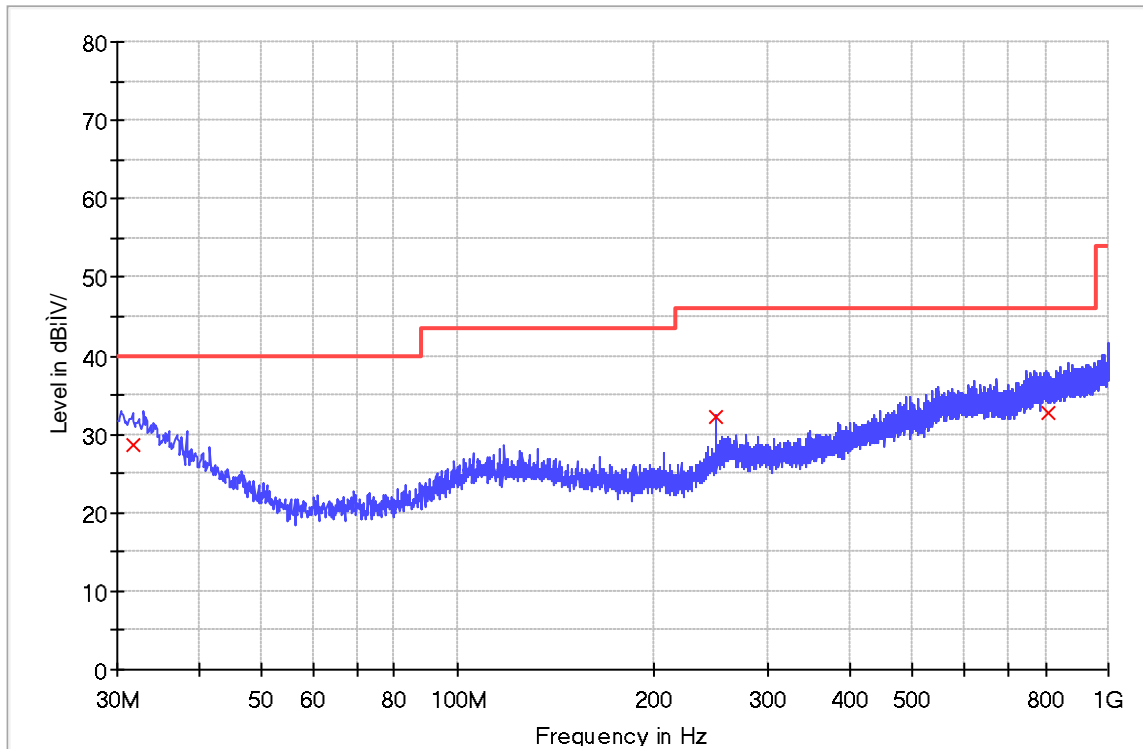
RE\_18-40GHz\_9170\_FSV40\_Pre





**Figure 51: Radiated Spurious Emission, TM5, 30MHz to 1GHz, H**

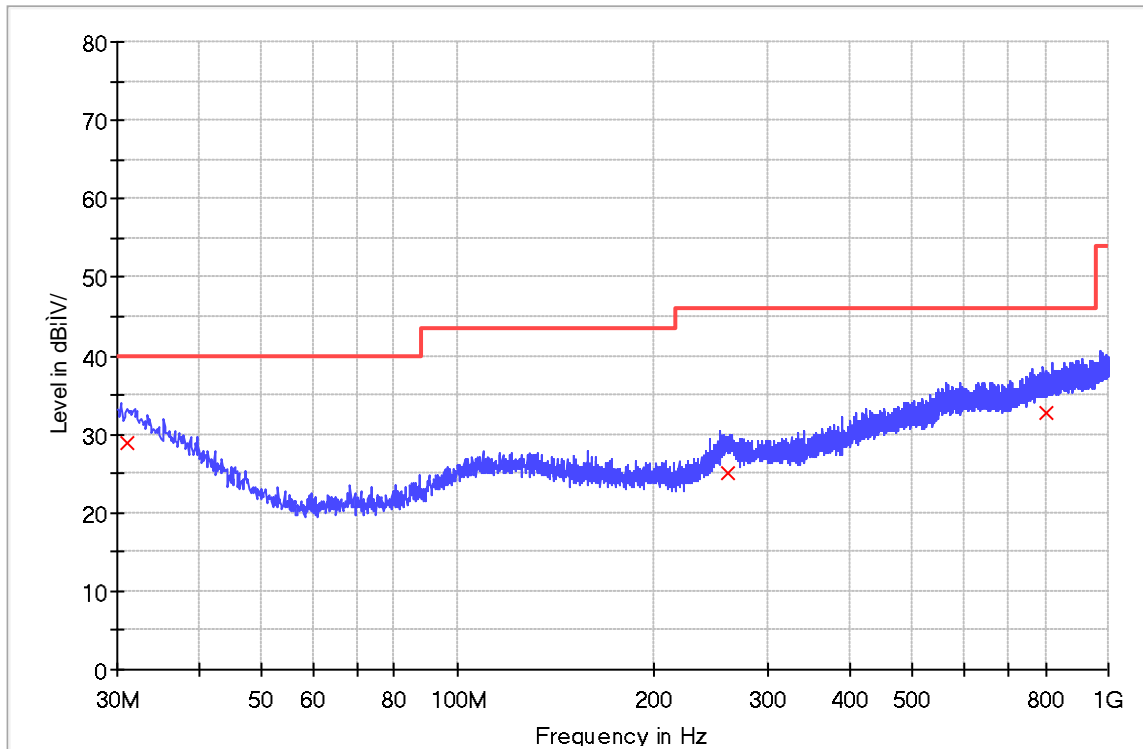
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	Pol	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.697500	28.7	H	24.6	11.3	40.0
250.068750	32.1	H	19.3	13.9	46.0
810.971250	32.8	H	27.5	13.2	46.0

