



Shenzhen HTT Technology Co., Ltd.

FCC PART 15 SUBPART C TEST REPORT FCC PART 15.407

Report Reference No. : HTT202606671F04

FCC ID. : 2A4WP-GMBS3100A1

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Date of issue

Aug. 17, 2026

Testing Laboratory Name

Shenzhen HTT Technology Co.,Ltd.

Address

1F, Building B, Huafeng International Robotics Industrial Park,
Hangcheng Road,Nanchang Community, Xixiang Street, Bao'an
District, Shenzhen, Guangdong, China

Applicant's name

Shenzhen Speediance Living Technology co., Ltd.

Address

19th Floor, Gemdale Viseen Tower A, No.16, Gaoxin 10th South Road,
High-tech Zone, Yuehai Street, Nanshan District, Shenzhen

Test specification.....

Standard

FCC Part 15 Subpart E 15.407

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

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Test item description.....

Interactive Multi-Media DigitalFitness Equipment

Trade Mark.....

Speediance

Manufacturer

Shenzhen Speediance Living Technology co., Ltd.

Model/Type reference

GMBS3100A1

Listed Models

GMBS3100A2,GMBS3100A3,GMBS3100A4,GMBS3100A5

Modulation Type

OFDM,OFDMA

Operation Frequency

From 5180MHz to 5240MHz,5260MHz to 5320MHz,
5500MHz to 5700MHz, 5745MHz to 5825MHz

Rating.....

Input: 100-240V~, 50/60Hz, 900W

Result.....

PASS

TEST REPORT

Equipment under Test : Interactive Multi-Media DigitalFitness Equipment

Model /Type : GMBS3100A1

Listed Models : GMBS3100A2,GMBS3100A3,GMBS3100A4,GMBS3100A5

Model difference : The PCB board, circuit, structure and internal of these models are the same, Only model number is different for these model.

Applicant : **Shenzhen Speediance Living Technology co., Ltd.**

Address : 19th Floor, Gemdale Viseen Tower A, No.16, Gaoxin 10th South Road, High-tech Zone, Yuehai Street, Nanshan District, Shenzhen

Manufacturer : **Shenzhen Speediance Living Technology co., Ltd.**

Address : 19th Floor, Gemdale Viseen Tower A, No.16, Gaoxin 10th South Road, High-tech Zone, Yuehai Street, Nanshan District, Shenzhen

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.407](#): UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE DEVICES.

[ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024](#): American National Standard for Testing Unlicensed Wireless Devices

[KDB789033 D02](#): General UNII Test Procedures New Rules v02r01

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Jun. 23, 2026
Testing commenced on	:	Jun. 23, 2026
Testing concluded on	:	Aug. 17, 2026

2.2. Product Description

Product Name:	Interactive Multi-Media DigitalFitness Equipment
Model/Type reference:	GMBS3100A1
Power supply:	Input: 100-240V~, 50/60Hz, 900W
Hardware version:	/
Software version:	/
testing sample ID:	HTT202606671-1# (Engineer sample) HTT202606671-2# (Normal sample)
WIFI	
WLAN	Supported 802.11 a/n/ac/ax
Modulation Type	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) IEEE 802.11ax: OFDM/OFDMA (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024-QAM)
Operation frequency	IEEE 802.11a: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz IEEE 802.11n HT20: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz IEEE 802.11n HT40: 5190-5230MHz, 5270-5310MHz, 5510-5670MHz, 5755-5795MHz IEEE 802.11ac VHT20: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz IEEE 802.11ac VHT40: 5190-5230MHz, 5270-5310MHz, 5510-5670MHz, 5755-5795MHz IEEE 802.11ac VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5775MHz IEEE 802.11ax HEW20: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz IEEE 802.11ax HEW40: 5190-5230MHz, 5270-5310MHz, 5510-5670MHz, 5755-5795MHz IEEE 802.11ax HEW80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5775MHz
Channel number	4 Channels for 20MHz bandwidth(5180-5240MHz) 4 Channels for 20MHz bandwidth(5260-5320MHz) 11 Channels for 20MHz bandwidth(5500-5700MHz) 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5190~5230MHz) 2 channels for 40MHz bandwidth(5270~5310MHz) 5 Channels for 40MHz bandwidth(5510-5670MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 Channels for 80MHz bandwidth(5210MHz) 1 Channels for 80MHz bandwidth(5290MHz) 2 Channels for 80MHz bandwidth(5530MHz, 5610MHz) 1 channels for 80MHz bandwidth(5775MHz)
Antenna type:	FPC Antenna

Antenna gain:	ANT1: 2.65dBi for 5180-5240MHz, 2.71dBi for 5260-5320MHz, 2.77dBi for 5500-5700MHz, 2.55 dBi for 5745-5825MHz ANT2: 2.79dBi for 5180-5240MHz, 2.93dBi for 5260-5320MHz, 3.17dBi for 5500-5700MHz, 2.64 dBi for 5745-5825MHz
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2.3. Equipment Under Test

Power supply system utilised

Refer to section 2.2

2.4. Short description of the Equipment under Test (EUT)

This is a Interactive Multi-Media DigitalFitness Equipment.

For more details, refer to the user's manual of the EUT.

Ant1/Ant2

Test Software Version	Tools software(ADB command)		
Frequency	5180 MHz	5200 MHz	5240 MHz
802.11a	10	10	10
802.11n20	10	10	10
802.11ac20	10	10	10
802.11ax20	10	10	10
Frequency	5190 MHz	/	5230 MHz
802.11n40	10	/	10
802.11ac40	10	/	10
802.11ax40	10	/	10
Frequency	/	5210	/
802.11ac80	/	10	/
802.11ax80	/	10	/

Test Software Version	Tools software(ADB command)		
Frequency	5260 MHz	5300 MHz	5320 MHz
802.11a	10	10	10
802.11n20	10	10	10
802.11ac20	10	10	10
802.11ax20	10	10	10
Frequency	5270 MHz	/	5310 MHz
802.11n40	10	/	10
802.11ac40	10	/	10
802.11ax40	10	/	10
Frequency	/	5290	/
802.11ac80	/	10	/
802.11ax80	/	10	/

Test Software Version	Tools software(ADB command)		
Frequency	5500 MHz	5600 MHz	5700 MHz
802.11a	10	10	10
802.11n20	10	10	10
802.11ac20	10	10	10
802.11ax20	10	10	10
Frequency	5510 MHz	5590 MHz	5670 MHz
802.11n40	10	10	10
802.11ac40	10	10	10
802.11ax40	10	10	10
Frequency	5530 MHz	/	5610 MHz
802.11ac80	10	/	10
802.11ax80	10	/	10

Test Software Version	Tools software(ADB command)		
Frequency	5745 MHz	5785 MHz	5825 MHz
802.11a	10	10	10
802.11n20	10	10	10
802.11ac20	10	10	10
802.11ax20	10	10	10
Frequency	5755 MHz	/	5795 MHz

802.11n40	10	/	10
802.11ac40	10	/	10
802.11ax40	10	/	10
Frequency	/	5775	/
802.11ac80	/	10	/
802.11ax80	/	10	/

2.5. EUT operation mode

The application provider specific test software to control sample in continuous TX and RX.

IEEE 802.11a/n/ac/ax:

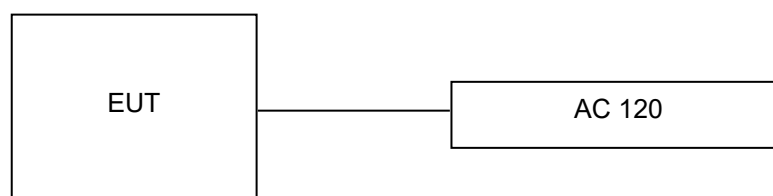
U-NI-1		U-NI-1		U-NI-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

U-NI-2A		U-NI-2A		U-NI-2A	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

U-NI-2C		U-NI-2C		U-NI-2C	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590		
112	5560	126	5630		
116	5580	134	5670		
120	5600				
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				

U-NI-3		U-NI-3		U-NI-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				

2.6. Block Diagram of Test Setup



2.7. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for filing to comply with Section 15.407 of the FCC Part 15, Subpart E Rules.

2.8. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen HTT Technology Co.,Ltd.

1F, Building B, Huafeng International Robotics Industrial Park, Hangcheng Road, Nanchang Community, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 779513 Designation Number: CN1319

Shenzhen HTT Technology Co.,Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6435.01

Shenzhen HTT Technology Co.,Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

ISED#: 27952 CAB identifier: CN0128

Shenzhen HTT Technology Co.,Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar

3.4. Test Description

FCC Requirement		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.407(a)	Emission Bandwidth(26dBm Bandwidth)	PASS
FCC Part 15.407(e)	Minimum Emission Bandwidth(6dBm Bandwidth)	PASS
FCC Part 15.407(a)	Maximum Conducted Output Power	PASS
FCC Part 15.407(a)	Peak Power Spectral Density	PASS
FCC Part 15.407(g)	Frequency Stability	PASS
FCC Part 15.407(b)	Undesirable emission	PASS
FCC Part 15.407(b)/15.205/15.209	Radiated Emissions	PASS
FCC Part 15.407(h)	Dynamic Frequency Selection	PASS
FCC Part 15.203/15.247(b)	Antenna Requirement	PASS

Remark:

1. The measurement uncertainty is not included in the test result.

2. NA = Not Applicable; NP = Not Performed

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen HTT Technology Co.,Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen HTT Technology Co.,Ltd.:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	9KHz~30MHz	3.12 dB	(1)
Radiated Emission	30~1000MHz	4.37 dB	(1)
Radiated Emission	1~18GHz	5.40 dB	(1)
Radiated Emission	18-40GHz	5.45 dB	(1)
Conducted Disturbance	0.15~30MHz	2.68 dB	(1)
Output Peak power	30MHz~18GHz	0.57 dB	(1)
Power spectral density	/	0.54 dB	(1)
Spectrum bandwidth	/	1.2%	(1)
Radiated spurious emission (30MHz-1GHz)	30~1000MHz	4.25 dB	(1)
Radiated spurious emission (1GHz-18GHz)	1~18GHz	4.15 dB	(1)
Radiated spurious emission (18GHz-40GHz)	18-40GHz	5.35 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

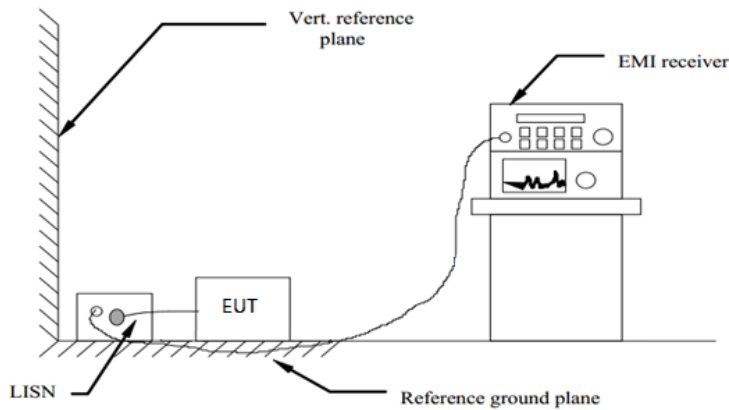
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	Shenzhen C.R.T technology co., LTD	9*6*6	HTT-E028	Aug. 10 2024	Aug. 09 2027
2	Control Room	Shenzhen C.R.T technology co., LTD	4.8*3.5*3.0	HTT-E030	Aug. 10 2024	Aug. 09 2027
3	EMI Test Receiver	Rohde&Schwarz	ESCI7	HTT-E022	Apr. 20 2026	Apr. 19 2027
4	Spectrum Analyzer	ROHDE&SCHWARZ	FSV40-N	HTT-E050	Apr. 20 2026	Apr. 19 2027
5	Coaxial Cable	ZDecl	ZT26-NJ-NJ-0.6M	HTT-E018	Apr. 20 2026	Apr. 19 2027
6	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-2M	HTT-E019	Apr. 20 2026	Apr. 19 2027
7	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-0.6M	HTT-E020	Apr. 20 2026	Apr. 19 2027
8	Coaxial Cable	ZDecl	ZT26-NJ-SMAJ-8.5M	HTT-E021	Apr. 20 2026	Apr. 19 2027
9	Composite logarithmic antenna	Schwarzbeck	VULB 9168	HTT-E017	Apr. 18 2026	Apr. 17 2027
10	Horn Antenna	Schwarzbeck	BBHA9120D	HTT-E016	Apr. 18 2026	Apr. 17 2027
11	Loop Antenna	Zhinan	ZN30900C	HTT-E039	Apr. 21 2026	Apr. 20 2027
12	Horn Antenna	A.H. Systems, inc.	SAS-574	HTT-E040	Apr. 18 2026	Apr. 17 2027
13	low frequency Amplifier	Sonoma Instrument	310	HTT-E015	Apr. 20 2026	Apr. 19 2027
14	high-frequency Amplifier	HP	8449B	HTT-E014	Apr. 22 2026	Apr. 21 2027
15	Variable frequency power supply	Shenzhen Anbiao Instrument Co., Ltd	ANB-10VA	HTT-082	Apr. 20 2026	Apr. 19 2027
16	EMI Test Receiver	Rohde & Schwarz	ESCI3	HTT-E043	Apr. 20 2026	Apr. 19 2027
17	Artificial Mains	Rohde & Schwarz	ESH3-Z5	HTT-E006	Apr. 20 2026	Apr. 19 2027
18	Artificial Mains	Rohde & Schwarz	ENV-216	HTT-E038	Apr. 20 2026	Apr. 19 2027
19	Cable Line	Robinson	Z302S-NJ-BNCJ-1.5M	HTT-E001	Apr. 20 2026	Apr. 19 2027
20	Filter	ROHDE&SCHWARZ	ESH3-Z2	HTT-E045	Apr. 20 2026	Apr. 19 2027
21	Variable frequency power supply	Shenzhen Yanghong Electric Co., Ltd	YF-650 (5KVA)	HTT-E032	Apr. 20 2026	Apr. 19 2027
22	Control Room	Shenzhen C.R.T technology co., LTD	8*4*3.5	HTT-E029	Aug. 10 2024	Aug. 09 2027
23	DC power supply	DLX	DLX-40V20AHP	HTT-114	Apr. 20 2026	Apr. 19 2027
24	EMI Test Receiver	Agilent	N9020A	HTT-E024	Apr. 20 2026	Apr. 19 2027
25	Analog signal generator	Agilent	N5181A	HTT-E025	Apr. 20 2026	Apr. 19 2027
26	Vector signal generator	Agilent	N5182A	HTT-E026	Apr. 20 2026	Apr. 19 2027
27	RF Switch box	Keysight	Switchbox	HTT-E047	Apr. 20 2026	Apr. 19 2027
28	Temperature and humidity meter	Shenzhen Anbiao Instrument Co., Ltd	TH10R	HTT-090	Apr. 22 2026	Apr. 21 2027
29	Radiated Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
30	Conducted Emission Test Software	Farad	EZ-EMC	N/A	N/A	N/A
31	RF Test Software	panshanrf	TST	N/A	N/A	N/A

Note: The automatic control unit integrated Power sensor

4. TEST CONDITIONS AND RESULTS

4.1. AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0 meters is used and is placed on the ground plane as per ANSI C63.10-2020.
- 2 Support equipment, if needed, was placed as per ANSI C63.10-2020
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2020
- 4 The EUT received DC 12V power from adapter, the adapter received AC120V/60Hz and AC 240V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any.
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

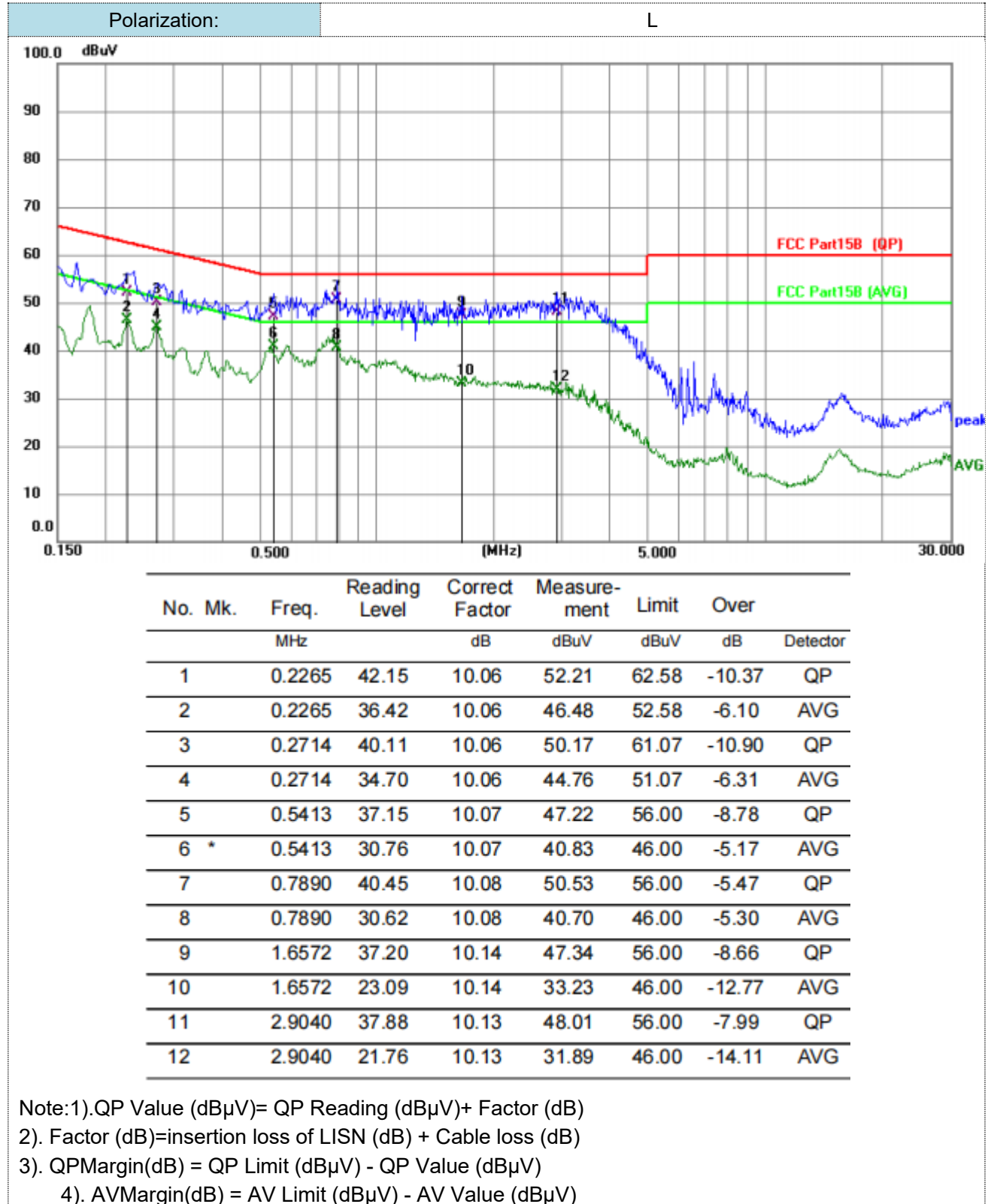
TEST RESULTS

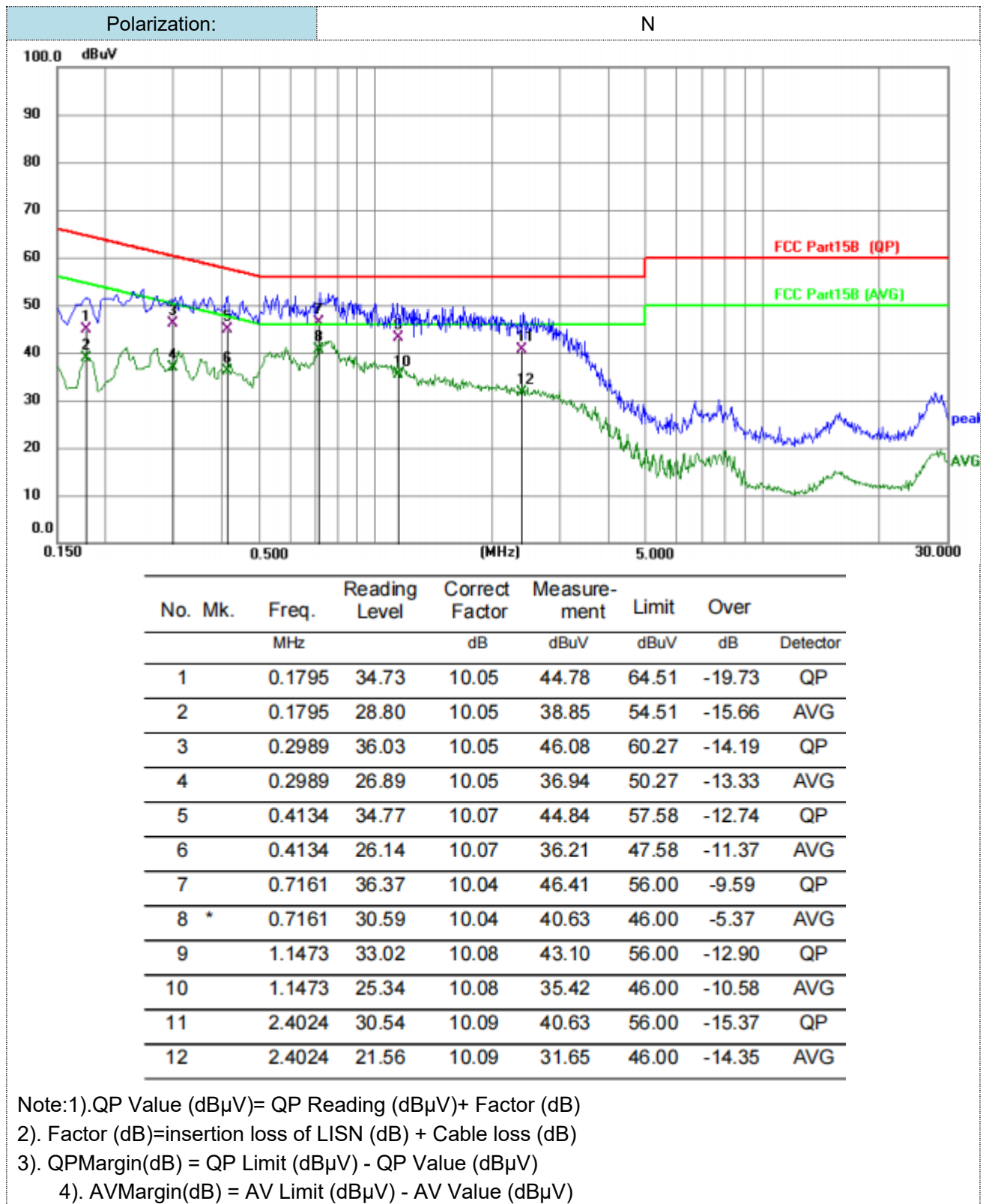
Remark:

1. All modes of 802.11a/n/ac/ax were test at Low, Middle, and High channel; only the worst result of 802.11a MIMO Low Channel was reported as below:

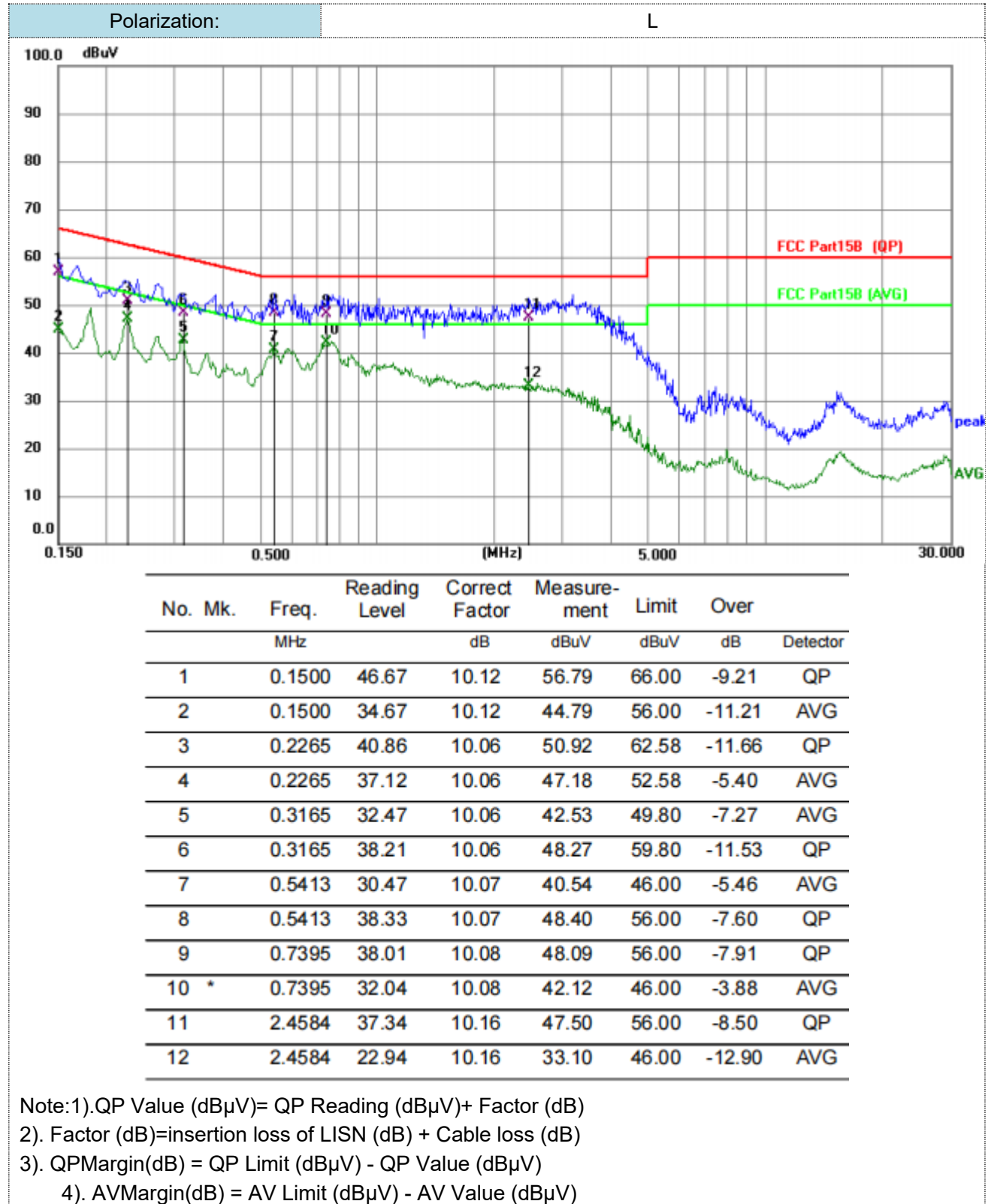
Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:

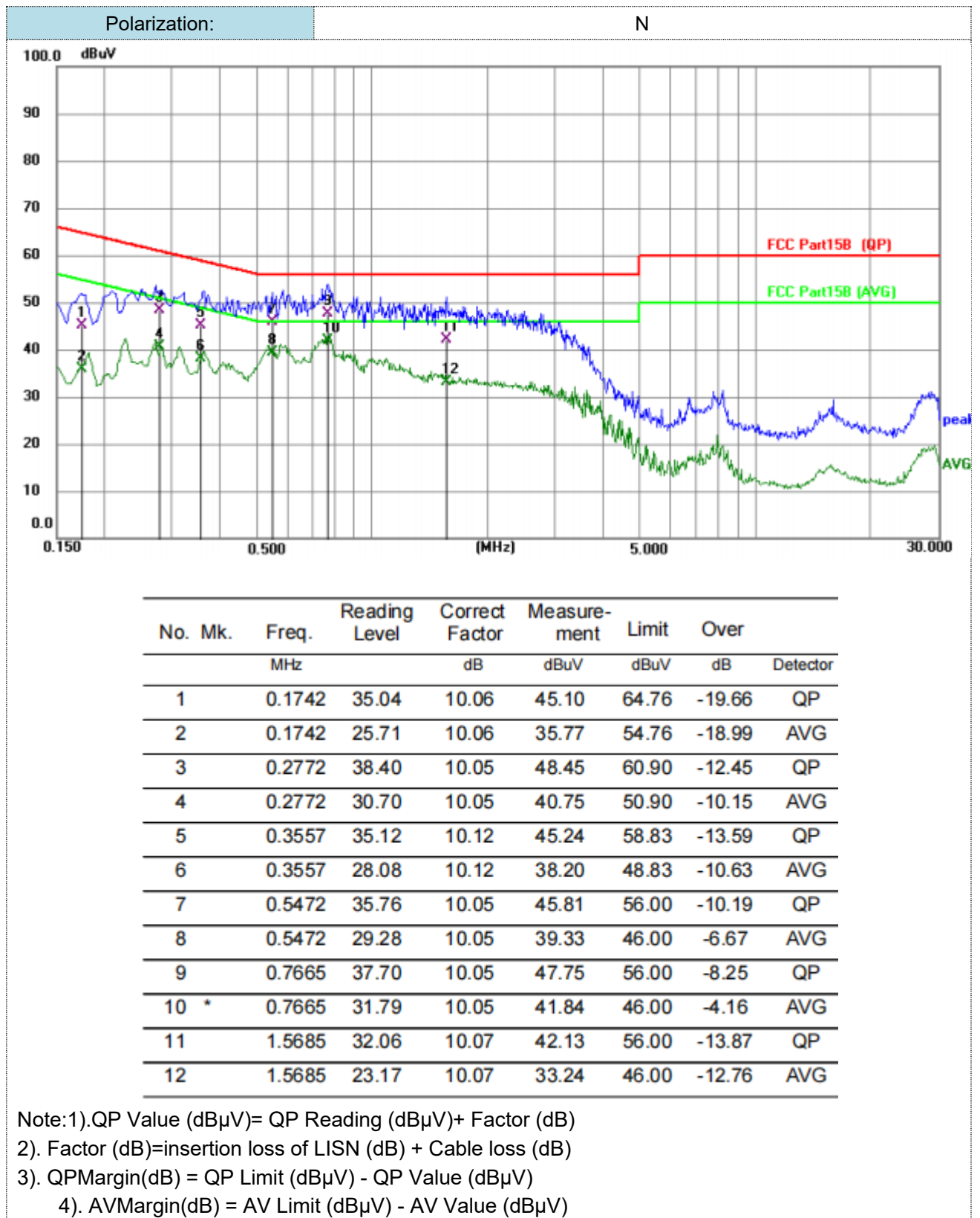
UNII-1:



