

# **FCC Radio Test Report**

# FCC ID: XU8TEW831DR

This report concerns: Original Grant

Project No.	:	2001C070
Equipment	:	AC1200 Wireless Dual band Gigabit Router
Brand Name	:	TRENDnet
Test Model	:	TEW-831DR
Series Model	:	N/A
Applicant	:	TRENDnet,Inc.
Address	:	20675 Manhattan Place , Torrance, CA 90501 USA
Manufacturer	:	TRENDnet,Inc.
Address	:	20675 Manhattan Place , Torrance, CA 90501 USA
Factory	:	SHENZHEN GONGJIN ELECTRONICS CO.,LTD
Address	:	No.2, Danzi North Road, Kengzi Street, Shenzhen, Guangdong, China
Date of Receipt	:	Jan. 19, 2020
Date of Test	:	Jan. 19, 2020 ~ Jun. 10, 2020
Issued Date	:	Jul. 16, 2020
<b>Report Version</b>	:	R02
Test Sample	:	Engineering Sample No.: DG2020011969 for conducted, DG202005095
		for radiated
Standard(s)	:	FCC Part15, Subpart E(15.407)
		ANSI C63.10-2013
		FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
		FCC KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective. Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



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### **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	Jun. 17, 2020
R01	Revised report to address comments.	Jul. 10, 2020
R02	Revised report to address comments.	Jul. 16, 2020



### **1. SUMMARY OF TEST RESULTS**

	FCC Part15, Subpart E(15.407)							
Standard(s) Section	Test Item	Test Item Test Result		Remark				
15.207 15.407(b)	AC Power Line Conducted Emissions	APPENDIX A	PASS					
15.407(b) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS					
15.407(a) 15.407(e)	Spectrum Bandwidth	APPENDIX E	PASS					
15.407(a)	Maximum Output Power	APPENDIX F	PASS					
15.407(a)	Power Spectral Density	APPENDIX G	PASS					
15.407(g)	Frequency Stability	APPENDIX H	PASS					
15.203	Antenna Requirements		PASS	NOTE (2)				
15.407(c)	Automatically Discontinue Transmission		PASS	NOTE (3)				

Test procedures according to the technical standard(s):

Note:

- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.
- (3) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
- (4) For UNII-1 this device was functioned as a  $\square$  Access point device  $\square$  Client device

<sup>(1) &</sup>quot;N/A" denotes test is not applicable in this test report.



### **1.1 TEST FACILITY**

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China. BTL's Test Firm Registration Number for FCC: 357015 BTL's Designation Number for FCC: CN1240

### **1.2 MEASUREMENT UNCERTAINTY**

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)) The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.60

### B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
	CISPR	9kHz ~ 30MHz	V	3.79
		9kHz ~ 30MHz	H	3.57
		30MHz ~ 200MHz	V	4.88
		30MHz ~ 200MHz	H	4.14
DG-CB03		200MHz ~ 1,000MHz	V	4.62
DG-CB03		200MHz ~ 1,000MHz	Н	4.80
		1GHz ~ 6GHz	-	4.58
		6GHz ~ 18GHz	-	5.18
		18GHz ~ 26.5GHz	-	3.62
		26.5GHz ~ 40GHz	-	4.00

### C. Other Measurement:

Parameter	Uncertainty
Spectrum Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Power Spectral Density	±0.86 dB
Frequency Stability	±0.16 dB
Temperature	±0.08 °C
Time	±0.58 %
Supply voltages	±0.3 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

### **1.3 TEST ENVIRONMENT CONDITIONS**

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25°C	53%	AC 120V/60Hz	Kwok Guo
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Kwok Guo
Radiated Emissions-30 MHz to 1GHz	24°C	68%	AC 120V/60Hz	Kwok Guo
Radiated Emissions-Above 1000 MHz	24°C	68%	AC 120V/60Hz	Kwok Guo
Spectrum Bandwidth	24°C	52%	AC 120V/60Hz	Hayden Chen
Maximum Output Power	24°C	52%	AC 120V/60Hz	Laughing Zhang
Power Spectral Density	24°C	52%	AC 120V/60Hz	Hayden Chen
Frequency Stability	Normal & Extreme	52%	Normal & Extreme	Hayden Chen

### 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	AC1200 Wireless Dual band Gigabit Router
Brand Name	TRENDnet
Test Model	TEW-831DR
Series Model	N/A
Model Difference(s)	N/A
Power Source	DC Voltage supplied from AC/DC adapter. Model: GQ12-120100-HU
Power Rating	I/P:100-240V~50/60Hz 0.4A MAX O/P:12V === 1.0A
Operation Frequency	UNII-1: 5150 MHz~5250 MHz UNII-3: 5725 MHz~5850 MHz
Modulation Type	OFDM
Bit Rate of Transmitter	Up to 866.7 Mbps
Maximum Output Power for UNII-1_Non Beamforming	IEEE 802.11a: 16.96 dBm (0.0497 W) IEEE 802.11n (HT20): 15.30 dBm (0.0339 W) IEEE 802.11n (HT40): 15.02 dBm (0.0318 W) IEEE 802.11ac (VHT20): 13.04 dBm (0.0201 W) IEEE 802.11ac (VHT40): 12.93 dBm (0.0196 W) IEEE 802.11ac (VHT80): 13.04 dBm (0.0201 W)
Maximum Output Power for UNII-3_Non Beamforming	IEEE 802.11a: 16.97 dBm (0.0498 W) IEEE 802.11n (HT20): 15.06 dBm (0.0321 W) IEEE 802.11n (HT40): 14.87 dBm (0.0307 W) IEEE 802.11ac (VHT20): 12.92 dBm (0.0196 W) IEEE 802.11ac (VHT40): 12.82 dBm (0.0191 W) IEEE 802.11ac (VHT80): 12.91 dBm (0.0195 W)
Maximum Output Power for UNII-1_Beamforming	IEEE 802.11n (HT20): 15.24 dBm (0.0334 W) IEEE 802.11n (HT40): 14.90 dBm (0.0309 W) IEEE 802.11ac (VHT20): 12.96 dBm (0.0198 W) IEEE 802.11ac (VHT40): 12.87 dBm (0.0194 W) IEEE 802.11ac (VHT80): 12.93 dBm (0.0196 W)
Maximum Output Power for UNII-3_Beamforming	IEEE 802.11n (HT20): 14.99 dBm (0.0316 W) IEEE 802.11n (HT40): 14.83 dBm (0.0304 W) IEEE 802.11ac (VHT20): 12.82 dBm (0.0191 W) IEEE 802.11ac (VHT40): 12.72 dBm (0.0187 W) IEEE 802.11ac (VHT80): 12.82 dBm (0.0191 W)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.



### 2. Channel List:

IEEE 80 IEEE 802.1 IEEE 802.11	1n (HT20)		11n (HT40) Iac (VHT40)	IEEE 802.11	ac (VHT80)
UNII-1		UN	II-1	UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

IEEE 802.11a IEEE 802.11n (HT20) IEEE 802.11ac (VHT20)		IEEE 802.11n (HT40) IEEE 802.11ac (VHT40)		IEEE 802.11ac (VHT80)	
UNII-3		UNII-3		UNII-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				

### 3. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	UNILINK	N/A	External	N/A	5.15
2	UNILINK	N/A	External	N/A	5.15

### Note:

This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so,

(1) For Non Beamforming:

Directional gain=  $G_{ANT}$ +10log(N)dBi, that is Directional gain=5.15+10log(2)dBi=8.16. So, the UNII-1 output power limit is 24-(8.16-6)=21.84, the UNII-3 output power limit is 30-(8.16-6)=27.84. The UNII-1 power spectral density limit is 11-(8.16-6)=8.84, the UNII-3 power spectral density limit is 30-(8.16-6)=27.84.

### (2) For Beamforming:

Beamforming Gain:3dBi, Directional gain=3+5.15=8.15 So, the UNII-1 output power limit is 24-(8.15-6)=21.85, the UNII-3 output power limit is 30-(8.15-6)=27.85.



### 4. Table for Antenna Configuration:

### Non Beamforming:

Operating Mode TX Mc	ode 1TX	2TX
IEEE 802.11a	V (Ant. 1)	-
IEEE 802.11n (HT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT20)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)	-	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)	-	V (Ant. 1 + Ant. 2)

### Beamforming:

Operating Mode TX Mo	de 2TX
IEEE 802.11n (HT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11n (HT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)	V (Ant. 1 + Ant. 2)

### 2.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N (HT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX N (HT40) Mode / CH38, CH46 (UNII-1)
Mode 4	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)
Mode 5	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)
Mode 6	TX AC (VHT80) Mode / CH42 (UNII-1)
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 8	TX N (HT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 9	TX N (HT40) Mode / CH151,CH159 (UNII-3)
Mode 10	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)
Mode 11	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)
Mode 12	TX AC (VHT80) Mode / CH155 (UNII-3)
Mode 13	TX A Mode / CH165 (UNII-3)

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test		
Final Test Mode Description		
Mode 13	TX A Mode / CH165 (UNII-3)	

Radiated emissions test – Below 1GHz		
Final Test Mode	Description	
Mode 13	TX A Mode / CH165 (UNII-3)	

Radiated emissions test – Above 1GHz		
Final Test Mode	Description	
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)	
Mode 2	TX N (HT20) Mode / CH36, CH40, CH48 (UNII-1)	
Mode 3	TX N (HT40) Mode / CH38, CH46 (UNII-1)	
Mode 6	TX AC (VHT80) Mode / CH42 (UNII-1)	
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)	
Mode 8	TX N (HT20) Mode / CH149,CH157,CH165 (UNII-3)	
Mode 9	TX N (HT40) Mode / CH151,CH159 (UNII-3)	
Mode 12	TX AC (VHT80) Mode / CH155 (UNII-3)	



Bandwidth & Output Power Test for Non Beamforming		
Final Test Mode	Description	
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)	
Mode 2	TX N (HT20) Mode / CH36, CH40, CH48 (UNII-1)	
Mode 3	TX N (HT40) Mode / CH38, CH46 (UNII-1)	
Mode 4	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)	
Mode 5	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)	
Mode 6	TX AC (VHT80) Mode / CH42 (UNII-1)	
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)	
Mode 8	TX N (HT20) Mode / CH149,CH157,CH165 (UNII-3)	
Mode 9	TX N (HT40) Mode / CH151,CH159 (UNII-3)	
Mode 10	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)	
Mode 11	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)	
Mode 12	TX AC (VHT80) Mode / CH155 (UNII-3)	

Output Power Test for Beamforming		
Final Test Mode	Description	
Mode 2	TX N (HT20) Mode / CH36, CH40, CH48 (UNII-1)	
Mode 3	TX N (HT40) Mode / CH38, CH46 (UNII-1)	
Mode 4	TX AC (VHT20) Mode / CH36, CH40, CH48 (UNII-1)	
Mode 5	TX AC (VHT40) Mode / CH38, CH46 (UNII-1)	
Mode 6	TX AC (VHT80) Mode / CH42 (UNII-1)	
Mode 8	TX N (HT20) Mode / CH149,CH157,CH165 (UNII-3)	
Mode 9	TX N (HT40) Mode / CH151,CH159 (UNII-3)	
Mode 10	TX AC (VHT20) Mode / CH149,CH157,CH165 (UNII-3)	
Mode 11	TX AC (VHT40) Mode / CH151,CH159 (UNII-3)	
Mode 12	TX AC (VHT80) Mode / CH155 (UNII-3)	

Other Conducted test for Non Beamforming		
Test Mode	Description	
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)	
Mode 2	TX N (HT20) Mode / CH36, CH40, CH48 (UNII-1)	
Mode 3	TX N (HT40) Mode / CH38, CH46 (UNII-1)	
Mode 6	TX AC (VHT80) Mode / CH42 (UNII-1)	
Mode 7	TX A Mode / CH149,CH157,CH165 (UNII-3)	
Mode 8	TX N (HT20) Mode / CH149,CH157,CH165 (UNII-3)	
Mode 9	TX N (HT40) Mode / CH151,CH159 (UNII-3)	
Mode 12	TX AC (VHT80) Mode / CH155 (UNII-3)	



Note:

- (1) For radiated emission below 1 GHz test, the IEEE 802.11a channel165 is found to be the worst case and recorded.
- (2) For radiated emission above 1 GHz test, 1GHz~26.5GHz and 26.5GHz~40GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (3) The measurements for Power were tested, the worst case were IEEE 802.11a mode, IEEE 802.11n (HT20) mode, IEEE 802.11n (HT40) mode and IEEE 802.11ac(VHT80) mode, only worst case were documented for other test items except Bandwidth.
- (4) The measurements for all the test items were tested during Non Beamforming and Beamforming, the worst case was Non Beamforming, only worst case were documented for other test items except Power.
- (5) For AC power line conducted emissions test, Power AC 120V/60Hz and AC 240V/60Hz were evaluated, the worst case is recorded in this test report.
- (6) For radiated emissions, the WLAN 2.4G\_TX B Mode 2412MHz + RLAN 5G\_TX A Mode 5825MHz was found the worst case of simultaneous transmission and recorded.

### 2.3 PARAMETERS OF TEST SOFTWARE

Non	Beamforming
-----	-------------

UNII-1			
Test Software		MP-Tool-v3.5	
Test Frequency (MHz)	5180	5200	5240
IEEE 802.11a	45	45	45
IEEE 802.11n (HT20)	37/37	37/37	37/37
IEEE 802.11ac (VHT20)	32/32	32/32	32/32
Test Frequency (MHz)	5190	5230	
IEEE 802.11n (HT40)	40/40	42/42	
IEEE 802.11ac (VHT40)	38/38	38/38	
Test Frequency (MHz)	5210		
IEEE 802.11ac (VHT80)	39/39		

UNII-3			
Test Software		MP-Tool-v3.5	
Test Frequency (MHz)	5745	5785	5825
IEEE 802.11a	48	49	51
IEEE 802.11n (HT20)	39/38	40/40	42/42
IEEE 802.11ac (VHT20)	34/34	36/36	38/38
Test Frequency (MHz)	5755	5795	
IEEE 802.11n (HT40)	42/42	42/42	
IEEE 802.11ac (VHT40)	38/38	38/38	
Test Frequency (MHz)	5775		
IEEE 802.11ac (VHT80)	39/39		



### Beamforming

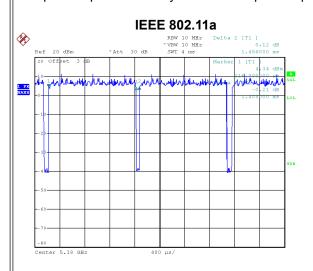
UNII-1			
Test Software	MP-Tool-v3.5		
Test Frequency (MHz)	5180	5200	5240
IEEE 802.11n (HT20)	37/37	37/37	37/37
IEEE 802.11ac (VHT20)	32/32	32/32	32/32
Test Frequency (MHz)	5190	5230	
IEEE 802.11n (HT40)	40/40	42/42	
IEEE 802.11ac (VHT40)	38/38	38/38	
Test Frequency (MHz)	5210		
IEEE 802.11ac (VHT80)	39/39		

UNII-3			
Test Software	MP-Tool-v3.5		
Test Frequency (MHz)	5745	5785	5825
IEEE 802.11n (HT20)	39/38	40/40	42/42
IEEE 802.11ac (VHT20)	34/34	36/36	38/38
Test Frequency (MHz)	5755	5795	
IEEE 802.11n (HT40)	42/42	42/42	
IEEE 802.11ac (VHT40)	38/38	38/38	
Test Frequency (MHz)	5775		
IEEE 802.11ac (VHT80)	39/39		



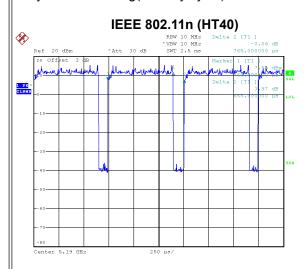
### 2.4 DUTY CYCLE

If duty cycle is  $\geq$  98 %, duty factor is not required. If duty cycle is < 98 %, duty factor shall be considered. The output power = measured power + duty factor. The power spectral density = measured power spectral density + duty factor.



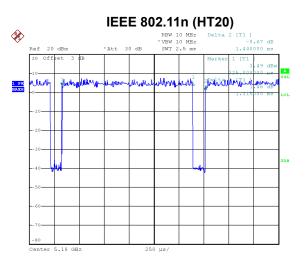
Date: 17.FEB.2020 15:20:52

Duty cycle = 1.408 ms / 1.456 ms = 96.70% Duty Factor = 10 log(1 / Duty cycle) = 0.15



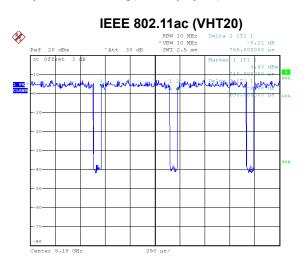
Date: 12.MAR.2020 16:30:33

Duty cycle = 0.655 ms / 0.765 ms = 85.62% Duty Factor = 10 log(1 / Duty cycle) = 0.67



Date: 17.FEB.2020 15:33:16

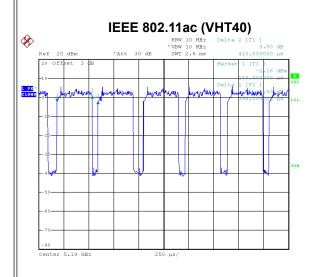
Duty cycle = 1.315 ms / 1.440 ms = 91.32% Duty Factor = 10 log(1 / Duty cycle) = 0.39

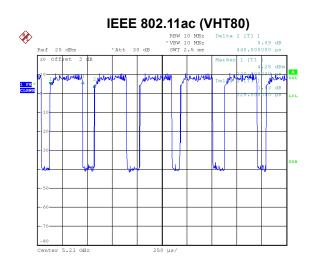


Date: 17.FEB.2020 15:26:48

Duty cycle = 0.690 ms / 0.765 ms = 90.20% Duty Factor = 10 log(1 / Duty cycle) = 0.45

# **B**TL





Date: 17.FEB.2020 15:31:29

Duty cycle = 0.355 ms / 0.410 ms = 86.59% Duty Factor = 10 log(1 / Duty cycle) = 0.63 Date: 12.MAR.2020 16:30:42

Duty cycle = 0.325 ms / 0.440 ms = 73.86% Duty Factor = 10 log(1 / Duty cycle) = 1.32

### NOTE:

For IEEE 802.11a, IEEE 802.11n (HT20) and IEEE 802.11ac (VHT20):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

For IEEE 802.11n (HT40) and IEEE 802.11ac (VHT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle < 98%).

For IEEE 802.11ac (VHT80):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 kHz (Duty cycle < 98%).



# 2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

### 2.6 SUPPORT UNITS

Iter	n Equipment	Brand	Model No.	Series No.
А	Notebook	Dell	Inspiron 15-7559	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	RJ45 Cable	NO	NO	10m



### 3. AC POWER LINE CONDUCTED EMISSIONS TEST

### 3.1 LIMIT

Frequency	Limit (	dBµV)
(MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56*	56 to 46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

NOTE:

(1) The tighter limit applies at the band edges.

(2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

### The following table is the setting of the receiver

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

### 3.2 TEST PROCEDURE

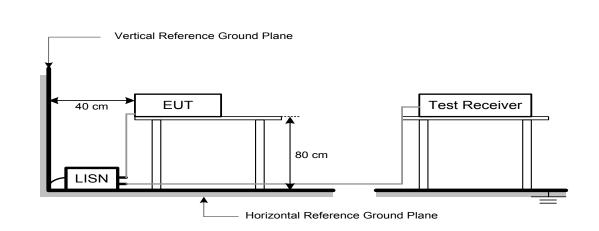
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. 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.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

### 3.3 DEVIATION FROM TEST STANDARD

No deviation



### 3.4 TEST SETUP



### 3.5 EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

The EUT was programmed to be in continuously transmitting/TX mode.

### 3.6 TEST RESULTS

Please refer to the APPENDIX A.



### 4. RADIATED EMISSIONS TEST

### 4.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

### LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

Frequency	Field Strength	Measurement Distance	
(MHz)	(microvolts/meter)	(meters)	
0.009-0.490	2400/F(kHz)	300	
0.490-1.705	24000/F(kHz)	30	
1.705-30.0	30	30	
30-88	100	3	
88-216	150	3	
216-960	200	3	
Above 960	500	3	

### LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

		-
Frequency	EIRP Limit	Equivalent Field Strength at 3m
(MHz)	(dBm/MHz)	(dBµV/m)
5150-5250	-27	68.3
5725-5850	-27 NOTE (2)	68.3
	10 NOTE (2)	105.3
	15.6 NOTE (2)	110.9
	27 NOTE (2)	122.3

NOTE:

(1) The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength: 1000000√30P E =

 $\mu$ V/m, where P is the eirp (Watts) 3

(2) According to 15.407(b)(4)(i), 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.



### 4.2 TEST PROCEDURE

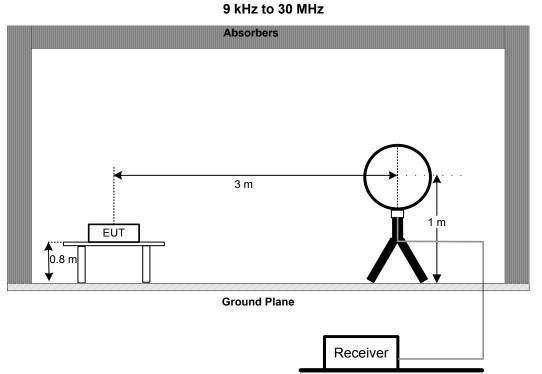
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 4.3 DEVIATION FROM TEST STANDARD

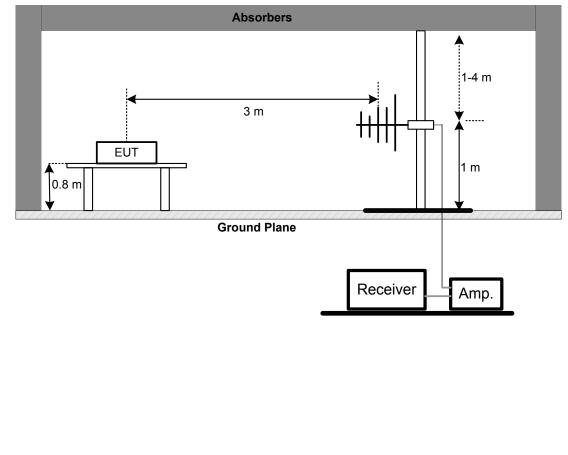
No deviation

# <u>3ĩL</u>

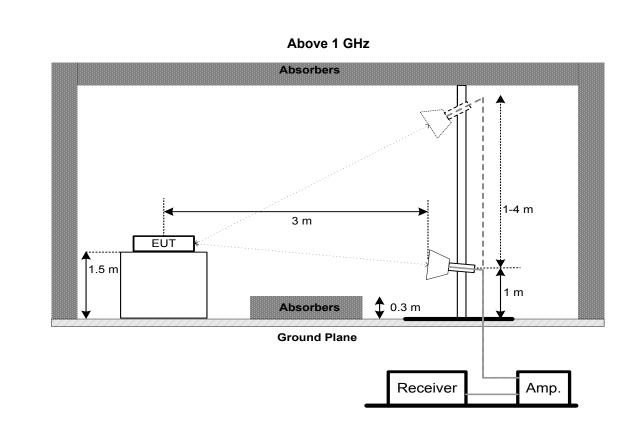
### 4.4 TEST SETUP



### 30 MHz to 1 GHz







### 4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

### 4.6 TEST RESULTS - 9 KHZ to 30 MHZ

Please refer to the APPENDIX B

Remark:

- (1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

### 4.7 TEST RESULTS - 30 MHz TO 1000 MHz

Please refer to the APPENDIX C.

### 4.8 TEST RESULTS - ABOVE 1000 MHz

Please refer to the APPENDIX D.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable. For fundamental signal judgment was referred to Peak output test.



### 5. BANDWIDTH TEST

### 5.1 LIMIT

FCC Part15, Subpart E (15.407)			
Section Test Item Limit Frequency R (MHz)		Frequency Range (MHz)	
15.407(a)	26 dB Bandwidth	-	5150-5250
15.407(e)	6 dB Bandwidth	Minimum 500 kHz	5725-5850

### 5.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below
- b. Spectrum Setting:
  - For UNII-1:

Spectrum Parameter	Setting	
Attenuation	Auto	
Span Frequency	> 26 dB Bandwidth	
RBW	300 kHz (Bandwidth 20 MHz)	
RBW	1 MHz (Bandwidth 40 MHz and 80 MHz)	
VBW	1 MHz (Bandwidth 20 MHz)	
VDVV	3 MHz (Bandwidth 40 MHz and 80 MHz)	
Detector	Peak	
Trace	Max Hold	
Sweep Time	Auto	

### For UNII-3:

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	6 dB Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Measured the spectrum width with power higher than 26 dB / 6dB below carrier

### 5.3 TEST PROCEDURE

No deviation.

### 5.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

### 5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 5.6 TEST RESULTS

Please refer to the APPENDIX E.



### 6. MAXIMUM OUTPUT POWER TEST

### 6.1 LIMIT

FCC Part15, Subpart E (15.407)					
Section Test Item Limit Frequency Range (MHz)					
15.407(a)	Maximum Output Power	AP device: 1 Watt (30 dBm) Client device: 250 mW (24 dBm)	5150-5250		
		1 Watt (30dBm)	5725-5850		

### Note:

- a. 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. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- b. 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 + 10log B, where B is the 26dB Bandwidth in megahertz.

### 6.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. Test test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

### 6.3 DEVIATION FROM STANDARD

No deviation.

### 6.4 TEST SETUP



Power Meter

### 6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 6.6 TEST RESULTS

Please refer to the APPENDIX F.



### 7. POWER SPECTRAL DENSITY TEST

### 7.1 LIMIT

FCC Part15, Subpart E (15.407)				
Section Test Item Limit Frequency Range (MHz)				
15.407(a)	Power Spectral Density	AP device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250	
		30 dBm/500 kHz	5725-5850	

### 7.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting

Spectrum Parameter	Setting
Attenuation	Auto
Span Fraguanay	Encompass the entire emissions bandwidth (EBW)
Span Frequency	of the signal
RBW	= 1 MHz.
VBW	≥ 3 MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

Note:

- 1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 1 MHz and VBW at 3 MHz if the spectrum analyzer does not have 500 kHz RBW.
- 2. The value measured with RBW=1 MHz is to be added with 10log(500 kHz/1 MHz) which is -3 dB. For example, if the measured value is +10dBm using RBW=1 MHz (that is +10 dBm/MHz), then the converted value will be +7dBm/500kHz.

