

FCC Radio Test Report

FCC ID: 2AR2STAW6205

This report concerns: Original Grant

Project No.	:	2006C046C
Equipment	:	Wireless Home Speaker
Brand Name	:	PHILIPS
		PHILIPS or
Test Model	:	TAW6205
Series Model	:	TAW6205/10, TAW6205/12, TAW6205/98, TAW6205/37, W6205, W6205/10, W6205/12, W6205/98, W6205/xx, TAW6205/xx (xx=00-99, for country code)
Applicant	:	MMD Hong Kong Holding Limited
Address	:	Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong
Manufacturer	:	MMD Hong Kong Holding Limited
Address	:	Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street,
		Kwun Tong, Kowloon, Hong Kong
Factory	:	Guoguang Electric Co.,Ltd.
Address	:	No.8 Jinghu Road, Xinya Street, Huadu Reg, Guangzhou, China
Date of Receipt	:	Jan. 12, 2021
Date of Test	:	Jan. 22, 2021 ~ Feb. 25, 2021
Issued Date	:	Mar. 10, 2021
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2021012263
Standard(s)	:	FCC Part15, Subpart C (15.247)
	-	ANSI C63.10-2013
		FCC KDB 558074 D01 15.247 Meas Guidance v05r02

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

Prepared by : Vincent Tan

Chan Ma

Approved by : Ethan Ma



Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town,Dongguan, Guangdong, China. Tel: +86-769-8318-3000 Web: www.newbtl.com



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The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

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.	Mar. 10, 2021



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)						
Standard(s) Section	Test Item	Test Result	Judgment	Remark		
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS			
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS			
15.247(a)(2)	Bandwidth	APPENDIX E	PASS			
15.247(b)(3)	Maximum Output Power	APPENDIX F	PASS			
15.247(d)	Conducted Spurious Emissions	APPENDIX G	PASS			
15.247(e)	Power Spectral Density	APPENDIX H	PASS			
15.203	Antenna Requirement		PASS	Note(2)		

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.



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	2.68

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
		9kHz ~ 30MHz	-	3.02
		30MHz ~ 200MHz	V	4.26
DG-CB03	CISPR	30MHz ~ 200MHz	Н	3.38
		200MHz ~ 1,000MHz	V	3.98
		200MHz ~ 1,000MHz	Н	3.94
		1GHz ~ 6GHz	I	3.96
		6GHz ~ 18GHz	I	5.24
		18GHz ~ 26.5GHz	I	3.62
		26.5GHz ~ 40GHz	I	4.00

C. Other Measurement:

Test Item	Uncertainty
Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Conducted Spurious Emission	±2.71 dB
Power Spectral Density	±0.86 dB
Temperature	±0.08 °C
Humidity	±1.5%

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	Luca Jiang
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Hayden Chen
Radiated Emissions-30 MHz to 1GHz	26°C	52%	AC 120V/60Hz	Hayden Chen
Radiated Emissions-Above 1000 MHz	26°C	52%	AC 120V/60Hz	Hayden Chen
Bandwidth	24°C	52%	AC 230V/50Hz	Jesse Wang
Maximum output power	24°C	52%	AC 230V/50Hz	Hand Huang
Conducted Spurious Emissions	24°C	52%	AC 230V/50Hz	Jesse Wang
Power Spectral Density	24°C	52%	AC 230V/50Hz	Jesse Wang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Home Speaker
Brand Name	PHILIPS or
Test Model	TAW6205
Series Model	TAW6205/10, TAW6205/12, TAW6205/98, TAW6205/37, W6205, W6205/10, W6205/12, W6205/98, W6205/xx, TAW6205/xx (xx=00-99, for country code)
Model Difference(s)	Only differ in model name.
RF Module Model	Ambilight
Power Source	AC Mains.
Power Rating	100-240V~ 50/60Hz 1.5A
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 150 Mbps
Maximum Output Power	IEEE 802.11b: 13.94 dBm (0.0248 W) IEEE 802.11g: 14.95 dBm (0.0313 W) IEEE 802.11n (HT20): 13.91 dBm (0.0246 W) IEEE 802.11n (HT40): 12.97 dBm (0.0198 W)

Note:

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

2. Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20) CH03 - CH09 for IEEE 802.11n (HT40)							
Channel	Channel Frequency (MHz)						
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1		N/A	FPC	N/A	4.40

Note: The antenna gain is provided by the manufacturer.

2.2 DESCRIPTION OF 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 B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N-20 MHz Mode Channel 01/06/11	
Mode 4	TX N-40 MHz Mode Channel 03/06/09	
Mode 5	TX G Mode Channel 01	

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 5	TX G Mode Channel 01		

Radiated emissions test - Below 1GHz			
Final Test Mode	Description		
Mode 5	TX G Mode Channel 01		

Radiated emissions test- Above 1GHz			
Final Test Mode Description			
Mode 1 TX B Mode Channel 01/06/11			
Mode 2 TX G Mode Channel 01/06/11			
Mode 3	TX N-20 MHz Mode Channel 01/06/11		
Mode 4 TX N-40 MHz Mode Channel 03/06/09			

Conducted test				
Final Test Mode Description				
Mode 1	Mode 1 TX B Mode Channel 01/06/11			
Mode 2	Mode 2 TX G Mode Channel 01/06/11			
Mode 3 TX N-20 MHz Mode Channel 01/06/11				
Mode 4 TX N-40 MHz Mode Channel 03/06/09				

NOTE:

(1) The measurements are performed at the high, middle, low available channels.

- (2) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (3) For radiated emission below 1 GHz test, the IEEE 802.11g Channel 01 is found to be the worst case and recorded.
- (4) For radiated emission above 1 GHz test, 1GHz~26.5GHz 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.

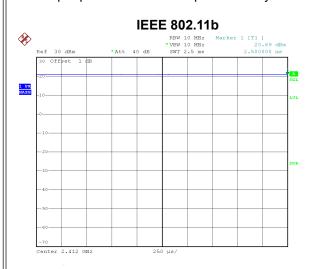
2.3 PARAMETERS OF TEST SOFTWARE

Test Software	QATool_Dbg_Ram		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	1A	1A	1A
IEEE 802.11g	20	1F	1D
IEEE 802.11n (HT20)	20	20	1F
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	21	20	20



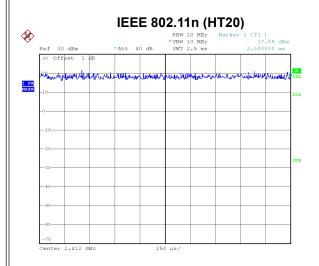
2.4 DUTY CYCLE

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.



Date: 25.JAN.2021 16:14:52

Duty cycle = 25.000 ms / 25.000 ms = 100% Duty Factor = 10 log(1/Duty cycle) = 0.00

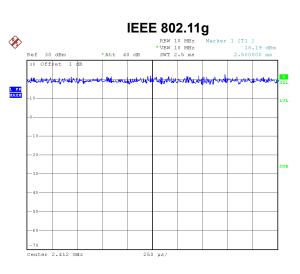


Date: 25.JAN.2021 16:19:02

Duty cycle = 2.500 ms / 2.500 ms = 100% Duty Factor = 10 log(1/Duty cycle) = 0.00

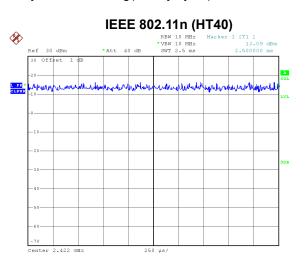
NOTE:

For IEEE 802.11g and IEEE 802.11n (HT20):



Date: 25.JAN.2021 16:16:33

Duty cycle = 2.500 ms / 2.500 ms = 100%Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$



Date: 25.JAN.2021 16:20:08

Duty cycle = 2.500 ms / 2.500 ms = 100%Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$

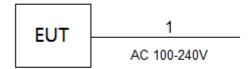
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

For IEEE 802.11n (HT40):

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%).



2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	AC Cable	NO	NO	1.5m



3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Fraguency of Emission (MHz)	Limit (dBµV)		
Frequency of Emission (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 Parameters	Setting	
Attenuation	10 dB	
Start Frequency	0.15 MHz	
Stop Frequency	30 MHz	
IF Bandwidth	9 kHz	

3.2 TEST PROCEDURE

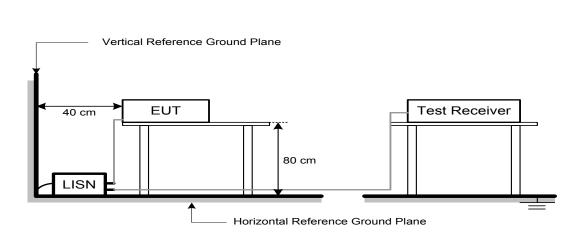
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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

EUT was programmed to be in continuously transmitting 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 EMISSION MEASUREMENT (9 kHz-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 RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

	(dBuV/m at 3 m)		
Frequency (MHz)	Peak	Average	
Above 1000	74	54	

NOTE:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting	
Attenuation	Auto	
Start Frequency	1000 MHz	
Stop Frequency	10th carrier harmonic	
RBW / VBW	1 MHz / 3 MHz for Peak,	
(Emission in restricted band)	1 MHz / 1/T for Average	

Setting
Auto
9 kHz~90 kHz for PK/AVG detector
90 kHz~110 kHz for QP detector
110 kHz~490 kHz for PK/AVG detector
490 kHz~30 MHz for QP detector
30 MHz~1000 MHz for QP detector



4.2 TEST PROCEDURE

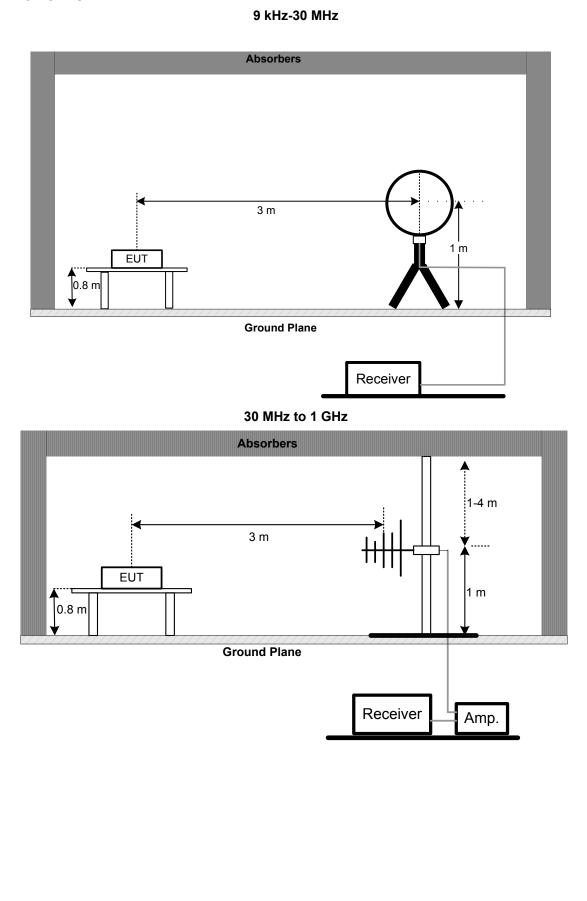
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance 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 1 GHz)
- 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