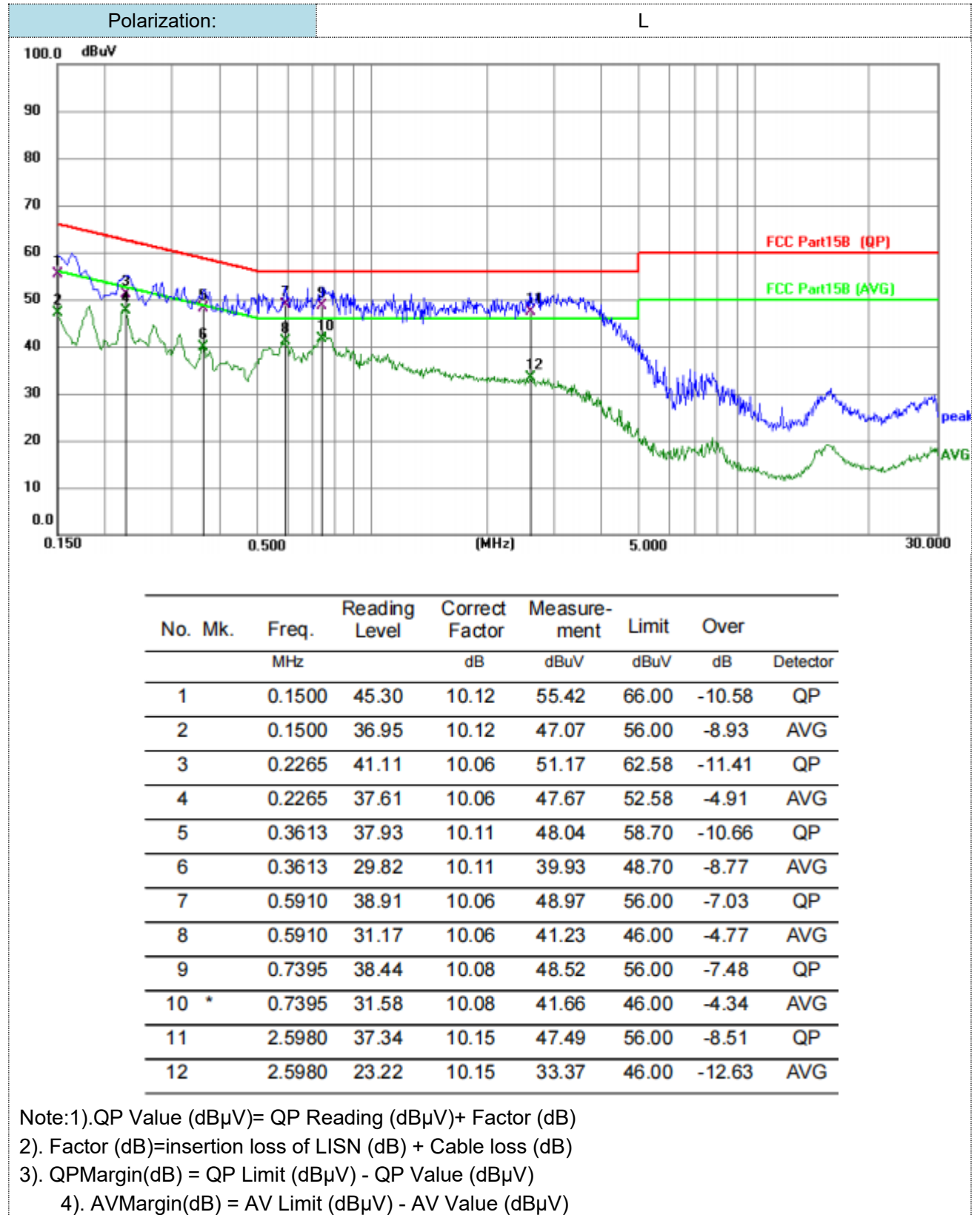


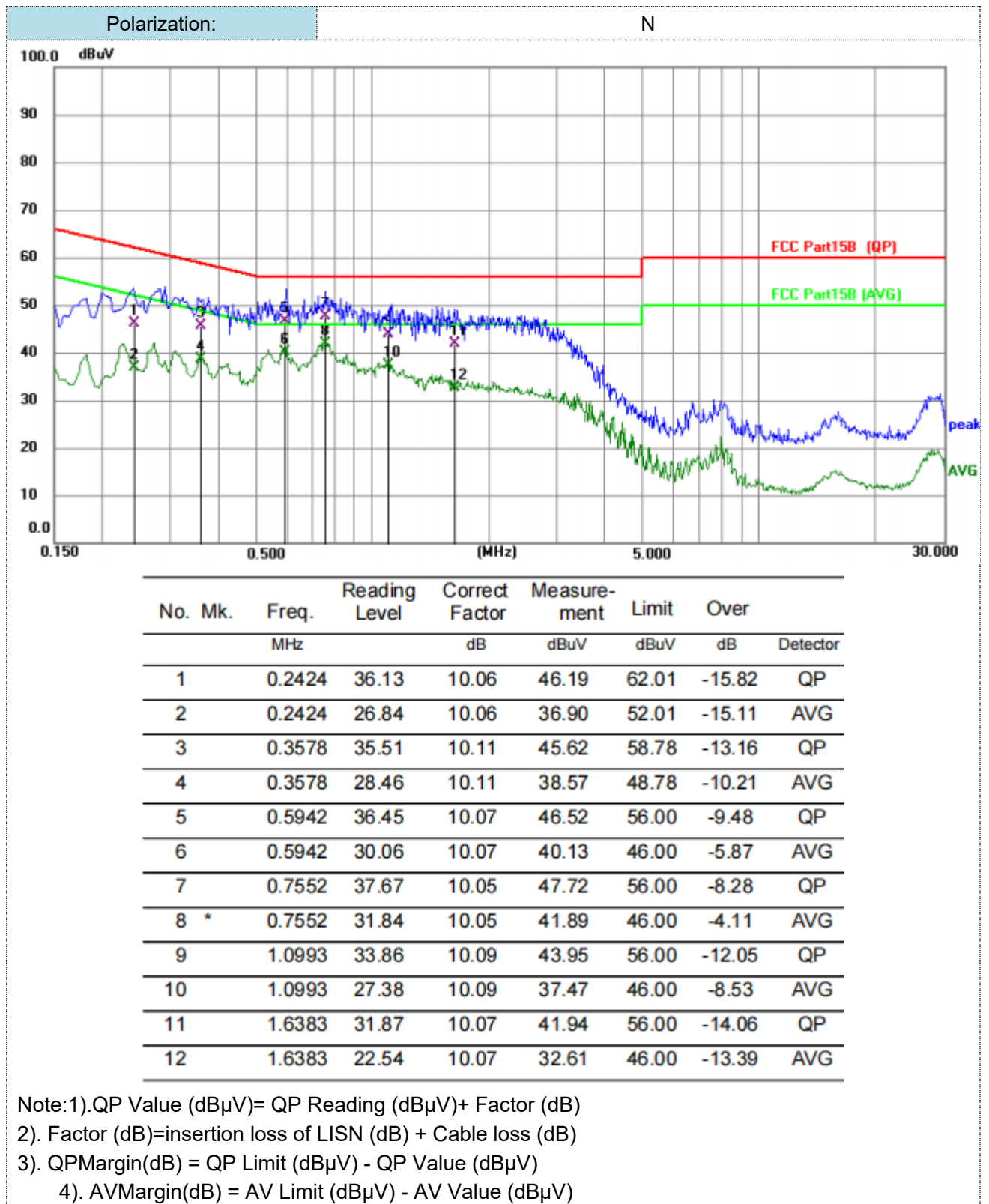
UNII-2A:



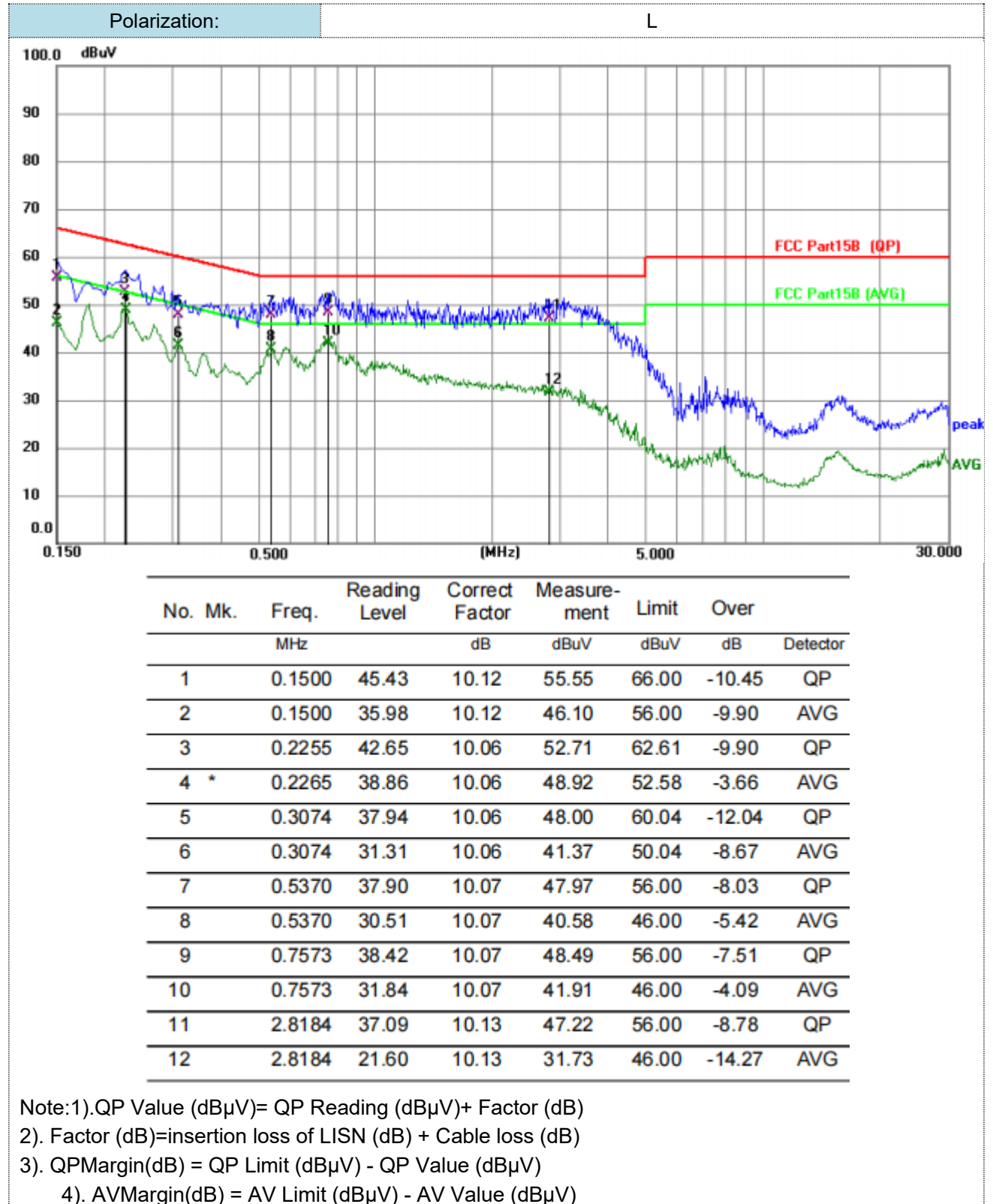


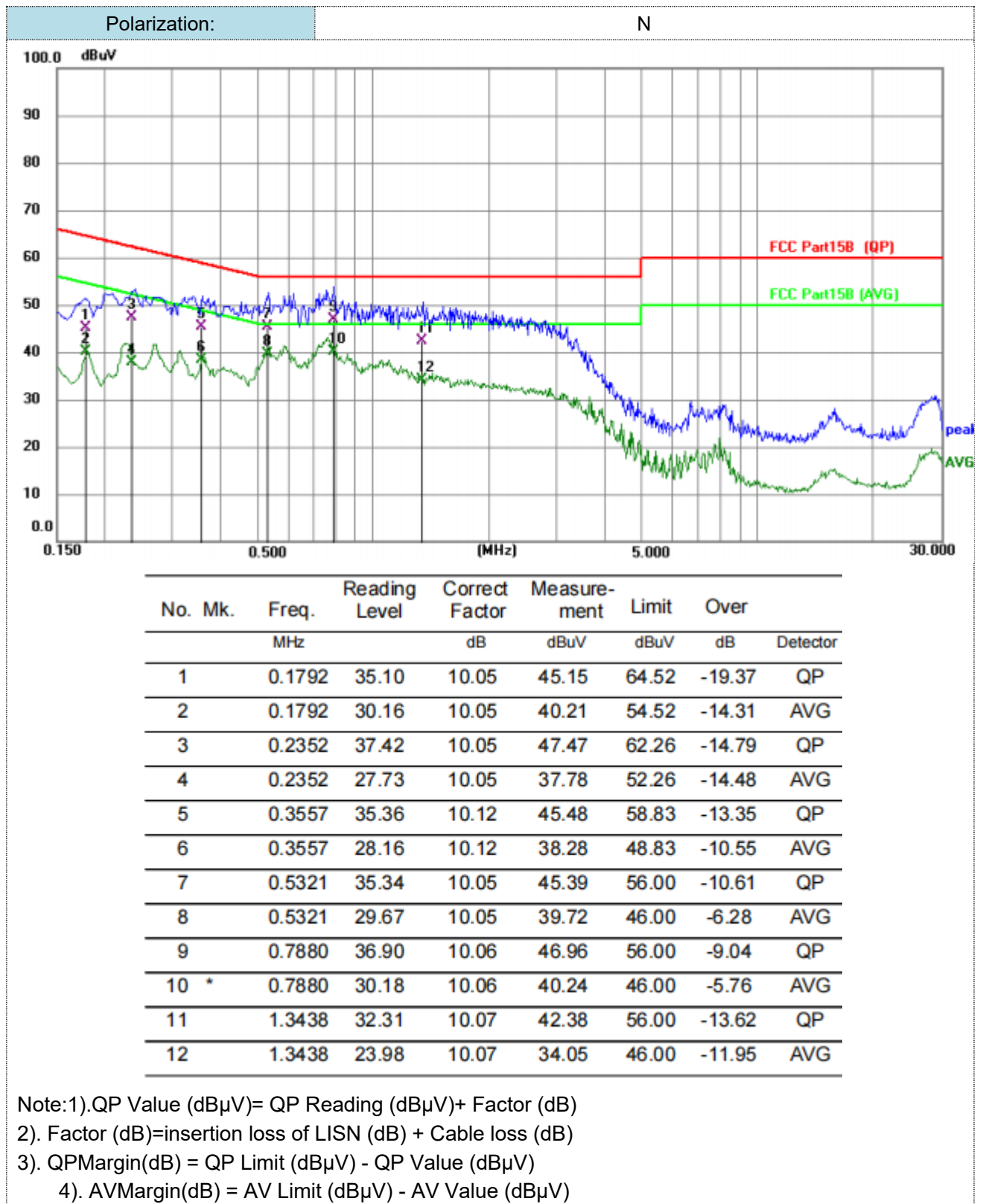
UNII-2C:





UNII-3:





4.2. Radiated Emission

Limit

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Undesirable emission limits

Requirement	Limit(EIRP)	Limit (Field strength at 3m) ^{Note1}
15.407(b)(1)	PK:-27(dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)		

Note1: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

- (5) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209
- (6) In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	$20\log(2400/F(\text{KHz}))+40\log(300/3)$	$2400/F(\text{KHz})$
0.49-1.705	3	$20\log(24000/F(\text{KHz}))+40\log(30/3)$	$24000/F(\text{KHz})$
1.705-30	3	$20\log(30)+40\log(30/3)$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

Conducted measurement Test Procedure:

The testing follows the ANSI C63.10 Section 12.7.6 and 6.10.4:

The procedure for peak unwanted emissions measurements above 1000 MHz is as follows:

b) Peak emission levels are measured by setting the instrument as follows:

- 1) RBW = 1 MHz.
- 2) VBW $\geq [3 \times \text{RBW}]$
- 3) Detector = peak.
- 4) Sweep time = No faster than coupled (auto) time.
- 5) Trace mode = max-hold.
- 6) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, then the time required for the trace to stabilize will increase by a factor of approximately $1 / D$, where D is the duty cycle. For example, at 50% duty cycle, the measurement time will increase by a factor of two, relative to measurement time for continuous transmission.

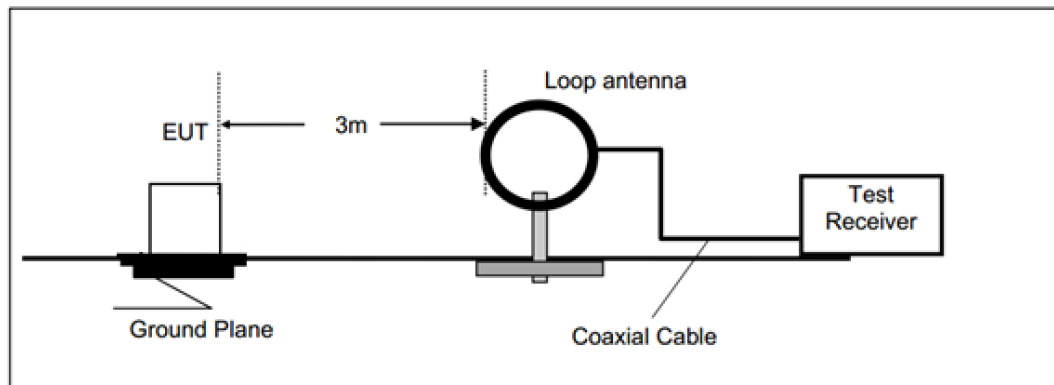
Test Results

Please refer to FCC Appendix RF Test Data for 5GWIFI

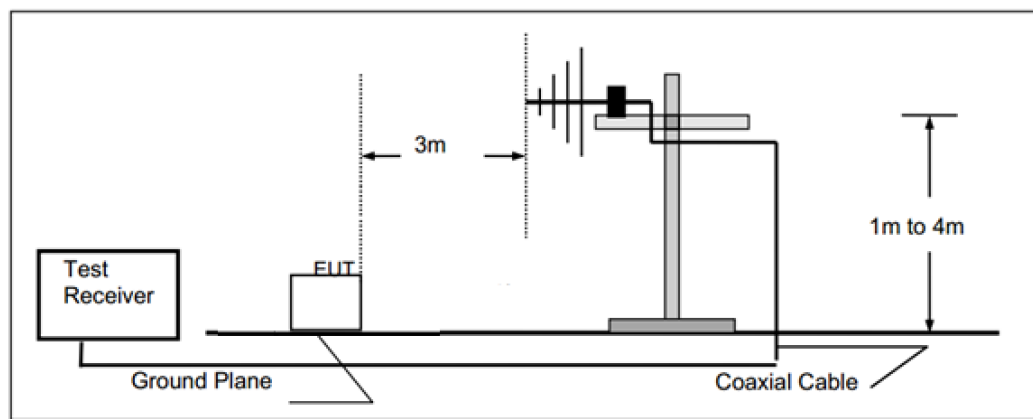
Note:RF Conducted test Offset= cable loss,For conducted spurious emission test, cable loss is the maximum value in the range of test.

TEST CONFIGURATION

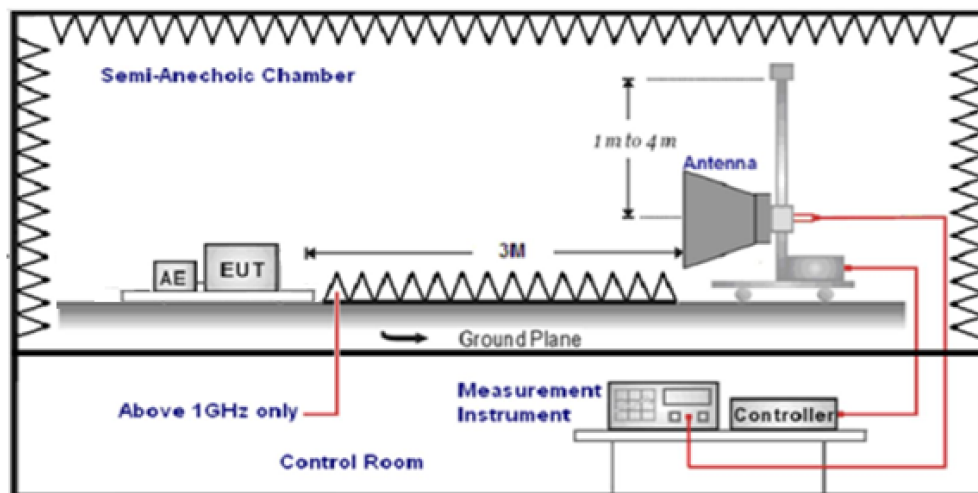
Frequency range 9 KHz – 30MHz

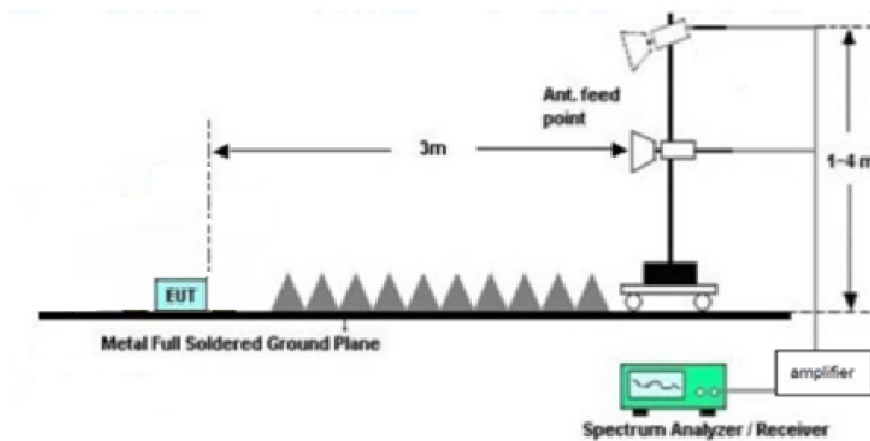


Frequency range 30MHz – 1000MHz



Frequency range above 1GHz-25GHz





Test Procedure

- Below 1GHz measurement the EUT is placed on a turntable which is 0m above ground plane, and above 1GHz measurement EUT was placed on a low permittivity and low loss tangent turn table which is 1.5m above ground plane.
- Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
- And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- Repeat above procedures until all frequency measurements have been completed.
- Radiated emission test frequency band from 9KHz to 40GHz.
- The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3
1GHz-18GHz	Horn Antenna	3
18GHz-25GHz	Horn Antenna	3

- Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz, Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz, Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz, Sweep time=Auto	QP
1GHz-40GHz	Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto	Peak

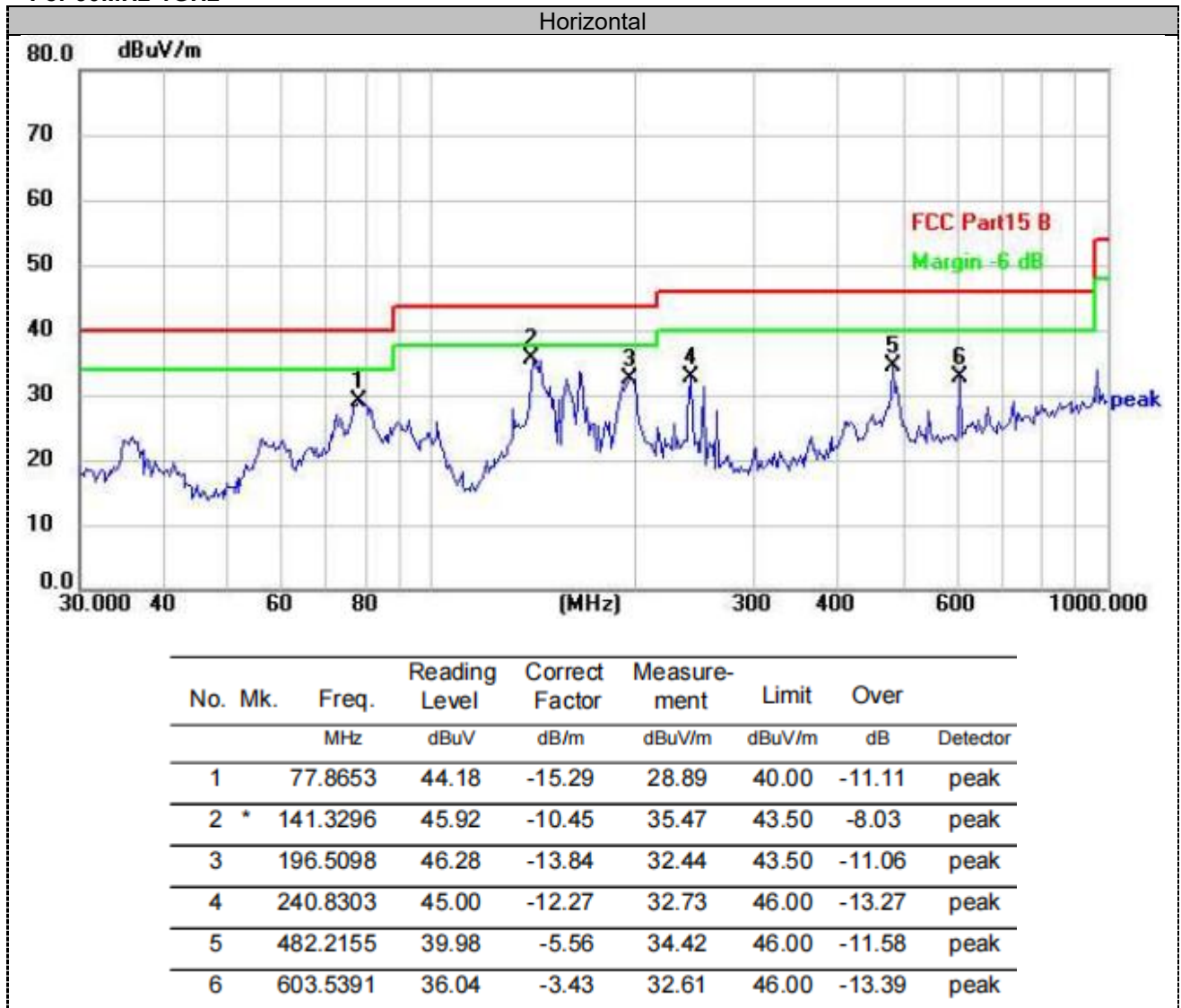
TEST RESULTS

Remark:

- This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.
- All 802.11a/n/ac/ax modes have been tested for above 1GHz test, for below 1GHz test, only the worst case 802.11a MIMO low channel of U-NII 1 band was recorded.
- All 802.11a/n/ax/ax modes have been tested for above 1GHz test, for above 1GHz test, only the worst case 802.11a MIMO was recorded.
- Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report.
- Conducted emission test from 30MHz to 40GHz harmonic of fundamental was verified, and emission margin is greater than 20dB in 27GHz to 40GHz and not recorded in this report.

UNII-1:

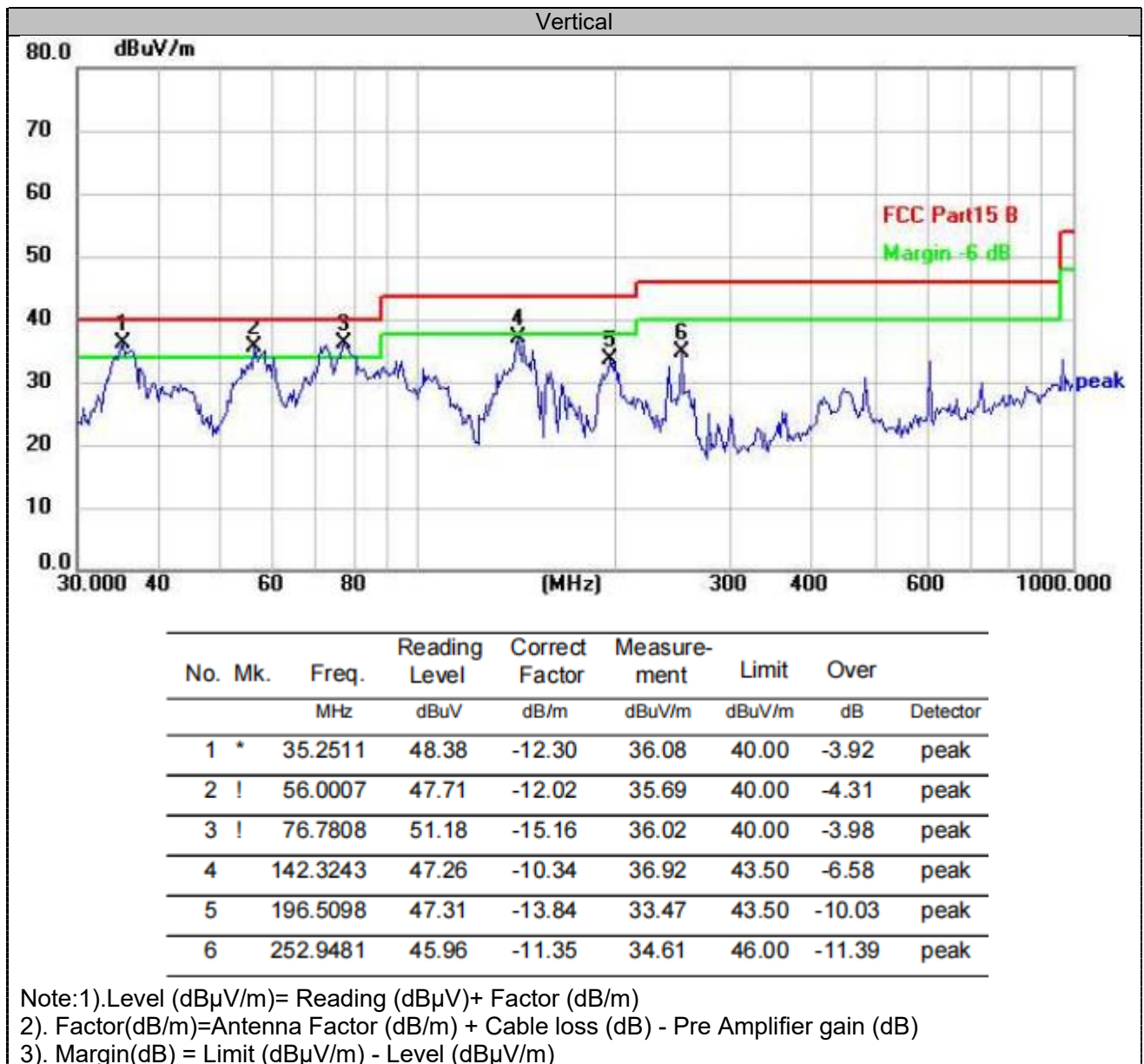
For 30MHz-1GHz



Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

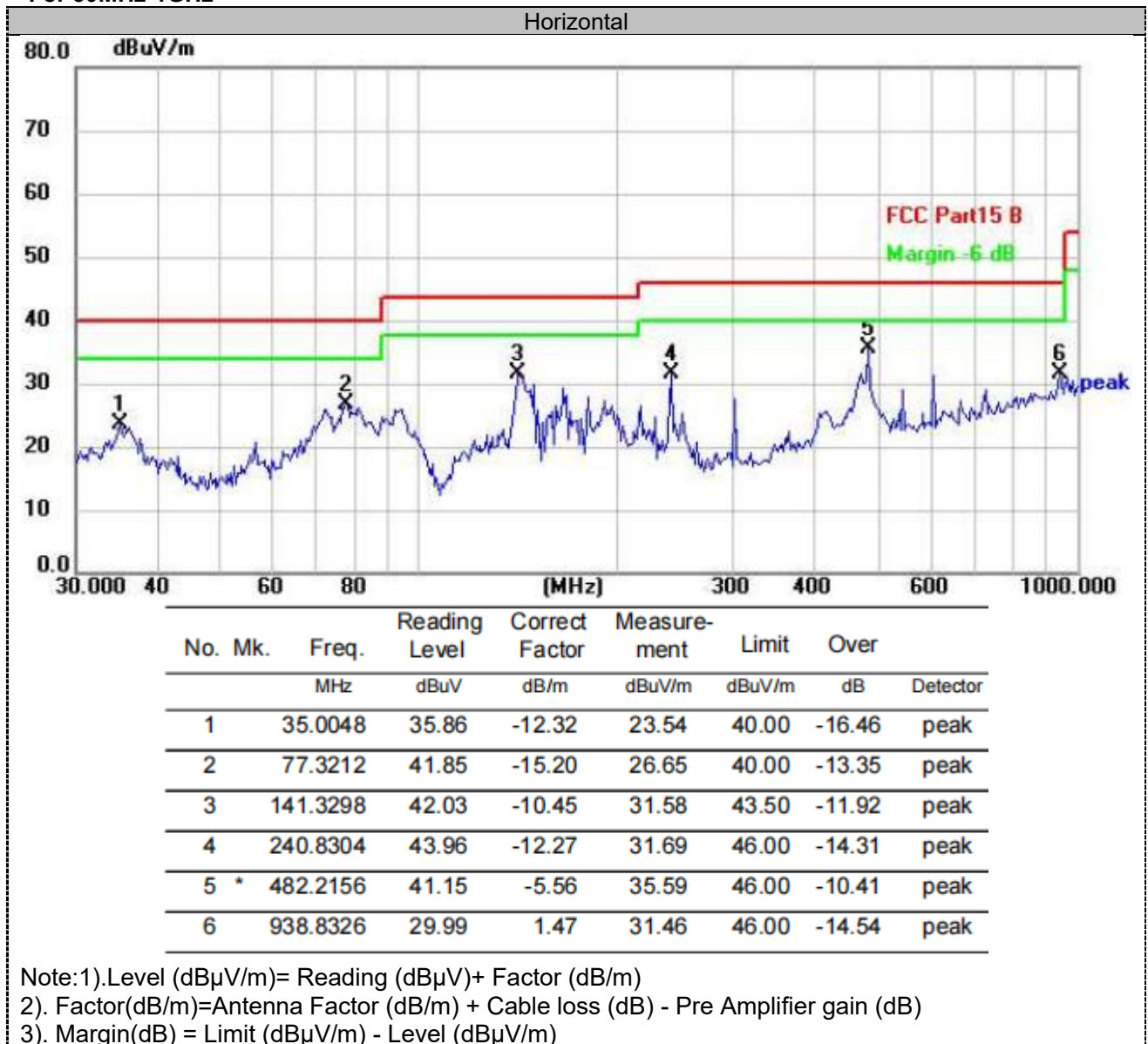
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