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

### 7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 7.6 TEST RESULTS

Please refer to the APPENDIX G.



### 8. FREQUENCY STABILITY MEASUREMENT

### 8.1 LIMIT

	FCC Part15, Subpart E (15.407)					
Section	Test Item	Limit	Frequency Range (MHz)			
15.407(g)	Frequency Stability	An emission is maintained within the band of operation under all	5150-5250			
(g)		conditions of normal operation as specified in the users manual.	5725-5850			

### 8.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:

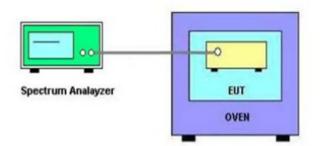
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

- c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
- d. User manual temperature is -10°C~70°C.

### 8.3 DEVIATION FROM STANDARD

No deviation.

### 8.4 TEST SETUP



### 8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 8.6 TEST RESULTS

Please refer to the APPENDIX H.



### 9. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	EMI Test Receiver	R&S	ESCI	100382	Feb. 28, 2021	
2	LISN	EMCO	3816/2	52765	Mar. 01, 2021	
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 28, 2021	
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 01, 2021	
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
6	Cable	N/A	RG223	12m	Mar. 10, 2021	

	Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Antenna	EM	EM-6876-1	230	Apr. 16, 2021	
2	Cable	N/A	RG 213/U	N/A	May 29, 2021	
3	EMI Test Receiver	R&S	ESCI	100895	Feb. 28, 2021	
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2021	
2*	Amplifier	HP	8447D	2944A09673	Aug. 11, 2021	
3	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020	
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 22, 2021	
5	Controller	CT	SC100	N/A	N/A	
6	Controller	MF	MF-7802	MF780208416	N/A	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Double Ridged Guide Antenna	ETS	3115	75846	Mar. 19, 2021	
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 22, 2021	
3	Amplifier	Agilent	8449B	3008A02584	Aug. 03, 2020	
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 07, 2021	
5	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020	
6	Controller	СТ	SC100	N/A	N/A	
7	Controller	MF	MF-7802	MF780208416	N/A	
8	Cable	mitron	RWLP50-4.0A-KJ-S MSM-12M	N/A	Nov. 25, 2020	
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	



Bandwidth & Output Power & Power Spectral Density								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 03, 2020			
Maximum Output Power								

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 03, 2020	
2	Wideband power sensor	Keysight	N1923A	MY58310004	Aug. 03, 2020	

	Frequency Stability								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until				
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 03, 2020				
2	Precision Oven Tester	CEPREI	CEEC-M64T-40	15-008	Feb. 28, 2021				

Remark: "N/A" denotes no model name, serial no. or calibration specified.

"\*" calibration period of equipment list is three year.

Except \* item, all calibration period of equipment list is one year.



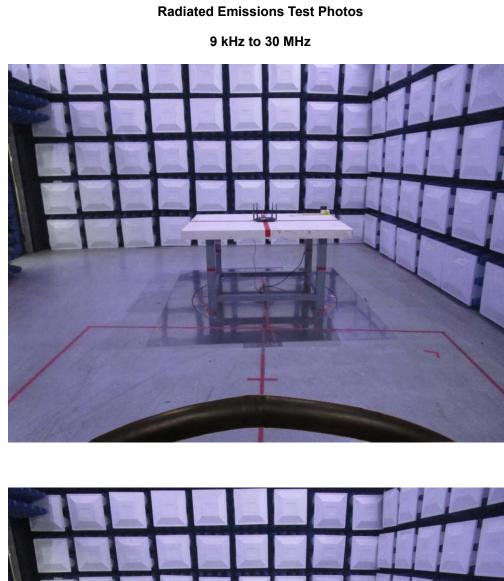
### **10. EUT TEST PHOTOS**

### AC Power Line Conducted Emissions Test Photos







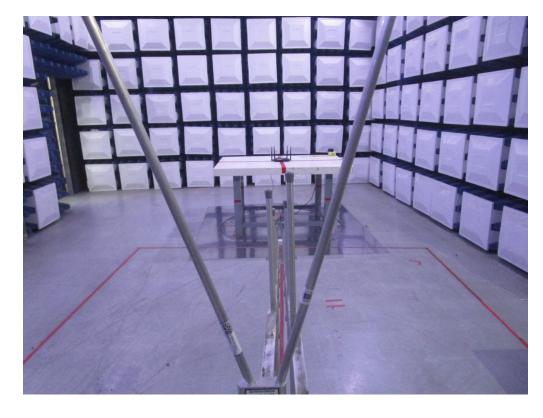






**Radiated Emissions Test Photos** 

30 MHz to 1 GHz



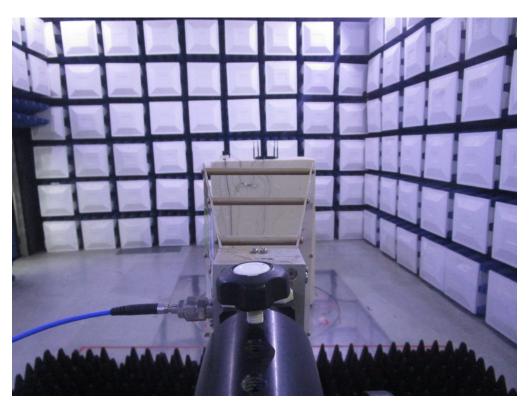




**Radiated Emissions Test Photos** 

Above 1 GHz

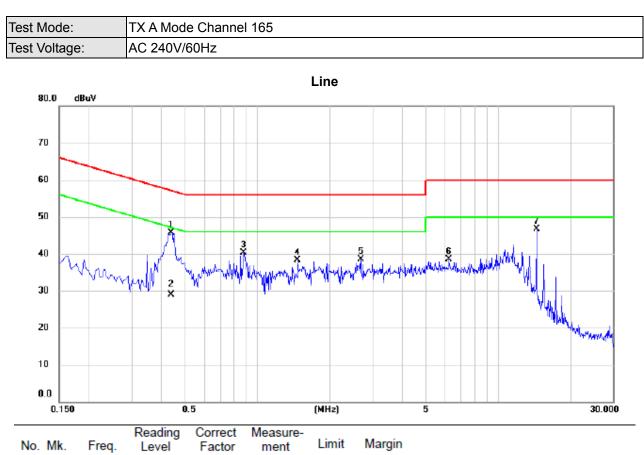






## APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

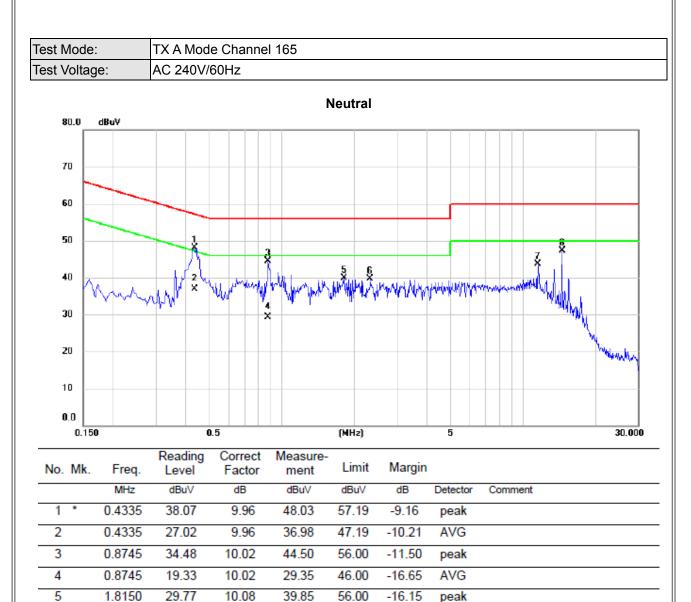




No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.4380	35.94	9.82	45.76	57.10	-11.34	peak	
2		0.4380	19.15	9.82	28.97	47.10	-18.13	AVG	
3		0.8745	30.41	9.84	40.25	56.00	-15.75	peak	
4		1.4640	28.42	9.87	38.29	56.00	-17.71	peak	
5		2.6835	28.57	9.91	38.48	56.00	-17.52	peak	
6		6.2295	28.44	10.09	38.53	60.00	-21.47	peak	
7		14.4150	36.34	10.41	46.75	60.00	-13.25	peak	

- Measurement Value = Reading Level + Correct Factor.
  Margin Level = Measurement Value Limit Value.
  The test result has included the cable loss.





6

7

8

(1) Measurement Value = Reading Level + Correct Factor.

29.69

33.06

36.60

2.3235

11.5485

14.4960

10.10

10.58

10.75

39.79

43.64

47.35

56.00

60.00

60.00

-16.21

-16.36

-12.65

peak

peak

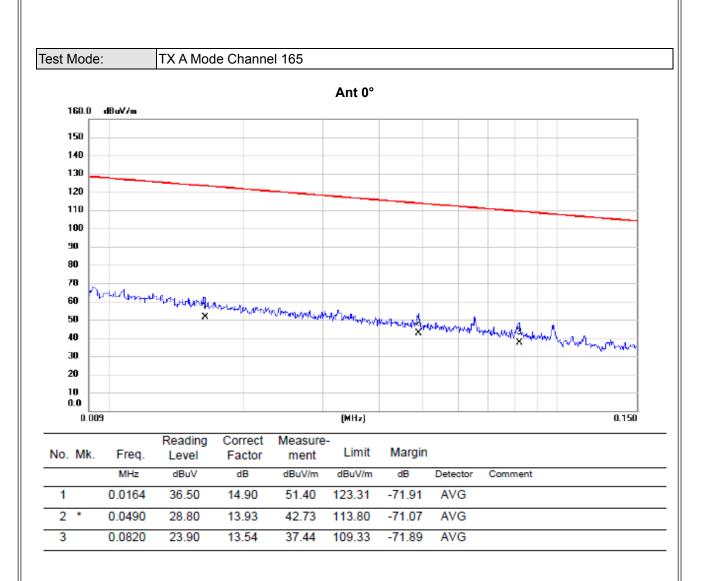
peak

- (2) Margin Level = Measurement Value Limit Value.
- (3) The test result has included the cable loss.



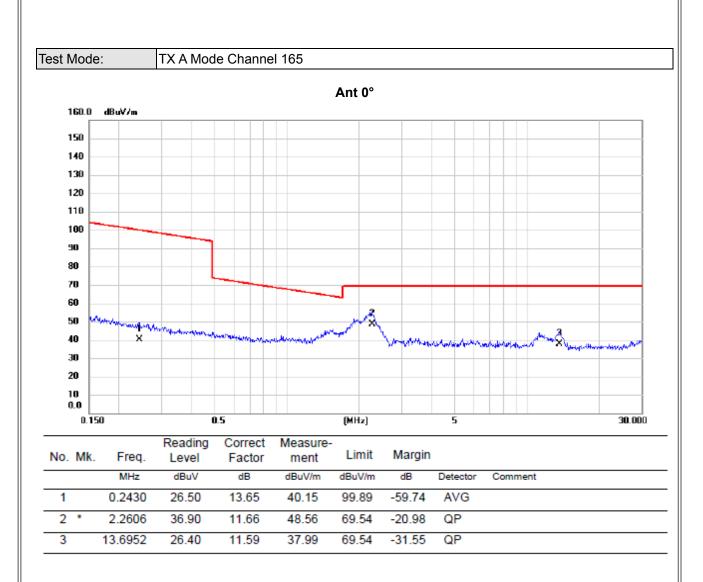
## **APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ**





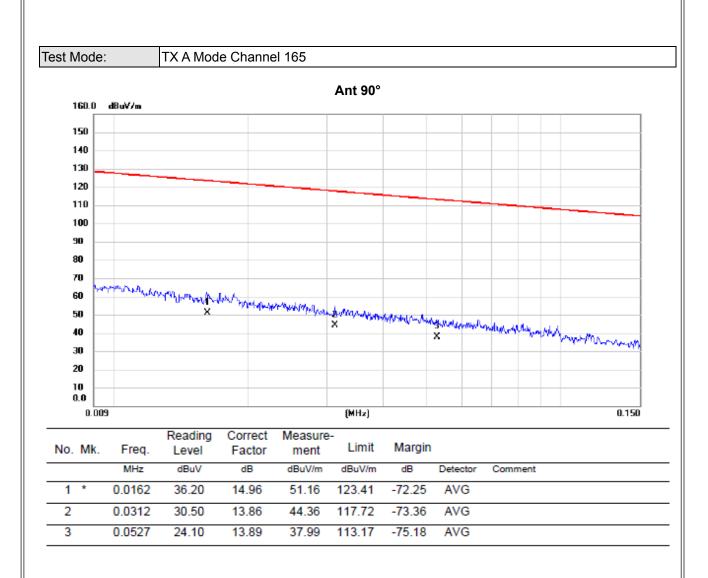
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





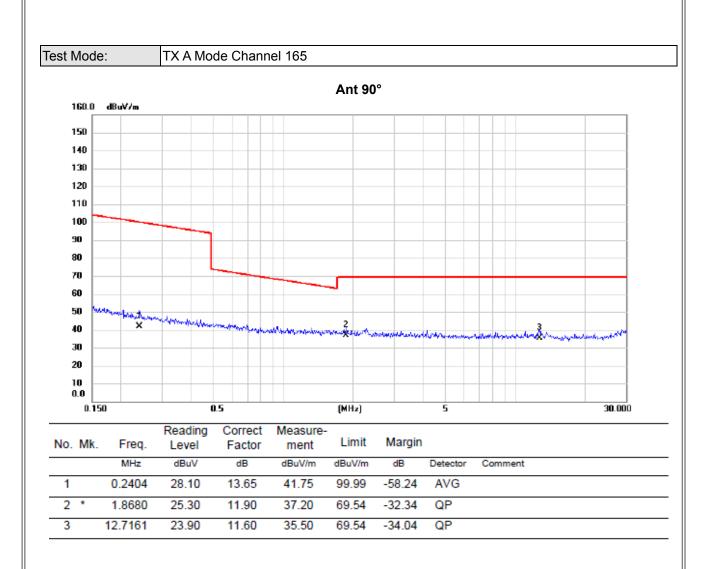
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



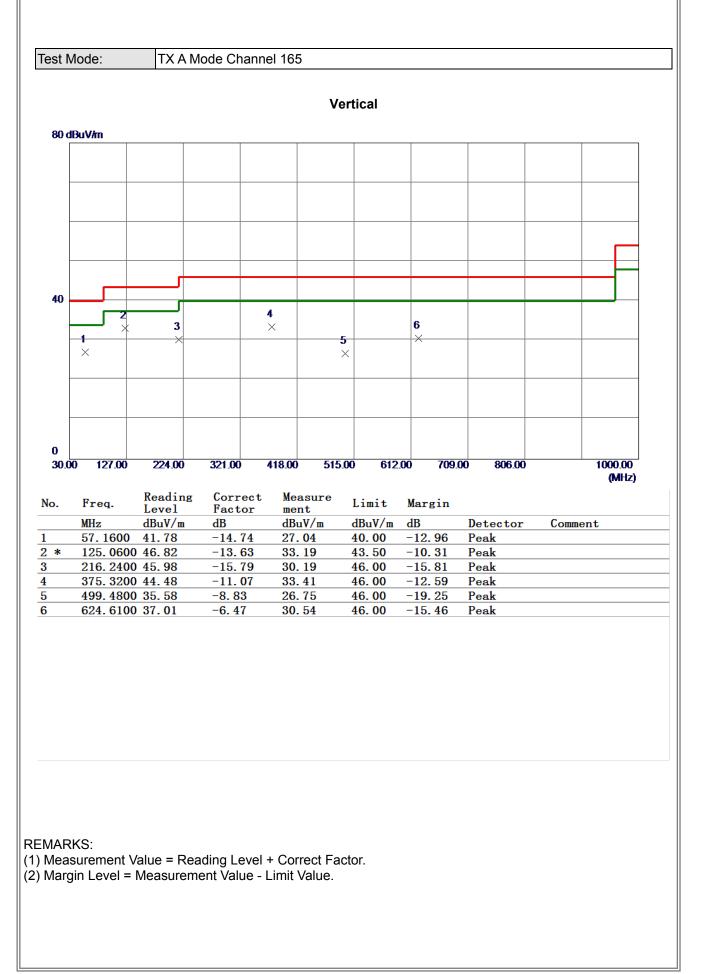


(1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value - Limit Value.

