

FCC Radio Test Report
FCC ID: Q78-ZXV10ET501
This report concerns (check one): ⊠Original Grant ⊡Class I Change ⊡Class II Change
Project No.: 1611C202Equipment: Video Conference TerminalModel Name: ZXV10 ET501Applicant: ZTE CorporationAddress: ZTE Plaza, Hi-Tech Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Date of Receipt : Nov. 25, 2016   Date of Test : Nov. 25, 2016 ~ Mar. 31, 2017   Issued Date : Apr. 05, 2017   Tested by : BTL Inc.
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Technical Manager : David Mao (David Mao)
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# **REPORT ISSUED HISTORY**

Issued No.	Description	Issued Date
BTL-FCCP-1-1611C202	Original Issue.	Apr. 05, 2017



# **1. CERTIFICATION**

	Video Conference Terminal ZTE 中兴, ZTE
Model Name :	
	ZTE Corporation
	ZTE Corporation
	ZTE Plaza, Hi-Tech Park, Nanshan District, Shenzhen, Guangdong, P.R.China
Date of Test :	Nov. 25, 2016 ~ Mar. 31, 2017
Test Sample :	Engineering Sample
Standard(s) :	FCC Part15, Subpart E(15.407) / ANSI C63.10-2013

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

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1611C202) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Test results included in this report is only for the WiFi 5GHz UNII-1, UNII-3 with DFS slave part.

# 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart E(15.407)				
Standard(s) Section	Test Item	Judgment	Remark	
15.207	AC Power Line Conducted Emissions	PASS		
15.407(a)	26dB Spectrum Bandwidth	PASS		
15.407(a)	Maximum Conducted Output Power	PASS		
15.407(a)	Power Spectral Density	PASS		
15.407(a)	Radiated Emissions	PASS		
15.407(b)	Band Edge Emissions	PASS		
15.407(g)	Frequency Stability	PASS		
15.203	Antenna Requirements	PASS		

#### NOTE:

(1)" N/A" denotes test is not applicable in this test report.



#### 2.1 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 number for FCC: 319330

#### 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2  $U_{cispr}$  requirement.

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

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150 KHz ~ 30MHz	2.32

#### B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
		9KHz~30MHz	V	3.79
DG-CB03 CISPR		9KHz~30MHz	Н	3.57
		30MHz ~ 200MHz	V	3.82
		30MHz ~ 200MHz	Н	3.78
		200MHz ~ 1,000MHz	V	4.10
	200MHz ~ 1,000MHz	H	4.06	
		1GHz~18GHz	V	3.12
		1GHz~18GHz	H	3.68
		18GHz~40GHz	V	4.15
		18GHz~40GHz	Н	4.14

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



# **3. GENERAL INFORMATION**

# 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Video Conference Terminal		
Brand Name	ZTE 中兴; ZTE		
Model Name	ZXV10 ET501		
Mode Different	N/A		
	Operation Frequency	UNII-1: 5150-5250MHz UNII-3: 5725-5850MHz	
Product Description	Modulation Type	OFDM	
	Bit Rate of Transmitter 20Mbps		
Power Source	DC voltage supplied from AC/DC adapter. 1) Brand / Model: HuntKey / HKA02412020-2C 2) Brand / Model: HuntKey / HKA02412020-3M		
Power Rating	1) I/P: 100-240V~50/60Hz 0.8A O/P: 12.0V === 2.0A 2) I/P: 100-240V~50/60Hz 0.8A O/P: 12.0V === 2.0A		
Output Power	Output Power (Max.)for UNII-1 (1TX) Output Power (Max.)for UNII-3 (1TX)	802.11a: 13.27dBm 802.11n (20M): 13.31dBm 802.11a: 15.26dBm 802.11n (20M): 14.36dBm	

Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 2. Channel List:

UNII-1		
Channel	Frequency (MHz)	
36	5180	
40	5200	
44	5220	
48	5240	

UNII-3		
Channel	Frequency (MHz)	
149	5745	
153	5765	
157	5785	
161	5805	
165	5825	

# 3. Antenna Specification:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	AIRGAIN	N/A	Printed	N/A	1.8



# 3.2 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)
Mode 3	TX A Mode / CH149,CH157,CH165 (UNII-3)
Mode 4	TX N20 Mode / CH149,CH157,CH165 (UNII-3)
Mode 5	TX Mode

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Conducted Test		
Final Test Mode	Description	
Mode 5 TX Mode		

For Radiated Test		
Final Test Mode	Description	
Mode 1	TX A Mode / CH36, CH40, CH48 (UNII-1)	
Mode 2	TX N20 Mode / CH36, CH40, CH48 (UNII-1)	
Mode 3	TX A Mode / CH149,CH157,CH165 (UNII-3)	
Mode 4	TX N20 Mode / CH149,CH157,CH165 (UNII-3)	

Note:

(1) For radiated below 1GHz test, the 802.11a mode is found to be the worst case and recorded.



# 3.3 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

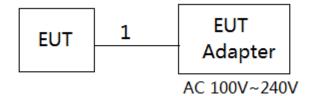
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final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

UNII-1 - 1TX			
Test Software Version	RF_TEST_TOOL		
Frequency (MHz)	5180	5200	5240
A Mode	N/A	N/A	N/A
Frequency (MHz)	5180	5200	5240
N20 Mode	N/A	N/A	N/A

UNII-3 - 1TX			
Test Software Version	RF_TEST_TOOL		
Frequency (MHz)	5745	5785	5825
A Mode	N/A	N/A	N/A
Frequency (MHz)	5745	5785	5825
N20 Mode	N/A	N/A	N/A



# 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



#### **3.5 DESCRIPTION OF SUPPORT UNITS**

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
-	-	-	-	-	-

ltem	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.5m	AC Cable



# 4. EMC EMISSION TEST

#### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150kHz-30MHz)

	Class A (dBuV)		Class B (dBuV)	
FREQUENCY (MHz)	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

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.

#### 4.1.2 TEST PROCEDURE

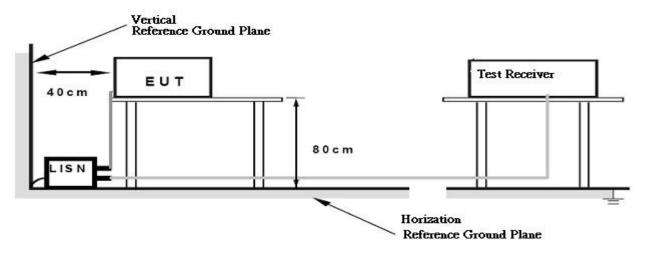
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.

#### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation



## 4.1.4 TEST SETUP



## 4.1.5 EUT OPERATING 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 mode.

#### 4.1.6 EUT TEST CONDITIONS

N/A

## 4.1.7 TEST RESULTS

Please refer to the Attachment A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of <sup>ℂ</sup>Note<sub>□</sub>. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ∘ In this case, a "\*" marked in AVG Mode column of Interference Voltage Measured ∘
- (2) Measuring frequency range from 150kHz to 30MHz •



# 4.2 RADIATED EMISSION MEASUREMENT

#### 4.2.1 RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. 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.

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/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

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBµV/m)
5150-5250	-27	68.3
5250-5350	-27	68.3
5470-5725	-27	68.3
	-27(Note 2)	68.3
5705 5950	10(Note 2)	105.3
5725-5850	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  $1000000\sqrt{30P}$ 

2. According to FCC 16-24,All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below theband edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above orbelow the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27dBm/MHz at the band edge.



# 4.2.2 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 1GHz.
- 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 1GHz)
- 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 1GHz)
- i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

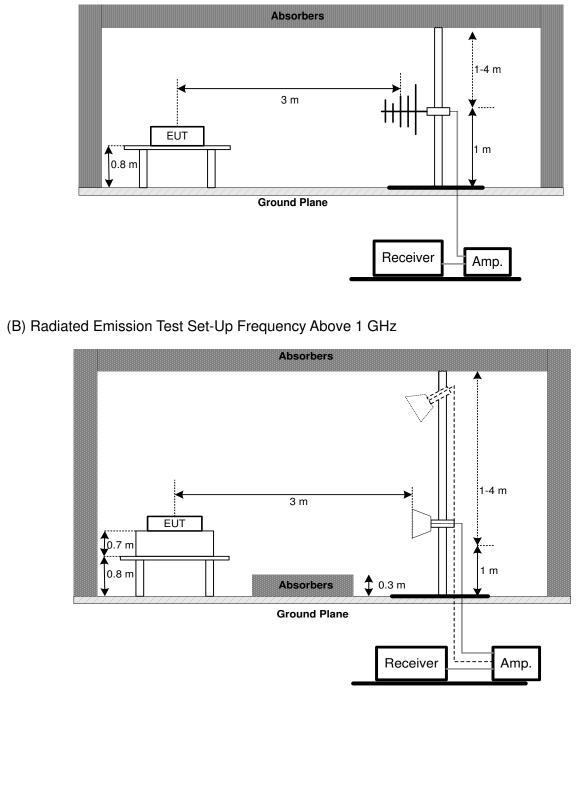
#### 4.2.3 DEVIATION FROM TEST STANDARD

No deviation



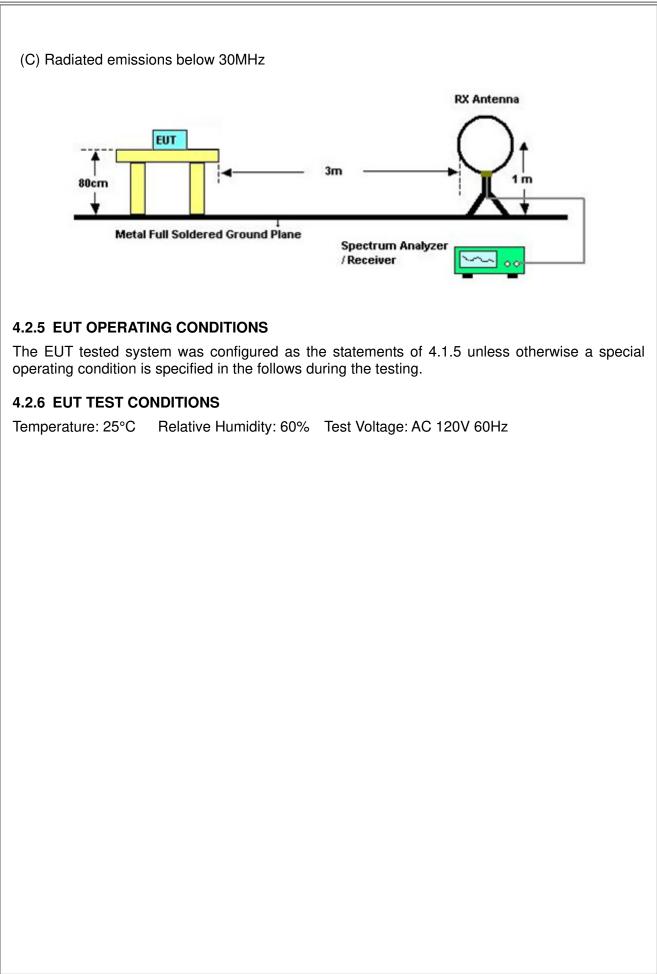
# 4.2.4 TEST SETUP













# 4.2.7 TEST RESULTS (9K TO 30MHz)

Please refer to the Attachment B

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

#### 4.2.8 TEST RESULTS (BETWEEN 30 TO 1000 MHz)

Please refer to the Attachment C.

#### 4.2.9 TEST RESULTS (ABOVE 1000 MHz)

Please refer to the Attachment 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. 26dB SPECTRUM BANDWIDTH

#### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E				
Test Item	Limit	Frequency Range (MHz)	Result	
	26 dB Bandwidth	5150-5250	PASS	
Bandwidth	Minimum 500kHz 6dB	5725-5850	PASS	
	Bandwidth	0720 0000	17,00	

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

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

## 5.1.2 DEVIATION FROM STANDARD

No deviation.



# 5.1.3 TEST SETUP

EUT	SPECTRUM	
	ANALYZER	

## 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 5.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 60% Test Voltage: AC 120V 60Hz

#### 5.1.6 TEST RESULTS

Please refer to the Attachment E.



# 6. MAXIMUM CONDUCTED OUTPUT POWER

# 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E					
Test Item	Frequency Range (MHz)	Result			
	Fixed:1 Watt (30dBm)				
Conducted Output	Mobile and portable:	5150-5250	PASS		
Power	250mW (24dBm)				
	1 Watt (30dBm)	5725-5850	PASS		
Note: The maximum e.i.r.p at anyelevation angle above 30 degrees as measured from the					
horizon must not exceed 125mW(21dBm)					

#### 6.1.1 TEST PROCEDURE

a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,

#### b.

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

c. Test was performed in accordance with method of KDB 789033 D02.



#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP

EUT	Power Meter

#### 6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 6.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 60% Test Voltage: AC 120V 60Hz

#### 6.1.6 TEST RESULTS

Please refer to the Attachment F.

# 7. POWER SPECTRAL DENSITY TEST

## 7.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E				
Test Item	Frequency Range (MHz)	Result		
Power Spectral Density	Other then Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250	PASS	
	30dBm/500kHz	5725-5850	PASS	

## 7.1.1 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 Parameter	Setting
	Attenuation	Auto
	Span Fraguanay	Encompass the entire emissions bandwidth (EBW) of the
	Span Frequency	signal
	RBW	= 1MHz.
	VBW	≥ 3MHz.
	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 v01r02, section II.F.5., it is acceptable to set RBW at 1MHz and VBW at 3MHz if the spectrum analyzer does not have 500kHz RBW.
- The value measured with RBW=1MHz is to be added with 10log(500kHz/1MHz) which is -3dB. For example, if the measured value is +10dBm using RBW=1MHz (that is +10dBm/MHz), then the converted value will be +7dBm/500kHz.



# 7.1.2 DEVIATION FROM STANDARD

No deviation.

#### 7.1.3 TEST SETUP

EUT	SPECTRUM	
	ANALYZER	

## 7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 7.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 60% Test Voltage: AC 120V 60Hz

7.1.6 TEST RESULTS Please refer to the Attachment H.



# 8. FREQUENCY STABILITY MEASUREMENT

# 8.1 APPLIED PROCEDURES / LIMIT

FCC Part15, Subpart E					
Test Item Limit		Frequency Range (MHz)	Result		
Energy on the bility	Specified in the	5150-5250	PASS		
Frequency Stability	user's manual	5725-5850	PASS		

#### 8.1.1 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 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 0°C~40°C.

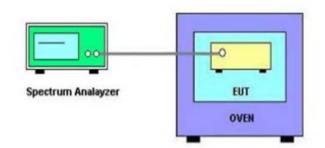
#### 8.1.2 DEVIATION FROM STANDARD

No deviation.





#### 8.1.3 TEST SETUP



#### 8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 8.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: AC 120V/60Hz

8.1.6 TEST RESULTS Please refer to the Attachment I.



# 9. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 26, 2018
2	TWO-LINE V-NETWORK	R&S	ENV216	100526	Mar. 26, 2018
3	EMI Test Receiver	R&S	ESR3	101862	Sep. 04, 2017
4	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Sep. 04, 2017
5	Cable	N/A	RG400 12m	N/A	Mar. 07, 2018
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

	Radiated Emission Measurement				
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 26, 2018
2	Amplifier	HP	8447D	2944A09673	Oct. 20, 2017
3	Receiver	Agilent	N9038A	MY52130039	Sep. 04, 2017
4	Cable	emci	LMR-400(30MH z-1GHz)(8m+5m )	N/A	Jun. 27, 2017
5	Controller	СТ	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
8	Amplifier	Agilent	8449B	3008A02274	Feb. 22, 2018
9	Receiver	Agilent	N9038A	MY52130039	Sep. 04, 2017
10	Antenna	EM	EM-6876-1	230	Jul. 08, 2017
11	Controller	СТ	SC100	N/A	N/A
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Apr. 23, 2017
13	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 26, 2018



Spectrum Bandwidth Measurement						
	Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
	1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017

	Maximum Conducted Output Power Measurement									
lt	Calibrated until									
	1 Power Meter		ANRITSU	ML2495A	1128009	Mar. 26, 2018				
	2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Mar. 26, 2018				

	Power Spectral Density Measurement							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017			

	Frequency Stability Measurement								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until				
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017				
2 Precision Oven Tester		HOLINK	H-T-1F-D	BA03101701	May 22, 2017				

Remark: "N/A" denotes no model name, serial no. or calibration specified. All calibration period of equipment list is one year.





# **10. EUT TEST PHOTOS**

**Conducted Measurement Photos** 





# **Radiated Measurement Photos**

9kHz to 30MHz







# **Radiated Measurement Photos**

30MHz to 1000MHz







# **Radiated Measurement Photos**

Above 1000MHz



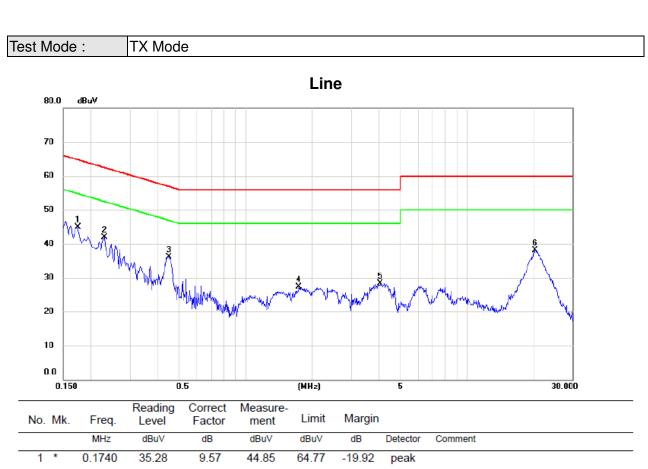




# **ATTACHMENT A - CONDUCTED EMISSION**







		abar	40	abar	0001	40	Dotootor	oonmon
1 *	0.1740	35.28	9.57	44.85	64.77	-19.92	peak	
2	0.2300	32.26	9.57	41.83	62.45	-20.62	peak	
3	0.4500	26.56	9.64	36.20	56.88	-20.68	peak	
4	1.7380	17.25	9.99	27.24	56.00	-28.76	peak	
5	4.0460	17.95	10.38	28.33	56.00	-27.67	peak	
6	20.3380	27.23	10.81	38.04	60.00	-21.96	peak	







No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1660	35.95	9.49	45.44	65.16	-19.72	peak	
2		0.3620	23.19	9.56	32.75	58.68	-25.93	peak	
3		1.0860	16.78	9.75	26.53	56.00	-29.47	peak	
4		3.2060	19.27	9.99	29.26	56.00	-26.74	peak	
5		6.3940	21.60	10.22	31.82	60.00	-28.18	peak	
6		20.0460	29.32	10.90	40.22	60.00	-19.78	peak	



## ATTACHMENT B - RADIATED EMISSION (9KHZ TO 30MHZ)





Test Mode: TX MODE Ant 0° 160.0 dBuV/m 150 140 130 120 110 100 90 80 The way and the second and the secon 70 60 with which and with the section of 50 alm Å, 40 30 20 10 0.0 0.150 0.009 (MHz) Reading Correct Measure-No. Mk. Freq. Limit Margin Level Factor ment MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 1 0.040 32.13 21.02 53.15 115.50 -62.35 AVG 2 \* 0.081 28.86 AVG 19.26 48.12 109.41 -61.29 3 0.122 20.71 18.56 39.27 105.89 -66.62 AVG





Test Mode: TX MODE Ant 0° 160.0 dBuV/m 150 140 130 120 110 100 90 80 70 60 12.00 X <sup>2</sup> 50 40 30 20 10 0.0 30.000 0.150 0.5 (MHz) 5 Correct Reading Measure-Limit Freq. Margin No. Mk. Level Factor ment MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 0.190 29.49 48.19 102.01 AVG 1 18.70 -53.82 2 2.346 32.00 17.46 49.46 69.54 -20.08 QP 3 4.696 31.60 17.31 48.91 -20.63 QP 69.54





Test Mode: TX MODE Ant 90° dBu¥/m 160.0 150 140 130 120 110 100 90 80 al worth and a sure and the server a 70 rund watcher a 60 Å Wannapp 50 man wall 40 30 20 10 0.0 0.009 (MHz) 0.150 Reading Correct Measure-Limit Margin No. Mk. Freq. Level Factor ment MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 0.015 32.62 56.42 123.91 AVG 23.80 -67.49 1 2 \* 0.038 39.40 21.25 60.65 115.92 -55.27 AVG 3 0.077 29.30 19.46 48.76 109.92 -61.16 AVG