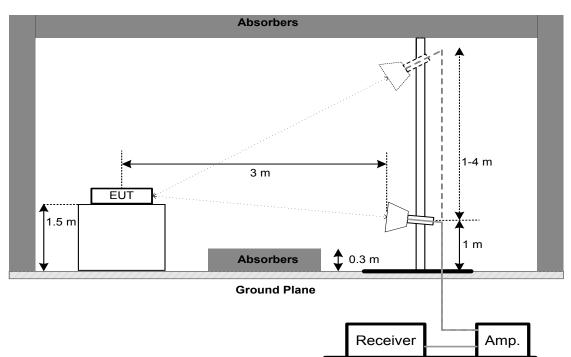


4.4 TEST SETUP





Above 1 GHz



4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

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 C (15.247)					
Section Test Item Limit					
15.247(a)(2)	6 dB Bandwidth	Minimum 500 kHz			
15.247(a)(2)	99% Emission Bandwidth	-			

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 6 dB Bandwidth : RBW= 100 kHz, VBW=300 kHz, Sweep time = auto.

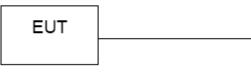
For 99% Emission Bandwidth B/G/N-20 Mode: RBW= 300 KHz, VBW=1 MHz, Sweep time = 2.5 ms.

- For 99% Emission Bandwidth N-40 Mode: RBW= 1 MHz, VBW=3 MHz, Sweep time = 2.5 ms.
- c. The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



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 C (15.247)				
Section Test Item Limit				
15.247(b)(3)	Maximum Output Power	1 Watt or 30dBm		

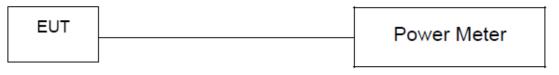
6.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum conducted output power was performed in accordance with method 11.9.2.3.1 of ANSI C63.10-2013.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



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. CONDUCTED SPURIOUS EMISSIONS

7.1 LIMIT

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

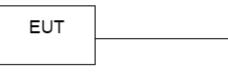
7.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 100 kHz, VBW=300 kHz, Sweep time = Auto.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



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. POWER SPECTRAL DENSITY TEST

8.1 LIMIT

FCC Part15, Subpart C (15.247)					
Section Test Item Limit					
15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)			

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: RBW=3 kHz, VBW=10 kHz, Sweep time = Auto.
- c. The Power Spectral Density was performed in accordance with method 11.10.2 of ANSI C63.10-2013.

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			
7	643 Shield Room	ETS	6*4*3m	N/A	N/A			

	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	
5	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021	

	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	Jul. 25, 2021		
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 22, 2021		
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	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021		

	Radiated Emissions - Above 1 GHz						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Double Ridged Guide Antenna	ETS	3115	75789	May 12, 2021		
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jul. 07, 2021		
3	Amplifier	Agilent	8449B	3008A02333	Mar. 01, 2021		
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 07, 2021		
5	Receiver	Agilent	N9038A	MY52130039	Jul. 25, 2021		
6	Controller	СТ	SC100	N/A	N/A		
7	Controller	MF	MF-7802	MF780208416	N/A		
8	Cable	N/A	EMC104-SM-SM-6 000	N/A	May 09, 2021		
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		
10	Filter	STI	STI15-9912	N/A	Jul. 25, 2021		
11	966 Chambe Room	RM	9*6*6m	N/A	Jul. 25, 2021		



	Bandwidth & Conducted Spurious Emissions & Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 25, 2021		
2	RF Cable	Tongkaichuan	N/A	N/A	N/A		
3	DC Block	Mini	N/A	N/A	N/A		
4	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 07, 2022		

	Maximum Output Power						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 07, 2021		
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 25, 2021		
3	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 07, 2022		
4	RF Cable	Tongkaichuan	N/A	N/A	N/A		

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.



3

10. EUT TEST PHOTO

AC Power Line Conducted Emissions Test Photos



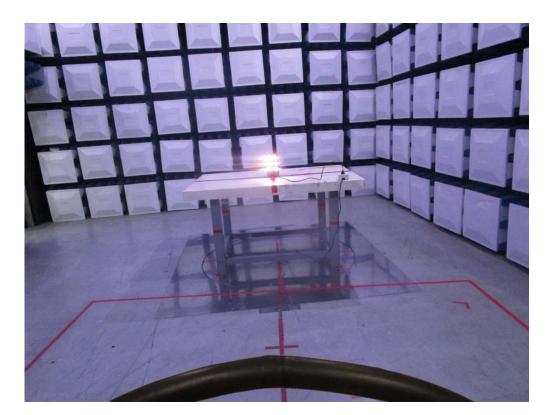




Radiated Emissions Test Photos

9 kHz to 30 MHz



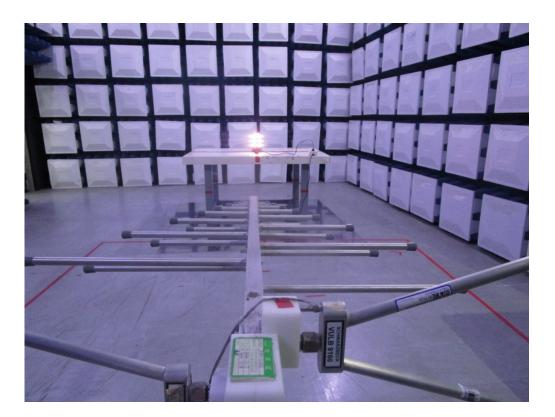






30 MHz to 1000 MHz

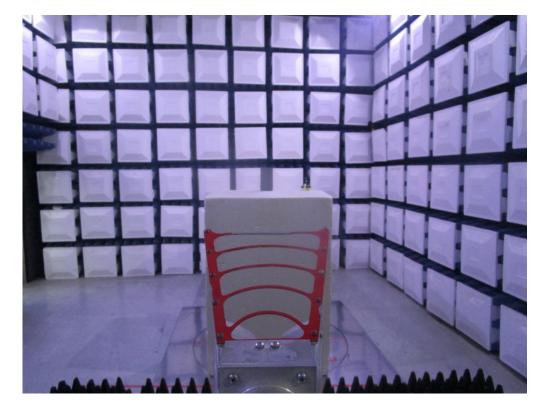






Radiated Emissions Test Photos

Above 1 GHz

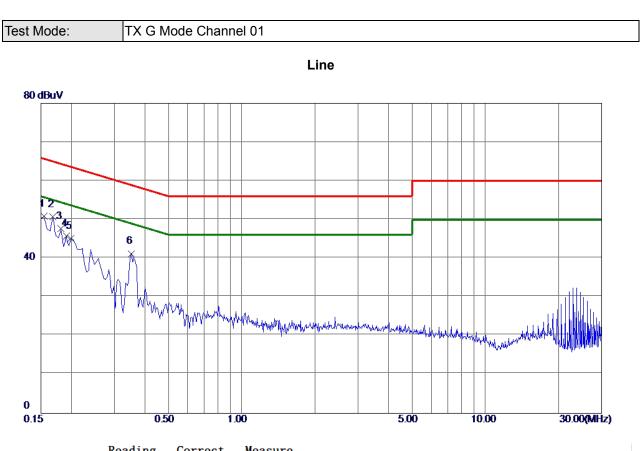






APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

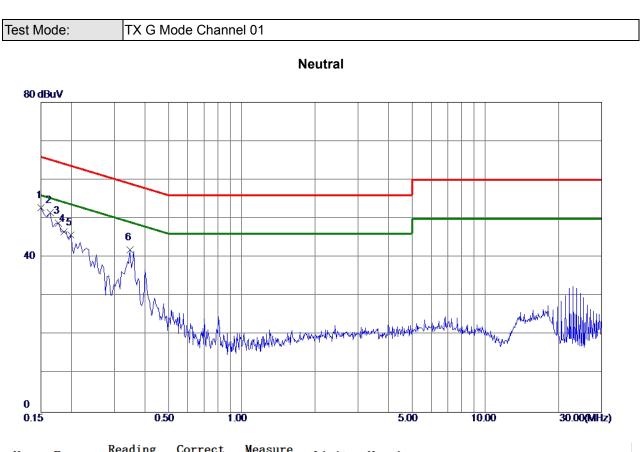




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1545	41.19	9.70	50.89	65.75	-14.86	Peak	
2 *	0.1680	40. 93	9.80	50.73	65.06	-14. 33	Peak	
3	0.1815	37.80	9.85	47.65	64. 42	-16.77	Peak	
4	0.1905	35.81	9.88	45.69	64.01	-18.32	Peak	
5	0.1995	35.24	9.91	45.15	63.63	-18.48	Peak	
6	0.3525	31. 30	9.90	41.20	58.90	-17.70	Peak	

- Measurement Value = Reading Level + Correct Factor.
 Margin Level = Measurement Value Limit Value.