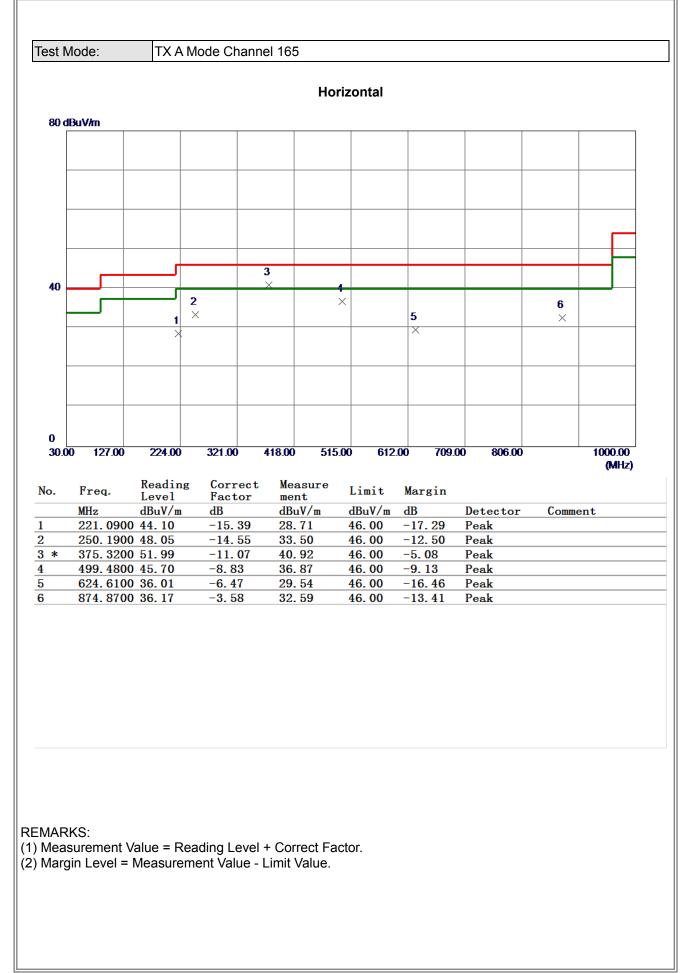


## **APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1 GHZ**





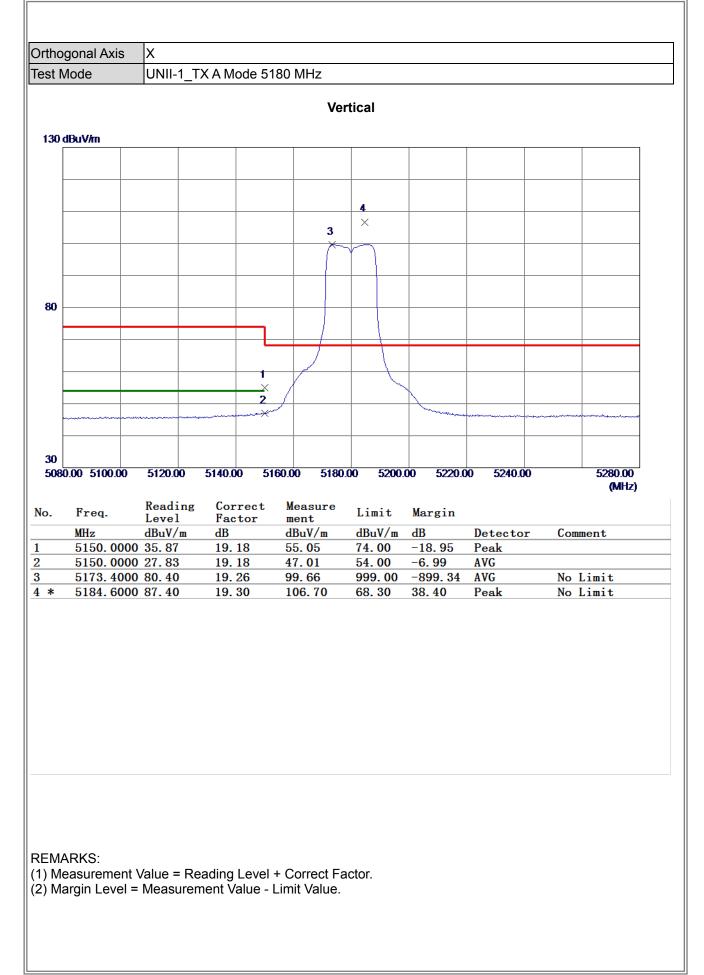




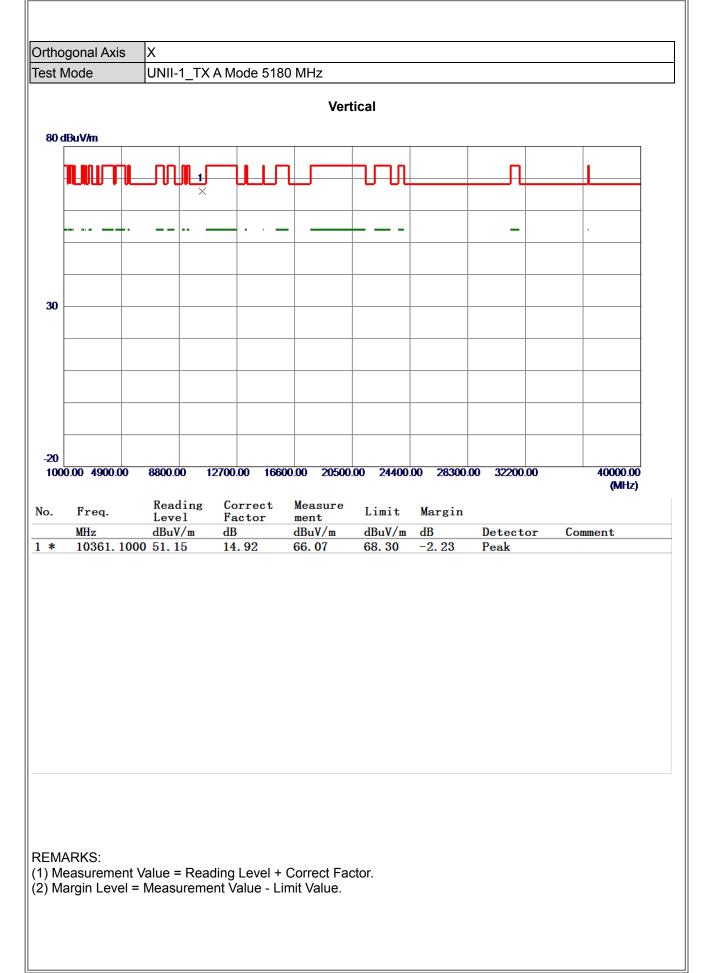


## **APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ**

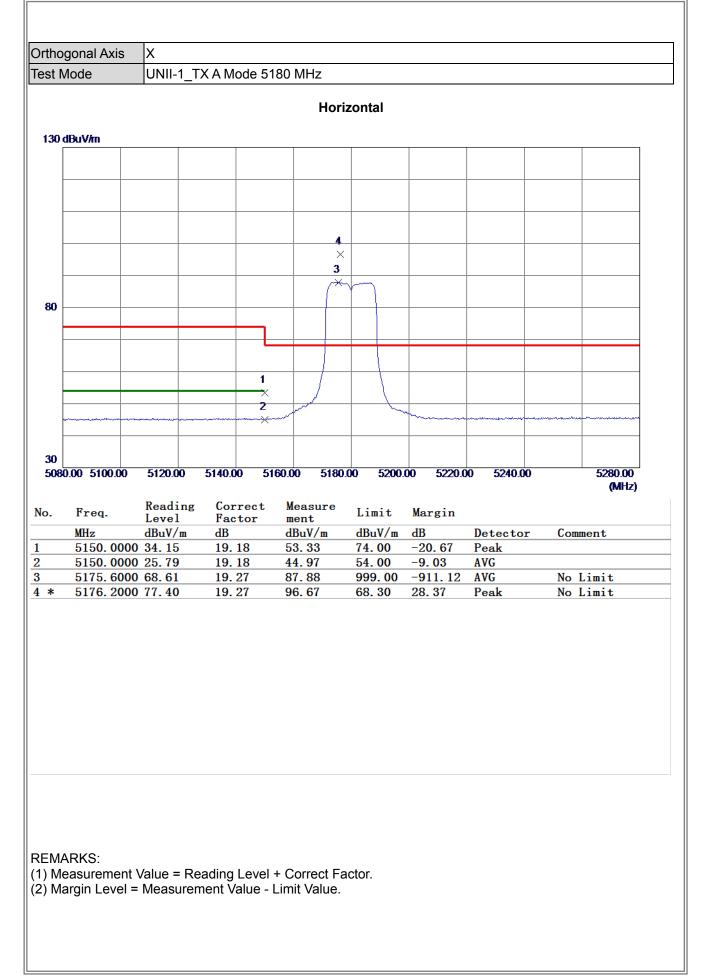




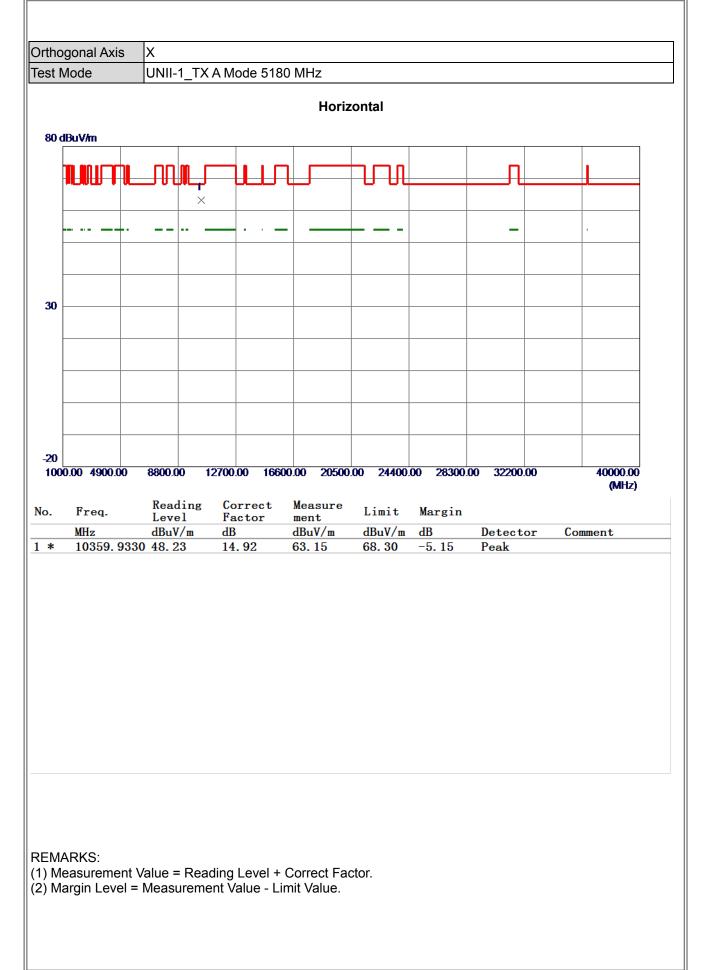




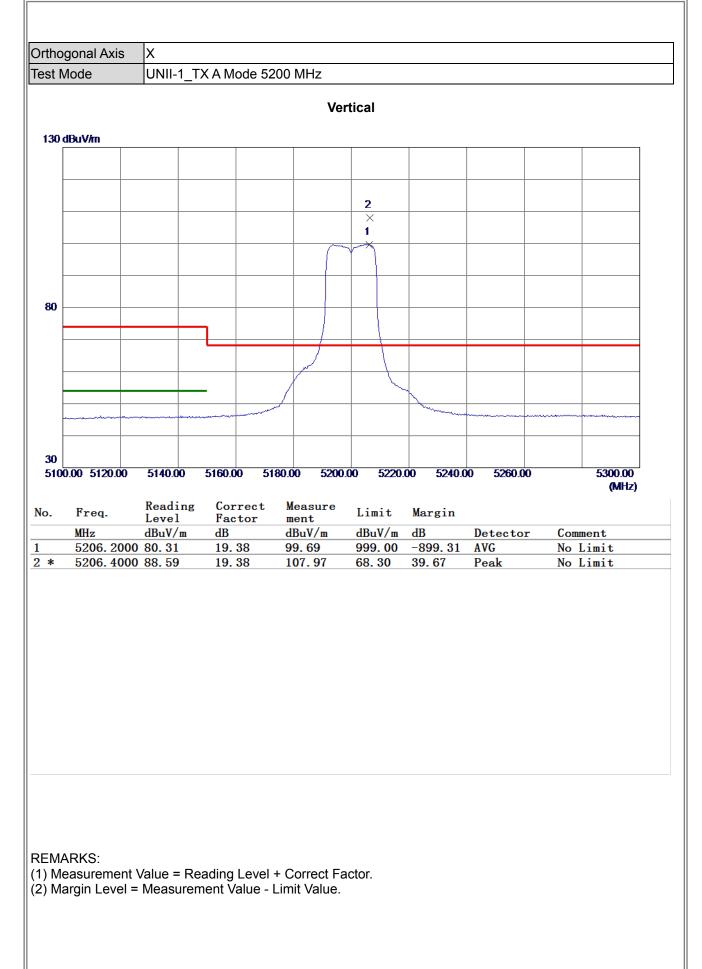




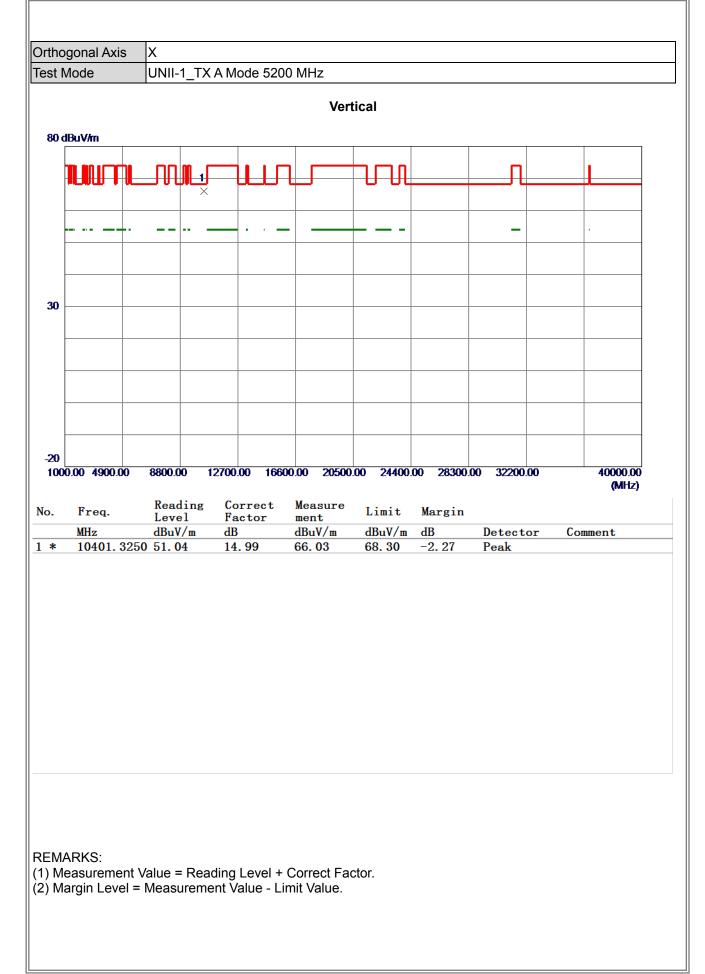




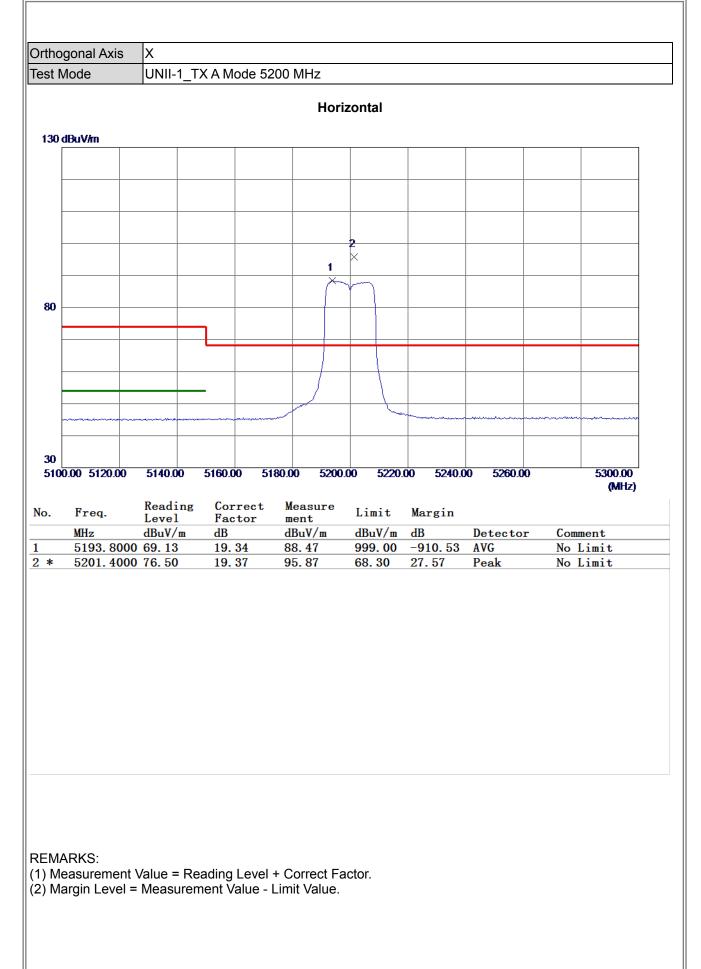




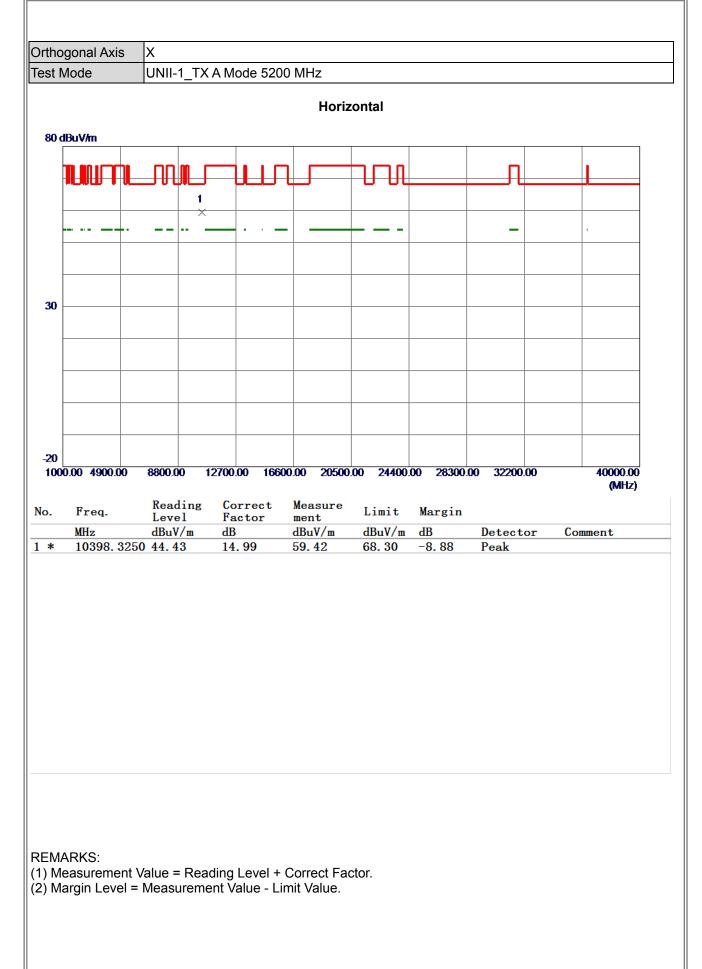




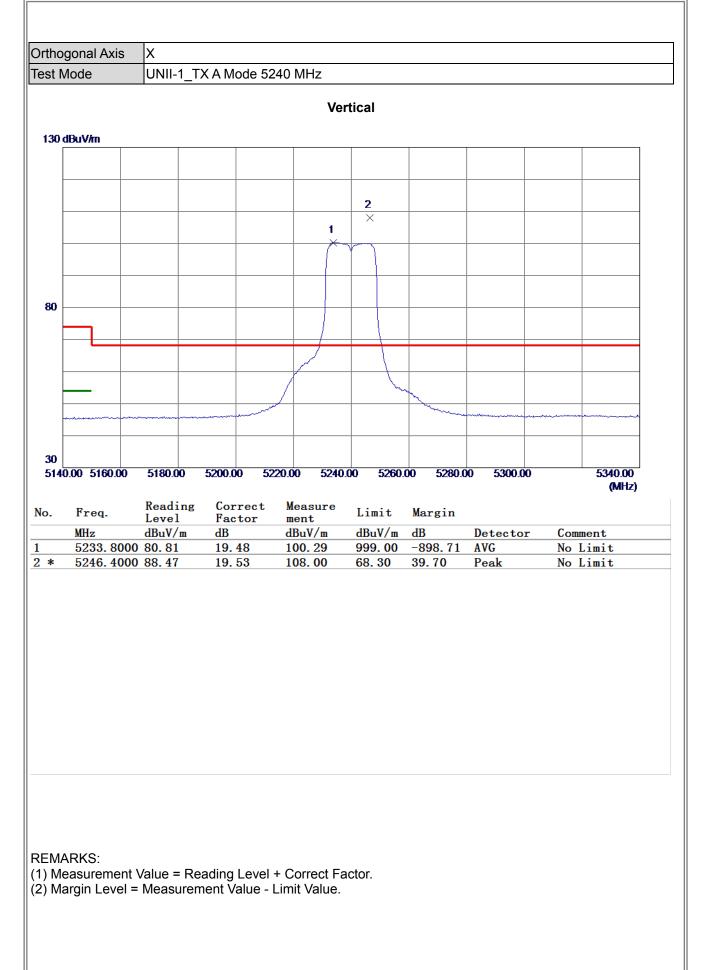




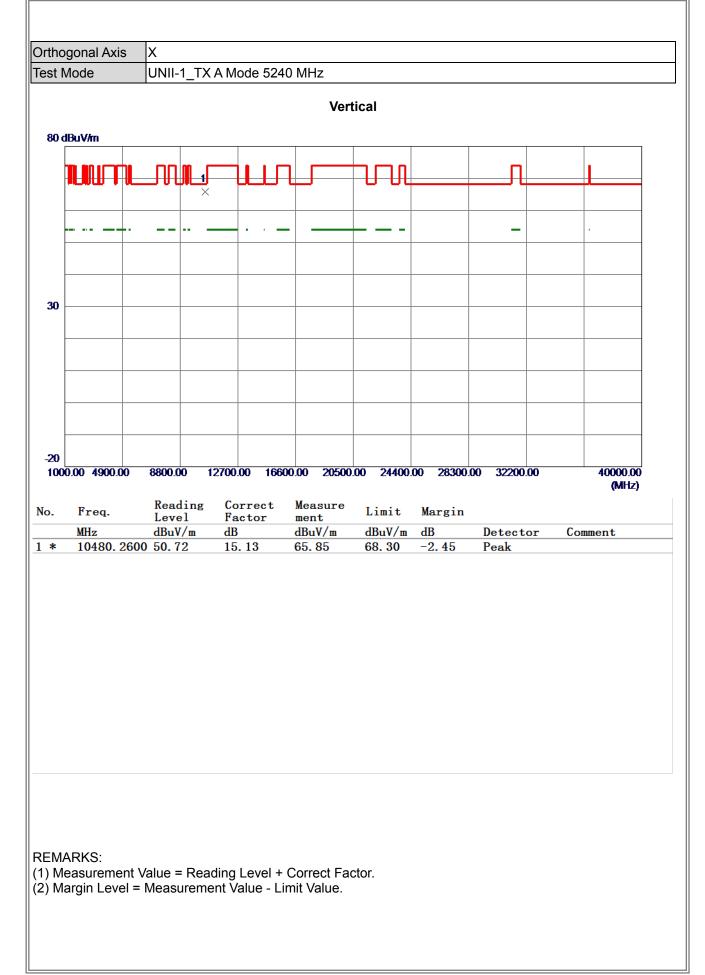




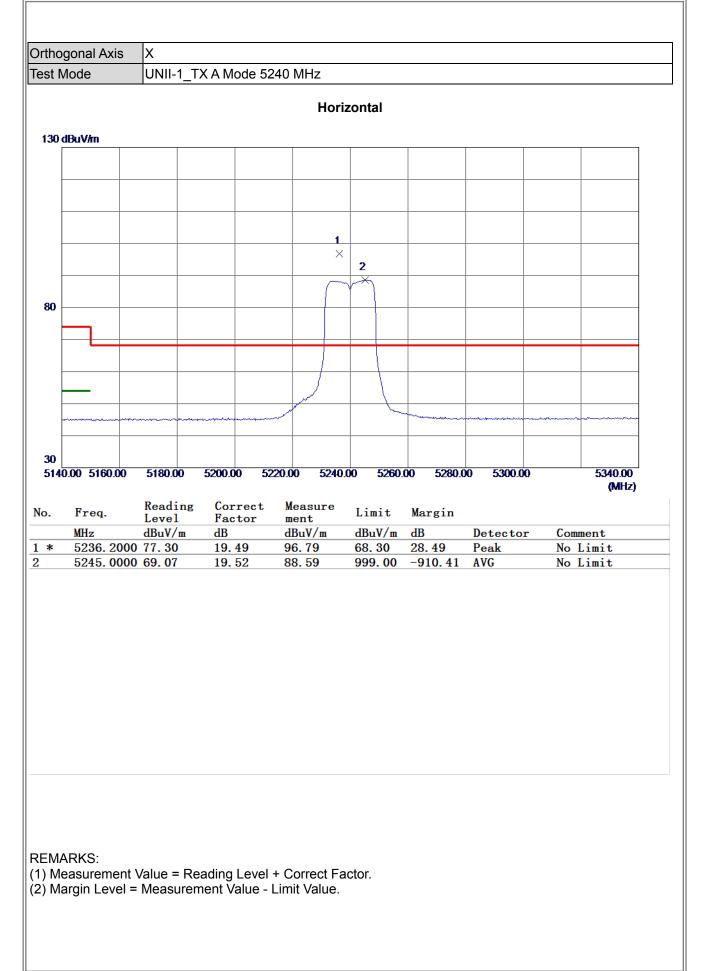




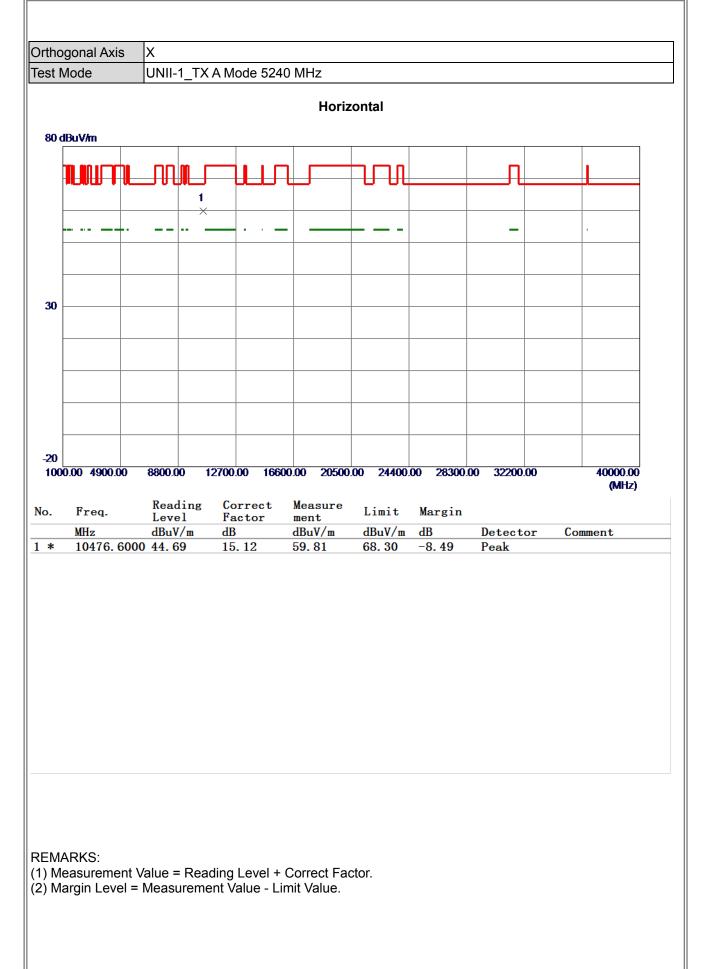




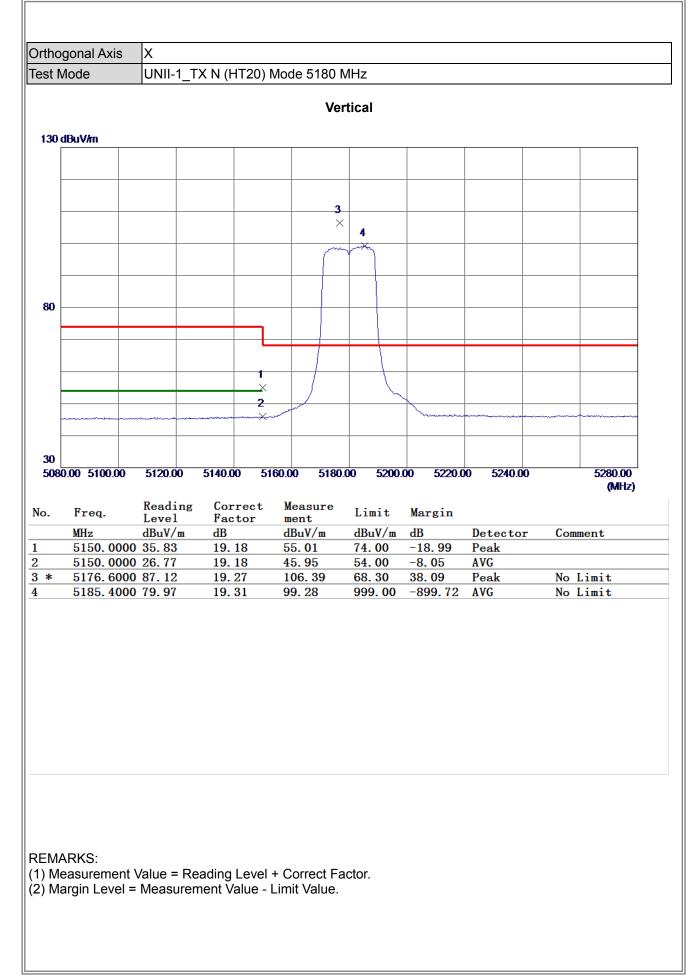




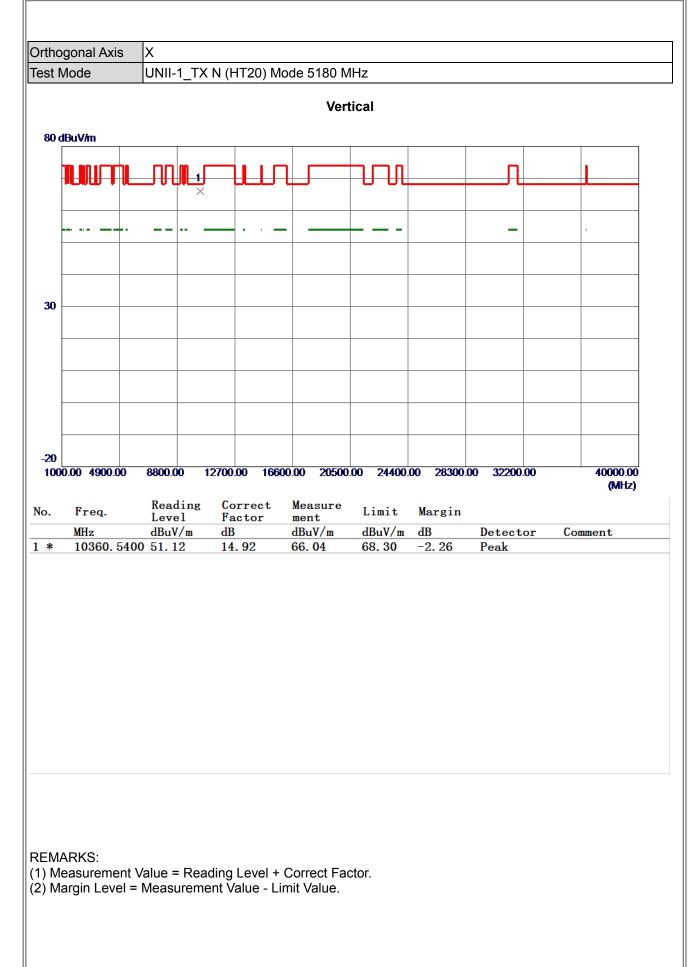




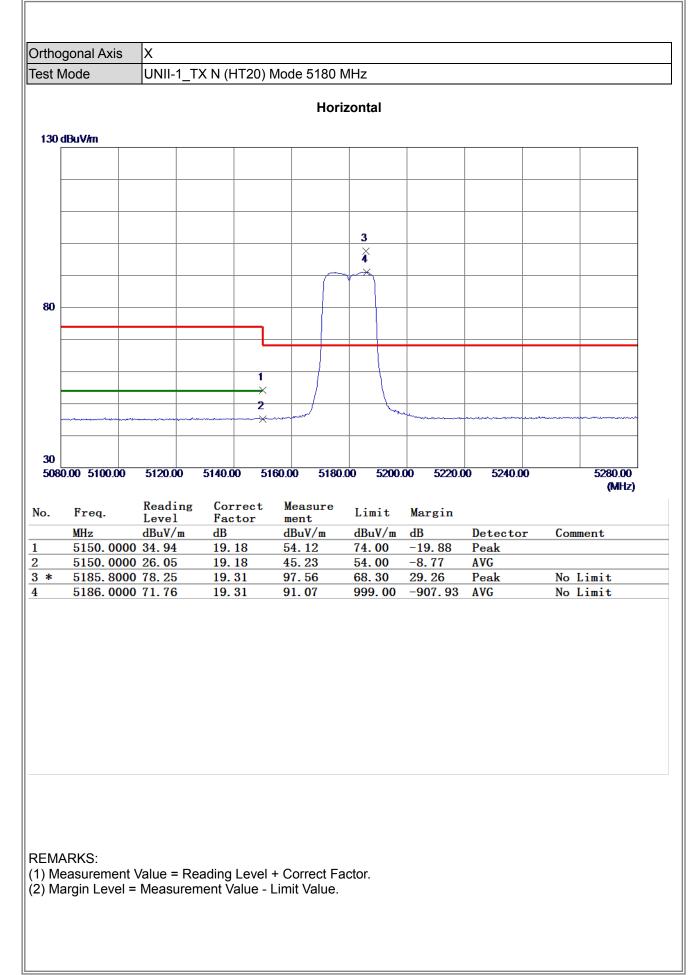




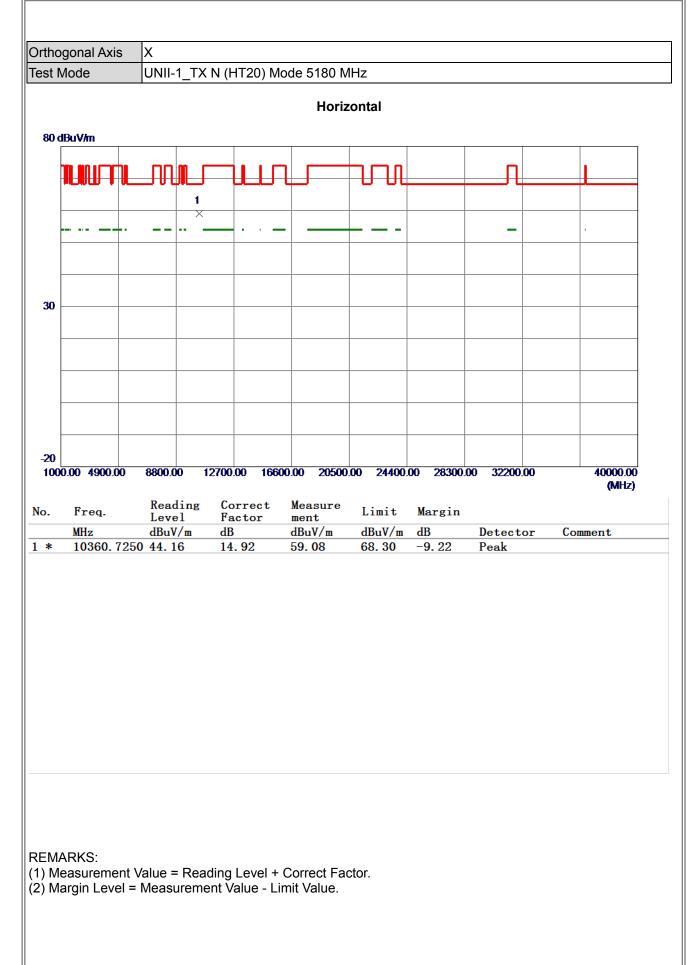




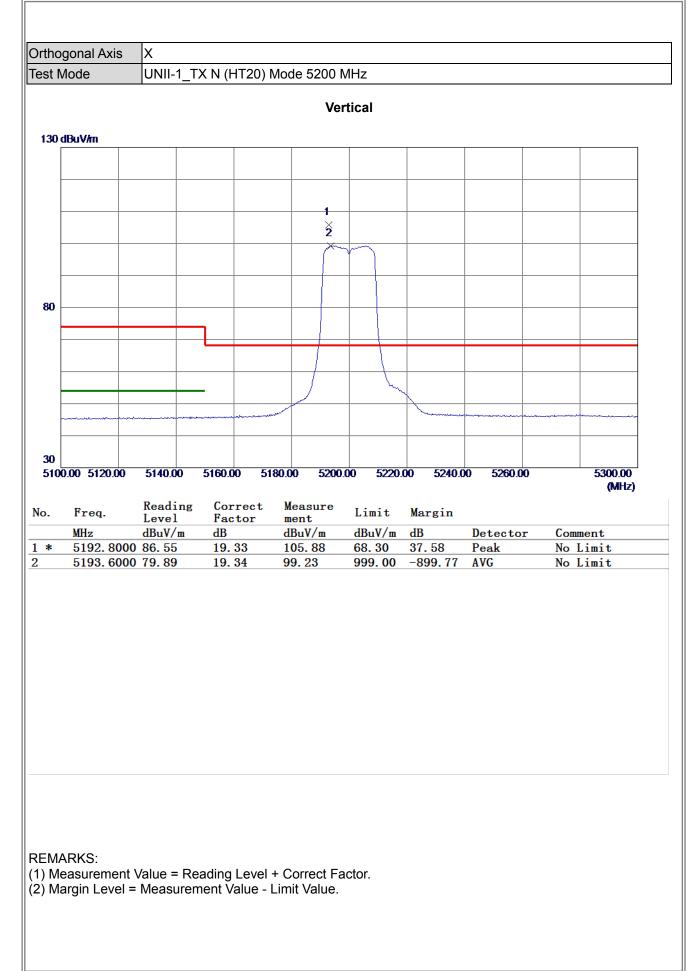




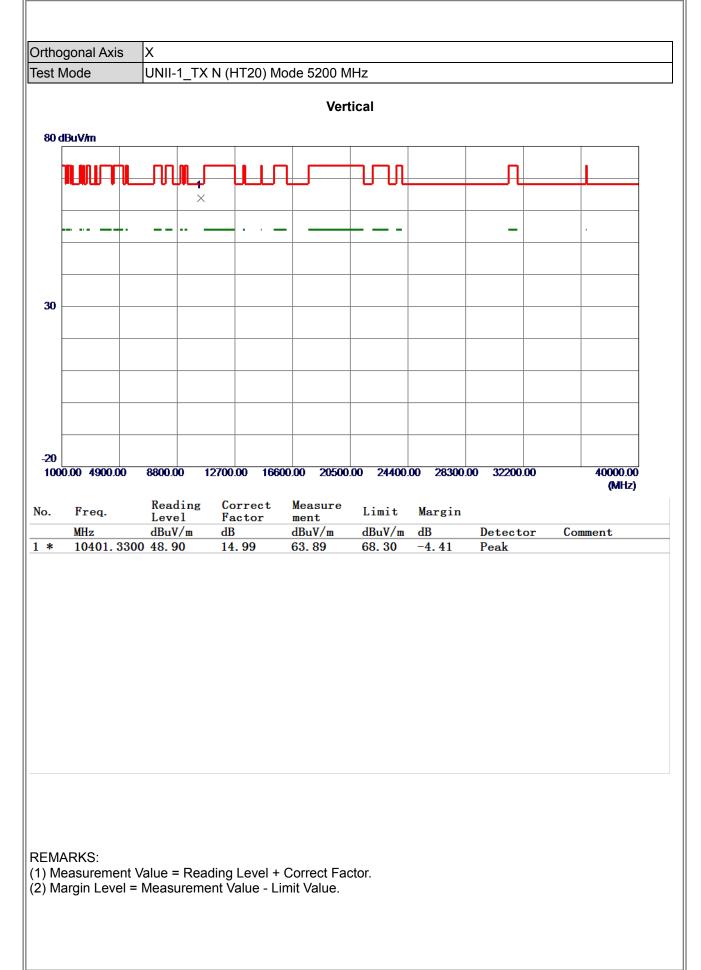




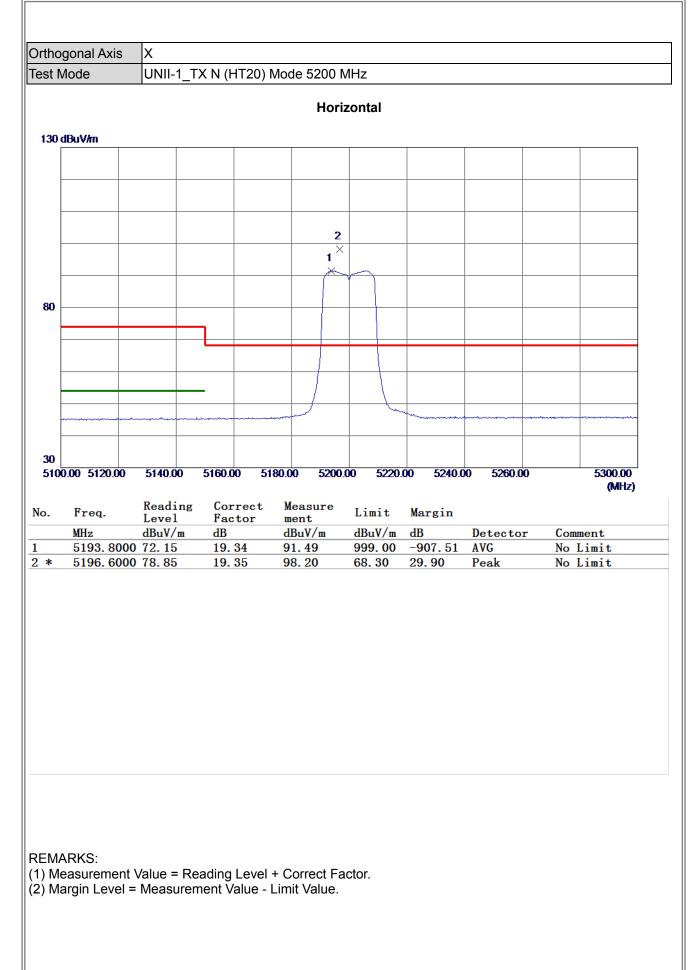




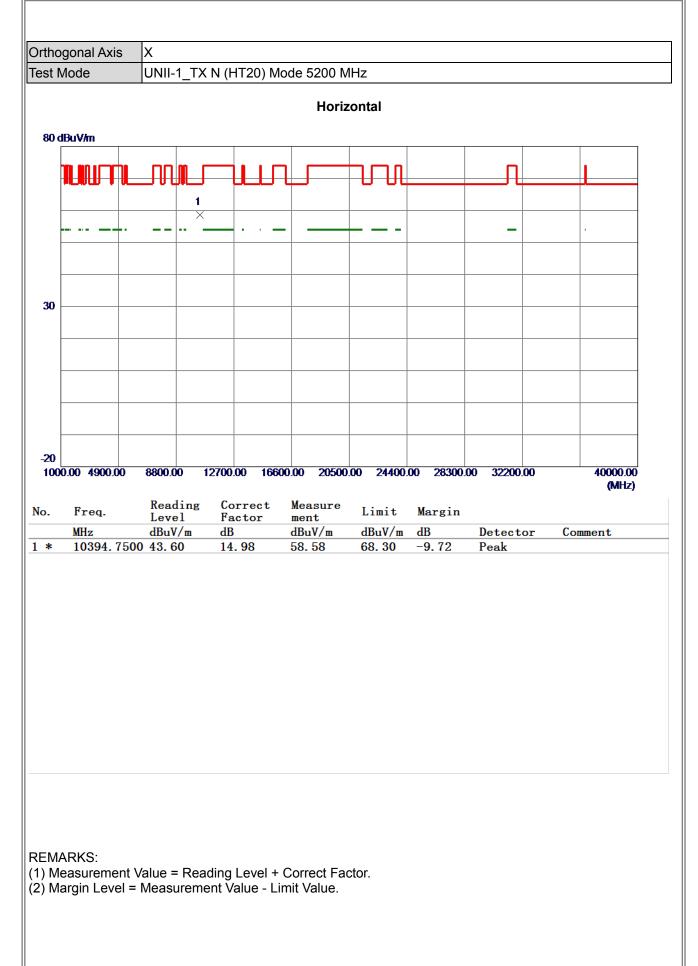




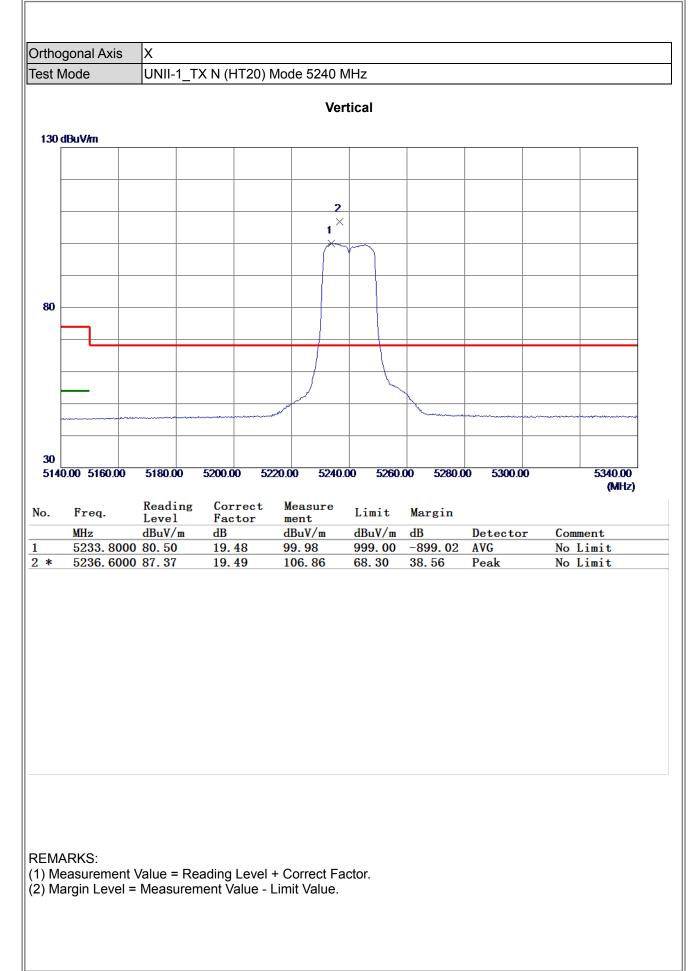




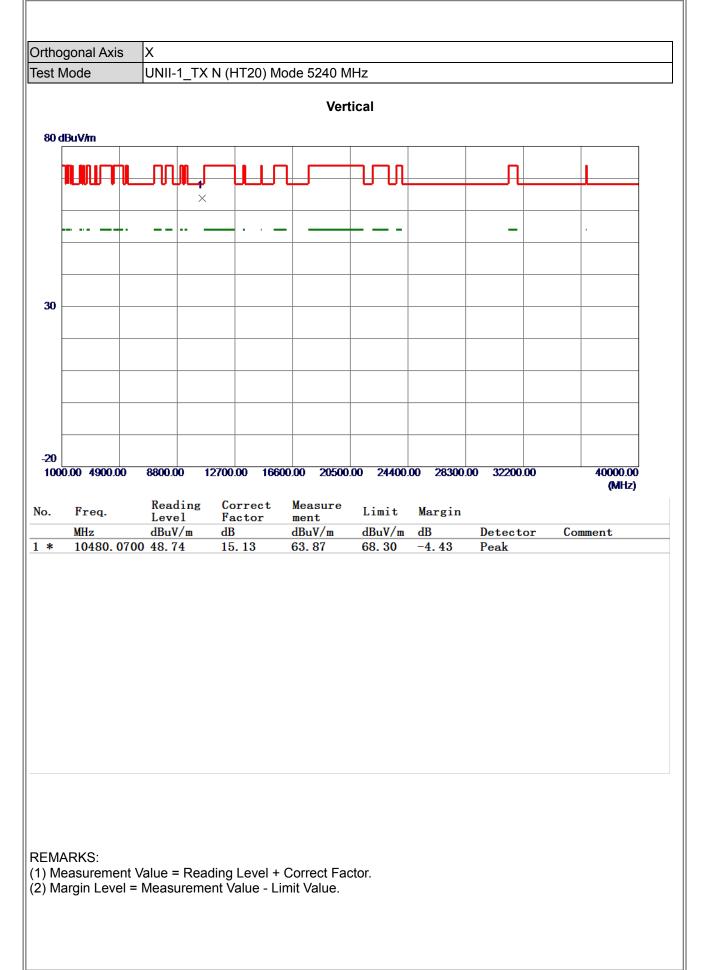




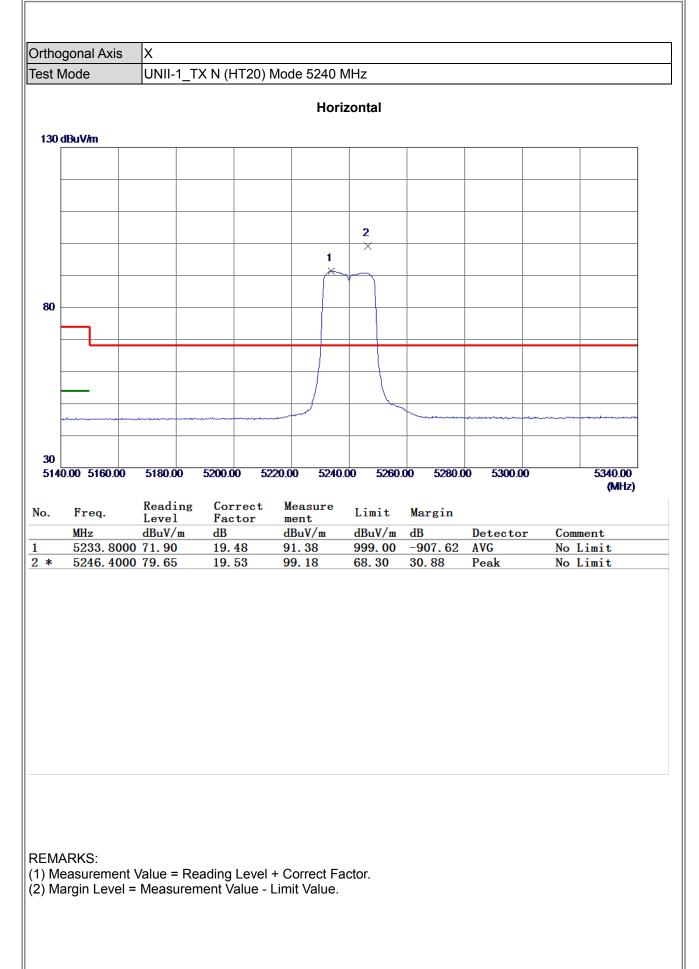




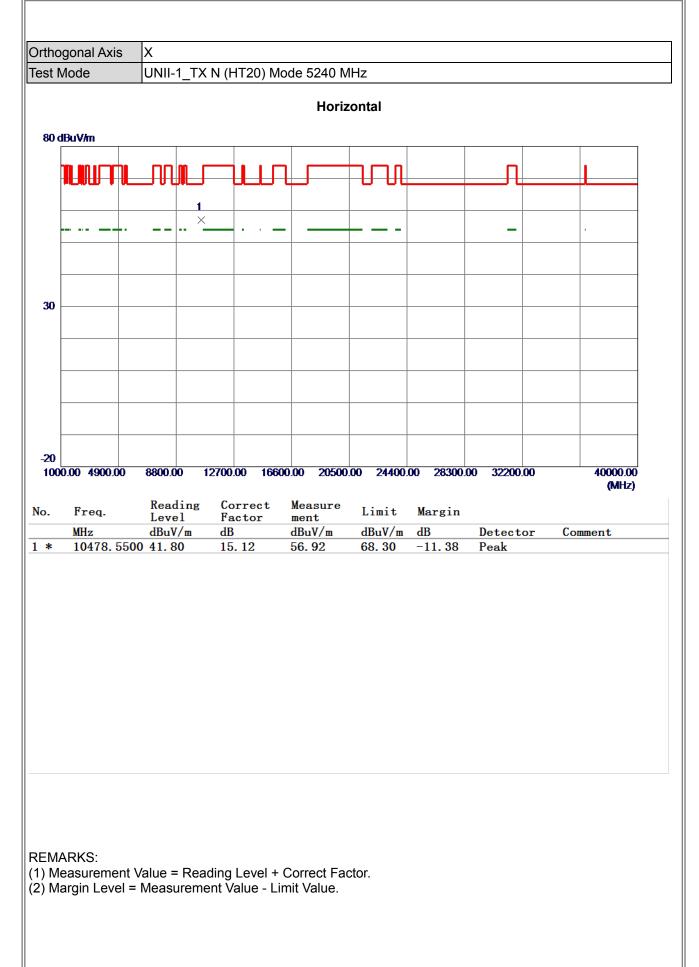