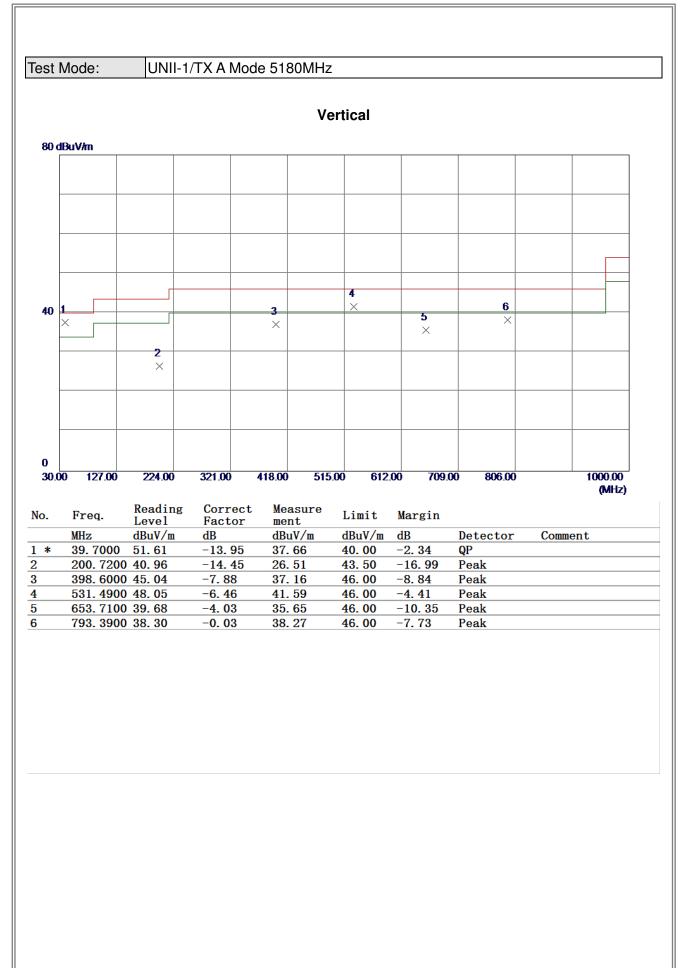
Test Mode: TX MODE Ant 90° 160.0 dBu¥/m 150 140 130 120 110 100 90 80 70 60 50 2 X  $\mathbf{X}^{1}$ 40 30 20 10 0.0 0.150 0.5 (MHz) 30.000 5 Reading Correct Measure-No. Mk. Limit Margin Freq. Factor Level ment MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 0.170 25.51 18.72 44.23 102.98 -58.75 AVG 1 2 \* 2.622 27.33 17.11 44.44 69.54 -25.10 QP 3 3.779 23.20 18.29 41.49 69.54 -28.05 QP



## ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

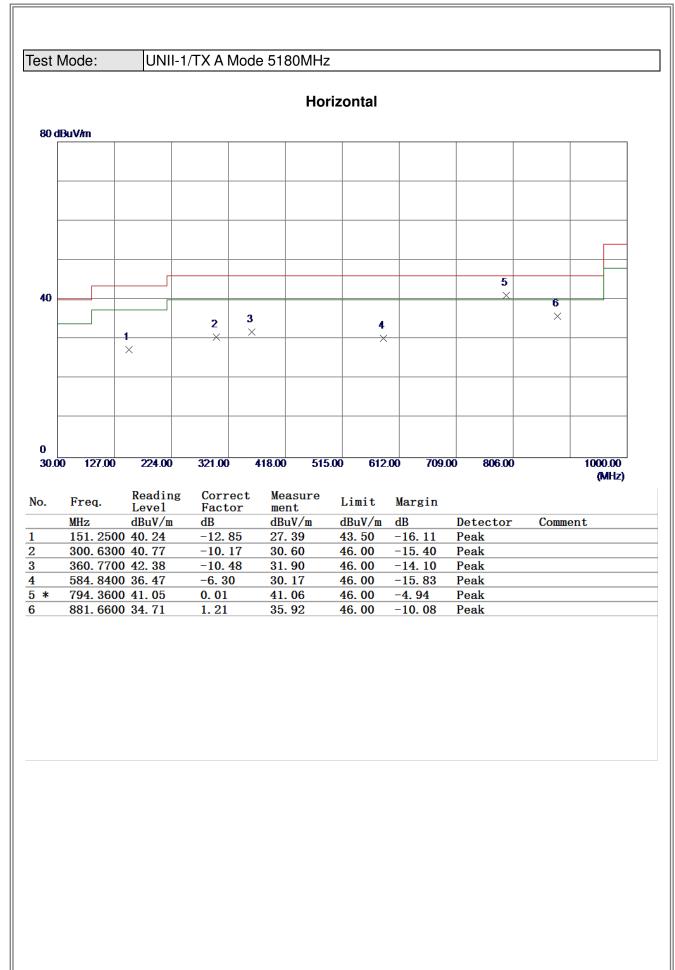






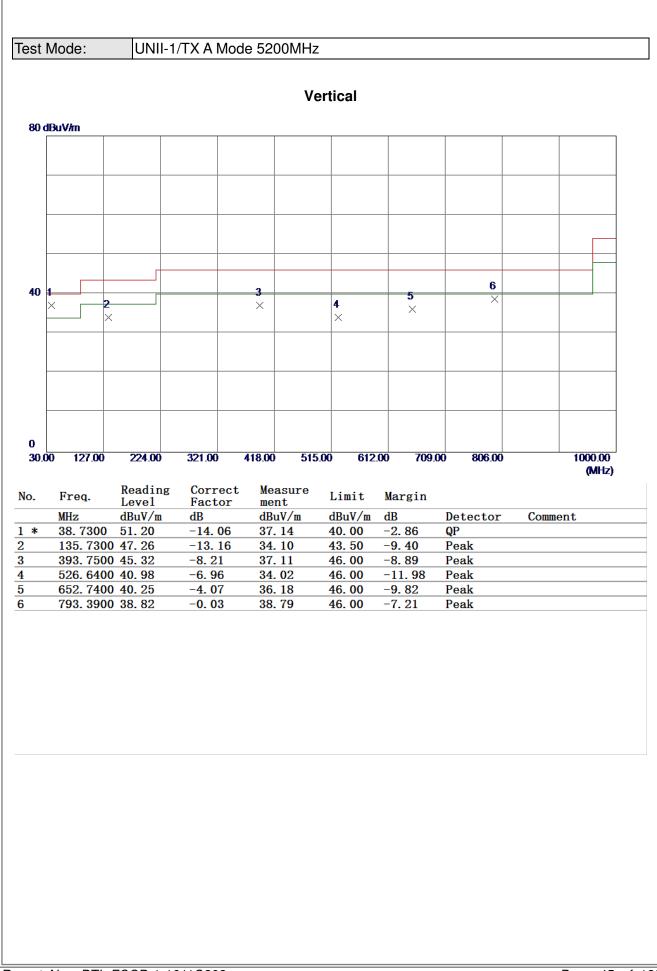






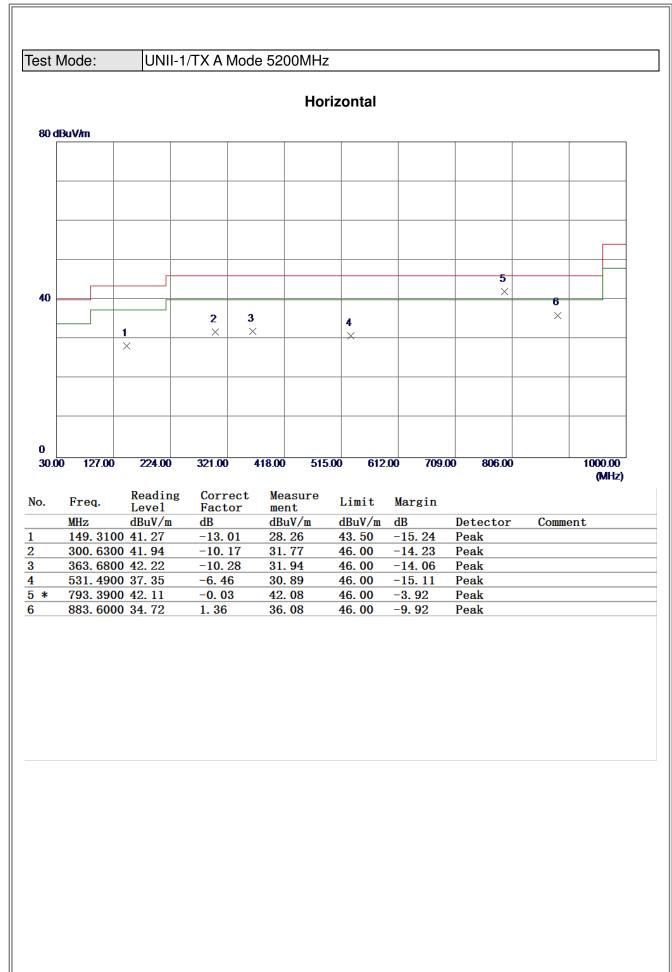






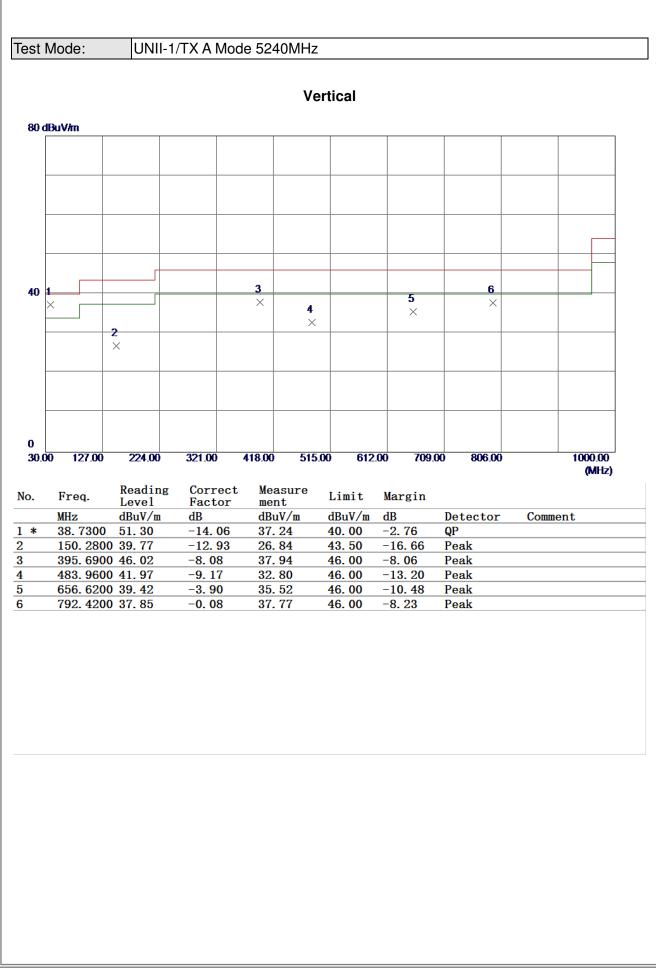






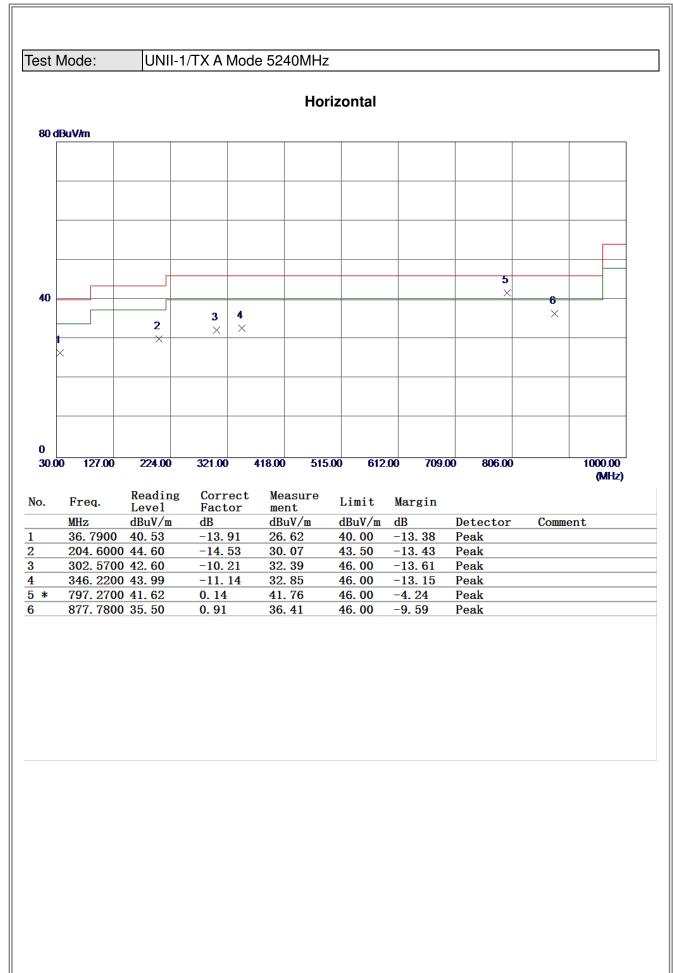






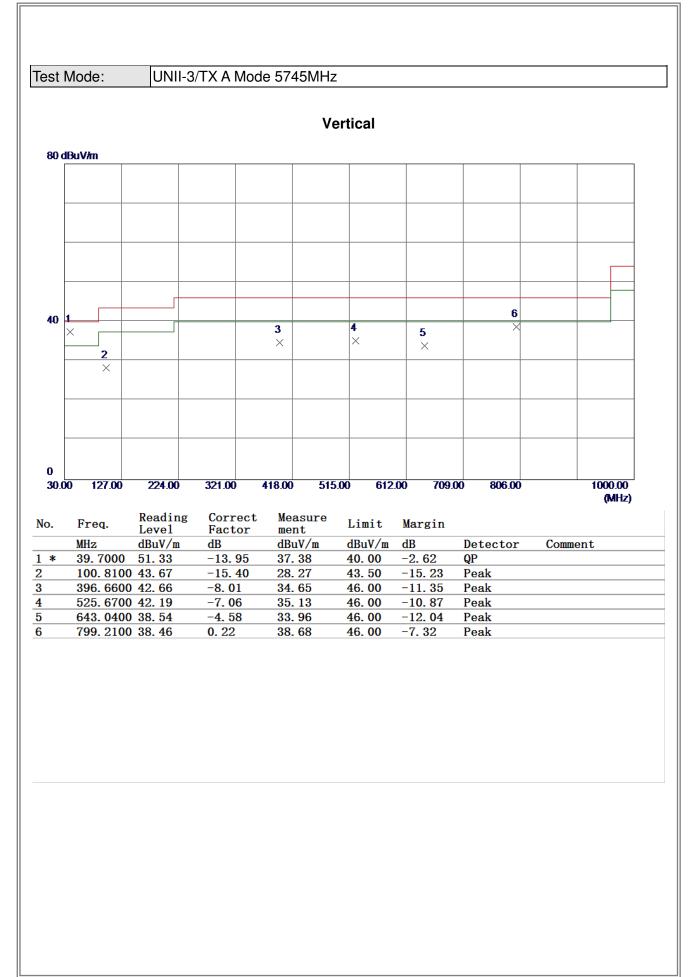






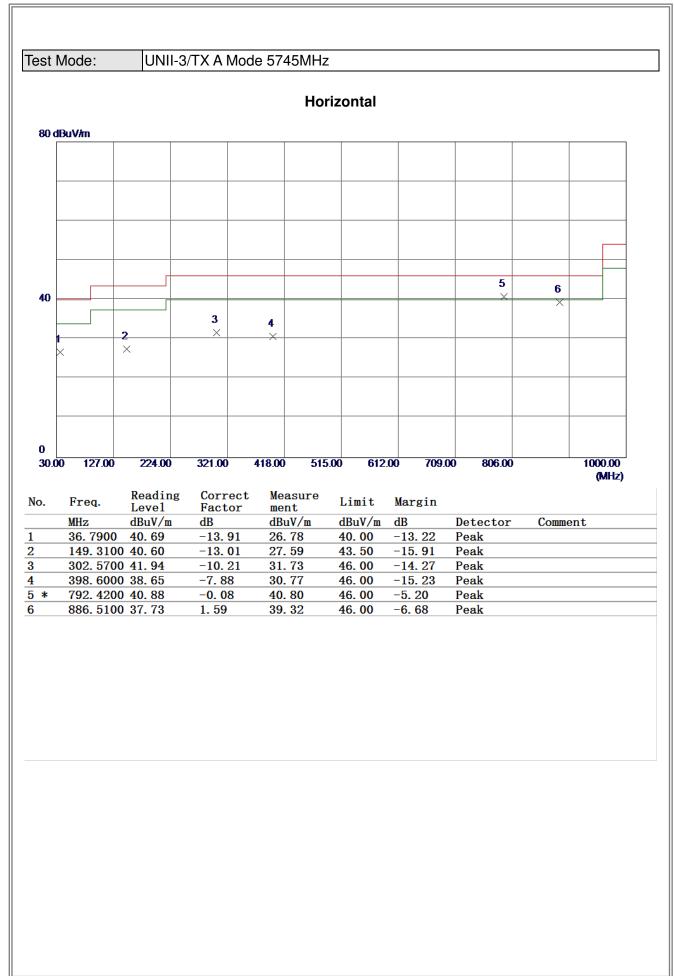






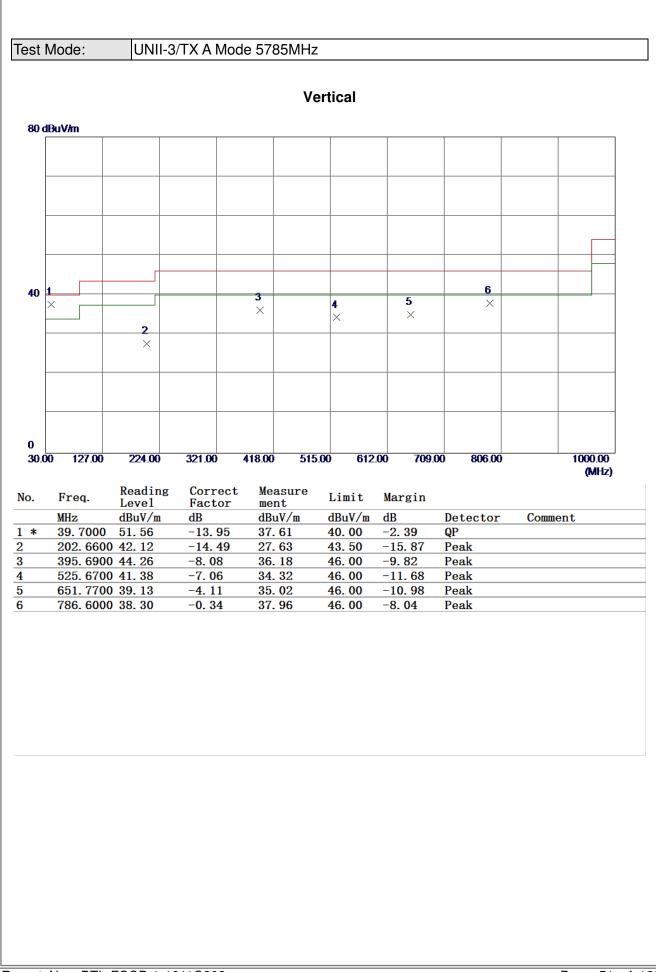






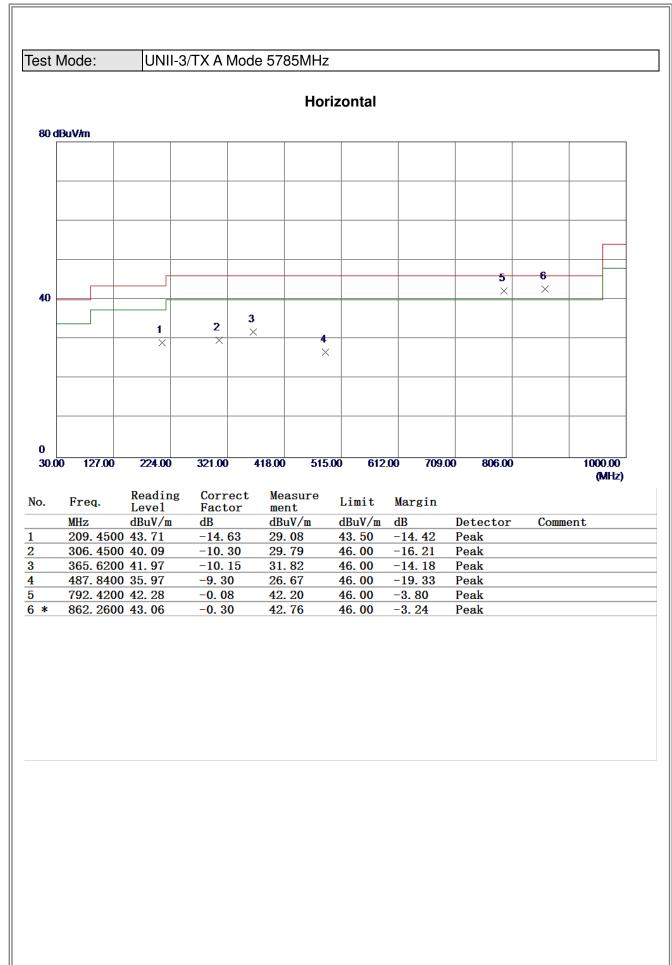






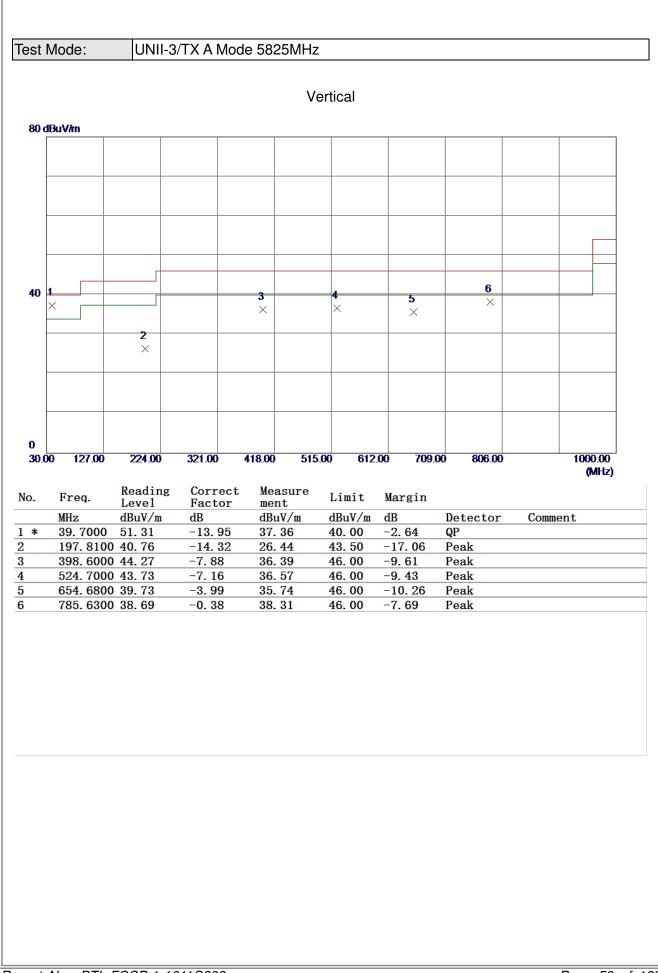






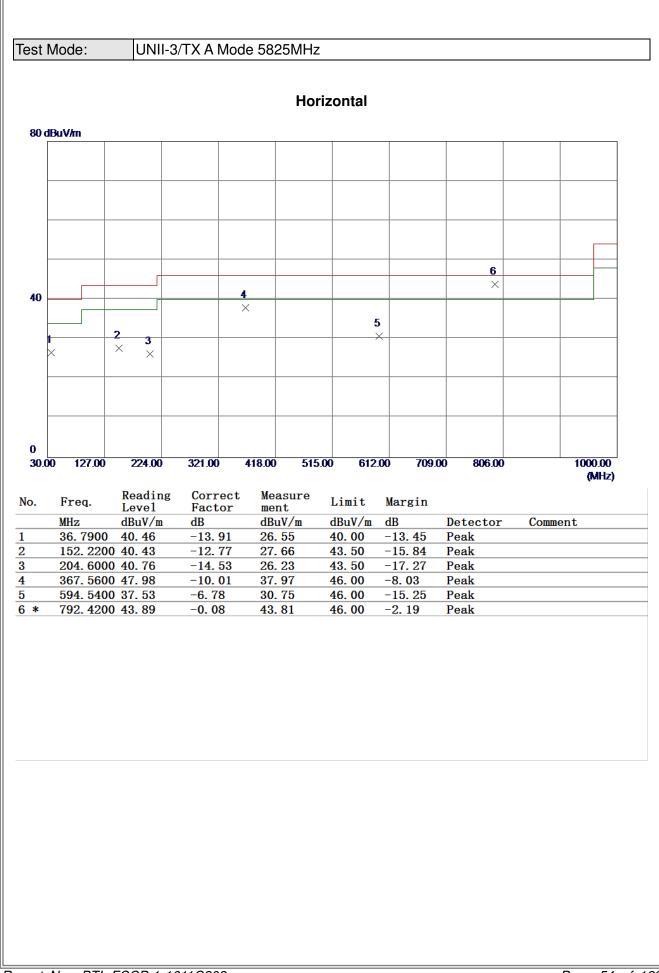










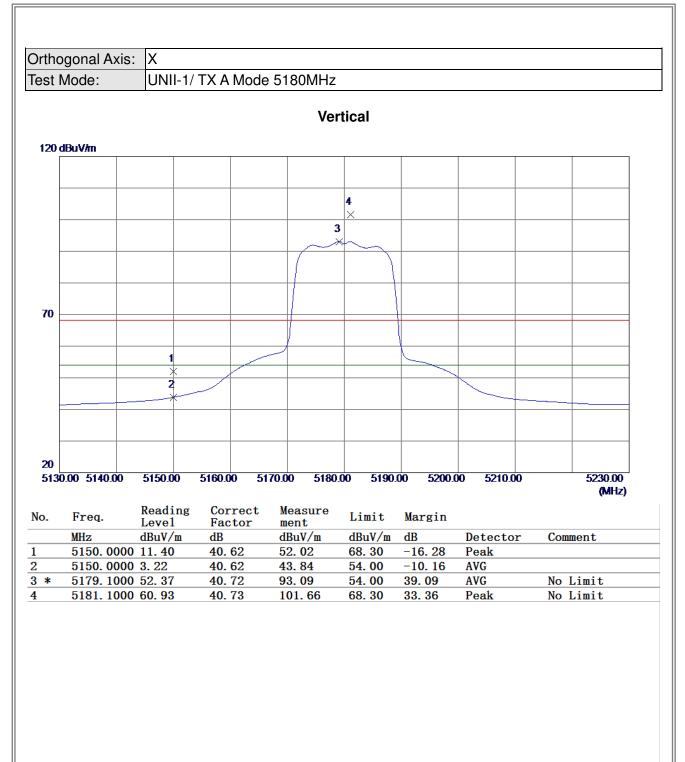




## ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

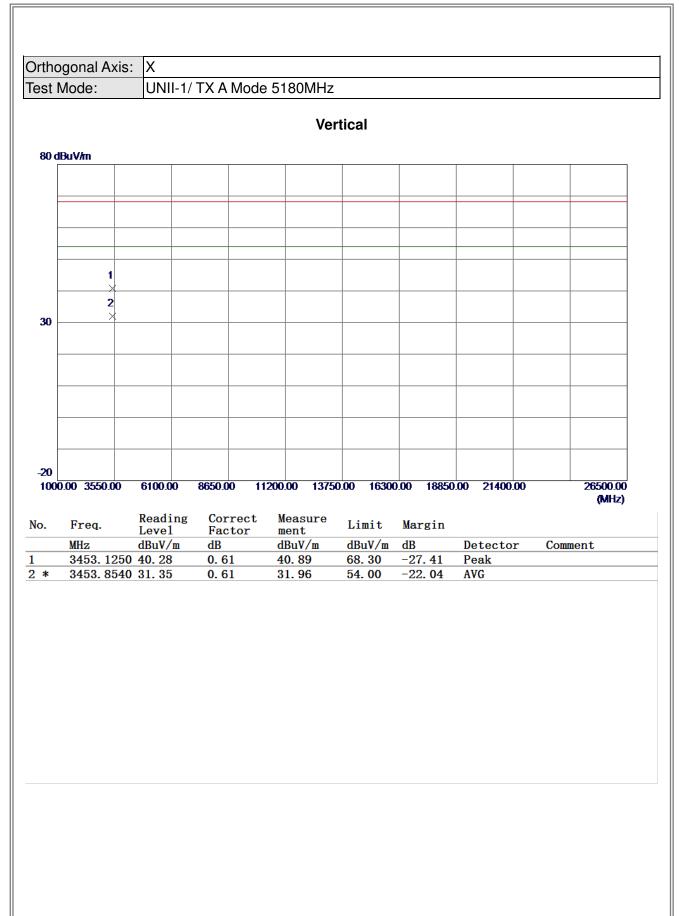