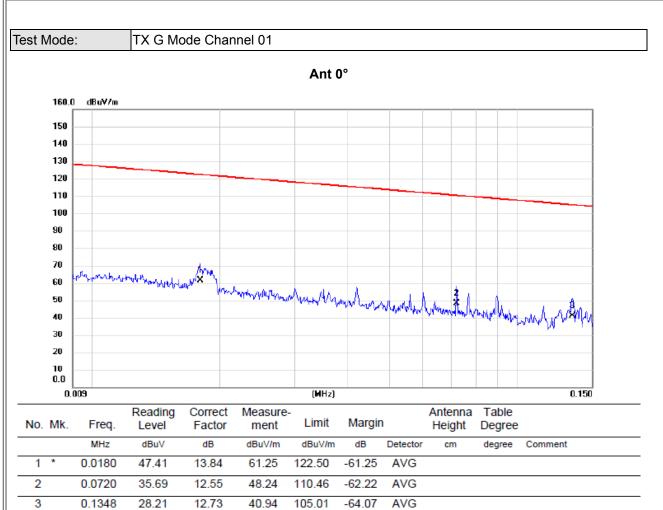


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1500	43.02	9.74	52.76	66.00	-13.24	Peak	
2	0.1635	41.73	9.85	51.58	65.28	-13. 70	Peak	
3	0.1770	38.95	9.92	48.87	64.63	-15.76	Peak	
4	0.1860	36.68	9.96	46.64	64.21	-17.57	Peak	
5	0.1995	35.79	10.01	45.80	63.63	-17.83	Peak	
6	0.3480	31.89	10.03	41.92	59.01	-17.09	Peak	

- Measurement Value = Reading Level + Correct Factor.
 Margin Level = Measurement Value Limit Value.

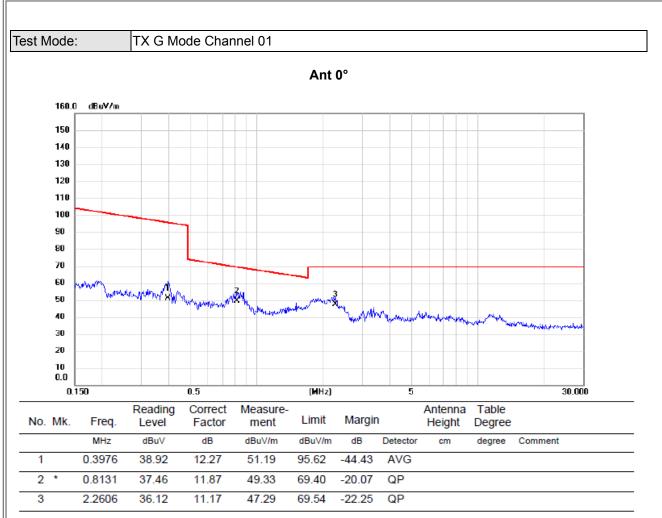
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ





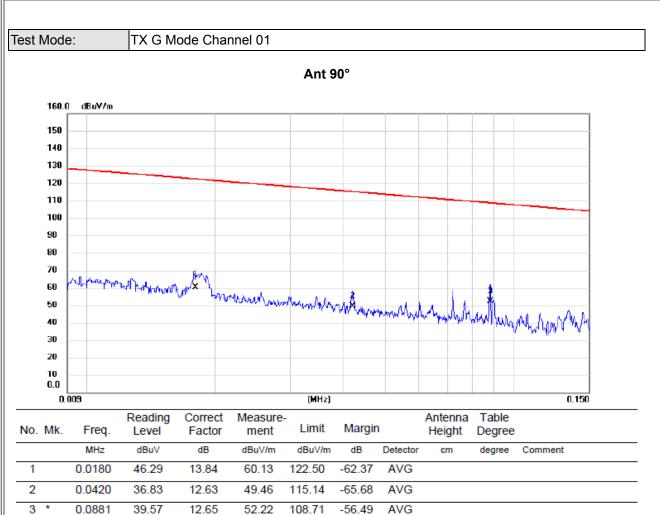
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





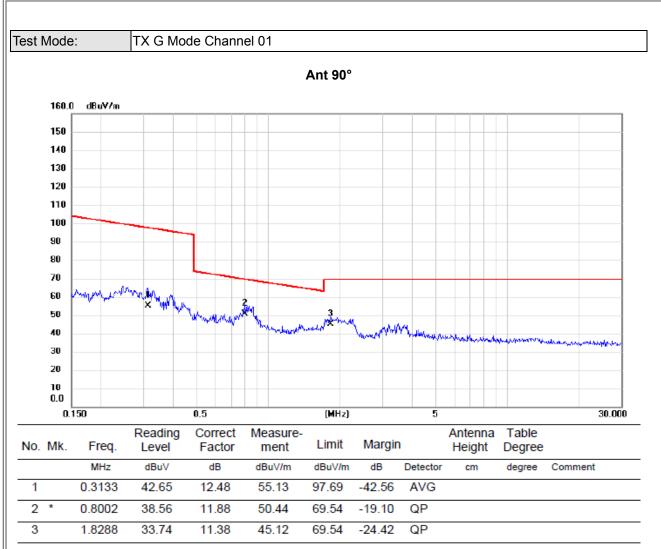
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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



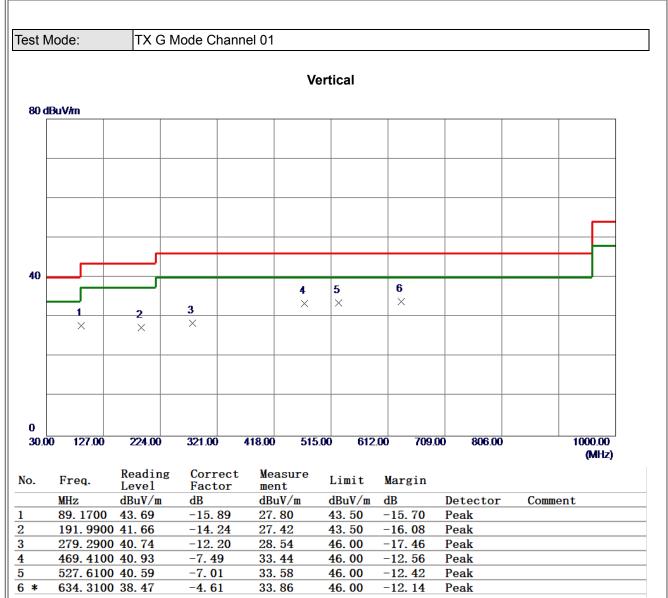


REMARKS:

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

APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

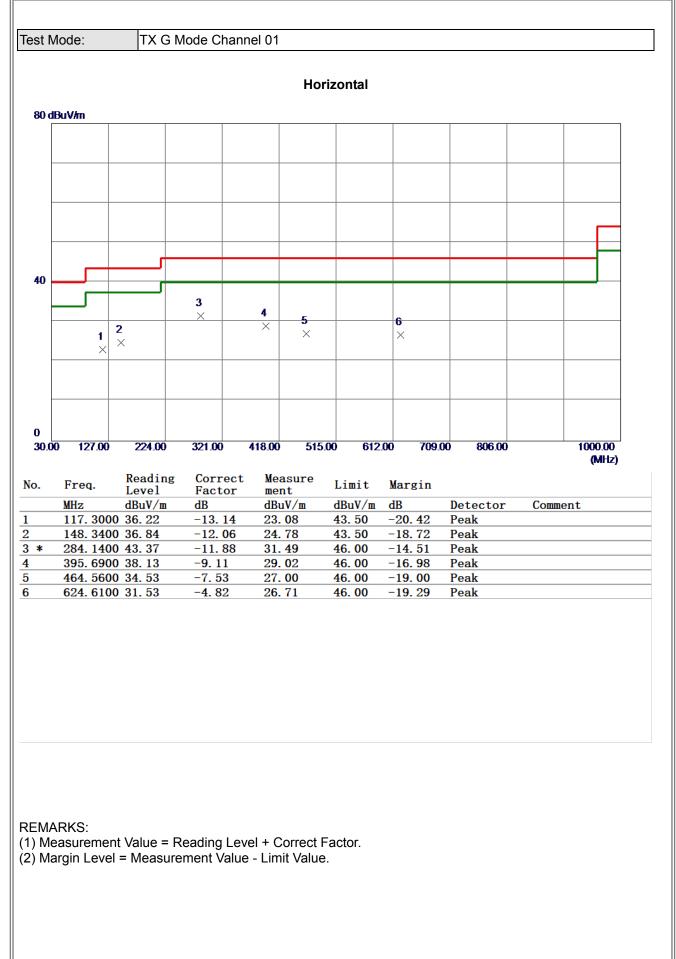




REMARKS:

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

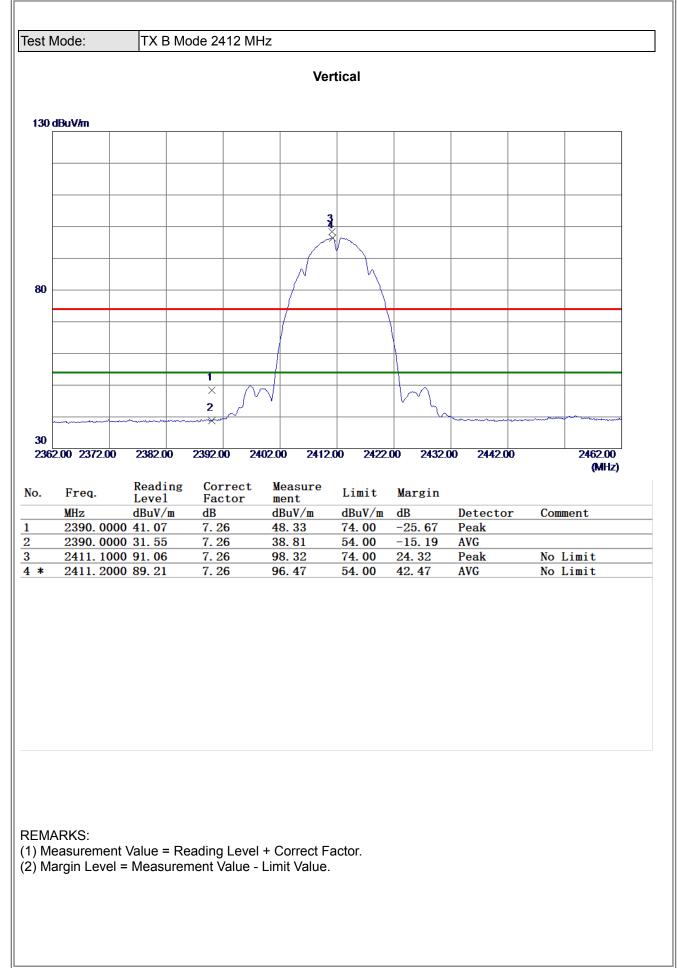




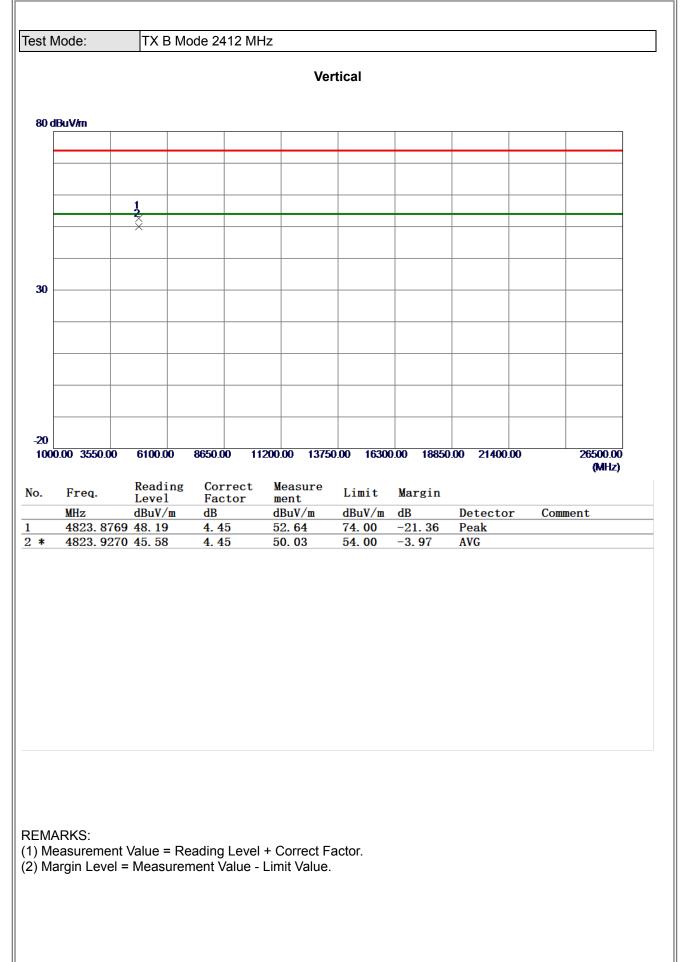


APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

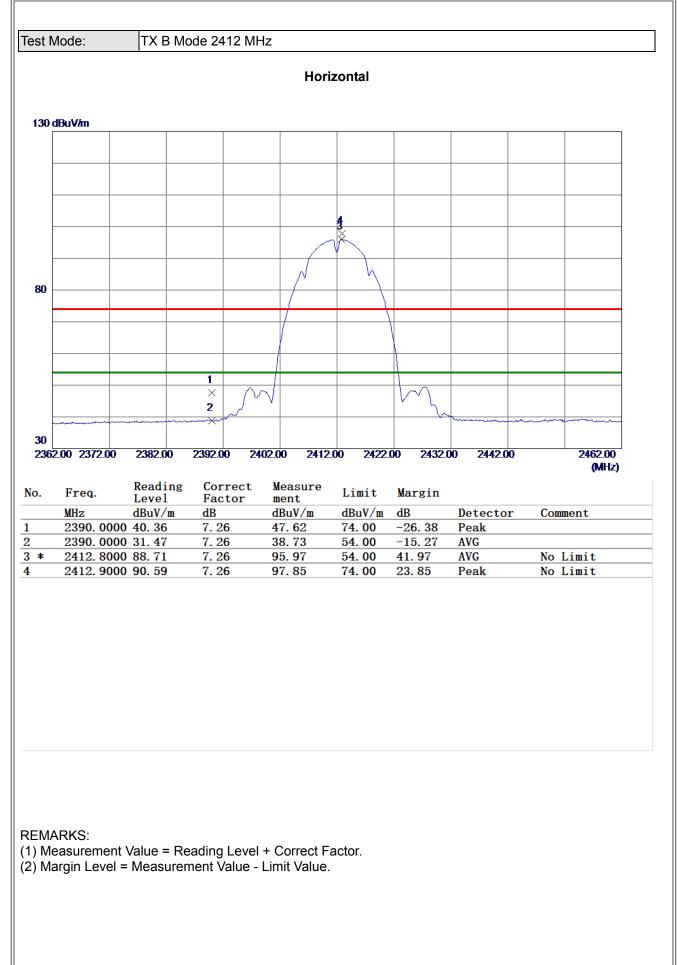