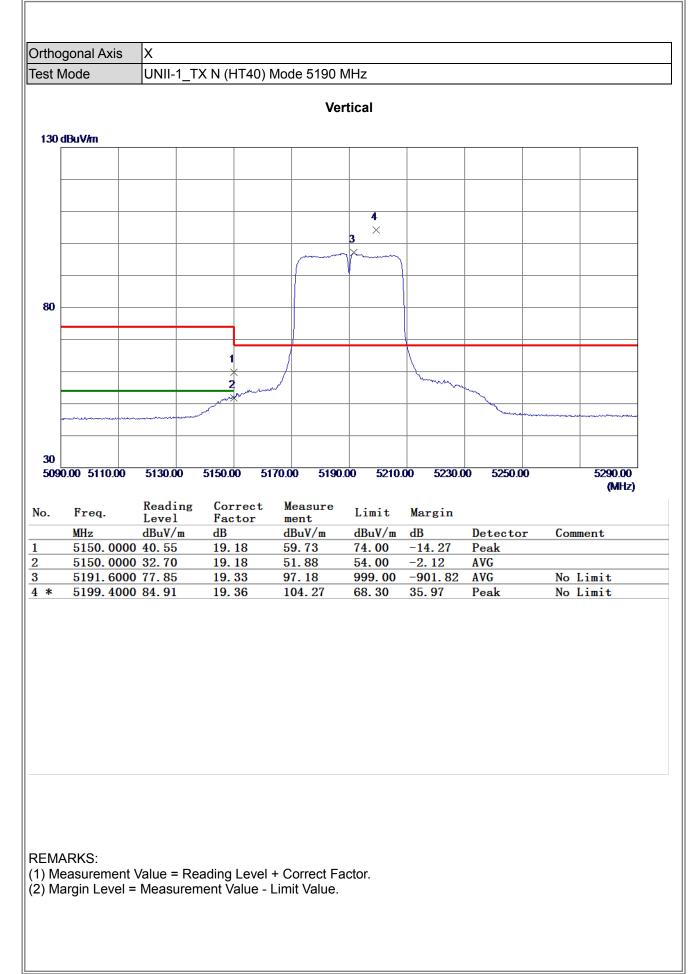




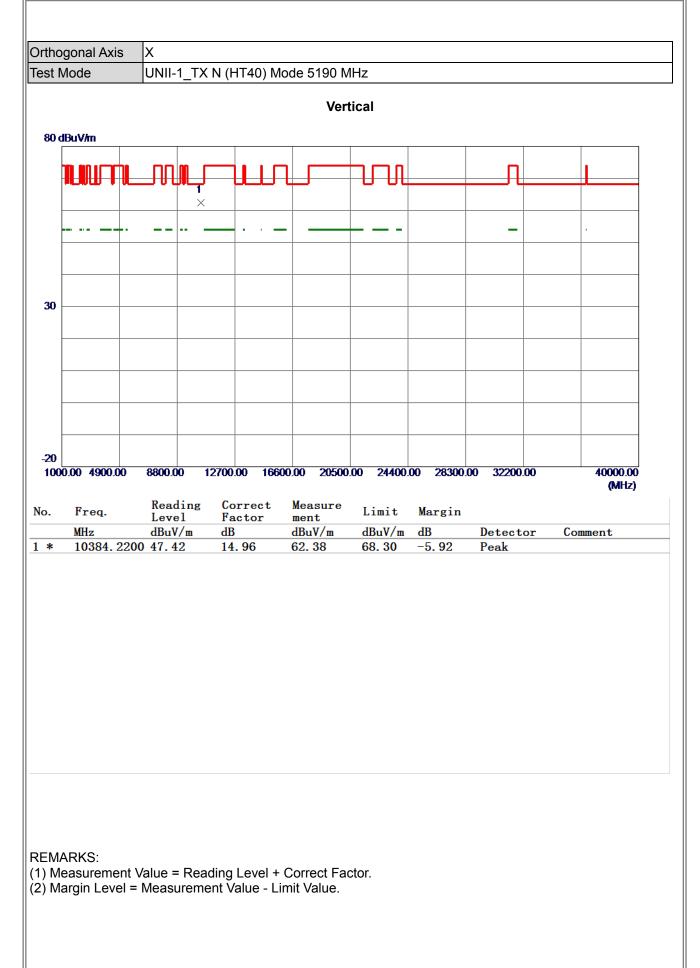




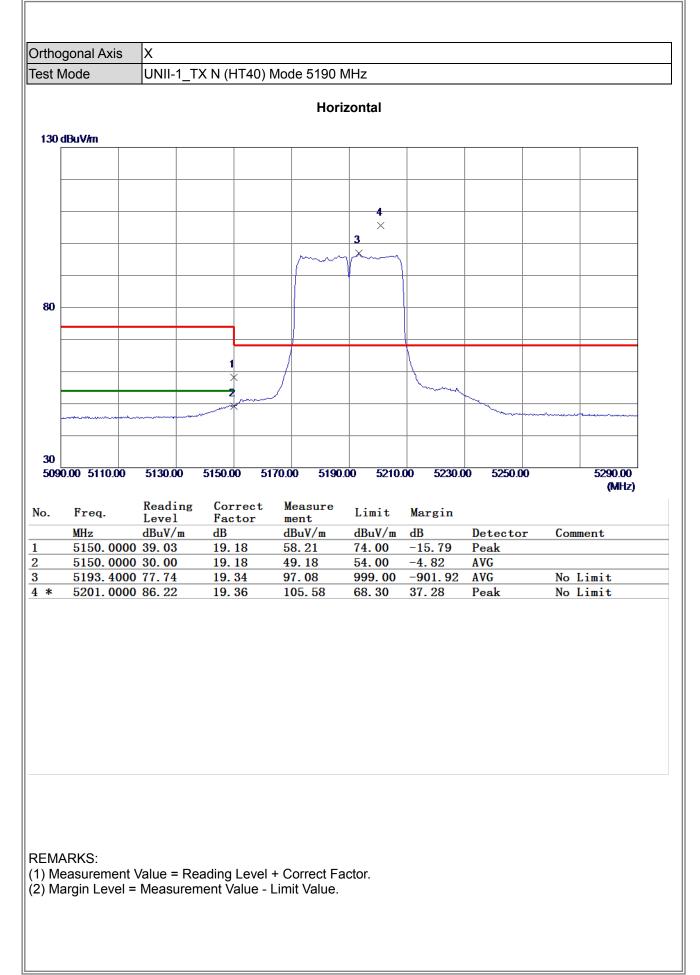




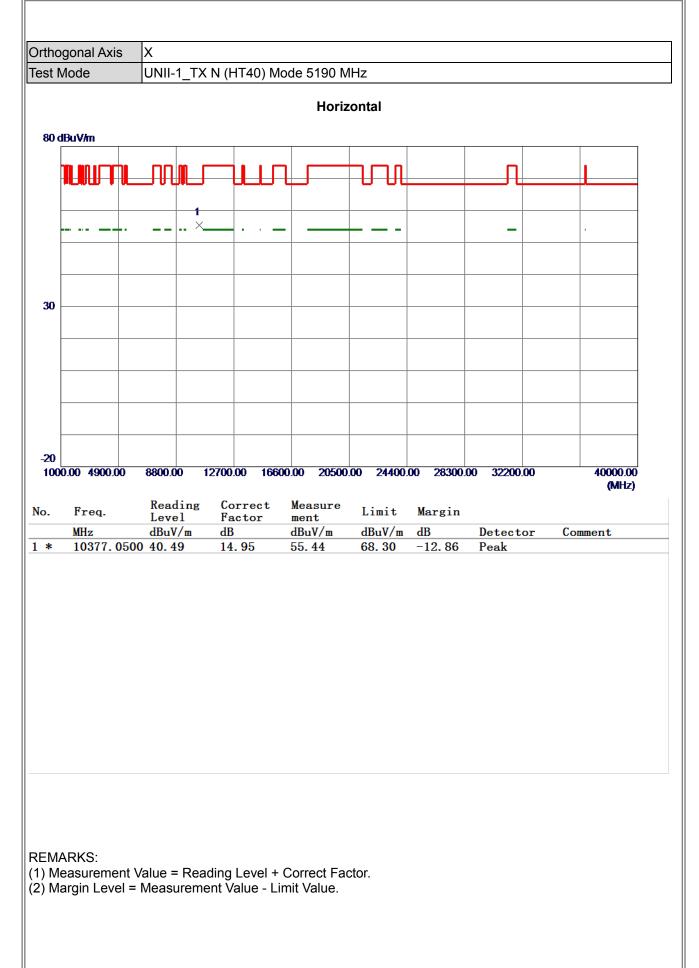




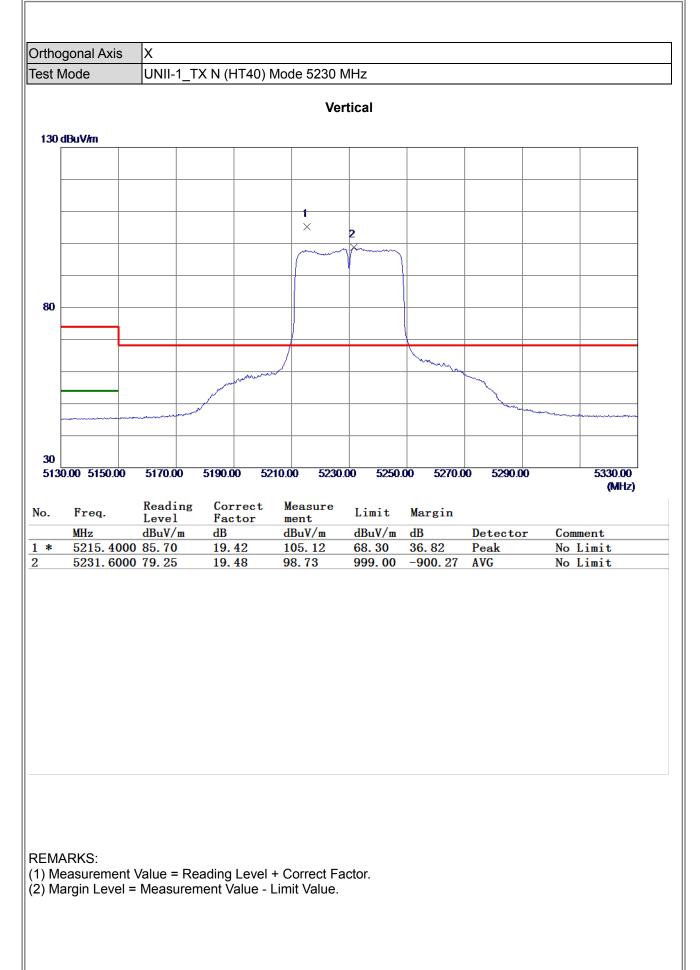




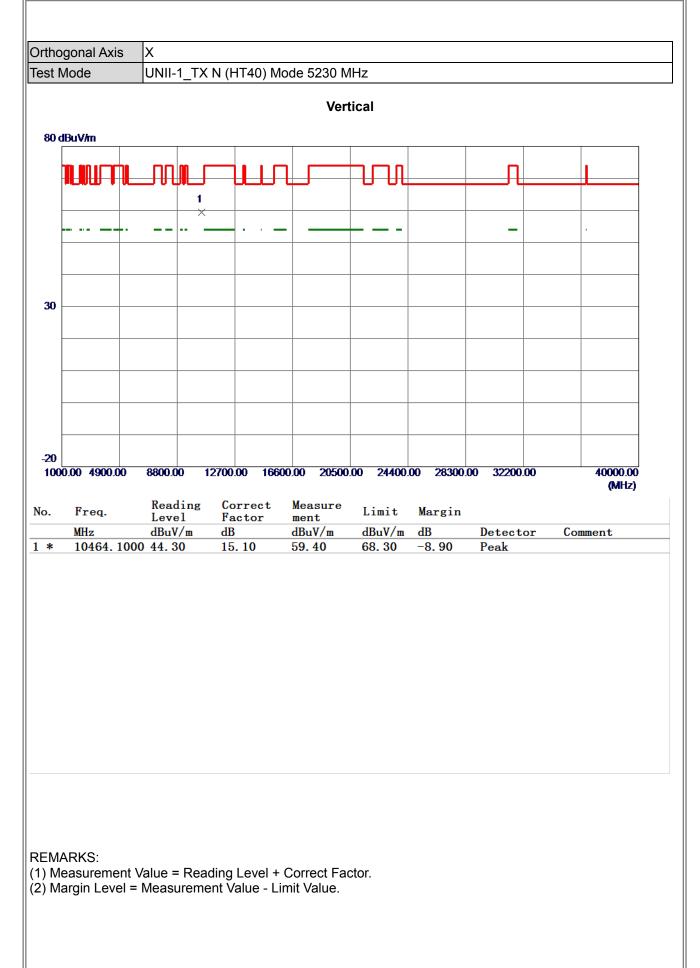




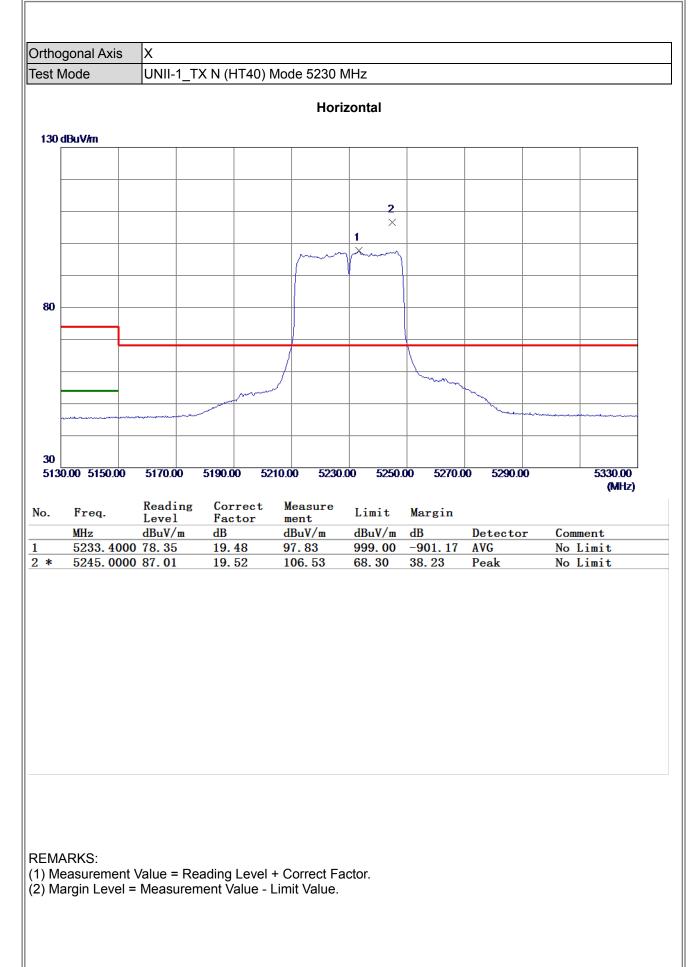




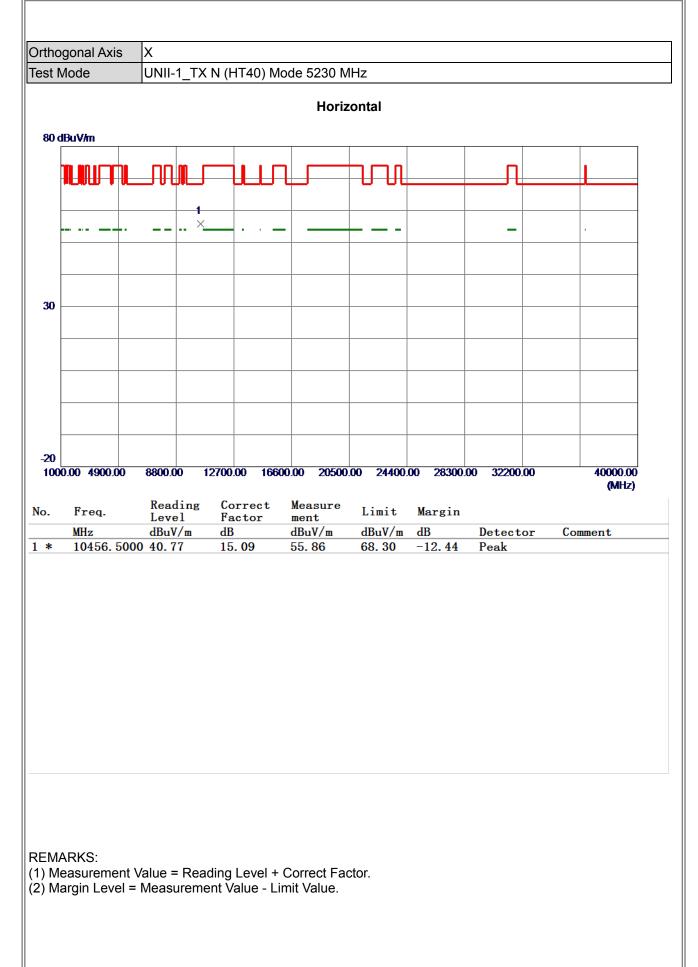




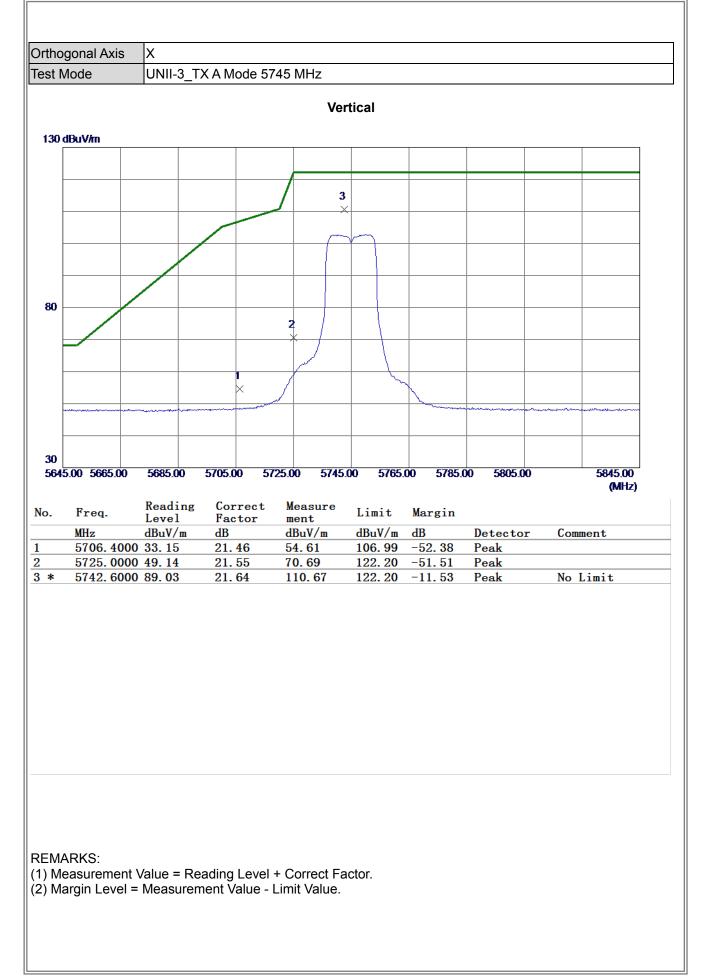




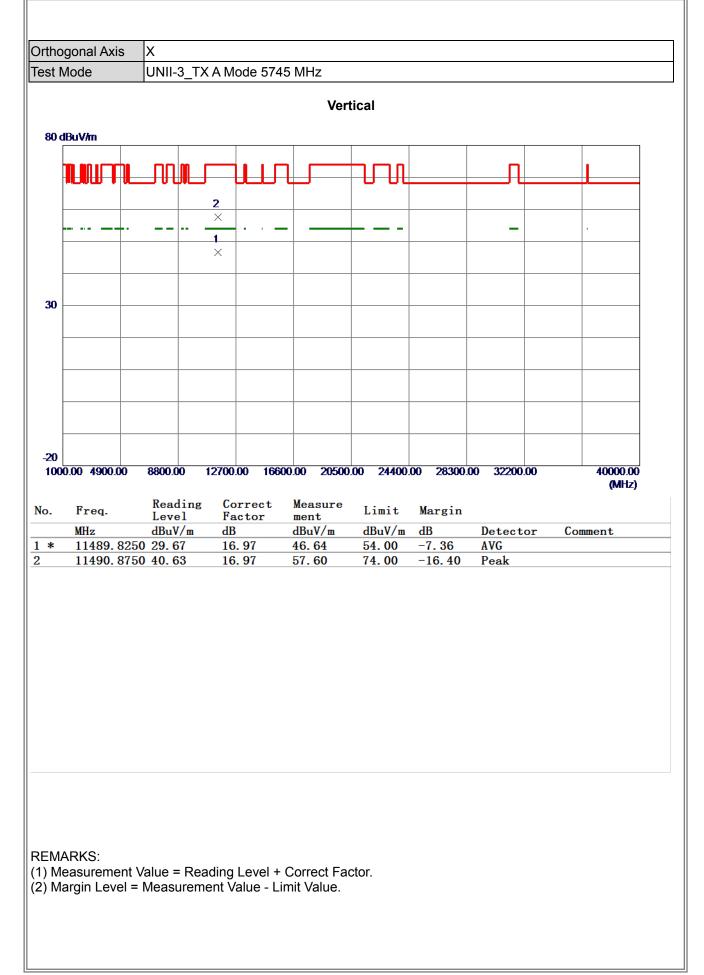




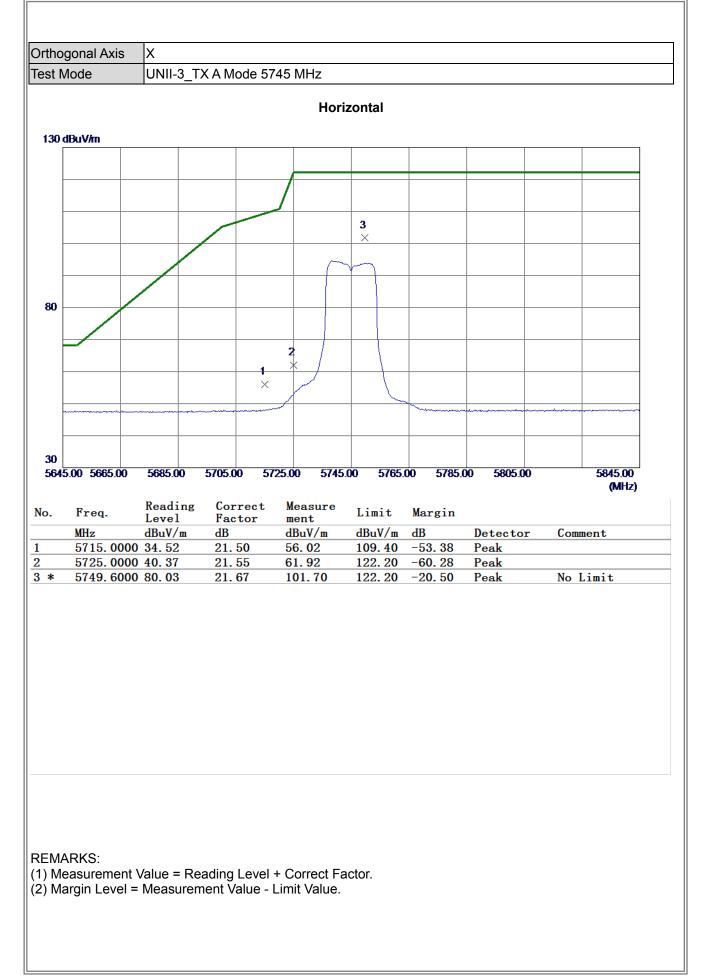




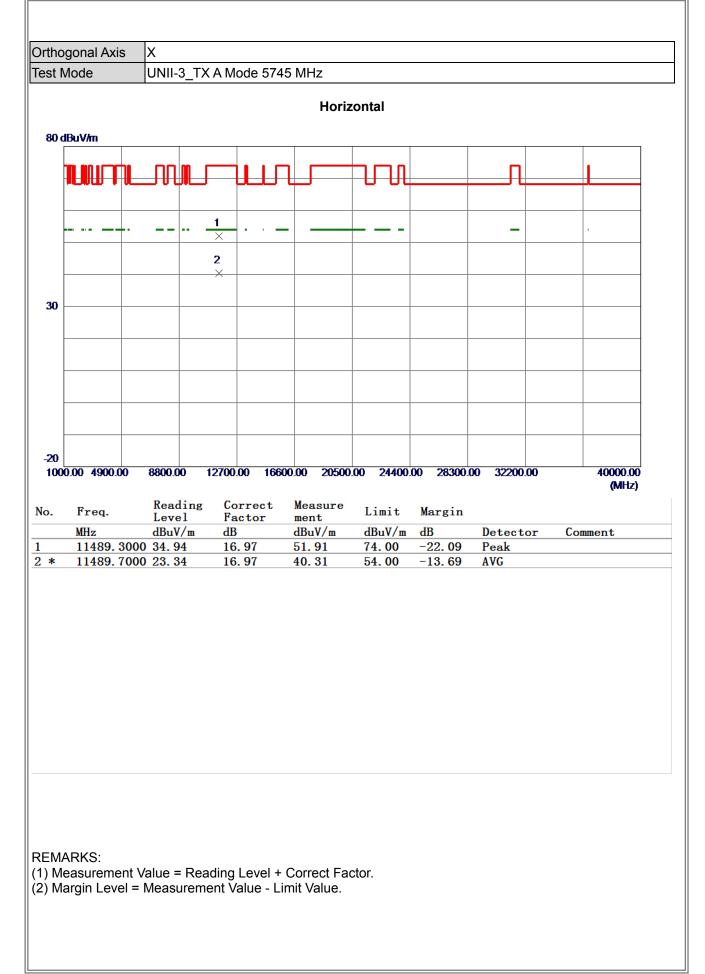




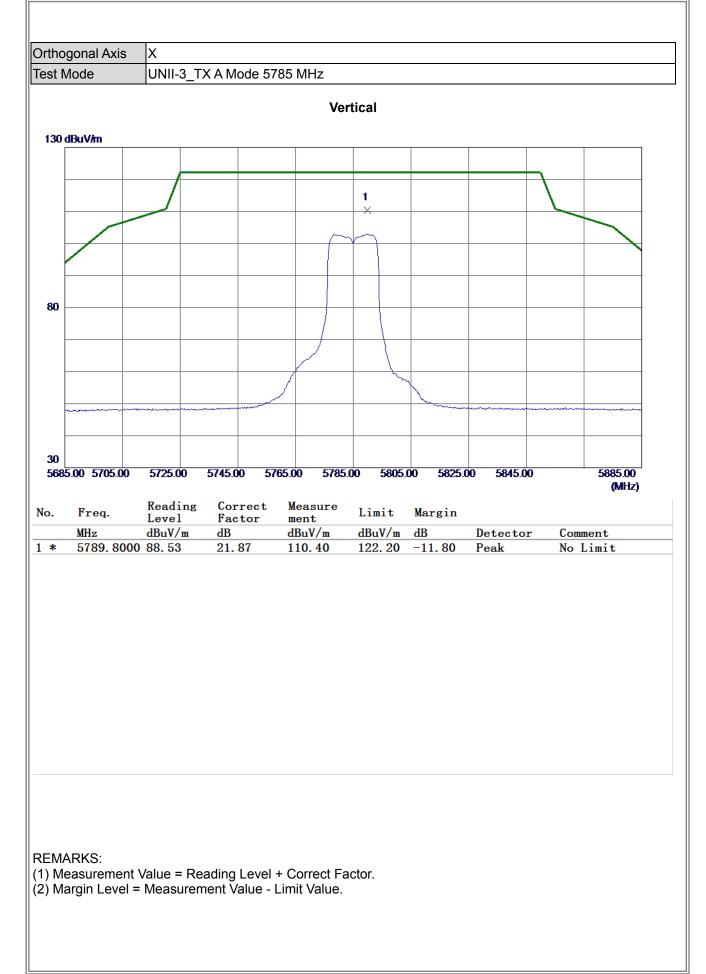




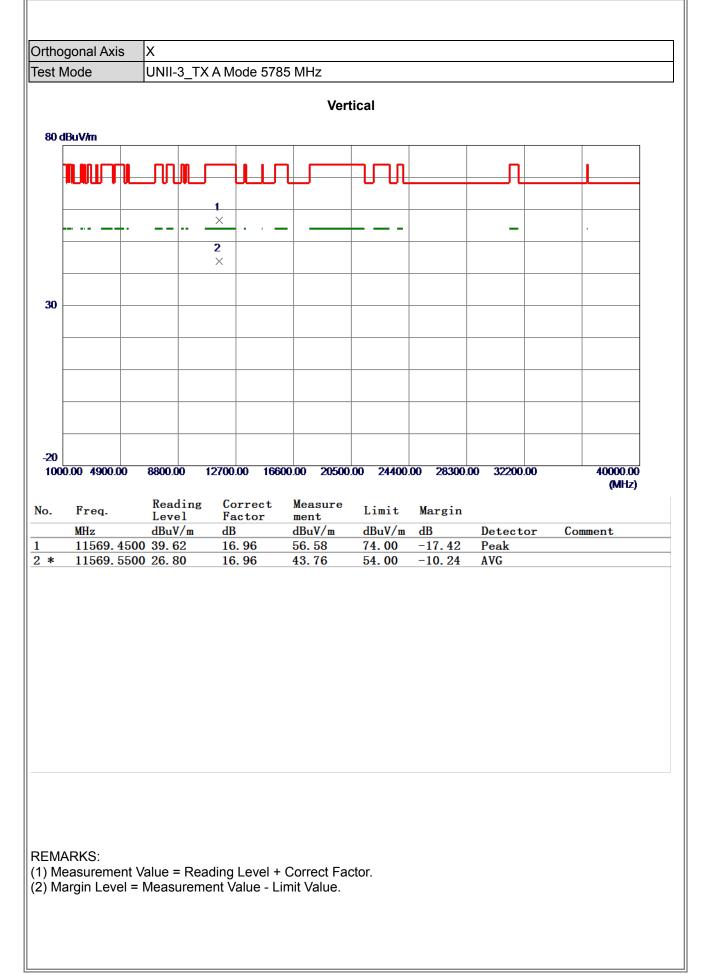




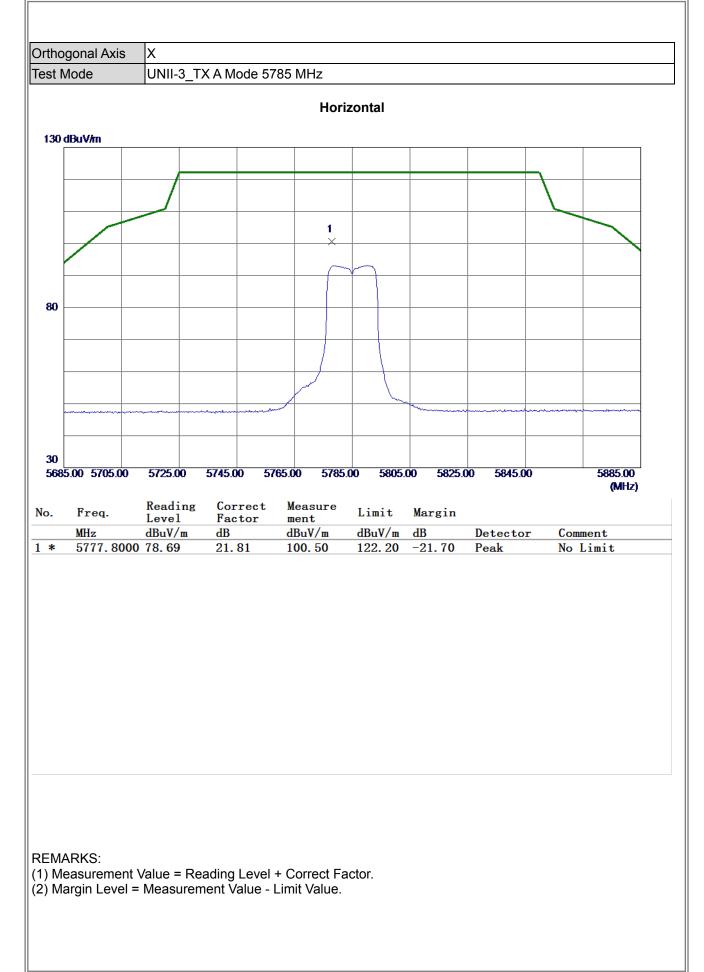




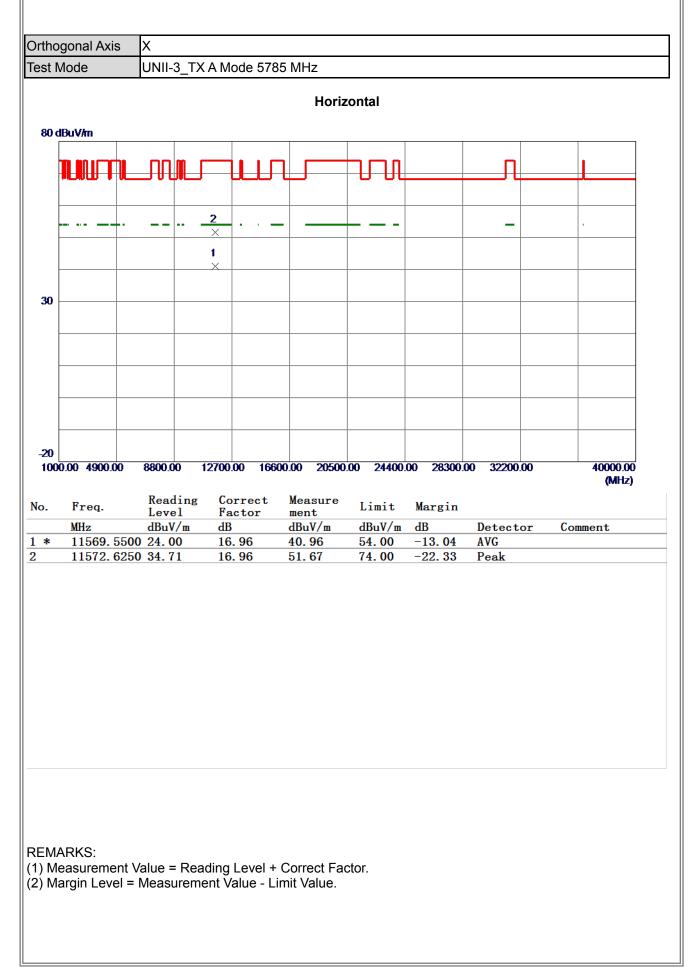




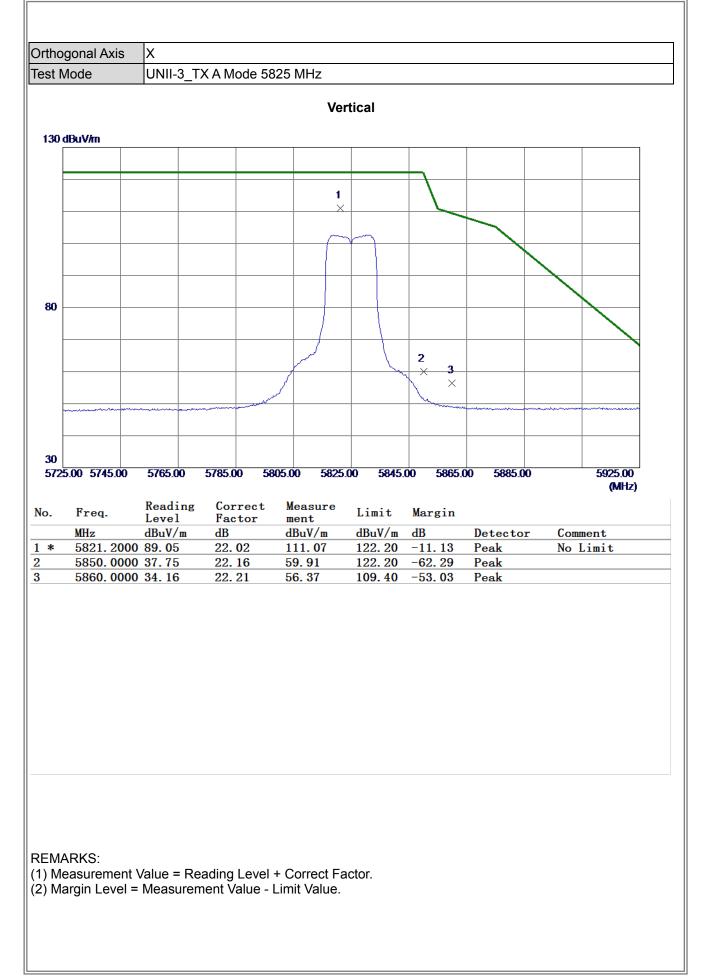




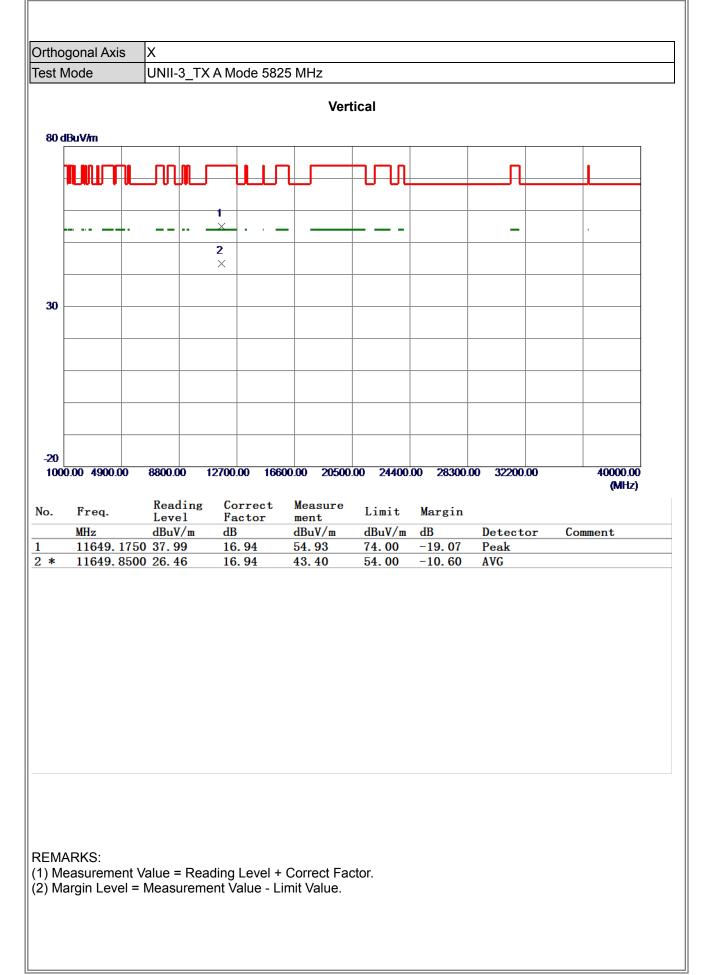




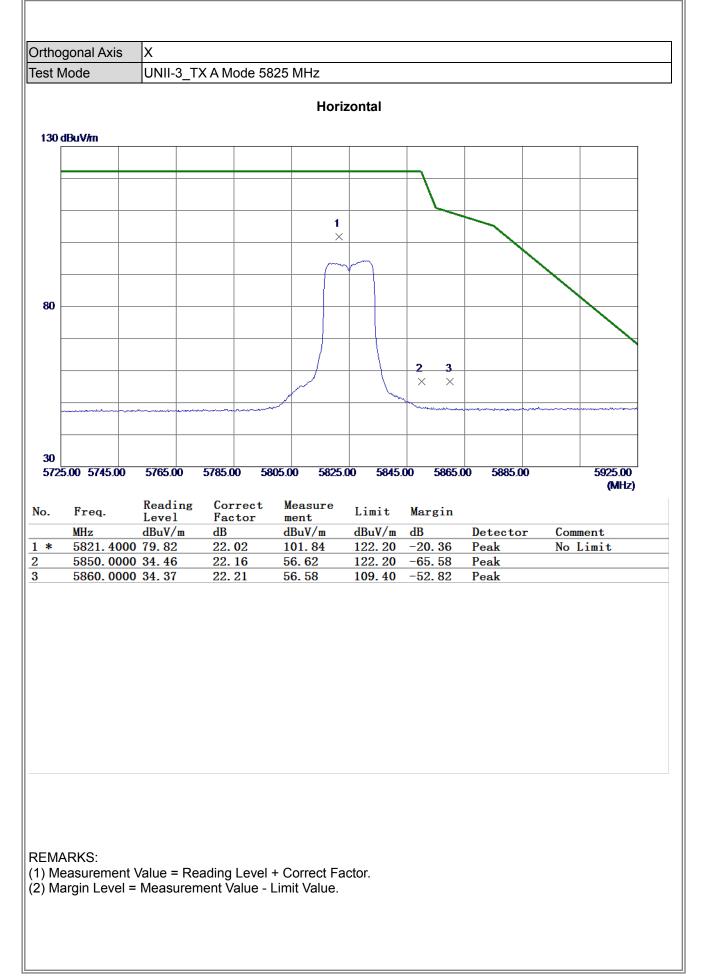




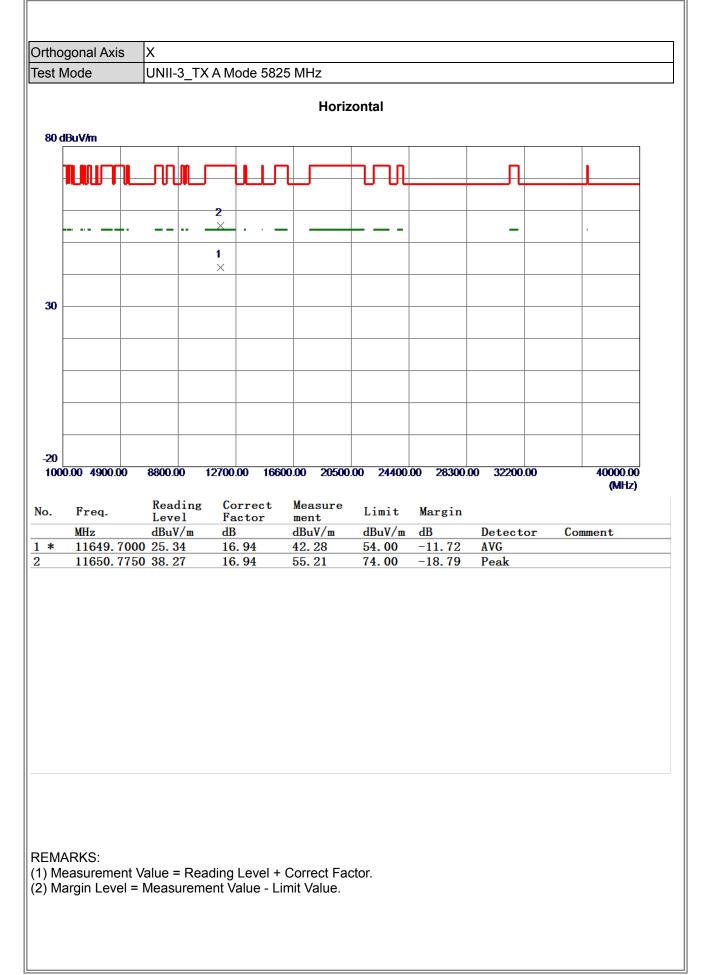




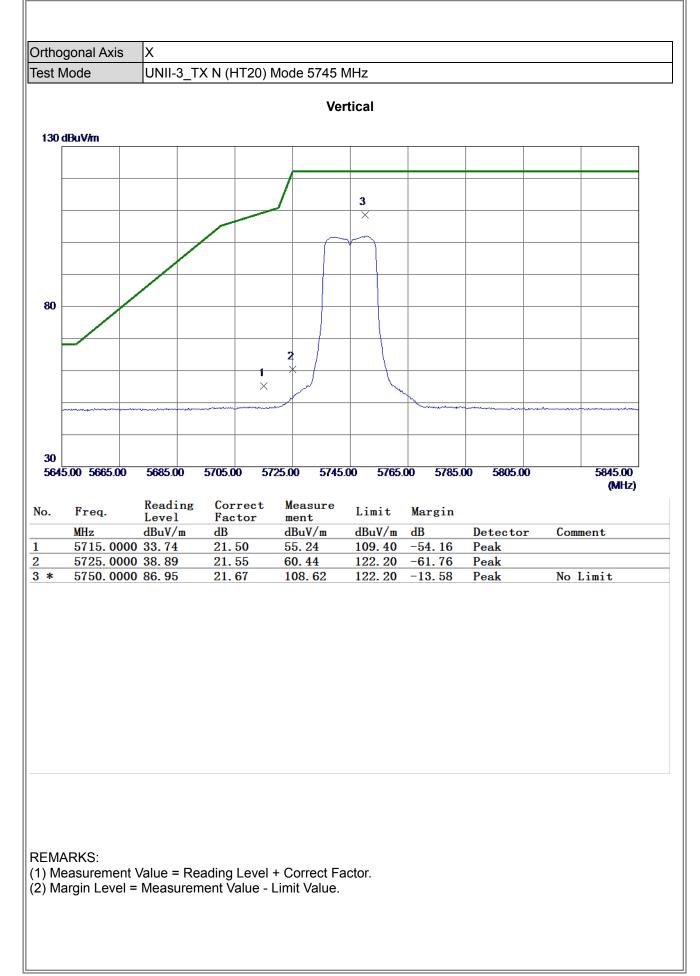




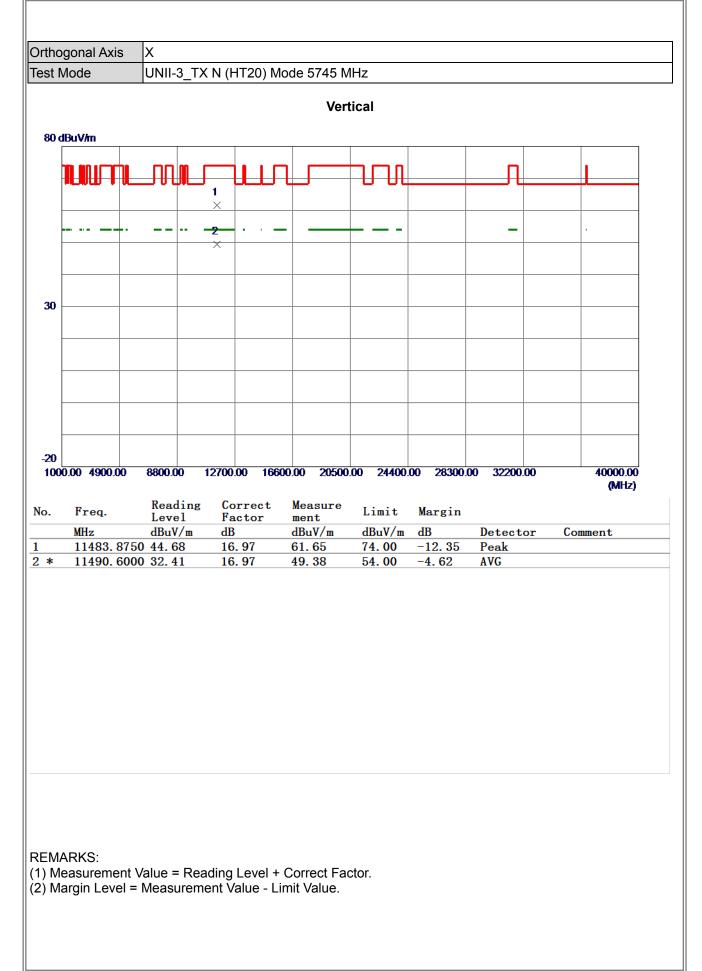




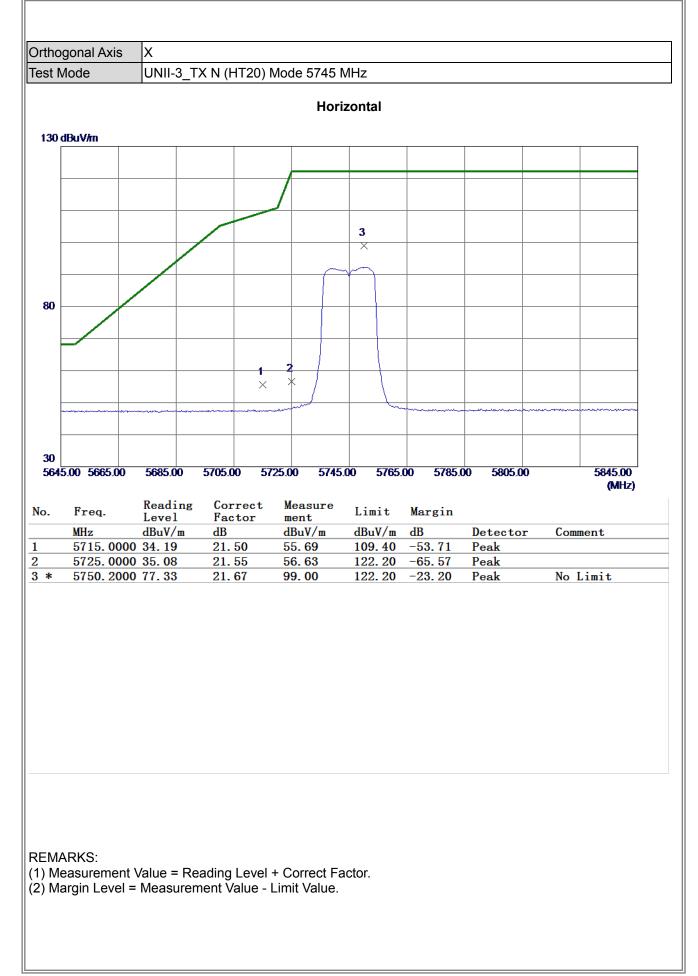




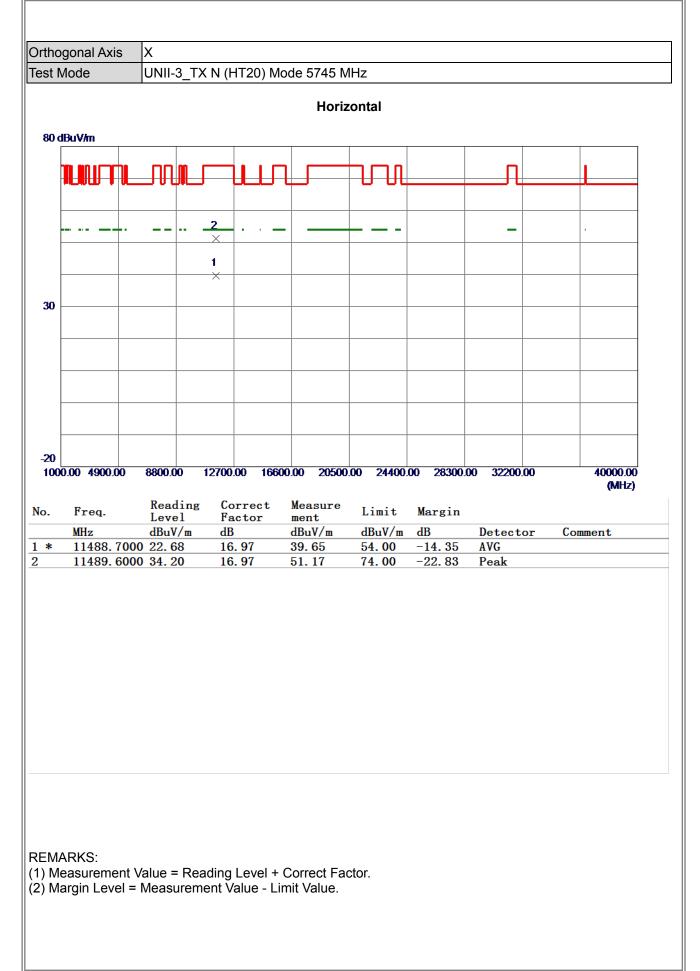




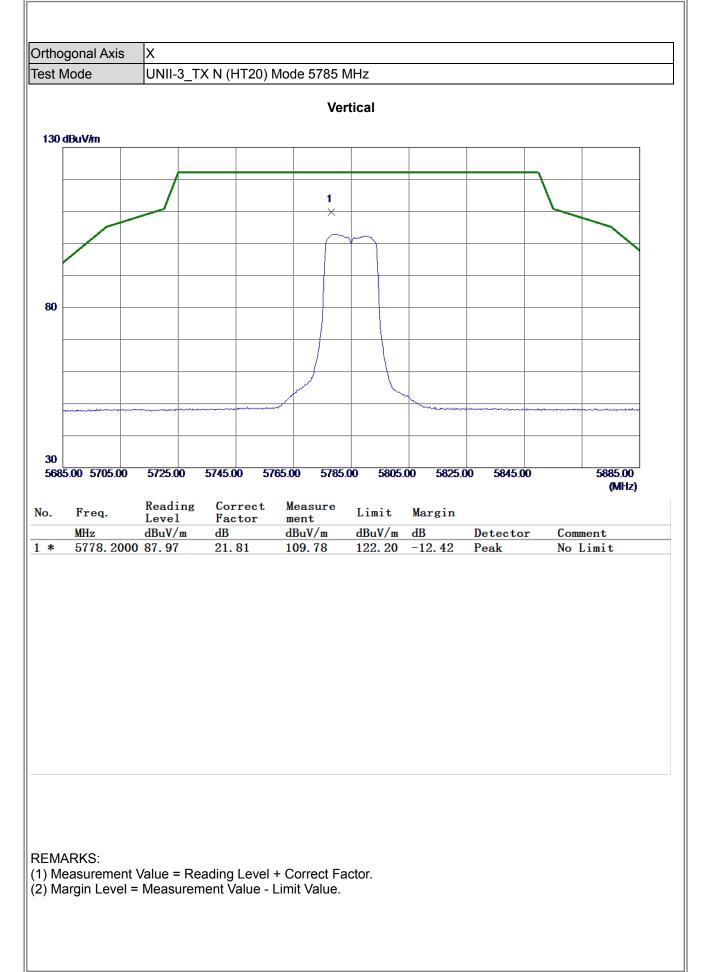




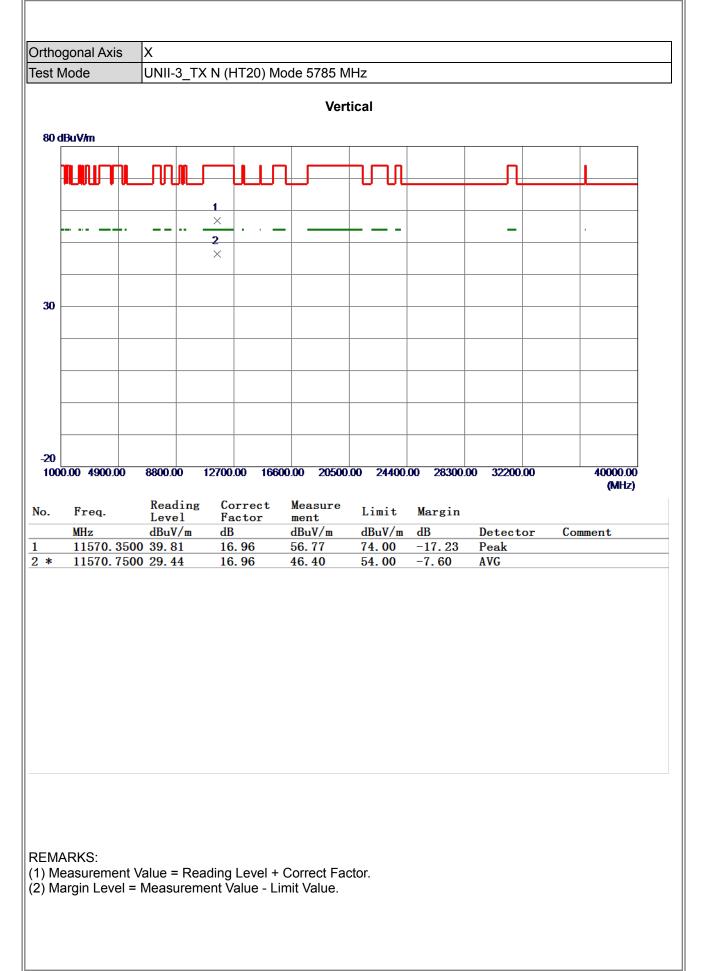




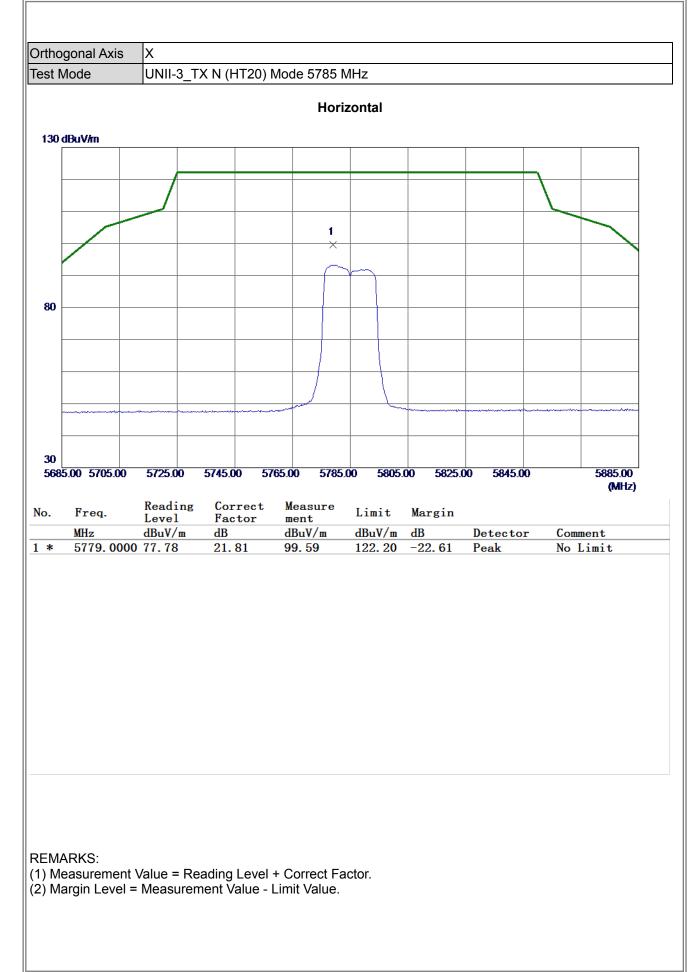




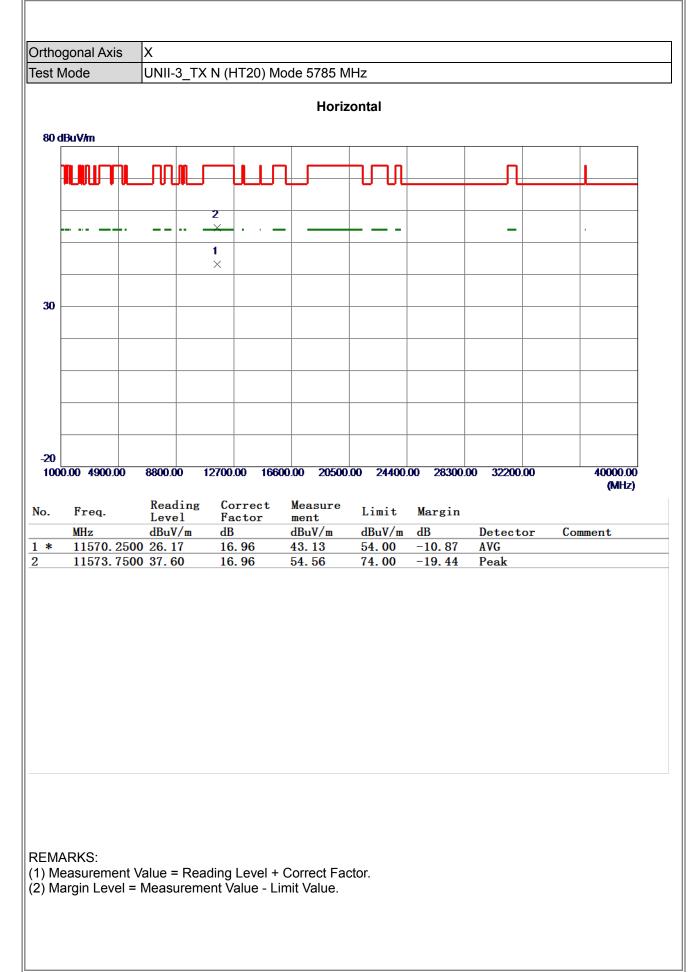




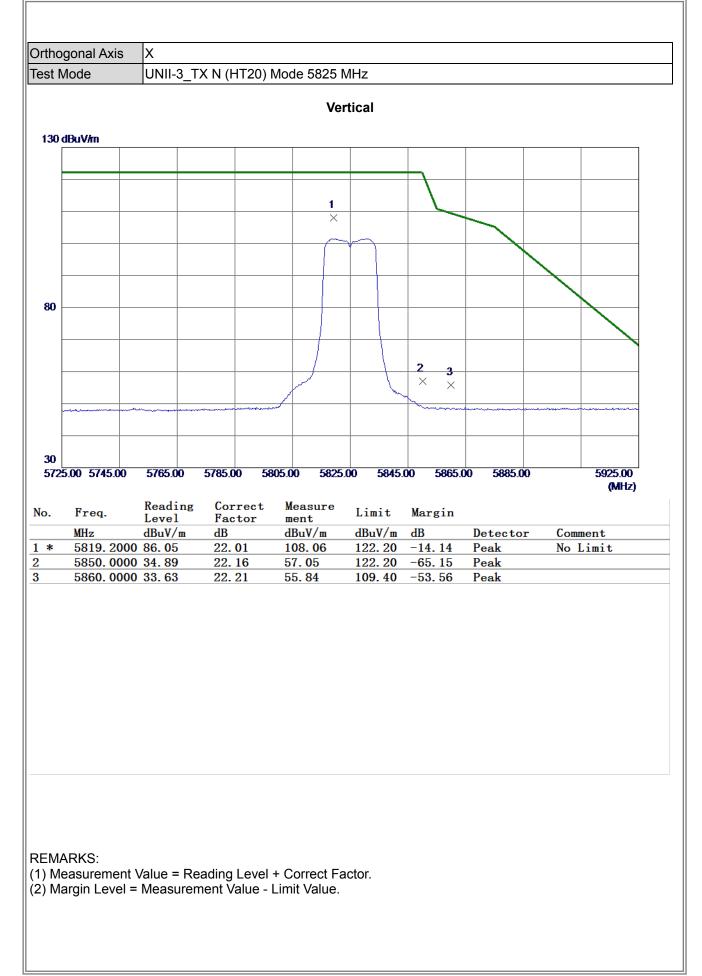