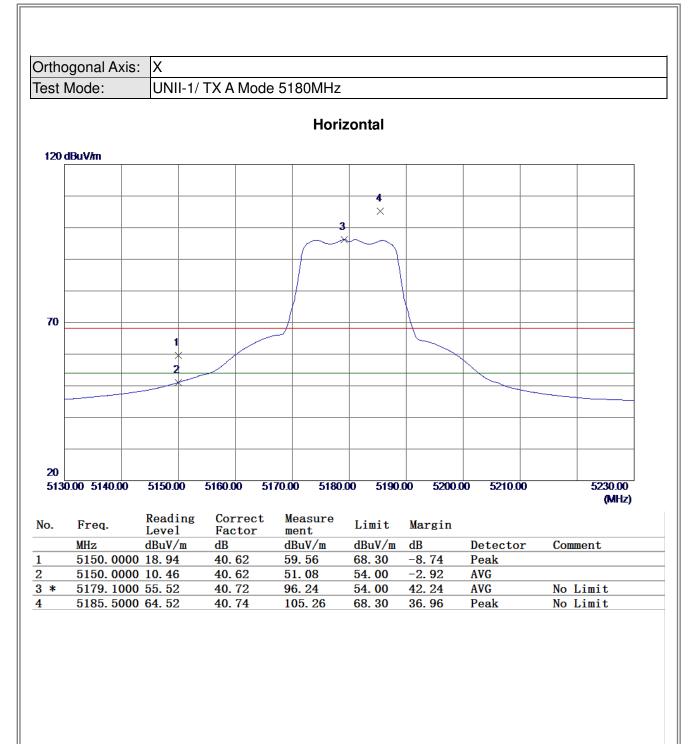






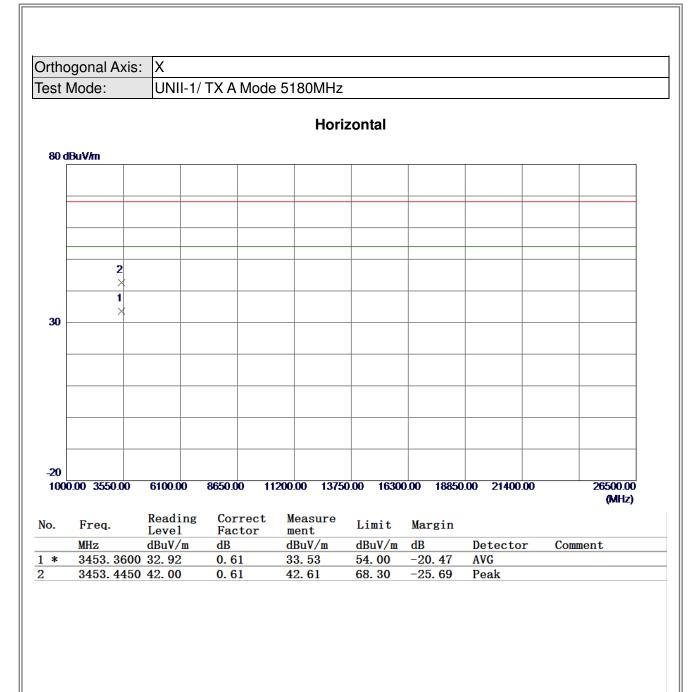






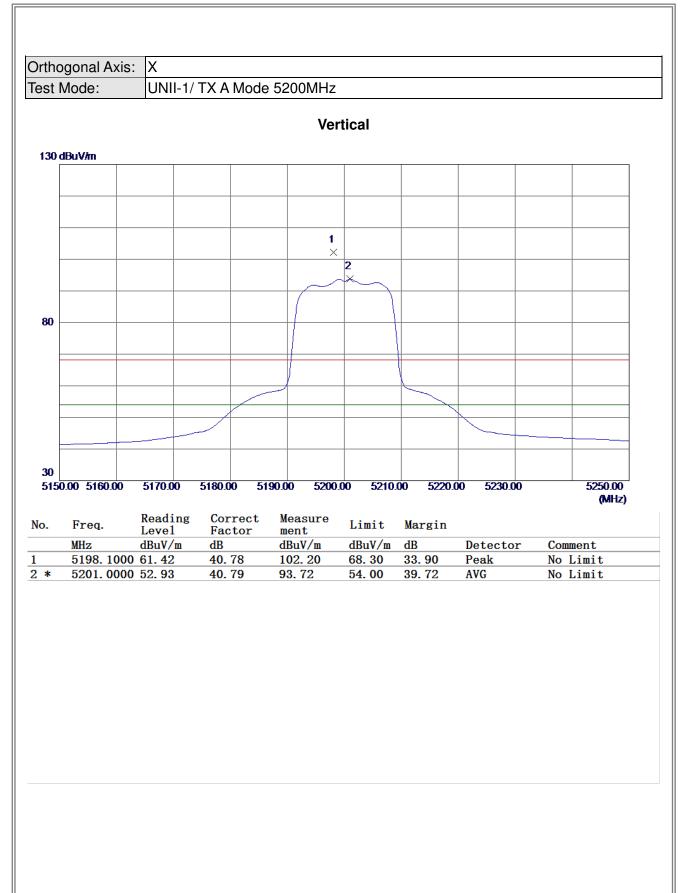






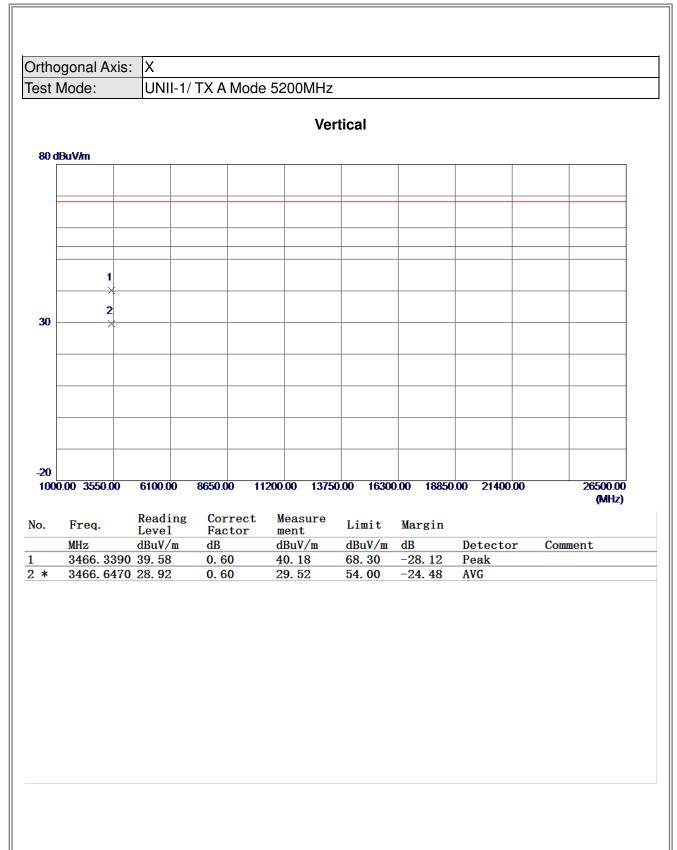






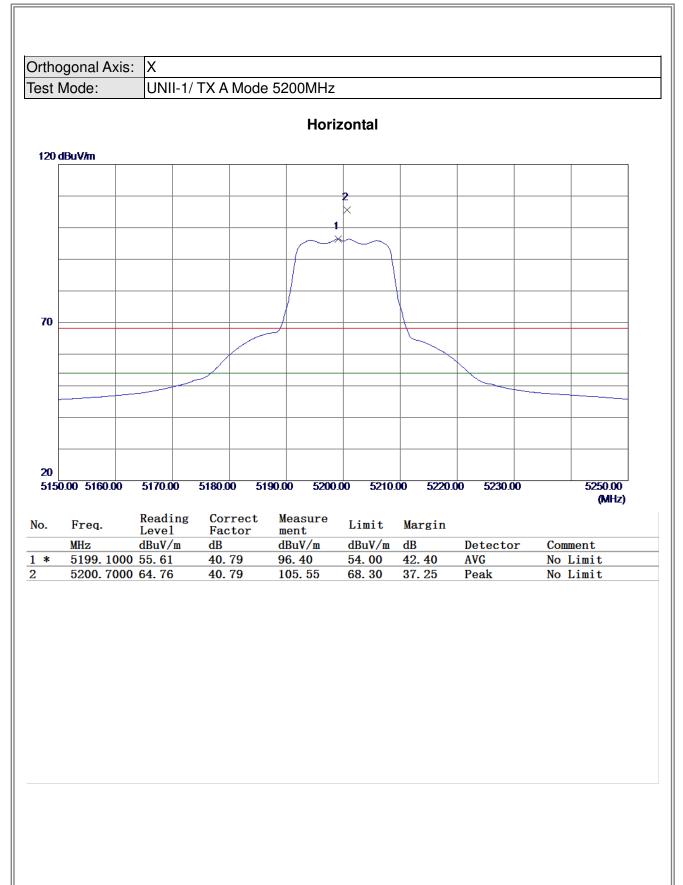






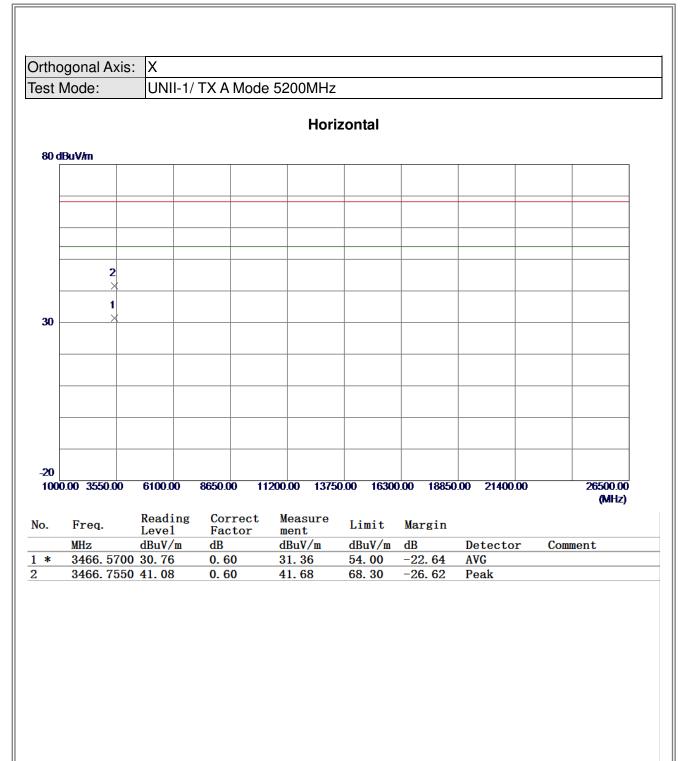






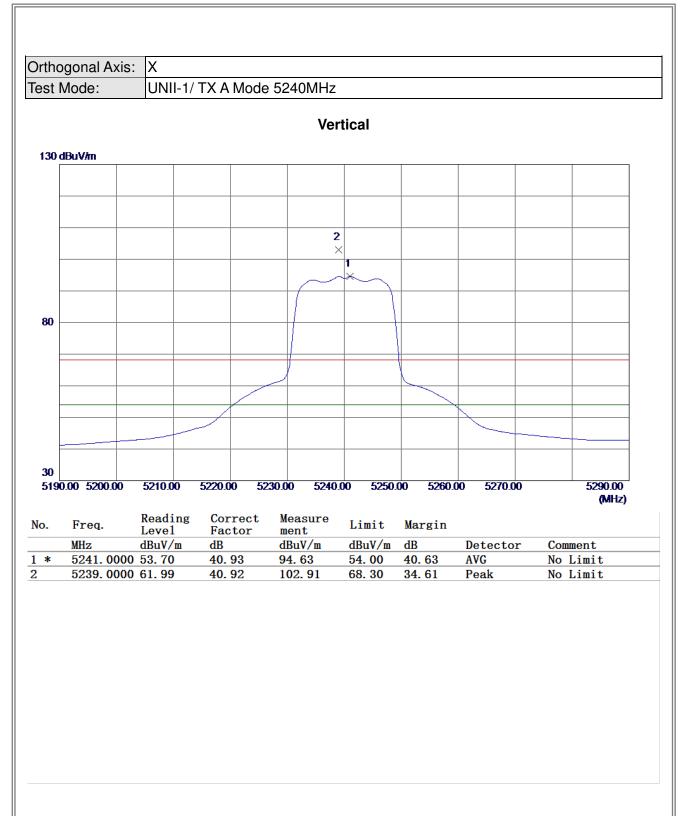






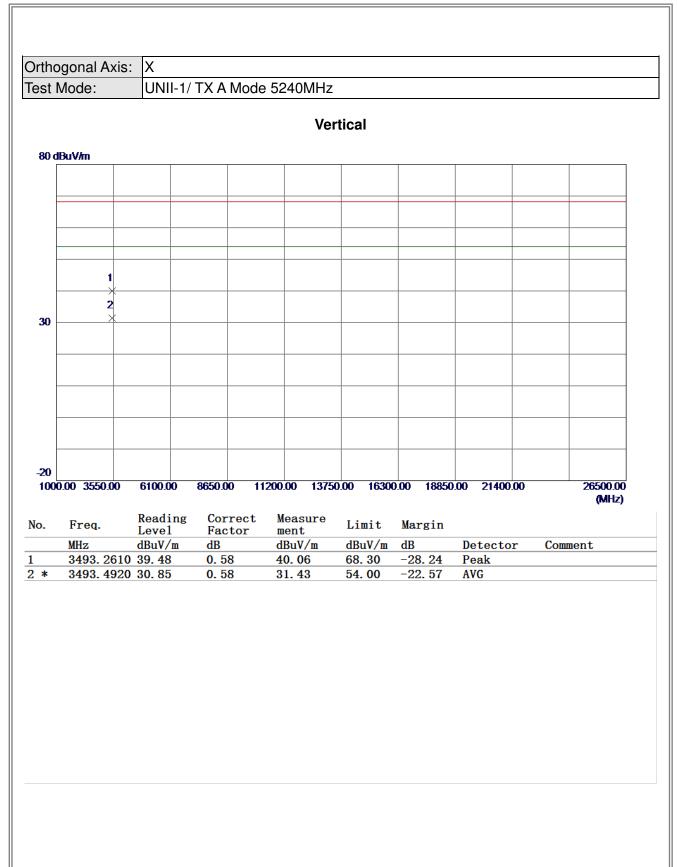






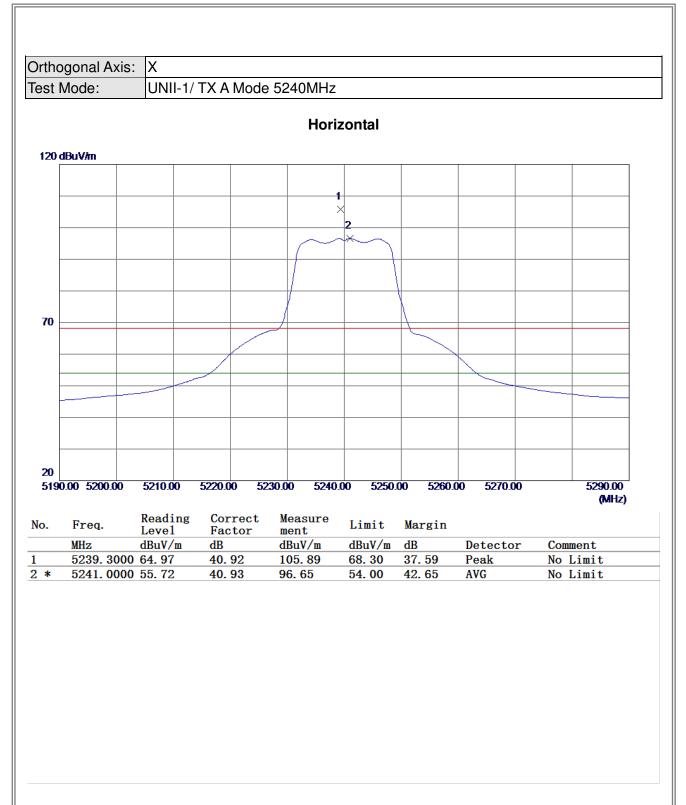






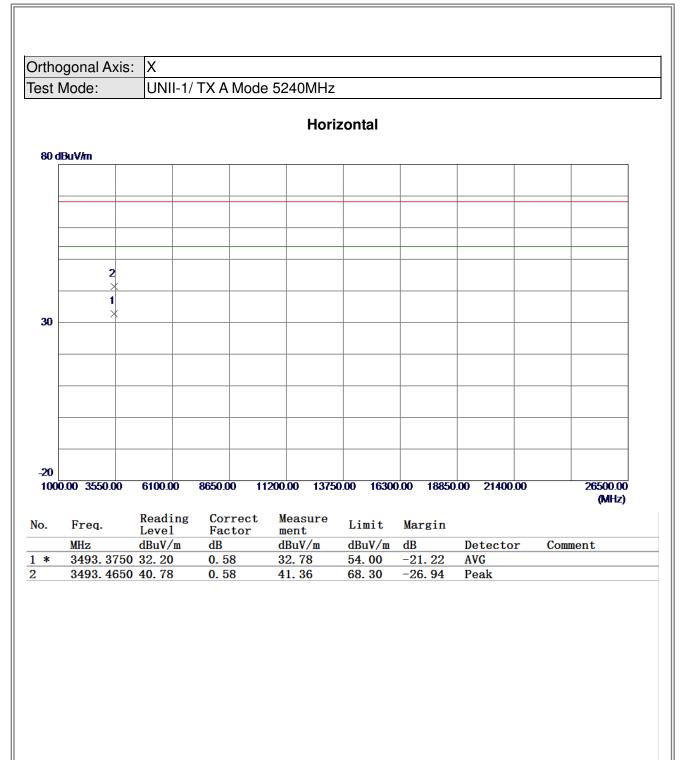






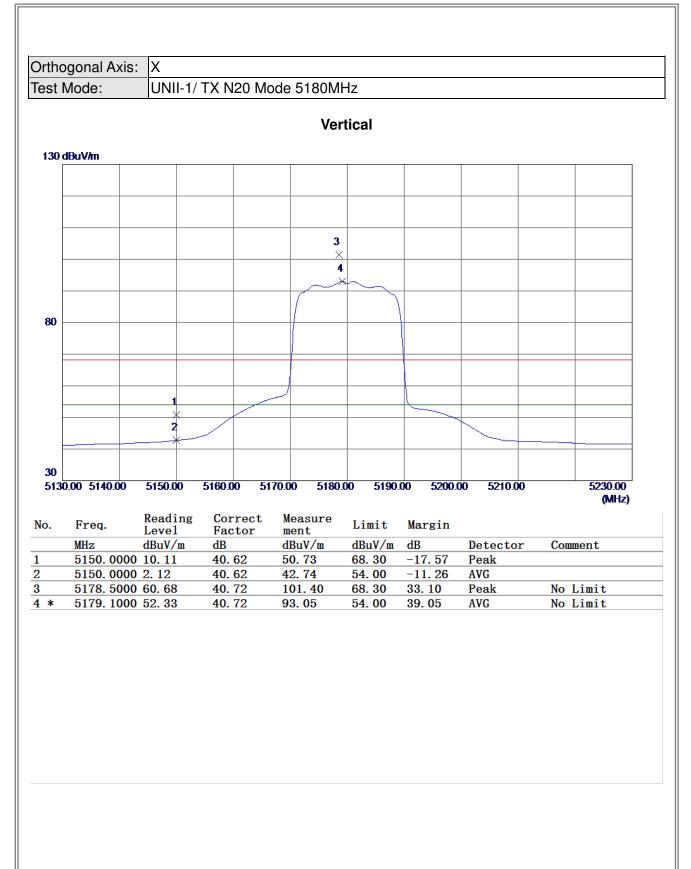






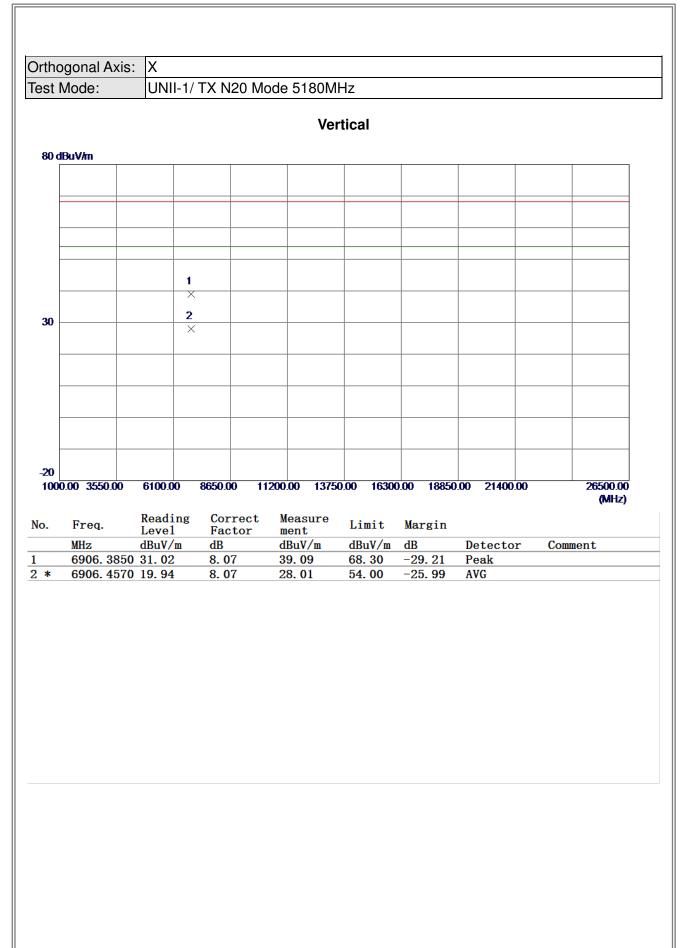






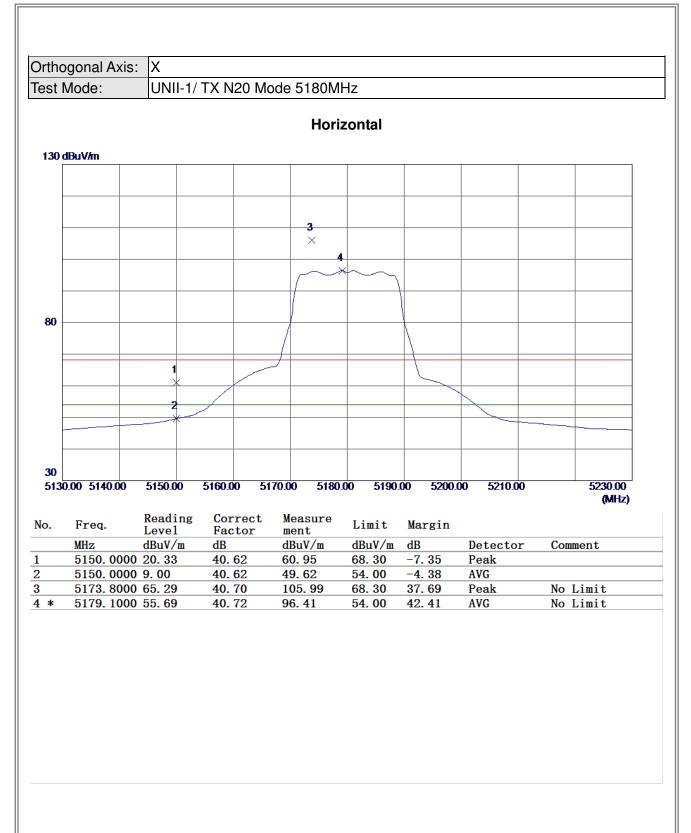






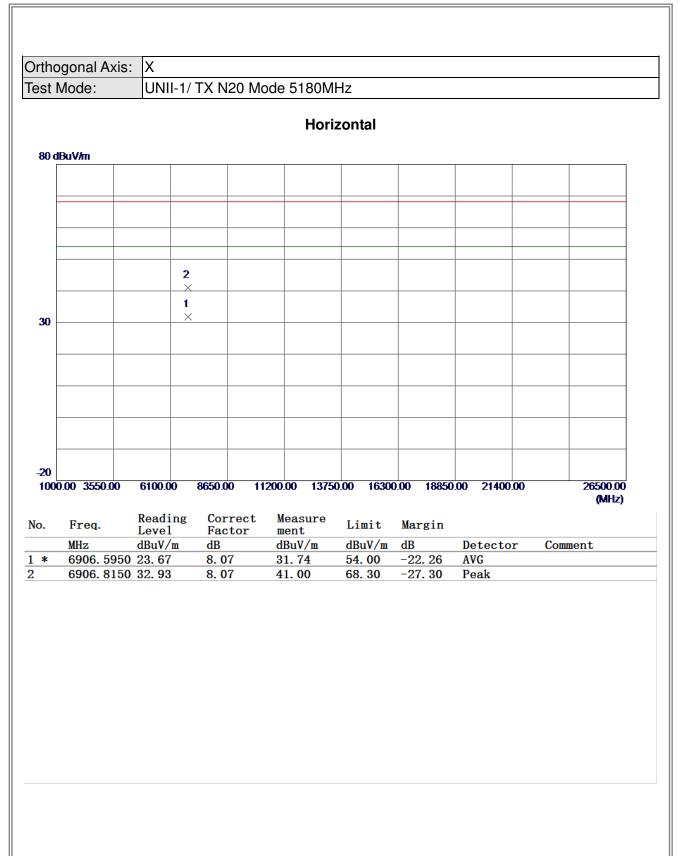






