



# Radio Test Report

## FCC ID: ZQ6-AP5811SA

**Report No.** : TBR-C-202503-0077-43  
**Applicant** : AMPAK Technology Inc.  
**Equipment Under Test (EUT)**  
**EUT Name** : AP5811SA  
**Model No.** : AP5811SA  
**Series Model No.** : N/A  
**Brand Name** : AMPAK, SPARKLAN  
**Sample ID** : HC-C-202503-0077-01-01&HC-C-202503-0077-02-01  
**Receipt Date** : 2025-03-31  
**Test Date** : 2025-03-31 to 2025-06-27  
**Issue Date** : 2025-06-27  
**Standards** : FCC Part 15 Subpart E 15.407  
**Test Method** : ANSI C63.10: 2013  
KDB 987594 D01 U-NII 6GHz General Requirements v01r02  
KDB 987594 D02 U-NII 6GHz EMC Measurement v01r01  
**Conclusions** : **PASS**

In the configuration tested, the EUT complied with the standards specified above.

**Test By** : Gold. zhang Gold zhang  
**Reviewed By** : Henry huang Henry huang  
**Approved By** : IVAN SU Ivan Su



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.



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## Revision History

Report No.	Version	Description	Issued Date
TBR-C-202503-0077-43	Rev.01	Initial issue of report	2025-06-27





# 1. General Information about EUT

## 1.1 Client Information

<b>Applicant</b>	:	AMPAK Technology Inc.
<b>Address</b>	:	6F., No. 23, Huanke 1st Rd., Zhubei City, Hsinchu 302047, Taiwan
<b>Manufacturer</b>	:	AMPAK Technology Inc.
<b>Address</b>	:	6F., No. 23, Huanke 1st Rd., Zhubei City, Hsinchu 302047, Taiwan

## 1.2 General Description of EUT (Equipment Under Test)

<b>EUT Name</b>	:	AP5811SA
<b>HVIN/Models No.</b>	:	AP5811SA
<b>Model Different</b>	:	N/A
<b>Product Description</b>	Operation Frequency: U-NII-5: 5955MHz~6415MHz, U-NII-6: 6435MHz~6515MHz U-NII-7: 6535MHz~6875MHz, U-NII-8: 6895MHz~7115MHz	
	Antenna Gain:	See antenna information
	Modulation Type:	802.11a: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
	Beamforming Function:	<input type="checkbox"/> With Beamforming
		<input checked="" type="checkbox"/> Without Beamforming
	Device Type:	<input type="checkbox"/> Indoor Access Point
		<input checked="" type="checkbox"/> Indoor Client
		<input type="checkbox"/> Dual Client
		<input type="checkbox"/> Fixed Client
<b>Power Rating</b>	:	DC 3.3V
<b>Software Version</b>	:	N/A
<b>Hardware Version</b>	:	N/A
<b>Remark:</b> (1) The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab. (2) The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.		



(3)Channel List:

5955-6415MHz(U-NII-5 band)				
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11a&ax(HE20)	1	5955	49	6195
	5	5975	53	6215
	9	5995	57	6235
	13	6015	61	6255
	17	6035	65	6275
	21	6055	69	6295
	25	6075	73	6315
	29	6095	77	6335
	33	6115	81	6355
	37	6135	85	6375
	41	6155	89	6395
	45	6175	93	6415
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE40)	3	5965	51	6205
	11	6005	59	6245
	19	6045	67	6285
	27	6085	75	6325
	35	6125	83	6365
	43	6165	91	6405
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE80)	7	5985	55	6225
	23	6065	71	6305
	39	6145	87	6385





6425-6525MHz(U-NII-6 band)				
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11a&ax(HE20)	97	6435	109	6495
	101	6455	113	6515
	105	6475		
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE40)	99	6445	*115	6525
	107	6485		
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE80)	103	6465	*119	6545

\*mean this is straddle channel.

6525-6885MHz(U-NII-7 band)				
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11a&ax(HE20)	117	6535	153	6715
	121	6555	157	6735
	125	6575	161	6755
	129	6595	165	6775
	133	6615	169	6795
	137	6635	173	6815
	141	6655	177	6835
	145	6675	181	6855
	149	6695	*185	6875
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE40)	123	6565	163	6765
	131	6605	171	6805
	139	6645	179	6845
	147	6685	*187	6885
	155	6725		
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE80)	135	6625	167	6785
	151	6705	*183	6865





6875-7125MHz(U-NII-8 band)				
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11a&ax(HE20)	189	6895	213	7015
	193	6915	217	7035
	197	6935	221	7055
	201	6955	225	7075
	205	6975	229	7095
	209	6995	233	7115
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE40)	195	6925	219	7045
	203	6965	227	7085
	211	7005		
Bandwidth	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11ax(HE80)	199	6945	215	7025





(4) Antenna information:

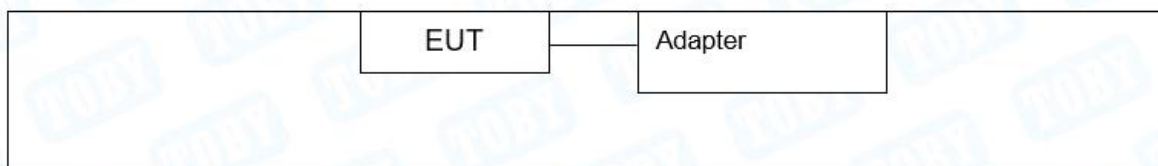
Model No. of antenna:	Type of antenna:	Gain of the antenna (Max.)	Gain of the antenna (Min.)
		Antenna 1	Antenna 1
AD-501AX	Dipole Antenna	5.00dBi	4.50 dBi
AD-510AX	Dipole Antenna	3.52dBi	2.29 dBi
AD-512AX	Dipole Antenna	3.02dBi	1.90 dBi
AD-514AX	Dipole Antenna	4.17dBi	2.99 dBi
AD-515AX	Dipole Antenna	6.34dBi	5.29 dBi
Note: This module will use five different WiFi antennas, and only the one with the larger antenna gain( <b>Antenna1: 6.34dBi;( AD-515AX)</b> ) will be used for test.			



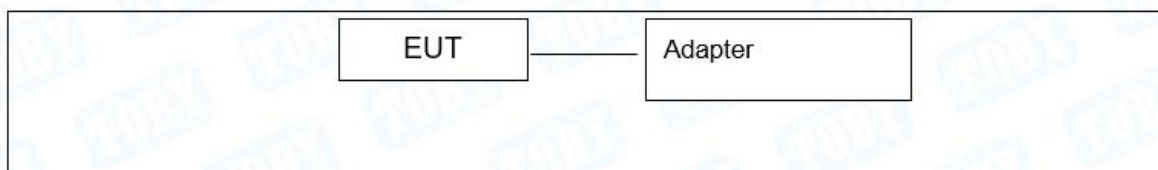


### 1.3 Block Diagram Showing the Configuration of System Tested

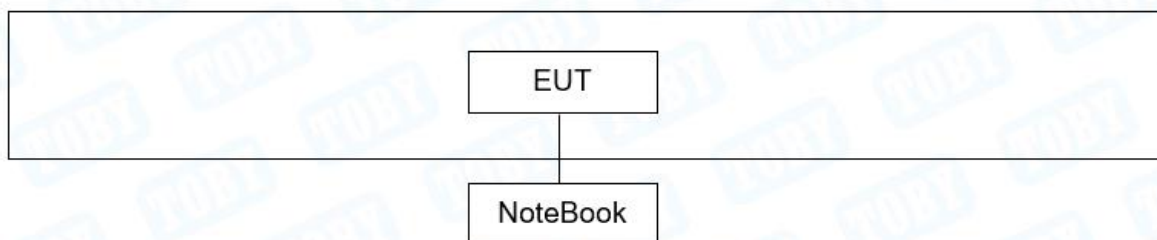
#### Conducted Test



#### Radiated Test



#### Conducted Measurements Test



### 1.4 Description of Support Units

Equipment Information				
Name	Model	S/N	Manufacturer	Used “√”
Notebook	HYLR-WFQ9	AAMFPM1418000165	DELL	√
Adapter	UG050200	N/A	UGREEN	√





## 1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test		
Final Test Mode		Description
Mode 1		TX ax Mode(5955MHz)
For Radiated Test Below 1GHz		
Final Test Mode		Description
Mode 2		TX ax Mode(5955MHz)
For Radiated Above 1GHz and RF Conducted Test		
Test Band	Final Test Mode	Description
	Mode 3	TX Mode 802.11ax(HE20) Mode Channel 01/45/93
	Mode 4	TX Mode 802.11ax (HE40) Mode Channel 03/43/91
	Mode 5	TX Mode 802.11ax (HE80) Mode Channel 07/39/87
	Mode 6	TX Mode 802.11ax(HE20) Mode Channel 97/105/113
	Mode 7	TX Mode 802.11ax (HE40) Mode Channel 99/107/115
	Mode 8	TX Mode 802.11ax (HE80) Mode Channel 103/119
	Mode 9	TX Mode 802.11ax(HE20) Mode Channel 117/149/181/185
	Mode 10	TX Mode 802.11ax (HE40) Mode Channel 123/155/178/187
	Mode 11	TX Mode 802.11ax (HE80) Mode Channel 135/151/167/183
	Mode 12	TX Mode 802.11ax(HE20) Mode Channel 189/209/233
	Mode 13	TX Mode 802.11ax (HE40) Mode Channel 195/211/227
	Mode 14	TX Mode 802.11ax (HE80) Mode Channel 199/215

### Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.  
According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:
- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.

Mode	Data Rate
AX(HE20) Mode	HE0NSS0
AX(HE40) Mode	HE0NSS0
AX(HE80) Mode	HE0NSS0

- (3) The EUT is considered a Mobile unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.





## 1.5 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF setting.

Test Software: cmd command		
U-NII-5		
Mode	Frequency(MHz)	Parameters
802.11ax(HE20)	5955	2
	6175	2
	6415	4
802.11ax(HE40)	5965	5
	6165	5
	6405	5
802.11ax(HE80)	5985	8
	6145	8
	6385	8
U-NII-6		
Mode	Frequency(MHz)	Parameters
802.11ax(HE20)	6435	4
	6475	3
	6515	3
802.11ax(HE40)	6445	6
	6485	6
	6525	6
802.11ax(HE80)	6465	10
	6545	10





U-NII-7		
Mode	Frequency(MHz)	Parameters
802.11ax(HE20)	6535	4
	6695	4
	6855	3
	6875	3
802.11ax(HE40)	6565	6
	6685	7
	6845	6
	6885	6
802.11ax(HE80)	6625	10
	6705	10
	6785	9
	6865	9
U-NII-8		
Mode	Frequency(MHz)	Parameters
802.11ax(HE20)	6895	3
	6995	2
	7115	2
802.11ax(HE40)	6925	5
	6965	5
	7085	5
802.11ax(HE80)	6945	9
	7025	9
<p>Note: U-NII-5, U-NII-6, U-NII-7 and U-NII-8 only support ax20, ax40 and ax80; Radiated Unwanted Emissions U-NII-5, U-NII-6, U-NII-7 U-NII-8 All When the radiation exceeds 1GHz, only the worst mode ax20M frequency is tested, Restricted Bands Requirement All the modes of U-NII-5, U-NII-6, U-NII-7 and U-NII-8 were evaluated</p>		





## 1.6 Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty ( $U_{Lab}$ )
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	$\pm 3.50$ dB $\pm 3.10$ dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	$\pm 4.60$ dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	$\pm 4.50$ dB
Radiated Emission	Level Accuracy: Above 1000MHz	$\pm 4.20$ dB
RF Power-Conducted	Level Accuracy: Above 1000MHz	$\pm 0.95$ dB
Power Spectral Density-Conducted	Level Accuracy: Above 1000MHz	$\pm 3$ dB
Occupied Bandwidth	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	$\pm 3.8\%$
Unwanted Emission-Conducted	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	$\pm 2.72$ dB
Temperature	/	$\pm 0.6^{\circ}\text{C}$
Humidity	/	$\pm 4\%$
Supply voltages	/	$\pm 2\%$
Time	/	$\pm 4\%$





## 1.7 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

### **CNAS (L5813)**

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

### **A2LA Certificate No.: 4750.01**

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

### **IC Registration No.: (11950A)**

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.





## 2. Test Summary

Standard Section	Test Item	Test Sample(s)	Judgment
15.407(b)(8)	Conducted Emission	HC-C-202503-0077-01-01	PASS
15.407(b)(5)(8)	Radiated Spurious Emission	HC-C-202503-0077-01-01	PASS
15.407(b)(5)(8)	Conducted Spurious Emission	HC-C-202503-0077-01-02	PASS
15.407(b)(6)	In-Band Emission(Mask)	HC-C-202503-0077-01-02	PASS
15.407(a)(4/5/6/7/8)	Max E.I.R.P.	HC-C-202503-0077-01-02	PASS
15.407(a)(10)	Emission Bandwidth Measurement	HC-C-202503-0077-01-02	PASS
15.407(a)(4/5/6/7/8)	E.I.R.P Spectral Density	HC-C-202503-0077-01-02	PASS
15.407(d)(6)	Contention-based Protocol	HC-C-202503-0077-01-02	PASS
15.407(g)	Frequency Stability	HC-C-202503-0077-01-02	PASS
15.407(d)	Operational restrictions for 6GHz U-NII devices	HC-C-202503-0077-01-02	PASS
15.203	Antenna Requirement	HC-C-202503-0077-01-02	PASS
/	On Time and Duty Cycle	HC-C-202503-0077-01-02	/

## 3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
Radiation Emission	EZ-EMC	EZ	FA-03A2RE+
RF Test System	JS1120-3	Tonscend	V3.2.22





## 4. Test Equipment

Test Site				
No.	Test Site	Manufacturer	Specification	Used
TB-EMCSR001	Shielding Chamber #1	YIHENG	7.5*4.0*3.0 ( m )	√
TB-EMCSR002	Shielding Chamber #2	YIHENG	8.0*4.0*3.0 ( m )	√
TB-EMCCA001	3m Anechoic Chamber #A	ETS	9.0*6.0*6.0 ( m )	X
TB-EMCCB002	3m Anechoic Chamber #B	YIHENG	9.0*6.0*6.0 ( m )	√

Conducted Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jun. 17, 2024	Jun. 16, 2025
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jun. 17, 2024	Jun. 16, 2025
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jun. 17, 2024	Jun. 16, 2025
LISN	Rohde & Schwarz	ENV216	101131	Jun. 17, 2024	Jun. 16, 2025

Radiation Emission Test(B Site)					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 29, 2024	Aug. 28, 2025
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 17, 2024	Jun. 16, 2025
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472/008	Feb. 20, 2025	Feb.19, 2026
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Nov. 13, 2023	Nov. 12, 2025
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	Jun. 14, 2024	Jun. 13, 2026
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 27, 2024	Feb.26, 2026
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 14, 2024	Jun. 13, 2026
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	Tonscend	TAP051845	AP21C806141	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Aug. 29, 2024	Aug. 28, 2025
Highpass Filter	CD	HPM-6.4/18G	---	N/A	N/A
Highpass Filter	CD	HPM-2.8/18G	---	N/A	N/A
Highpass Filter	XINBO	XBLBQ-HTA67(8-25G)	22052702-1	N/A	N/A

Antenna Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 17, 2024	Jun. 16, 2025
RF Control Unit	Tonsced	JS0806-2	21F8060439	Aug. 29, 2024	Aug. 28, 2025
Vector Signal Generator	KEYSIGHT	N5182B	MY59101429	Aug. 29, 2024	Aug. 28, 2025
Analog Signal Generator	KEYSIGHT	N5173B	MY61252685	Aug. 29, 2024	Aug. 28, 2025
Temperature and Humidity Chamber	ZhengHang	ZH-QTH-1500	ZH2107264	Jun. 17, 2024	Jun. 16, 2025





Conducted Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jun. 16, 2025	Jun. 17, 2026
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jun. 16, 2025	Jun. 17, 2026
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jun. 16, 2025	Jun. 17, 2026
LISN	Rohde & Schwarz	ENV216	101131	Jun. 16, 2025	Jun. 17, 2026
Radiation Emission Test(B Site)					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 29, 2024	Aug. 28, 2025
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 16, 2025	Jun. 17, 2026
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472/008	Feb. 20, 2025	Feb.19, 2026
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Nov. 13, 2023	Nov. 12, 2025
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	Jun. 14, 2024	Jun. 13, 2026
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 27, 2024	Feb.26, 2026
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 14, 2024	Jun. 13, 2026
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	Tonscend	TAP051845	AP21C806141	Aug. 29, 2024	Aug. 28, 2025
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Aug. 29, 2024	Aug. 28, 2025
Highpass Filter	CD	HPM-6.4/18G	---	N/A	N/A
Highpass Filter	CD	HPM-2.8/18G	---	N/A	N/A
Highpass Filter	XINBO	XBLBQ-HTA67(8-25G)	22052702-1	N/A	N/A
Antenna Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 16, 2025	Jun. 15, 2026
RF Control Unit	Tonsced	JS0806-2	21F8060439	Aug. 29, 2024	Aug. 28, 2025
Vector Signal Generator	KEYSIGHT	N5182B	MY59101429	Aug. 29, 2024	Aug. 28, 2025
Analog Signal Generator	KEYSIGHT	N5173B	MY61252685	Aug. 29, 2024	Aug. 28, 2025
Temperature and Humidity Chamber	ZhengHang	ZH-QTH-1500	ZH2107264	Jun. 16, 2025	Jun. 15, 2026
Attenuator	YINSAIGE	DC-18G 10dB	DC18G	N/A	N/A
Attenuator	YINSAIGE	DC-40G 10dB	DC40G	N/A	N/A





## 5. Conducted Emission Test

### 5.1 Test Standard and Limit

#### 5.1.1 Test Standard

##### FCC Part 15.207

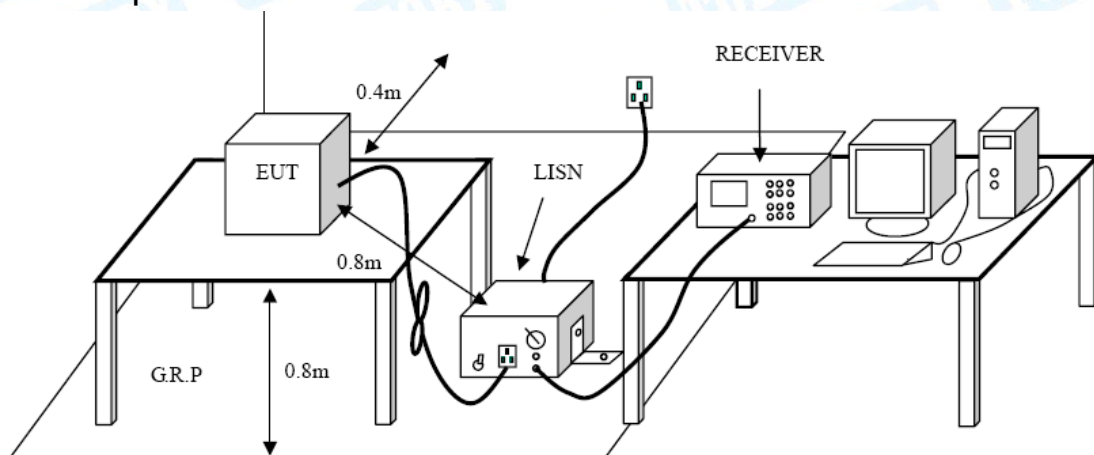
#### 5.1.2 Test Limit

Frequency	Maximum RF Line Voltage (dB $\mu$ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

#### Notes:

- (1) \*Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 5.2 Test Setup



### 5.3 Test Procedure

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.





#### 5.4 Deviation From Test Standard

No deviation

#### 5.5 EUT Operating Mode

Please refer to the description of test mode.

#### 5.6 Test Data

Please refer to the Attachment A inside test report.





## 6. Radiated and Conducted Unwanted Emissions

### 6.1 Test Standard and Limit

#### 6.1.1 Test Standard

**FCC Part 15.209 & FCC Part 15.407(b)**

#### 6.1.2 Test Limit

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

General field strength limits at frequencies Below 30MHz		
Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
<b>Note:</b> The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.		

General field strength limits at frequencies above 30 MHz		
Frequency (MHz)	Field strength (µV/m at 3 m)	Measurement Distance (meters)
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

General field strength limits at frequencies Above 1000MHz		
Frequency (MHz)	Distance of 3m (dBuV/m)	
	Peak	Average
Above 1000	74	54
<b>Note:</b>		
(1) The tighter limit applies at the band edges.		
(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)		

#### Limits of unwanted emission out of the restricted bands

Frequency (MHz)	EIRP Limits (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5925~7125	Peak: -7	88.2
	AVG: -27	68.2
<b>NOTE:</b>		
The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:		
$E = \frac{1000000 \sqrt{30P}}{3} \text{ uV/m, where P is the eirp (Watts)}$		
For above 1000MHz $E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2$ , for $d=3$		
<b>Note:</b> For above 1000 MHz. Unwanted emissions outside of restricted bands are measured with a RMS detector. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit.		