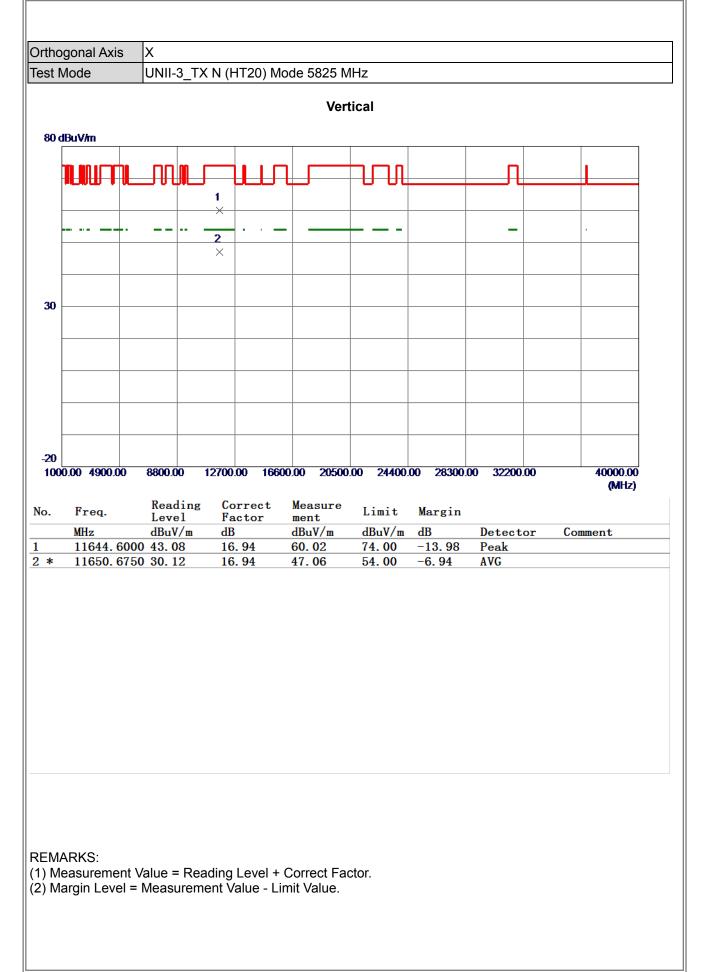




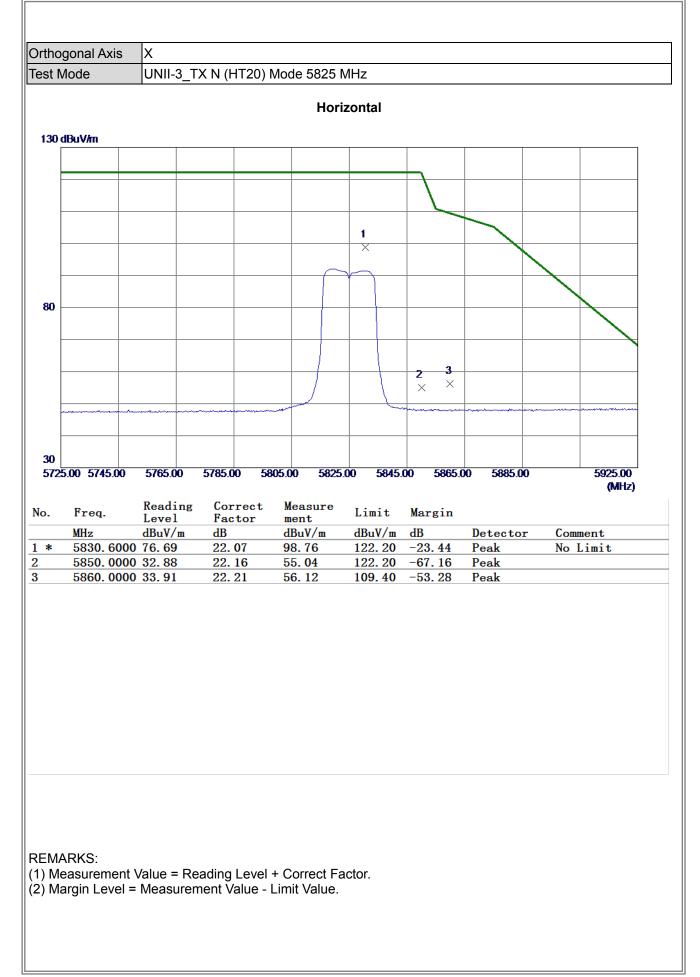




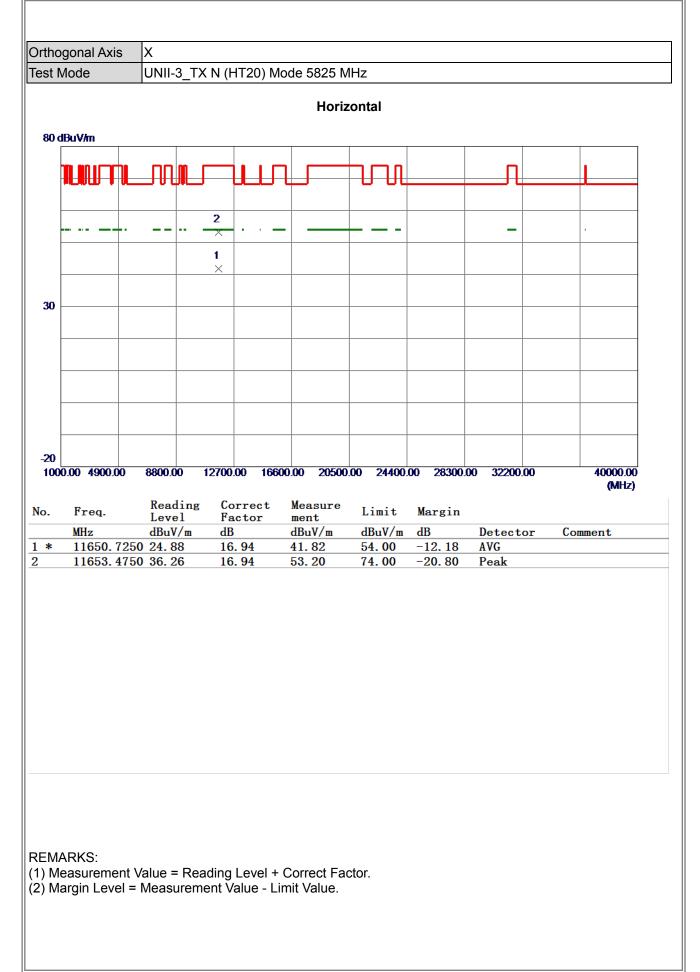




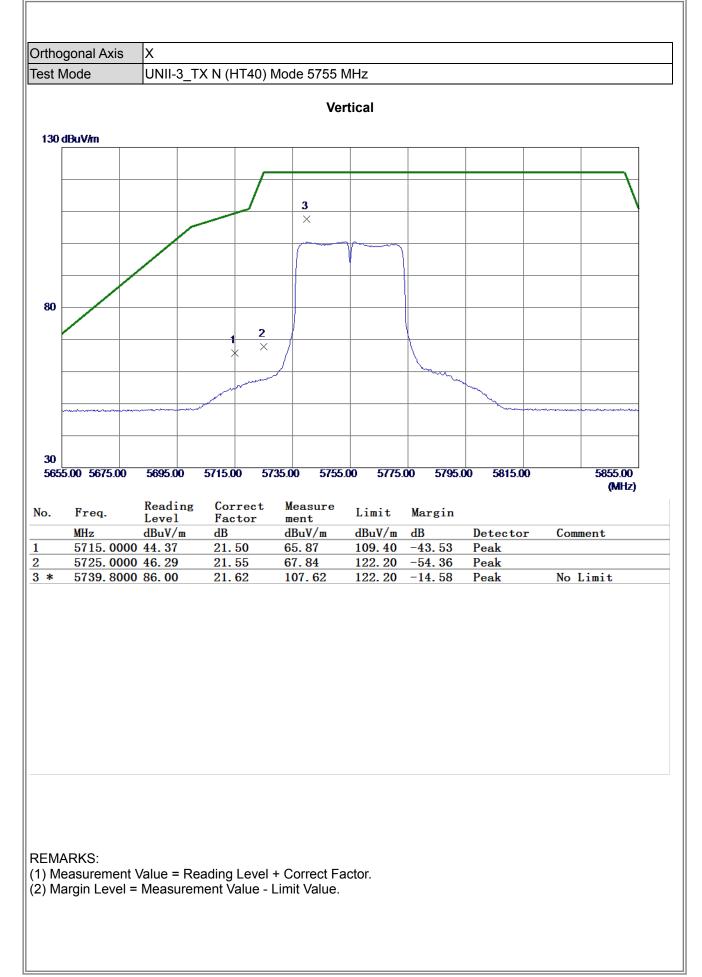




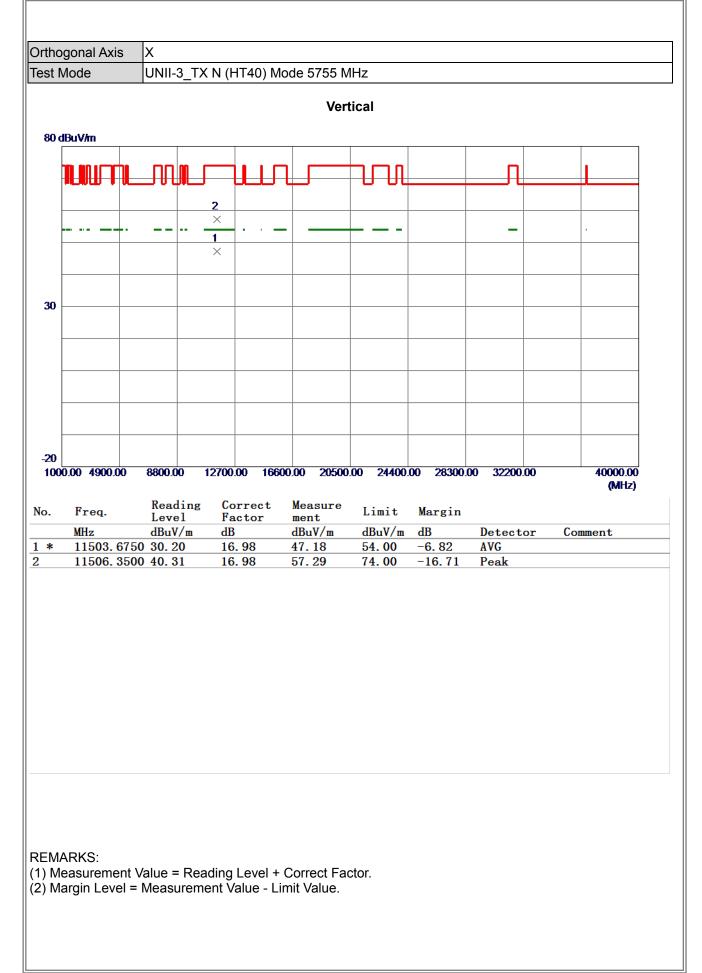




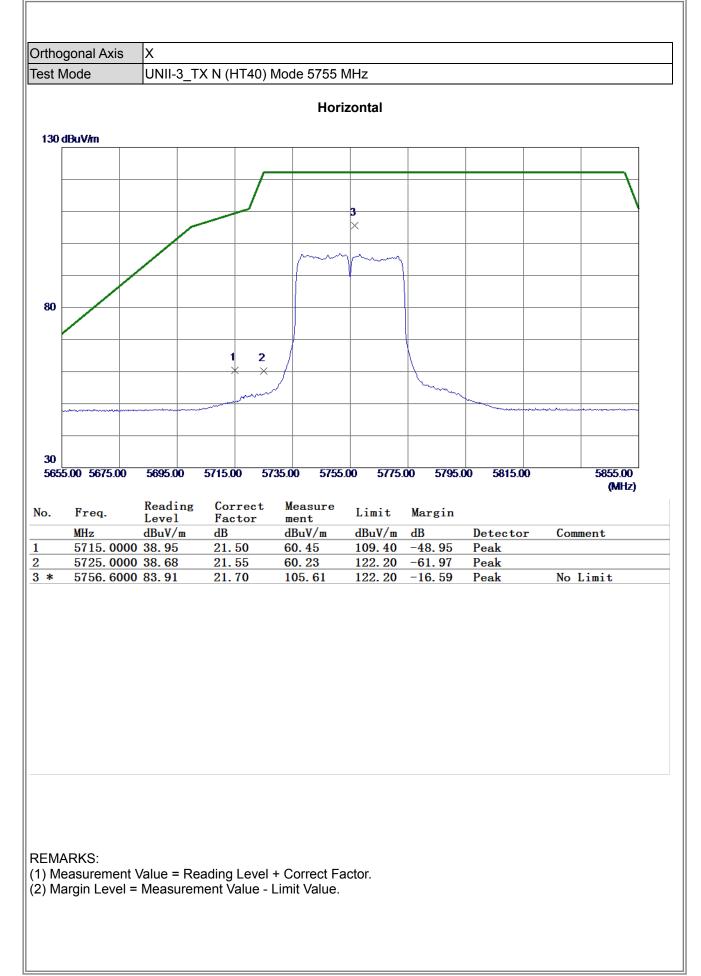




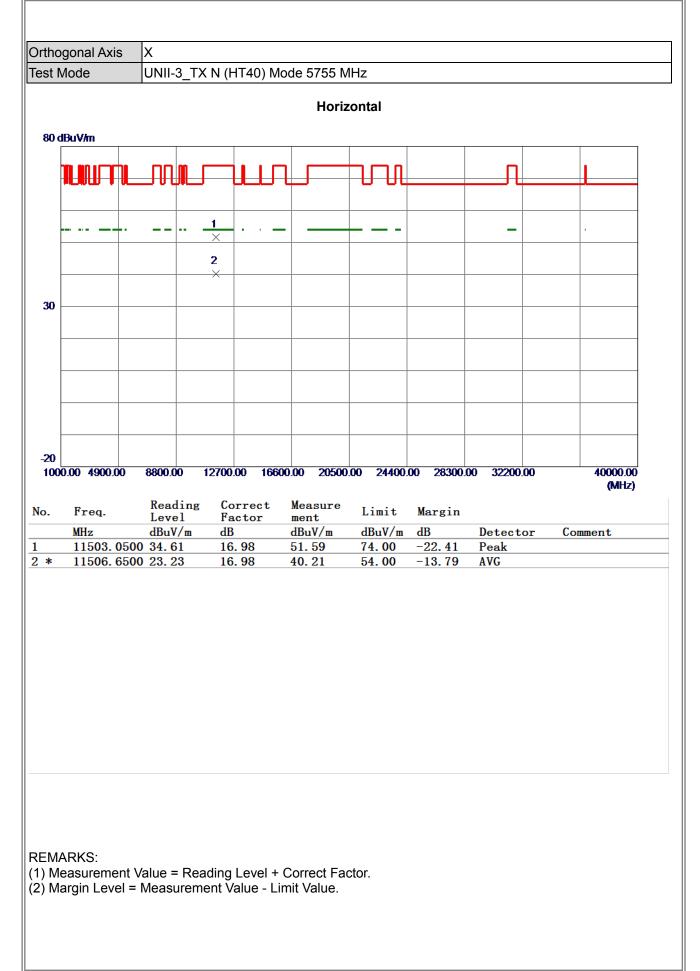




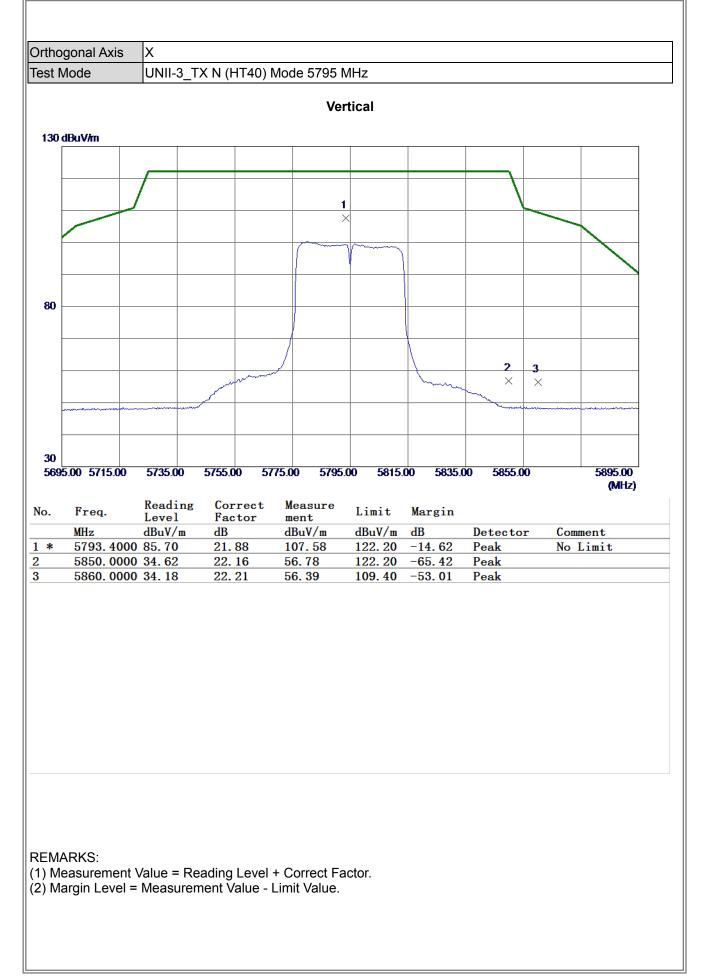




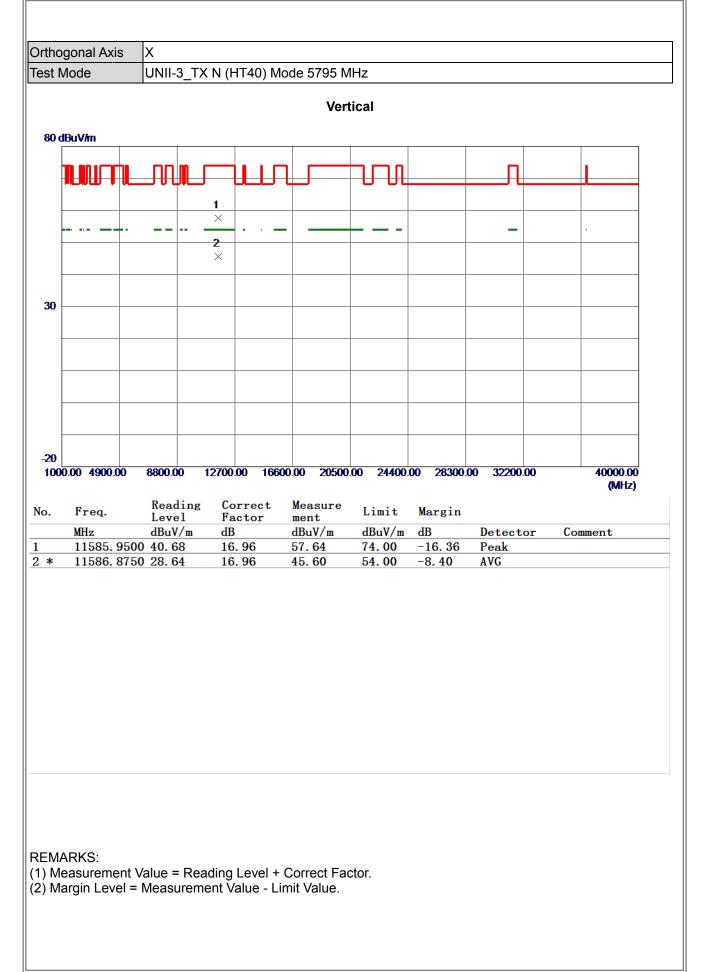




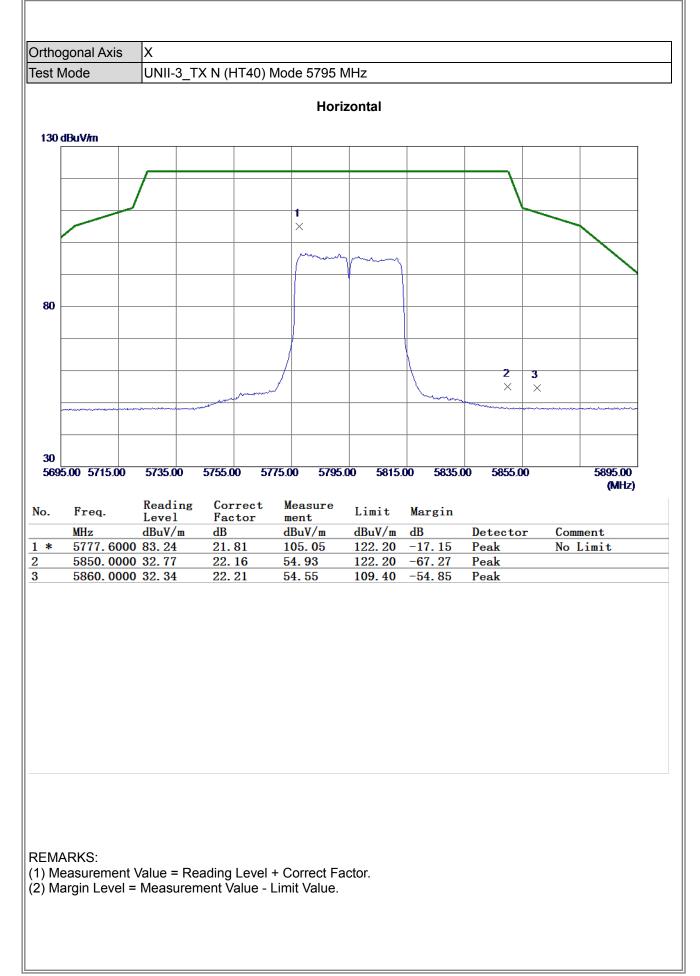




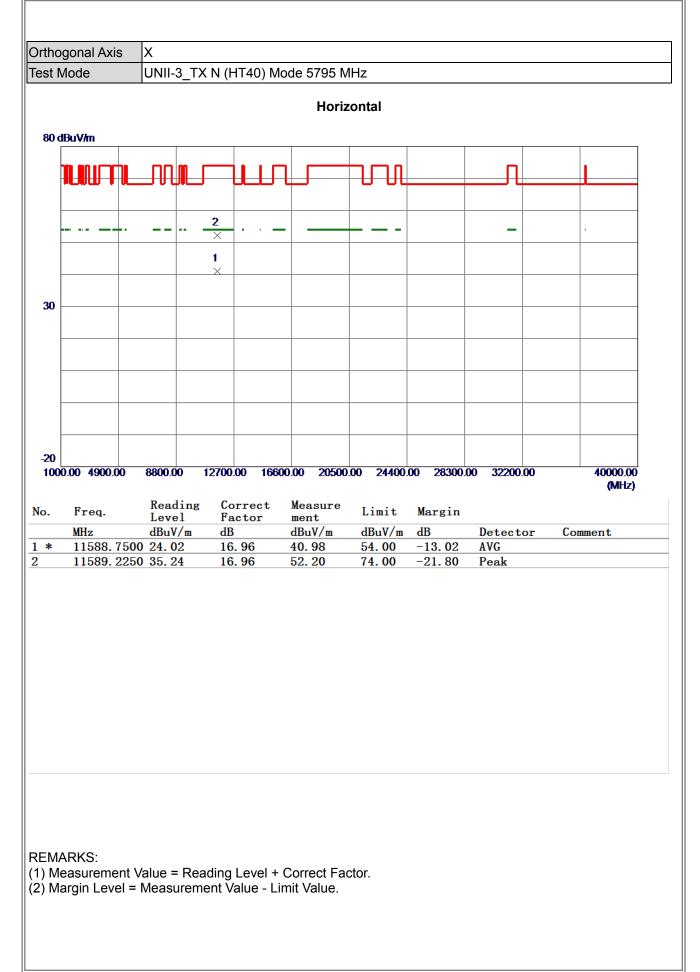




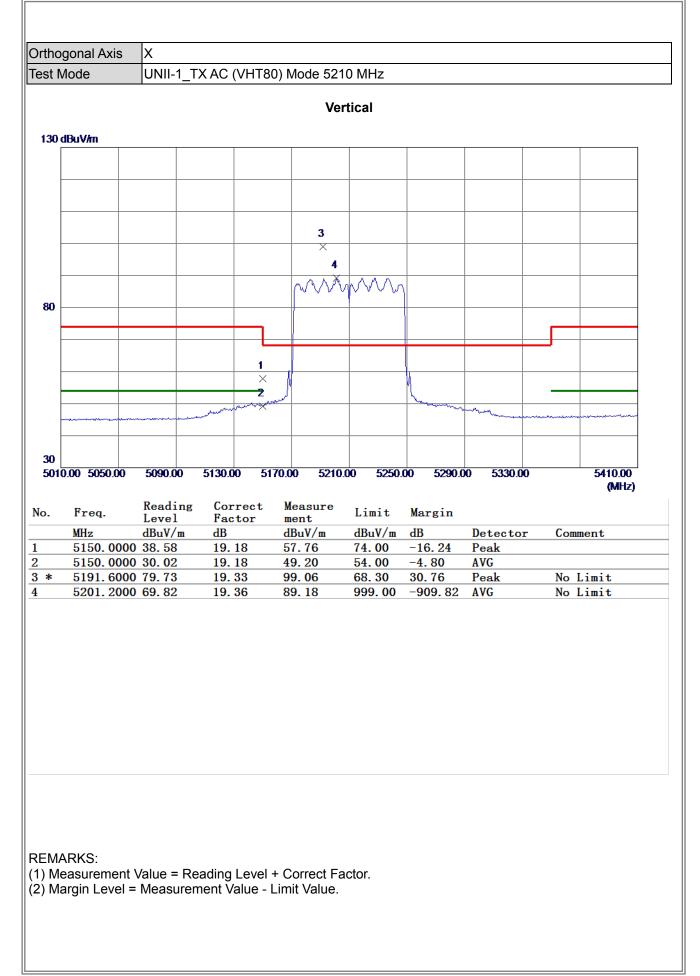




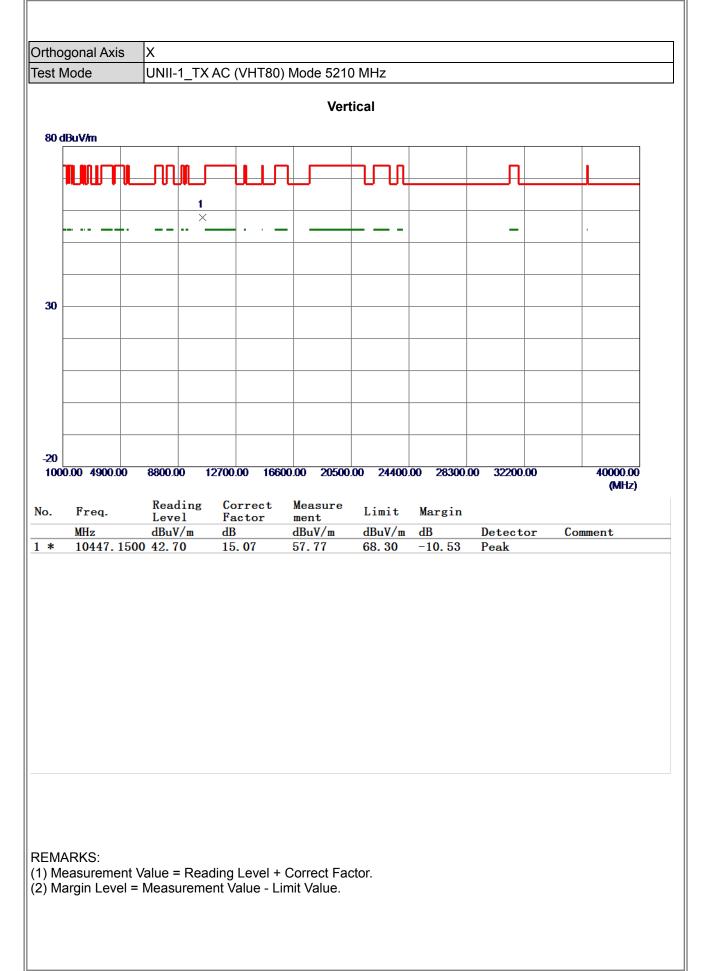




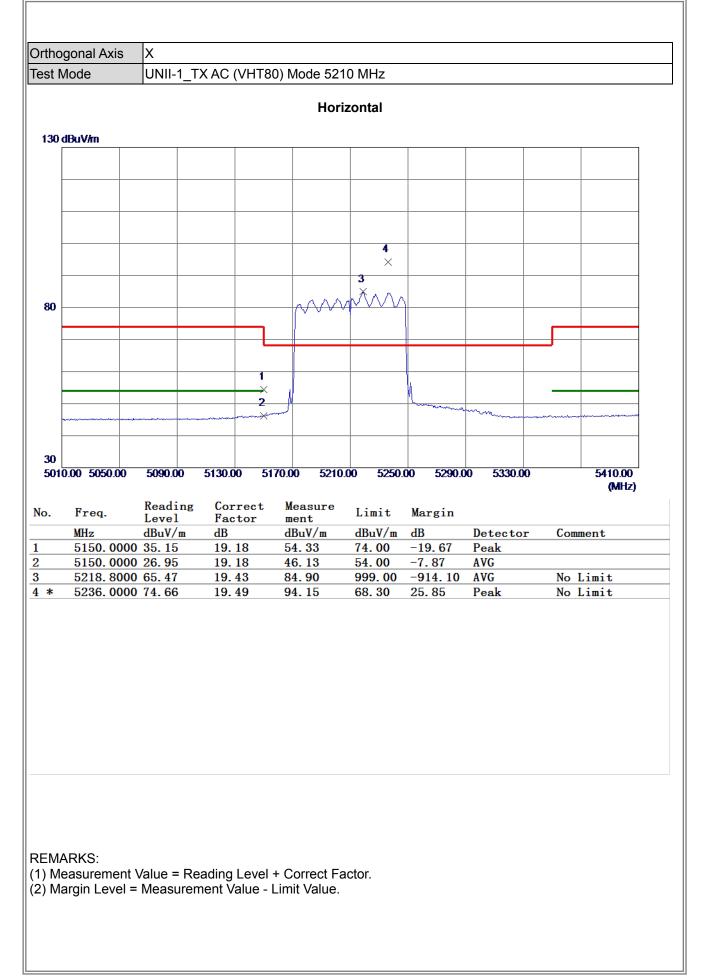




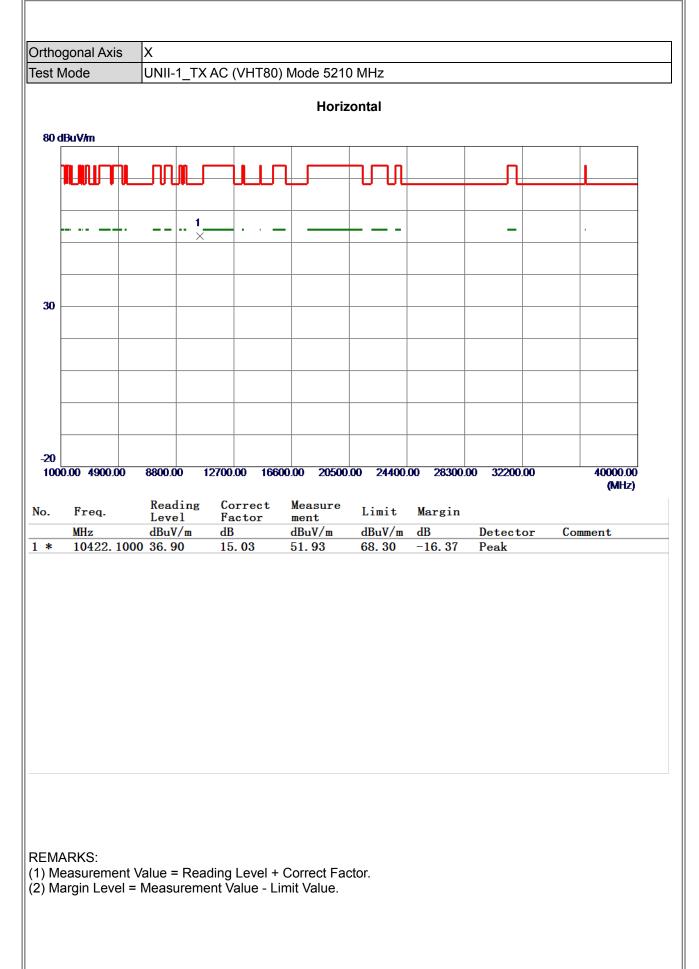




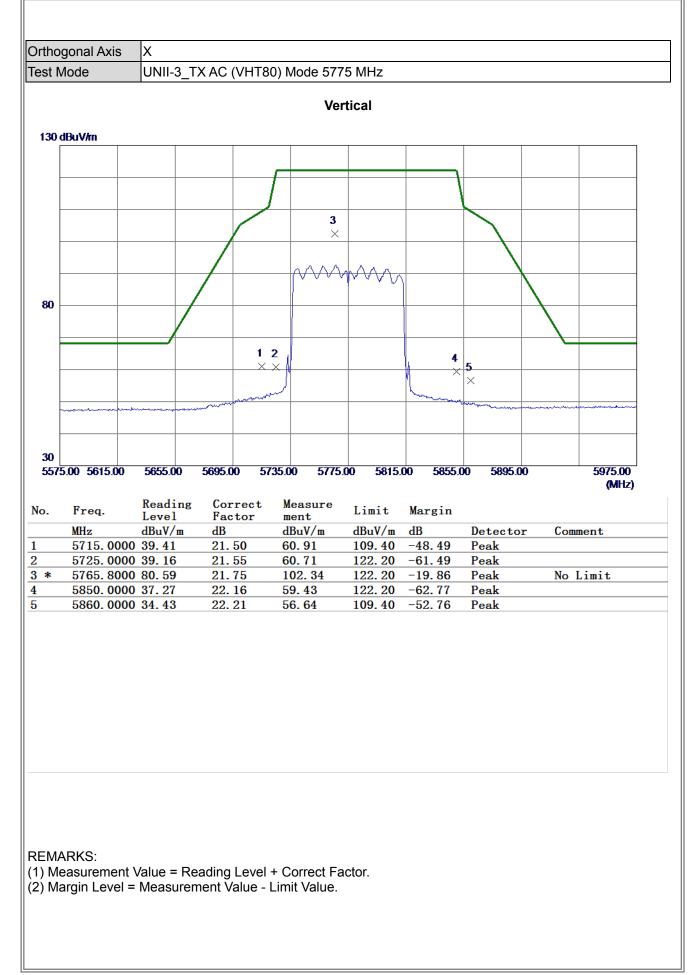




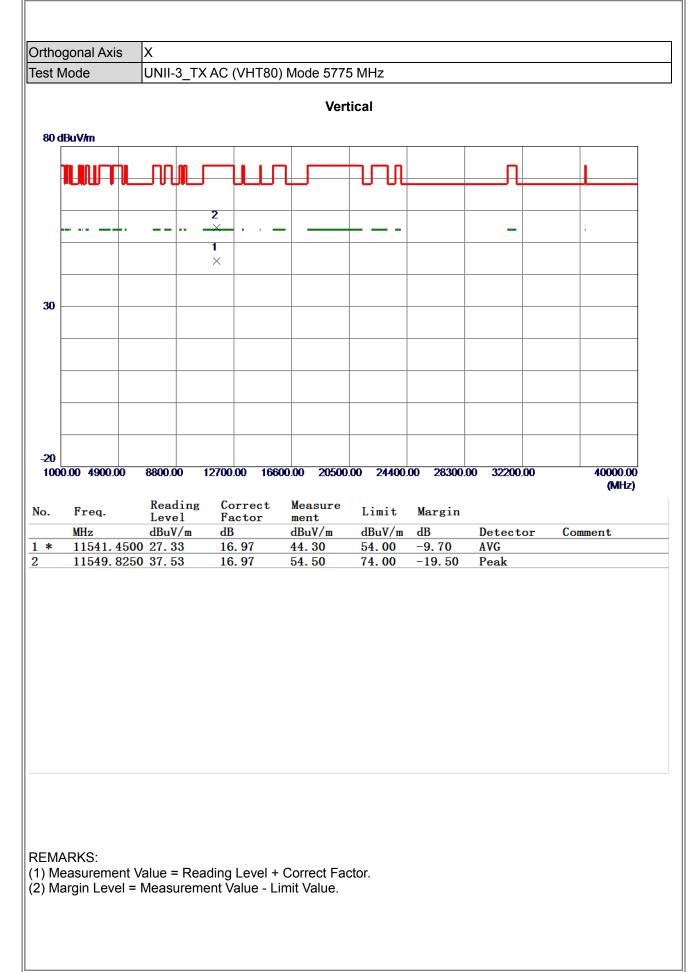




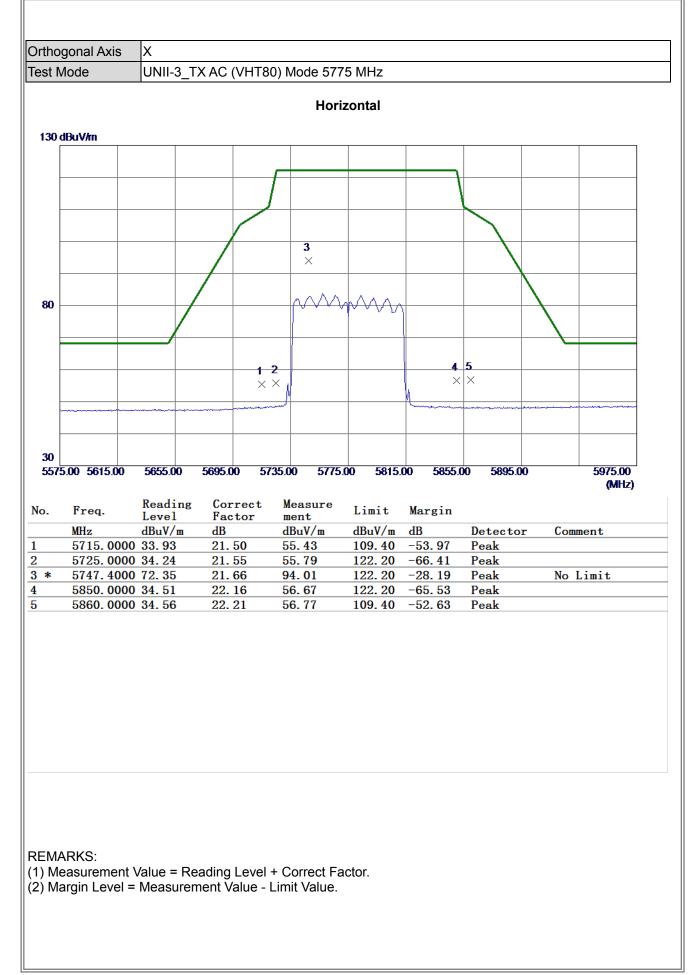




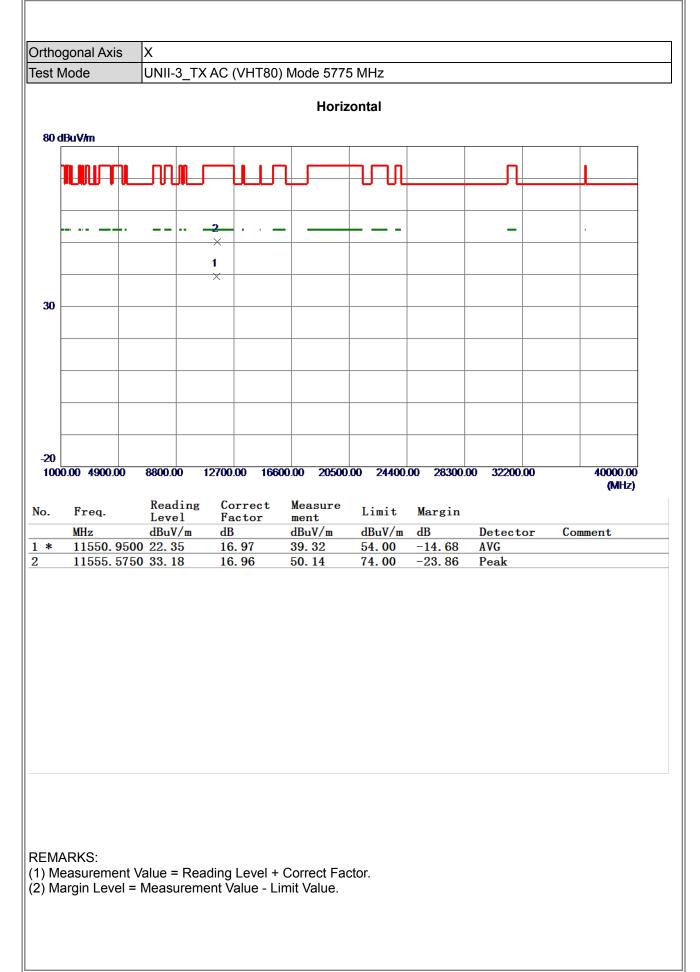












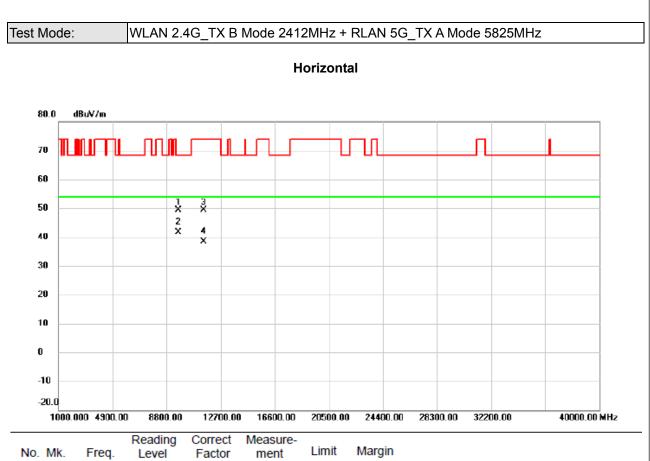




## **REMARKS**:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





No.	Mk	. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		9648.650	36.32	13.03	49.35	68.30	-18.95	peak	
2	*	9648.825	28.53	13.03	41.56	54.00	-12.44	AVG	
3		11490.12	32.54	16.95	49.49	74.00	-24.51	peak	
4		11490.36	21.48	16.95	38.43	54.00	-15.57	AVG	