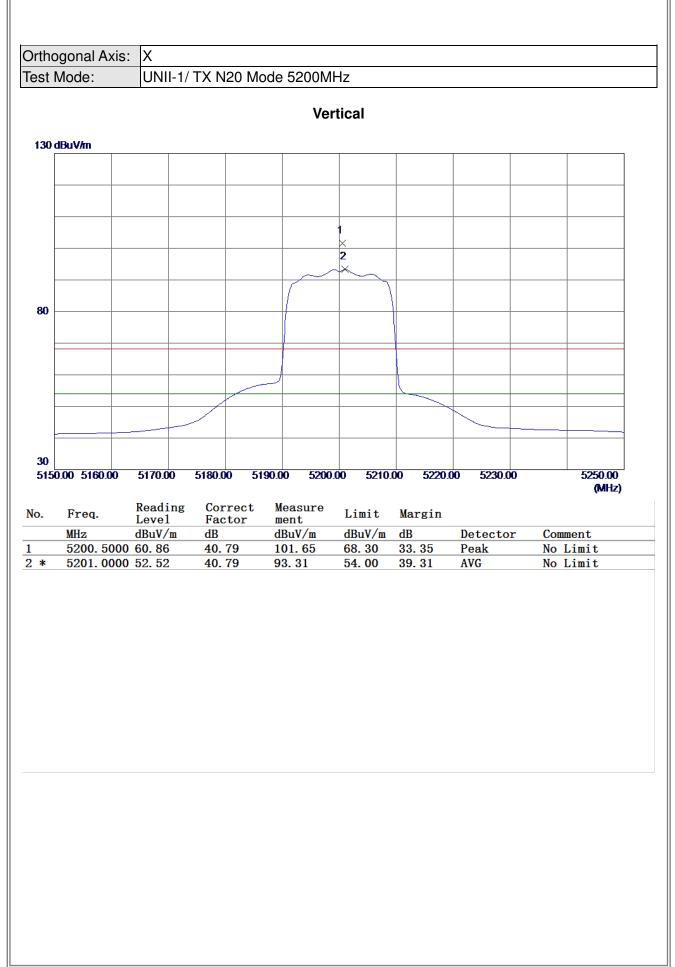






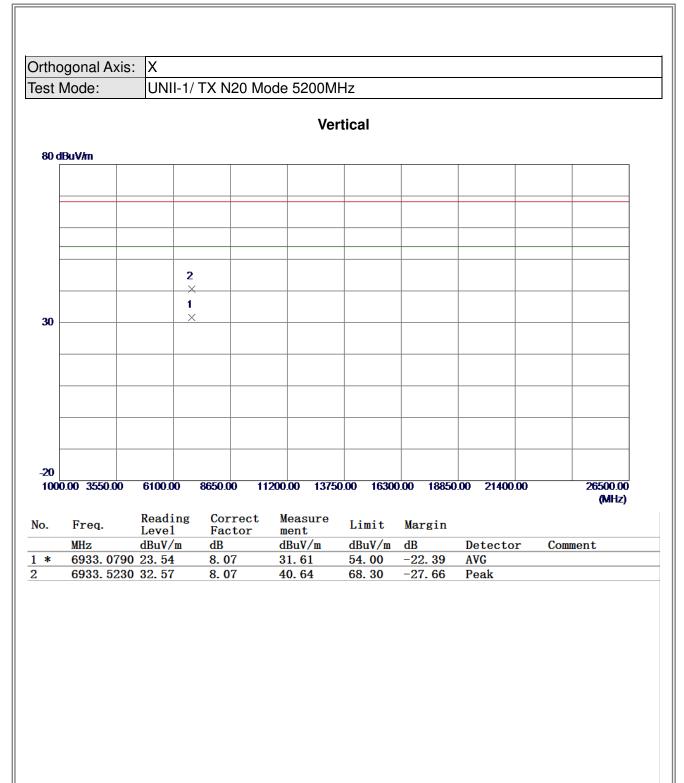






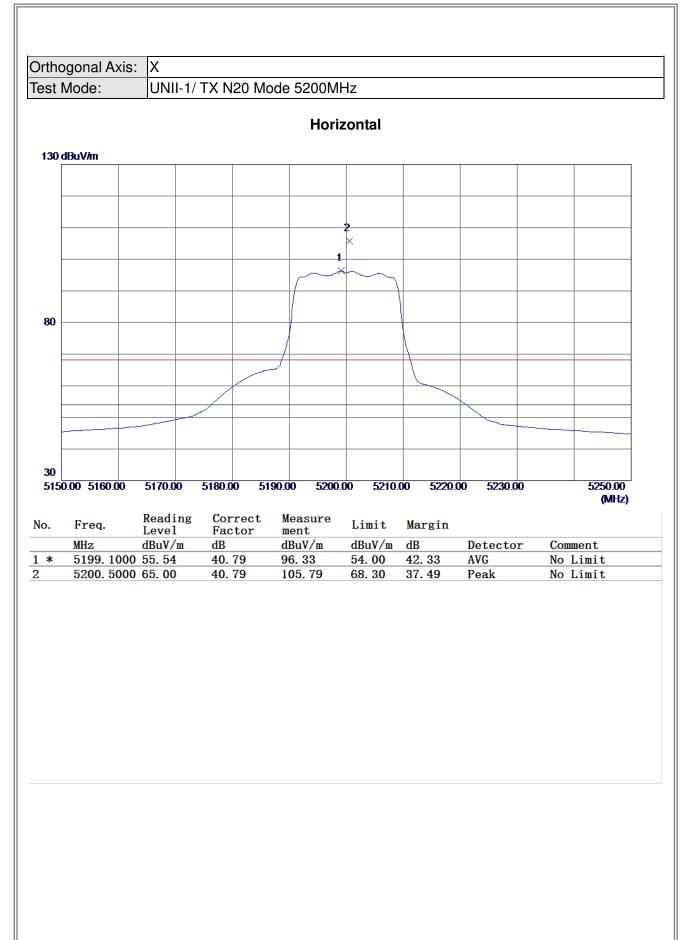






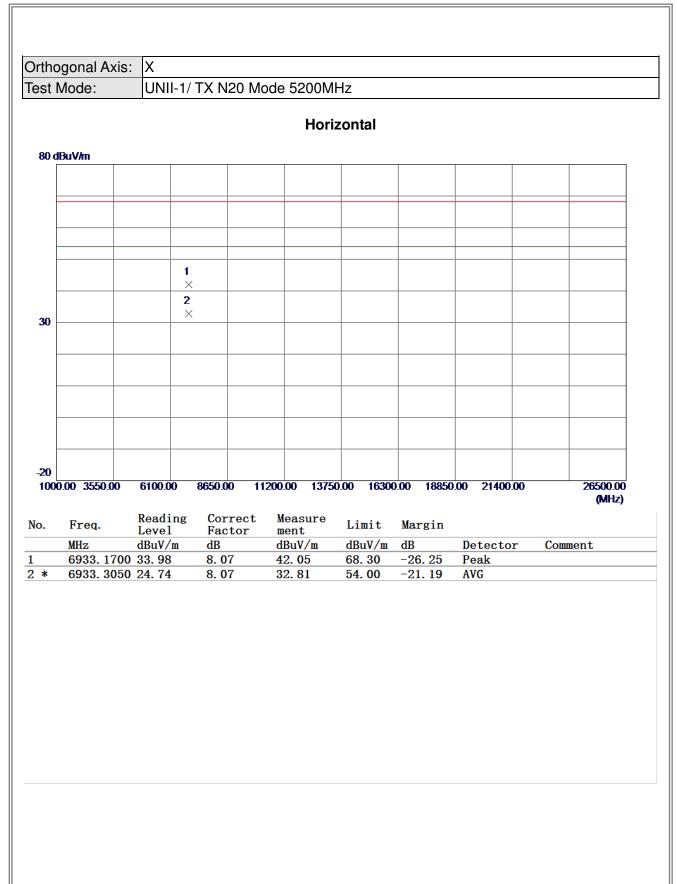






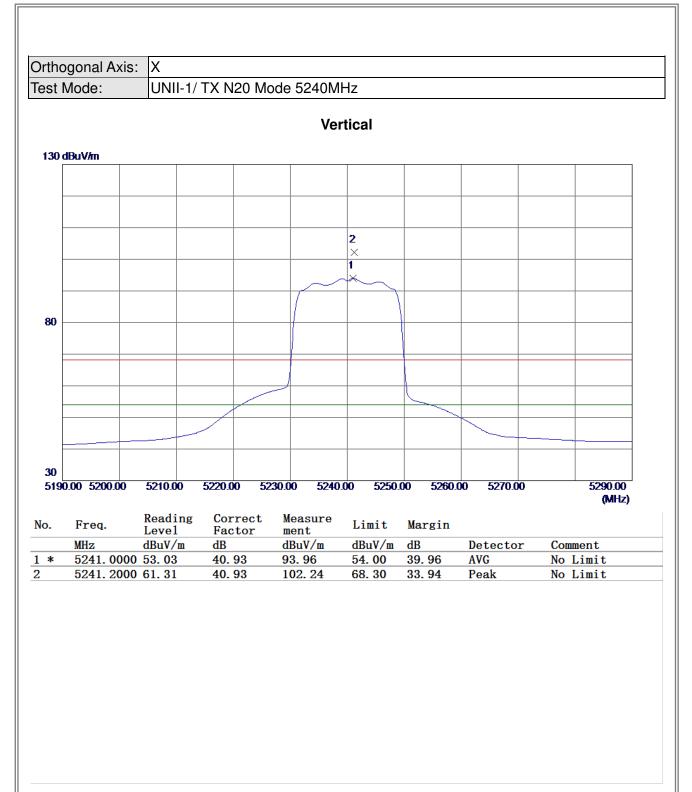






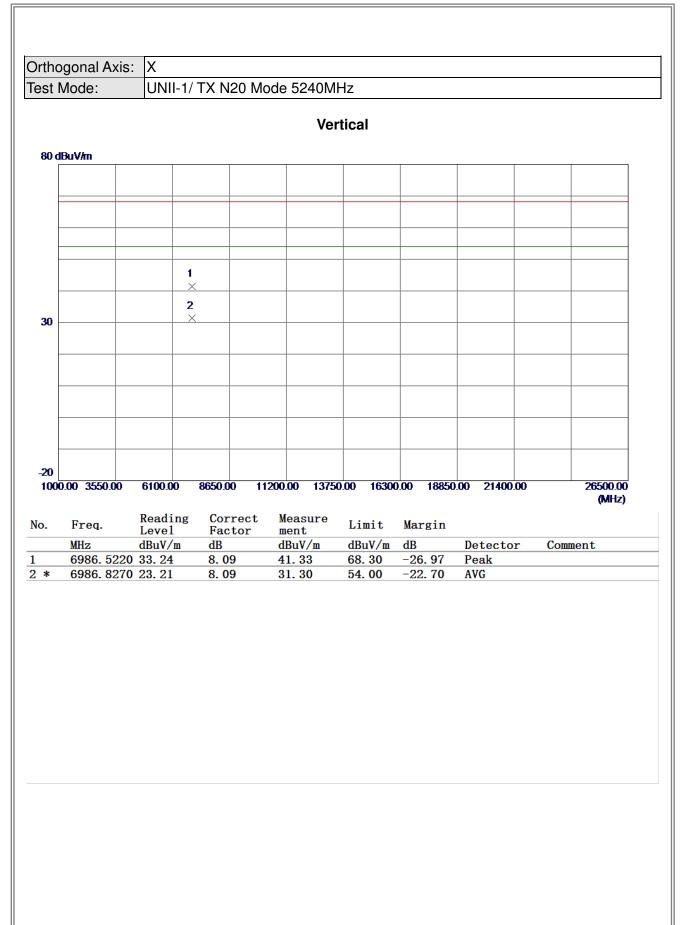






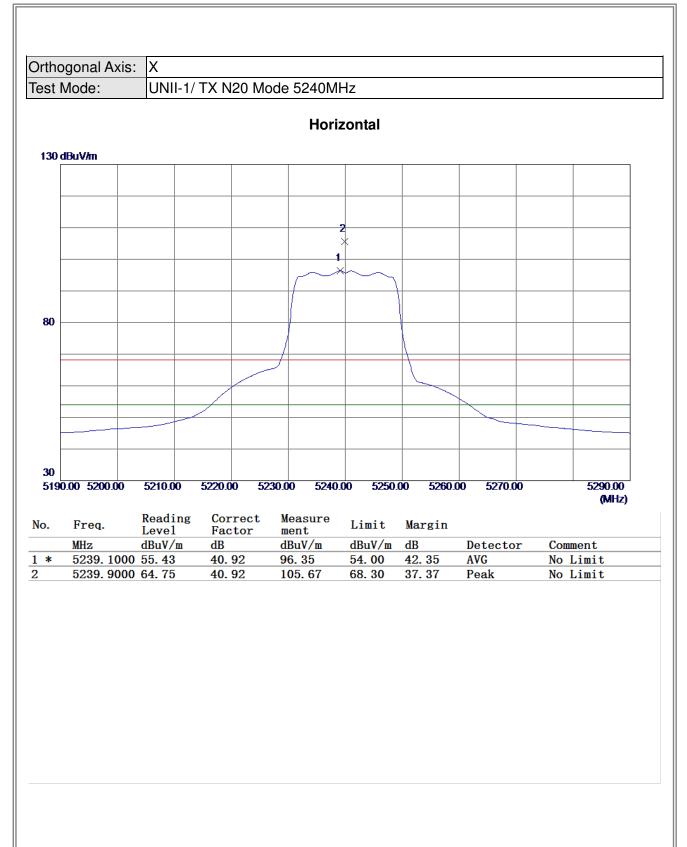






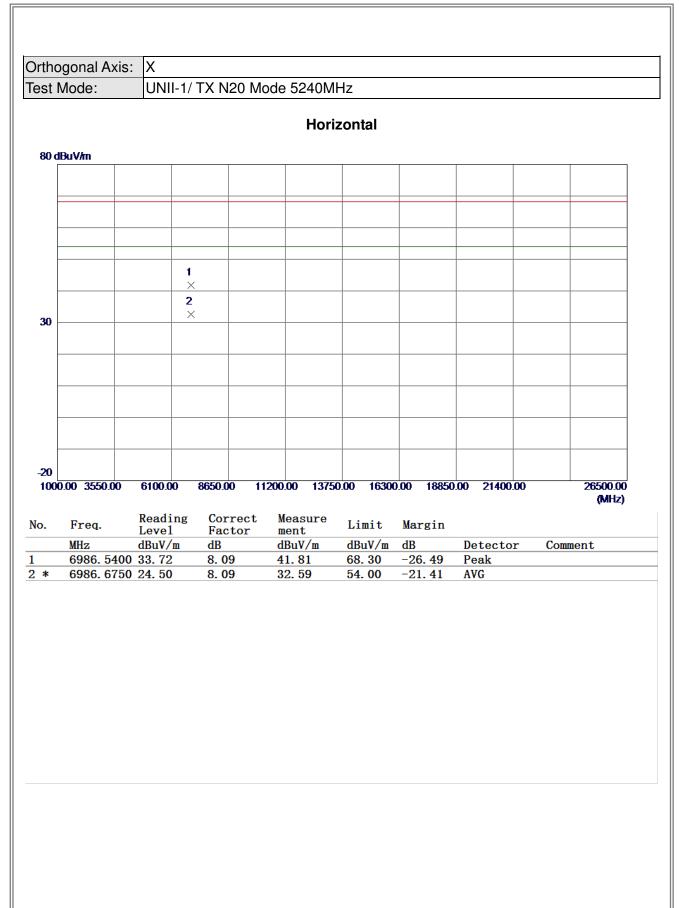






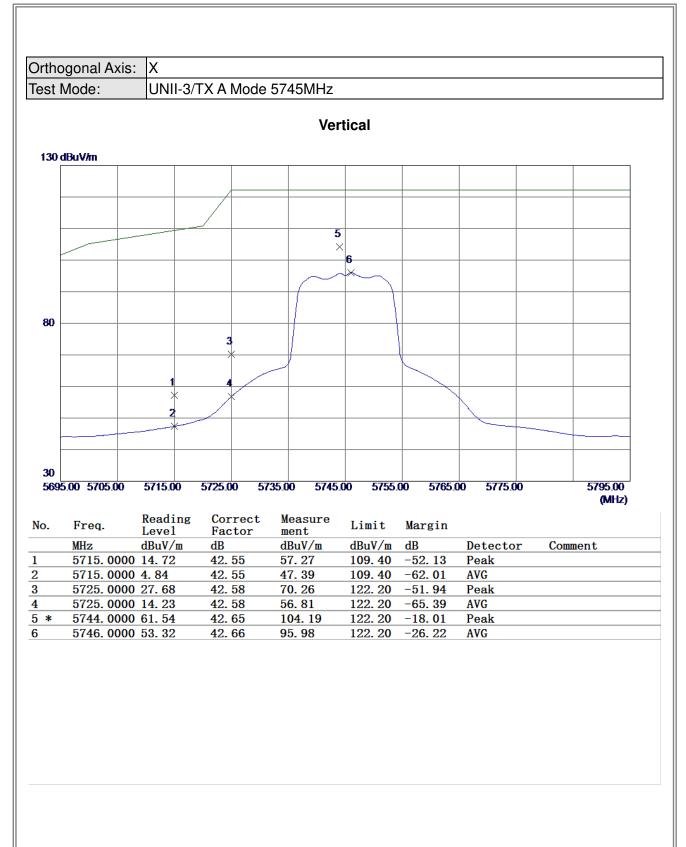






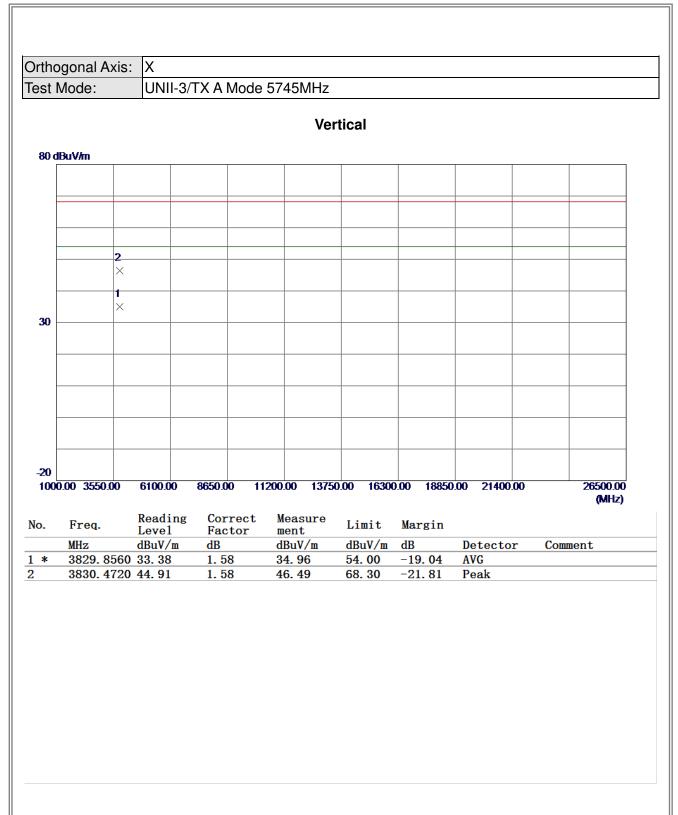






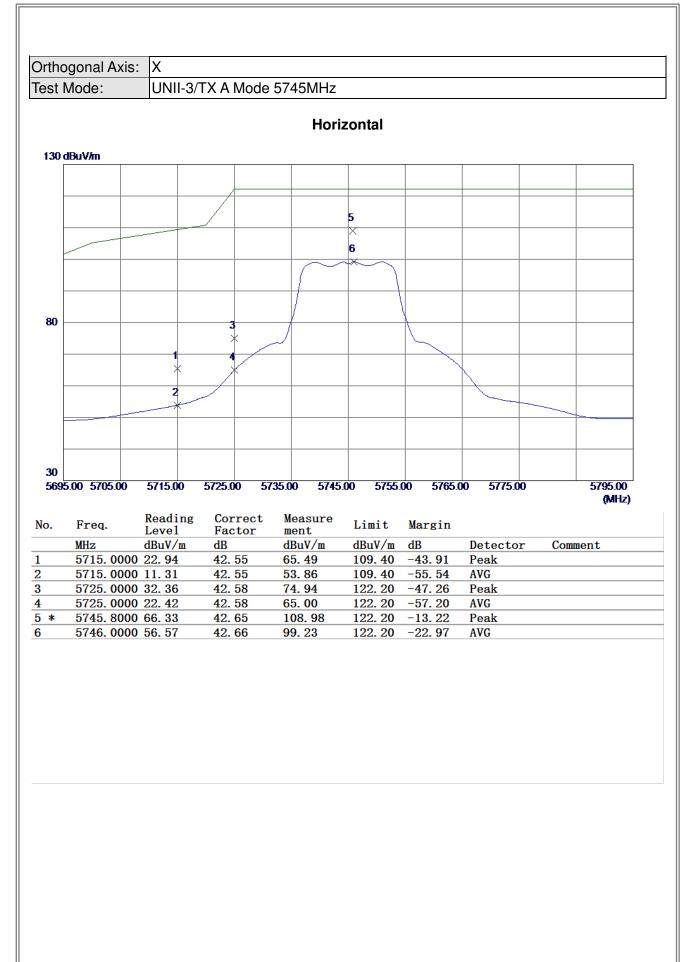






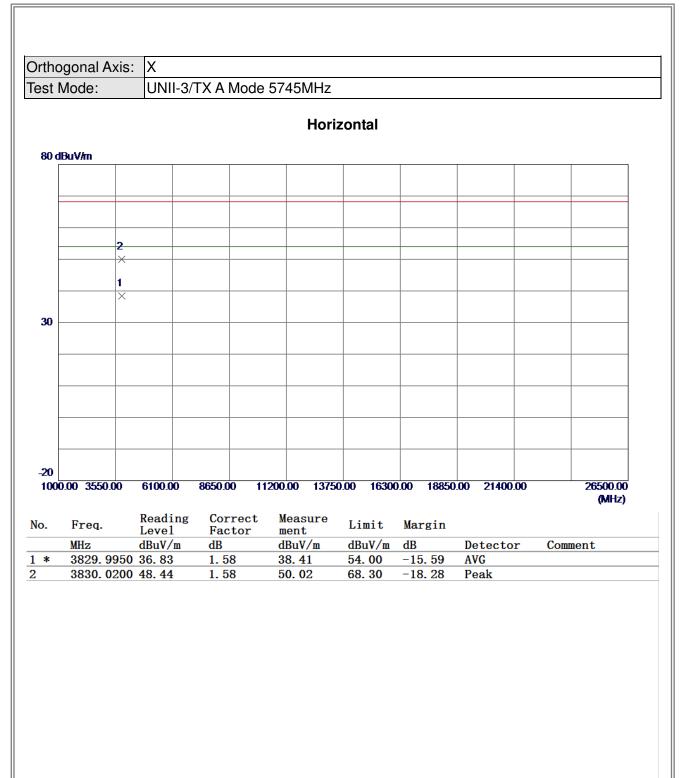






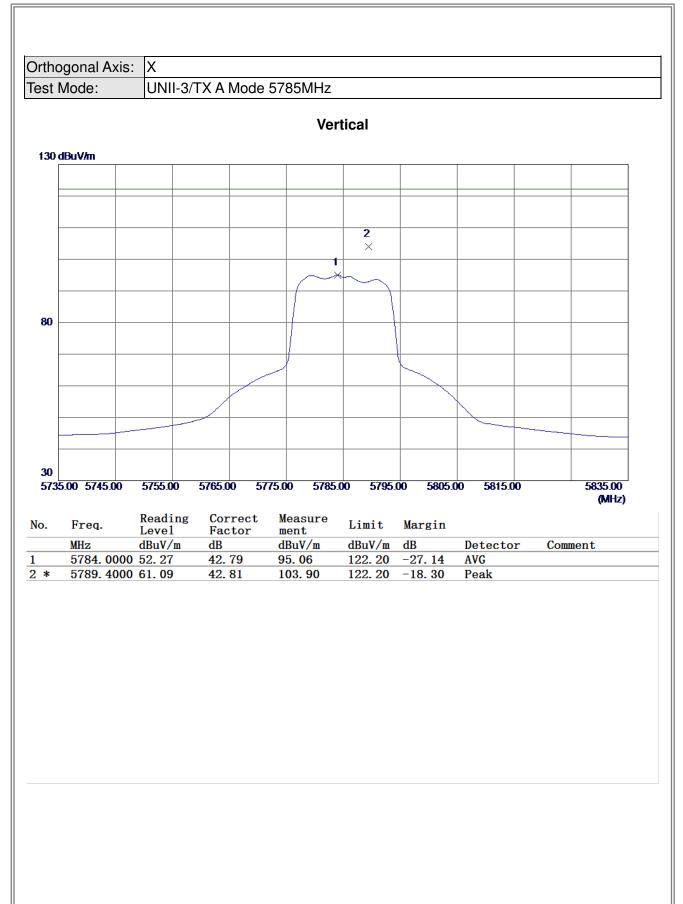






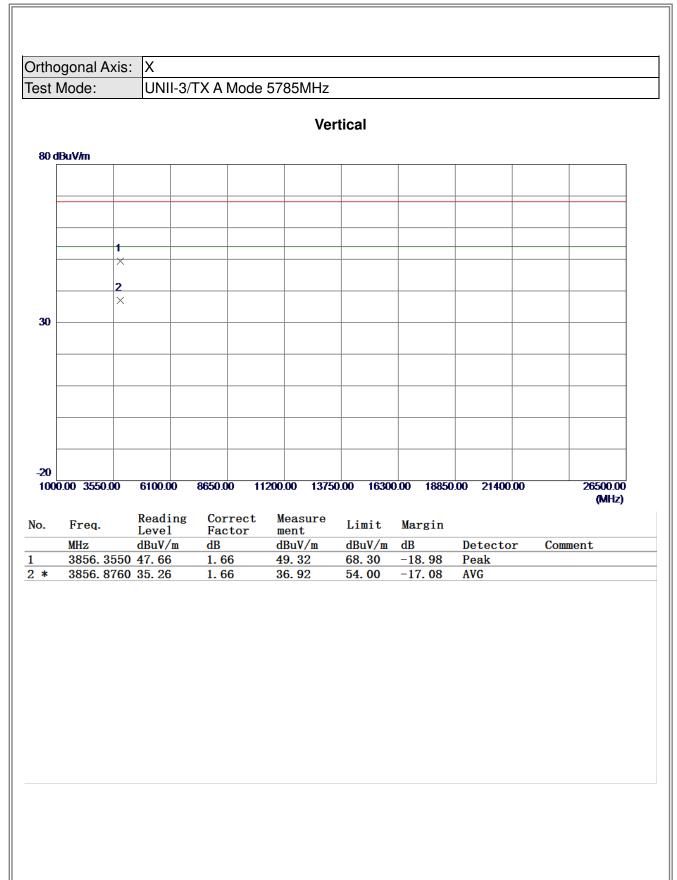






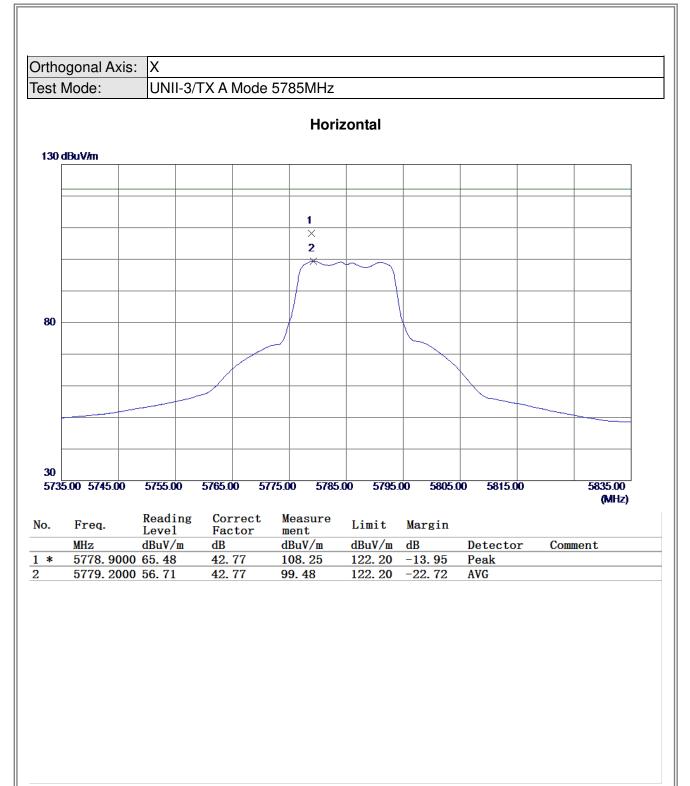