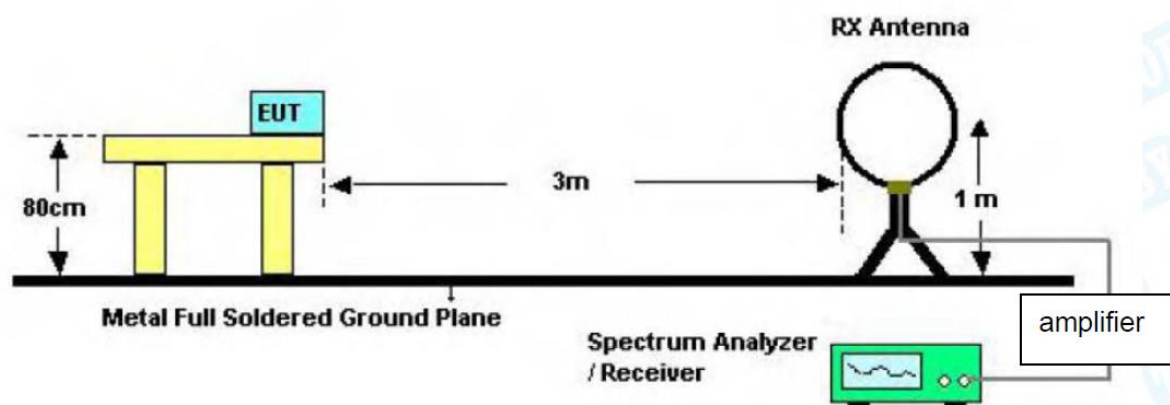


Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41	--	--	--

## 6.2 Test Setup

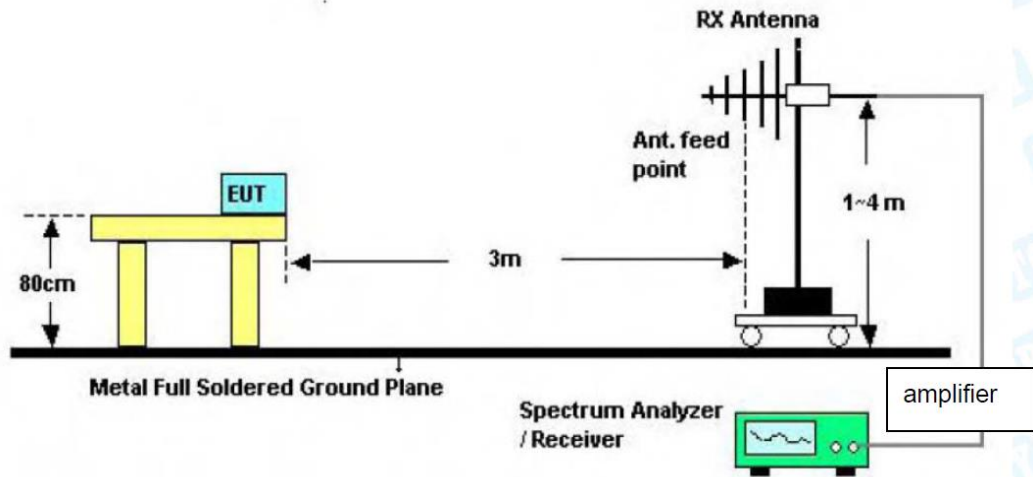
### Radiated measurement



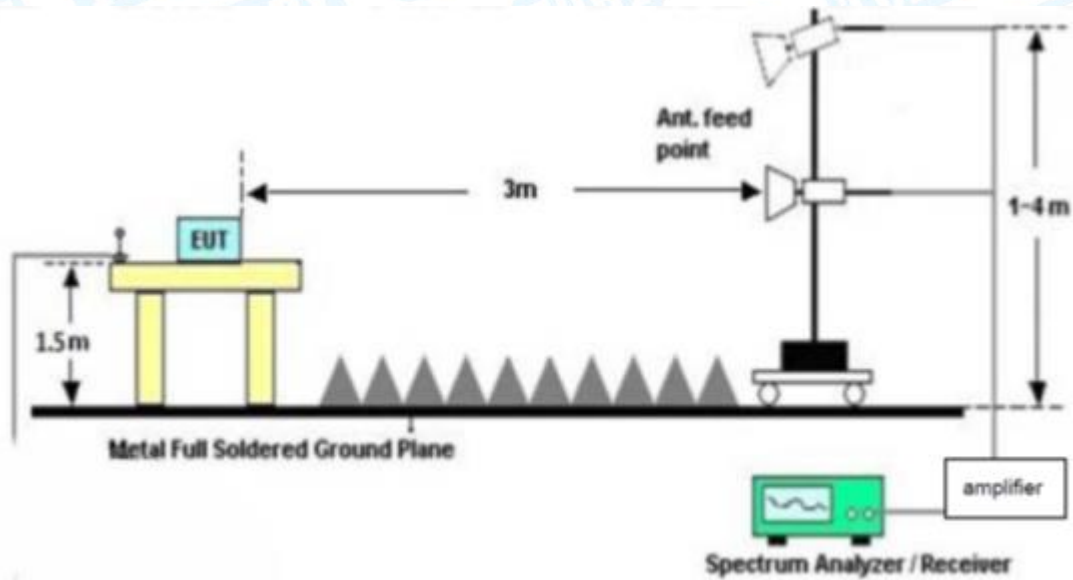
### Below 30MHz Test Setup



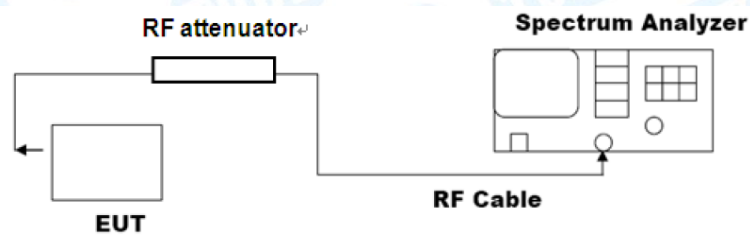




**Below 1000MHz Test Setup**



**Above 1GHz Test Setup  
Conducted measurement**





### 6.3 Test Procedure

#### ---Radiated measurement

- The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Below 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- Testing frequency range 30MHz-1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection. Testing frequency range 9KHz-150Hz the measuring instrument use VBW=200Hz with Quasi-peak detection. Testing frequency range 9KHz-30MHz the measuring instrument use VBW=9kHz with Quasi-peak detection.
- Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- For the actual test configuration, please see the test setup photo.

#### --- Conducted measurement

##### ●Reference level measurement

Establish a reference level by using the following procedure:

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set the span to  $\geq 1.5$  times the DTS bandwidth.
- c) Set the RBW = 100 kHz.
- d) Set the VBW  $\geq [3 \times \text{RBW}]$ .
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum PSD level.





Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

#### ● Emission level measurement

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW  $\geq [3 \times \text{RBW}]$ .
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

### 6.4 Deviation From Test Standard

No deviation

### 6.5 EUT Operating Mode

Please refer to the description of test mode.

### 6.6 Test Data

Radiated measurement please refer to the Attachment B inside test report.

Conducted measurement please refer to the external appendix report of 6G Wi-Fi.





## 7. Restricted Bands Requirement

### 7.1 Test Standard and Limit

#### 7.1.1 Test Standard

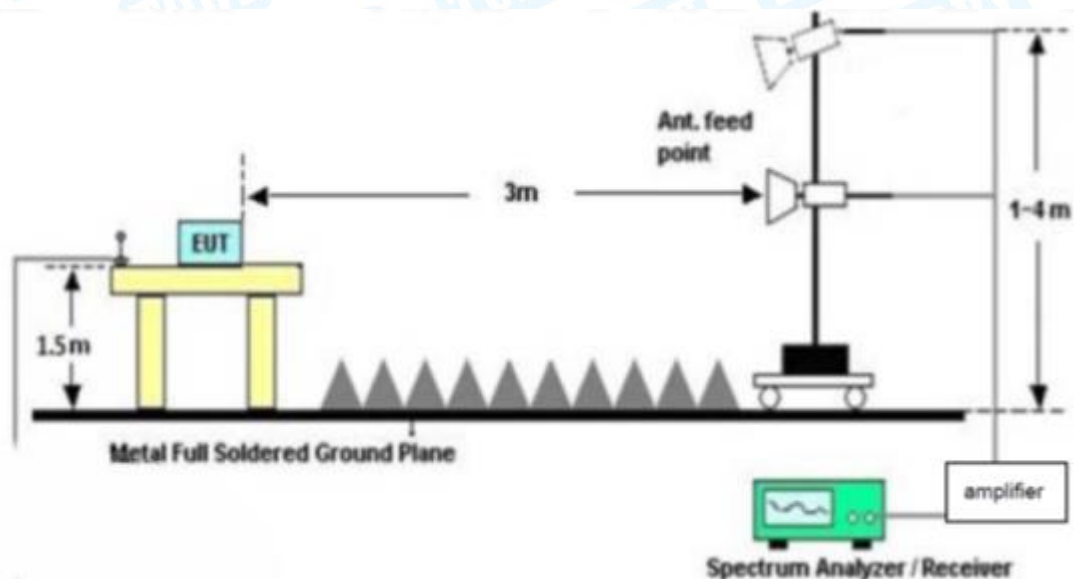
#### FCC Part 15.205 & FCC Part 15.407(b)(5)

#### 7.1.2 Test Limit

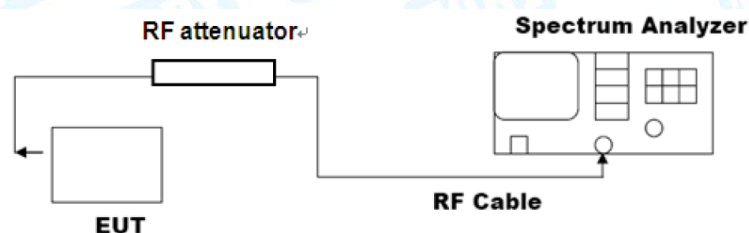
Frequency (MHz)	EIRP Limits (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5925~7125	Peak: -7	88.2
	AVG: -27	68.2
<p>NOTE:</p> <p>The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:</p> $E = \frac{1000000 \sqrt{30P}}{3} \text{ uV/m, where P is the eirp (Watts)}$ <p><b>Note:</b> For above 1000 MHz. Unwanted emissions outside of restricted bands are measured with a RMS detector. In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit.</p>		

### 7.2 Test Setup

#### Radiated measurement



#### Conducted measurement





## 7.3 Test Procedure

### ---Radiated measurement

- Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- The Peak Value and average value both need to comply with applicable limit above 1 GHz.
- Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- For the actual test configuration, please see the test setup photo.

### --- Conducted measurement

- a) Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain).
- c) Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies  $\leq 30$  MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies  $> 1000$  MHz).
- d) For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW).
- e) Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

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

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.

## 7.4 Deviation From Test Standard

No deviation

## 7.5 EUT Operating Mode

Please refer to the description of test mode.

## 7.6 Test Data

Please refer to the Attachment C.





## 8. Bandwidth Test

### 8.1 Test Standard and Limit

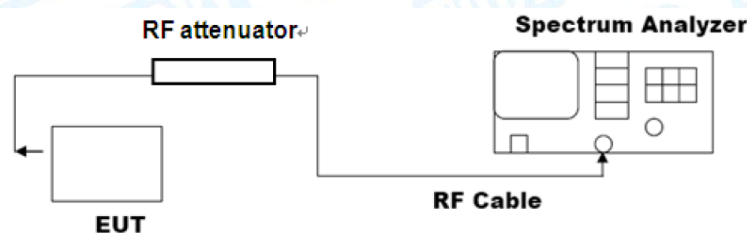
#### 8.1.1 Test Standard

##### **FCC Part 15.407(a)(10)**

#### 8.1.2 Test Limit

The maximum transmitter channel bandwidth for U-NII devices in the 5.925–7.125 GHz band is 320 MHz.

### 8.2 Test Setup



### 8.3 Test Procedure

#### ---Emission bandwidth

● The procedure for this method is as follows:

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = peak.
- Trace mode = max hold.
- 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 approximately 1%.

NOTE—The automatic bandwidth measurement capability of a spectrum analyzer or an EMI receiver may be employed if it implements the functionality described in the preceding items.





### ---DTS bandwidth

● The steps for the first option are as follows:

- a) Set RBW = 100 kHz.
- b) Set the  $VBW \geq [3 \times RBW]$ .
- c) Detector = peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- 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.

### ---occupied bandwidth

● The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $[10 \log (OBW/RBW)]$  below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

## 8.4 Deviation From Test Standard

No deviation

## 8.5 EUT Operating Mode

Please refer to the description of test mode.

## 8.6 Test Data

Please refer to the external appendix report of 6G Wi-Fi..





## 9. Maximum E.I.R.P.

### 9.1 Test Standard and Limit

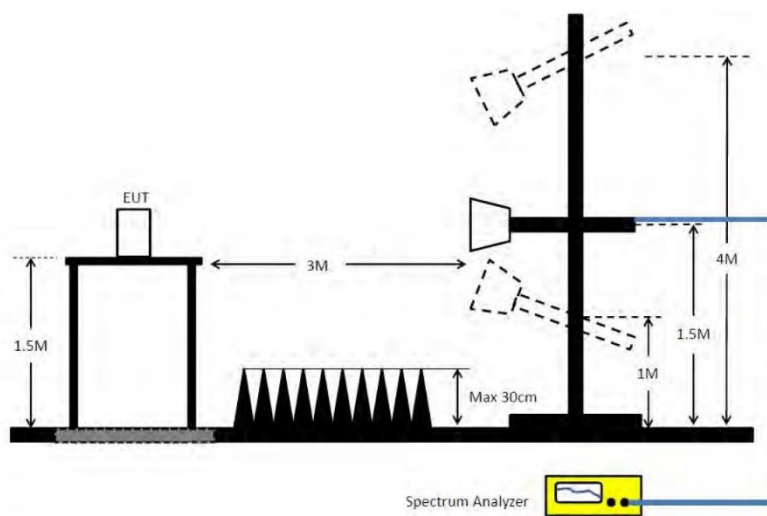
### 9.1.1 Test Standard

## FCC Part 15.407(a)

### 9.1.2 Test Limit

FCC Part 15 Subpart E(15.407) Limit			
Frequency	Device Type	e.i.r.p. spectral density	e.i.r.p.
5925-7125MHz	indoor access point	not exceed 5dBm/MHz	not exceed 30dBm
	subordinate device operating under the control of an indoor access point	not exceed -1dBm/MHz	not exceed 24dBm
5925–6425MHz and 6525–6875 MHz	client devices, except for fixed client devices	not exceed 17dBm/MHz	not exceed 30dBm; no more than 6 dB below its associated standard power
5925-7125MHz	client devices operating under the control of an indoor access point	not exceed -1dBm/MHz	not exceed 24dBm

## 9.2 Test Setup



### 9.3 Test Procedure

- For radiated measurement. Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.

## 9.4 Deviation From Test Standard

No deviation

## 9.5 EUT Operating Mode

Please refer to the description of test mode.

## 9.6 Test Data

Please refer to the external appendix report of 6G Wi-Fi...





## 10. E.I.R.P. Spectral Density Test

## 10.1 Test Standard and Limit

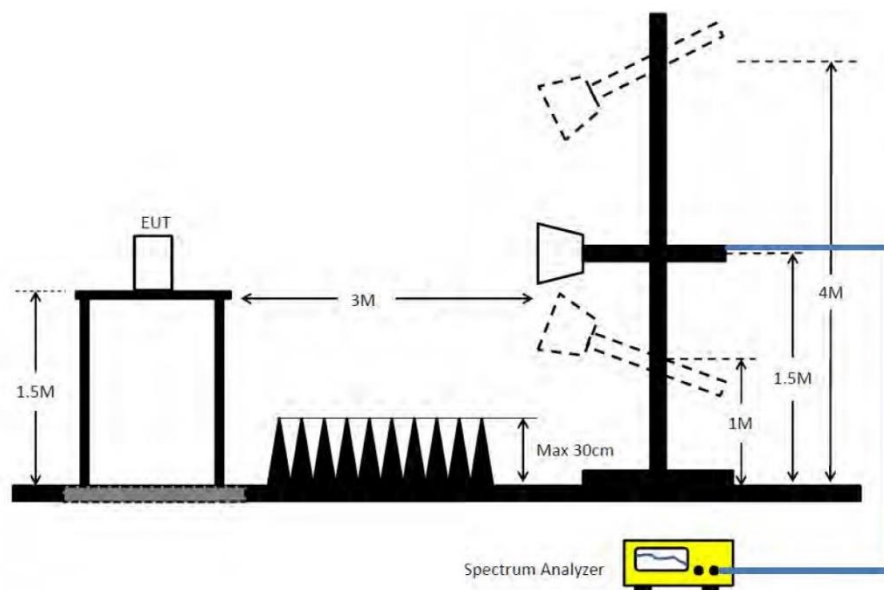
### 10.1.1 Test Standard

## FCC Part 15.407(a)

### 10.1.2 Test Limit

FCC Part 15 Subpart E(15.407) Limit			
Frequency	Device Type	e.i.r.p. spectral density	e.i.r.p.
5925-7125MHz	indoor access point	not exceed 5dBm/MHz	not exceed 30dBm
	subordinate device operating under the control of an indoor access point	not exceed -1dBm/MHz	not exceed 24dBm
5925–6425MHz and 6525–6875 MHz	client devices, except for fixed client devices	not exceed 17dBm/MHz	not exceed 30dBm; no more than 6 dB below its associated standard power
5925-7125MHz	client devices operating under the control of an indoor access point	not exceed -1dBm/MHz	not exceed 24dBm

## 10.2 Test Setup





### 10.3 Test Procedure

● Notwithstanding that some regulatory requirements refer to peak power spectral density (PPSD), in some cases the intent is to measure the maximum value of the time average of the power spectral density during a period of continuous transmission. The procedure for this method is as follows:

- a) Create an average power spectrum for the EUT operating mode being tested by following the instructions in 12.3.2 for measuring maximum conducted output power using a spectrum analyzer or EMI receiver; that is, select the appropriate test method (SA-1, SA-2, SA-3, or their respective alternatives) and apply it up to, but not including, the step labeled, "Compute power..." (This procedure is required even if the maximum conducted output power measurement was performed using the power meter method PM.)
  - b) Use the peak search function on the instrument to find the peak of the spectrum.
  - c) Make the following adjustments to the peak value of the spectrum, if applicable:
    - 1) If method SA-2 or SA-2A was used, then add  $[10 \log (1 / D)]$ , where D is the duty cycle, to the peak of the spectrum.
    - 2) If method SA-3A was used and the linear mode was used in step h) of 12.3.2.7, add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
  - d) The result is the PPSD.
  - e) The procedure in item a) through item c) requires the use of 1 MHz resolution bandwidth to satisfy the 1 MHz measurement bandwidth specified by some regulatory authorities.<sup>95</sup> This requirement also permits use of resolution bandwidths less than 1 MHz "provided that the measured power is integrated to show the total power over the measurement bandwidth" (i.e., 1 MHz). If measurements are performed using a reduced resolution bandwidth and integrated over 1 MHz bandwidth, the following adjustments to the procedures apply:
    - 1) Set  $RBW \geq 1 / T$ , where T is defined in 12.2 a).
    - 2) Set  $VBW \geq [3 * RBW]$ .
    - 3) Care shall be taken such that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.
- For radiated measurement. Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1GHz.

### 10.4 Deviation From Test Standard

No deviation

### 10.5 Antenna Connected Construction

Please refer to the description of test mode.

### 10.6 Test Data

Please refer to the external appendix report of 6G Wi-Fi...





## 11. In-Band Emission(Mask)

### 11.1 Test Standard and Limit

#### 11.1.1 Test Standard

**FCC Part 15.407(b)(6)**

#### 11.1.2 Test Limit

Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center.

At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and onehalf times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40dB suppression.

Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

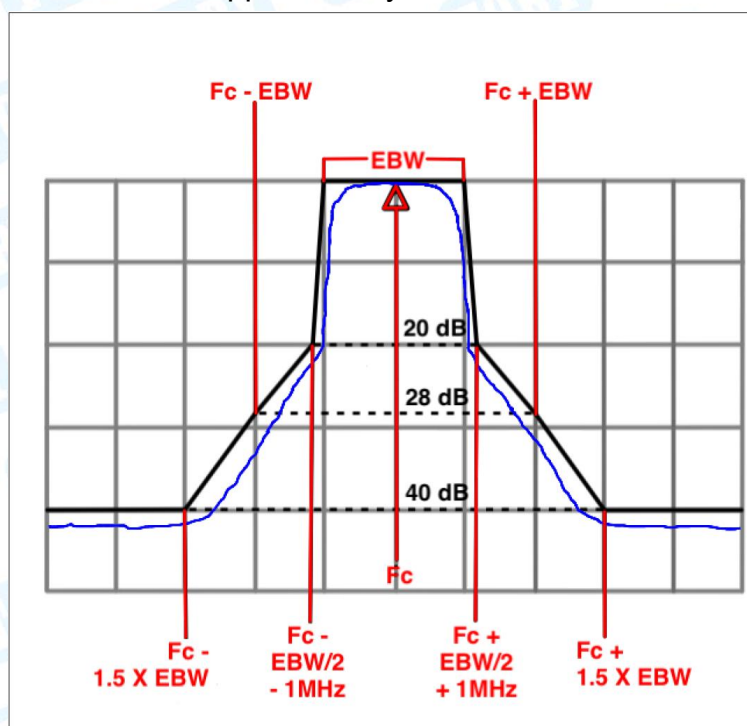
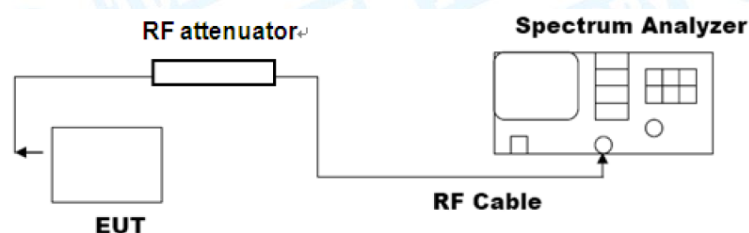


Figure 5. Generic Emission Mask

### 11.2 Test Setup





### 11.3 Test Procedure

1. Connect output of the antenna port to a spectrum analyzer or EMI receiver, with appropriate attenuation, as to not damage the instrumentation.
2. Set the reference level of the measuring equipment in accordance with procedure 4.1.5.2 of ANSI C63.10-2013.
3. Measure the 26 dB EBW using the test procedure 12.4.1 of ANSI C63.10-2013. (This will be used to determine the channel edge.)
4. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:
  - a) Set the span to encompass the entire 26 dB EBW of the signal.
  - b) Set RBW = same RBW used for 26 dB EBW measurement.
  - c) Set VBW  $\geq 3 \times$  RBW
  - d) Number of points in sweep  $\geq [2 \times \text{span} / \text{RBW}]$ .
  - e) Sweep time = auto.
  - f) Detector = RMS (i.e., power averaging)
  - g) Trace average at least 100 traces in power averaging (rms) mode.
  - h) Use the peak search function on the instrument to find the peak of the spectrum.
5. For the purposes of developing the emission mask, the channel bandwidth is defined as the 26 dB EBW.
6. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
  - a. Suppressed by 20 dB at 1 MHz outside of the channel edge. (The channel edge is defined as the 26-dB point on either side of the carrier center frequency.)
  - b. Suppressed by 28 dB at one channel bandwidth from the channel center.
  - c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.
7. Adjust the span to encompass the entire mask as necessary.
8. Clear trace.
9. Trace average at least 100 traces in power averaging (rms) mode.
10. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

### 11.4 Deviation From Test Standard

No deviation

### 11.5 Antenna Connected Construction

Please refer to the description of test mode.