## **REMARKS**:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

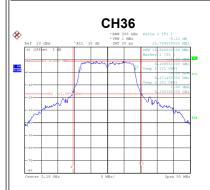


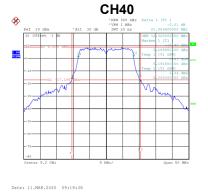
# **APPENDIX E - BANDWIDTH**



## Test Mode UNII-1\_TX A Mode

Channel	Frequency	26 dB Bandwidth	99 % Emission Bandwidth
Channel	(MHz)	(MHz)	(MHz)
36	5180	20.79	16.90
40	5200	20.89	16.80
48	5240	21.15	16.80



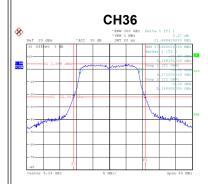


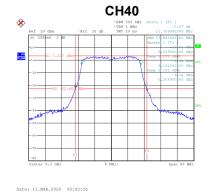


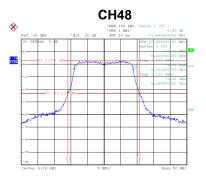
Date: 11.MAR.2020 09:18:44

## Test Mode UNII-1\_TX N (HT20) Mode

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	
36	5180	21.69	17.90	
40	5200	21.79	17.90	
48	5240	21.70	17.90	







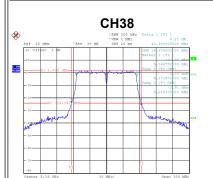
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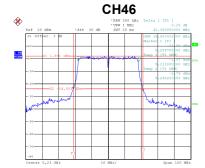
Date: 11.MAR.2020 09:41:17



# Test Mode UNII-1\_TX N (HT40) Mode

Channel	Frequency	26 dB Bandwidth	99 % Emission Bandwidth
Channel	(MHz)	(MHz)	(MHz)
38	5190	42.30	36.40
46	5230	42.30	36.40





Date: 11.MAR.2020 09:55:52

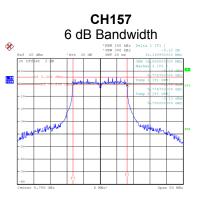
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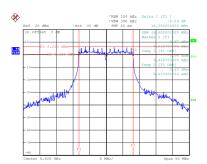
# Test Mode UNII-3\_TX A Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
149	5745	16.35	16.80	500	Complies
157	5785	16.35	16.80	500	Complies