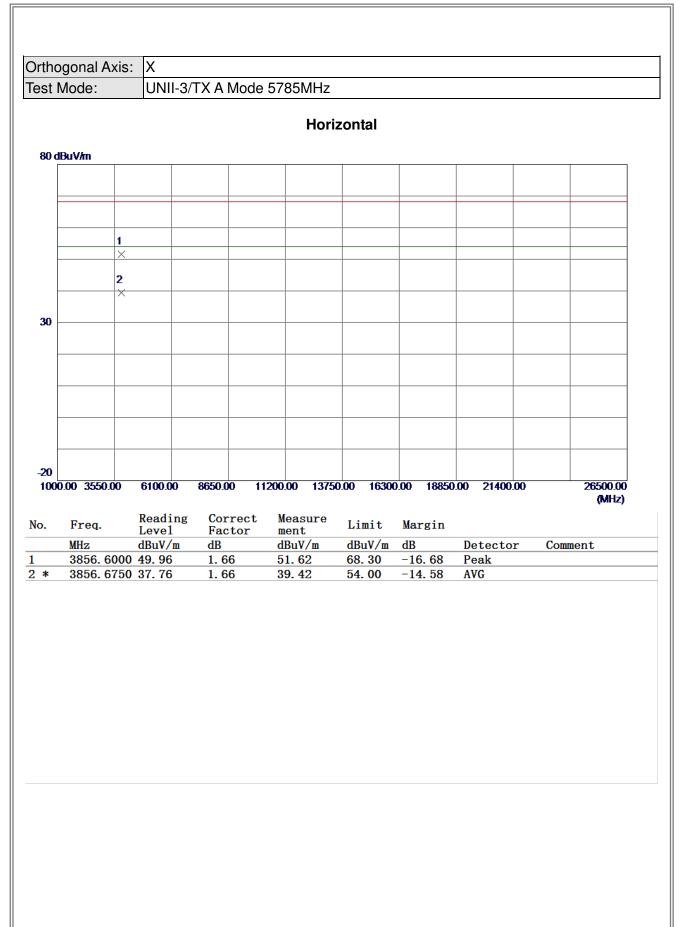






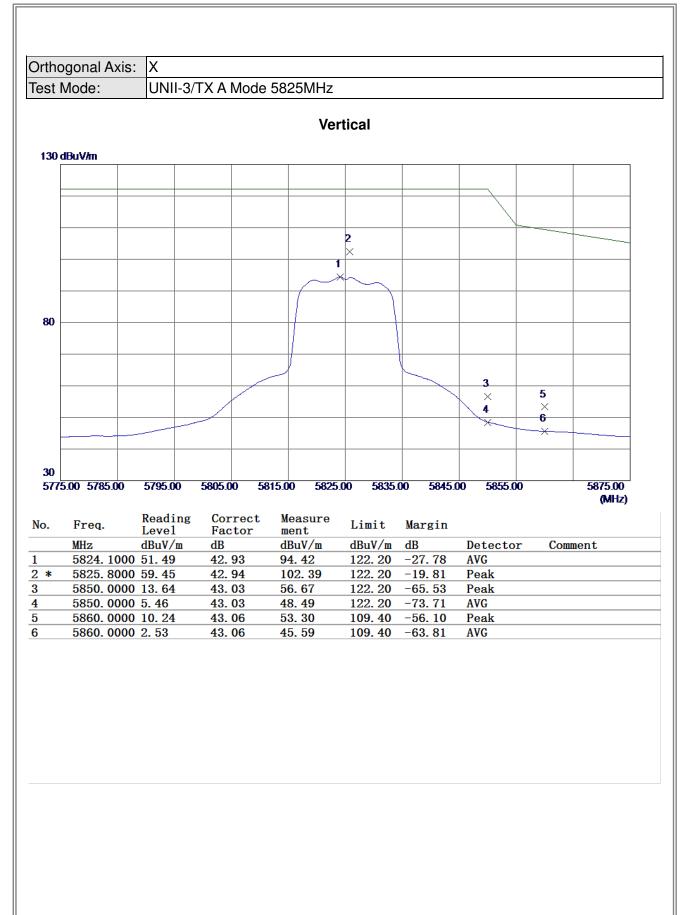






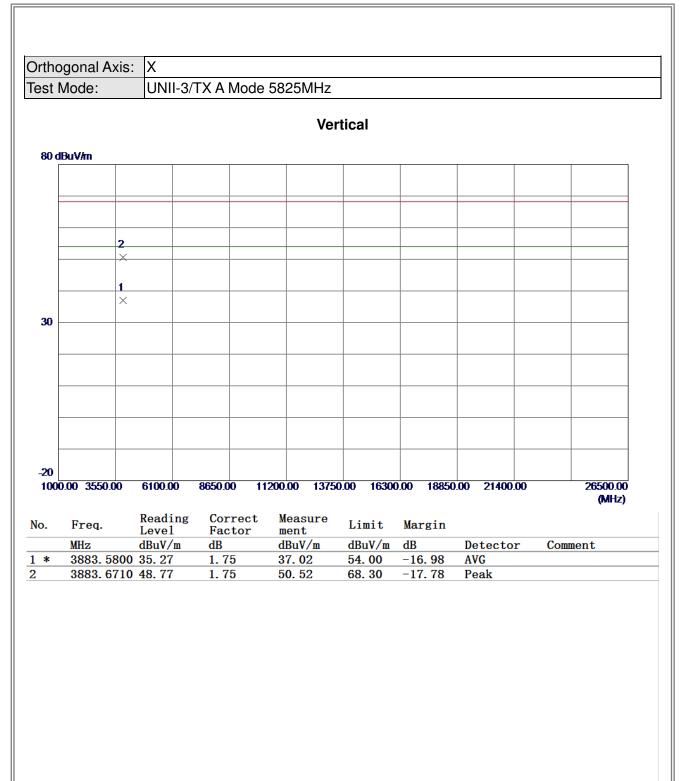






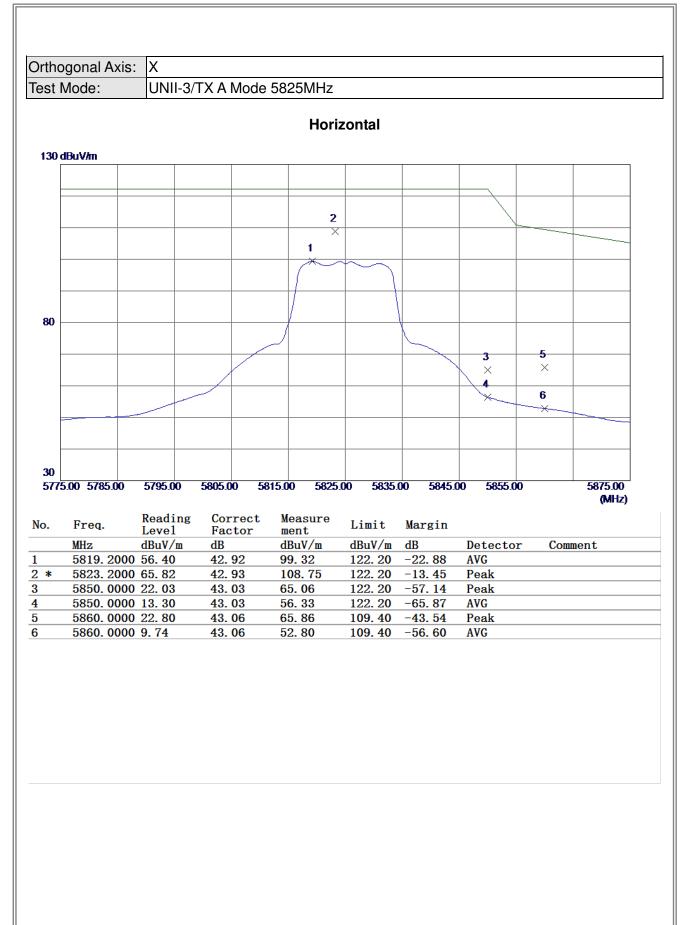






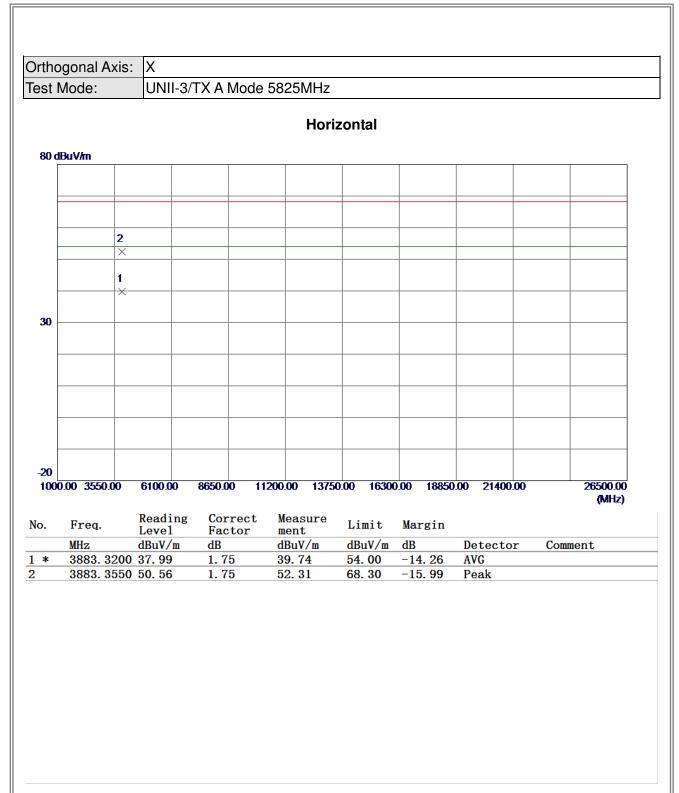






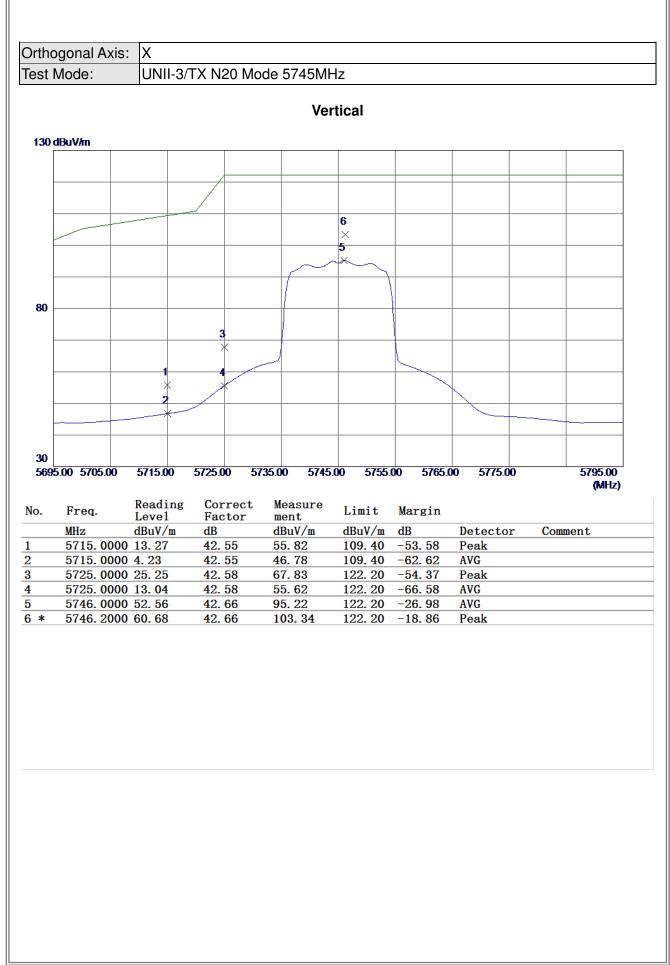






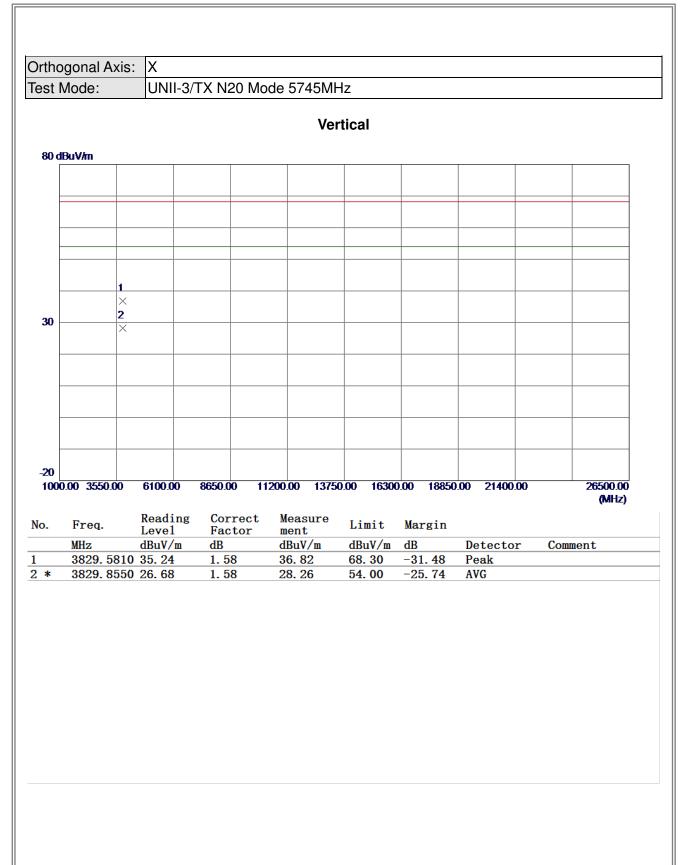






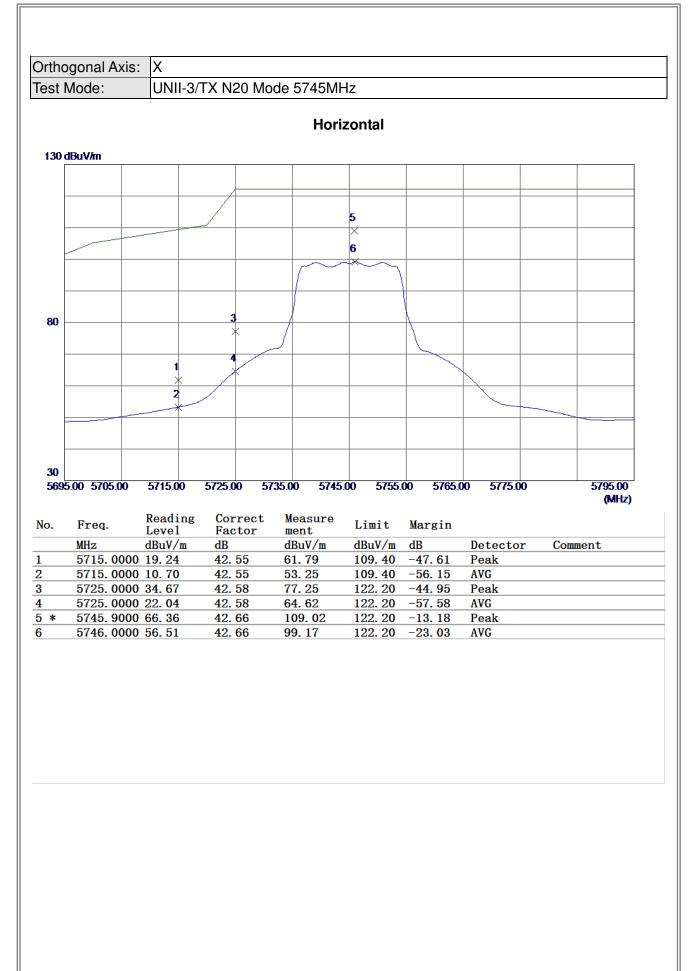






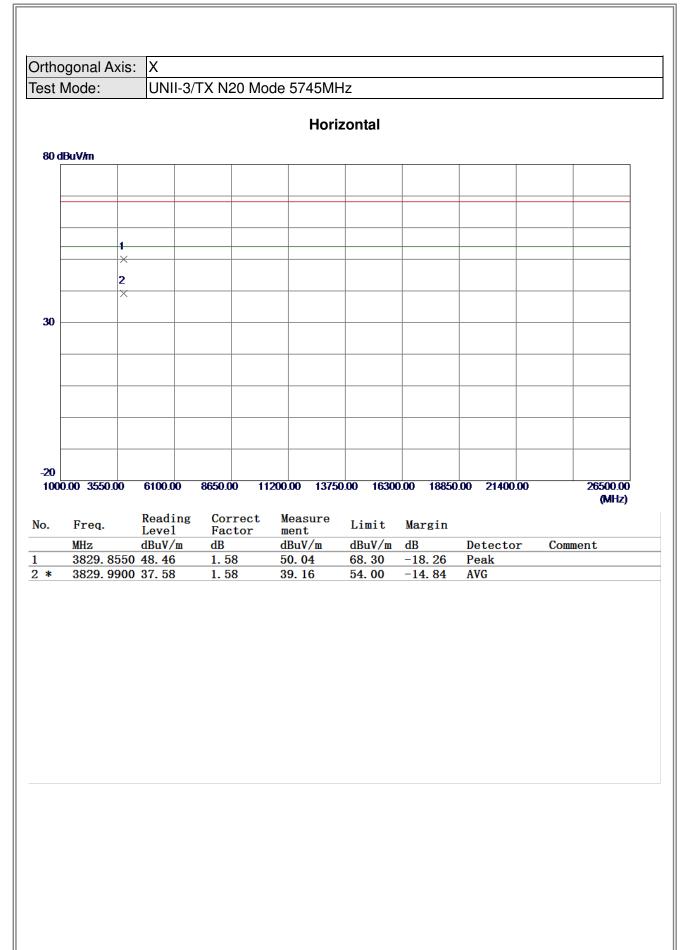






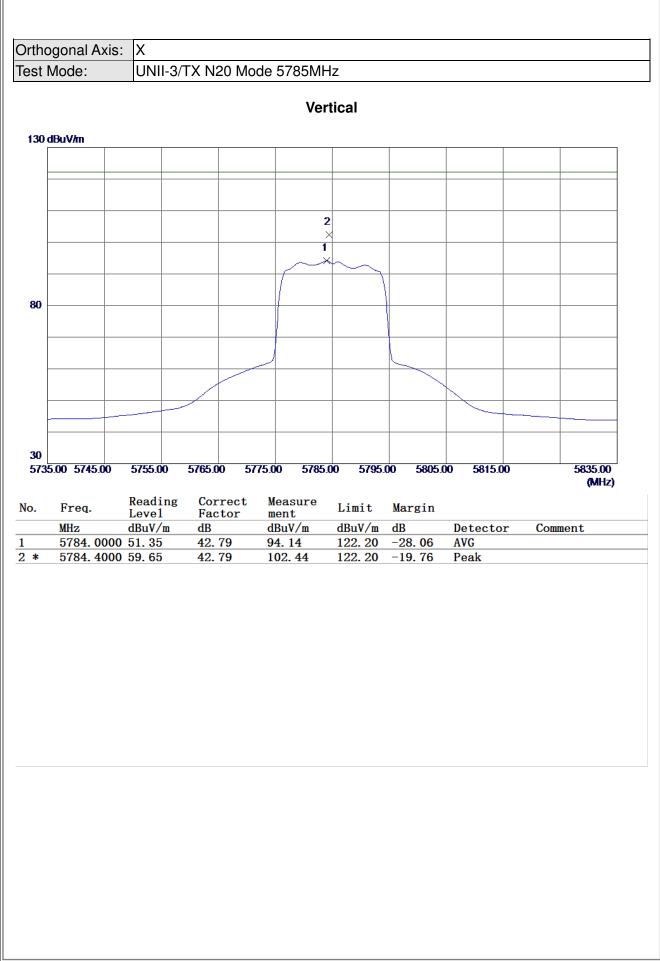






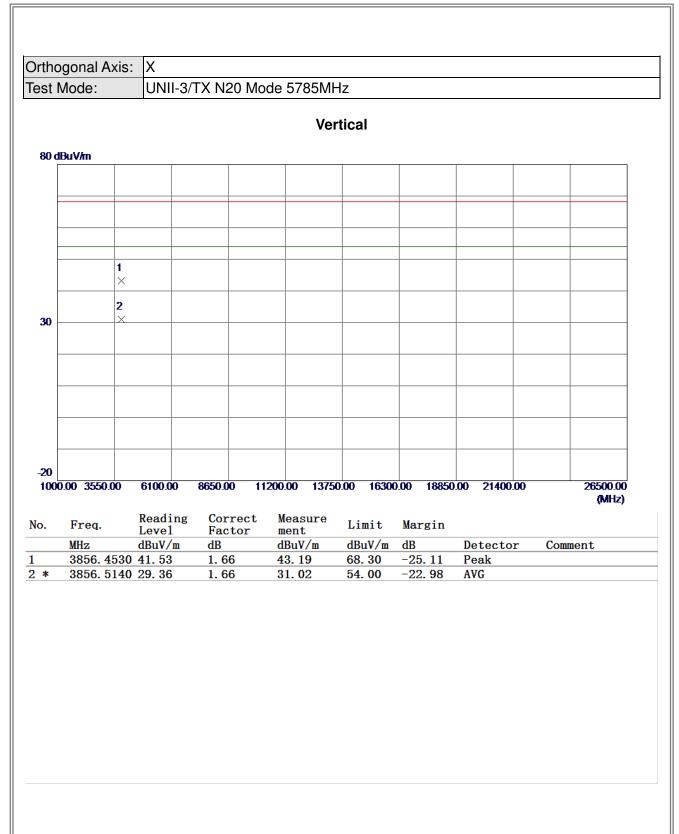






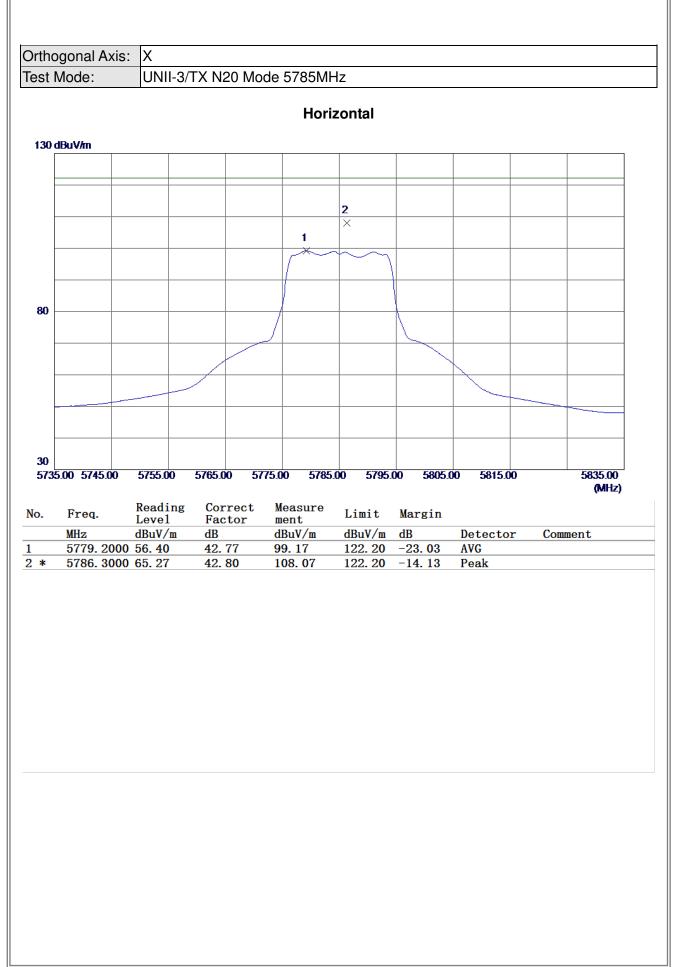






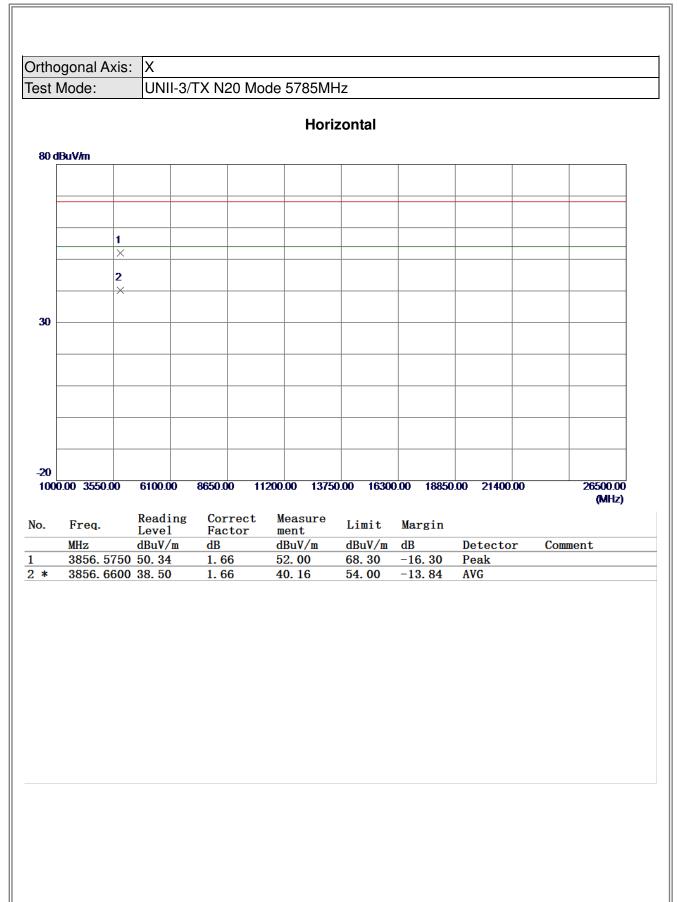






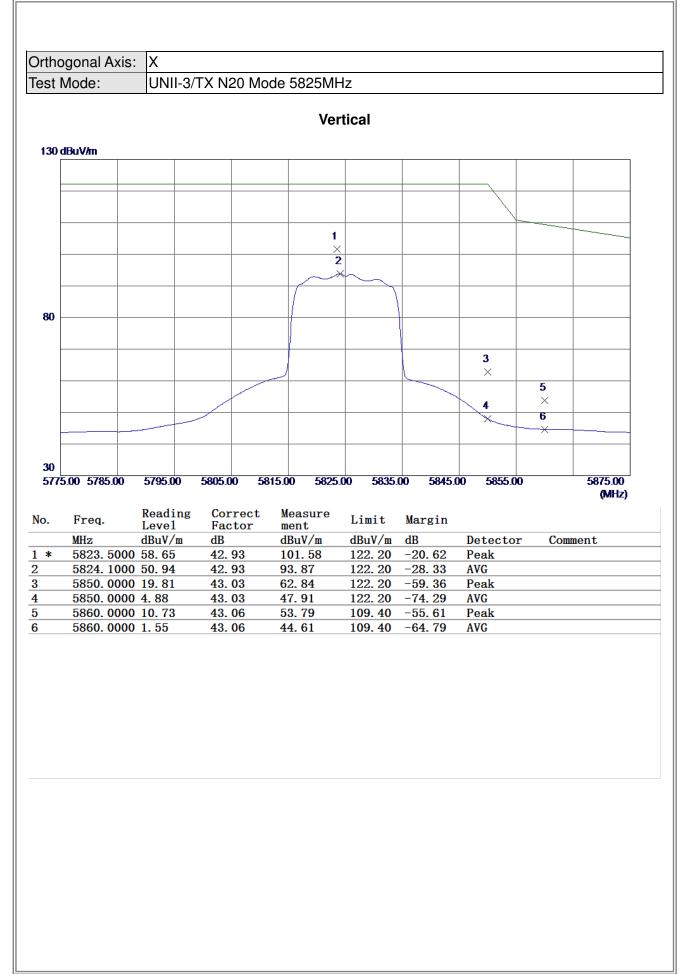






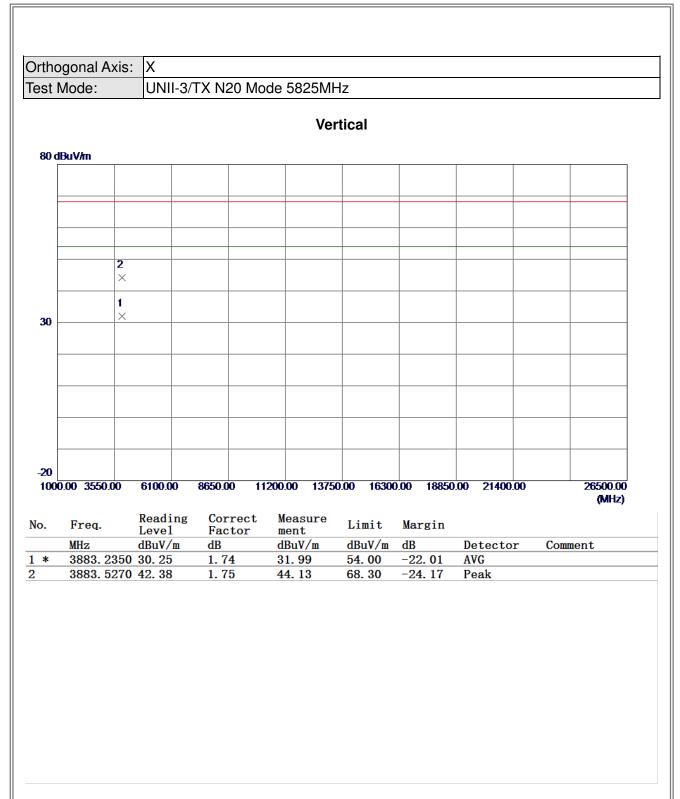