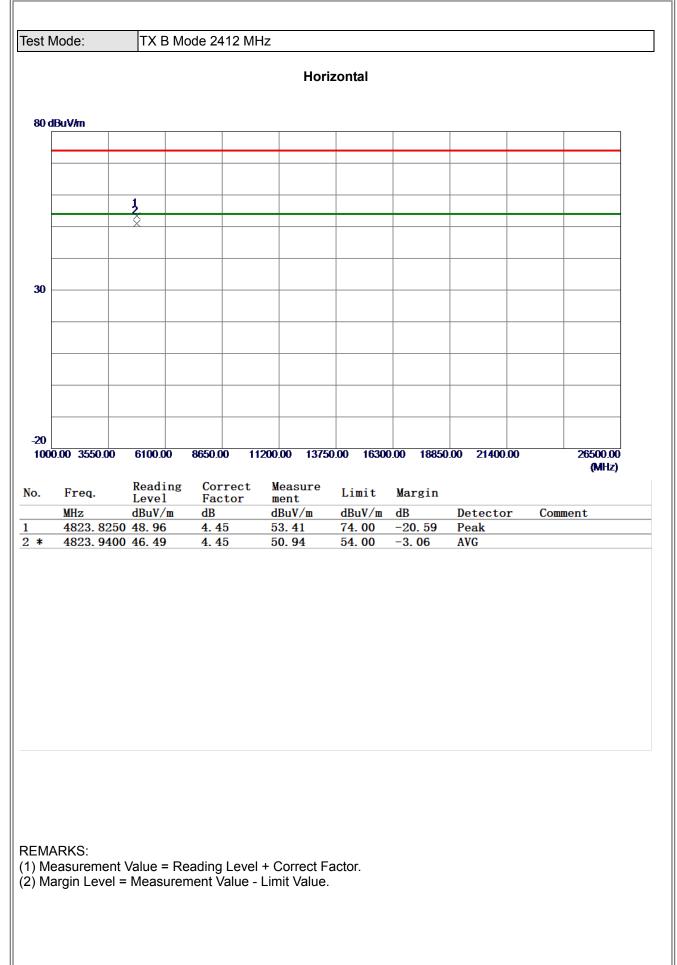




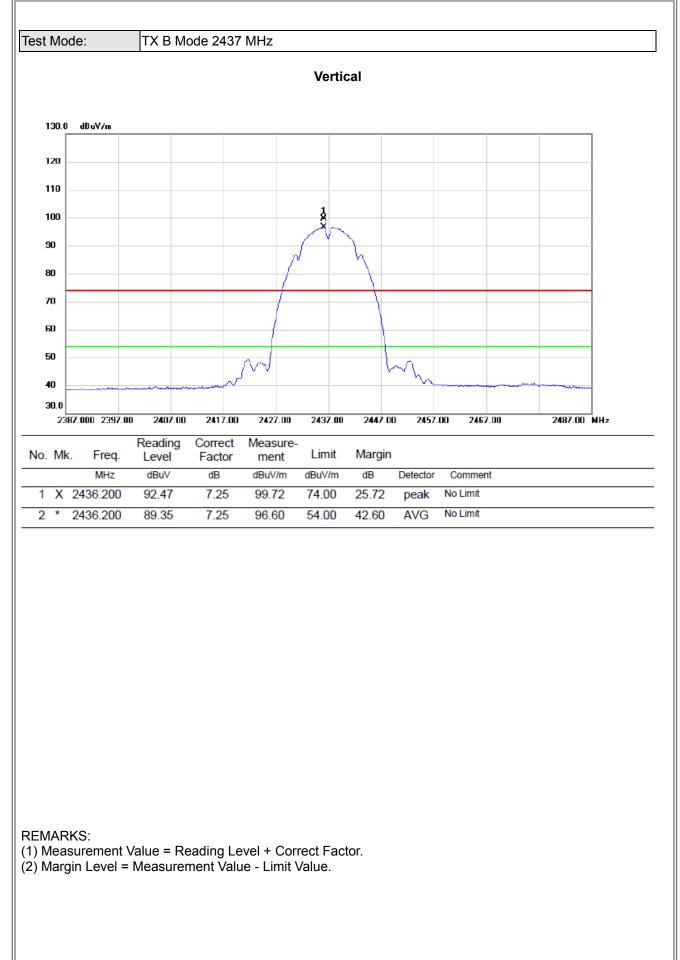




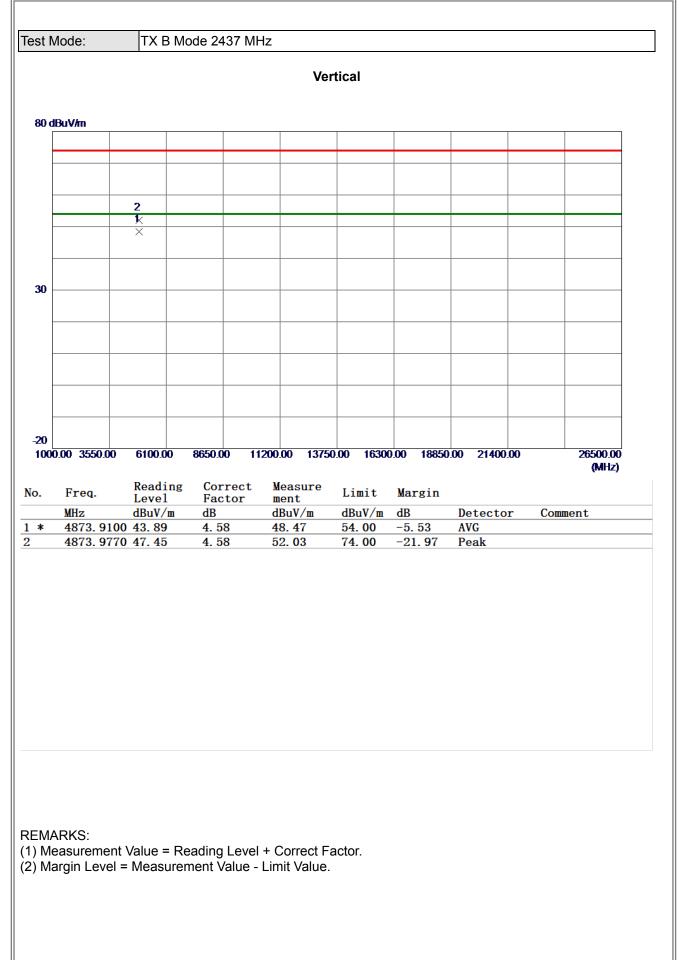




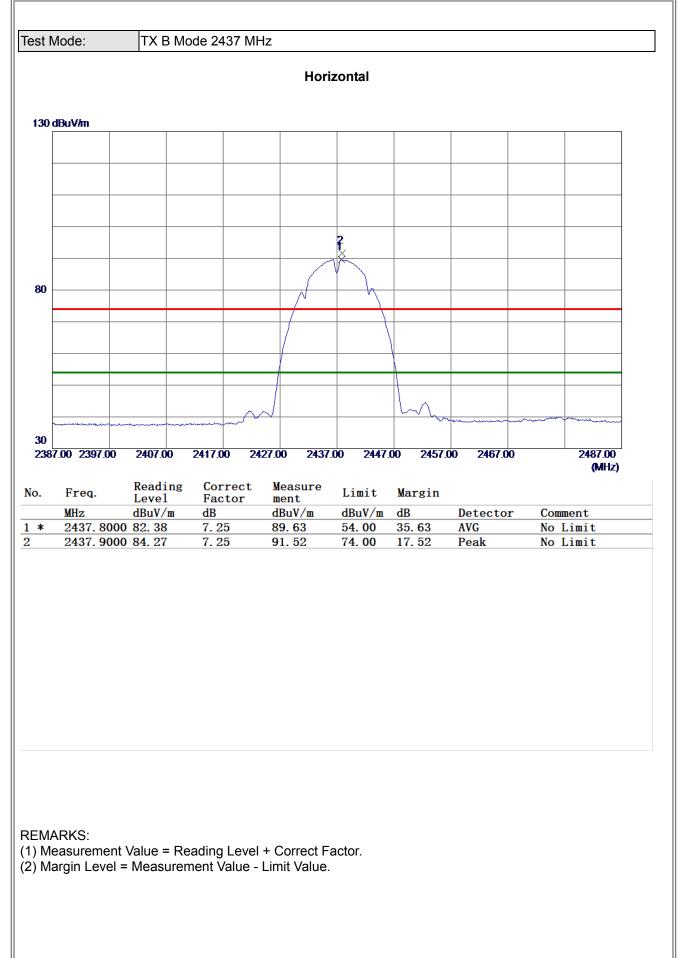




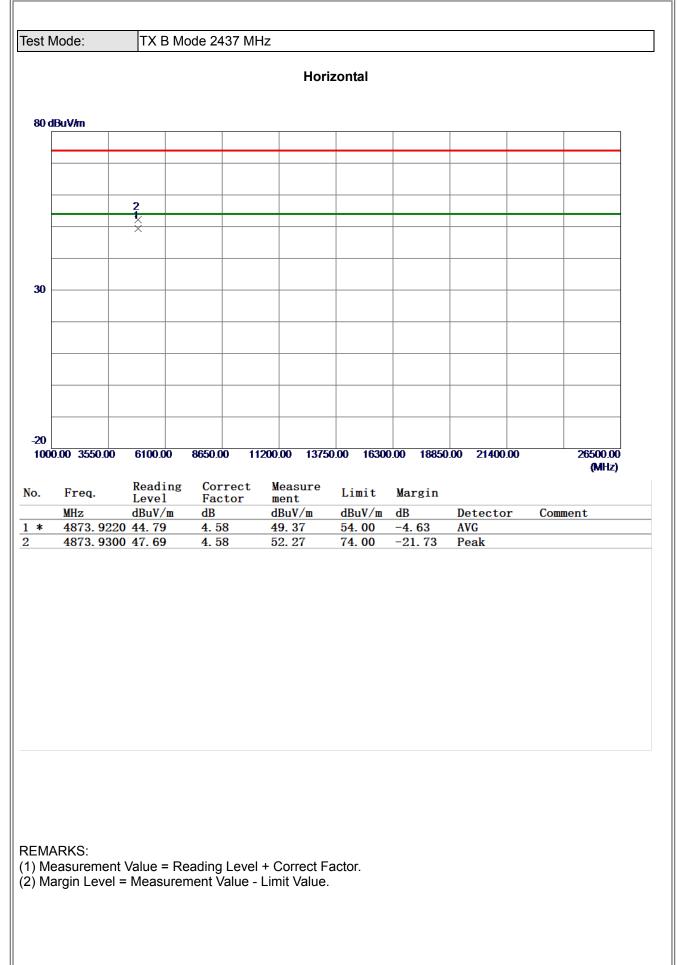




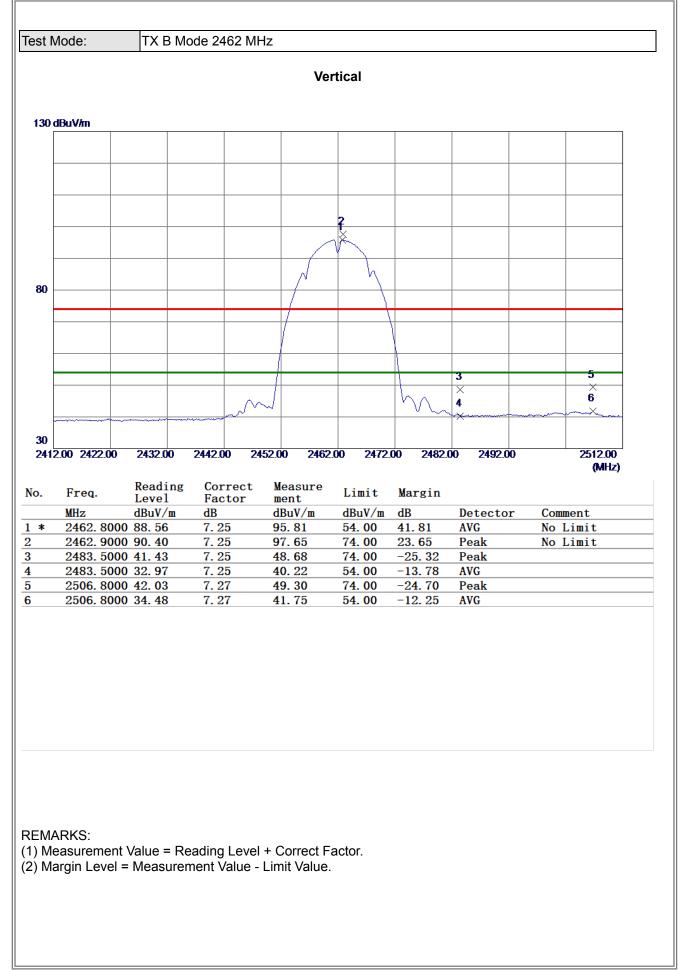