**Figure 52: Radiated Spurious Emission, TM5, 30MHz to 1GHz, V**

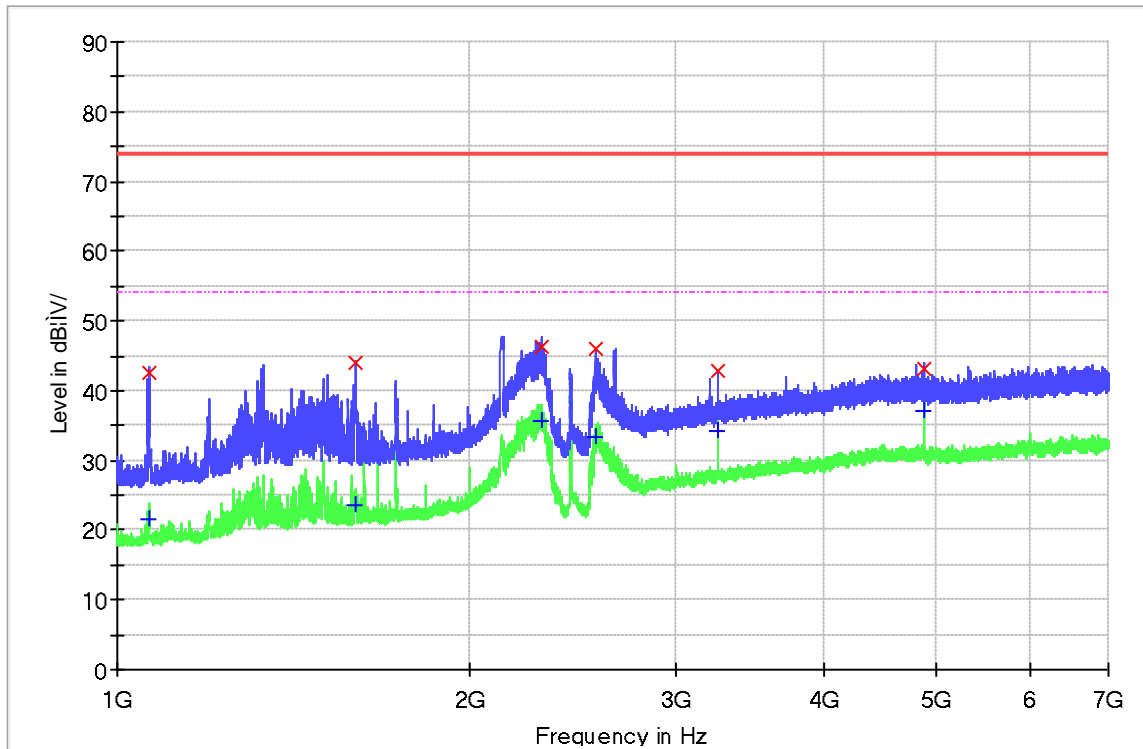
\_Radiated emission (30M-1GHz) 1 Range\_FCC


**Limit and Margin**

Frequency (MHz)	QuasiPeak (dBµV/m)	PoI	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
31.091250	29.0	V	24.9	11.0	40.0
260.496250	25.1	V	20.7	20.9	46.0
801.150000	32.7	V	27.4	13.3	46.0