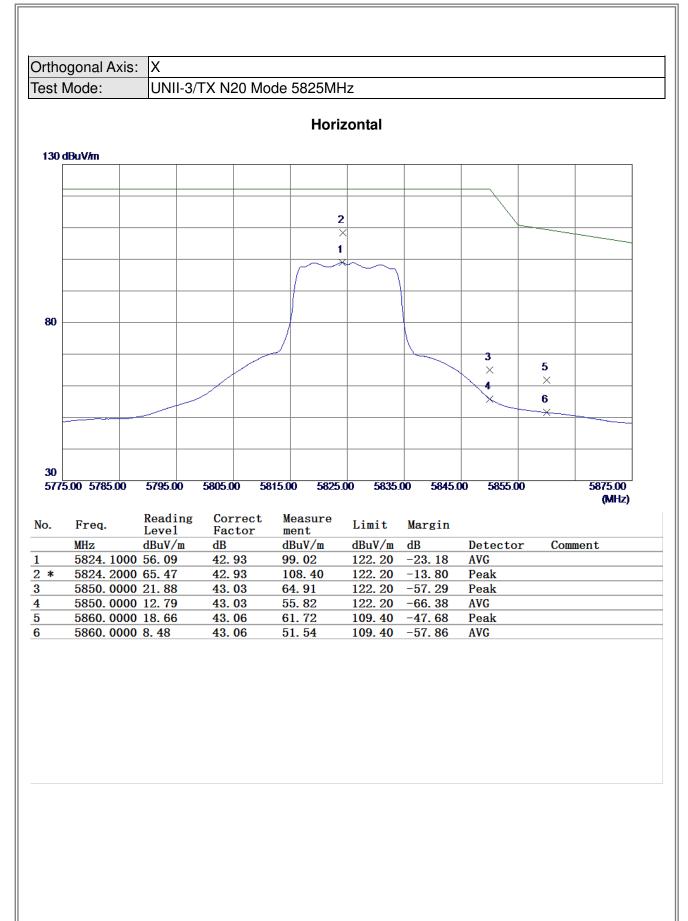






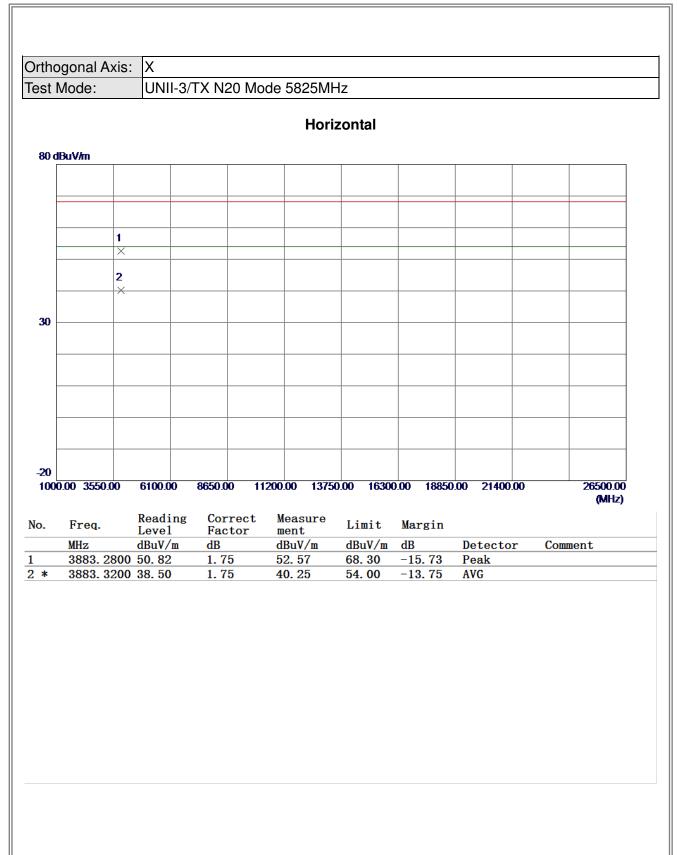




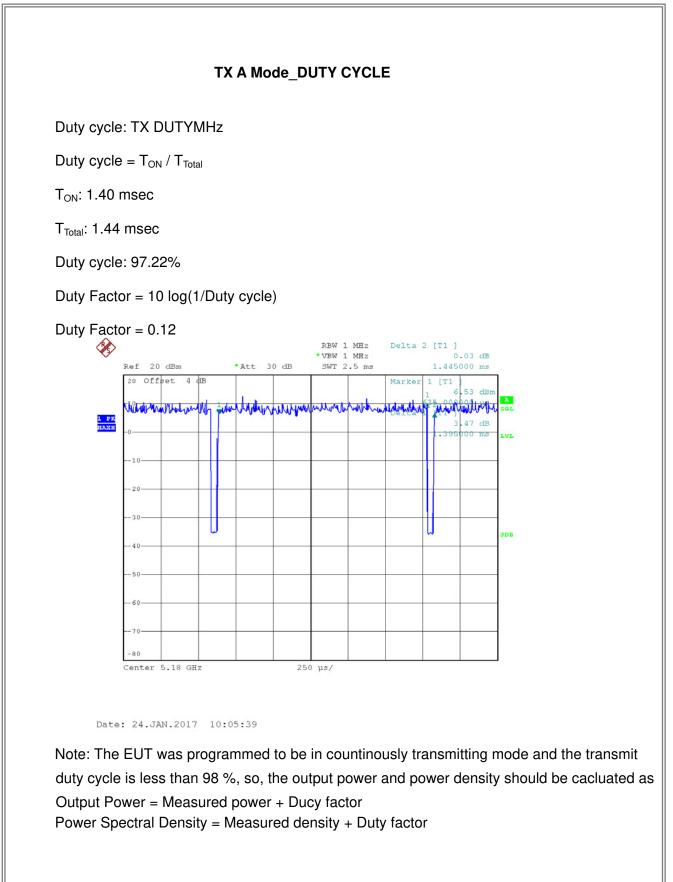




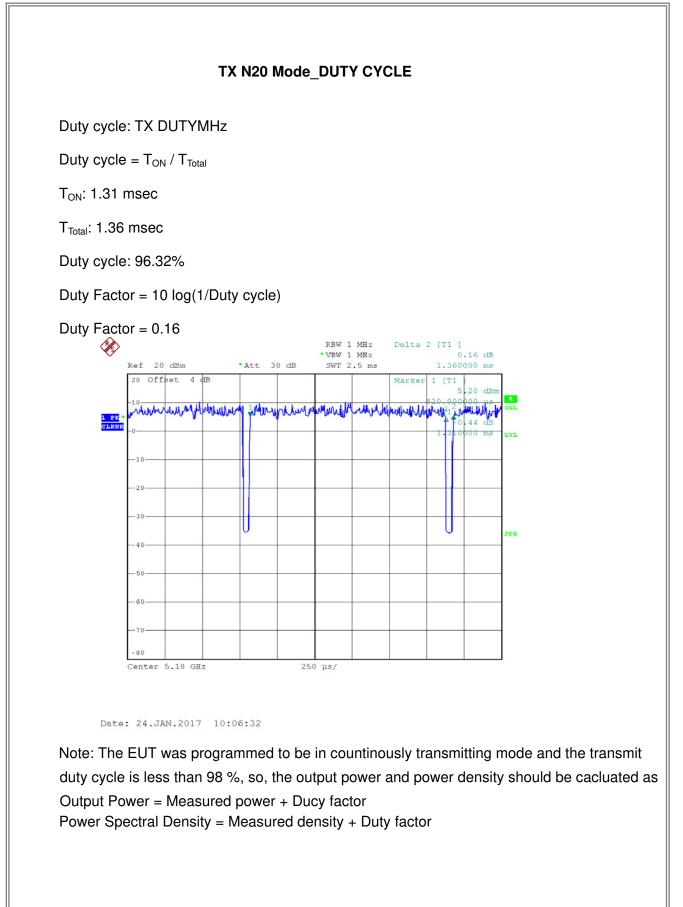














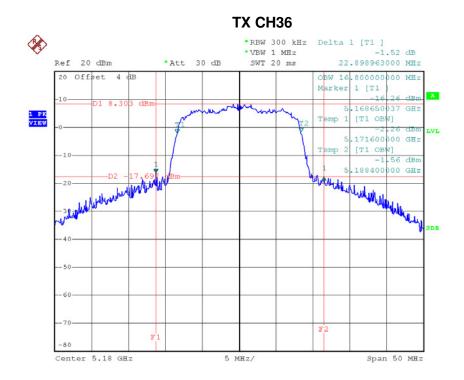
## ATTACHMENT E - BANDWIDTH

Report No.: BTL-FCCP-1-1611C202



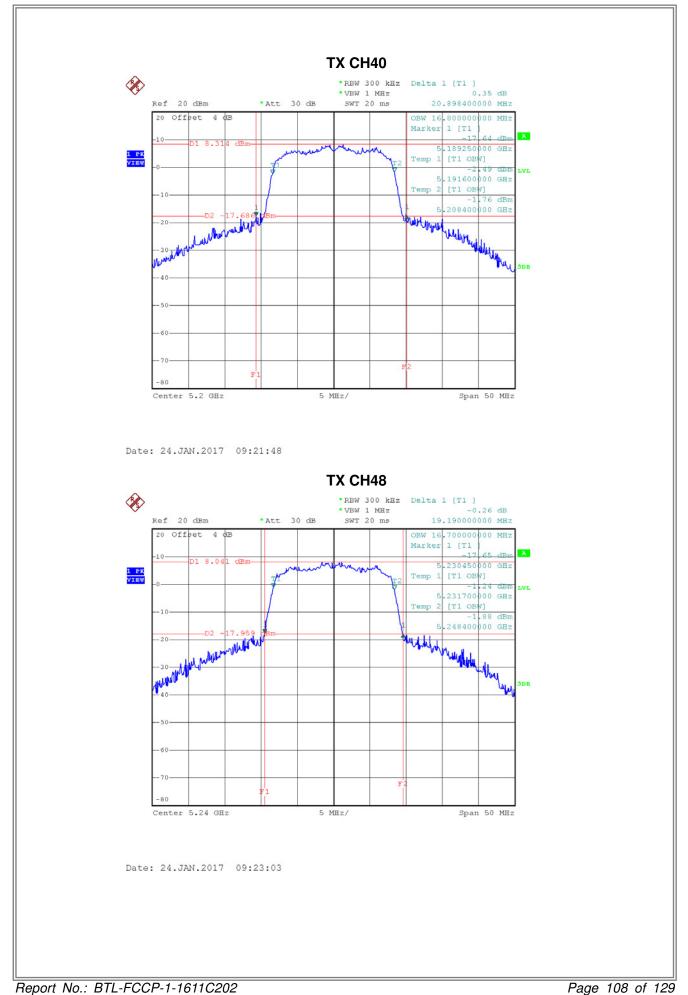
## Test Mode: UNII-1/TX A Mode\_CH36/CH40/CH48

Channel	Frequency	26dB Bandwidth	99% Occupied Bandwidth
	(MHz)	(MHz)	(MHz)
CH36	5180	22.90	16.80
CH40	5200	20.90	16.80
CH48	5240	19.19	16.70



Date: 24.JAN.2017 09:17:18

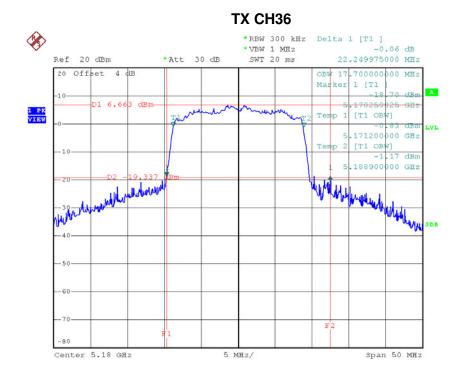






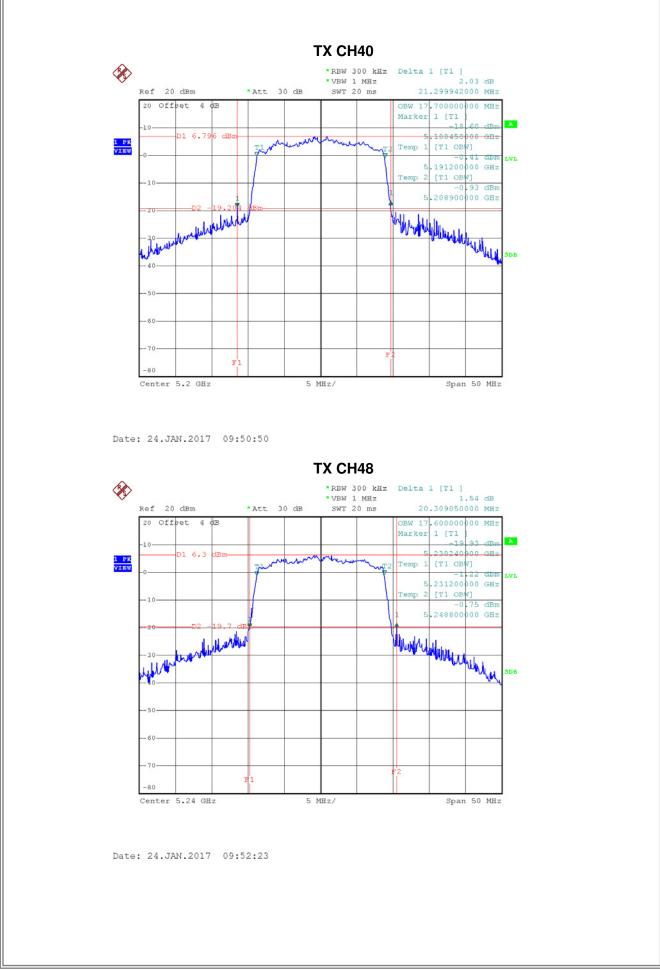
#### Test Mode: UNII-1/TX N20 Mode\_CH36/CH40/CH48