### 11.6 Test Data

Please refer to the external appendix report of 6G Wi-Fi..





## 12. Contention-based Protocol

### 12.1 Test Standard and Limit

#### 12.1.1 Test Standard

##### FCC Part 15.407(d)(6)

#### 12.1.2 Test Limit

EUT can detect an AWGN signal with 90% (or better) level of certainty.

### 12.2 Test Setup

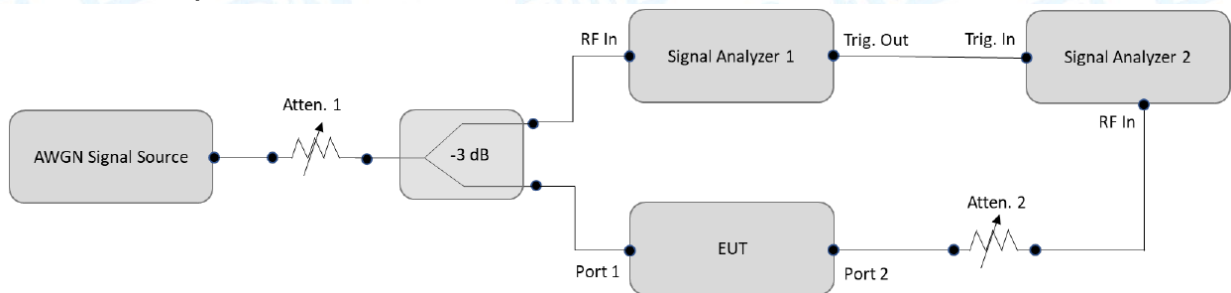


Figure 2. Contention-based protocol test setup, conducted method Step-by-Step Procedure, Conducted Setup

### 12.3 Test Procedure

To ensure the EUT is capable of detecting co-channel energy, the first step is to configure the EUT to transmit with a constant duty cycle. To simulate an incumbent signal, a signal generator (or similar source) that is capable of generating band-limited additive white Gaussian noise (AWGN) is required. Depending on the EUT antenna configuration, the AWGN signal can be provided to the EUT receiver via a conducted method (Figure 2) or a radiated method (Figure 3). Figure 2 shows the conducted test setup where a band-limited AWGN signal is generated at a very low power level and injected into the EUT's antenna port. The AWGN signal power level is then incrementally increased while the EUT transmission is monitored on a signal analyzer 2 to verify if the EUT can sense the AWGN signal and can subsequently cease its transmission. A triggered measurement, as shown in Figure 2, is optional, and assists with determining the time it takes the EUT to cease transmission (or vacate the channel) upon detecting RF energy. If the EUT has only one antenna port, then an AWGN signal source can be connected to the same antenna port.

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2, as shown in Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
4. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
5. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
6. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
7. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the





EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.

9. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.

10. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

## 12.4 Deviation From Test Standard

No deviation

## 12.5 Antenna Connected Construction

Please refer to the description of test mode.

## 12.6 Test Data

Please refer to the external appendix report of 6G Wi-Fi..





## 13. Frequency Stability

### 13.1 Test Standard and Limit

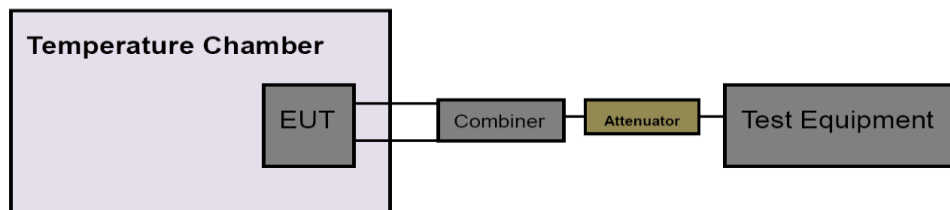
#### 13.1.1 Test Standard

##### **FCC Part 15.407(g)**

#### 13.1.2 Test 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.

### 13.2 Test Setup



### 13.3 Test Procedure

#### **Frequency stability with respect to ambient temperature**

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.

b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.

NOTE—An instrument that has an adequate level of accuracy as specified by the procuring or regulatory agency is the recommended measuring instrument.

c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.

e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.

f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

g) Measure the frequency at each of frequencies specified in 5.6.

h) Switch OFF the EUT but do not switch OFF the oscillator heater.

i) Lower the chamber temperature by not more than 10°C, and allow the temperature inside the chamber to stabilize.

j) Repeat step f) through step i) down to the lowest specified temperature.





**Frequency stability when varying supply voltage**

Unless otherwise specified, these tests shall be made at ambient room temperature (+15°C to +25°C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.

NOTE—An instrument that has an adequate level of accuracy as specified by the procuring or regulatory agency is the recommended measuring instrument.

b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

c) Measure the frequency at each of the frequencies specified in 5.6.

d) Repeat the above procedure at 85% and 115% of the nominal supply voltage as described in 5.13.

**13.4 Deviation From Test Standard**

No deviation

**13.5 Antenna Connected Construction**

Please refer to the description of test mode.

**13.6 Test Data**

Please refer to the external appendix report of 6G Wi-Fi...





## 14. Operational restrictions for 6GHz U-NII devices

### 14.1 Test Standard and Limit

#### 14.1.1 Test Standard

##### **FCC Part 15.407(d)**

#### 14.1.2 Test Limit

##### **For FCC:**

- (1) Operation of indoor access points / subordinate modes in the 5.925-7.125 GHz band is prohibited on oil platforms, cars, trains, boats, and aircraft, except that indoor access points / subordinate modes are permitted to operate in the 5.925-6.425 GHz bands in large aircraft while flying above 10,000 feet.
- (2) Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.
- (3) Transmitters operating under indoor access point / subordinate modes is limited to indoor locations.
- (4) In the 5.925-7.125 GHz band, indoor access points / subordinate modes must bear the following statement in a conspicuous location on the device and in the user's manual: FCC regulations restrict operation of this device to indoor use only. The operation of this device is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.
- (5) In the 5.925-7.125 GHz band, Access points may connect to other access points or subordinate devices.
- (6) Indoor access points / subordinate modes operating in the 5.925-7.125 GHz band must employ a contention-based protocol.

### 14.2 Deviation From Test Standard

No deviation

### 14.3 Antenna Connected Construction

Please refer to the description of test mode.

### 14.4 Test Data

Device is an indoor access point, / subordinate modes all restrictions are meet the FCC 15.407 (d).





## 15. Antenna Requirement

### 15.1 Test Standard and Limit

#### 15.1.1 Test Standard

##### **FCC Part 15.203**

#### 15.1.2 Requirement

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 15.2 Deviation From Test Standard

No deviation

### 15.3 Antenna Connected Construction

The gains of the antenna used for transmitting is 6.34dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

### 15.4 Test Data

The EUT antenna is a Dipole Antenna. It complies with the standard requirement.

Antenna Type
<input type="checkbox"/> Permanent attached antenna
<input checked="" type="checkbox"/> Unique connector antenna
<input type="checkbox"/> Professional installation antenna





## Attachment A-- Conducted Emission Test Data

<b>Test Voltage:</b>		AC 120V 60Hz					
<b>Terminal:</b>		Line					
<b>Test Mode:</b>		Mode 1					
<b>Remark:</b>		Only worse case is reported.					

The graph displays conducted emission test results. The y-axis represents power spectral density in dBuV, ranging from -10 to 90.0. The x-axis represents frequency in MHz, ranging from 0.150 to 30.000. Two limit lines are shown: a red line for '(CE)FCC PART 15C\_QP' and a green line for '(CE)FCC PART 15C\_AVG'. The test results are shown as a blue line for 'peak' and a green line for 'AVG'. Twelve specific measurement points are marked with numbers 1 through 12. The peak line generally stays below the QP limit, while the average line stays below the AVG limit.

Temperature: 23.5 °C      Humidity: 49 %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.440	32.15	9.94	42.09	57.06	-14.97	QP
2		0.440	16.06	9.94	26.00	47.06	-21.06	AVG
3		1.111	20.36	9.89	30.25	56.00	-25.75	QP
4		1.111	8.93	9.89	18.82	46.00	-27.18	AVG
5		1.839	20.01	9.94	29.95	56.00	-26.05	QP
6		1.839	8.48	9.94	18.42	46.00	-27.58	AVG
7		3.881	21.99	10.05	32.04	56.00	-23.96	QP
8		3.881	7.99	10.05	18.04	46.00	-27.96	AVG
9		5.961	23.29	10.59	33.88	60.00	-26.12	QP
10		5.961	9.75	10.59	20.34	50.00	-29.66	AVG
11		23.263	24.60	10.79	35.39	60.00	-24.61	QP
12		23.263	10.52	10.79	21.31	50.00	-28.69	AVG

**Remark:**

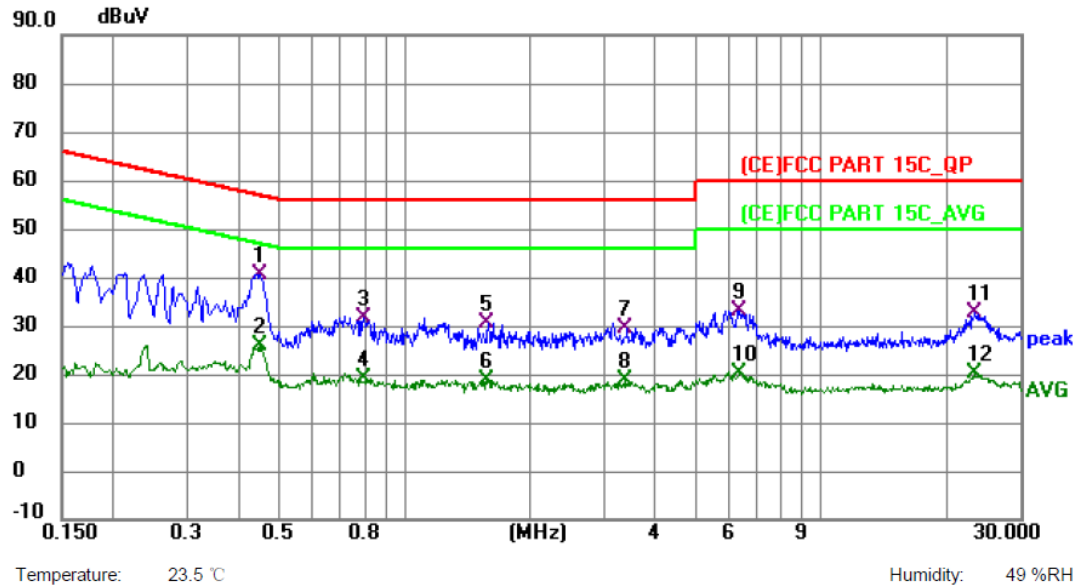
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)

2. Margin (dB) = QuasiPeak/Average (dBuV)-Limit (dBuV)





Test Voltage:	AC 120V 60Hz
Terminal:	Neutral
Test Mode:	Mode 1
Remark:	Only worse case is reported.



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dBuV	dB	
1	*	0.449	30.51	9.93	40.44	56.89	-16.45	QP
2		0.449	15.91	9.93	25.84	46.89	-21.05	AVG
3		0.796	21.87	9.88	31.75	56.00	-24.25	QP
4		0.796	9.25	9.88	19.13	46.00	-26.87	AVG
5		1.577	20.52	9.92	30.44	56.00	-25.56	QP
6		1.577	8.98	9.92	18.90	46.00	-27.10	AVG
7		3.381	19.52	10.01	29.53	56.00	-26.47	QP
8		3.381	8.58	10.01	18.59	46.00	-27.41	AVG
9		6.319	22.63	10.47	33.10	60.00	-26.90	QP
10		6.319	9.66	10.47	20.13	50.00	-29.87	AVG
11		23.263	21.76	10.79	32.55	60.00	-27.45	QP
12		23.263	9.25	10.79	20.04	50.00	-29.96	AVG

**Remark:**

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = QuasiPeak/Average (dBuV) - Limit (dBuV)





## Attachment B--Unwanted Emissions Data

### ---Radiated Unwanted Emissions

#### 9 KHz~30 MHz

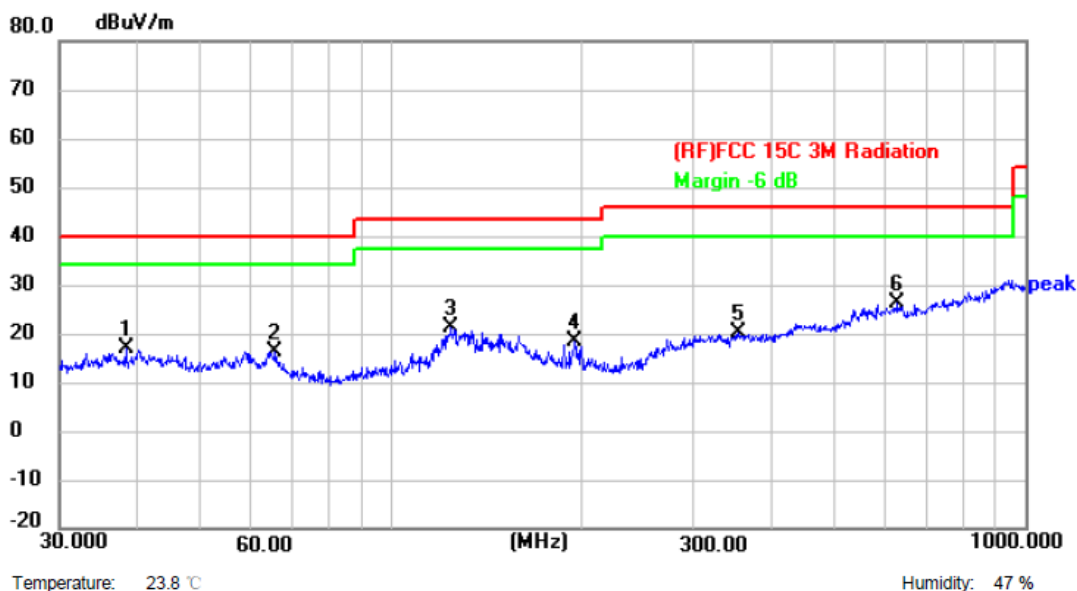
From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB

Below the permissible value has no need to be reported.

#### 30MHz~1GHz

<b>Test Voltage:</b>	AC 120V 60Hz
<b>Ant. Pol.</b>	Horizontal
<b>Test Mode:</b>	Mode 2
<b>Remark:</b>	Only worse case is reported.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	38.2212	40.88	-23.90	16.98	40.00	-23.02	peak	P
2	65.6240	41.18	-24.91	16.27	40.00	-23.73	peak	P
3	124.3095	45.08	-23.78	21.30	43.50	-22.20	peak	P
4	194.8175	42.60	-24.38	18.22	43.50	-25.28	peak	P
5	352.5756	40.00	-19.75	20.25	46.00	-25.75	peak	P
6 *	629.1856	39.55	-13.46	26.09	46.00	-19.91	peak	P

#### Remark:

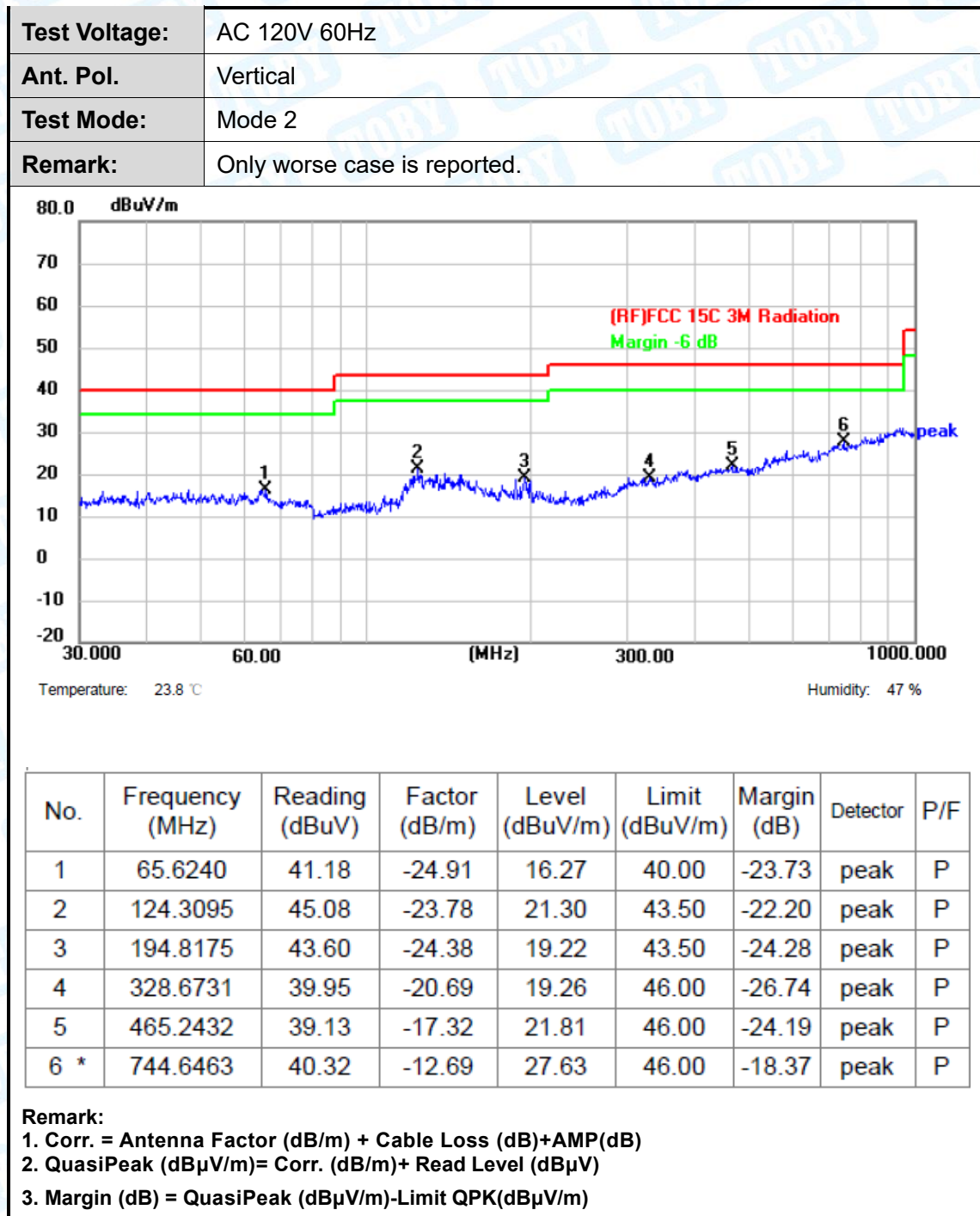
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)

2. QuasiPeak (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

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





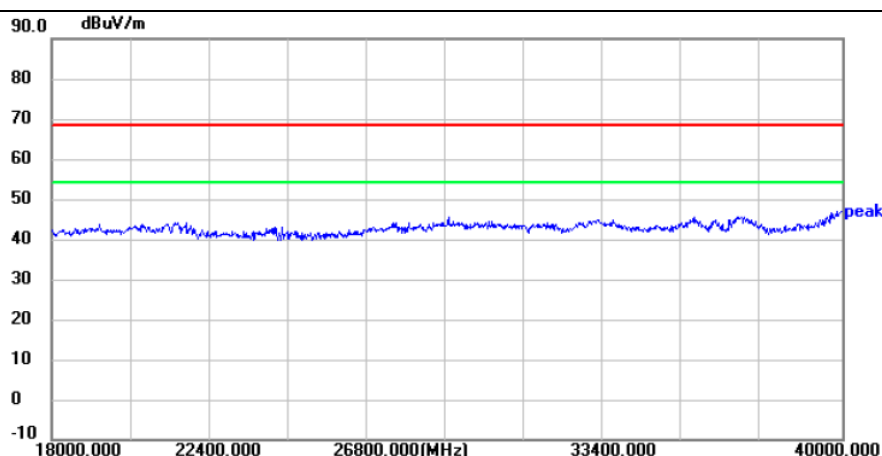
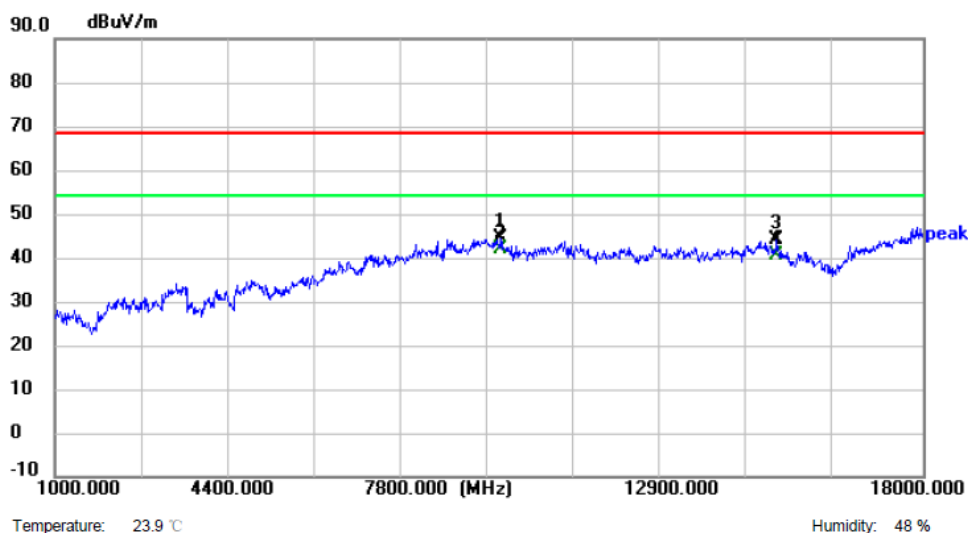