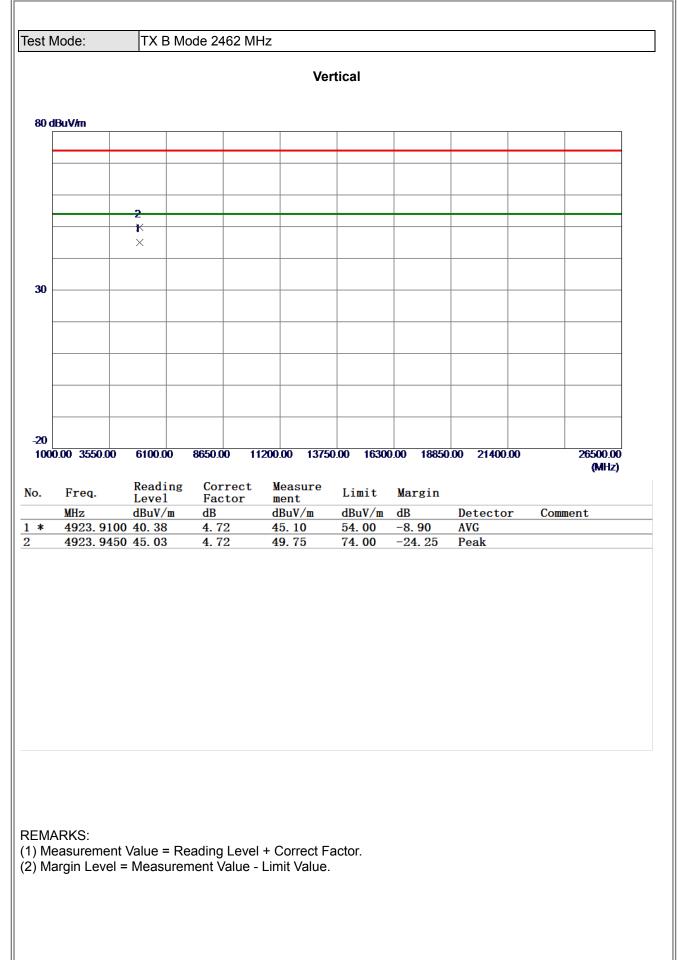




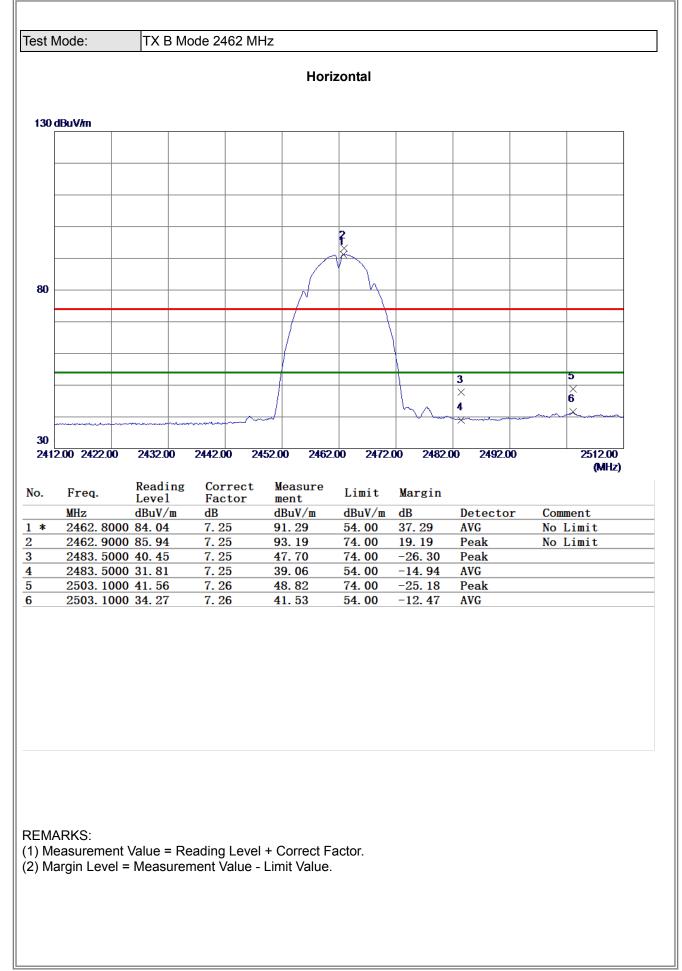




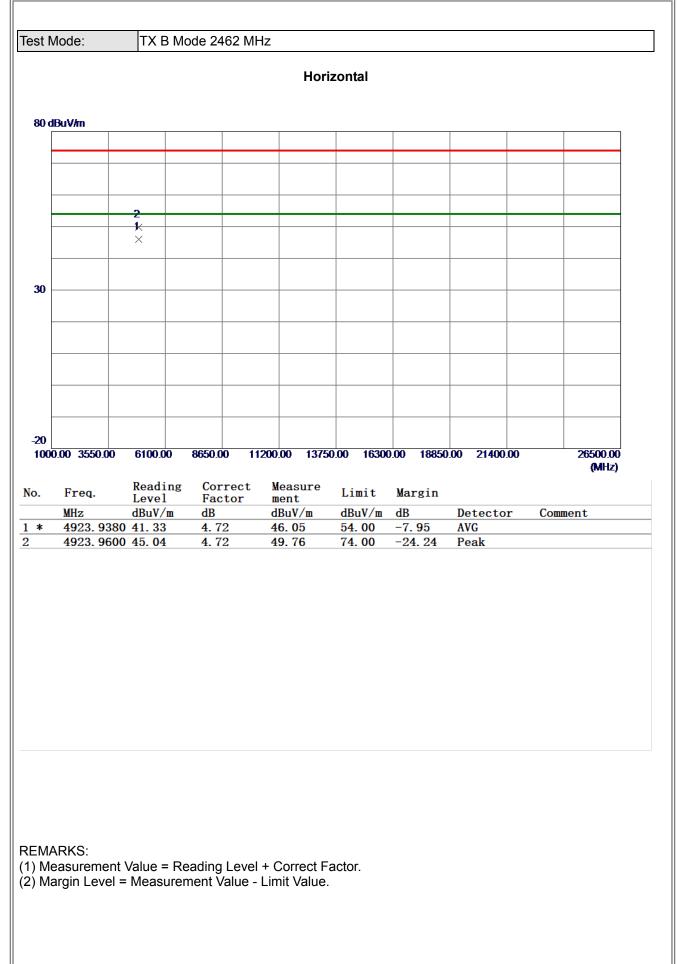




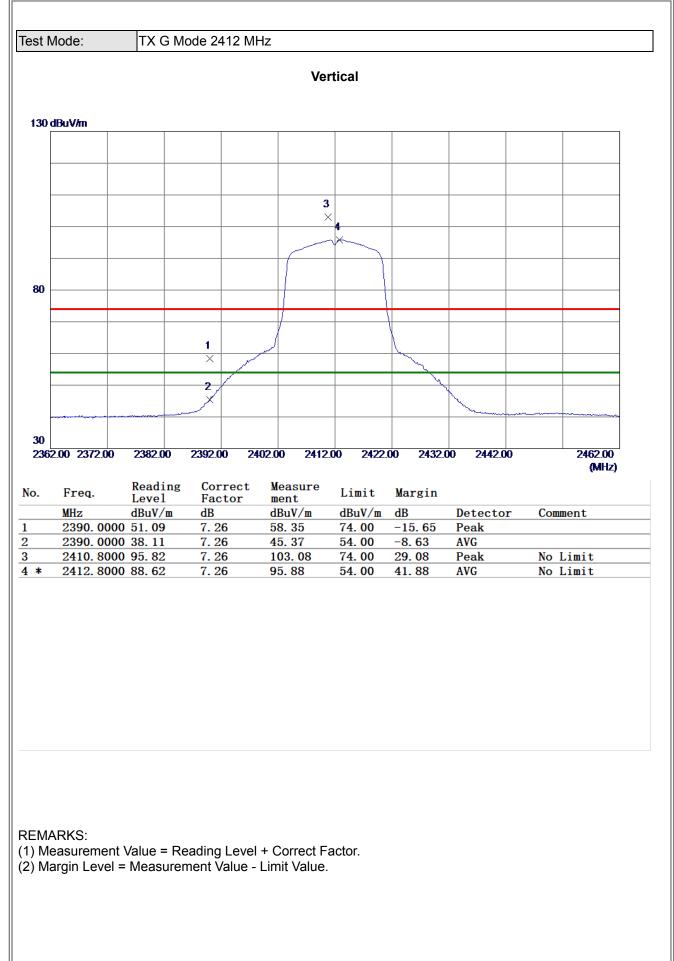




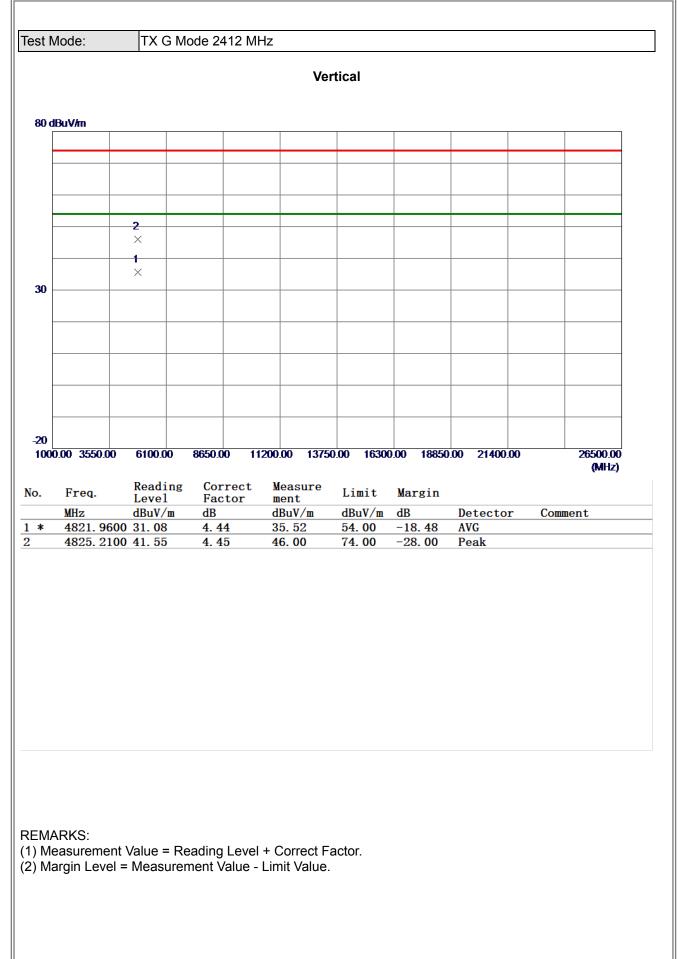