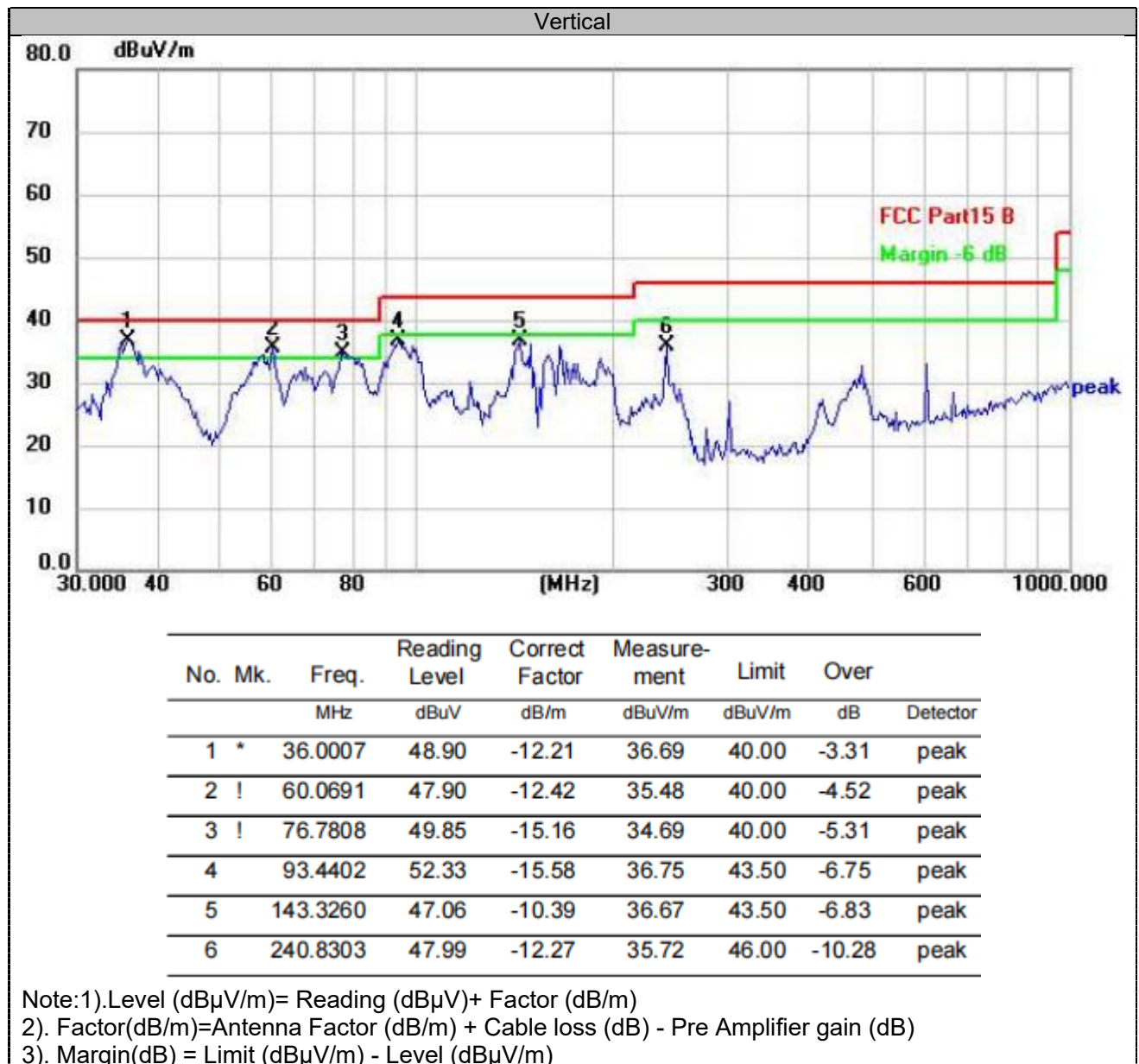
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)



UNII-2A:

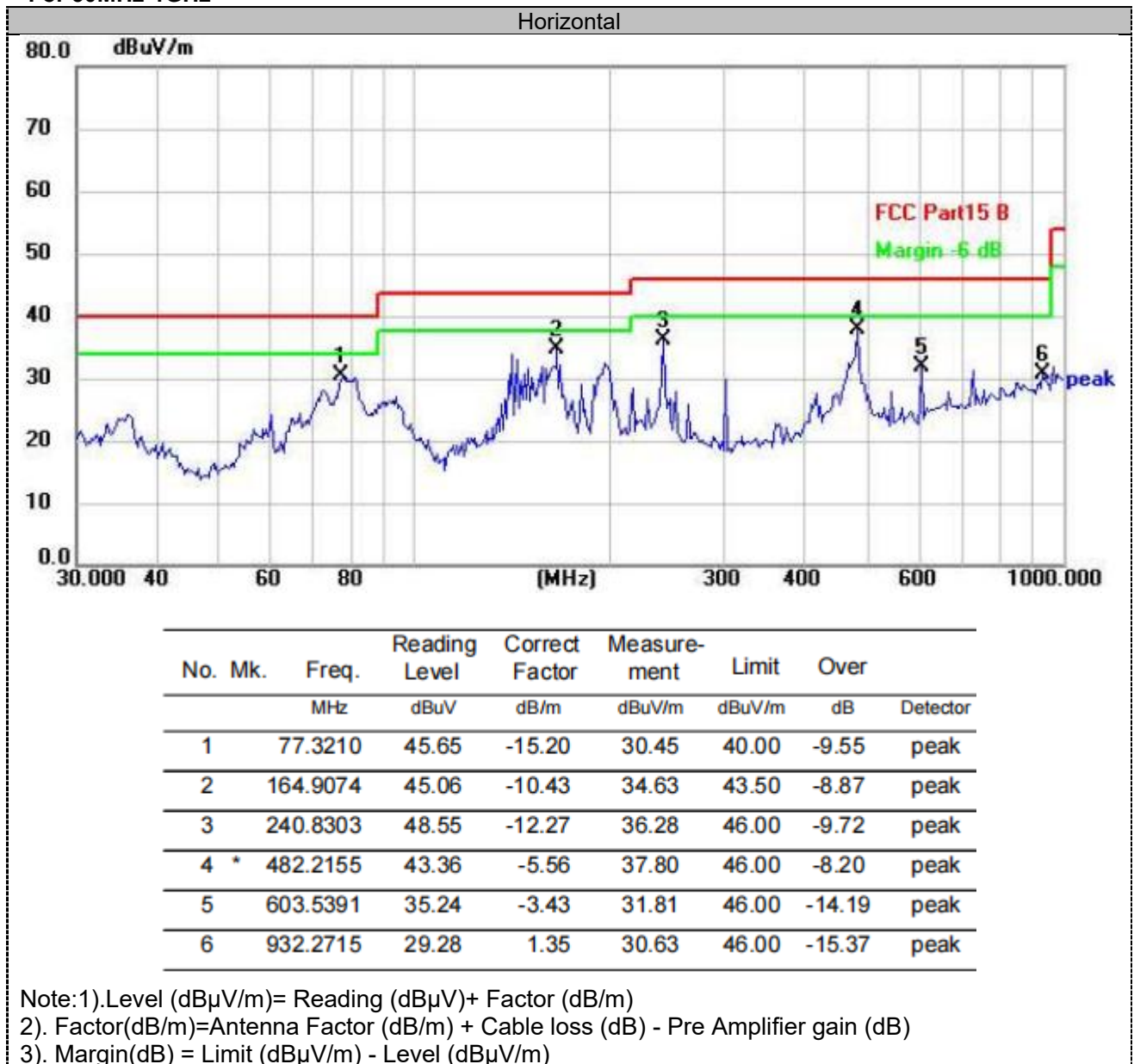
For 30MHz-1GHz

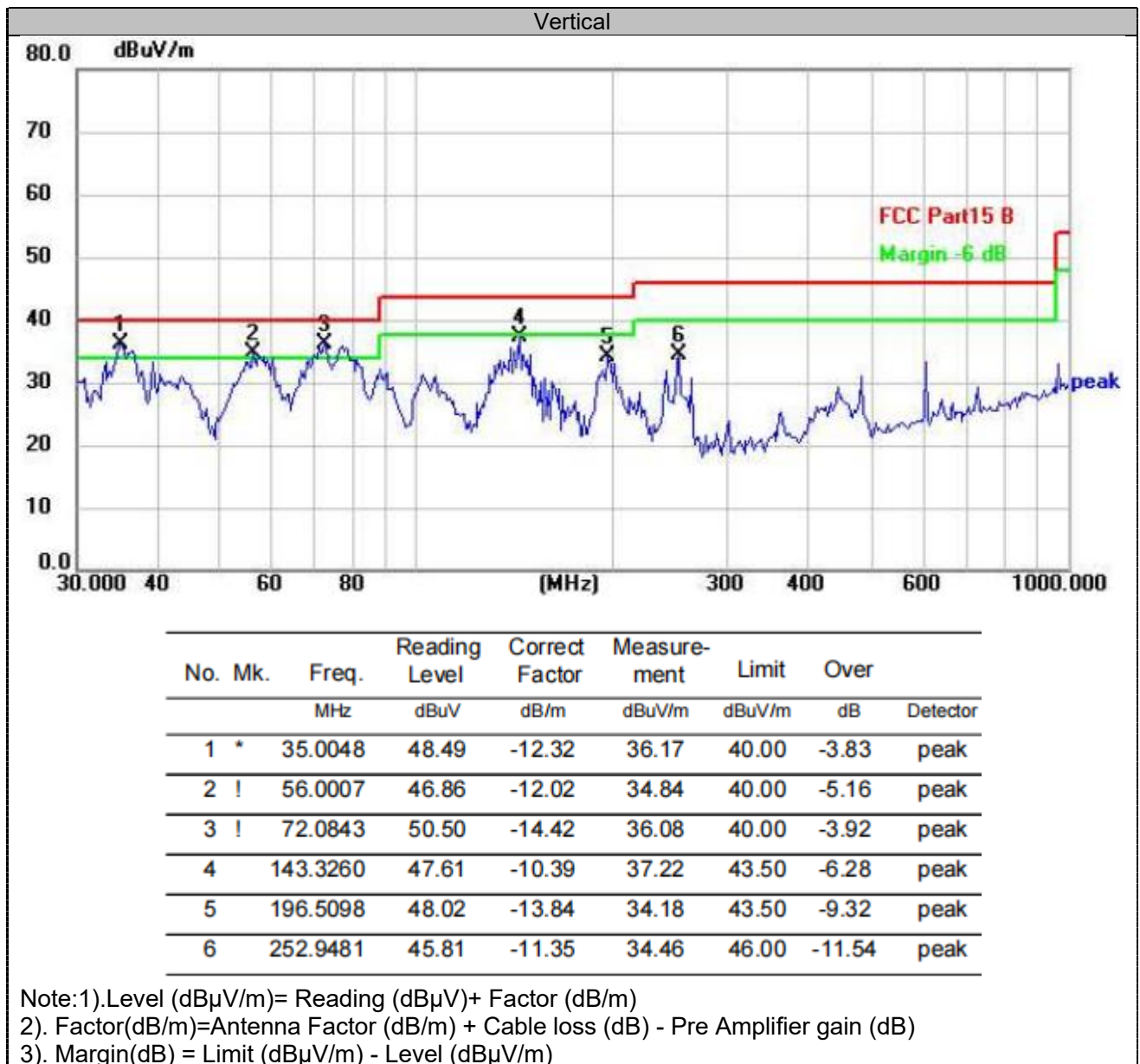




UNII-2C:

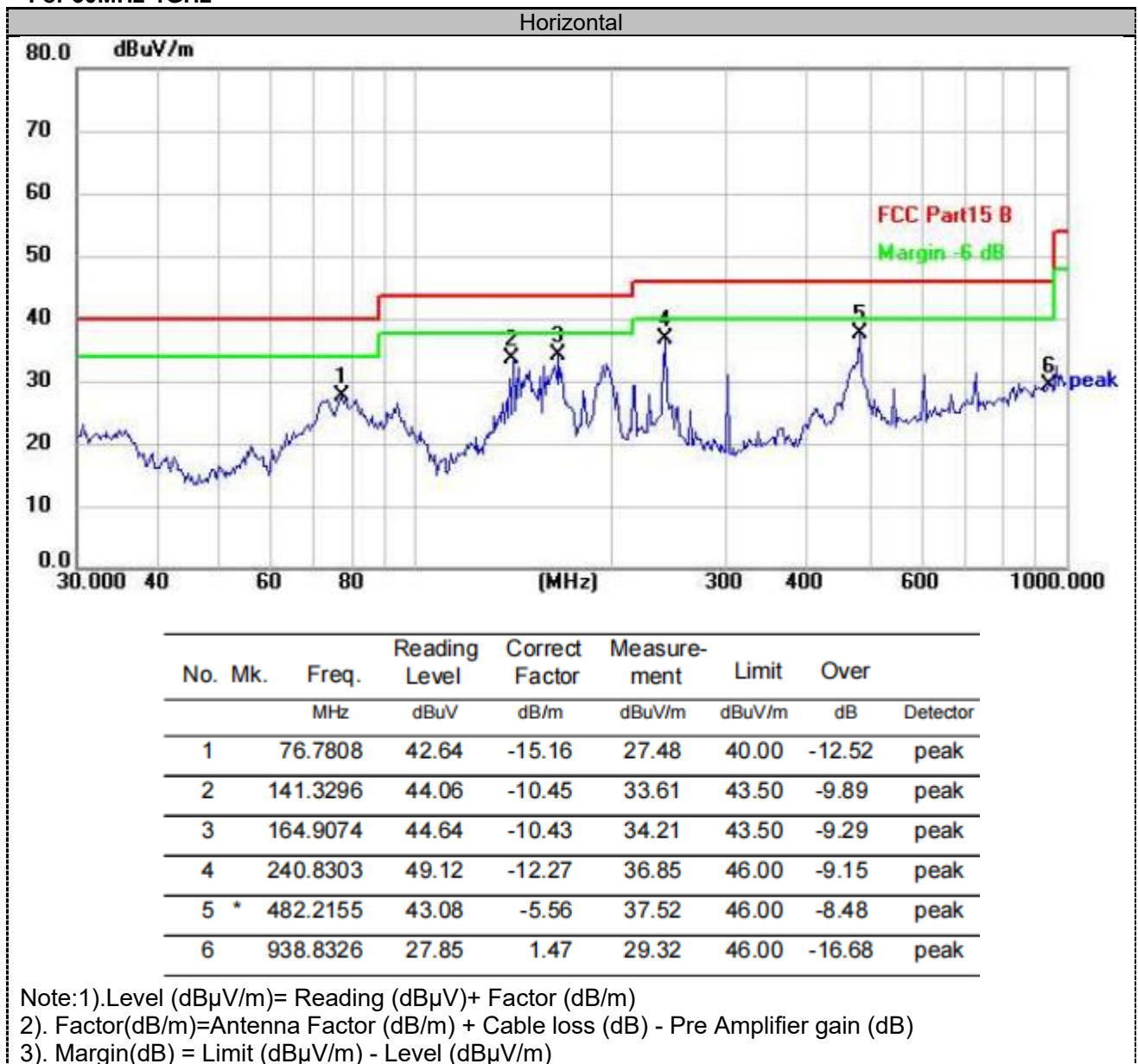
For 30MHz-1GHz

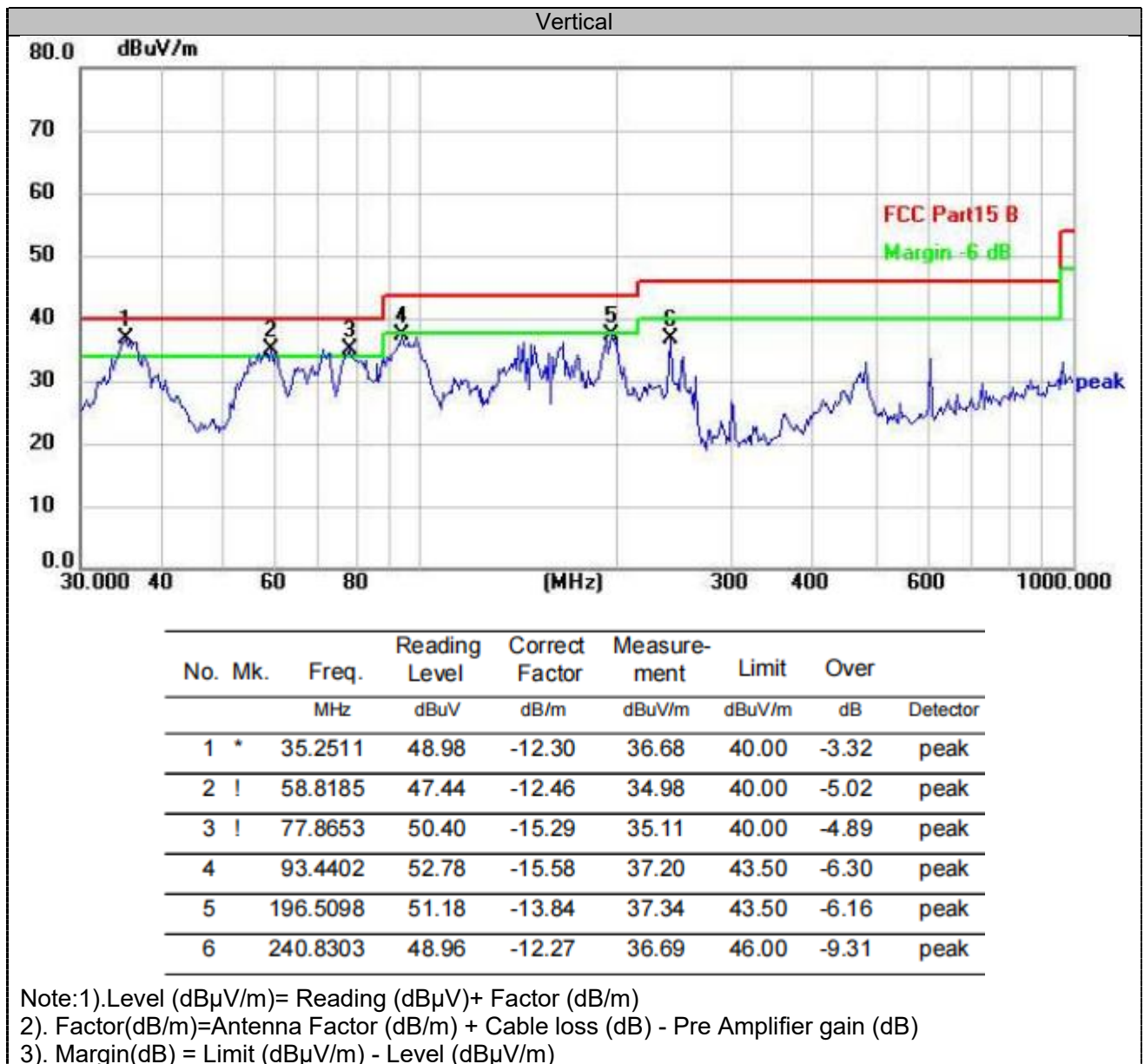




UNII-3:

For 30MHz-1GHz



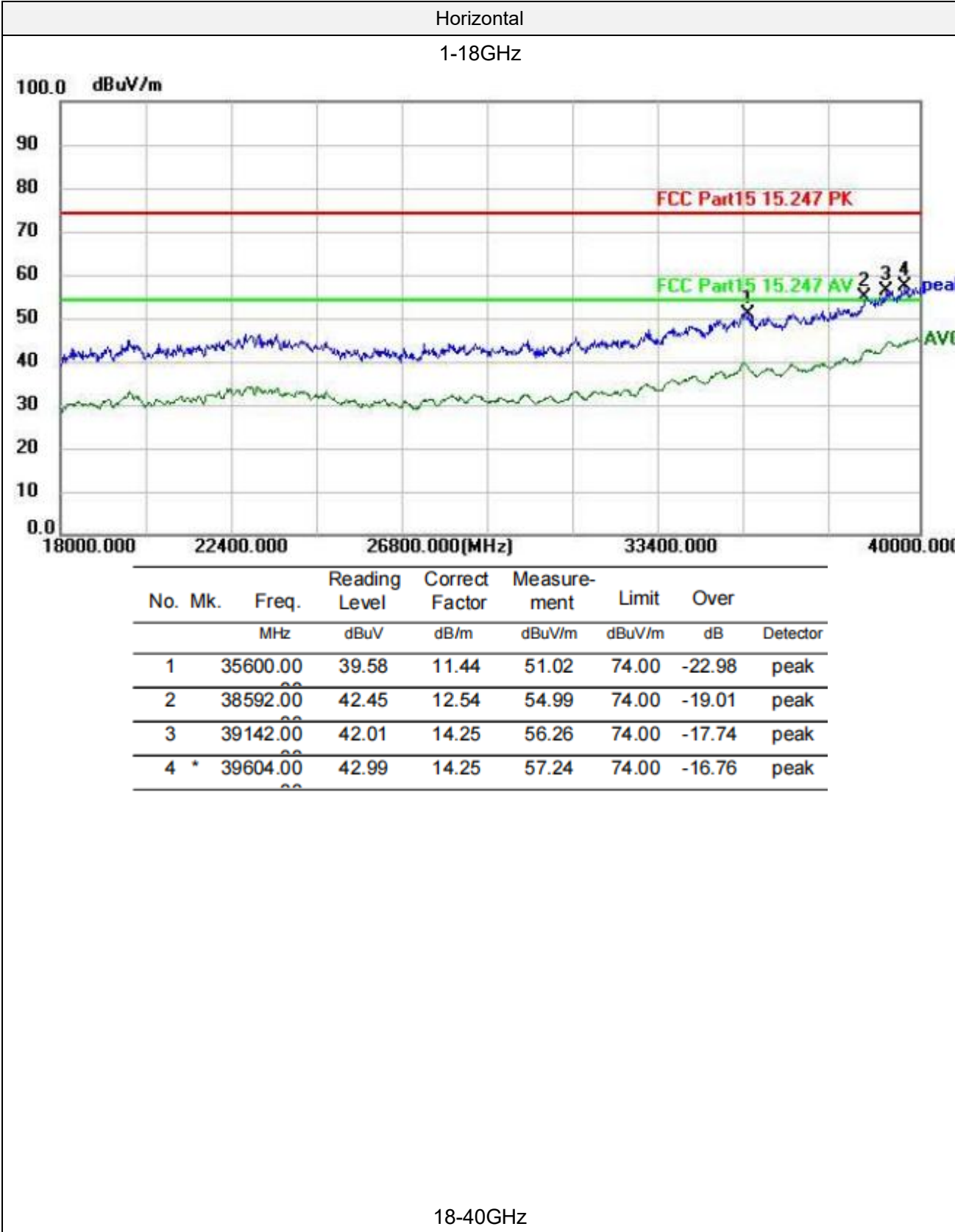


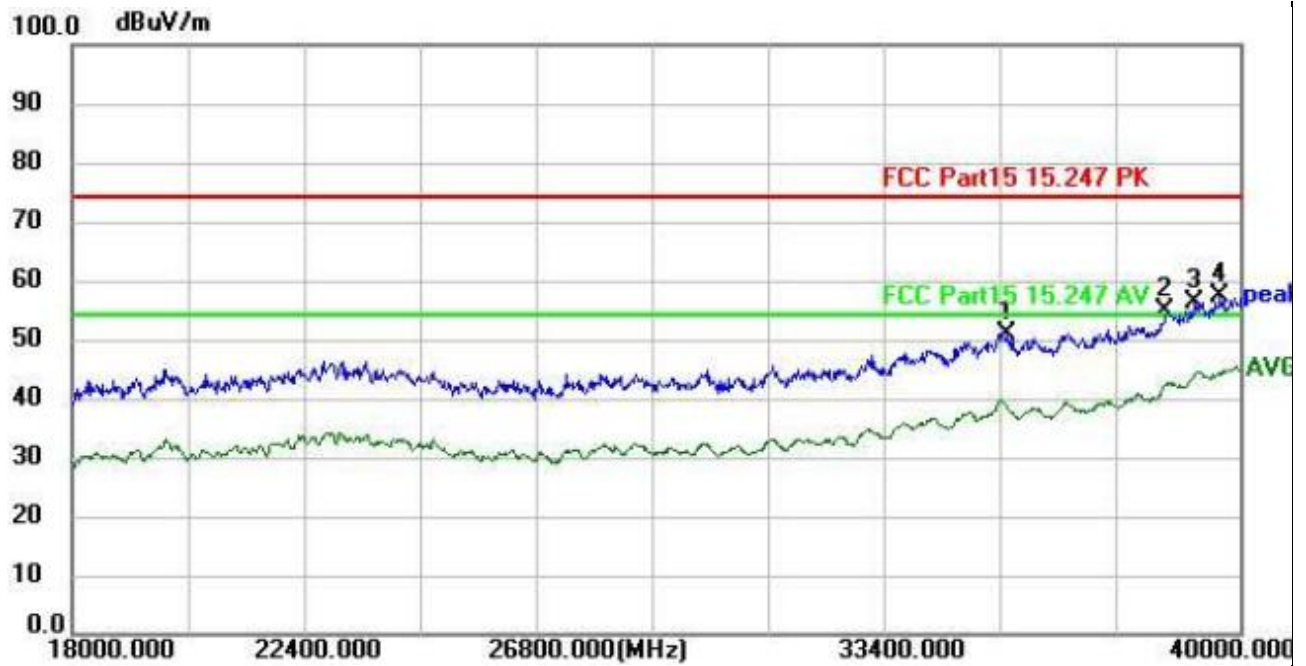
For 1GHz to 40GHz

Note: All 802.11a / 802.11n/ac/ax20 / 802.11n/ac/ax40 modes have been tested for above 1GHz test, only the worst case 802.11a MIMO was recorded.

U-NII 1 & 802.11n20 Mode (above 1GHz)

5180MHz





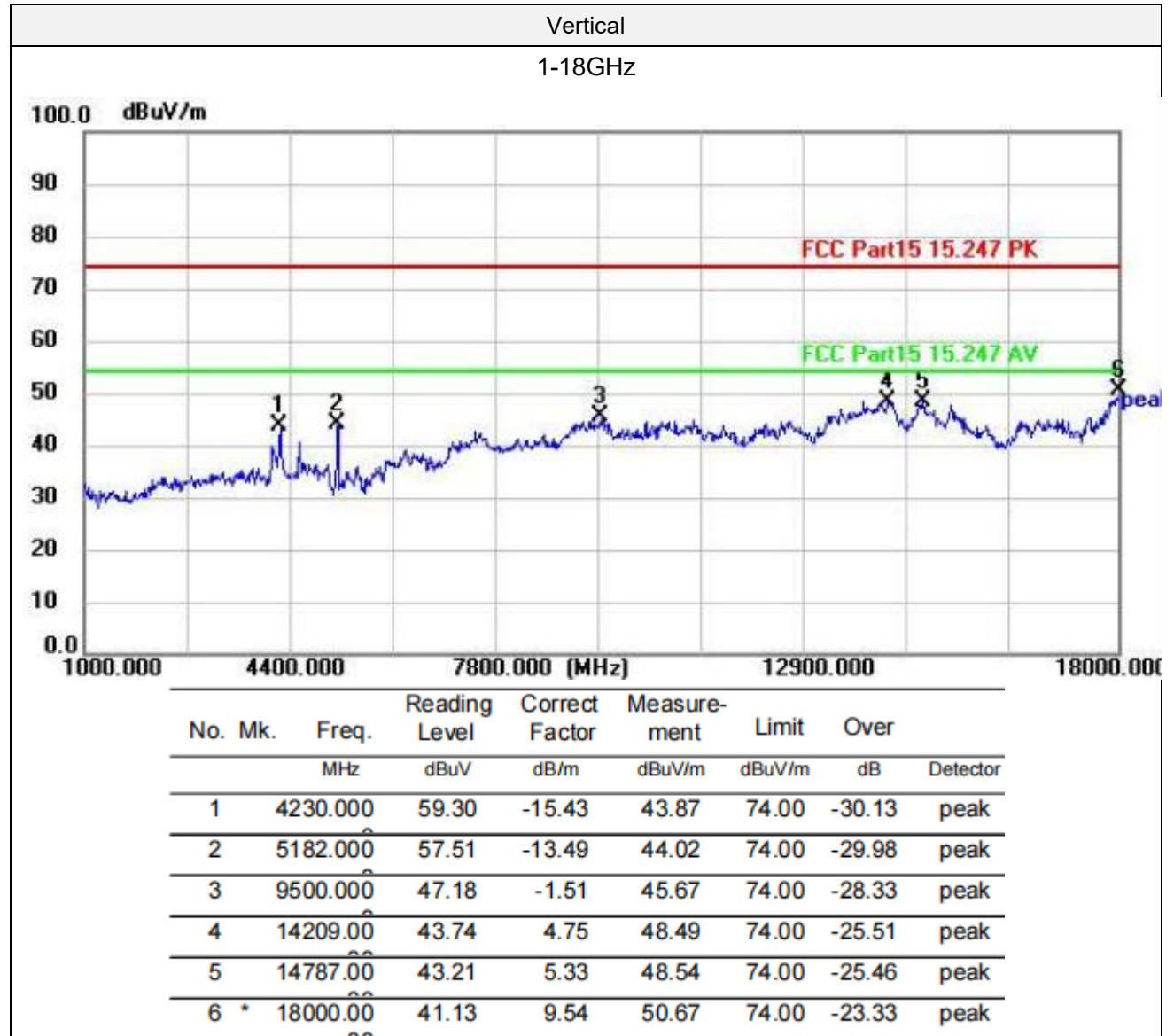
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			
			dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		35600.00	39.58	11.44	51.02	74.00	-22.98	peak
2		38592.00	42.45	12.54	54.99	74.00	-19.01	peak
3		39142.00	42.01	14.25	56.26	74.00	-17.74	peak
4	*	39604.00	42.99	14.25	57.24	74.00	-16.76	peak

Note:1). Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

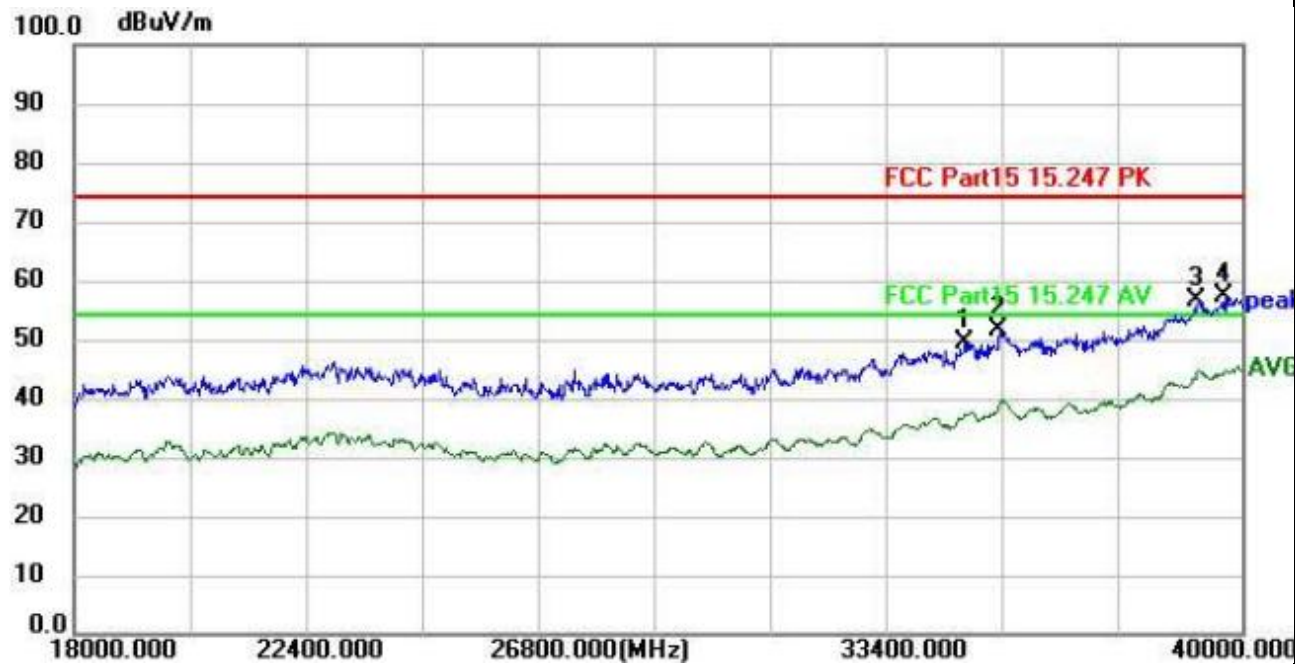
2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dBuV/m) - Level (dBuV/m)