## Above 1GHz

Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 5955MHz -U-NII-5		

### Horizontal



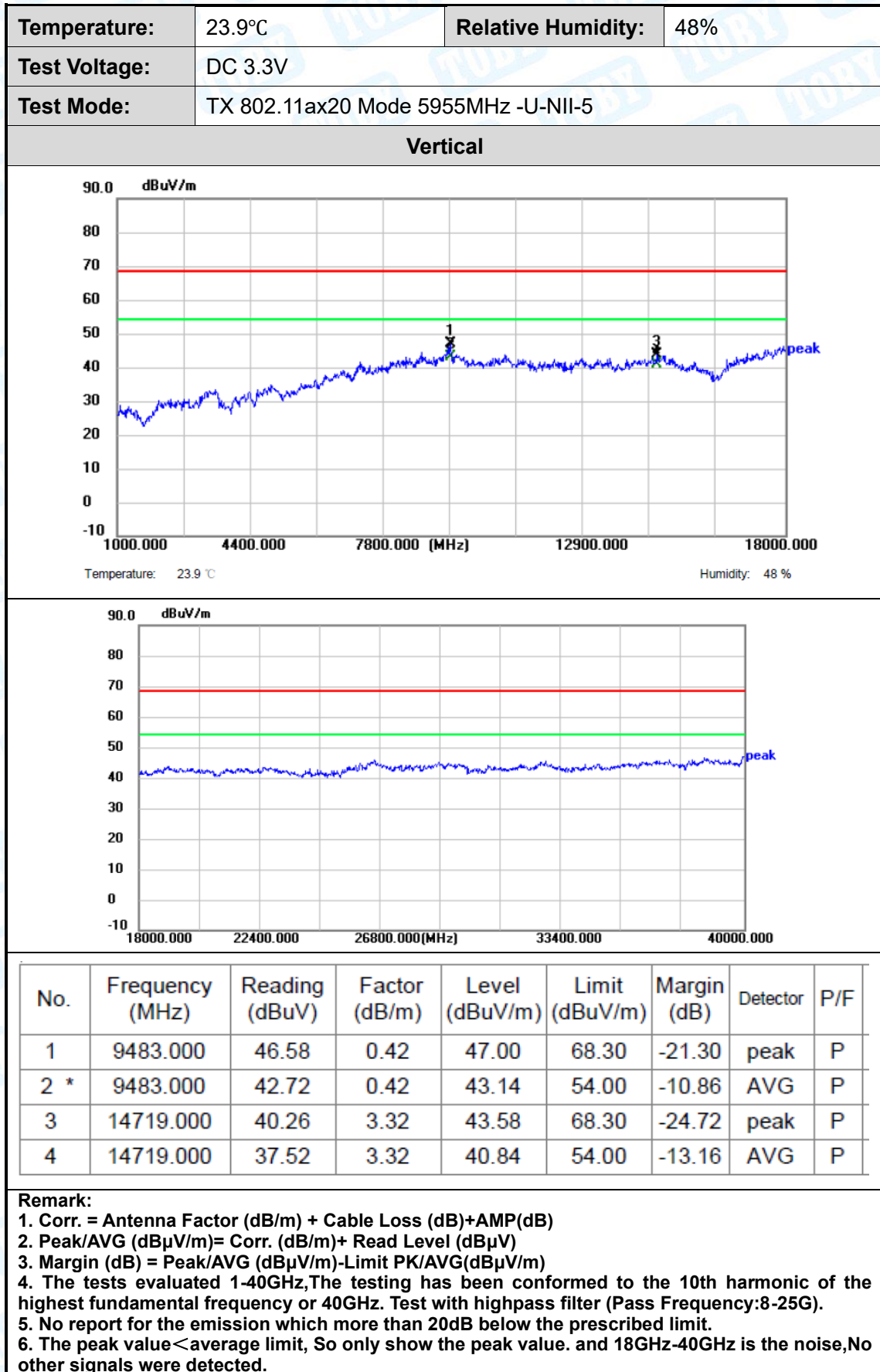
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9738.000	45.27	-0.80	44.47	68.30	-23.83	peak	P
2 *	9738.000	42.78	-0.80	41.98	54.00	-12.02	AVG	P
3	15144.000	40.09	3.86	43.95	68.30	-24.35	peak	P
4	15144.000	36.51	3.86	40.37	54.00	-13.63	AVG	P

#### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.



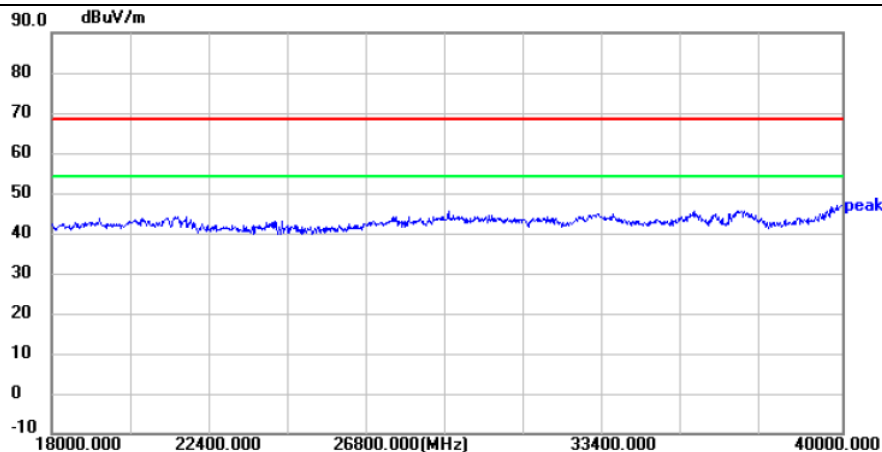
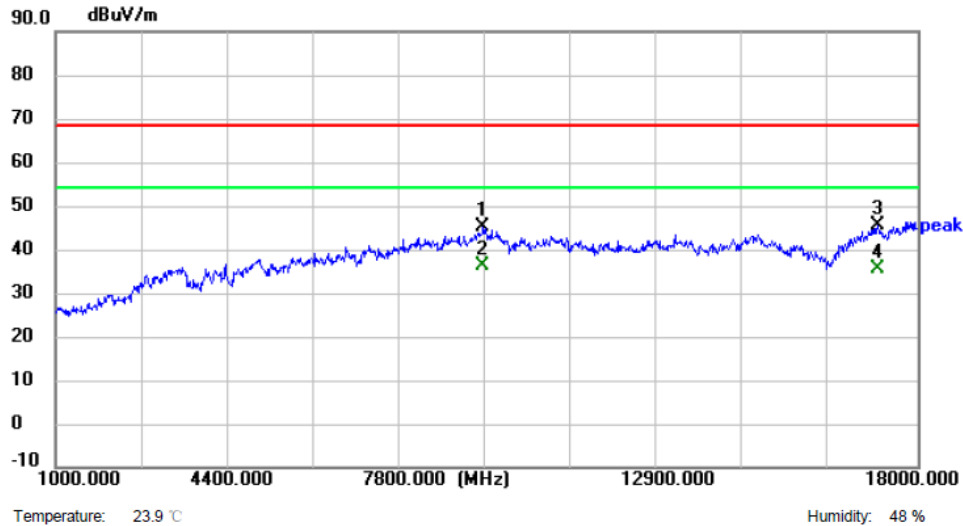






Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6175MHz -U-NII-5		

#### Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9432.000	45.17	0.02	45.19	68.30	-23.11	peak	P
2 *	9432.000	36.20	0.02	36.22	54.00	-17.78	AVG	P
3	17218.000	39.12	6.38	45.50	68.30	-22.80	peak	P
4	17218.000	29.12	6.38	35.50	54.00	-18.50	AVG	P

#### Remark:

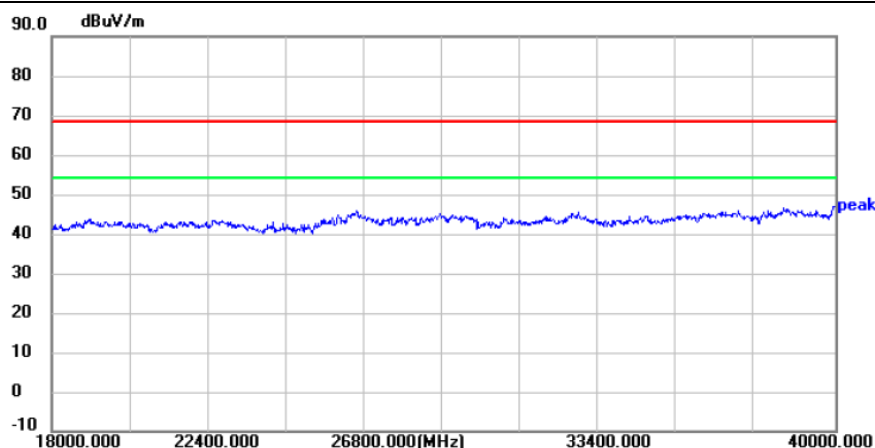
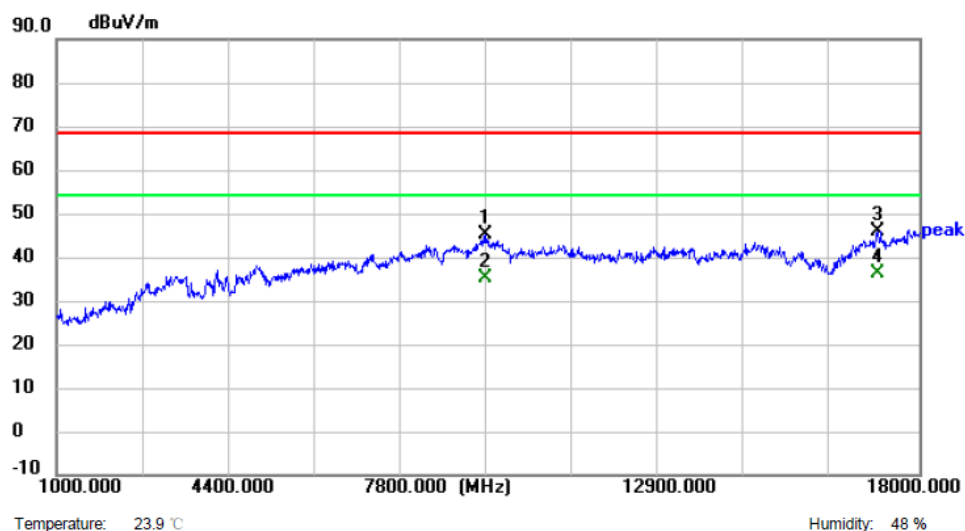
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise,No other signals were detected.





Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6175MHz -U-NII-5		

**Vertical**



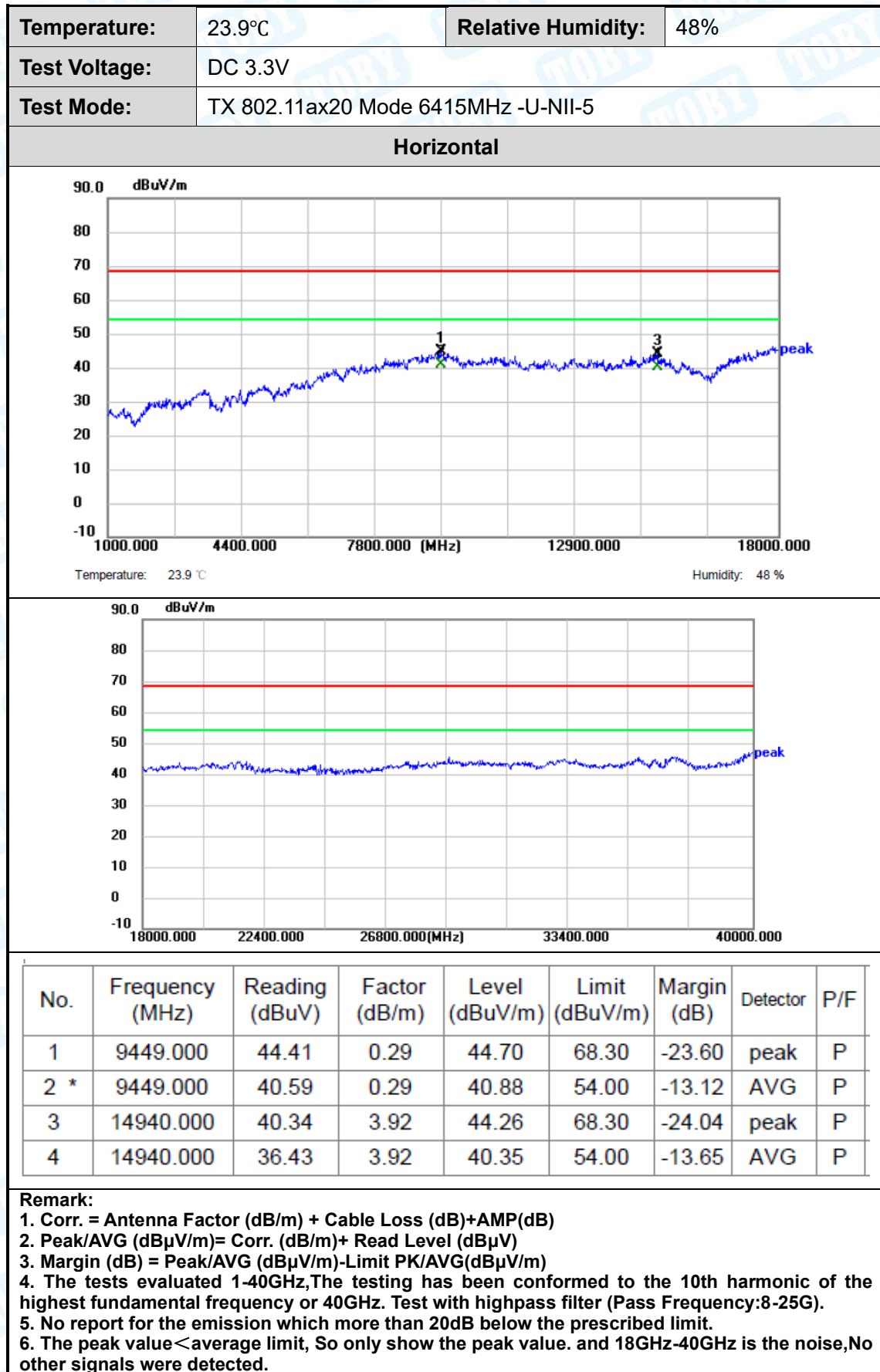
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9466.000	44.78	0.35	45.13	68.30	-23.17	peak	P
2	9466.000	34.90	0.35	35.25	54.00	-18.75	AVG	P
3	17201.000	39.31	6.43	45.74	68.30	-22.56	peak	P
4 *	17201.000	29.65	6.43	36.08	54.00	-17.92	AVG	P

**Remark:**

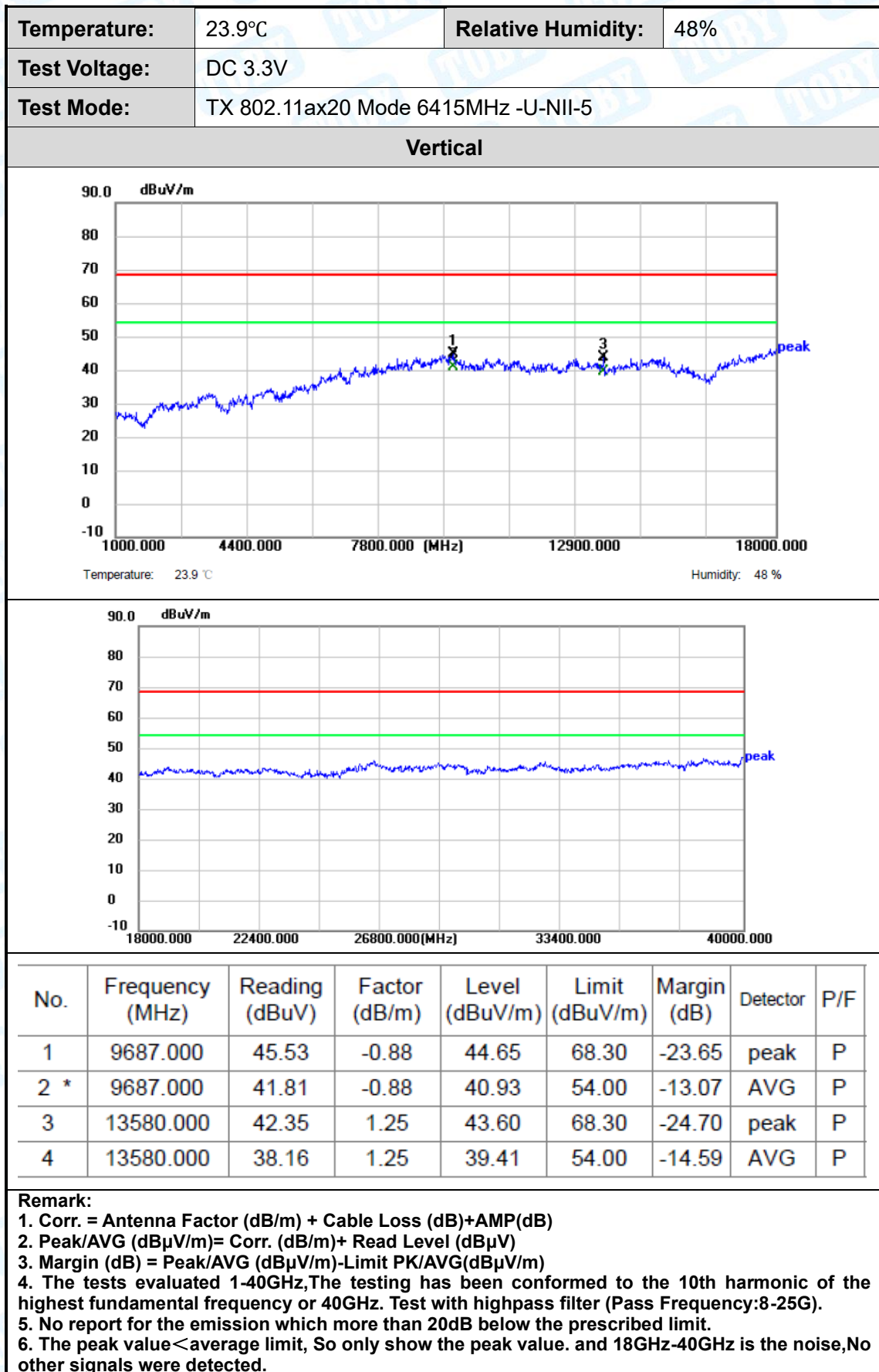
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.







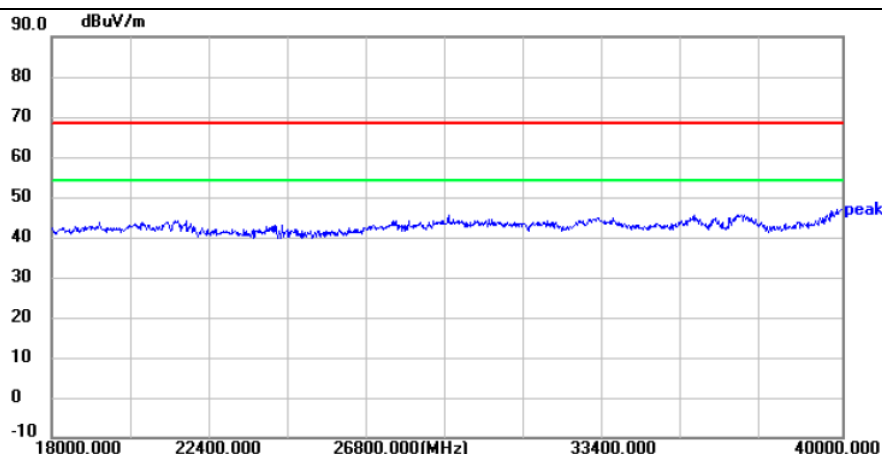
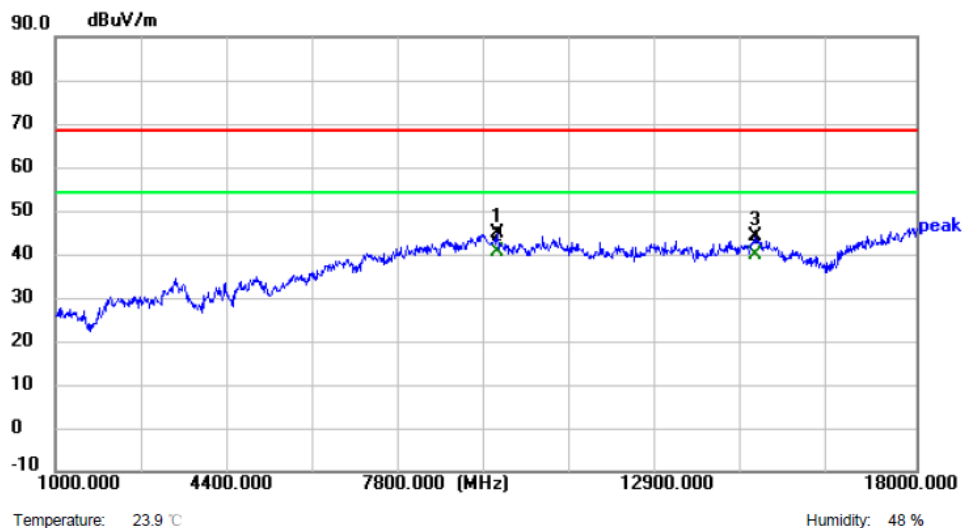






Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6435MHz -U-NII-6		

### Horizontal



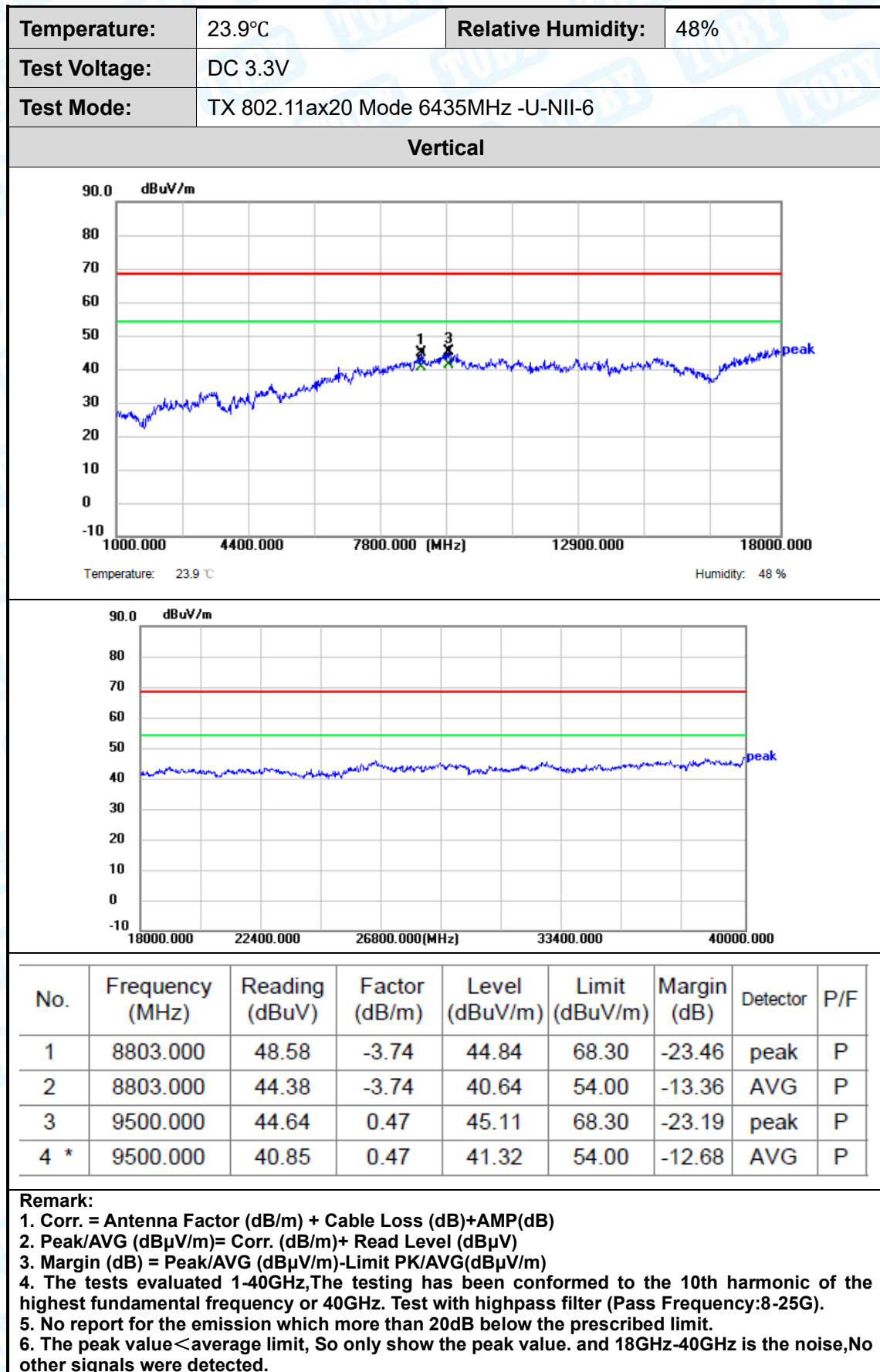
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9721.000	45.54	-0.83	44.71	68.30	-23.59	peak	P
2 *	9721.000	41.35	-0.83	40.52	54.00	-13.48	AVG	P
3	14838.000	39.92	4.04	43.96	68.30	-24.34	peak	P
4	14838.000	35.85	4.04	39.89	54.00	-14.11	AVG	P

#### Remark:

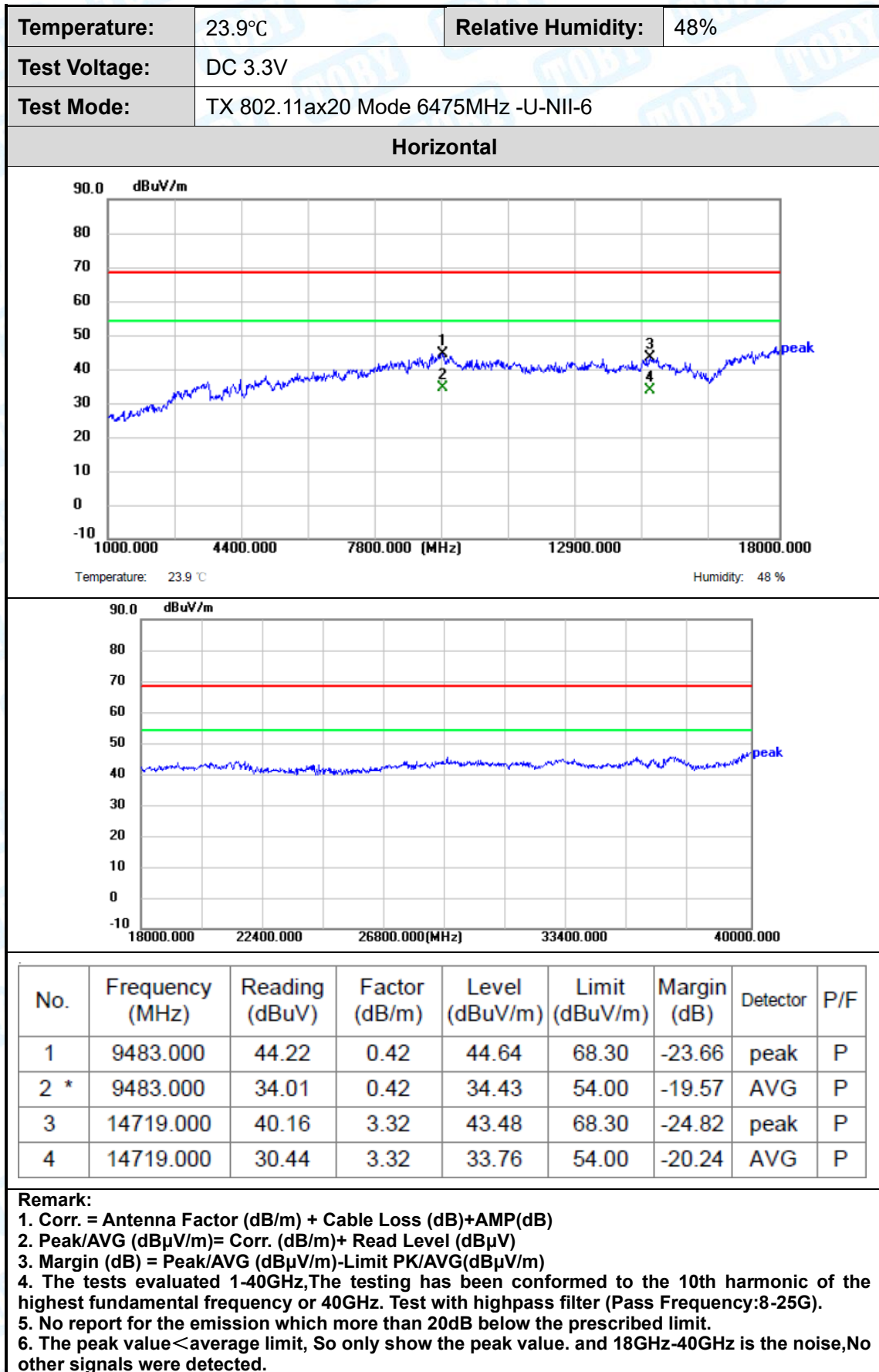
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise,No other signals were detected.







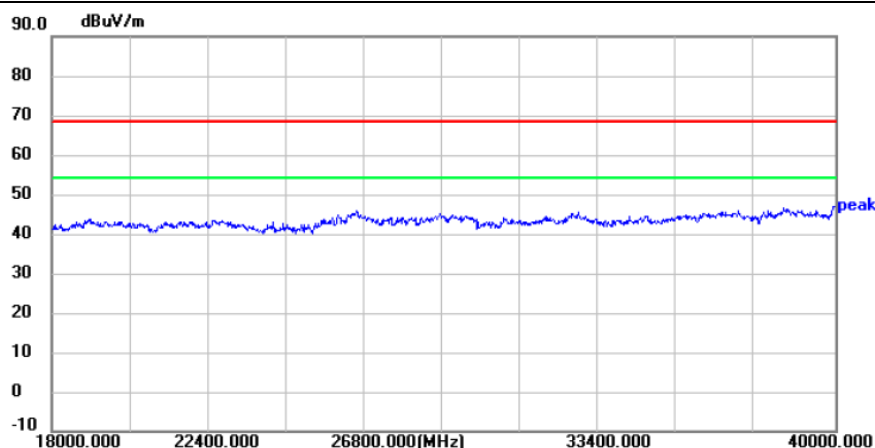
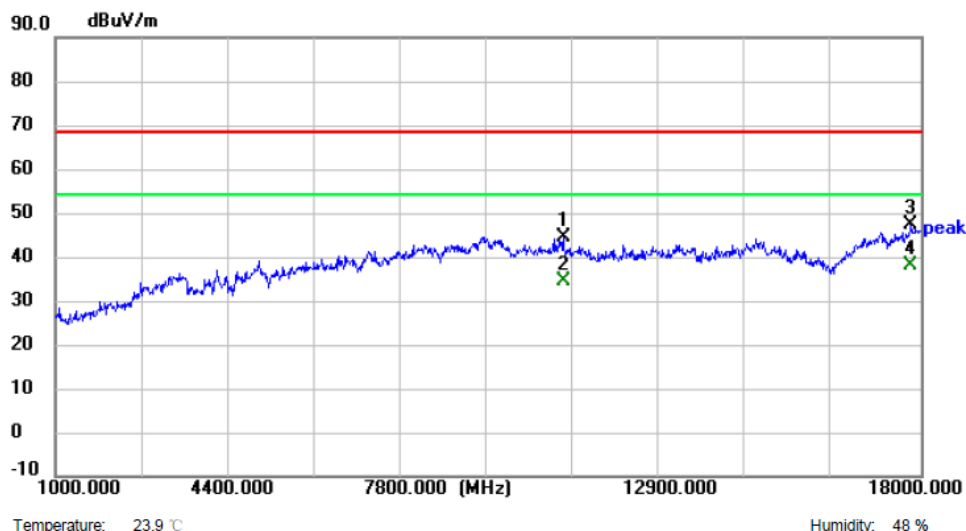






Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6475MHz -U-NII-6		

**Vertical**



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	10979.000	44.90	-0.32	44.58	68.30	-23.72	peak	P
2	10979.000	34.61	-0.32	34.29	54.00	-19.71	AVG	P
3	17813.000	38.57	8.61	47.18	68.30	-21.12	peak	P
4 *	17813.000	29.25	8.61	37.86	54.00	-16.14	AVG	P

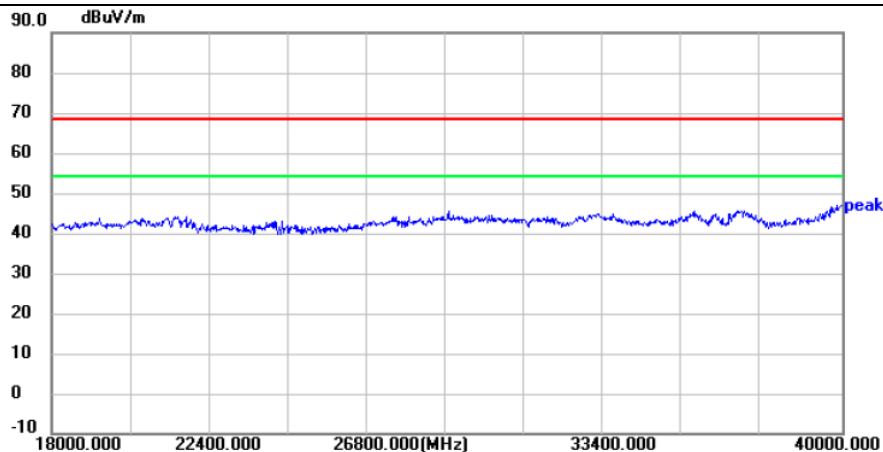
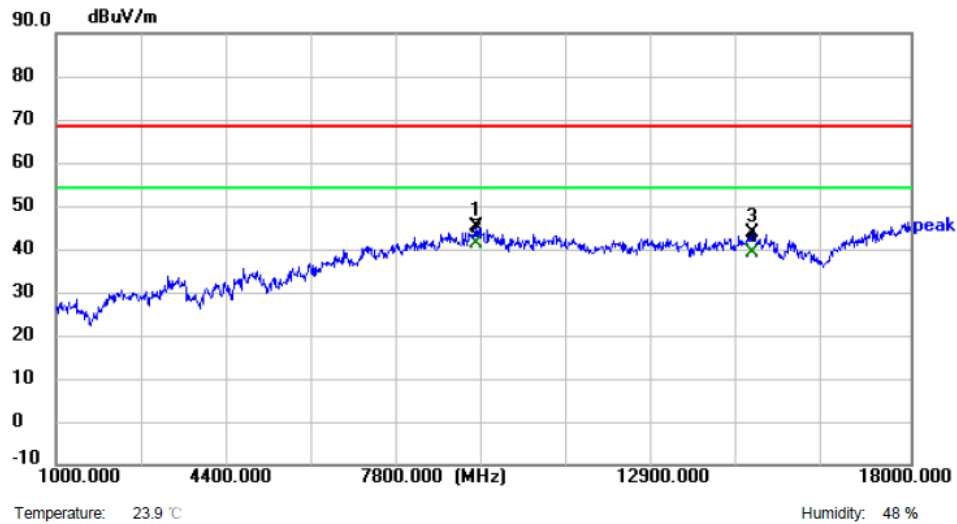
**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.



Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6515MHz -U-NII-6		

#### Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9347.000	45.93	-0.74	45.19	68.30	-23.11	peak	P
2 *	9347.000	42.01	-0.74	41.27	54.00	-12.73	AVG	P
3	14855.000	39.52	4.08	43.60	68.30	-24.70	peak	P
4	14855.000	35.20	4.08	39.28	54.00	-14.72	AVG	P

#### Remark:

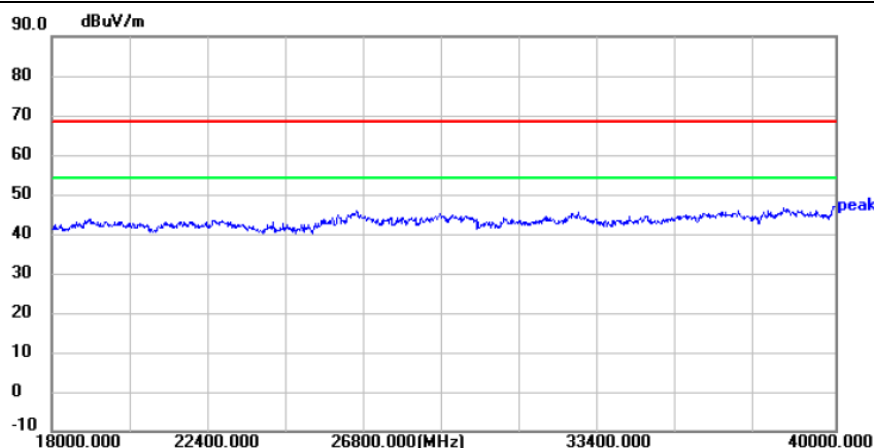
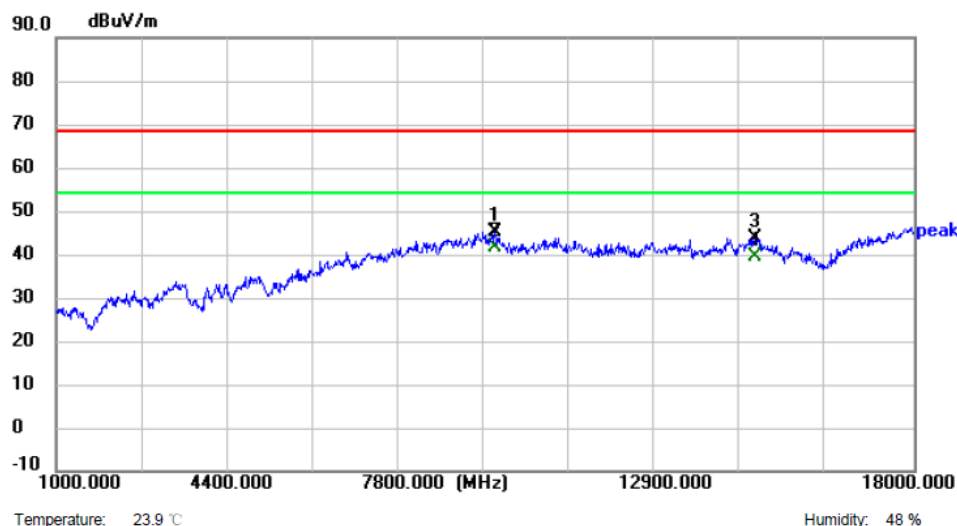
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise,No other signals were detected.





Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6515MHz -U-NII-6		

### Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9687.000	46.12	-0.88	45.24	68.30	-23.06	peak	P
2 *	9687.000	42.31	-0.88	41.43	54.00	-12.57	AVG	P
3	14855.000	39.60	4.08	43.68	68.30	-24.62	peak	P
4	14855.000	35.48	4.08	39.56	54.00	-14.44	AVG	P

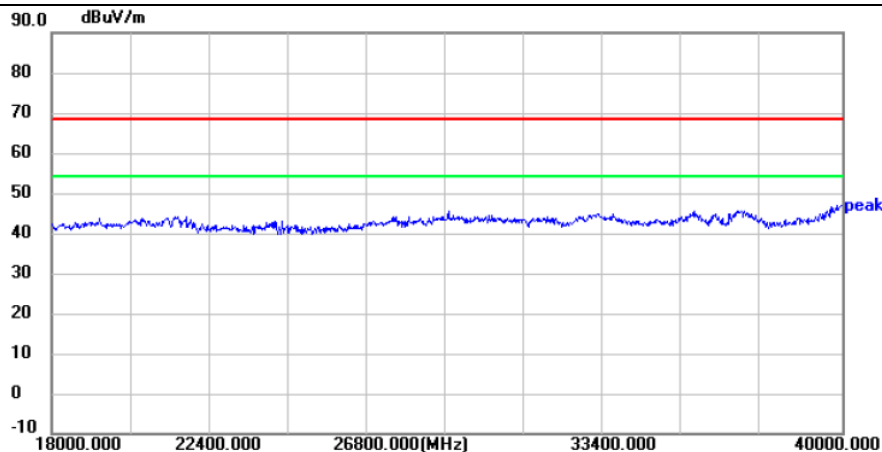
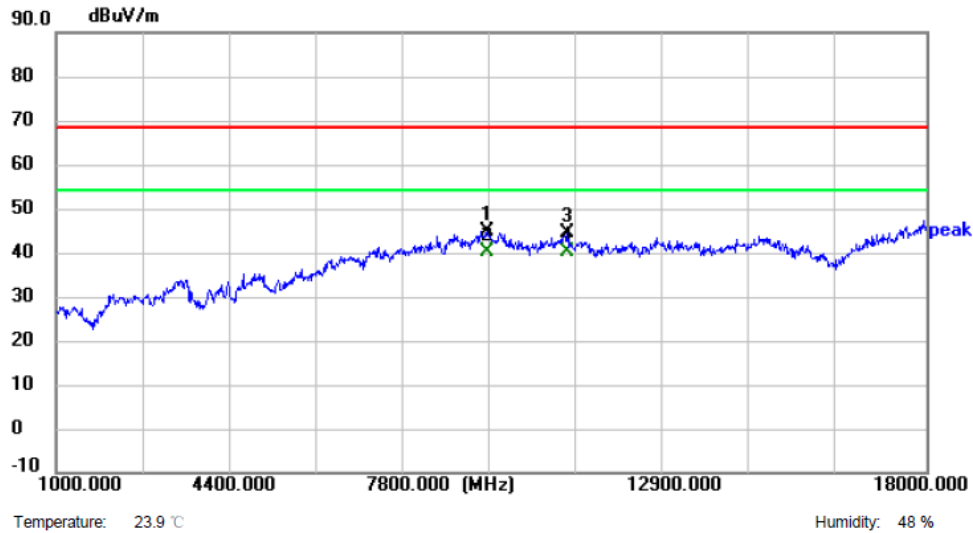
#### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.



Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6535MHz -U-NII-7		

#### Horizontal



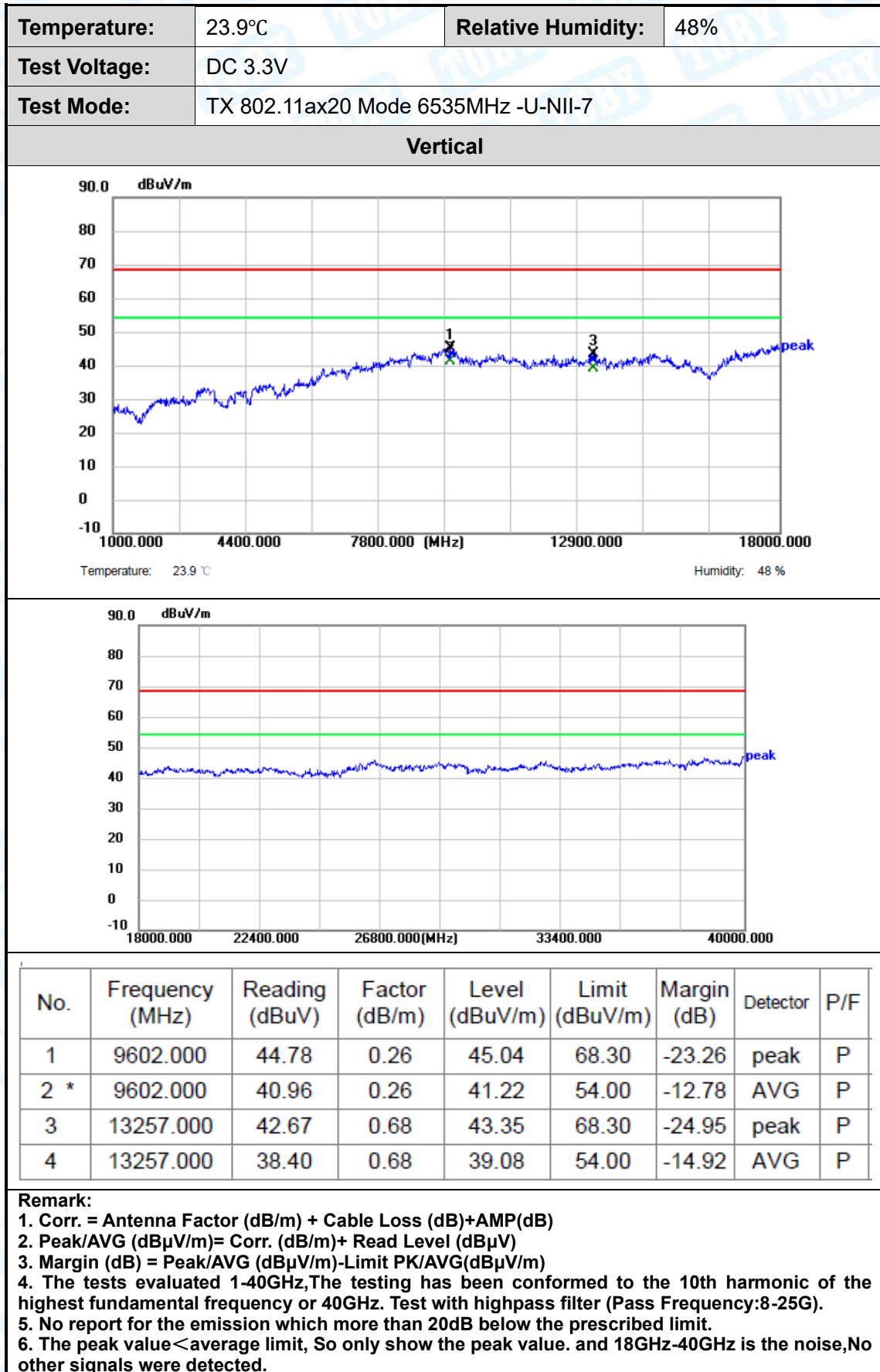
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9432.000	44.88	0.02	44.90	68.30	-23.40	peak	P
2	9432.000	40.06	0.02	40.08	54.00	-13.92	AVG	P
3	10996.000	44.72	-0.26	44.46	68.30	-23.84	peak	P
4 *	10996.000	40.45	-0.26	40.19	54.00	-13.81	AVG	P

#### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise,No other signals were detected.