165	5825	16.35	16.80	500	Complies

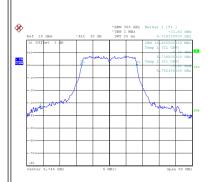
# CH149



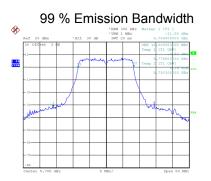
# CH165

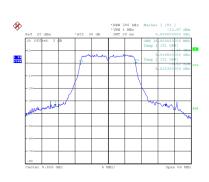


Date: 11.MAR.2020 09:31:37



Date: 11.MAR.2020 09:33:28





Date: 11.MAR.2020 10:58:02

#### Date: 11.MAR.2020 10:58:14

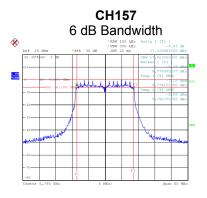
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Date: 11.MAR.2020 09:35:13

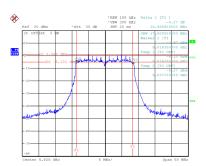


#### Test Mode UNII-3\_TX N (HT20) Mode 6 dB Bandwidth 6 dB Bandwidth Min. 99 % Emission Frequency Channel Result Limit (kHz) (MHz) (MHz) Bandwidth (MHz) 149 16.99 500 Complies 5745 17.90 157 5785 17.19 17.90 500 Complies 16.99 17.90 Complies 165 5825 500

# 



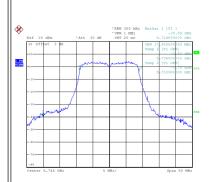
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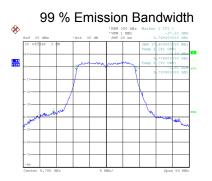
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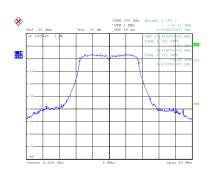
8

1 PR



Date: 11.MAR.2020 09:49:54





Date: 11.MAR.2020 11:00:28

#### Date: 11.MAR.2020 11:00:42

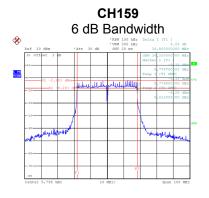
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Date: 11.MAR.2020 09:51:52

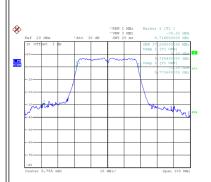


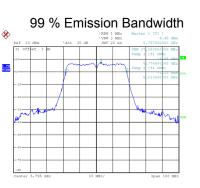