5180MHz



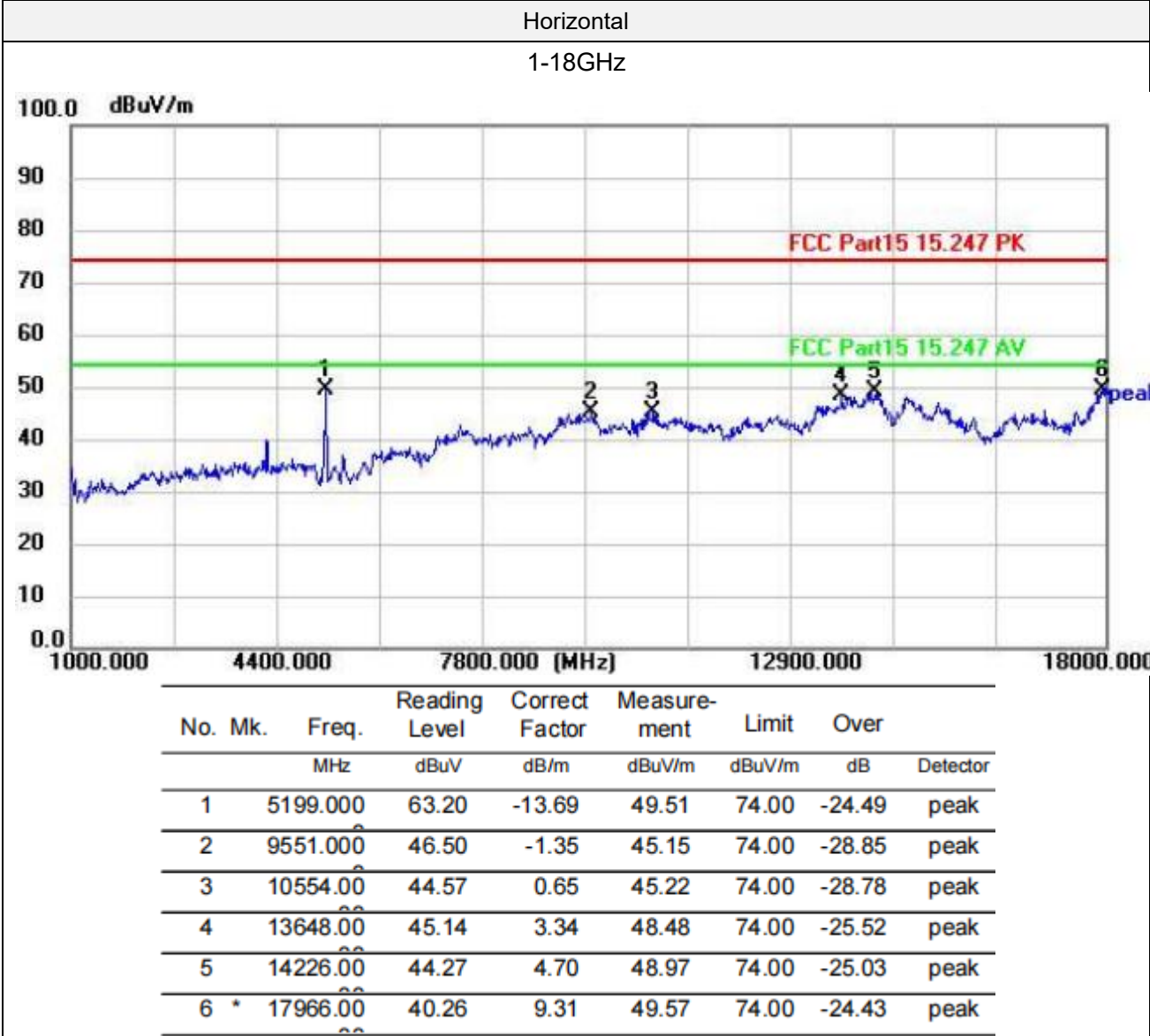
18-40GHz



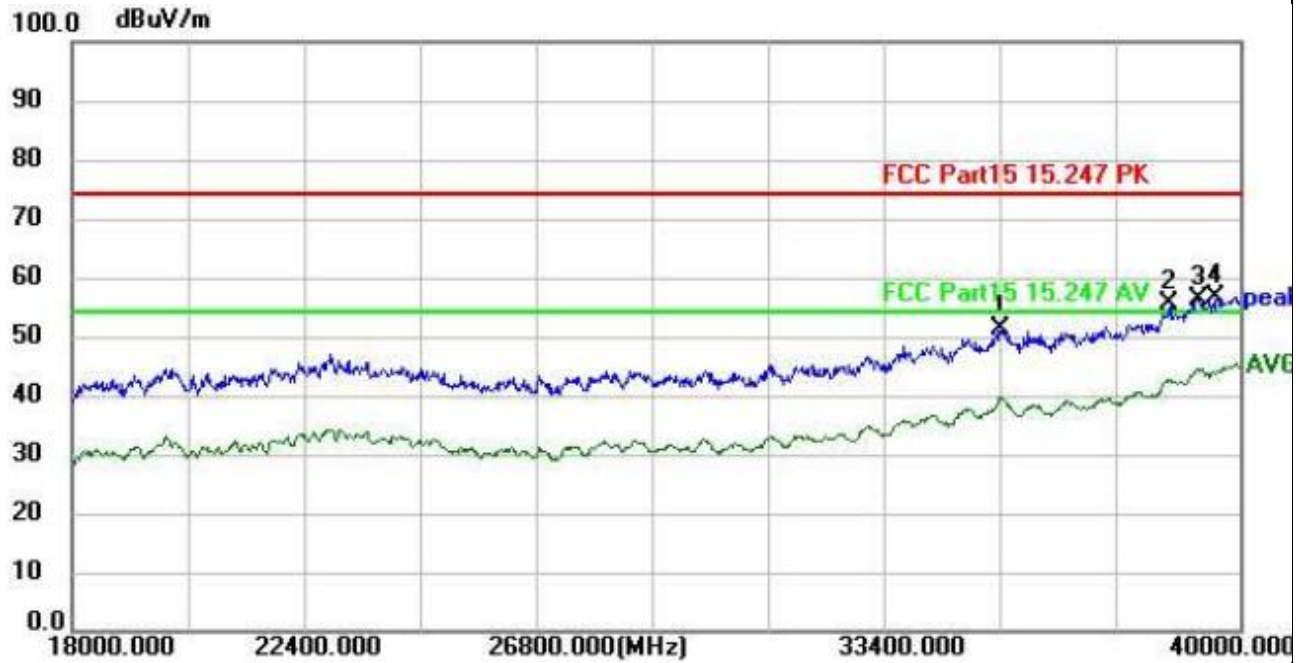
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		34764.00	39.23	10.12	49.35	74.00	-24.65	peak
2		35424.00	40.41	11.16	51.57	74.00	-22.43	peak
3		39164.00	42.19	14.27	56.46	74.00	-17.54	peak
4	*	39670.00	43.10	14.24	57.34	74.00	-16.66	peak

Note:1).Level (dBμV/m)= Reading (dBμV)+ Factor (dB/m)
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)
3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

5200MHz



18-40GHz



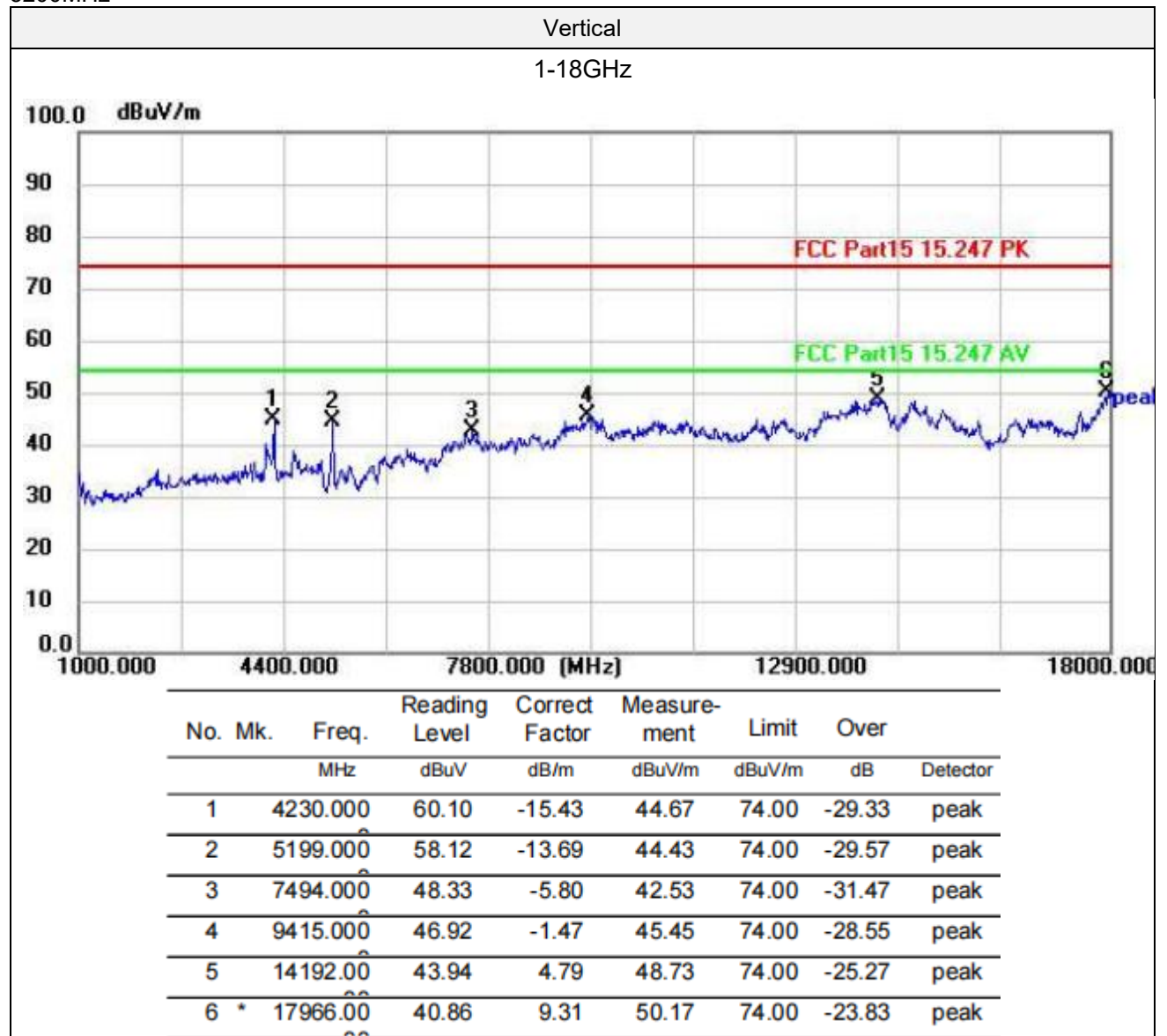
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35512.00	40.08	11.34	51.42	74.00	-22.58	peak
2		38680.00	42.55	12.81	55.36	74.00	-18.64	peak
3		39208.00	41.95	14.32	56.27	74.00	-17.73	peak
4	*	39560.00	42.44	14.25	56.69	74.00	-17.31	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

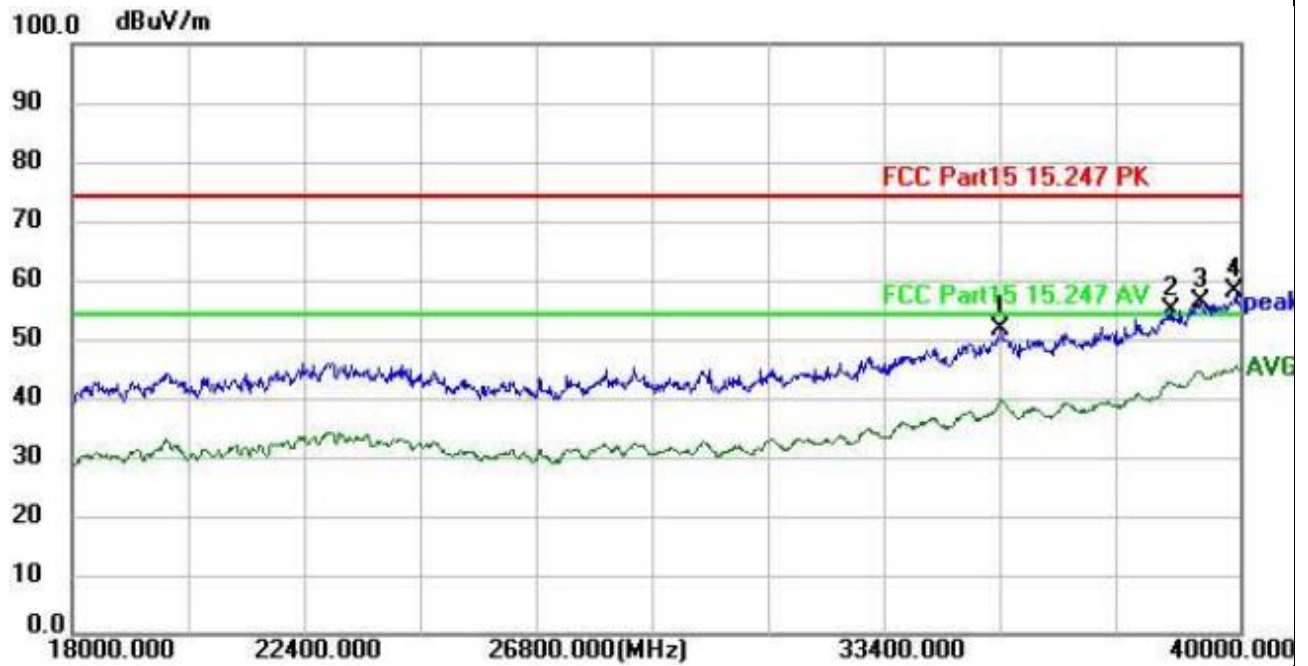
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5200MHz



18-40GHz



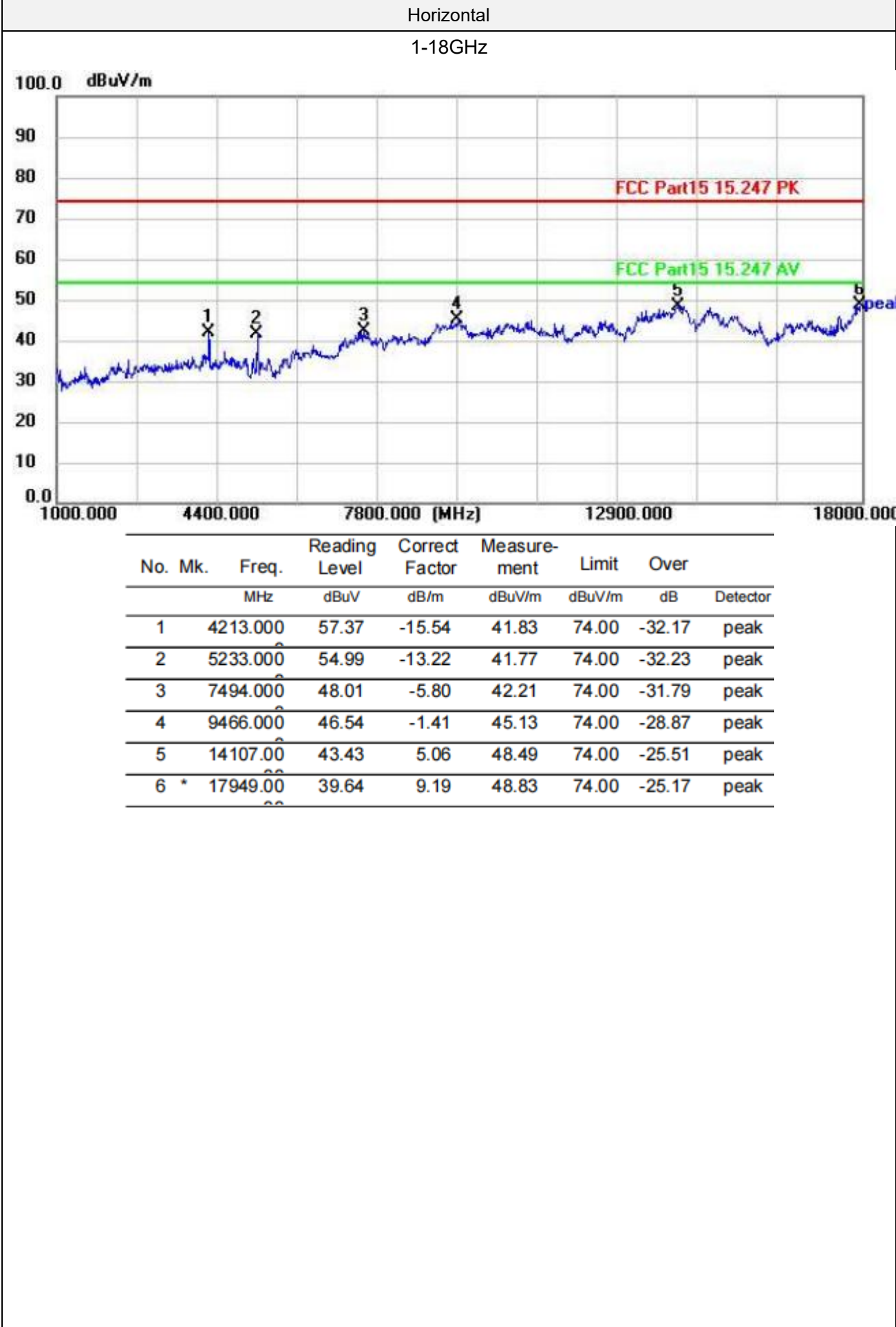
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35490.00	40.35	11.31	51.66	74.00	-22.34	peak
2		38702.00	42.01	12.89	54.90	74.00	-19.10	peak
3		39252.00	41.88	14.31	56.19	74.00	-17.81	peak
4	*	39890.00	43.57	14.32	57.89	74.00	-16.11	peak

Note:1).Level (dB μ V/m)= Reading (dB μ V)+ Factor (dB/m)

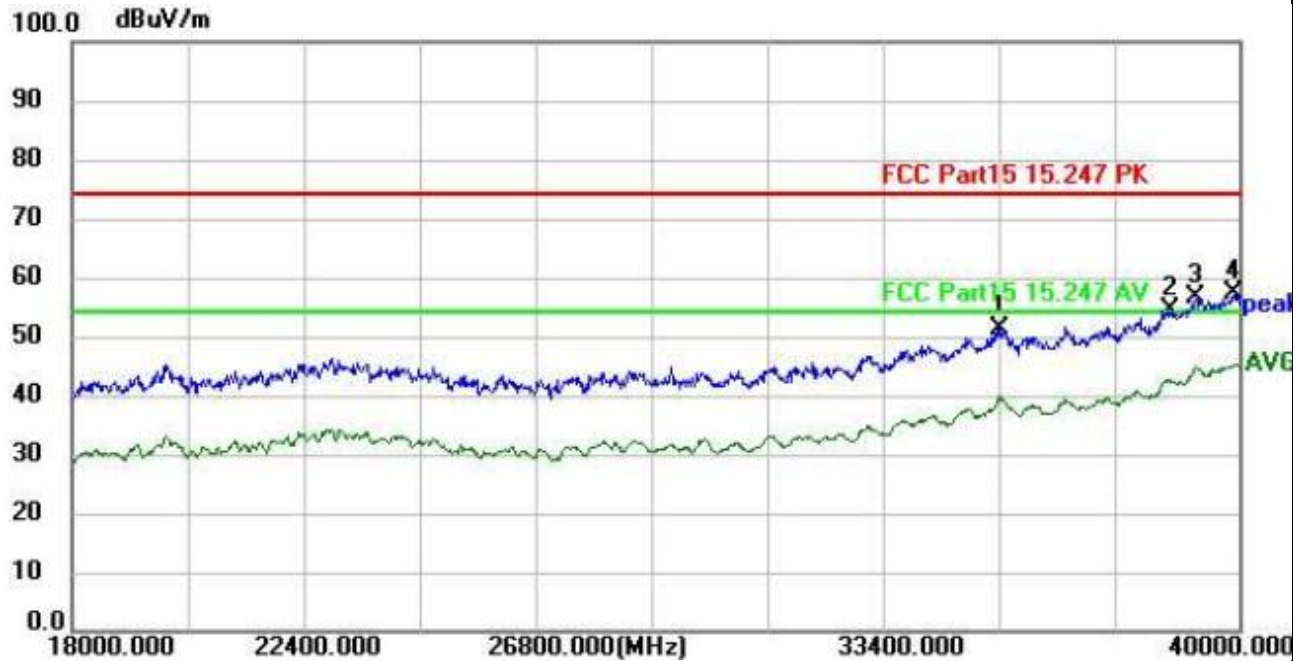
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dB μ V/m) - Level (dB μ V/m)

5240MHz



18-40GHz



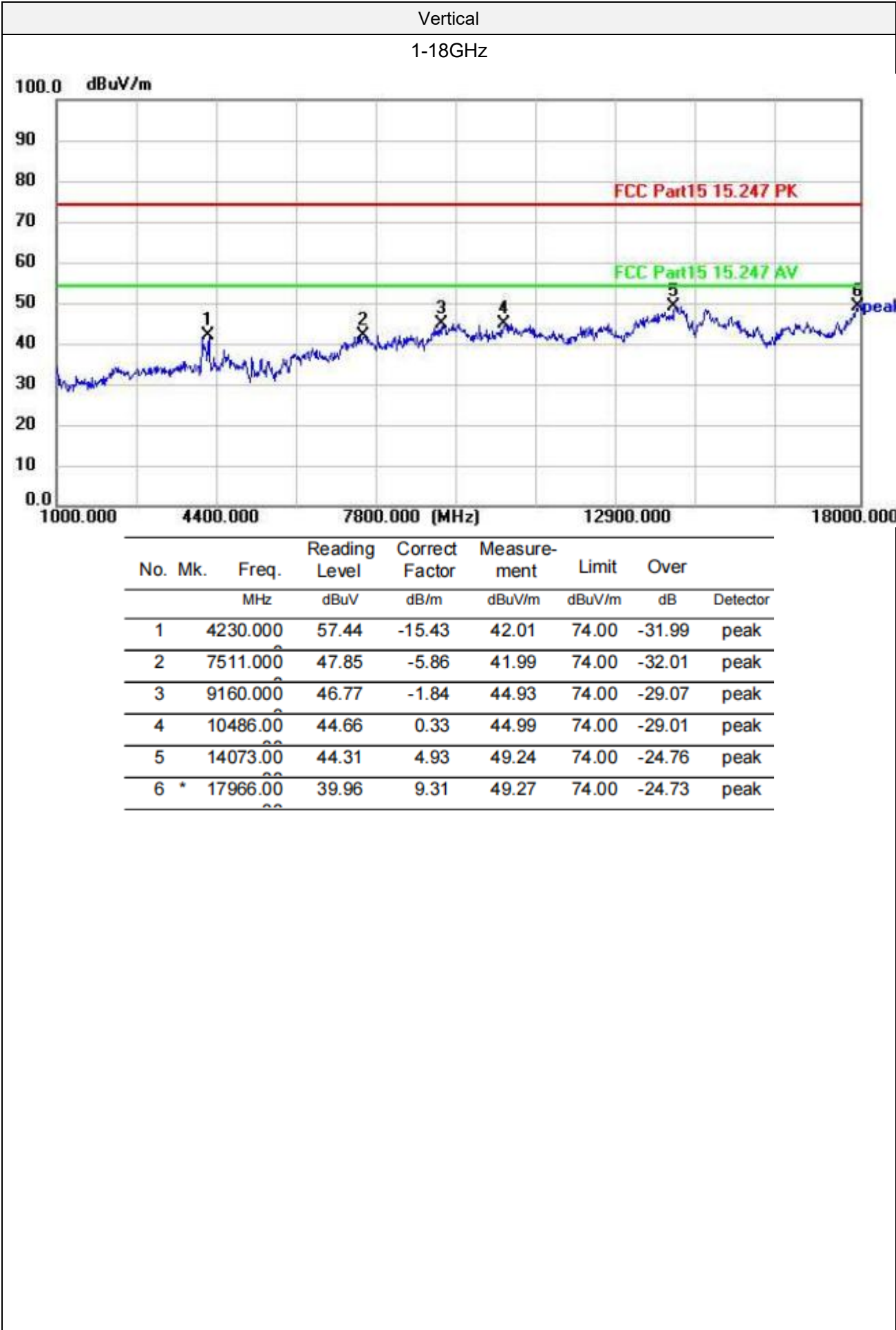
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35490.00	39.85	11.31	51.16	74.00	-22.84	peak
2		38724.00	41.52	12.98	54.50	74.00	-19.50	peak
3		39186.00	42.45	14.30	56.75	74.00	-17.25	peak
4	*	39912.00	42.96	14.34	57.30	74.00	-16.70	peak

Note:1).Level (dB μ V/m)= Reading (dB μ V)+ Factor (dB/m)

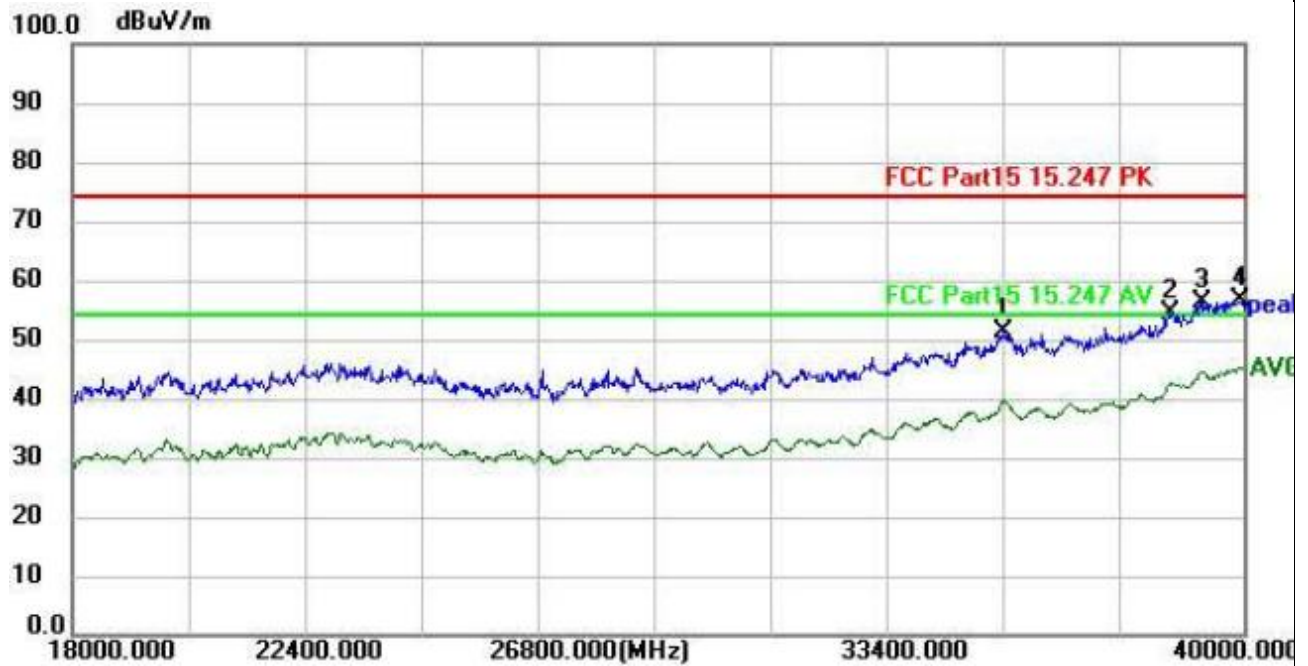
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dB μ V/m) - Level (dB μ V/m)

5240MHz



18-40GHz



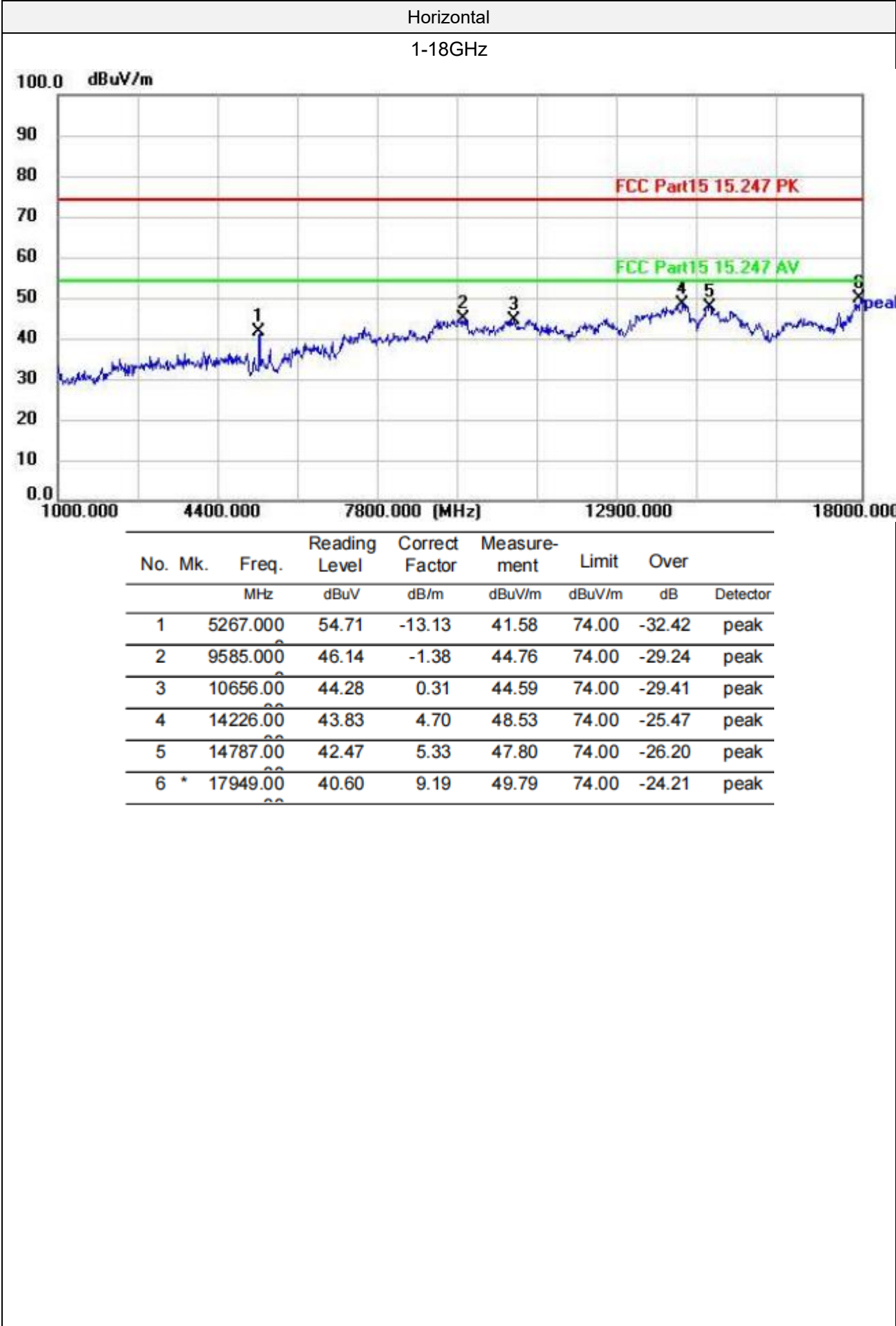
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35490.00	39.93	11.31	51.24	74.00	-22.76	peak
2		38636.00	41.80	12.68	54.48	74.00	-19.52	peak
3		39208.00	42.05	14.32	56.37	74.00	-17.63	peak
4	*	39934.00	42.13	14.33	56.46	74.00	-17.54	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