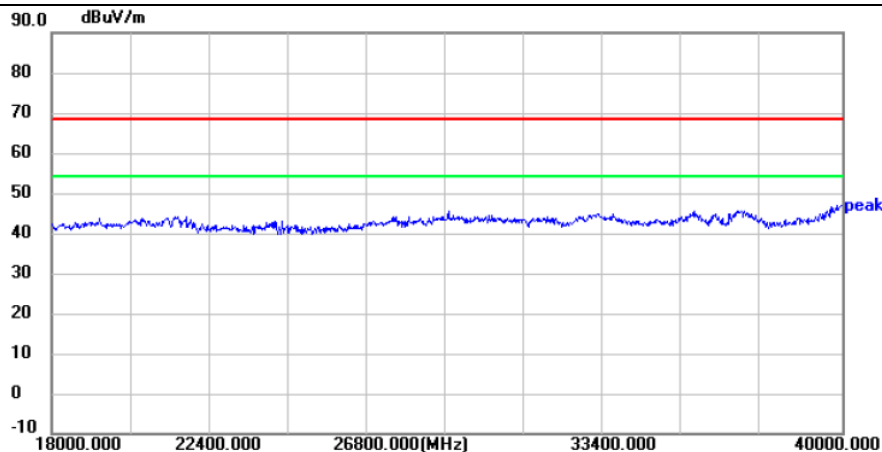
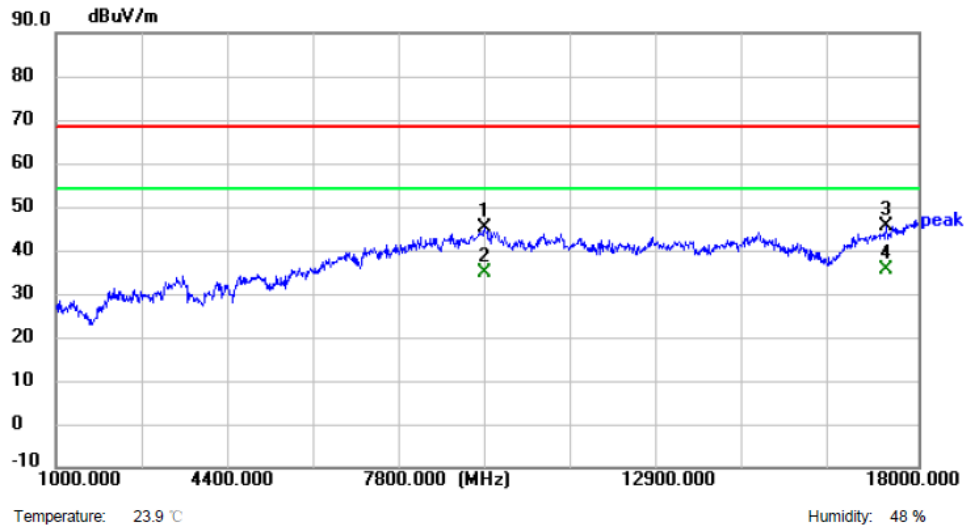






Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6695MHz -U-NII-7		

### Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9449.000	44.74	0.29	45.03	68.30	-23.27	peak	P
2	9449.000	34.55	0.29	34.84	54.00	-19.16	AVG	P
3	17371.000	39.53	6.16	45.69	68.30	-22.61	peak	P
4 *	17371.000	29.35	6.16	35.51	54.00	-18.49	AVG	P

#### Remark:

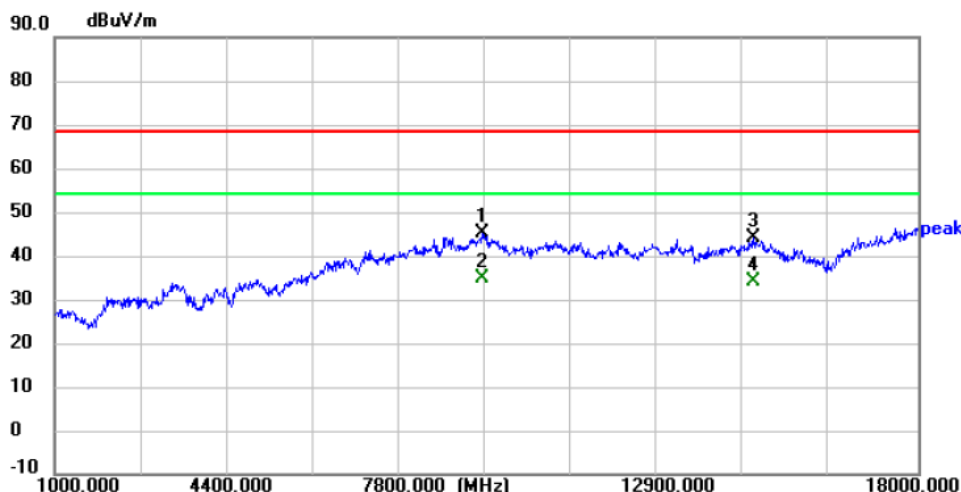
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise,No other signals were detected.





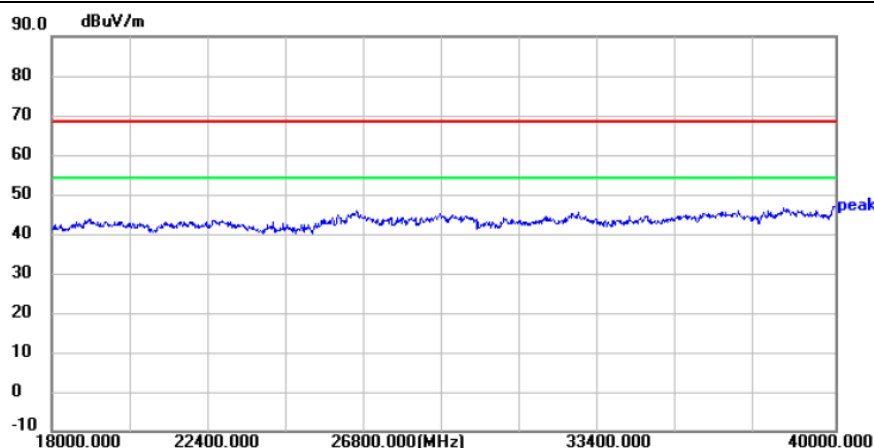
Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6695MHz -U-NII-7		

### Vertical



Temperature: 23.9 °C

Humidity: 48 %

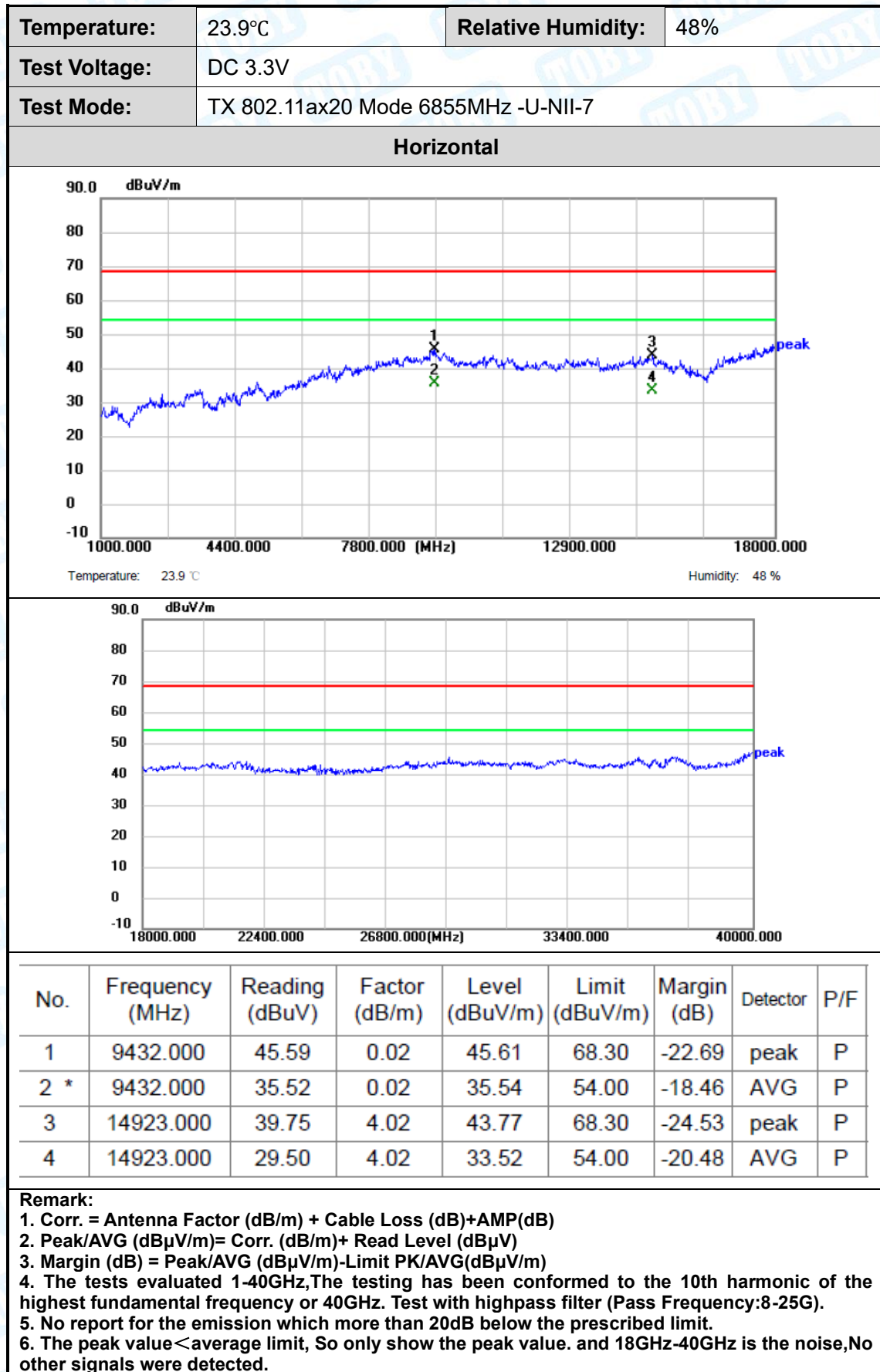


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9415.000	45.28	-0.24	45.04	68.30	-23.26	peak	P
2 *	9415.000	35.11	-0.24	34.87	54.00	-19.13	AVG	P
3	14753.000	40.42	3.59	44.01	68.30	-24.29	peak	P
4	14753.000	30.34	3.59	33.93	54.00	-20.07	AVG	P

#### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.

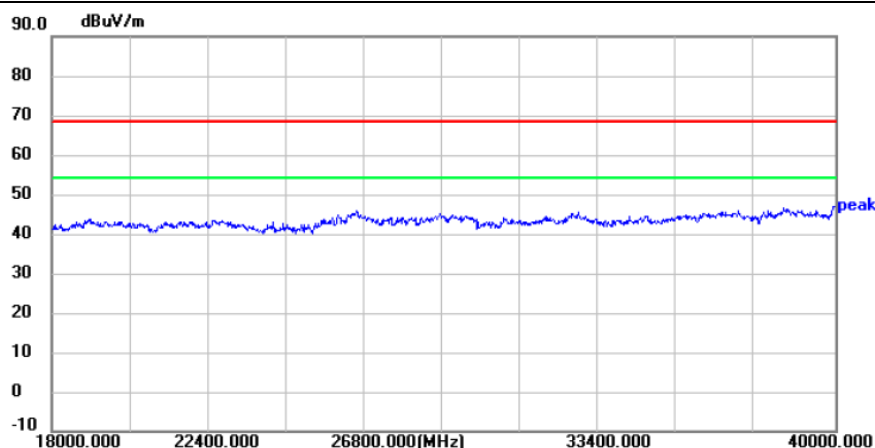
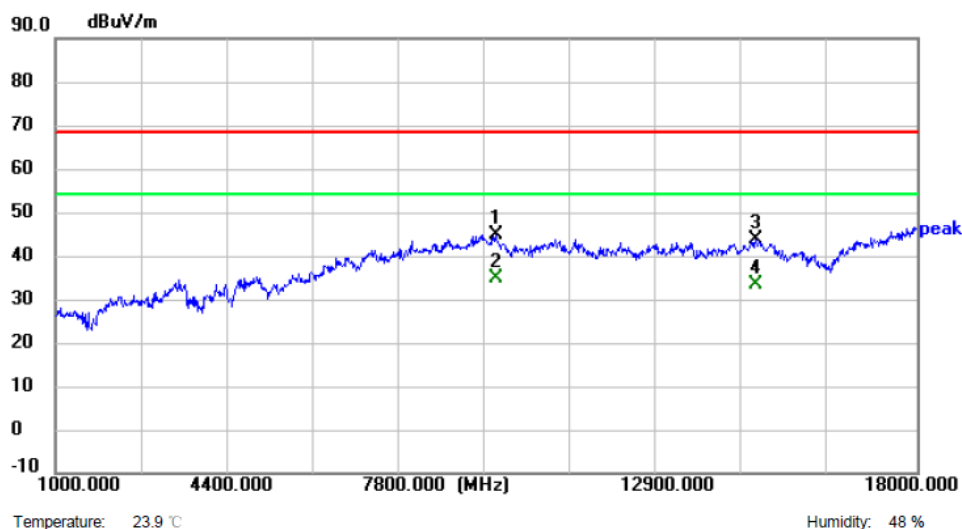






Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6855MHz -U-NII-7		

**Vertical**



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9687.000	45.70	-0.88	44.82	68.30	-23.48	peak	P
2 *	9687.000	35.61	-0.88	34.73	54.00	-19.27	AVG	P
3	14838.000	39.67	4.04	43.71	68.30	-24.59	peak	P
4	14838.000	29.44	4.04	33.48	54.00	-20.52	AVG	P

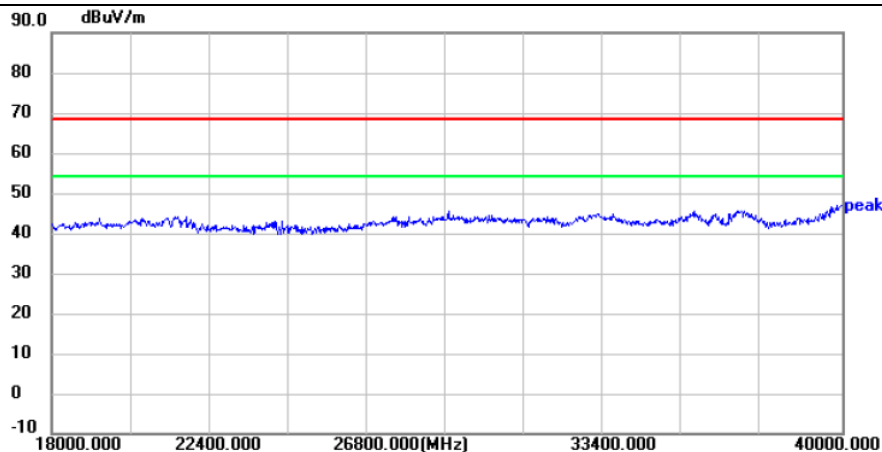
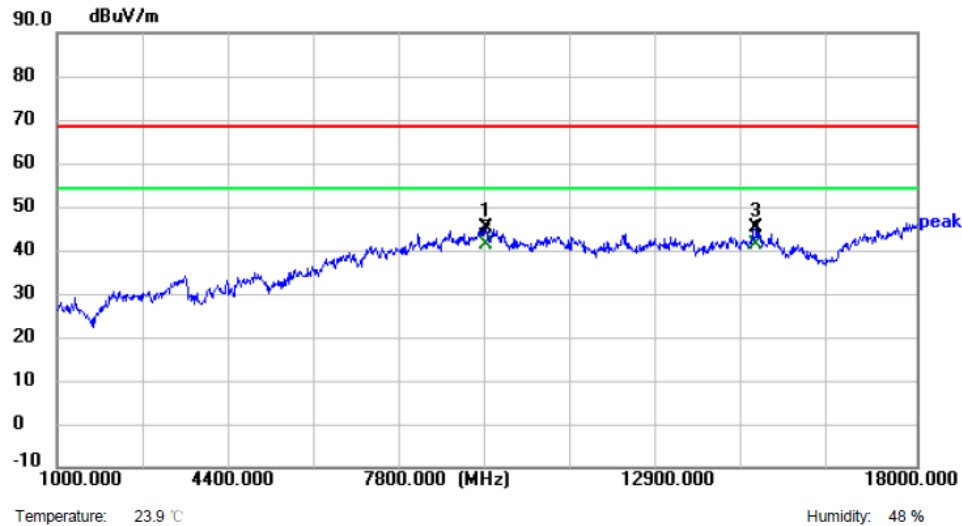
**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.



Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6875MHz -U-NII-7		

#### Horizontal



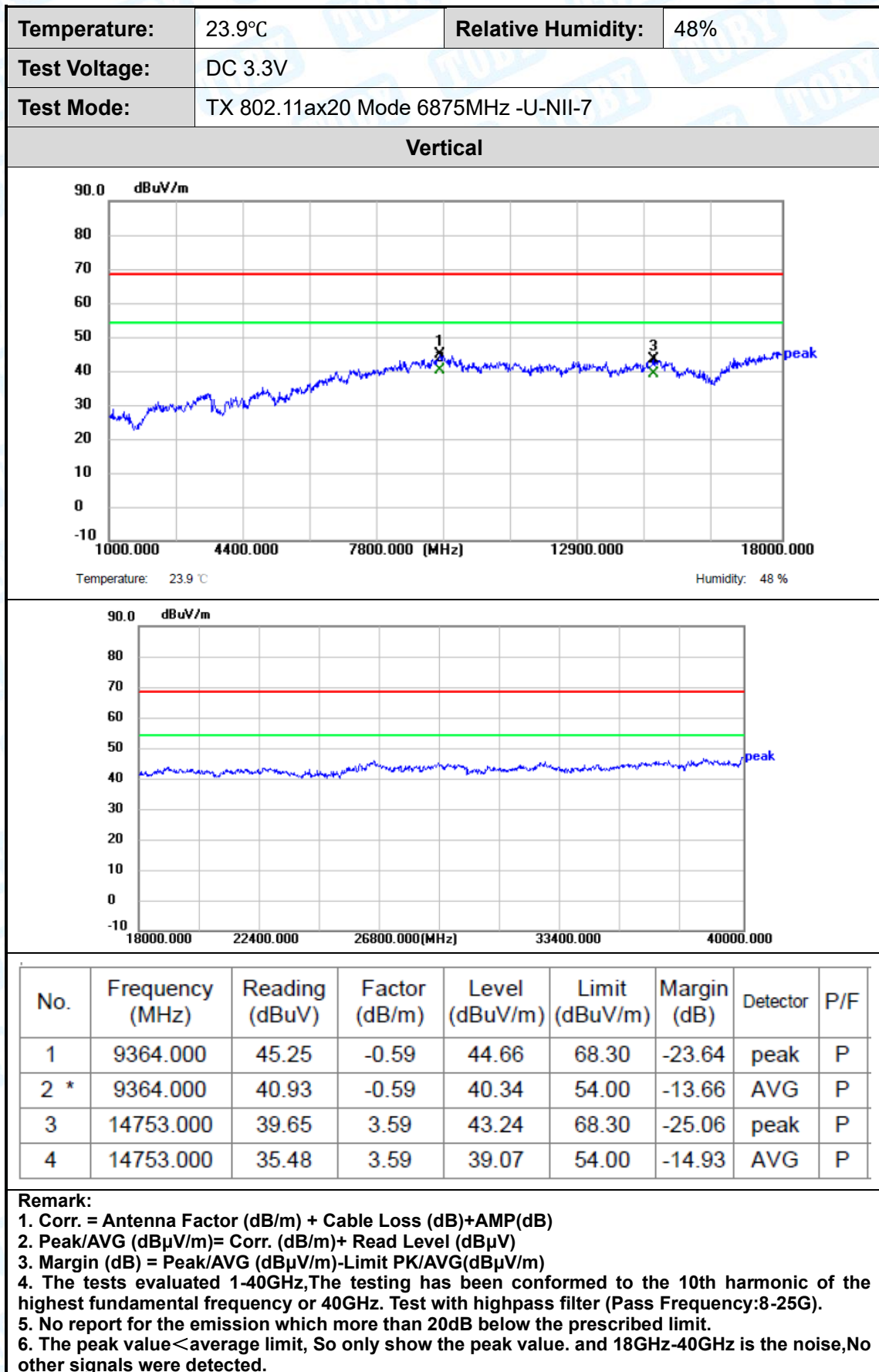
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9483.000	44.74	0.42	45.16	68.30	-23.14	peak	P
2	9483.000	40.86	0.42	41.28	54.00	-12.72	AVG	P
3	14838.000	41.12	4.04	45.16	68.30	-23.14	peak	P
4 *	14838.000	37.30	4.04	41.34	54.00	-12.66	AVG	P