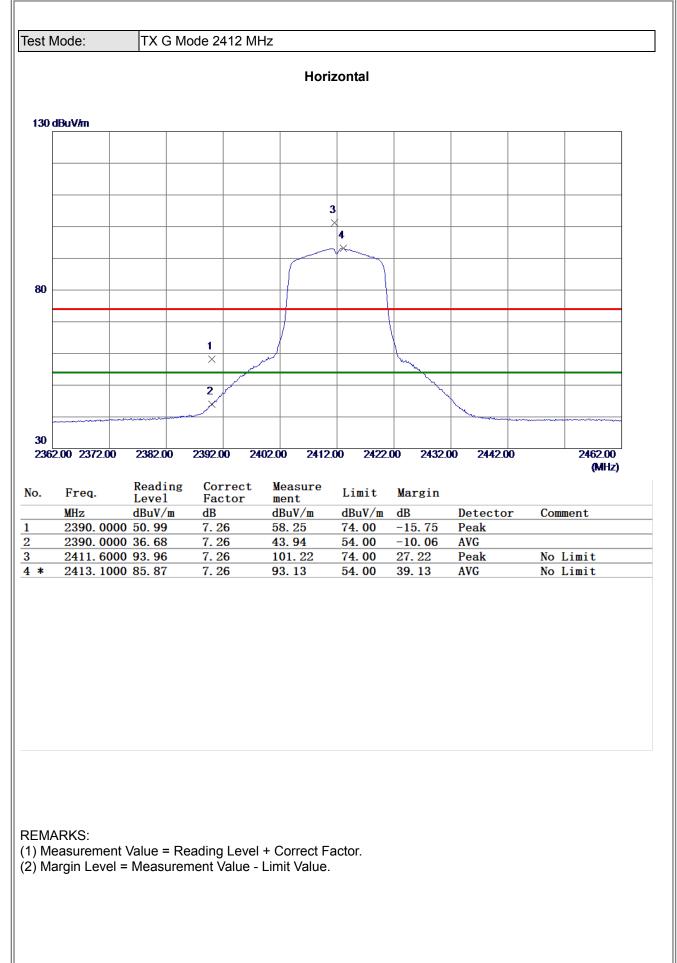




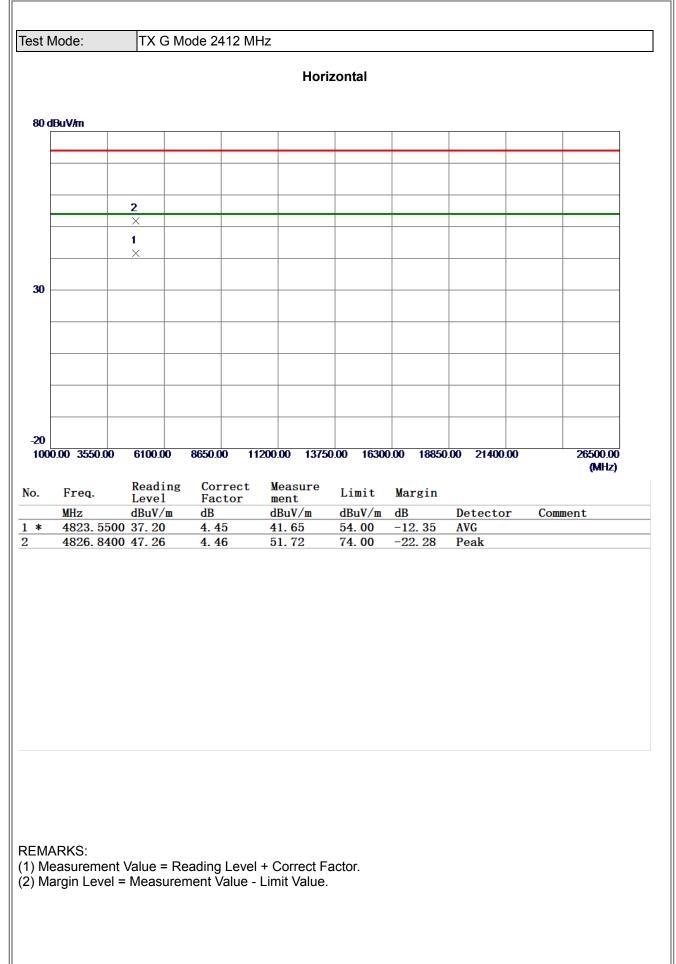




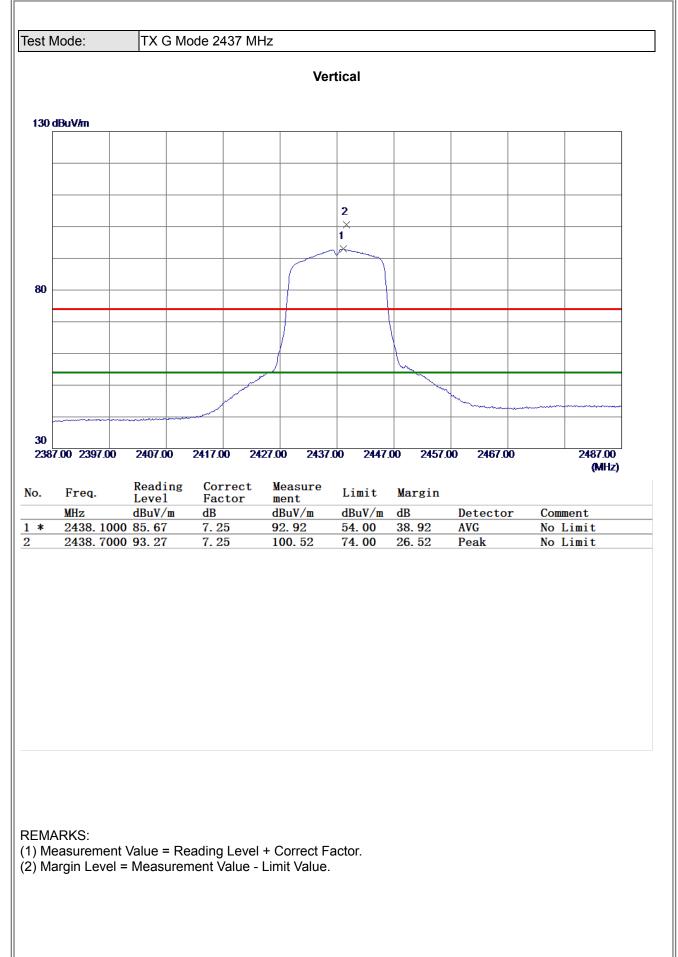




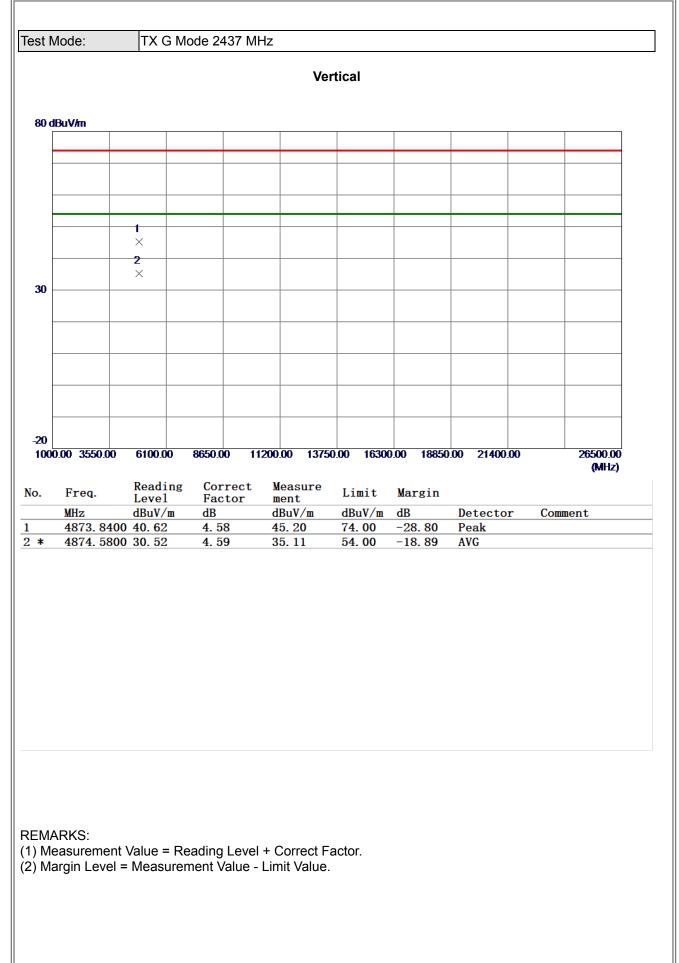




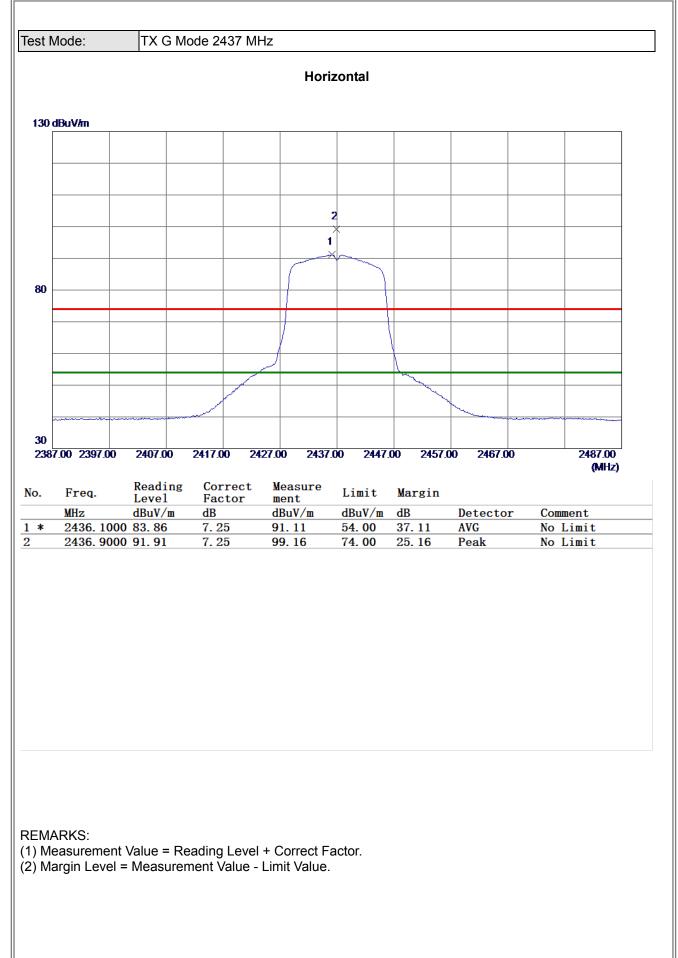




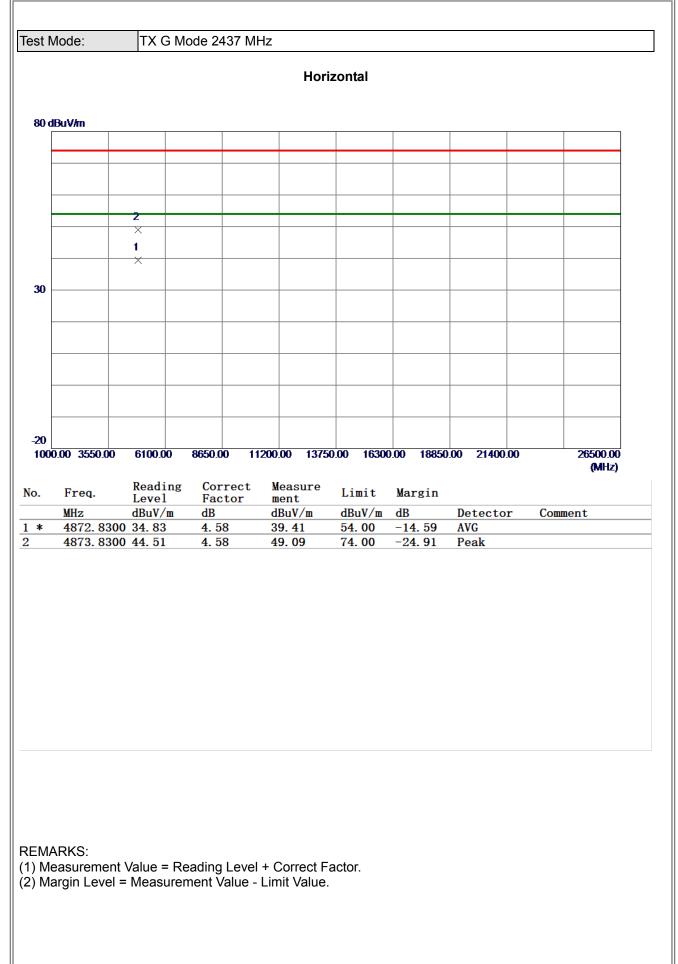