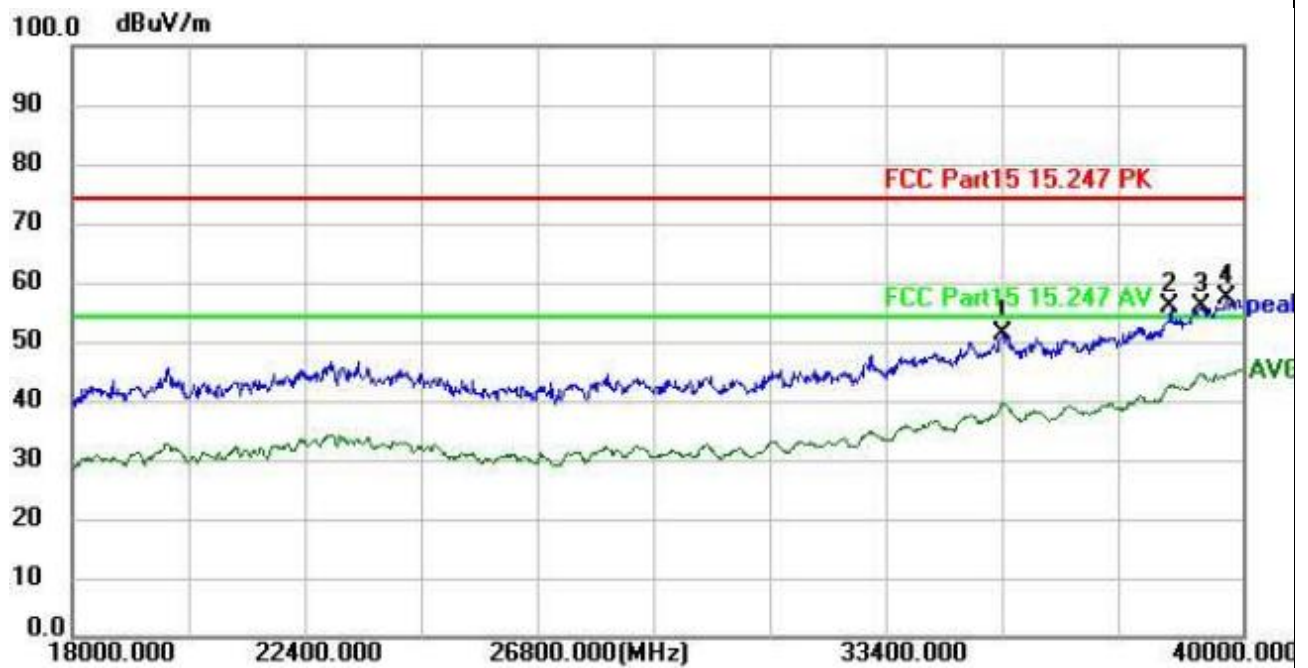
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5260MHz



18-40GHz



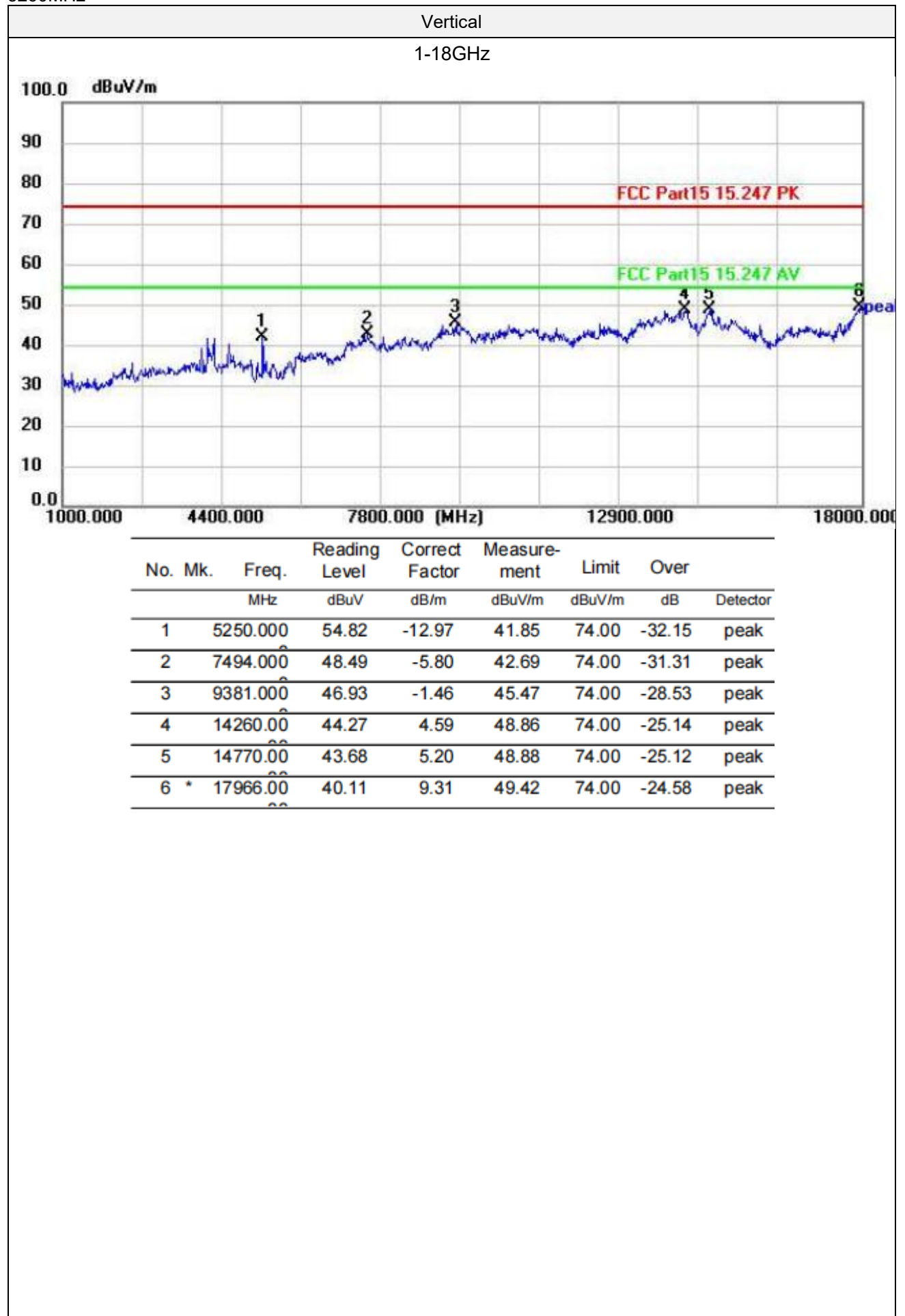
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35490.00	39.88	11.31	51.19	74.00	-22.81	peak
2		38636.00	43.37	12.68	56.05	74.00	-17.95	peak
3		39208.00	41.65	14.32	55.97	74.00	-18.03	peak
4	*	39692.00	43.08	14.24	57.32	74.00	-16.68	peak

Note:1). Level (dBμV/m) = Reading (dBμV) + Factor (dB/m)

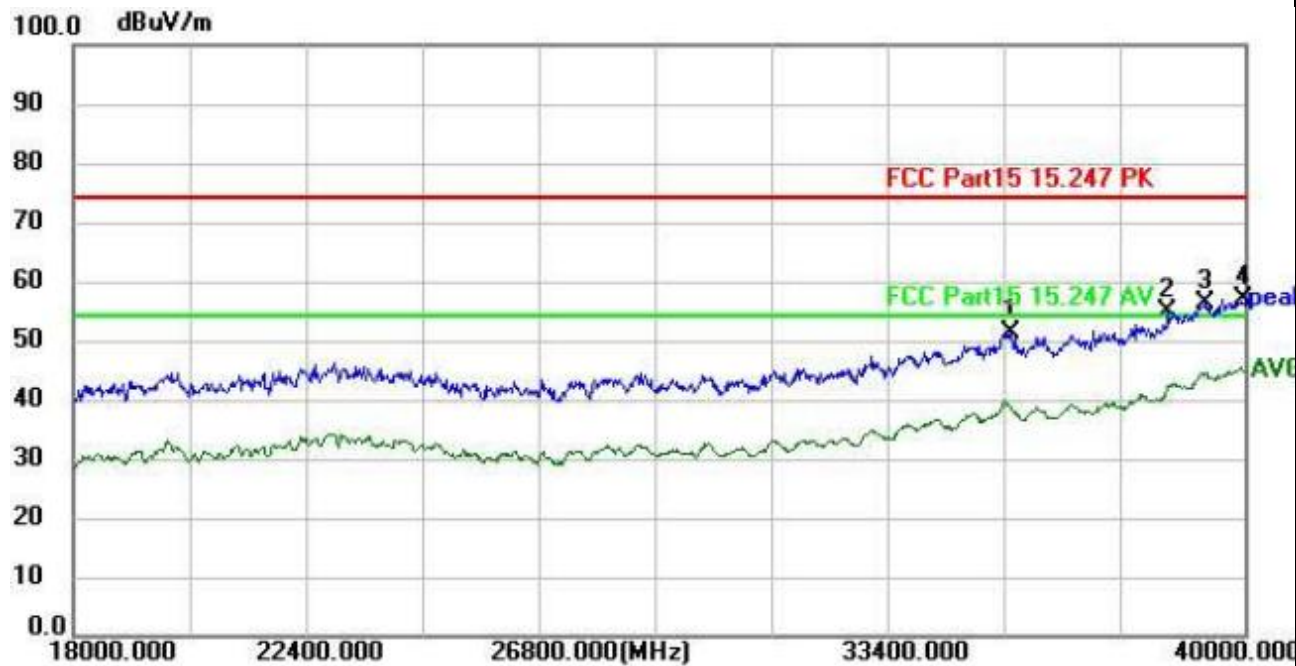
2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dBμV/m) - Level (dBμV/m)

5260MHz



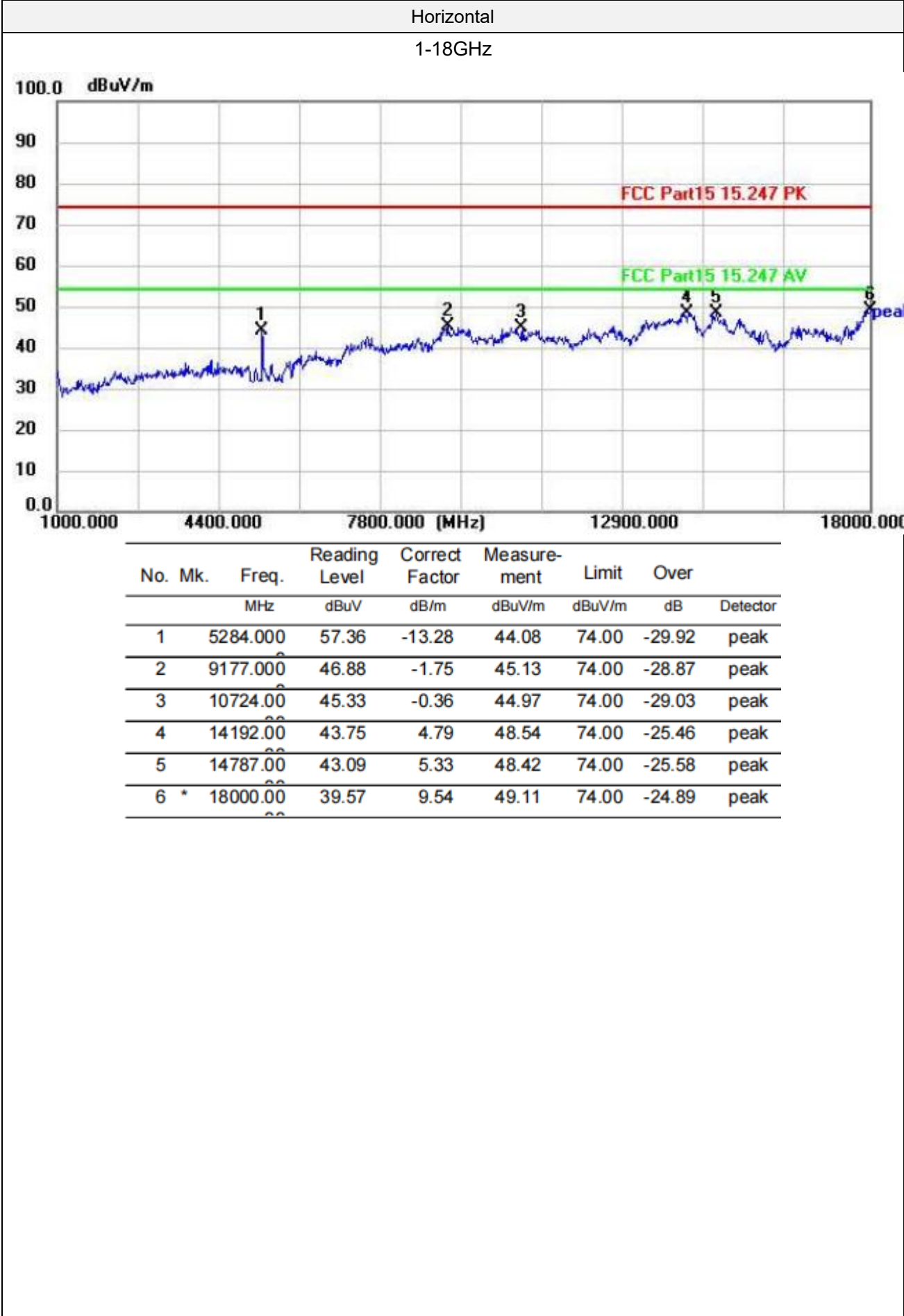
18-40GHz



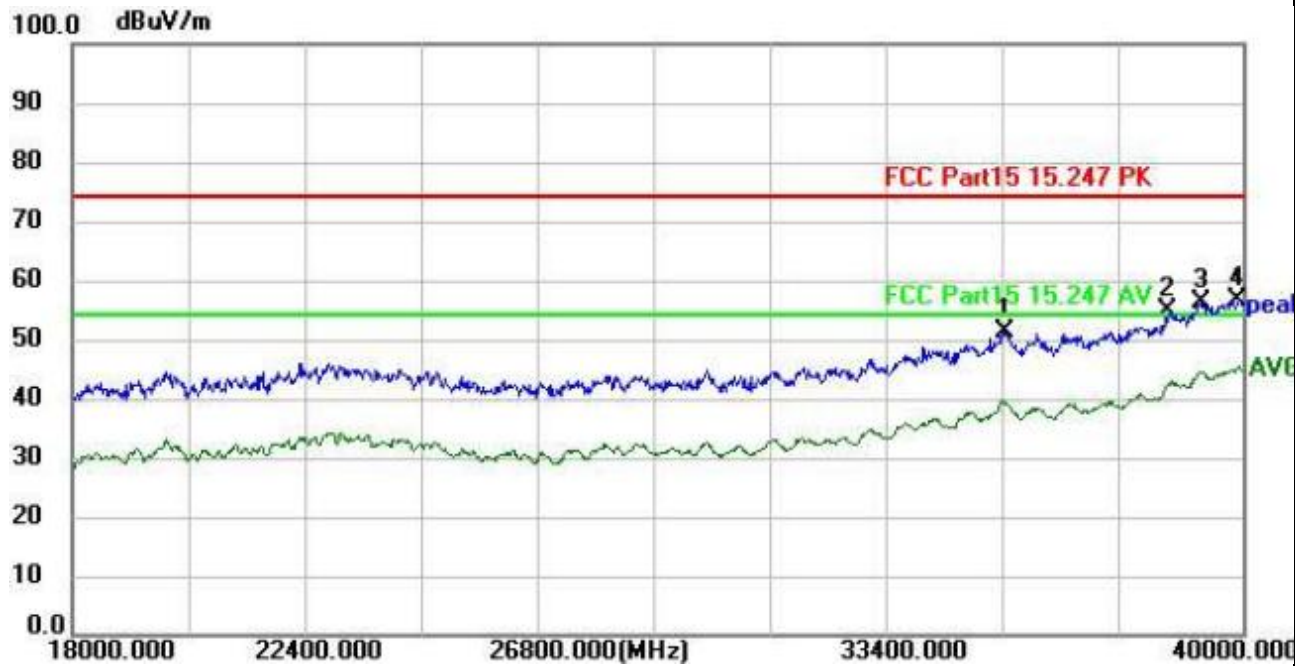
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35600.00	39.77	11.44	51.21	74.00	-22.79	peak
2		38548.00	42.30	12.39	54.69	74.00	-19.31	peak
3		39252.00	41.79	14.31	56.10	74.00	-17.90	peak
4	*	39978.00	42.59	14.35	56.94	74.00	-17.06	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5300MHz



18-40GHz



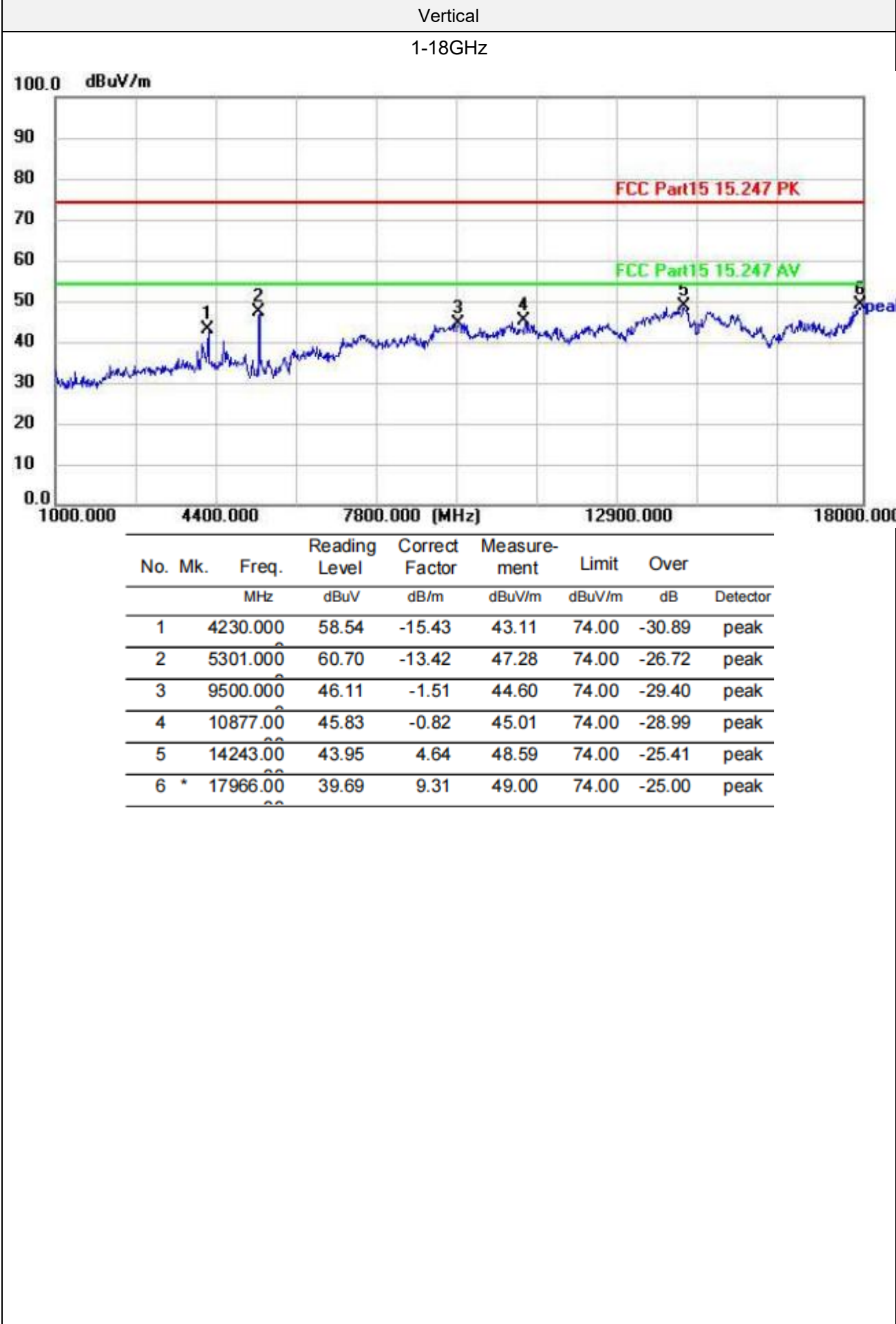
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35534.00	40.02	11.37	51.39	74.00	-22.61	peak
2		38592.00	42.26	12.54	54.80	74.00	-19.20	peak
3		39208.00	42.01	14.32	56.33	74.00	-17.67	peak
4	*	39912.00	42.38	14.34	56.72	74.00	-17.28	peak

Note:1). Level (dB μ V/m) = Reading (dB μ V) + Factor (dB/m)

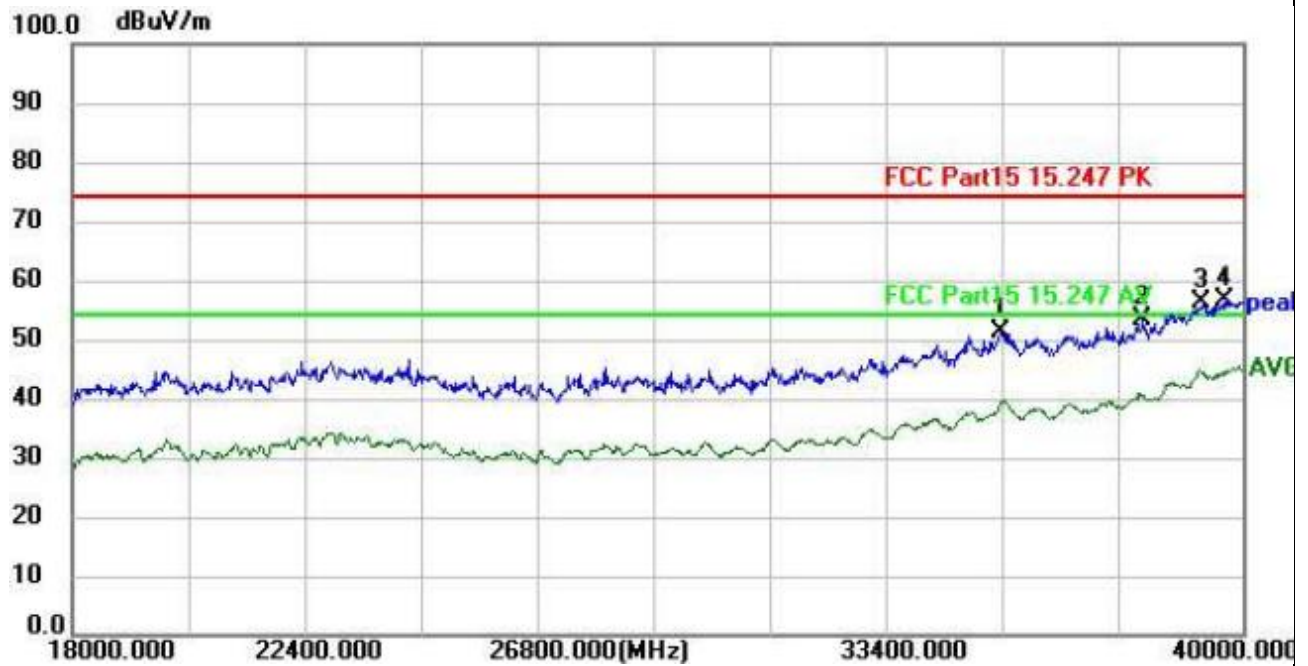
2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dB μ V/m) - Level (dB μ V/m)

5300MHz



18-40GHz



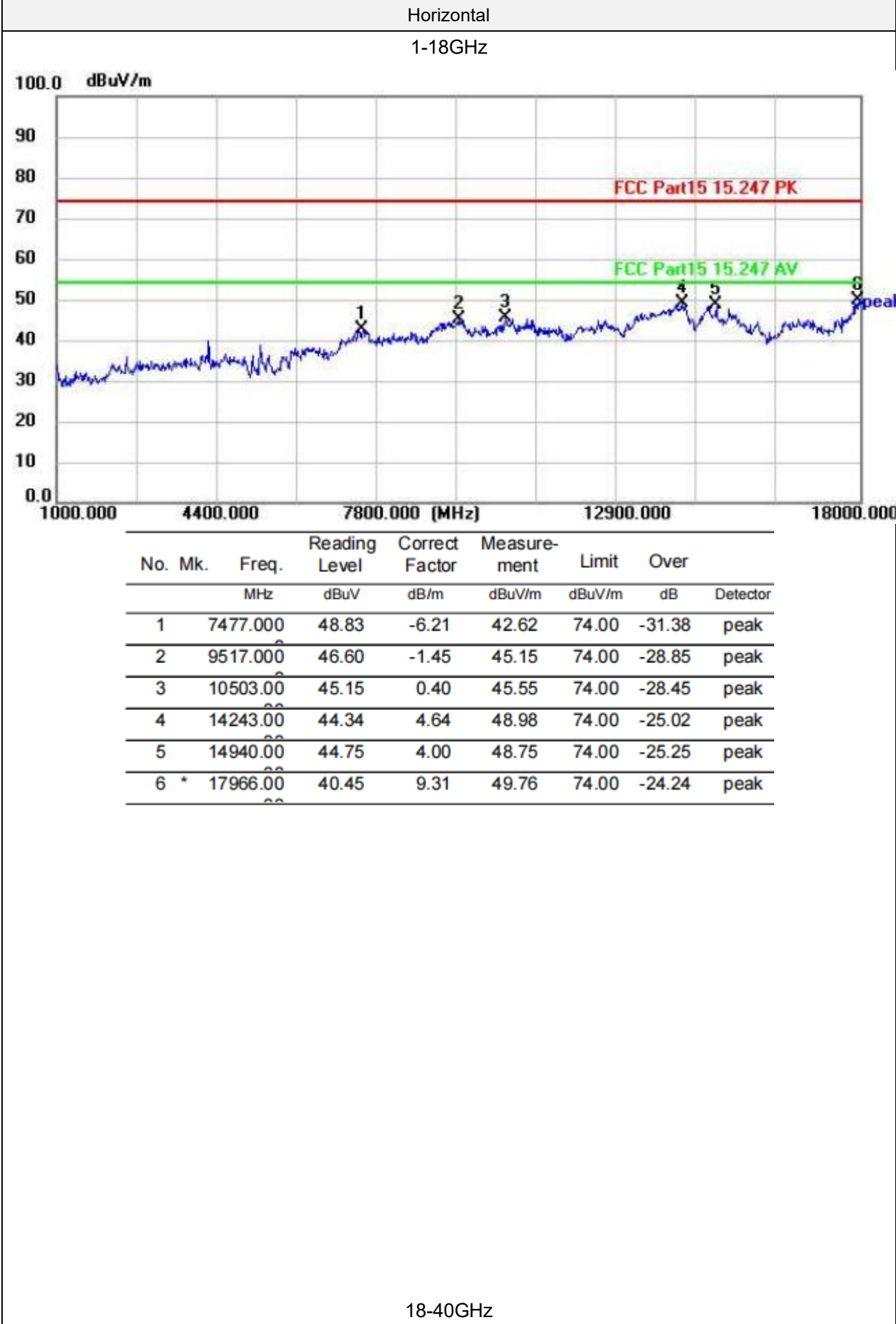
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35446.00	40.12	11.21	51.33	74.00	-22.67	peak
2		38108.00	42.17	11.30	53.47	74.00	-20.53	peak
3		39230.00	41.81	14.31	56.12	74.00	-17.88	peak
4	*	39670.00	42.25	14.24	56.49	74.00	-17.51	peak

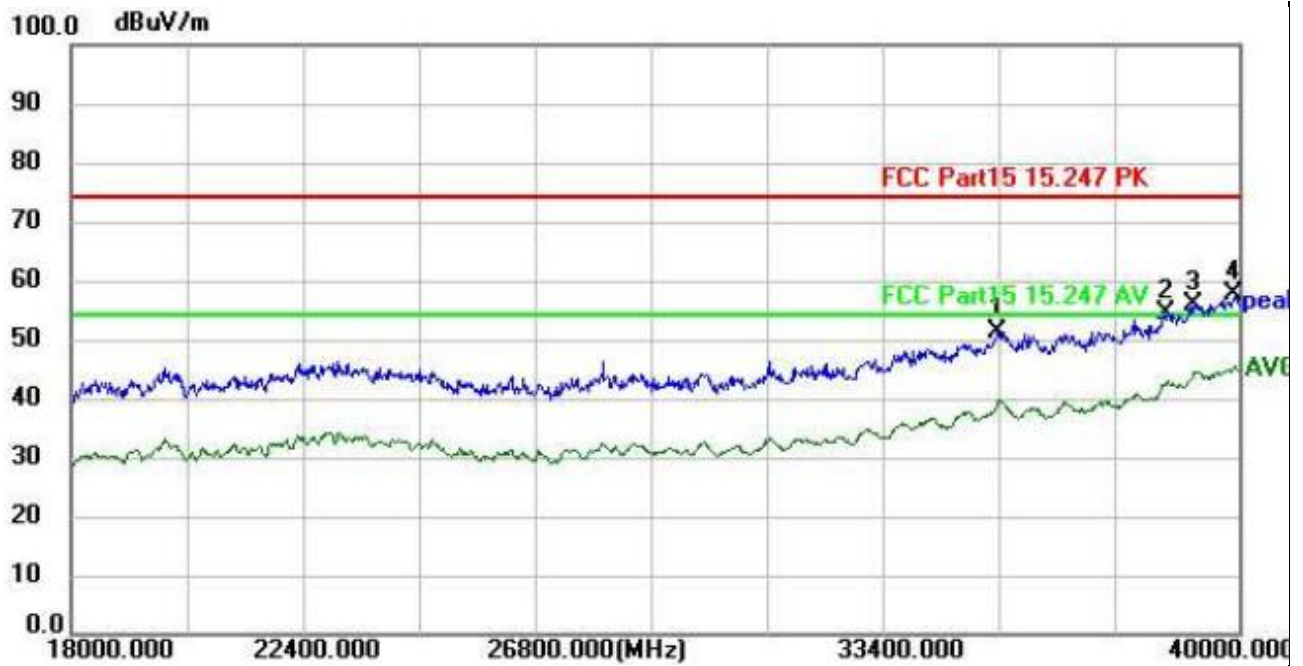
Note:1). Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dBuV/m) - Level (dBuV/m)

5320MHz





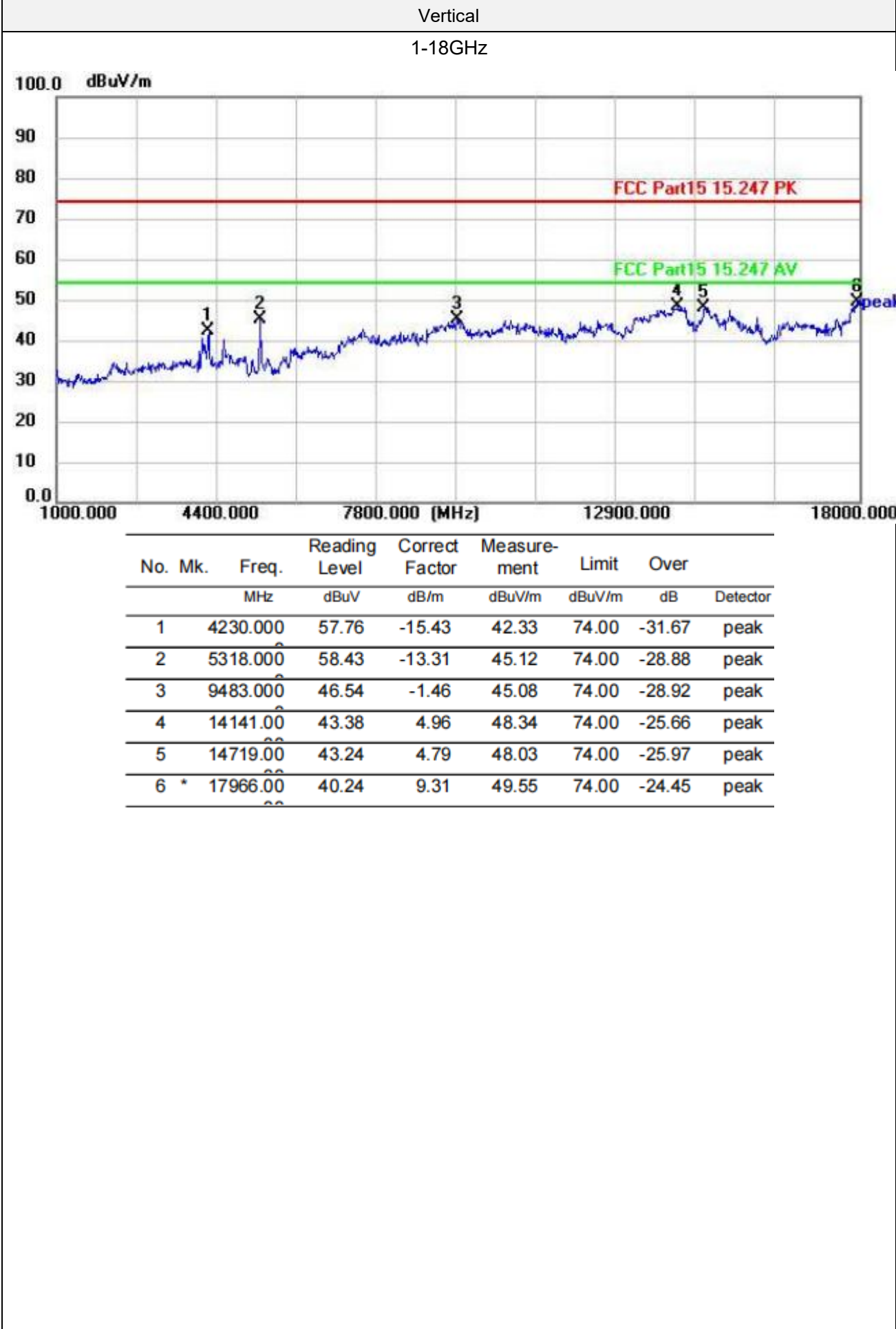
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35446.00	40.21	11.21	51.42	74.00	-22.58	peak
2		38636.00	41.89	12.68	54.57	74.00	-19.43	peak
3		39164.00	41.52	14.27	55.79	74.00	-18.21	peak
4	*	39912.00	43.21	14.34	57.55	74.00	-16.45	peak