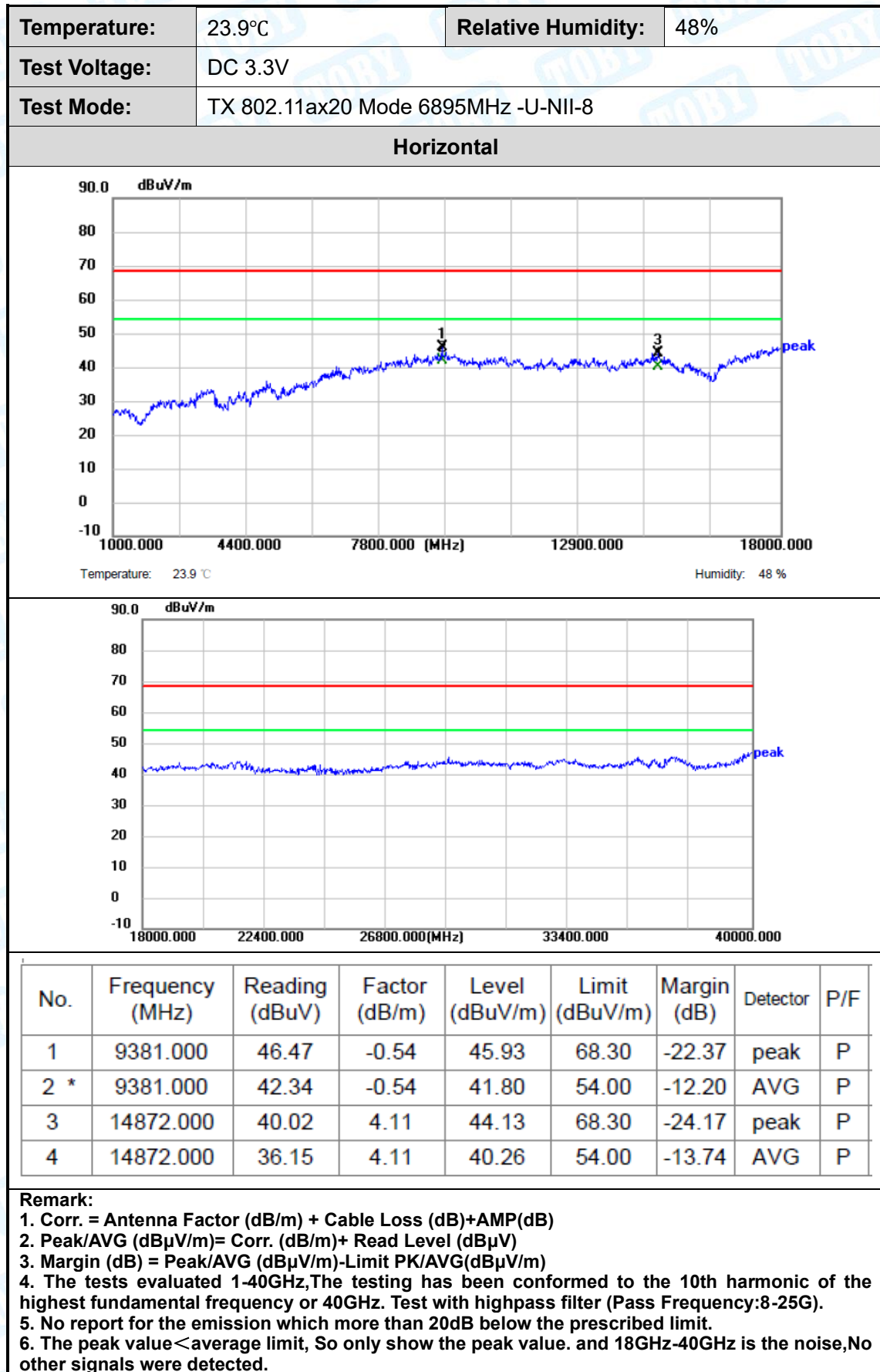
#### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.





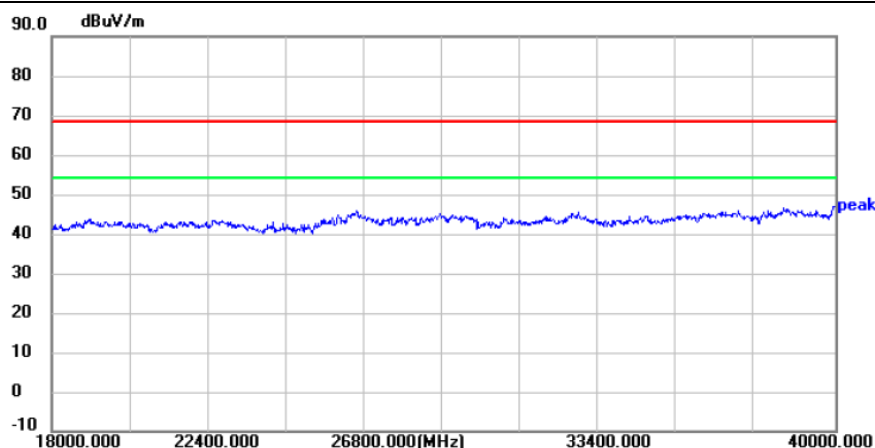
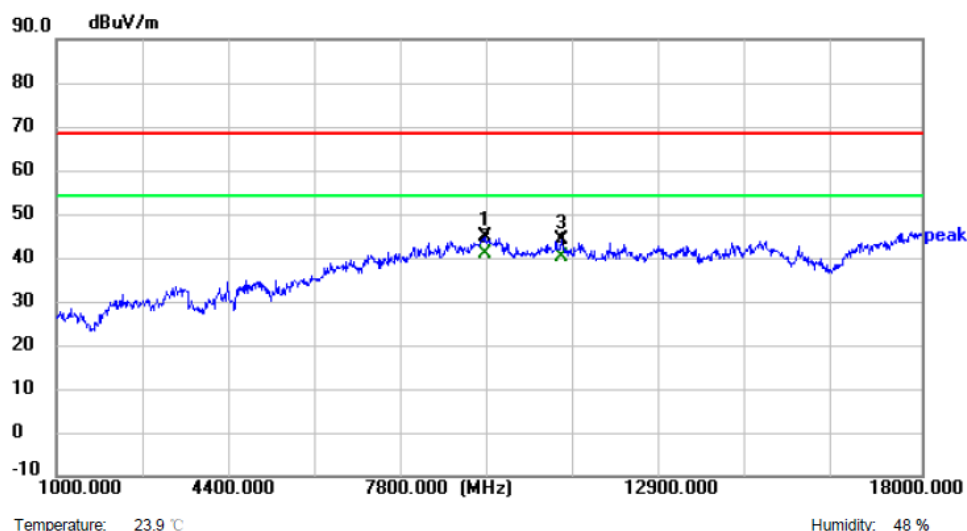






Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6895MHz -U-NII-8		

### Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9432.000	44.90	0.02	44.92	68.30	-23.38	peak	P
2 *	9432.000	40.98	0.02	41.00	54.00	-13.00	AVG	P
3	10928.000	44.50	-0.47	44.03	68.30	-24.27	peak	P
4	10928.000	40.81	-0.47	40.34	54.00	-13.66	AVG	P

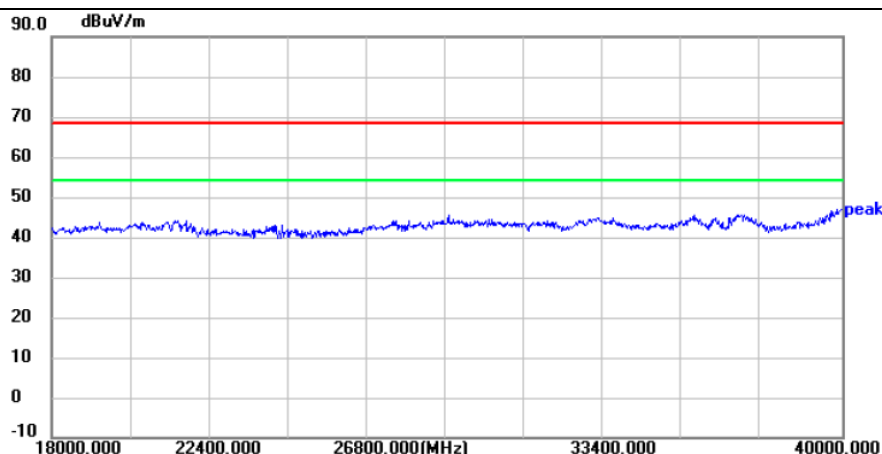
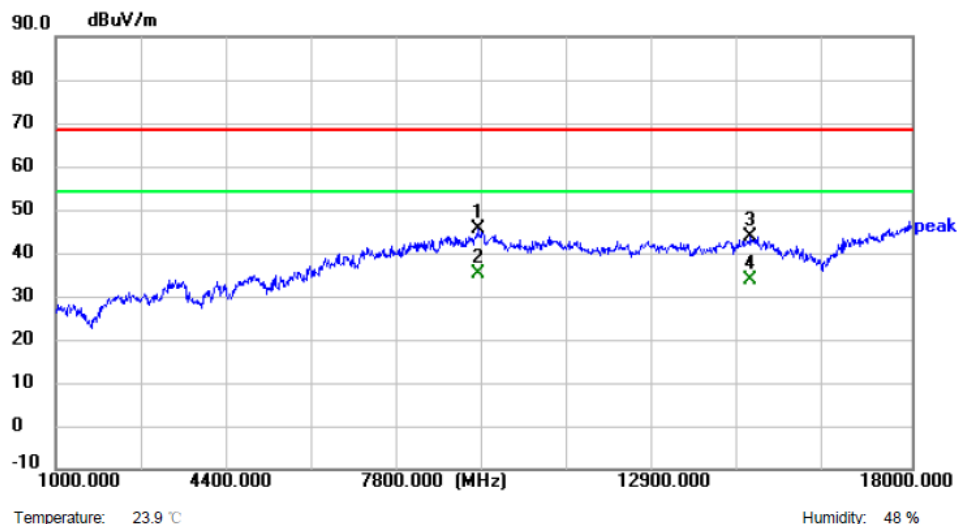
### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.



Temperature:	23.9°C	Relative Humidity:	48%
Test Voltage:	DC 3.3V		
Test Mode:	TX 802.11ax20 Mode 6995MHz -U-NII-8		

### Horizontal



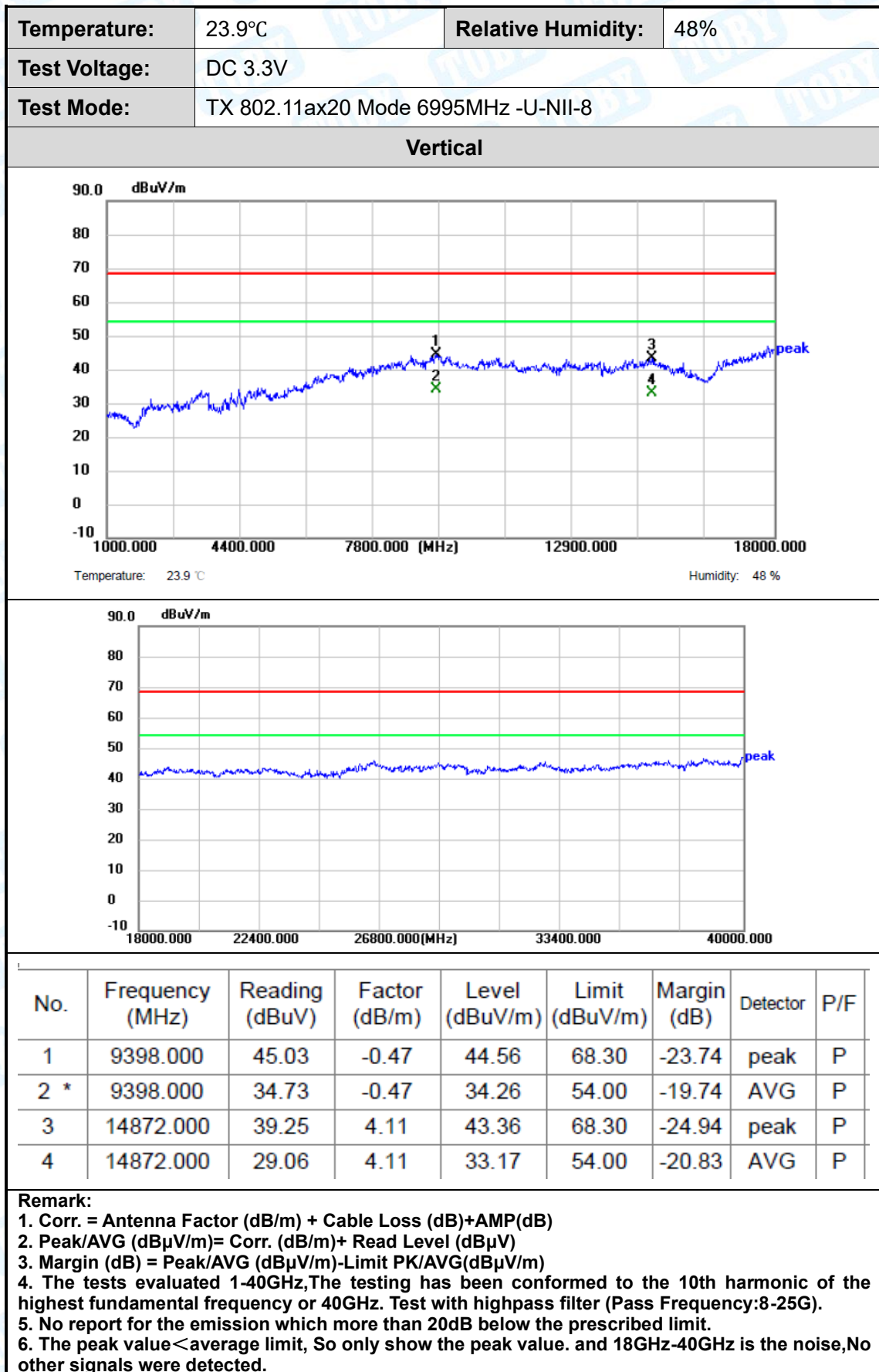
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	9381.000	45.93	-0.54	45.39	68.30	-22.91	peak	P
2 *	9381.000	35.67	-0.54	35.13	54.00	-18.87	AVG	P
3	14804.000	39.93	3.97	43.90	68.30	-24.40	peak	P
4	14804.000	29.77	3.97	33.74	54.00	-20.26	AVG	P

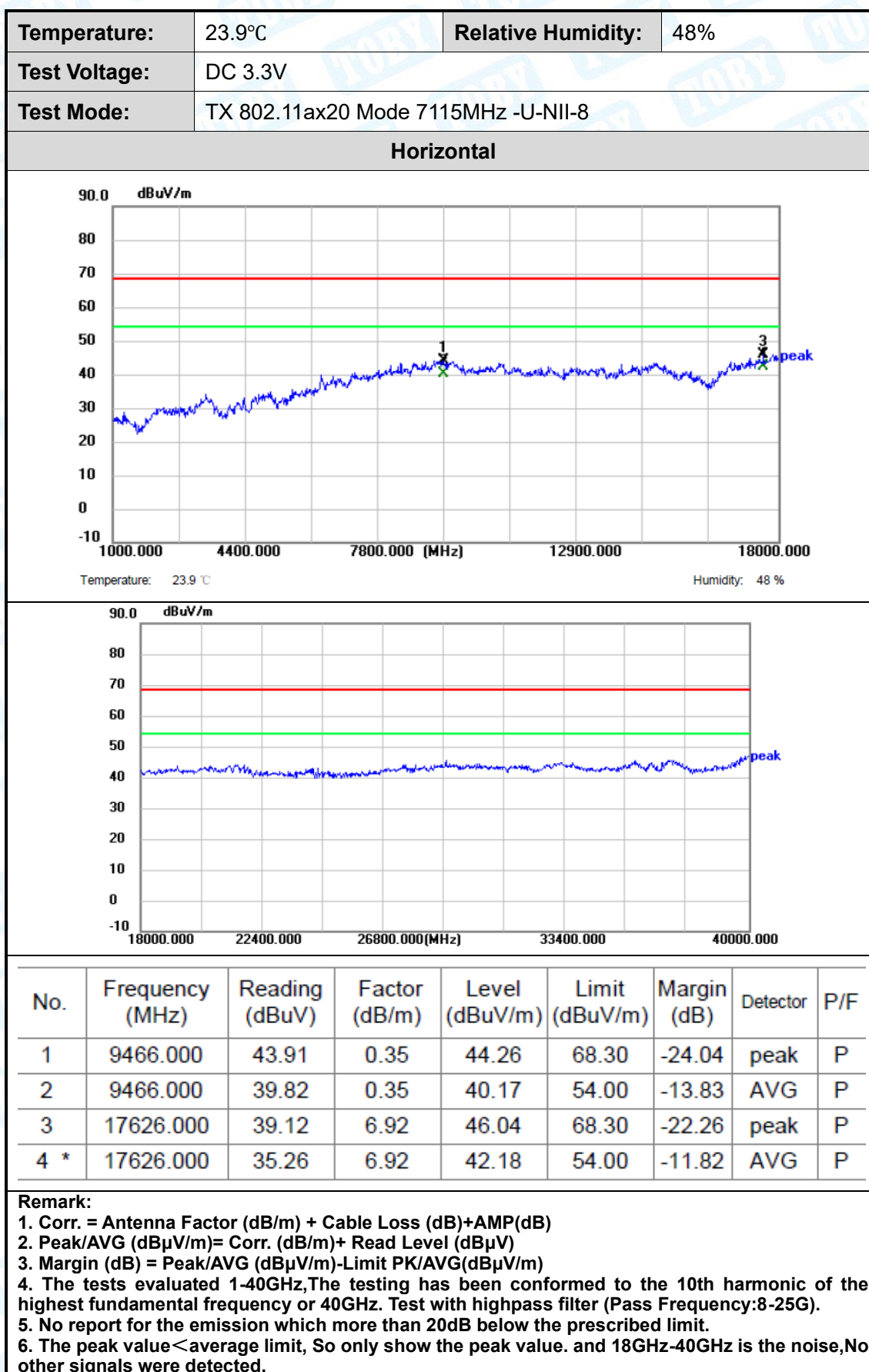
#### Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)
4. The tests evaluated 1-40GHz,The testing has been conformed to the 10th harmonic of the highest fundamental frequency or 40GHz. Test with highpass filter (Pass Frequency:8-25G).
5. No report for the emission which more than 20dB below the prescribed limit.
6. The peak value<average limit, So only show the peak value. and 18GHz-40GHz is the noise, No other signals were detected.

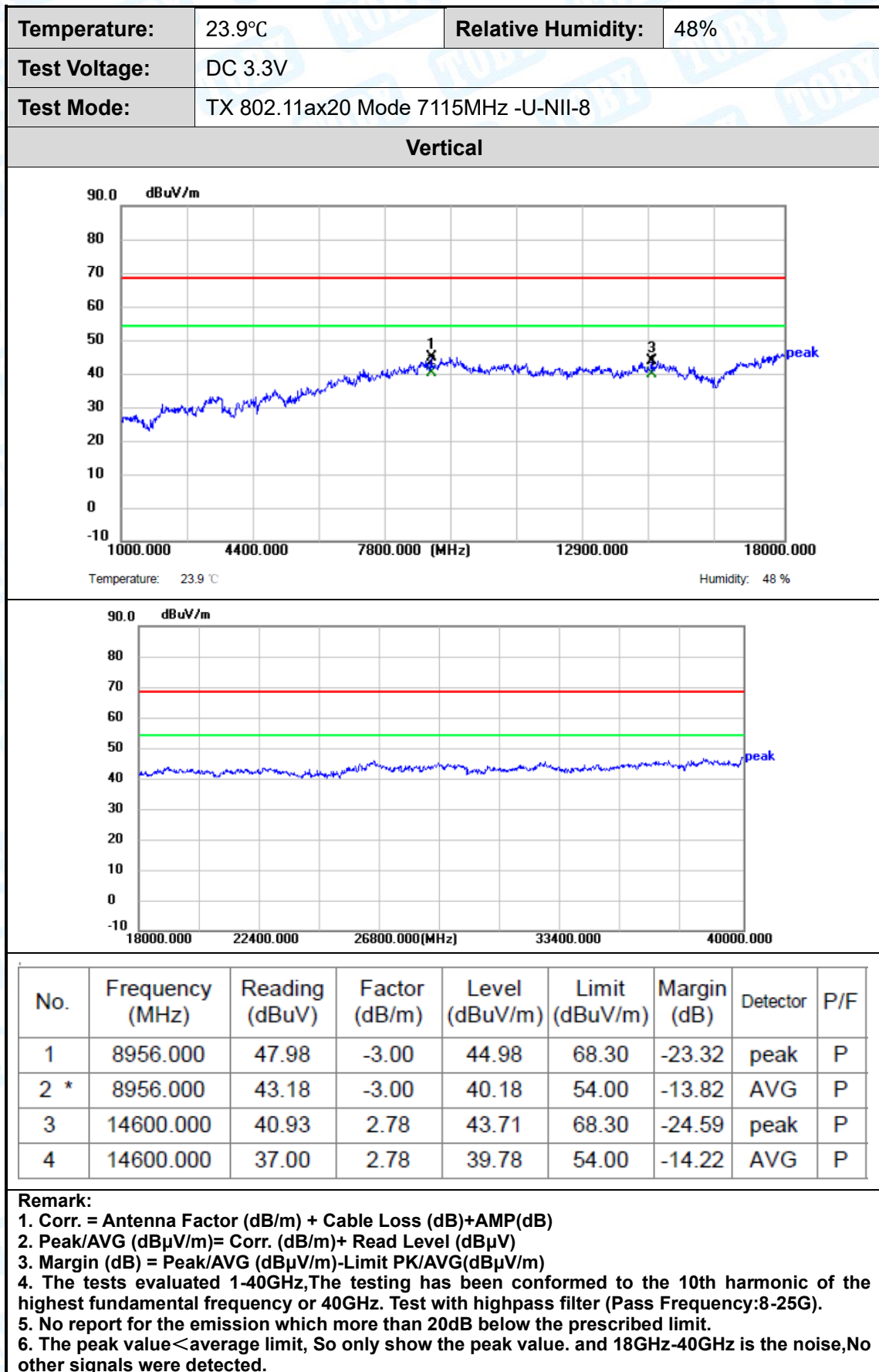






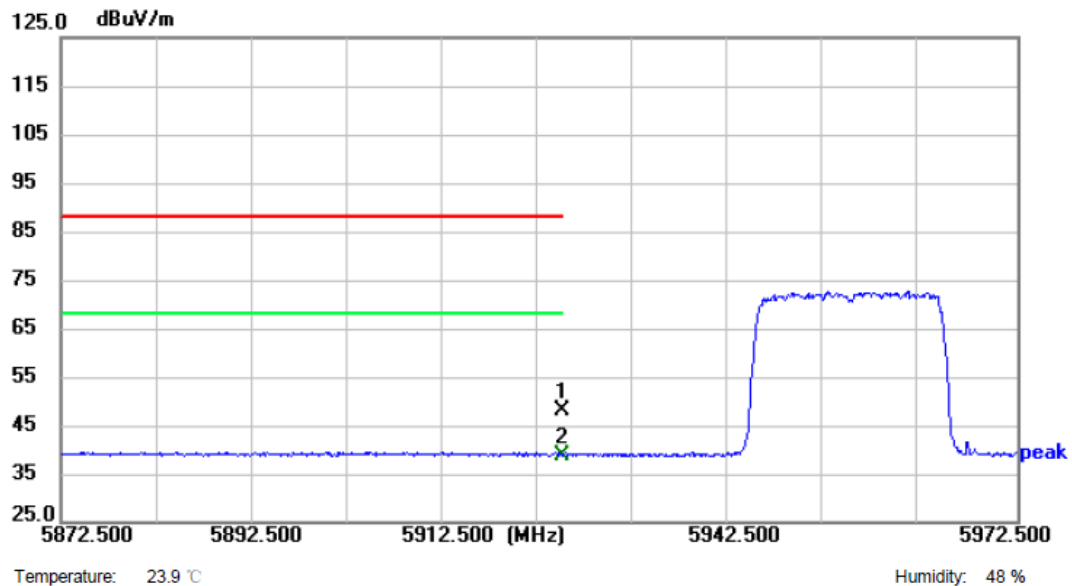






## Attachment C--Restricted Bands Requirement Data

Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11ax(HE20) Mode 5955 MHz (U-NII-5)		
Remark:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5925.000	48.63	-0.47	48.16	88.20	-40.04	peak	P
2 *	5925.000	39.28	-0.47	38.81	68.20	-29.39	AVG	P