Channel	Frequency	26dB Bandwidth	99% Occupied Bandwidth
Onamer	(MHz)	(MHz)	(MHz)
CH36	5180	22.25	17.70
CH40	5200	21.30	17.70
CH48	5240	20.31	17.60



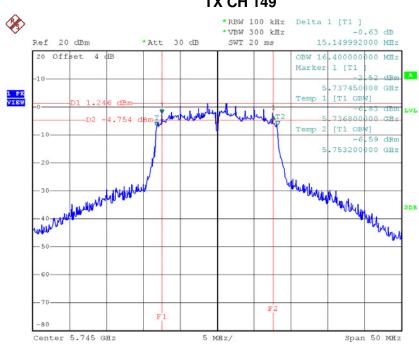
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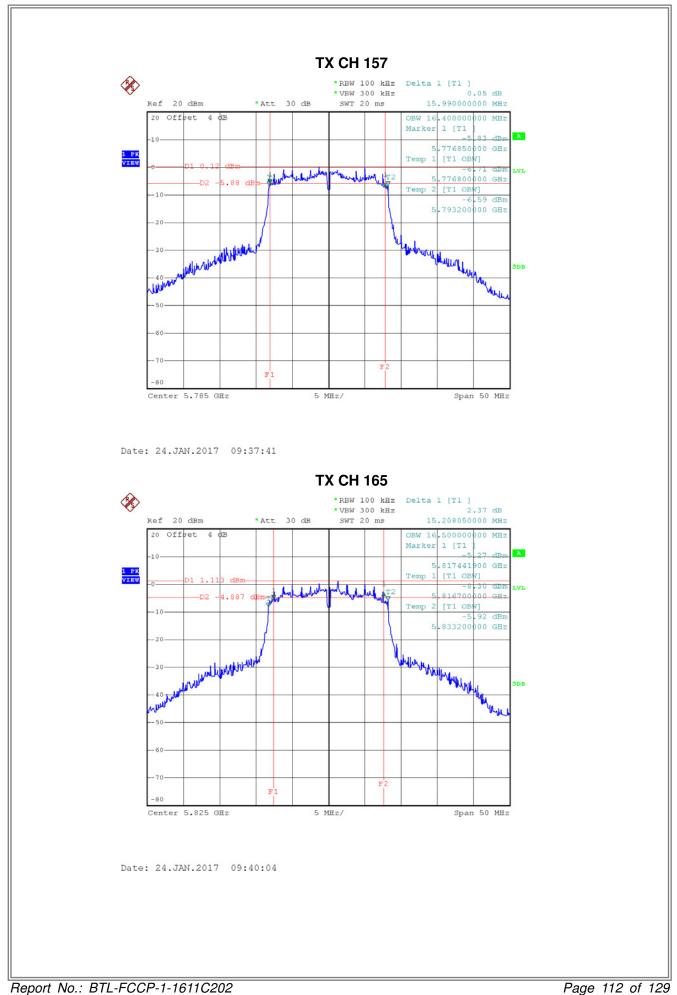


Test Mode: UNII-3/ TX A Mode_CH149/CH157/CH165						
Ohannal	Frequency	6dB Bandwidth	99% Occupied Bandwidth	Limit		
Channel	(MHz)	(MHz)	(MHz)	(kHz)		
CH149	5745	15.15	16.40	>=500		
CH157	5785	15.99	16.40	>=500		
CH165	5825	15.21	16.50	>=500		



Date: 24.JAN.2017 09:32:18

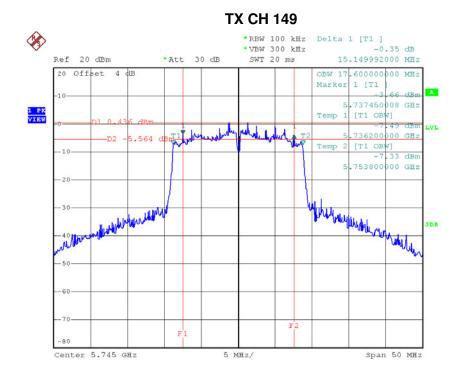






### Test Mode: UNII-3/ TX N20 Mode\_CH149/CH157/CH165

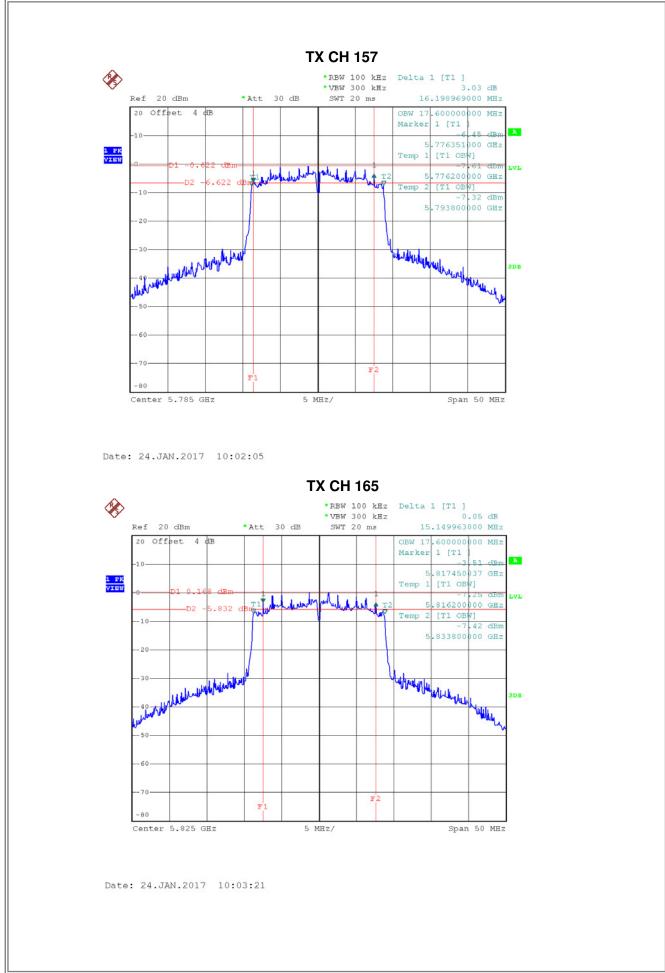
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (kHz)
CH149	5745	15.15	17.60	>=500
CH157	5785	16.20	17.60	>=500
CH165	5825	15.15	17.60	>=500



Date: 24.JAN.2017 10:00:36

# ΒĪL







# ATTACHMENT F - MAXIMUM OUTPUT POWER



## Test Mode: UNII-1/TX A Mode

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Limit (dBm)	Limit (Watt)
CH36	5180	12.71	0.12	12.83	30.00	1.00
CH40	5200	12.80	0.12	12.92	30.00	1.00
CH48	5240	13.15	0.12	13.27	30.00	1.00

#### Test Mode: UNII-1/TX N20 Mode

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Limit (dBm)	Limit (Watt)
CH36	5180	12.71	0.16	12.87	30.00	1.00
CH40	5200	11.38	0.16	11.54	30.00	1.00
CH48	5240	13.15	0.16	13.31	30.00	1.00



Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Limit (dBm)	Limit (Watt)
CH149	5745	15.14	0.12	15.26	30.00	1.00
CH157	5785	14.91	0.12	15.03	30.00	1.00
CH165	5825	14.82	0.12	14.94	30.00	1.00

#### Test Mode: UNII-3/TX N20 Mode

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Limit (dBm)	Limit (Watt)
CH149	5745	14.20	0.16	14.36	30.00	1.00
CH157	5785	14.01	0.16	14.17	30.00	1.00
CH165	5825	13.85	0.16	14.01	30.00	1.00

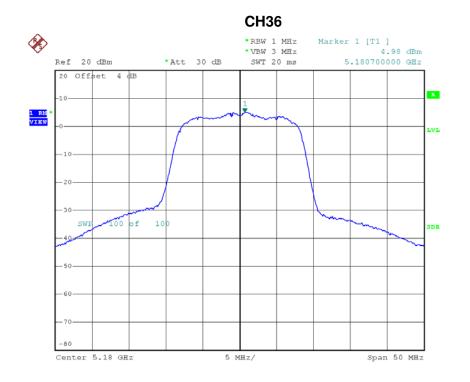


# **ATTACHMENT G - POWER SPECTRAL DENSITY**



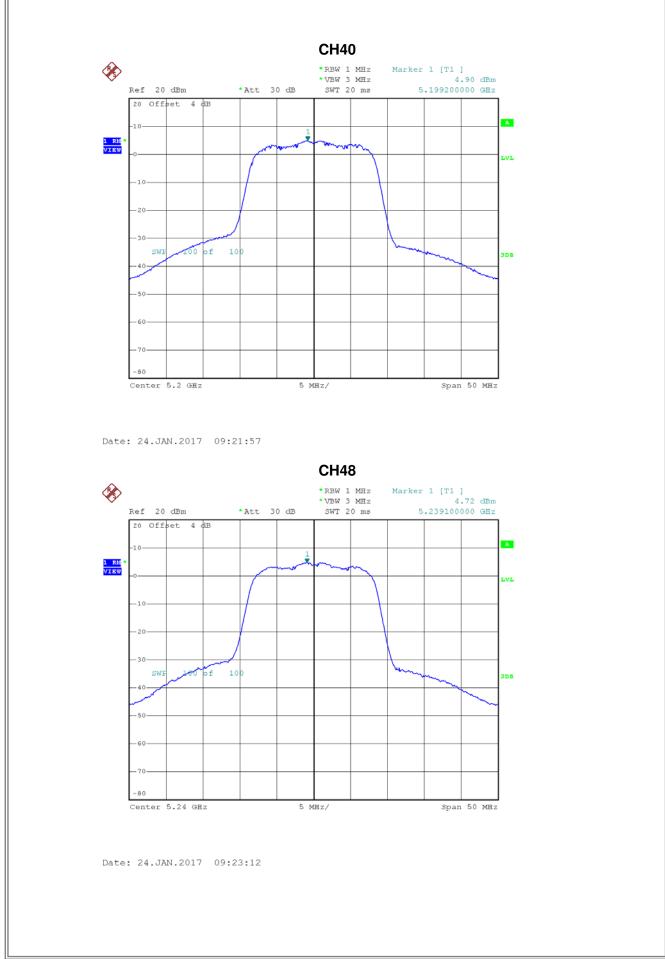
## Test Mode: UNII-1/ TX A Mode\_CH36/CH40/CH48

Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Factor	Power Density + Duty Factor (dBm/MHz)	Limit (dBm/MHz)
CH36	5180	4.98	0.12	5.10	17.00
CH40	5200	4.90	0.12	5.02	17.00
CH48	5240	4.72	0.12	4.84	17.00



Date: 24.JAN.2017 09:17:28

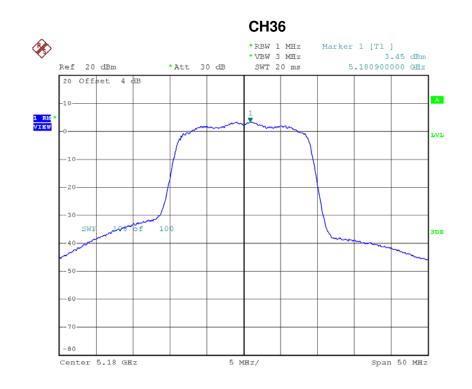






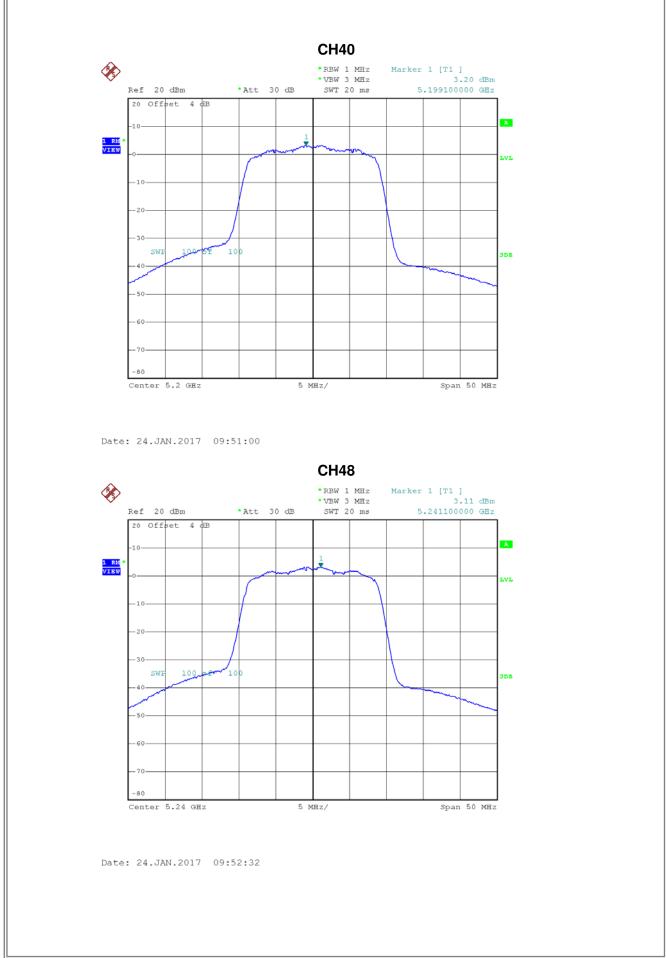
# Test Mode: UNII-1/TX N20 Mode\_CH36/CH40/CH48

Channel	Frequency (MHz)	Power Density (dBm/MHz)	Duty Factor	Power Density + Duty Factor (dBm/MHz)	Limit (dBm/MHz)
CH36	5180	3.45	0.16	3.61	17.00
CH40	5200	3.20	0.16	3.36	17.00
CH48	5240	3.11	0.16	3.27	17.00



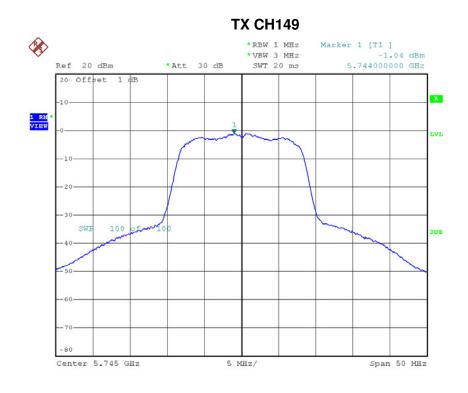
Date: 24.JAN.2017 09:50:00







Test Mode: UNII-3/TX A Mode_CH149/CH157/CH165						
Channel	Frequency (MHz)	Power Density (dBm/500kHz)	Duty Factor	Power Density + Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	
CH149	5745	-1.04	0.12	-0.92	30.00	
CH157	5785	-1.15	0.12	-1.03	30.00	
CH165	5825	-1.03	0.12	-0.91	30.00	

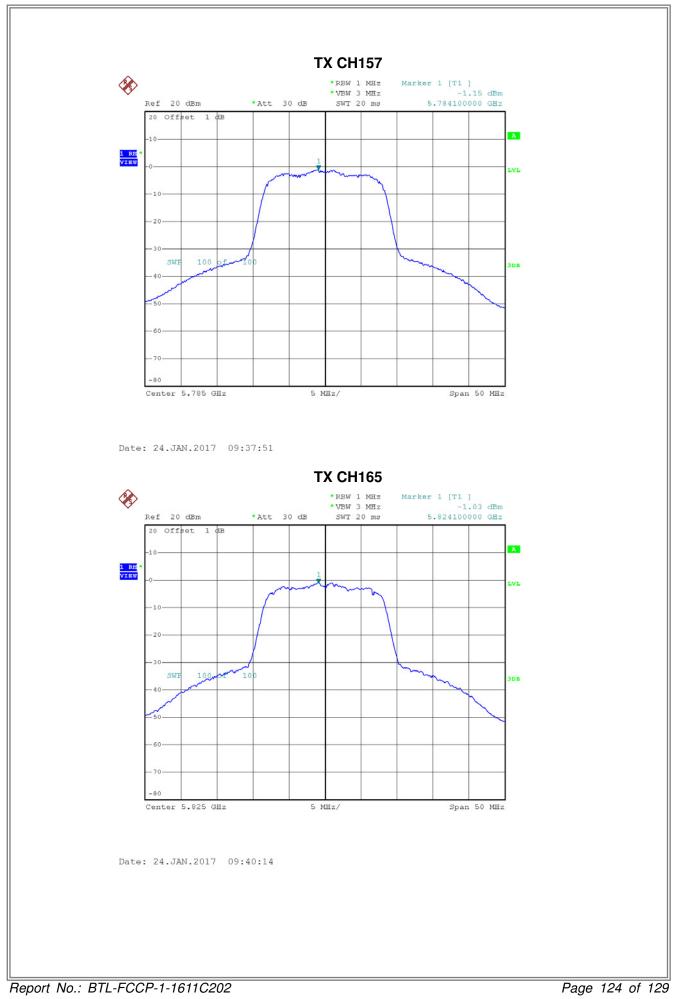


Date: 24.JAN.2017 09:32:27

Report No.: BTL-FCCP-1-1611C202

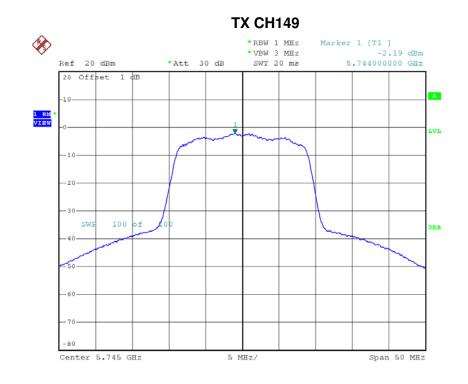
# ΒĨL







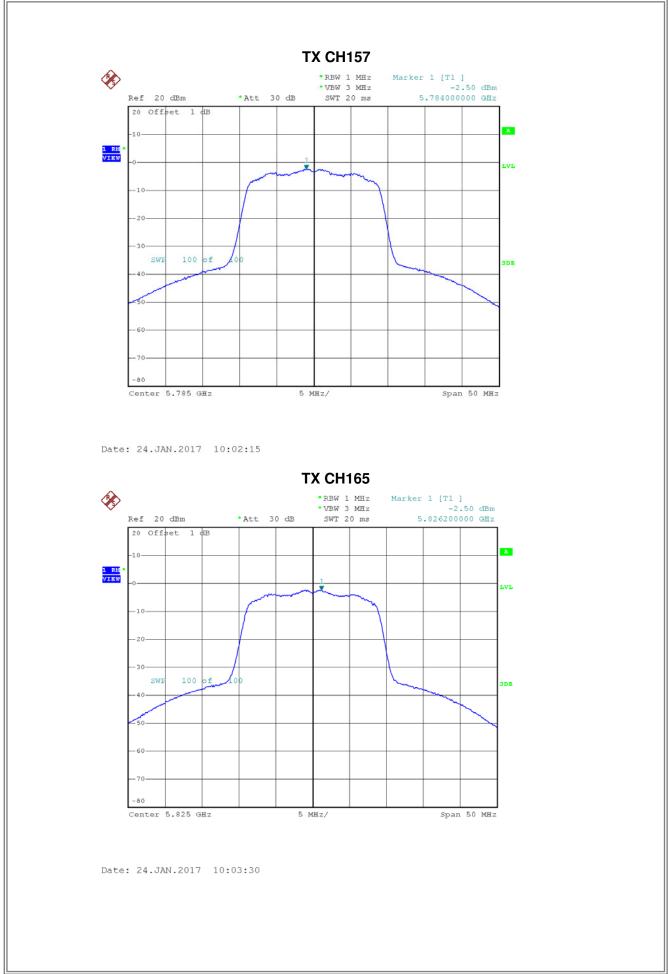
Channel	Frequency (MHz)	Power Density (dBm/500kHz)	Duty Factor	Power Density + Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)
CH149	5745	-2.19	0.16	-2.03	30.00
CH157	5785	-2.50	0.16	-2.34	30.00
CH165	5825	-2.50	0.16	-2.34	30.00



Date: 24.JAN.2017 10:00:45

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# ATTACHMENT H - FREQUENCY STABILITY





Test Mode:

UNII-1

## Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5180.0000
132	5179.9950
120	5180.0150
108	5179.9799
Max. Deviation (MHz)	0.0201
Max. Deviation (ppm)	3.8803

# Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5180.0000
-5	5180.0150
5	5180.0000
15	5180.0200
25	5179.9950
35	5179.9900
45	5179.9799
50	5180.0000
Max. Deviation (MHz)	0.0201
Max. Deviation (ppm)	3.8803





Test Mode:

UNII-3

## Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5745.0000
132	5744.9948
120	5745.0148
108	5744.9948
Max. Deviation (MHz)	0.0052
Max. Deviation (ppm)	0.9051

# Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5745.0000
-5	5744.9748
5	5744.9800
15	5744.9800
25	5745.0000
35	5744.9948
45	5745.0151
50	5744.9799
Max. Deviation (MHz)	0.0252
Max. Deviation (ppm)	4.3864