Note:1).Level (dBμV/m)= Reading (dBμV)+ Factor (dB/m)

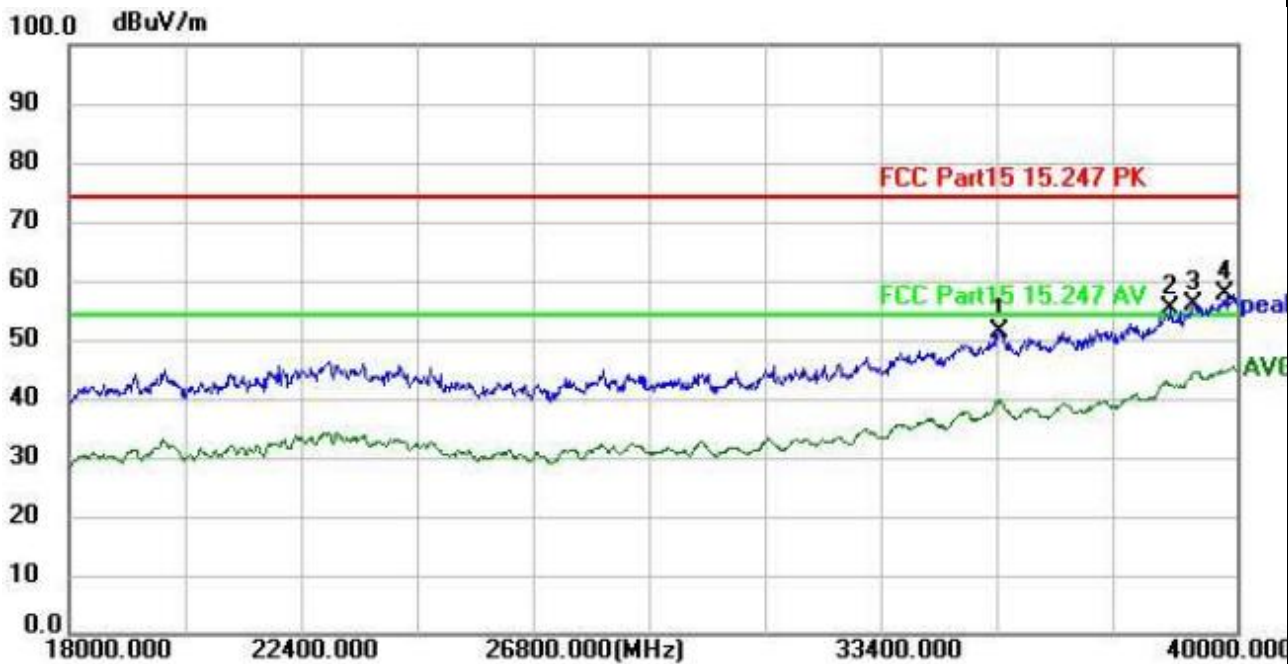
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

5320MHz



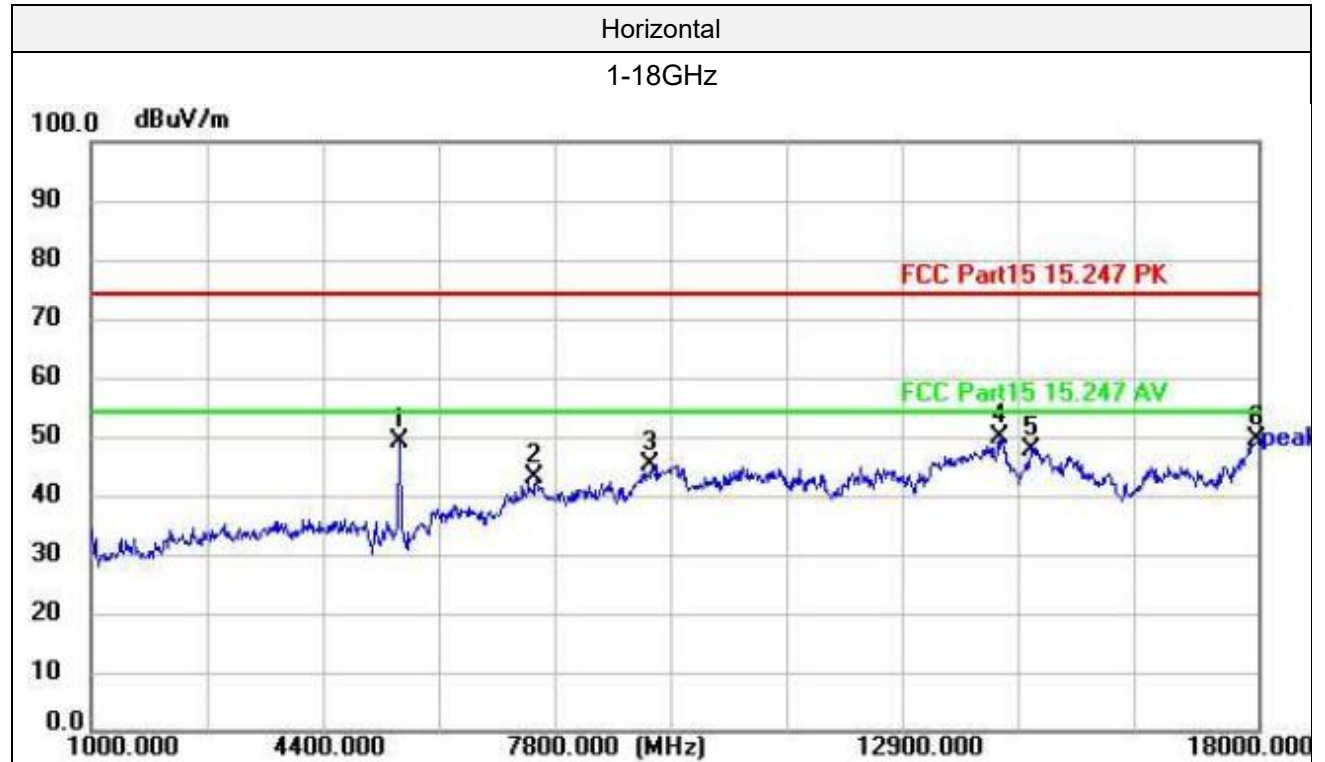
18-40GHz



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35534.00	39.90	11.37	51.27	74.00	-22.73	peak
2		38746.00	41.95	13.07	55.02	74.00	-18.98	peak
3		39186.00	41.76	14.30	56.06	74.00	-17.94	peak
4	*	39780.00	43.39	14.28	57.67	74.00	-16.33	peak

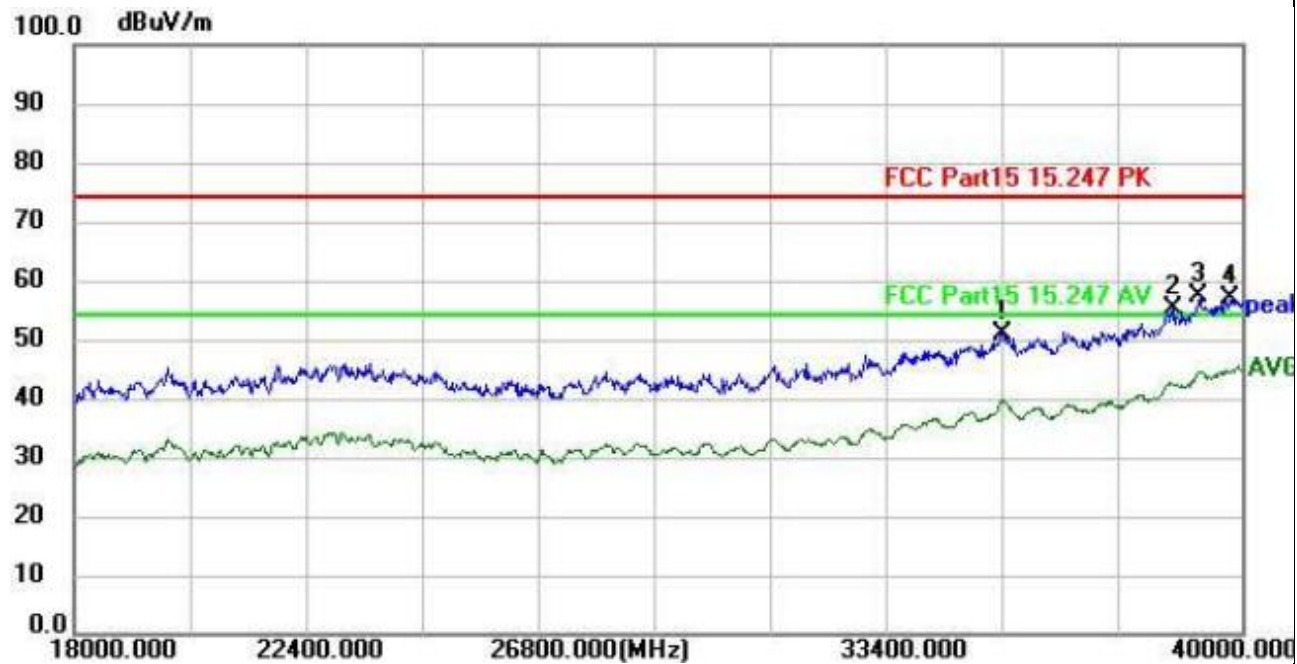
Note:1).Level (dBμV/m)= Reading (dBμV)+ Factor (dB/m)
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)
3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

5500MHz



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		5505.000	61.53	-12.59	48.94	74.00	-25.06	peak
2		7477.000	49.08	-6.21	42.87	74.00	-31.13	peak
3		9160.000	47.11	-1.84	45.27	74.00	-28.73	peak
4	*	14260.00	45.10	4.59	49.69	74.00	-24.31	peak
5		14702.00	43.12	4.65	47.77	74.00	-26.23	peak
6		17983.00	39.99	9.43	49.42	74.00	-24.58	peak

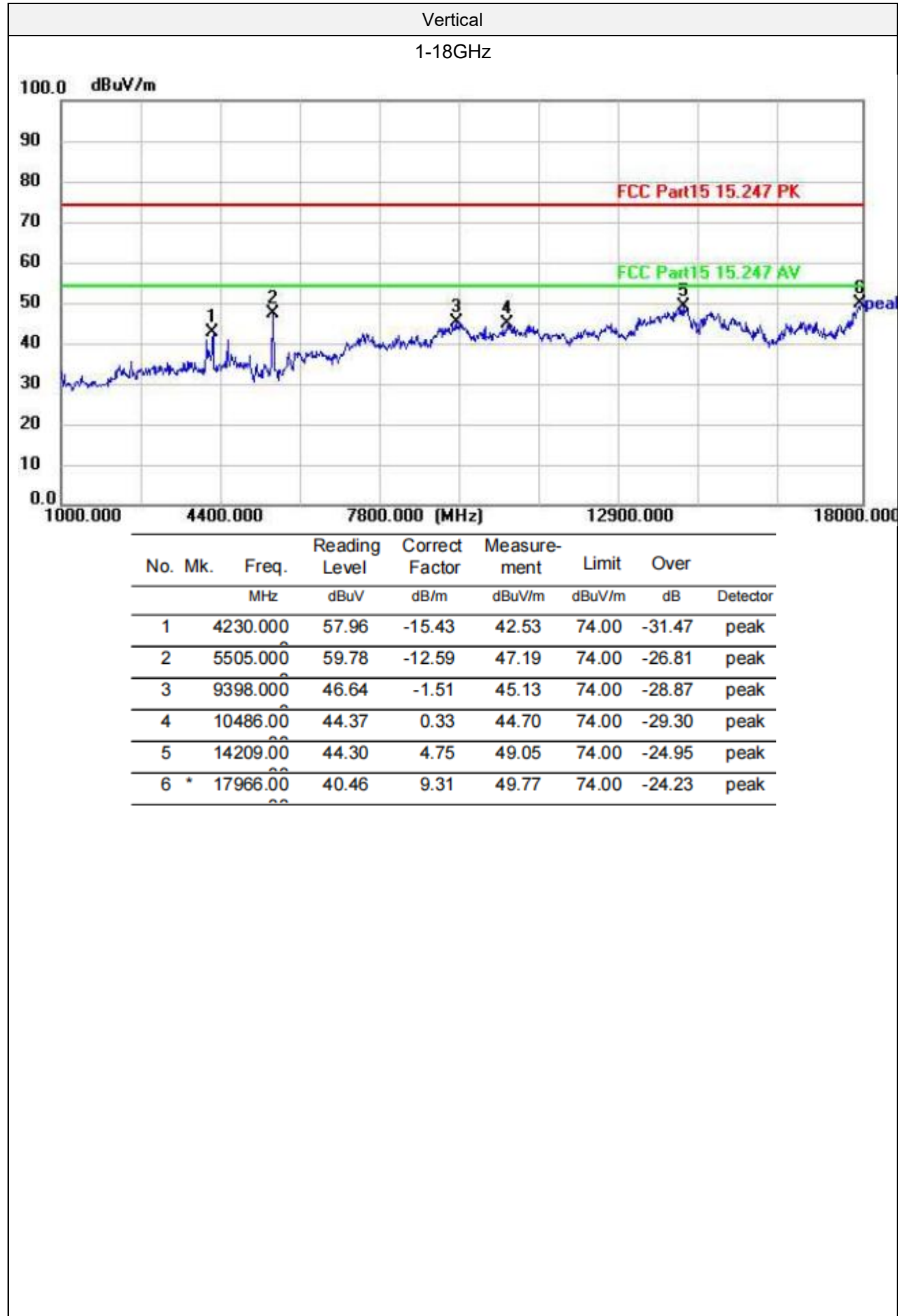
18-40GHz



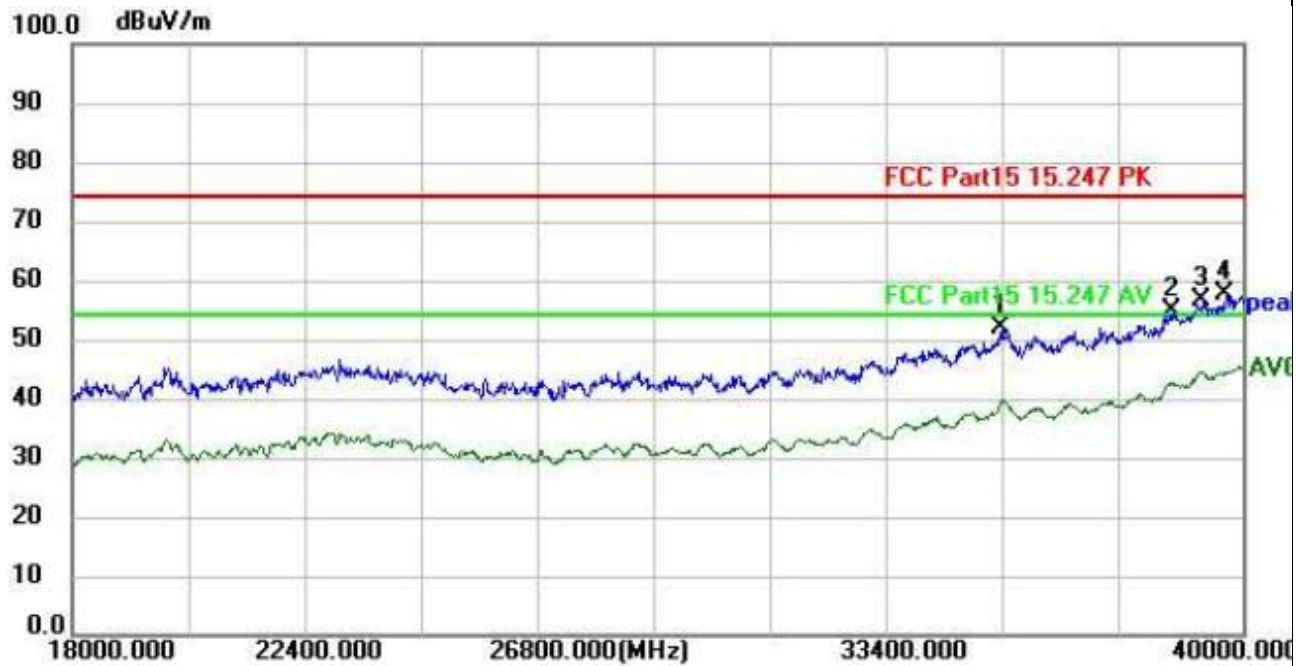
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35490.00	39.69	11.31	51.00	74.00	-23.00	peak
2		38702.00	42.17	12.89	55.06	74.00	-18.94	peak
3	*	39186.00	43.12	14.30	57.42	74.00	-16.58	peak
4		39780.00	42.60	14.28	56.88	74.00	-17.12	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5500MHz



18-40GHz



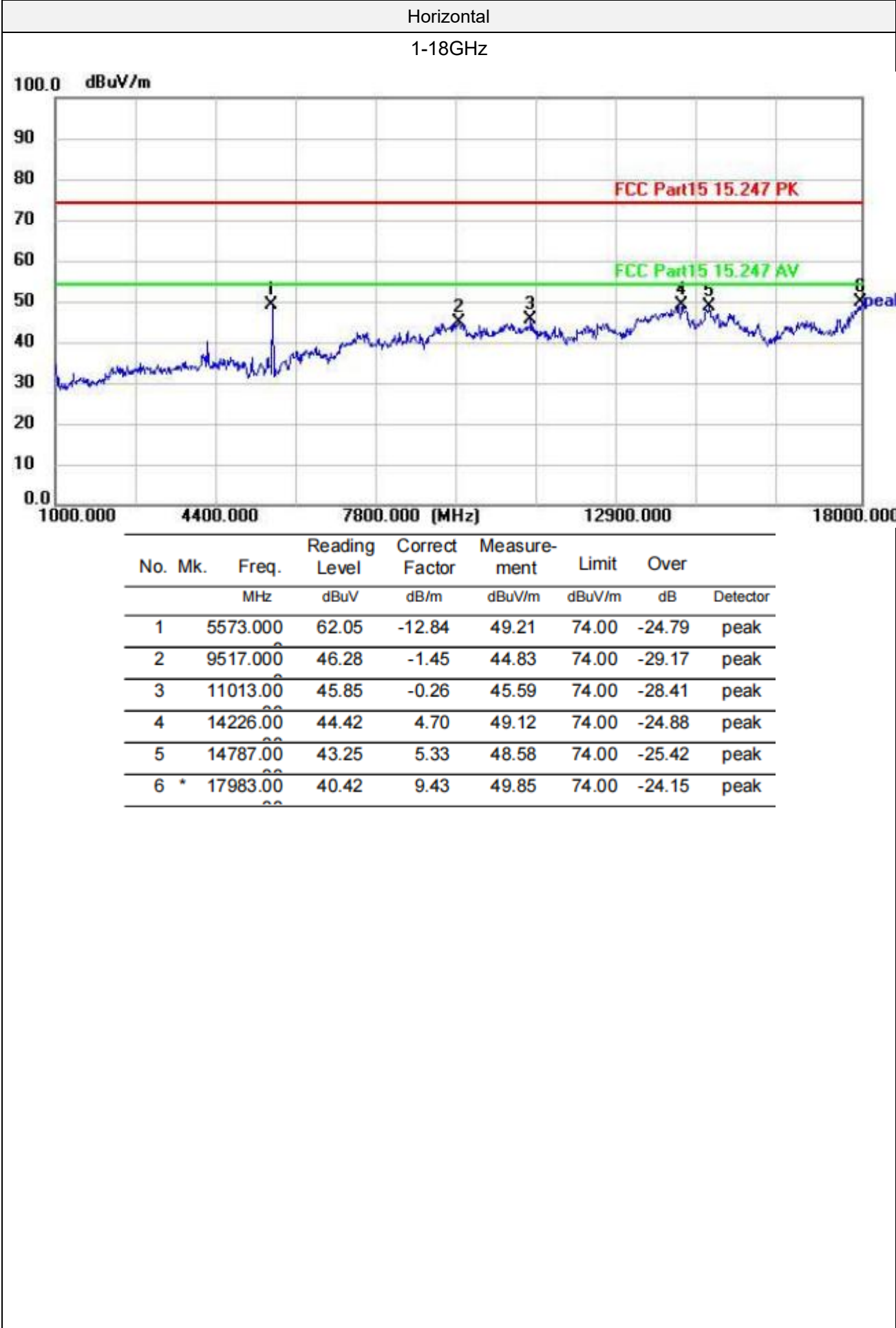
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35468.00	40.79	11.26	52.05	74.00	-21.95	peak
2		38680.00	42.11	12.81	54.92	74.00	-19.08	peak
3		39230.00	42.23	14.31	56.54	74.00	-17.46	peak
4	*	39670.00	43.33	14.24	57.57	74.00	-16.43	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

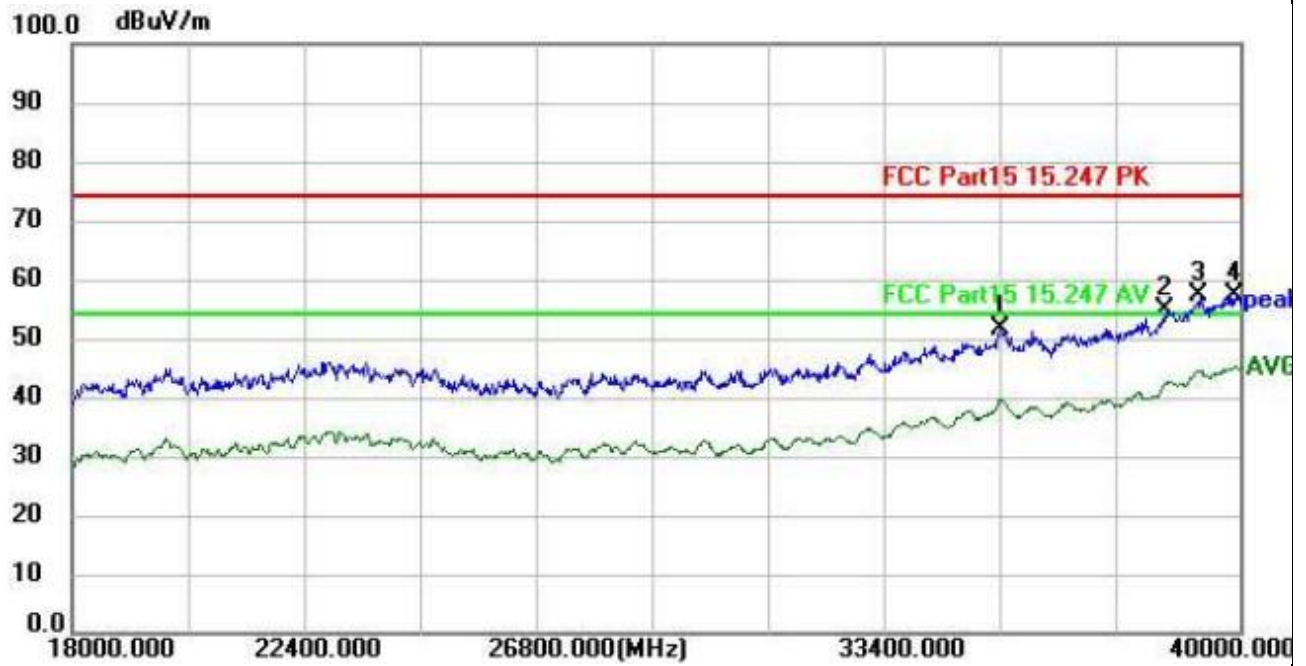
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5580MHz



18-40GHz



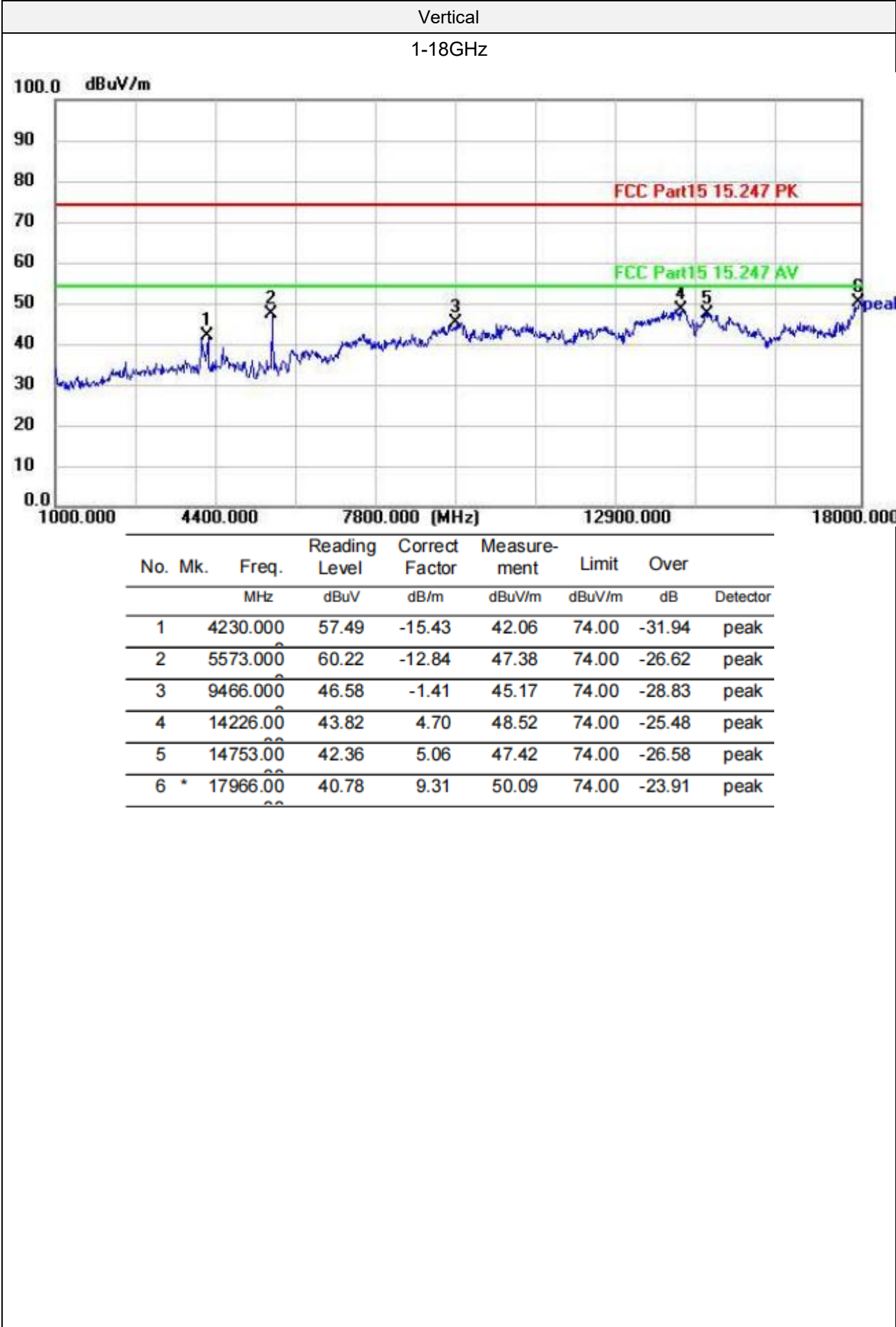
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35490.00	40.35	11.31	51.66	74.00	-22.34	peak
2		38592.00	42.30	12.54	54.84	74.00	-19.16	peak
3	*	39230.00	43.02	14.31	57.33	74.00	-16.67	peak
4		39890.00	42.86	14.32	57.18	74.00	-16.82	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

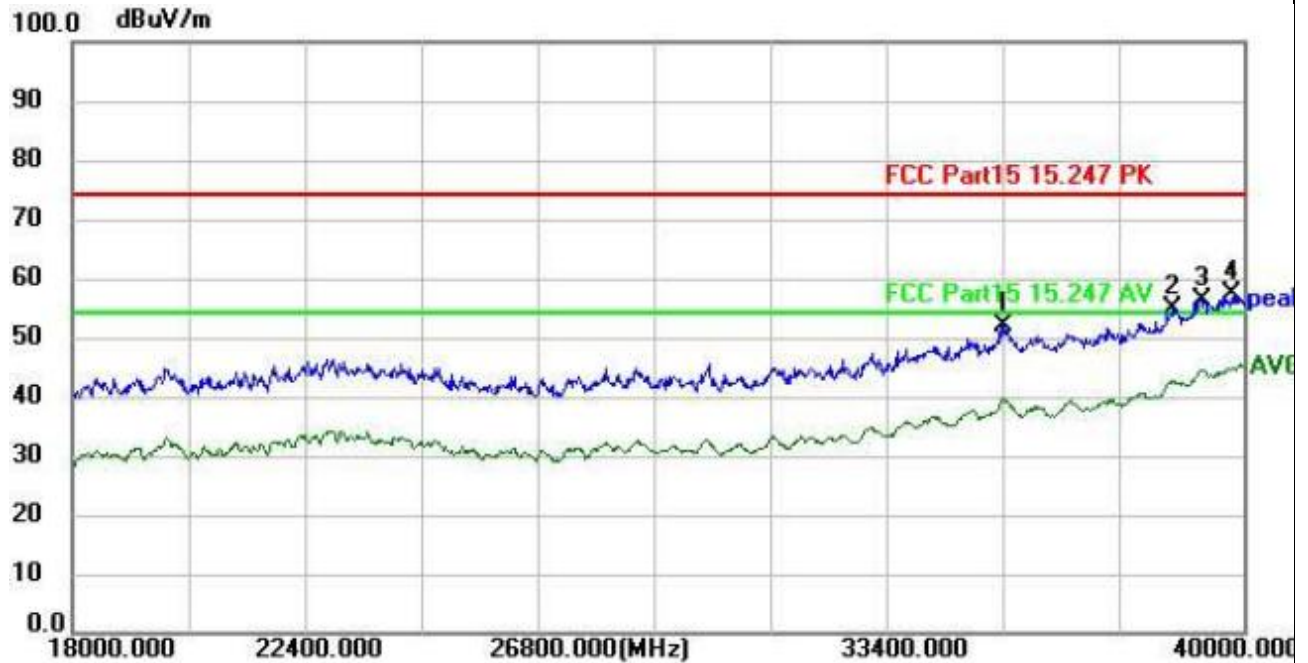
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5580MHz