**Figure 53: Radiated Spurious Emission, TM5, 1GHz to 7GHz, H**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

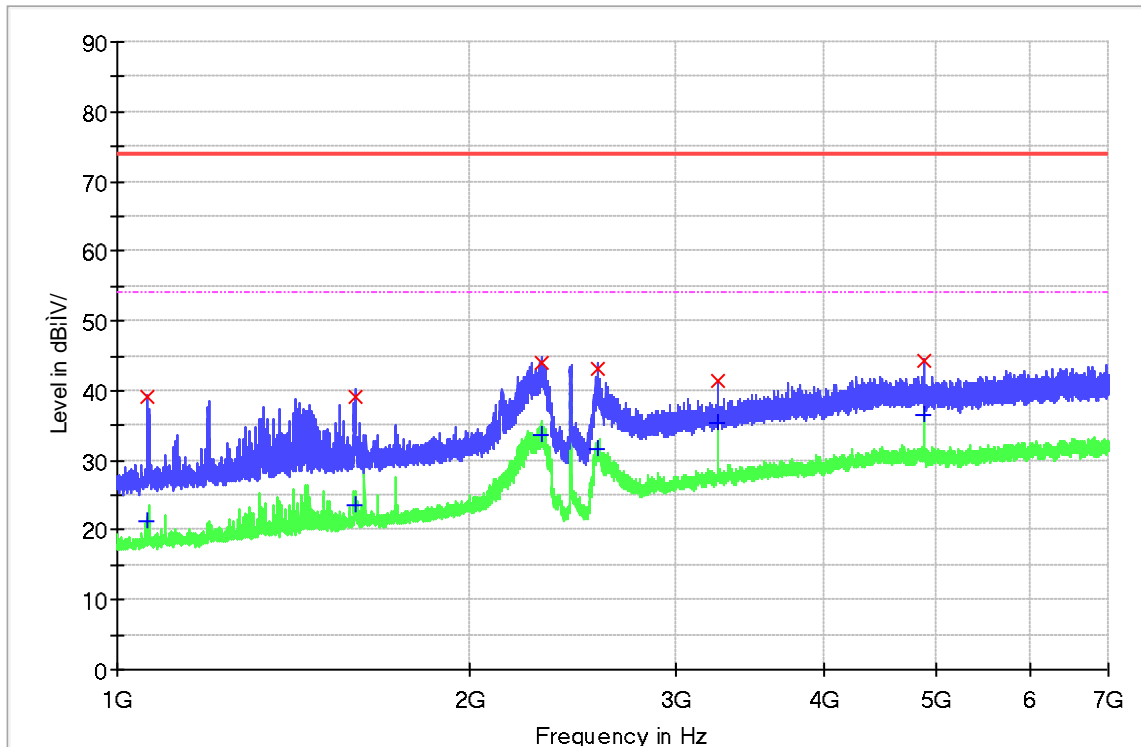
Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1063.750000	42.6	H	-22.1	31.4	74.0
1594.750000	44.0	H	-18.4	30.0	74.0
2298.625000	46.4	H	-15.0	27.6	74.0
2553.812500	45.9	H	-13.9	28.1	74.0
3249.250000	42.7	H	-10.6	31.3	74.0
4874.125000	43.2	H	-6.5	30.8	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1063.750000	21.5	H	-22.1	32.5	54.0
1594.750000	23.6	H	-18.4	30.4	54.0
2298.625000	35.7	H	-15.0	18.3	54.0
2553.812500	33.4	H	-13.9	20.7	54.0
3249.250000	34.2	H	-10.6	19.8	54.0
4874.125000	37.2	H	-6.5	16.8	54.0

**Figure 54: Radiated Spurious Emission, TM5, 1GHz to 7GHz, V**

RE\_1-18GHz\_HL050\_FSV40\_Pre


**Limit and Margin PK**

Frequency (MHz)	MaxPeak (dBµV/m)	Pol	Corr. (dB)	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
1061.687500	39.1	V	-22.1	34.9	74.0
1597.000000	39.1	V	-18.3	34.9	74.0
2299.937500	44.1	V	-15.0	29.9	74.0
2569.000000	43.1	V	-13.8	30.9	74.0
3249.250000	41.3	V	-10.6	32.7	74.0
4874.125000	44.2	V	-6.5	29.8	74.0

**Limit and Margin AV**

Frequency (MHz)	Average (dBµV/m)	Pol	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
1061.687500	21.3	V	-22.1	52.7	74.0
1597.000000	23.5	V	-18.3	50.5	74.0
2299.937500	33.6	V	-15.0	40.4	74.0
2569.000000	31.5	V	-13.8	42.5	74.0
3249.250000	35.3	V	-10.6	38.7	74.0
4874.125000	36.5	V	-6.5	37.5	74.0