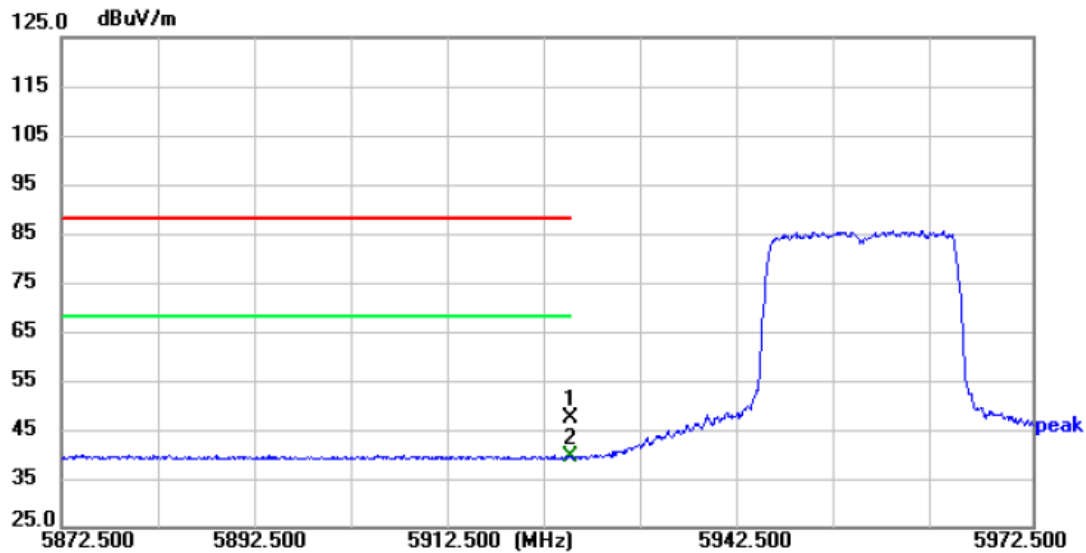
**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)





Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11ax(HE20) Mode 5955 MHz (U-NII-5)		
Remark:			



Temperature: 23.9 °C

Humidity: 48 %

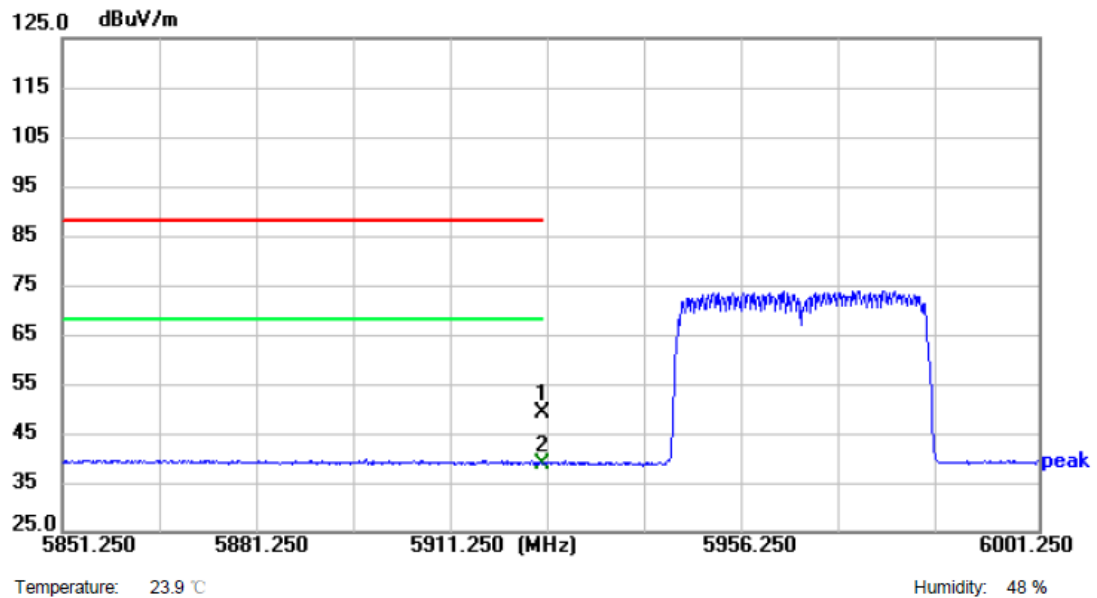
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5925.000	47.62	-0.47	47.15	88.20	-41.05	peak	P
2 *	5925.000	39.76	-0.47	39.29	68.20	-28.91	AVG	P

**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)



Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11ax(HE40) Mode 5965 MHz (U-NII-5)		
Remark:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5925.000	49.53	-0.47	49.06	88.20	-39.14	peak	P
2 *	5925.000	39.35	-0.47	38.88	68.20	-29.32	AVG	P

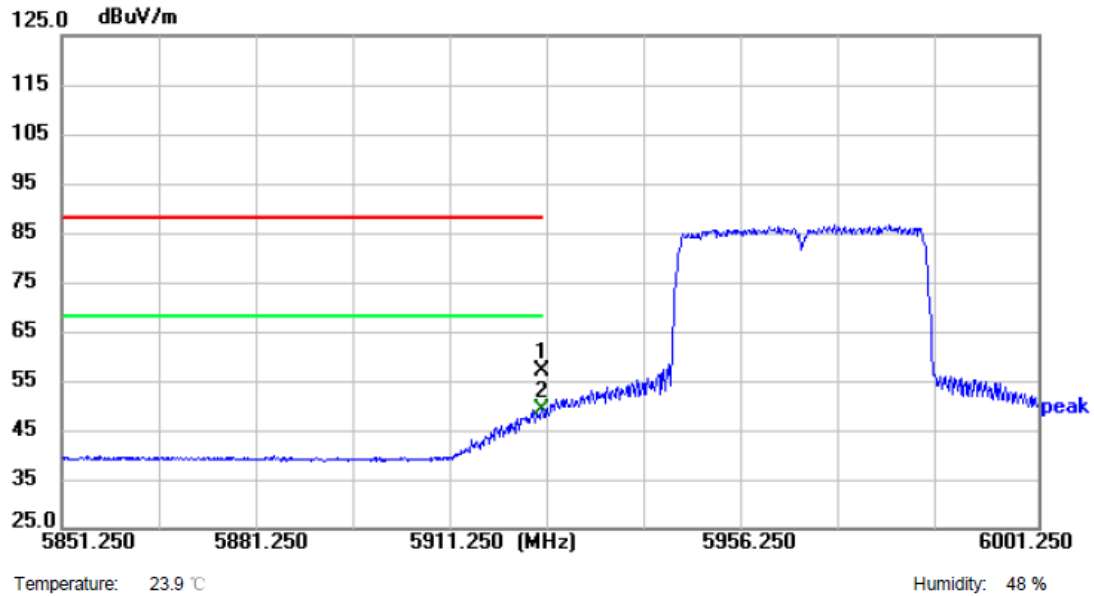
**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)





Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11ax(HE40) Mode 5965 MHz (U-NII-5)		
Remark:			



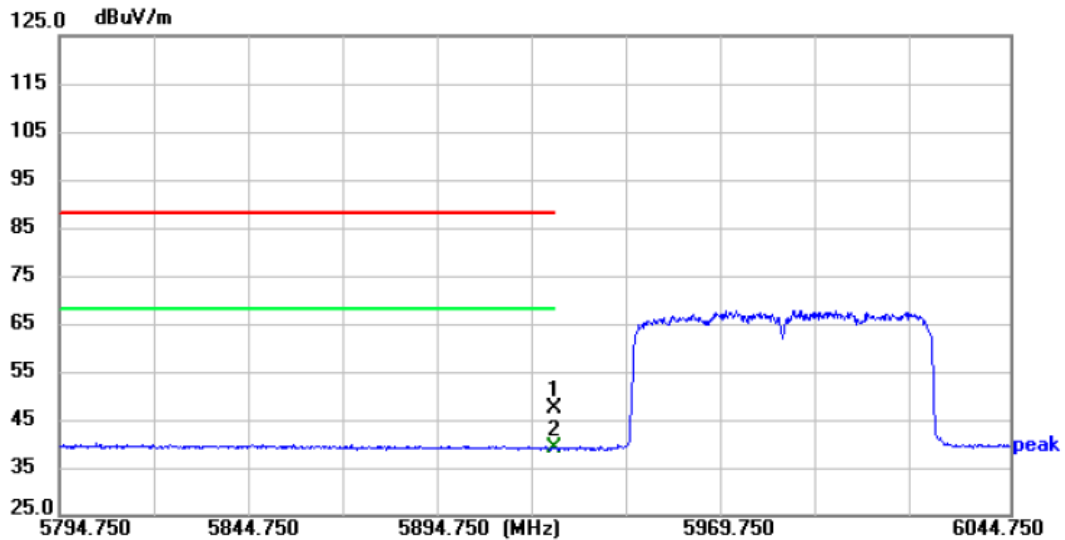
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5925.000	57.58	-0.47	57.11	88.20	-31.09	peak	P
2 *	5925.000	49.73	-0.47	49.26	68.20	-18.94	AVG	P

**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)



Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11ax(HE80) Mode 5985 MHz (U-NII-5)		
Remark:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5925.000	47.66	-0.47	47.19	88.20	-41.01	peak	P
2 *	5925.000	39.67	-0.47	39.20	68.20	-29.00	AVG	P

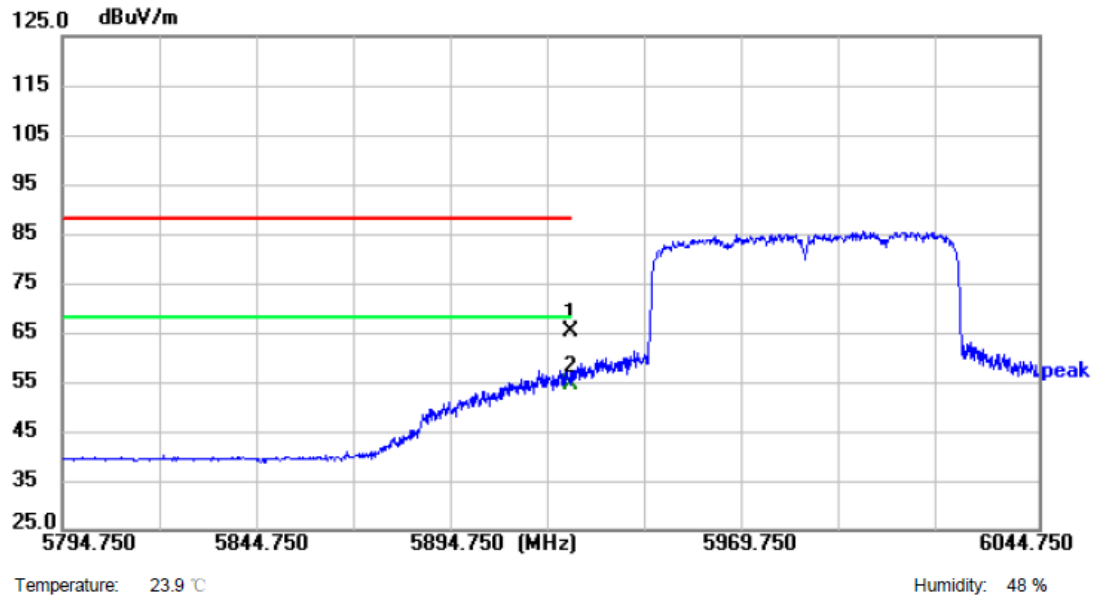
**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)





Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11ax(HE80) Mode 5985 MHz (U-NII-5)		
Remark:			



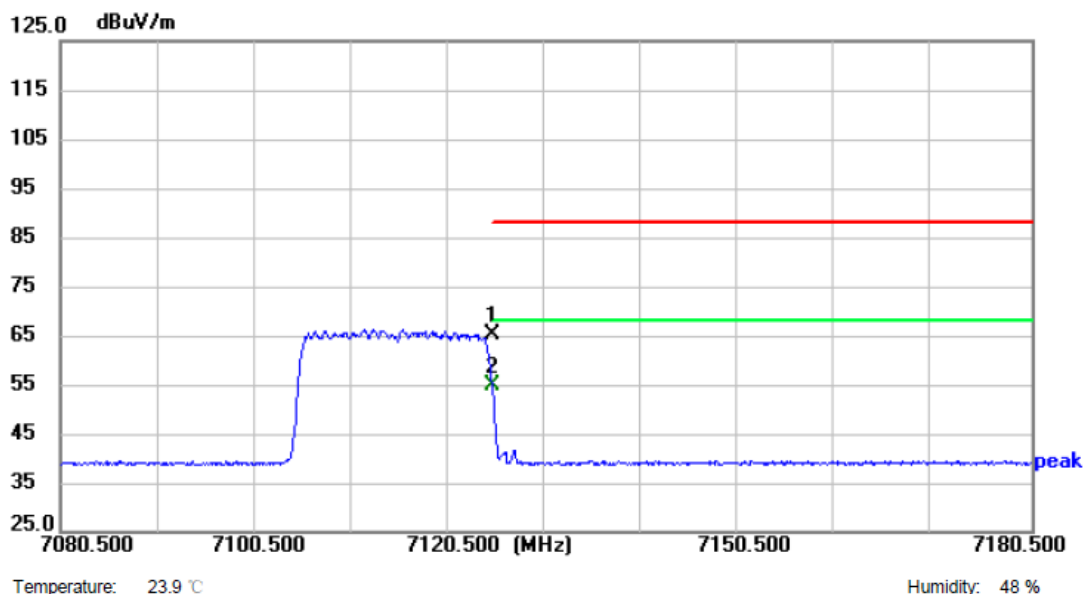
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5925.000	65.82	-0.47	65.35	88.20	-22.85	peak	P
2 *	5925.000	55.05	-0.47	54.58	68.20	-13.62	AVG	P

**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)



Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11ax(HE20) Mode 7155 MHz (U-NII-8)		
Remark:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	7125.000	63.02	2.12	65.14	88.20	-23.06	peak	P
2 *	7125.000	52.60	2.12	54.72	68.20	-13.48	AVG	P

**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)





Temperature:	23.2℃	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11ax(HE20) Mode 7155 MHz (U-NII-8		
Remark:			

125.0 dBuV/m

Temperature: 23.9 °CHumidity: 48 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	7125.000	72.59	2.12	74.71	88.20	-13.49	peak	P
2 *	7125.000	63.78	2.12	65.90	68.20	-2.30	AVG	P

Remark:

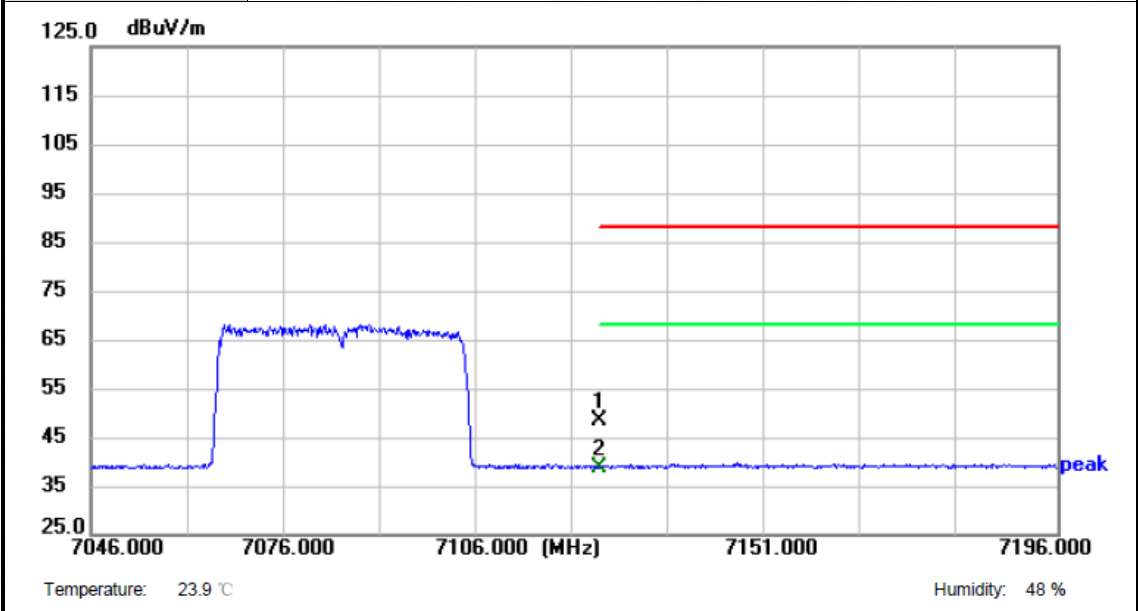
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)

2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)

3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBuV/m)



Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11ax(HE40) Mode 7085 MHz (U-NII-8)		
Remark:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	7125.000	46.20	2.12	48.32	88.20	-39.88	peak	P
2 *	7125.000	36.79	2.12	38.91	68.20	-29.29	AVG	P

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)

2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)

3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)





Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11ax(HE40) Mode 7085 MHz (U-NII-8)		
Remark:			

125.0 dBuV/m

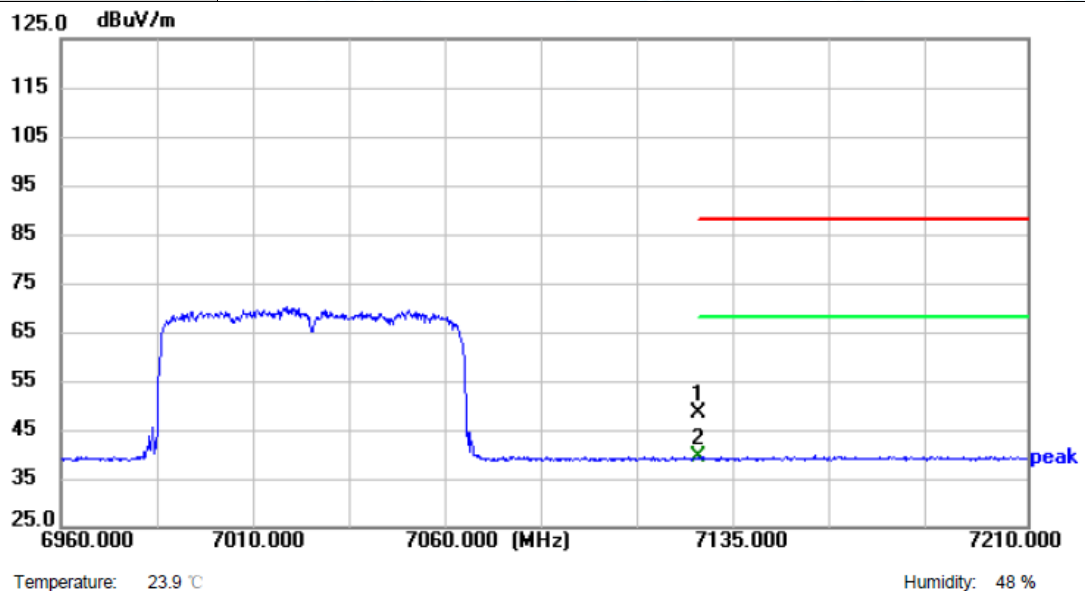
Temperature: 23.9 °C Humidity: 48 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	7125.000	46.26	2.12	48.38	88.20	-39.82	peak	P
2 *	7125.000	38.60	2.12	40.72	68.20	-27.48	AVG	P

Remark:  
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)  
2. Peak/AVG (dBμV/m)= Corr. (dB/m)+ Read Level (dBμV)  
3. Margin (dB) = Peak/AVG (dBμV/m)-Limit PK/AVG(dBμV/m)



Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX 802.11ax(HE80) Mode 7025 MHz (U-NII-8)		
Remark:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	7125.000	46.33	2.12	48.45	88.20	-39.75	peak	P
2 *	7125.000	37.17	2.12	39.29	68.20	-28.91	AVG	P

**Remark:**

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)
2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)
3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)





Temperature:	23.2°C	Relative Humidity:	48%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Vertical		
Test Mode:	TX 802.11ax(HE80) Mode 7025 MHz (U-NII-8)		
Remark:			

125.0 dBuV/m

6960.0007010.0007060.000 (MHz)7135.0007210.000

Temperature: 23.9 °CHumidity: 48 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	7125.000	45.73	2.12	47.85	88.20	-40.35	peak	P
2 *	7125.000	37.69	2.12	39.81	68.20	-28.39	AVG	P

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)+AMP(dB)

2. Peak/AVG (dBuV/m)= Corr. (dB/m)+ Read Level (dBuV)

3. Margin (dB) = Peak/AVG (dBuV/m)-Limit PK/AVG(dBuV/m)

--- END OF THE REPORT ---