18-40GHz



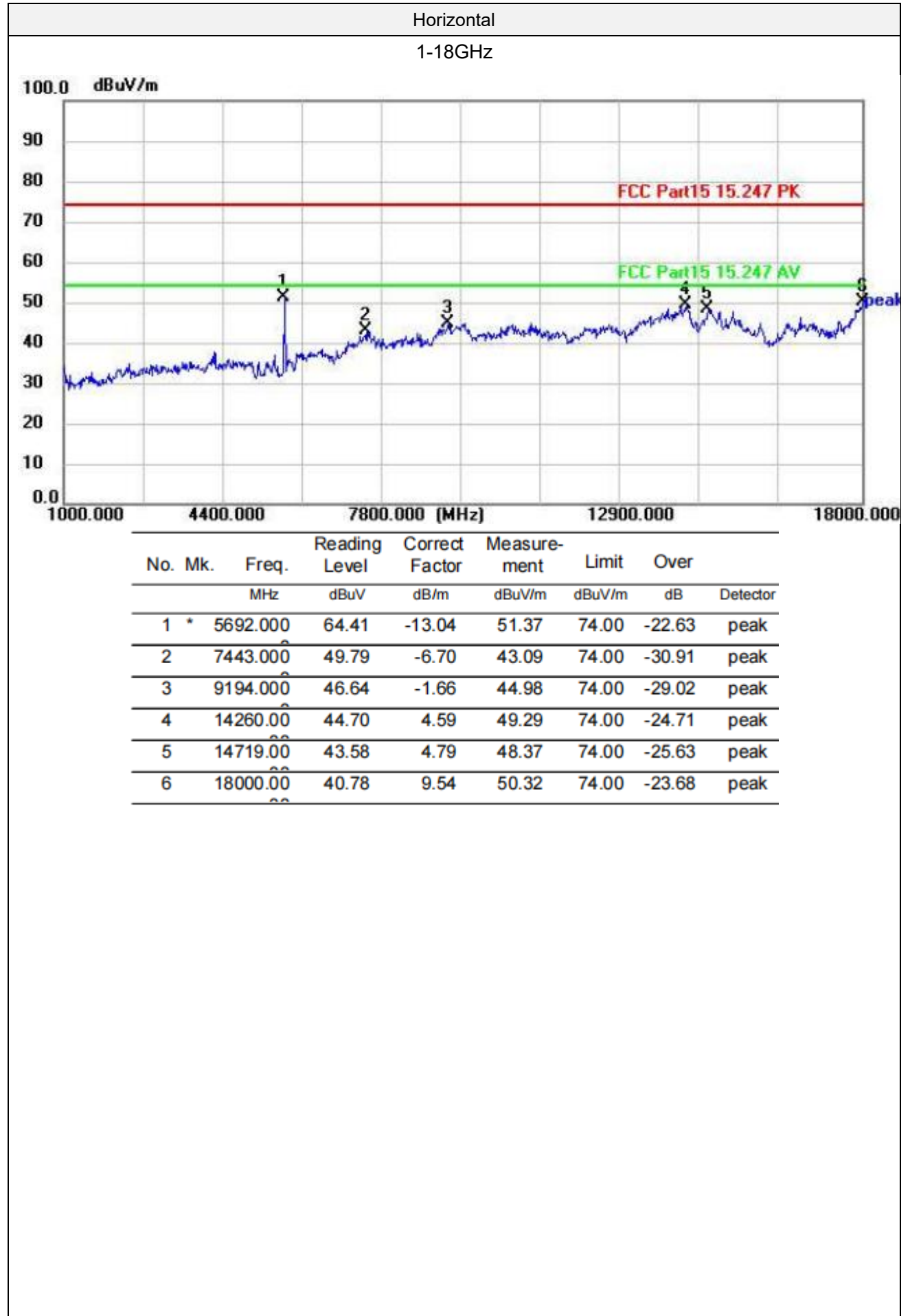
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35490.00	40.82	11.31	52.13	74.00	-21.87	peak
2		38658.00	42.03	12.76	54.79	74.00	-19.21	peak
3		39230.00	41.91	14.31	56.22	74.00	-17.78	peak
4	*	39780.00	42.93	14.28	57.21	74.00	-16.79	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

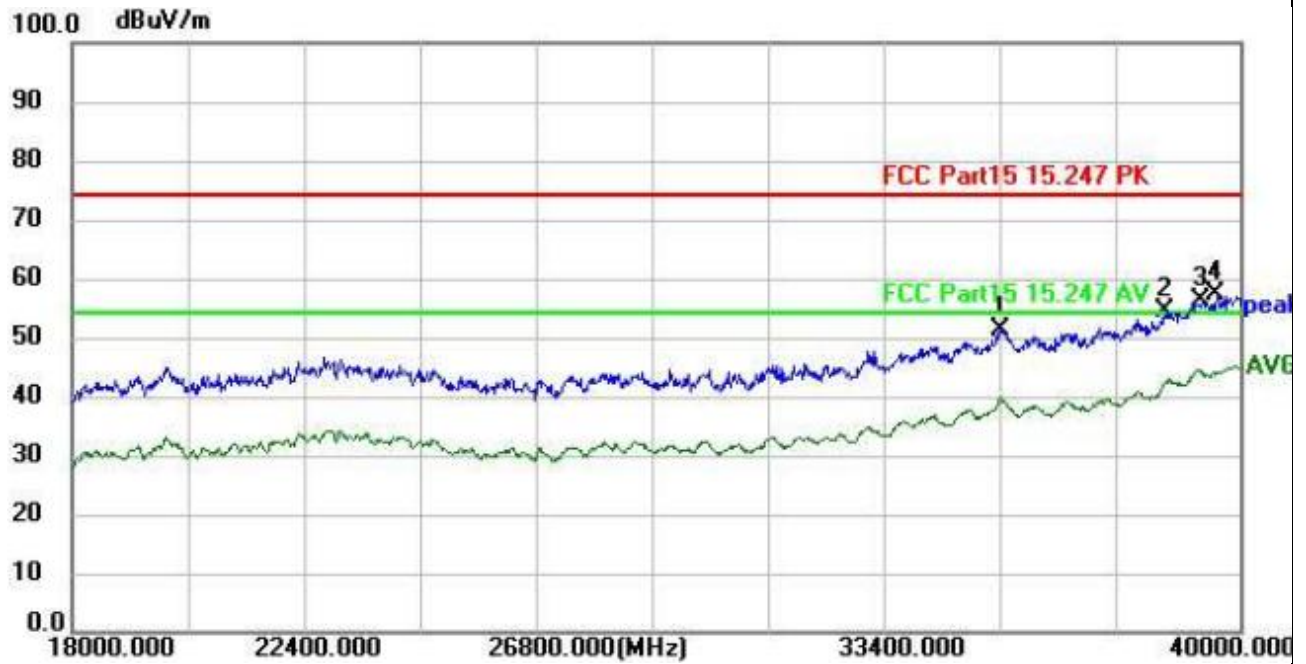
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5700MHz



18-40GHz



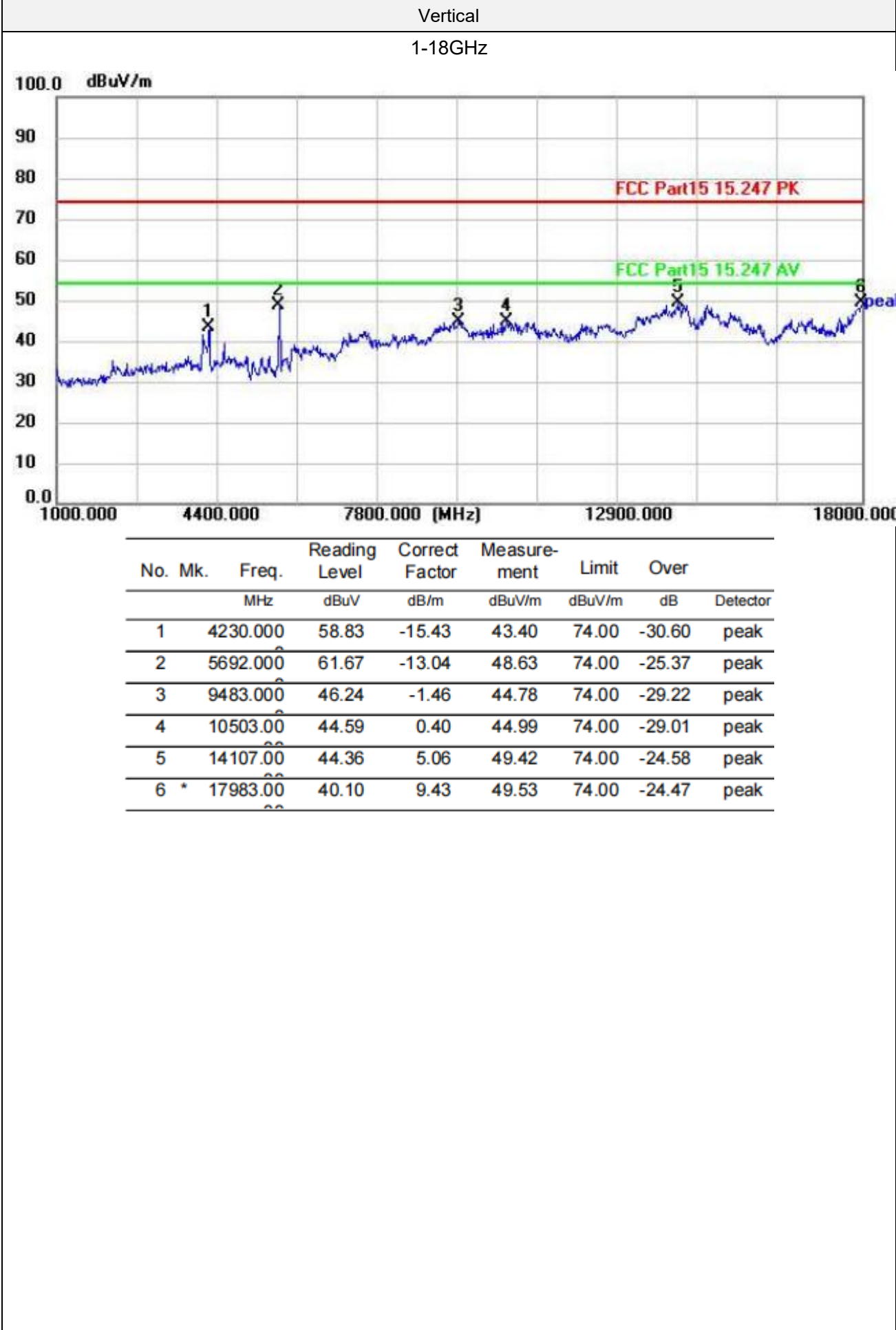
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35512.00	40.04	11.34	51.38	74.00	-22.62	peak
2		38592.00	41.86	12.54	54.40	74.00	-19.60	peak
3		39274.00	41.89	14.30	56.19	74.00	-17.81	peak
4	*	39560.00	43.15	14.25	57.40	74.00	-16.60	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

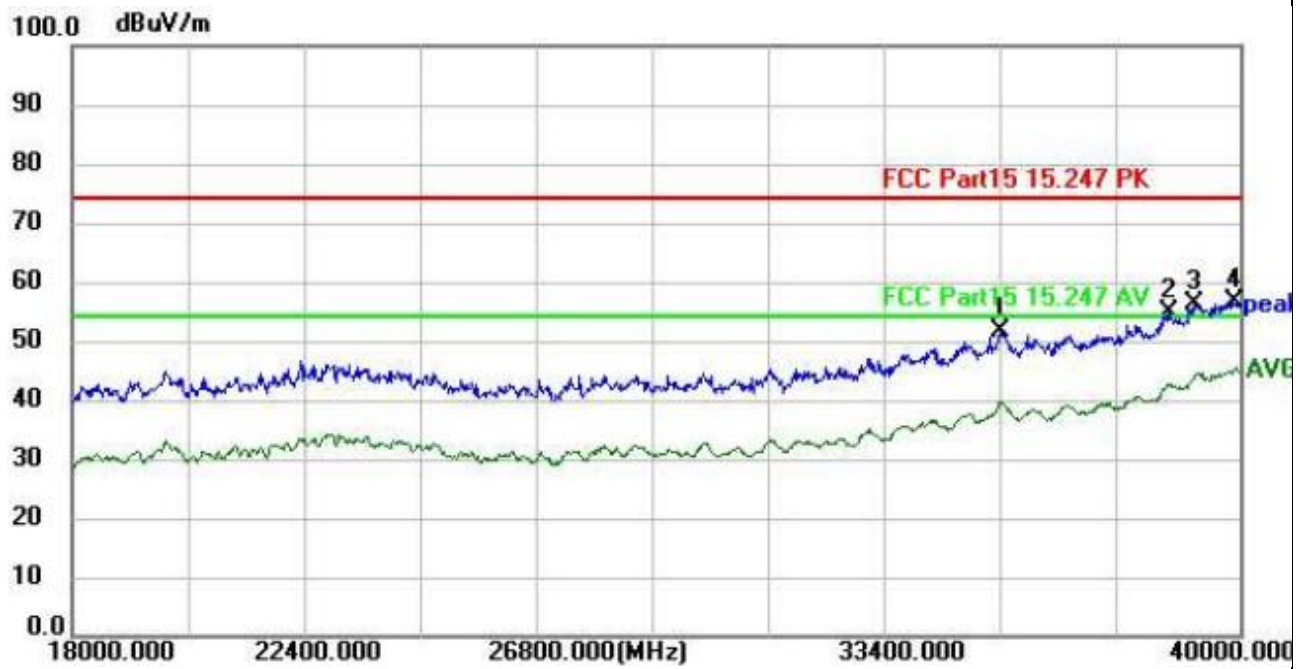
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5700MHz



18-40GHz



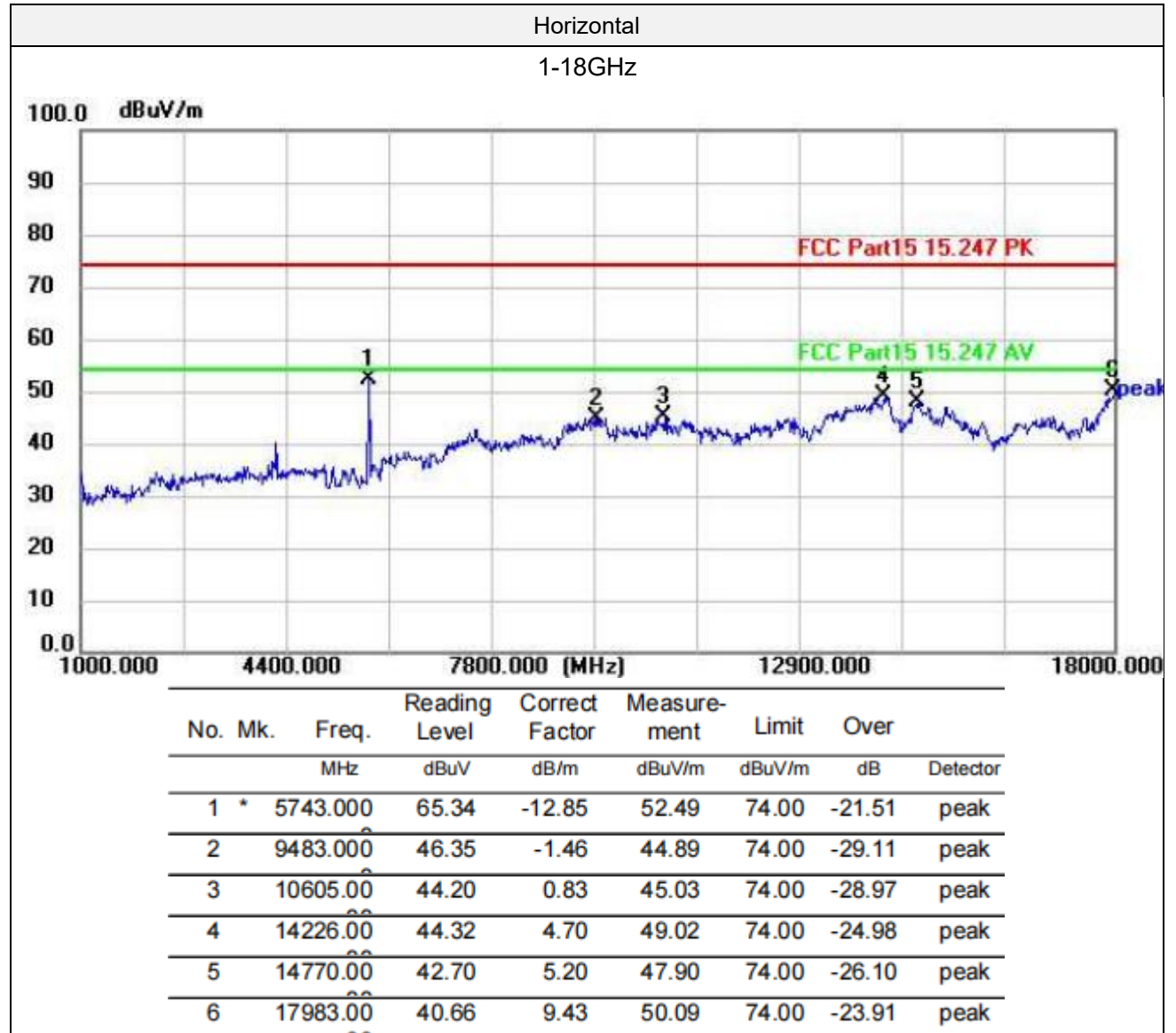
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35490.00	40.42	11.31	51.73	74.00	-22.27	peak
2		38658.00	41.90	12.76	54.66	74.00	-19.34	peak
3		39142.00	41.95	14.25	56.20	74.00	-17.80	peak
4	*	39912.00	42.17	14.34	56.51	74.00	-17.49	peak

Note:1). Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

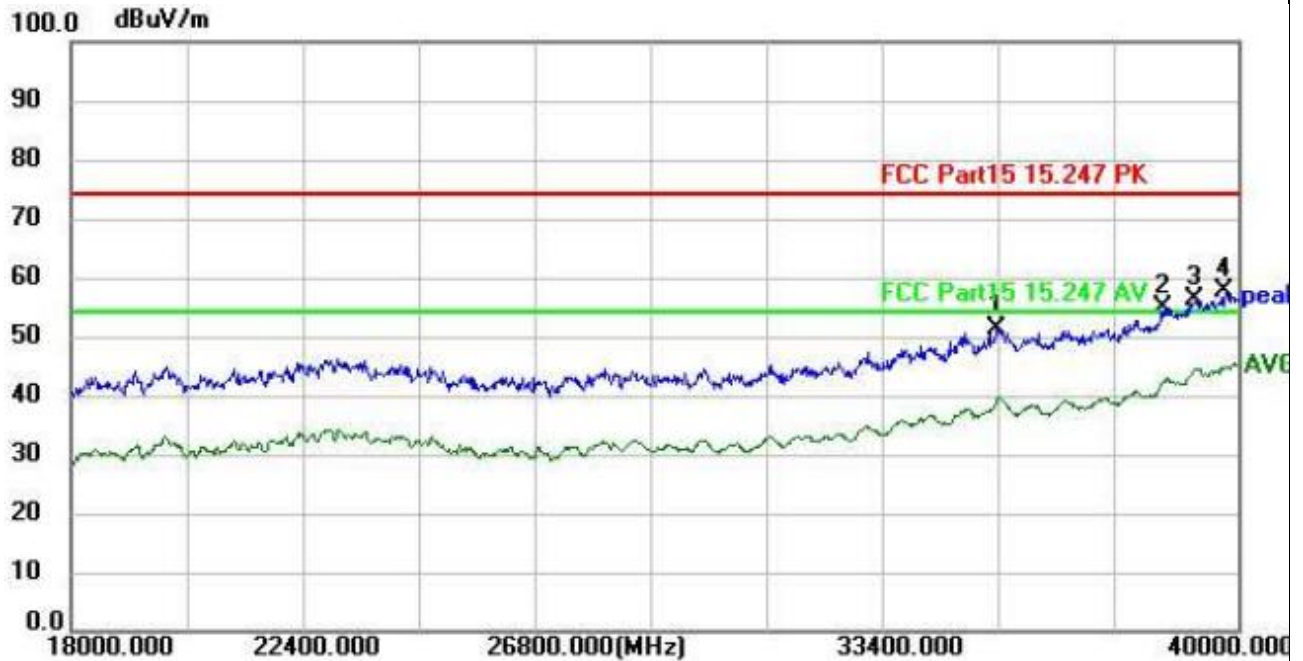
2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dBuV/m) - Level (dBuV/m)

5745MHz



18-40GHz



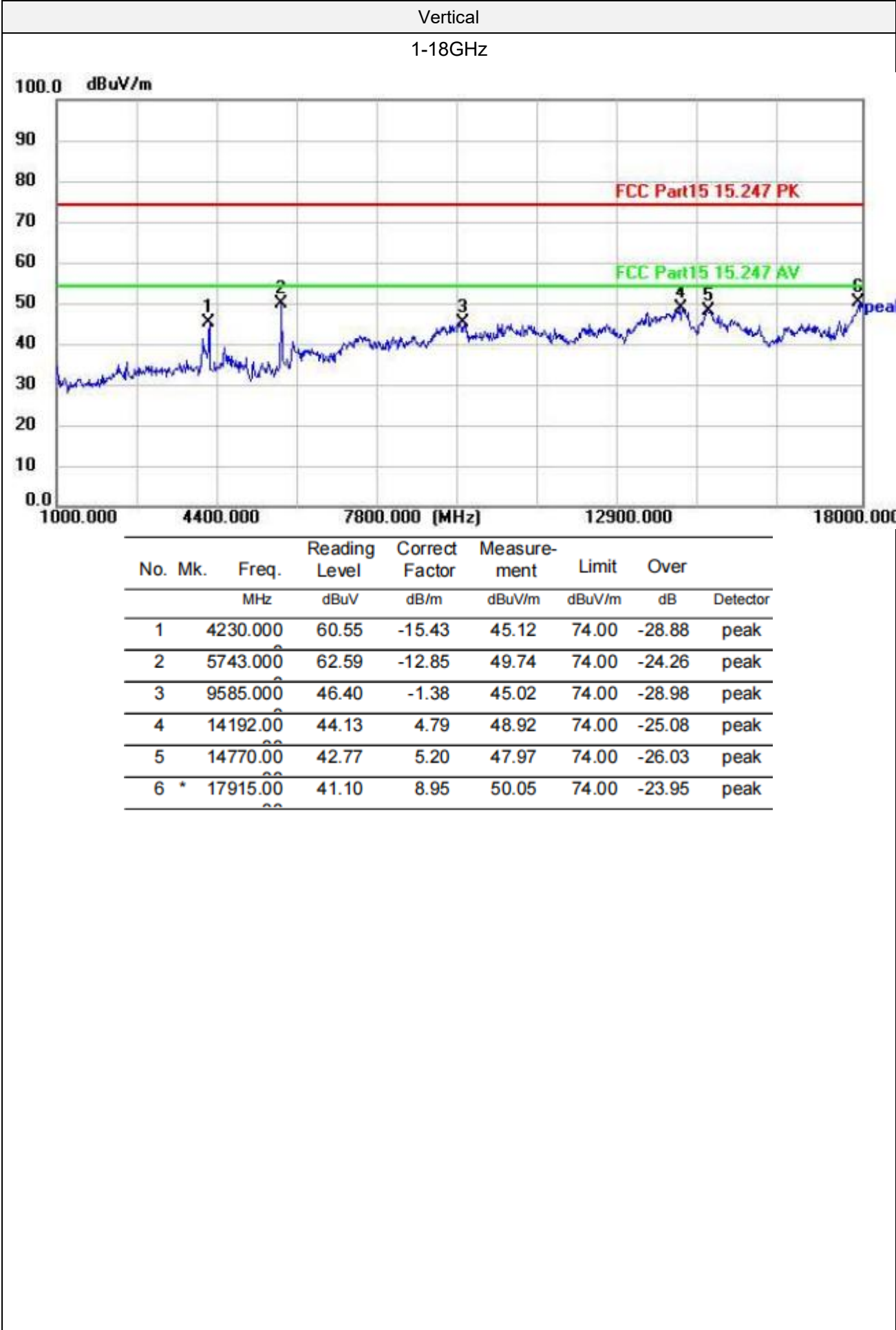
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB/m	dBuV/m	dBuV/m	dB	
1		35446.00	40.10	11.21	51.31	74.00	-22.69	peak
2		38592.00	42.19	12.54	54.73	74.00	-19.27	peak
3		39186.00	42.07	14.30	56.37	74.00	-17.63	peak
4	*	39758.00	43.43	14.28	57.71	74.00	-16.29	peak

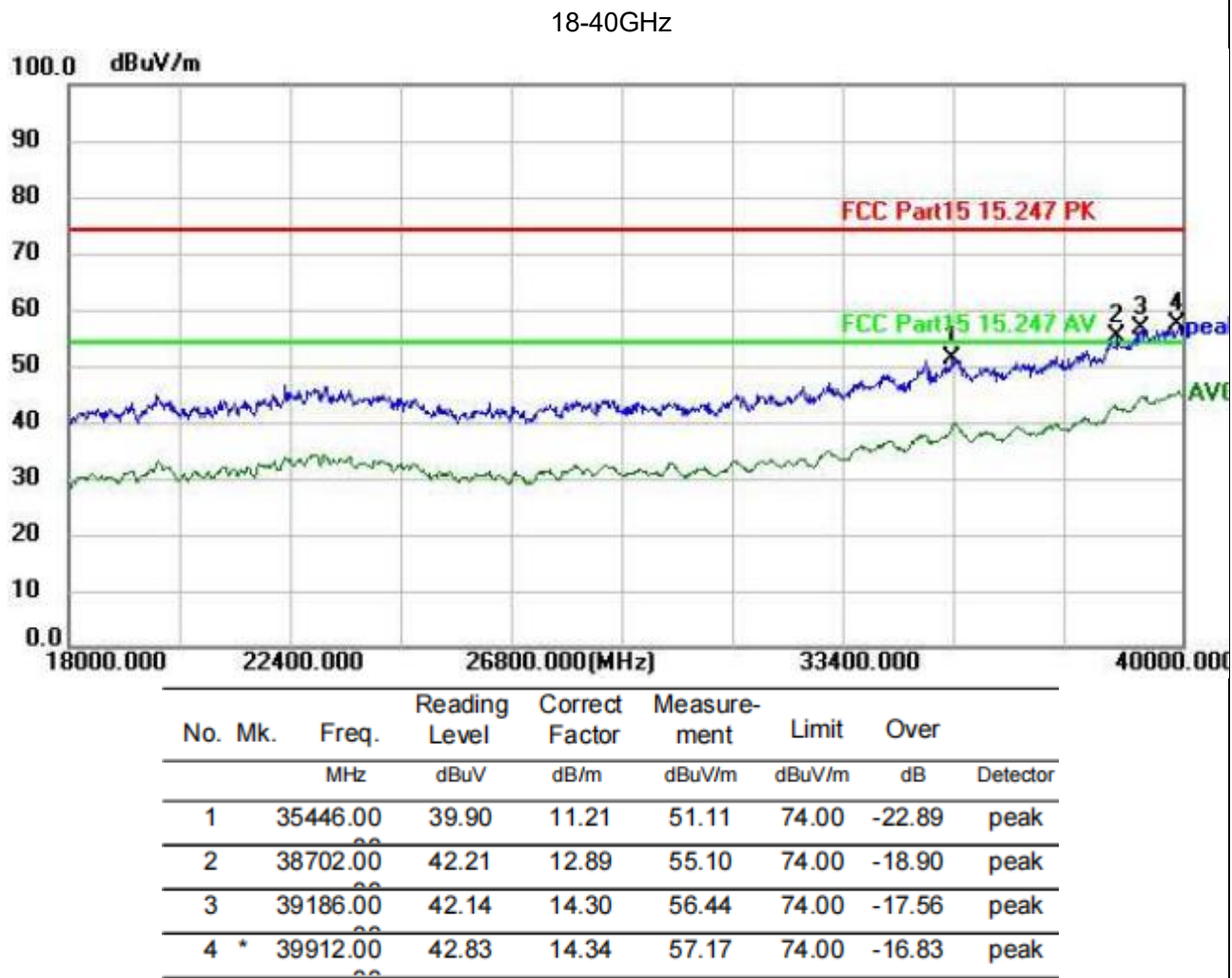
Note:1).Level (dBμV/m)= Reading (dBμV)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBμV/m) - Level (dBμV/m)

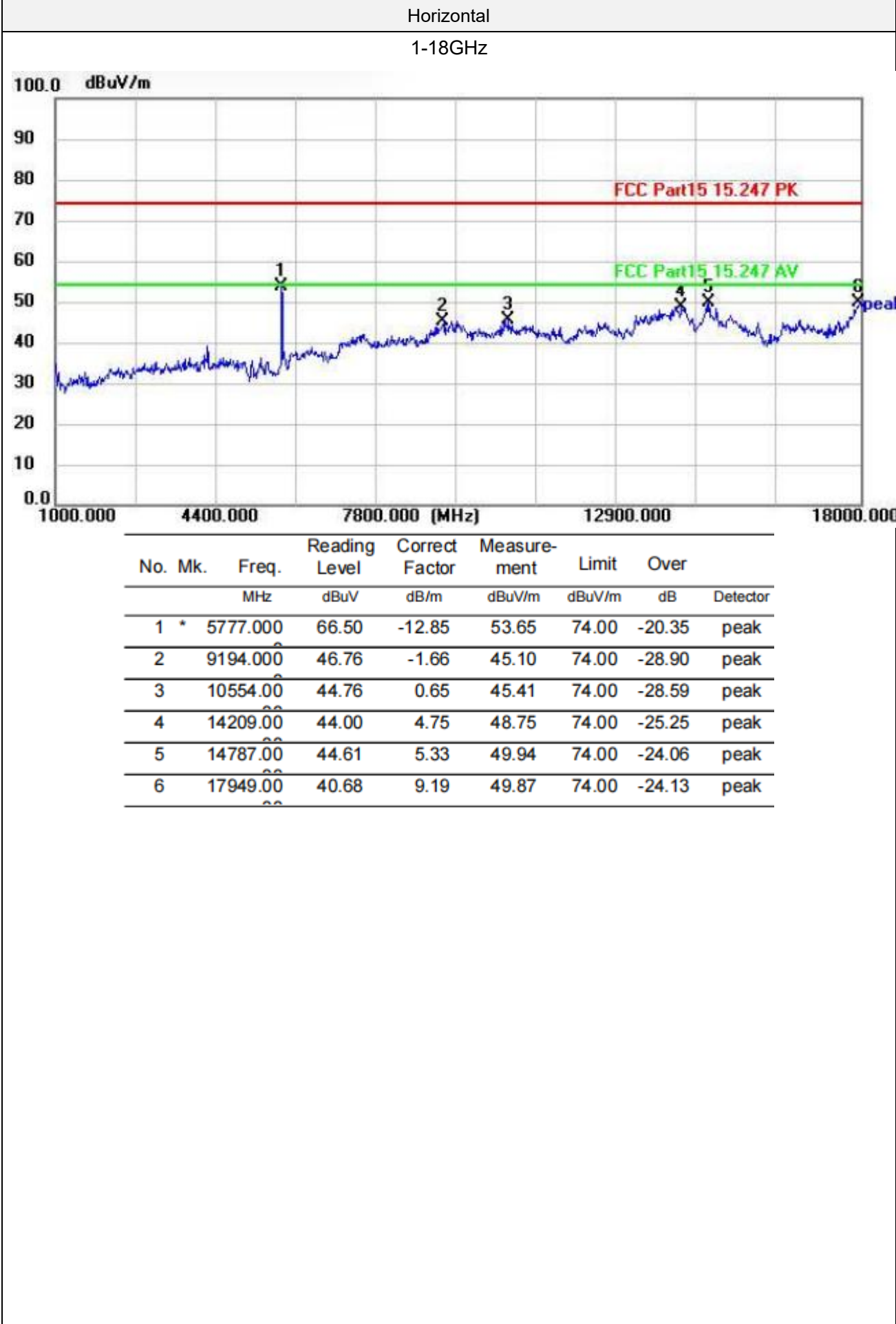
5745MHz



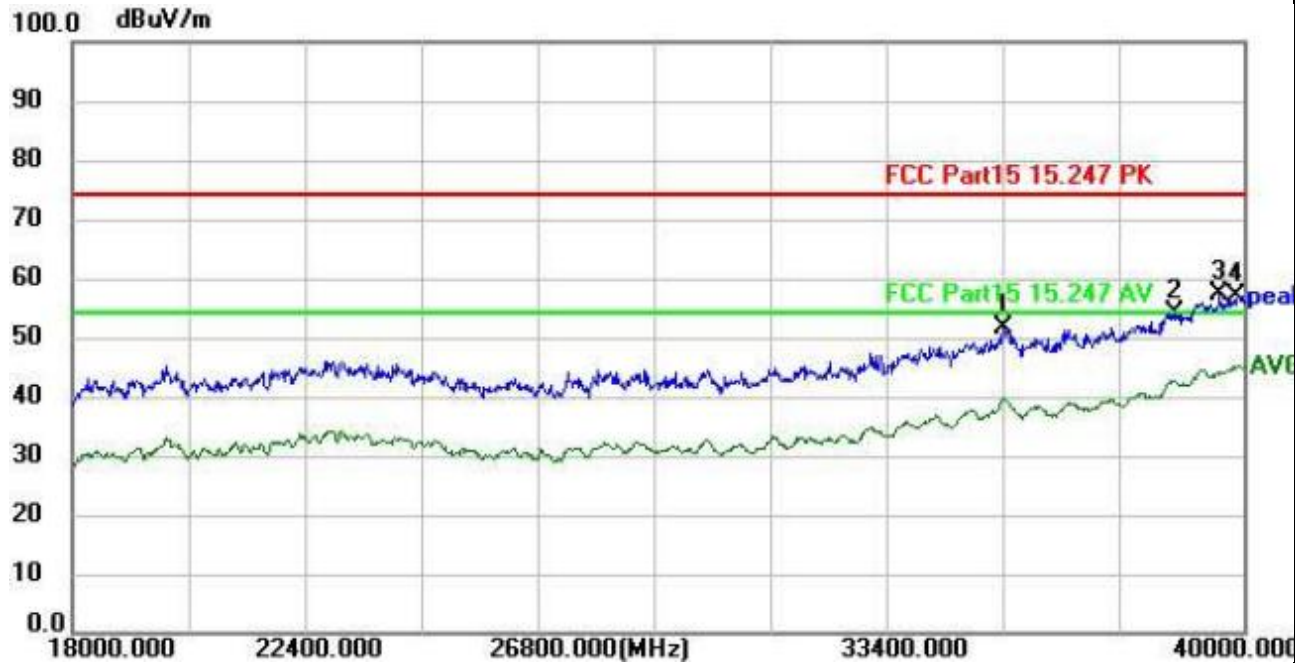


Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)
3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5785MHz