Test Mode	Test Mode UNII-3_TX N (HT40) Mode				
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
151	5755	36.50	37.20	500	Complies
159	5795	36.50	37.20	500	Complies

# 



Date: 11.MAR.2020 10:11:22





Date: 11.MAR.2020 11:06:43

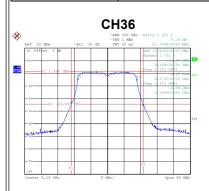
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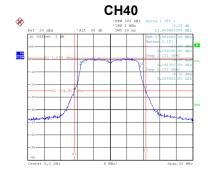
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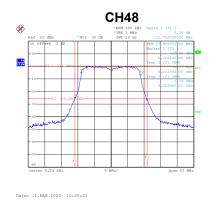


# Test Mode UNII-1\_TX AC (VHT20) Mode

Channel	Frequency	26 dB Bandwidth	99 % Emission Bandwidth	
Channel	(MHz)	(MHz)	(MHz)	
36	5180	21.79	17.90	
40	5200	21.69	17.90	
48	5240	21.76	17.90	







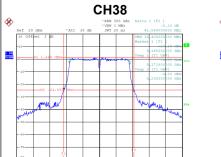
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Date: 11.MAR.2020 10:26:56

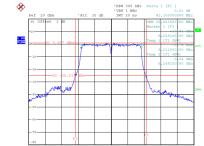
### - -

## Test Mode UNII-1\_TX AC (VHT40) Mode

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Emission Bandwidth (MHz)	
38	5190	42.59	36.40	
46	5230	43.10	36.40	







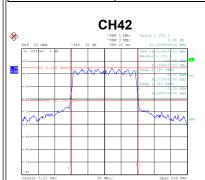
#### Date: 11.MAR.2020 10:44:45

Date: 11.MAR.2020 10:45:49



# Test Mode UNII-1\_TX AC (VHT80)

Channel	Frequency	26 dB Bandwidth	99 % Emission Bandwidth	
Channel	(MHz)	(MHz)	(MHz)	
42	5210	82.40	76.00	



Date: 11.MAR.2020 10:13:49