18-40GHz



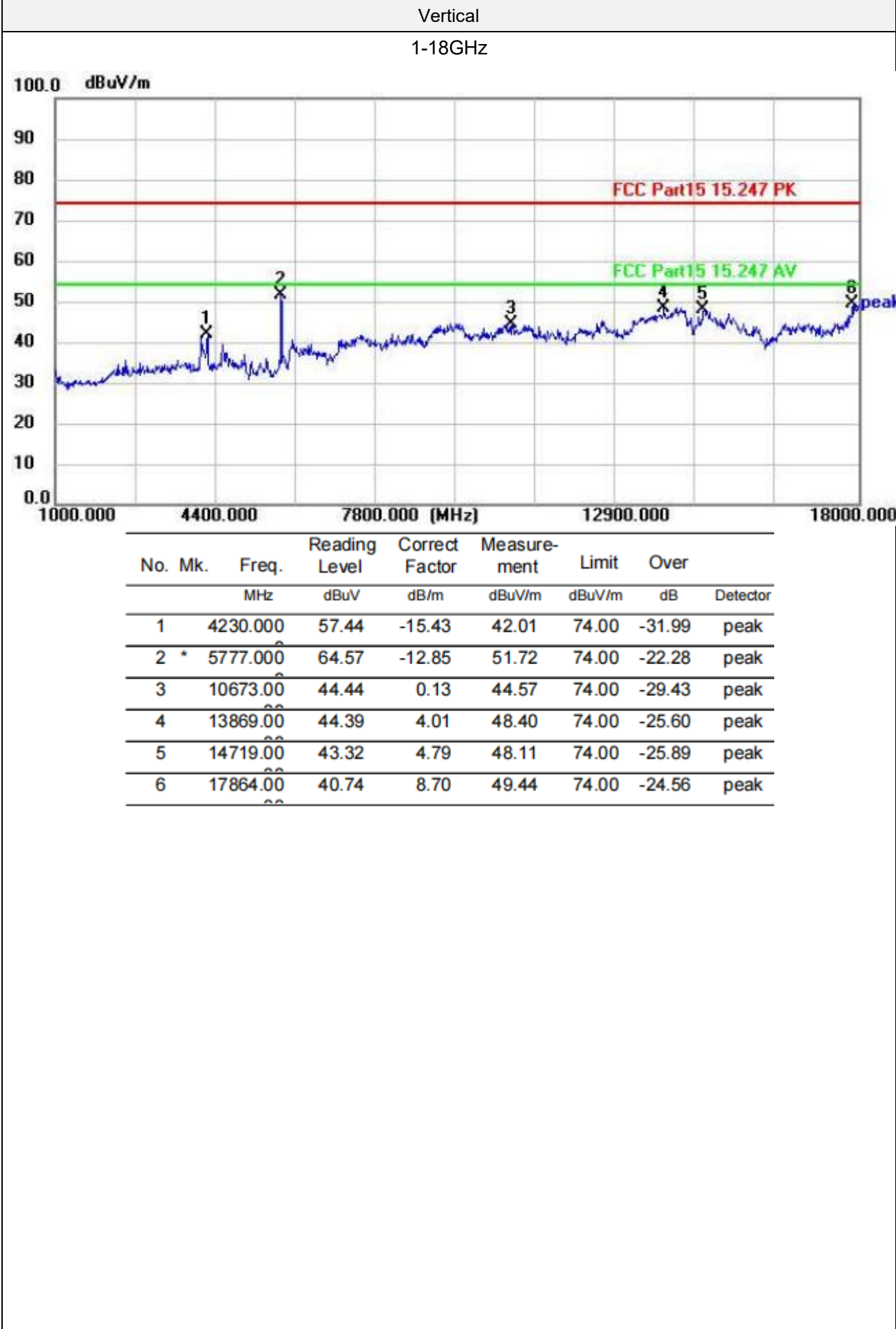
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35490.00	40.27	11.31	51.58	74.00	-22.42	peak
2		38702.00	41.28	12.89	54.17	74.00	-19.83	peak
3	*	39538.00	42.96	14.24	57.20	74.00	-16.80	peak
4		39868.00	42.77	14.31	57.08	74.00	-16.92	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

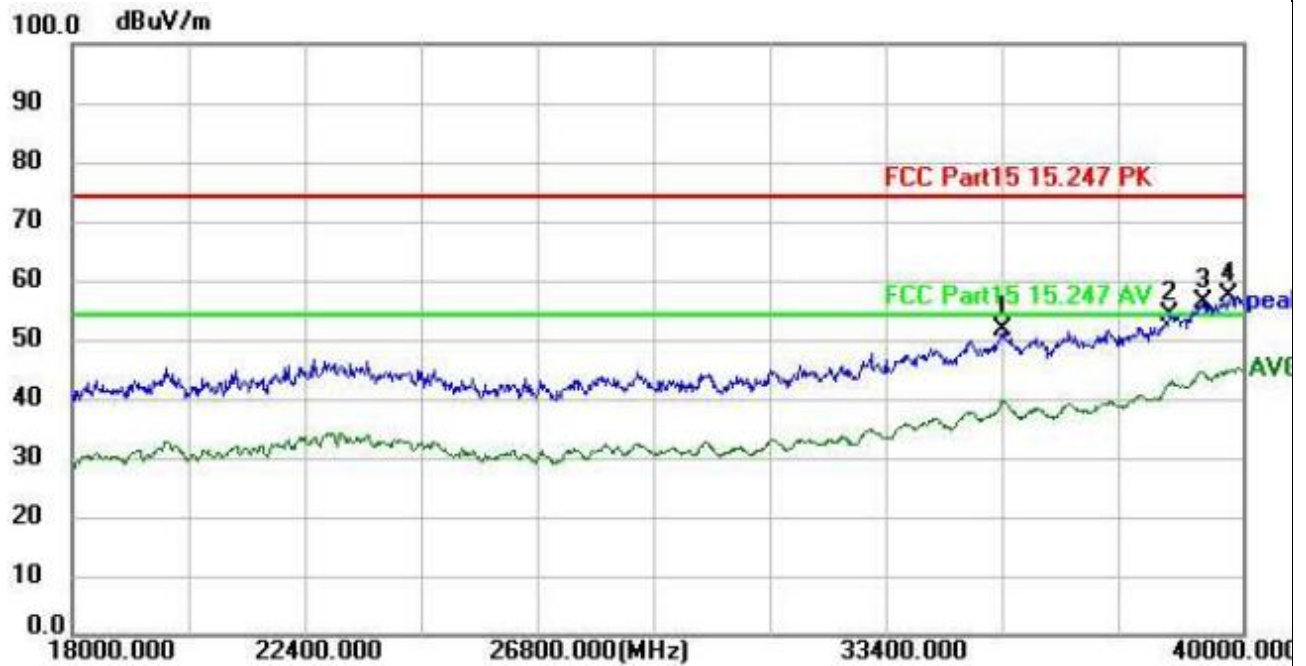
2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

5785MHz



18-40GHz



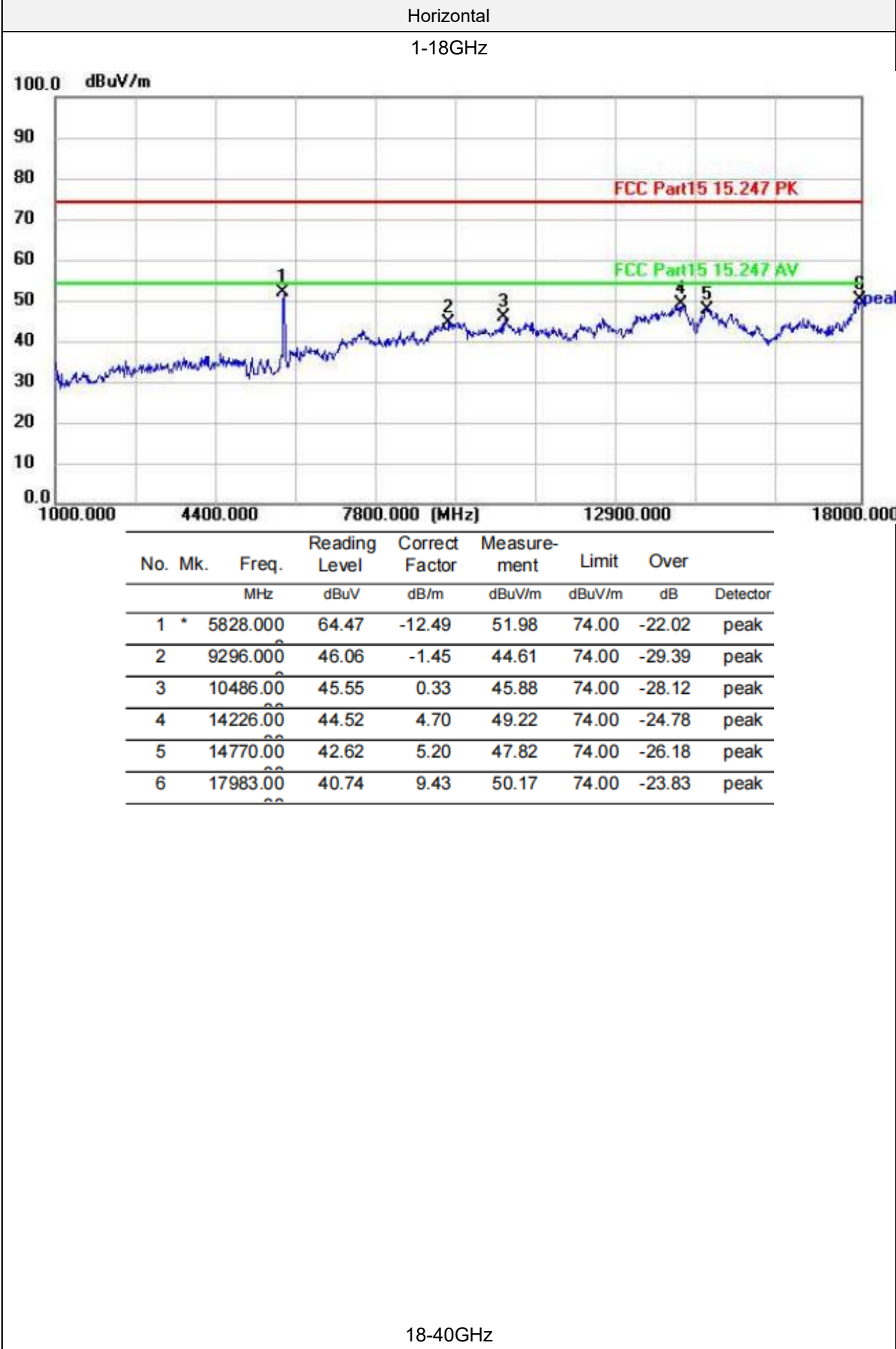
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35512.00	40.24	11.34	51.58	74.00	-22.42	peak
2		38614.00	41.34	12.60	53.94	74.00	-20.06	peak
3		39252.00	41.87	14.31	56.18	74.00	-17.82	peak
4	*	39758.00	42.96	14.28	57.24	74.00	-16.76	peak

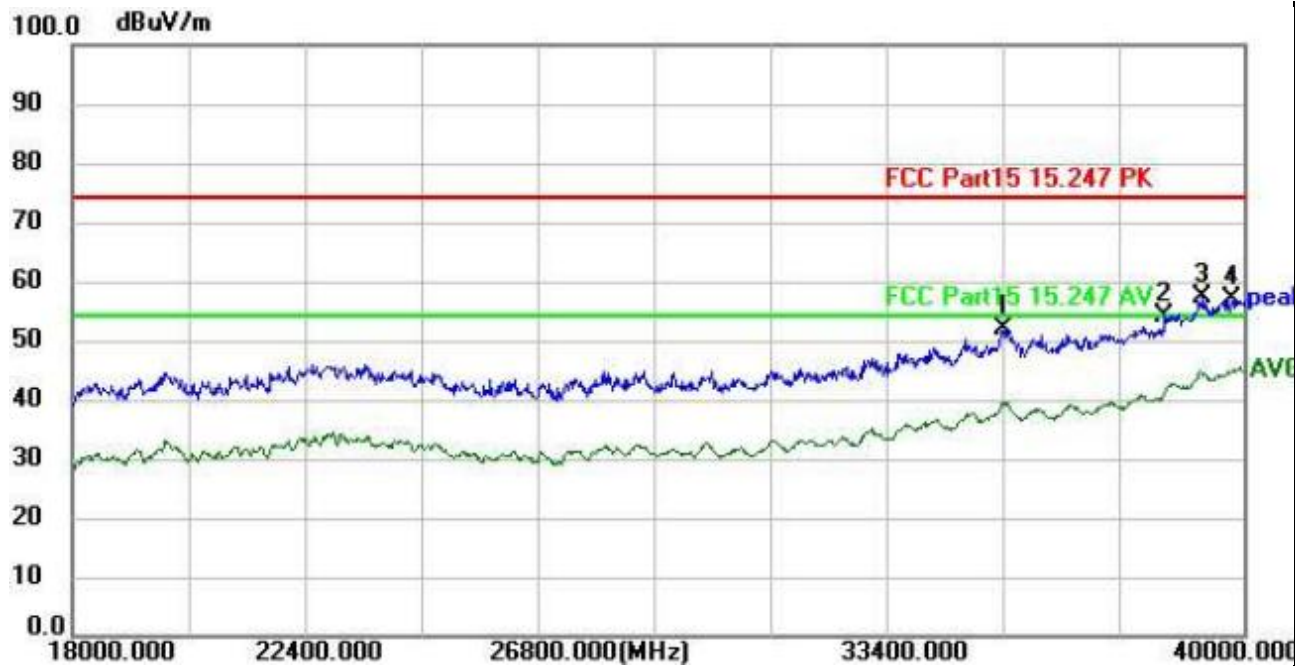
Note:1). Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dBuV/m) - Level (dBuV/m)

5825MHz





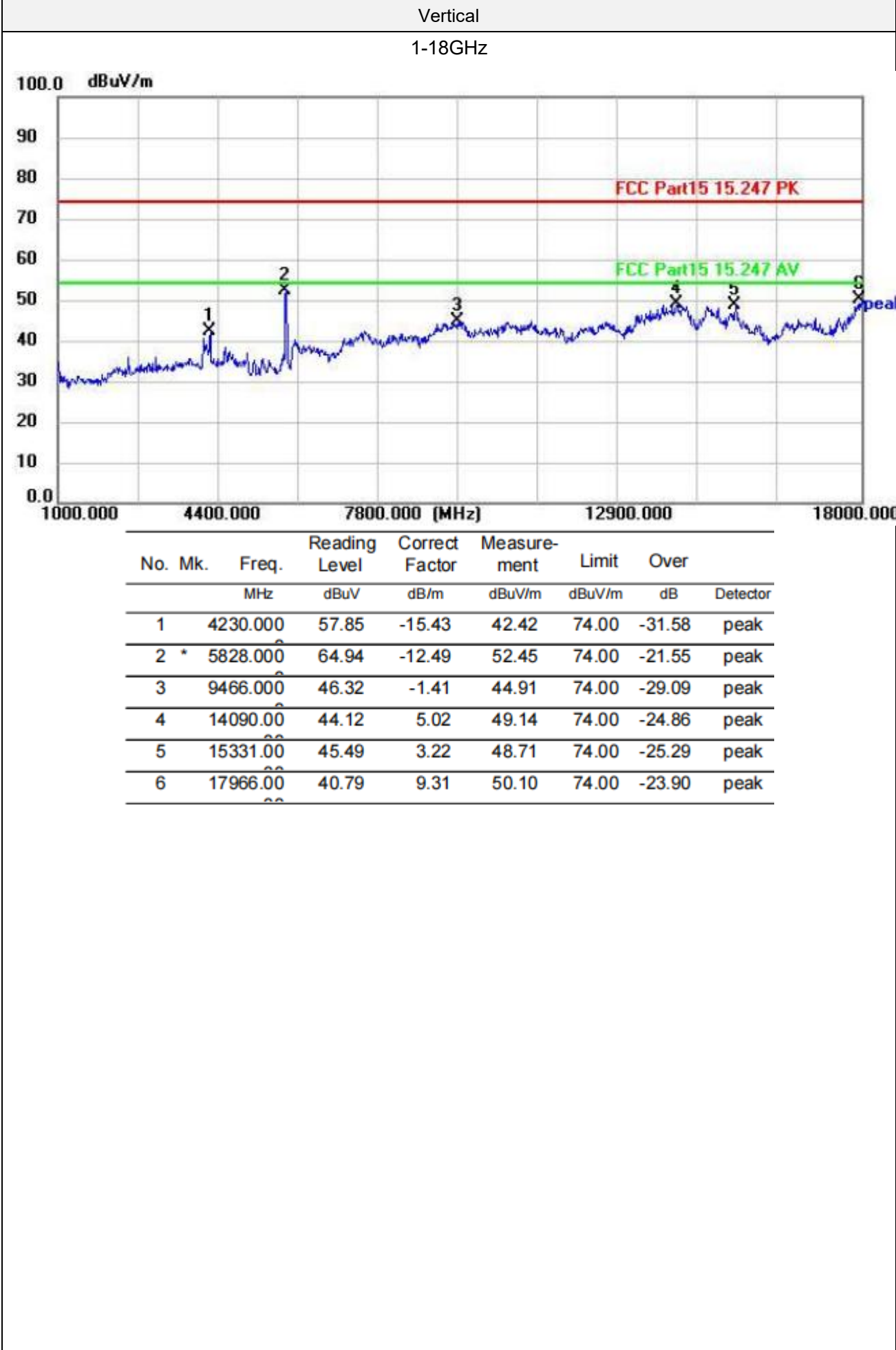
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35512.00	40.52	11.34	51.86	74.00	-22.14	peak
2		38504.00	42.03	12.25	54.28	74.00	-19.72	peak
3	*	39208.00	42.87	14.32	57.19	74.00	-16.81	peak
4		39780.00	42.77	14.28	57.05	74.00	-16.95	peak

Note: 1). Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

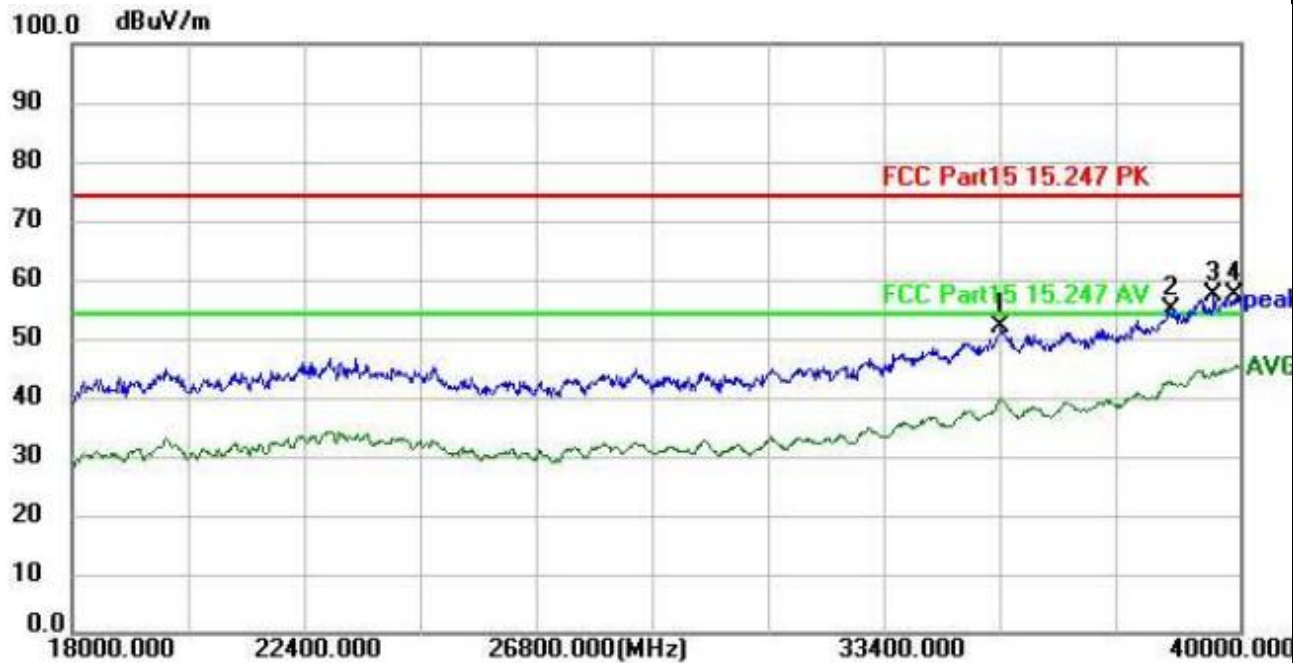
2). Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin (dB) = Limit (dBuV/m) - Level (dBuV/m)

5825MHz



18-40GHz



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		35490.00	40.72	11.31	52.03	74.00	-21.97	peak
2		38724.00	41.72	12.98	54.70	74.00	-19.30	peak
3		39494.00	42.99	14.25	57.24	74.00	-16.76	peak
4	*	39890.00	43.10	14.32	57.42	74.00	-16.58	peak

Note:1).Level (dBuV/m)= Reading (dBuV)+ Factor (dB/m)

2). Factor(dB/m)=Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB)

3). Margin(dB) = Limit (dBuV/m) - Level (dBuV/m)

4.3. Maximum Conducted Average Output Power

Limit

According to §15.407(a): The maximum output power should be not exceed follow:

Frequency Range (MHz)	Limit
5150-5250	Fixed: 1 Watt (30dBm) Mobile and portable: 250mW (24dBm)
5250-5350	250mW (24dBm)
5470-5725	250mW (24dBm)
5725-5850	1 Watt (30dBm)
Note: The maximum e.i.r.p at any elevation angle above 30 degrees as measured from the horizon must not exceed 125mW(21dBm)	

For the band 5.15-5.25 GHz.

- (i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.
- (ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.
- (iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
- (iv) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Method PM is Measurement using an RF average power sensor. The procedure for this method is as follows:

1. The testing follows the ANSI C63.10 Section 12.4.3
2. The maximum average conducted output power may be measured using a broadband average RF power sensor.
3. The power sensor shall have a video bandwidth that is greater than or equal to the OBW bandwidth and shall use a fast-responding diode detector.

Test Configuration



TEST RESULTS

Please refer to FCC Appendix RF Test Data for 5GWIFI.

Total Output Average power(dBm)= Output Average power(dBm)+ Duty Factor(dB)

4.4. Power Spectral Density

Limit

(1) For the band 5.15 - 5.25 GHz.

(i) For an outdoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. ^{note1}

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band. ^{note1}

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band. ^{note1}

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. ^{note1}

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. ^{note1, note2}

Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

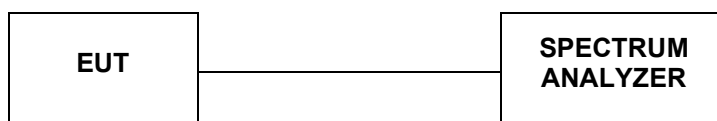
Note2: Fixed point - to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 500KHz for U-NII 3 band.
3. Set the VBW $\geq 3 \times$ RBW.
4. Set the span to encompass the entire EBW.
5. Detector = Average.
6. Sweep time = auto couple.
7. Trace mode = Average hold.
8. Allow trace to fully stabilize.

Use the peak marker function to determine the maximum power level.

TEST CONFIGURATION



TEST RESULTS

Please refer to FCC Appendix RF Test Data for 5GWIFI.

Total Power Spectral Density (dBm/MHz) = Power Spectral Density (dBm/MHz) + Duty Factor (dB)

Remark: P.S.D(dBm/500KHz) = P.S.D(dBm/300KHz) + 10 log (500 kHz/300KHz).

RBW factor = 10 log (500 KHz / 300 KHz) = 2.22 dB

4.5. 6dB Bandwidth

Limit

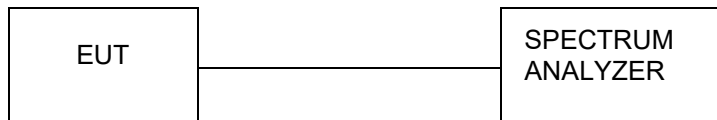
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max-hold.
- e) Sweep = No faster than coupled (auto) time.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Configuration



TEST RESULTS

Please refer to FCC Appendix RF Test Data for 5GWIFI.

4.6. 26dB Bandwidth

Limit

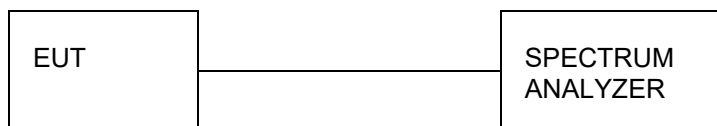
No Limits for 26dBc Bandwidth

Test Procedure

The procedure for this method is as follows:

- a) Set RBW = shall be in the range of 1% to 5% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = peak.
- d) Trace mode = max-hold.
- e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is in the range of 1% to 5%.

Test Configuration

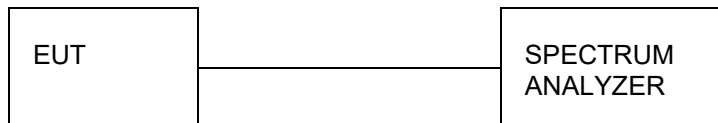


TEST RESULTS

Please refer to FCC Appendix RF Test Data for 5GWIFI.

4.7. On Time and Duty Cycle

TEST CONFIGURATION



Test Procedures

- 1). Set the Centre frequency of the spectrum analyzer to the transmitting frequency;
- 2). Set the span=0MHz, RBW=8MHz, VBW=8MHz, Sweep time=Auto;
- 3). Detector = peak;
- 4). Trace mode = Single hold.

TEST RESULTS

Please refer to FCC Appendix RF Test Data for 5GWIFI.

4.8. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Information

Test Result:

The FPC Antenna maximum gain of antenna was ANT1: 2.65dBi for 5180-5240MHz, 2.71dBi for 5260-5320MHz, 2.77dBi for 5500-5700MHz, 2.55 dBi for 5745-5825MHz; ANT2: 2.79dBi for 5180-5240MHz, 2.93dBi for 5260-5320MHz, 3.17dBi for 5500-5700MHz, 2.64 dBi for 5745-5825MHz.

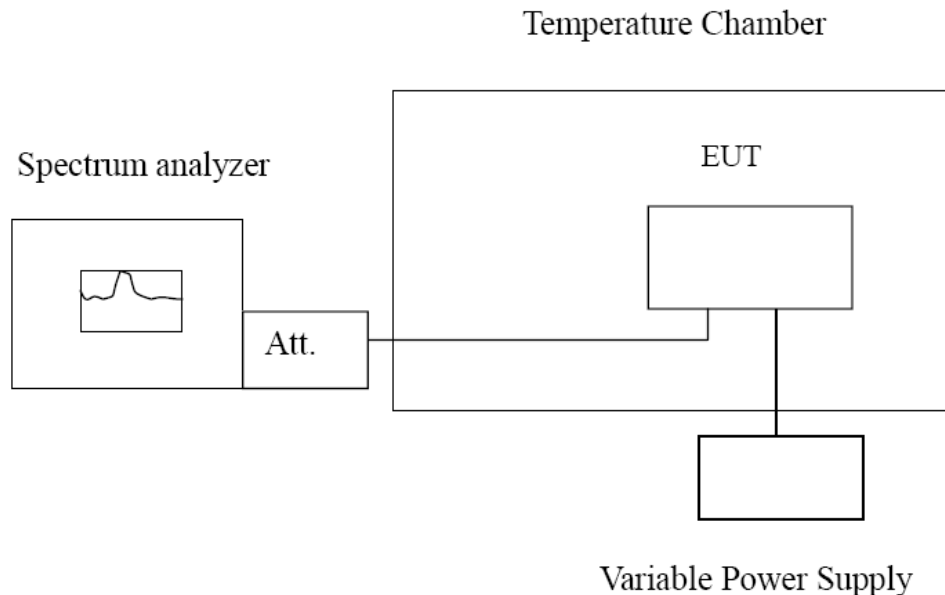
Remark: The antenna gain is provided by the customer, if the data provided by the customer is not accurate, Shenzhen HTT Technology Co., Ltd. does not assume any responsibility.

4.9. Frequency Stability

LIMIT

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

TEST CONFIGURATION



TEST PROCEDURE

Frequency Stability under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

TEST RESULTS

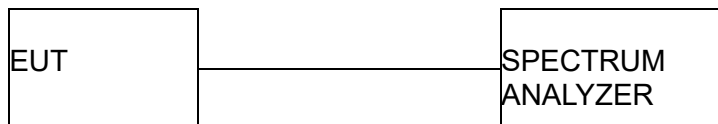
Please refer to FCC Appendix RF Test Data for 5GWIFI.

4.10. Emissions at Restricted Band

Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST CONFIGURATION



Test Procedures

According to ANSI C63.10 Field Strength Approach (linear terms):

$$E = \text{EIRP} - 20 \log d + 104.8$$

Where:

E is the electric field strength in dBuV/m

EIRP is the equivalent isotropically radiated power in dBm

d is the specified measurement distance in m

f) Compare the resultant electric field strength level with the applicable regulatory limit.

g) Perform the radiated spurious emission test.

Where all terms are as previously defined.

- 1). Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2). Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to an EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
- 3). Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz for peak detector and RBW=1MHz, VBW=3MHz for RMS detector, Max Hold=Average, Trace=100times for AV test.
- 4). Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- 5). Repeat above procedures until all measured frequencies were complete.
- 6). Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- 7). Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)
- 8). Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
- 9). For devices with multiple antenna-ports, measure the power of each individual chain and sum

the EIRP of all chains in linear terms (e.g., Watts, mW).

10). Compare the resultant electric field strength level to the applicable regulatory limit.

11). Perform radiated spurious emission test duress until all measured frequencies were complete.

Test Results

Please refer to FCC Appendix RF Test Data for 5GWIFI.

Remark:

- 1). Test results including cable loss;
- 2). Measured at difference Packet Type for each mode and recorded worst case for each mode.
- 3). “---“means that the fundamental frequency not for 15.209 limits requirement.
- 4). Measured at Hopping and Non-Hopping mode, recorded worst at Non-Hopping mode.
- 5). The other emission levels were very low against the limit.
- 6). The average measurement was not performed when the peak measured data under the limit of average detection.
- 7). Detector AV is setting spectrum/receiver. RBW=1MHz/VBW=3MHz/Sweep time=Auto/Detector=RMS, Max Hold=Average,Trace=100times.
- 8). Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

5. Test Setup Photos of the EUT

Reference to the test report No. HTT202606671F01.

6. External and Internal Photos of the EUT

Reference to the test report No. HTT202606671F01.

.....**End of Report**.....