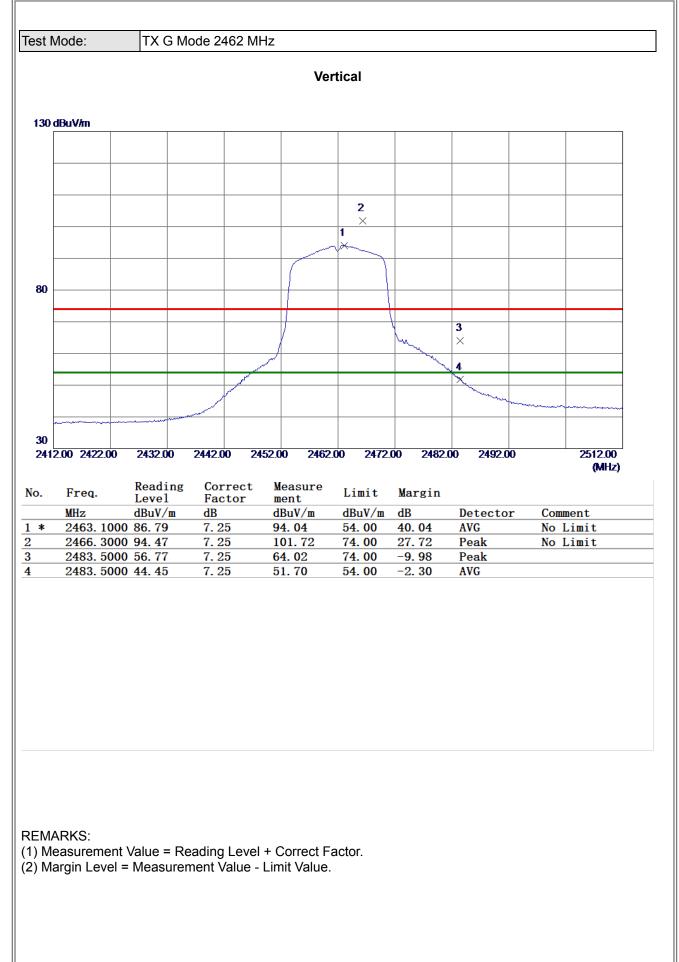




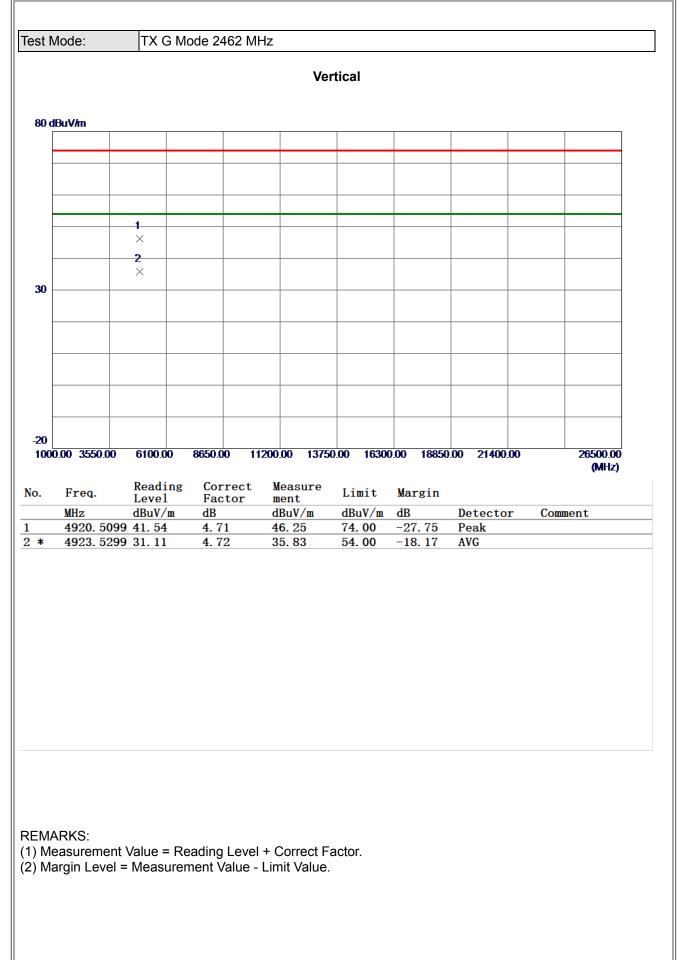




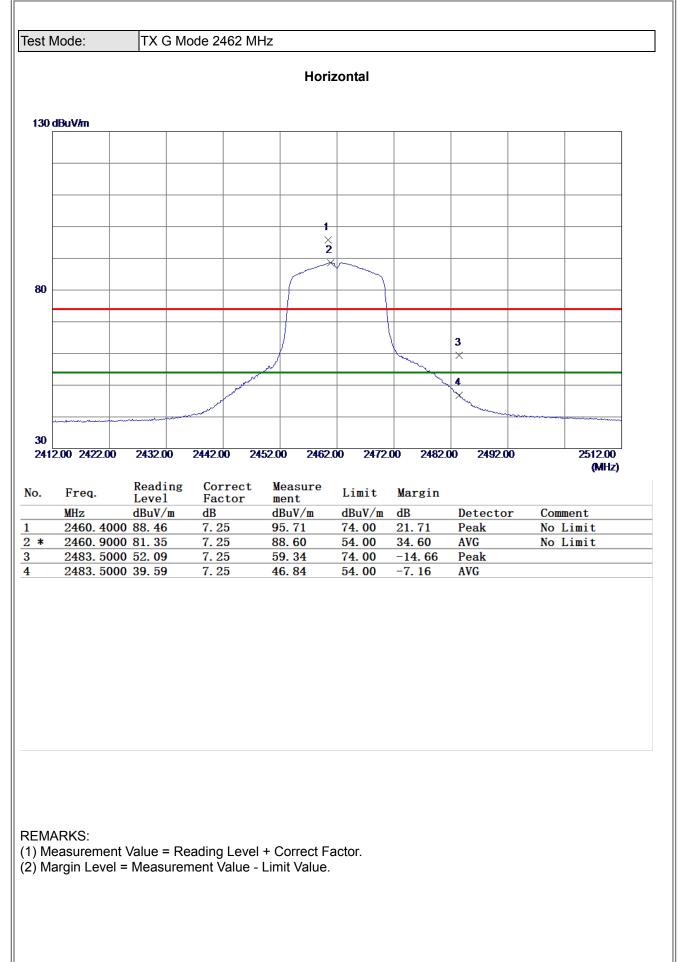




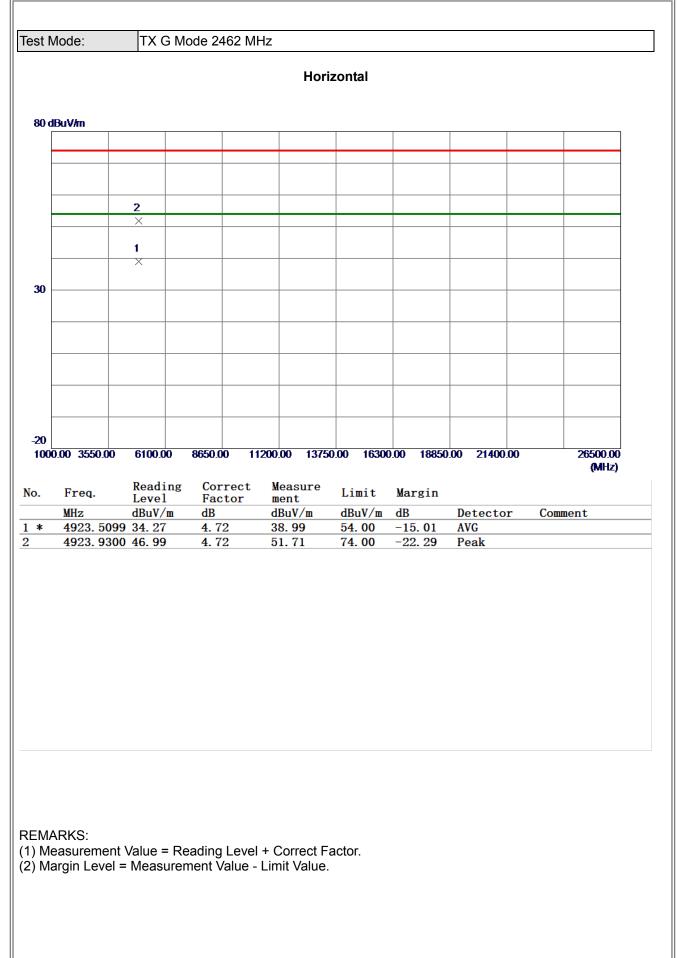




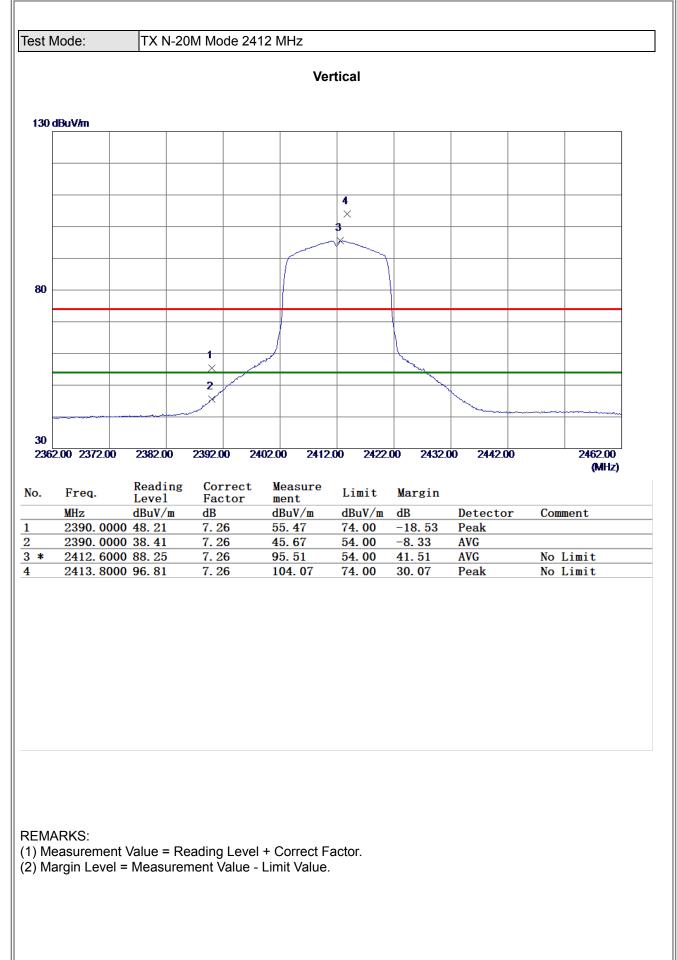




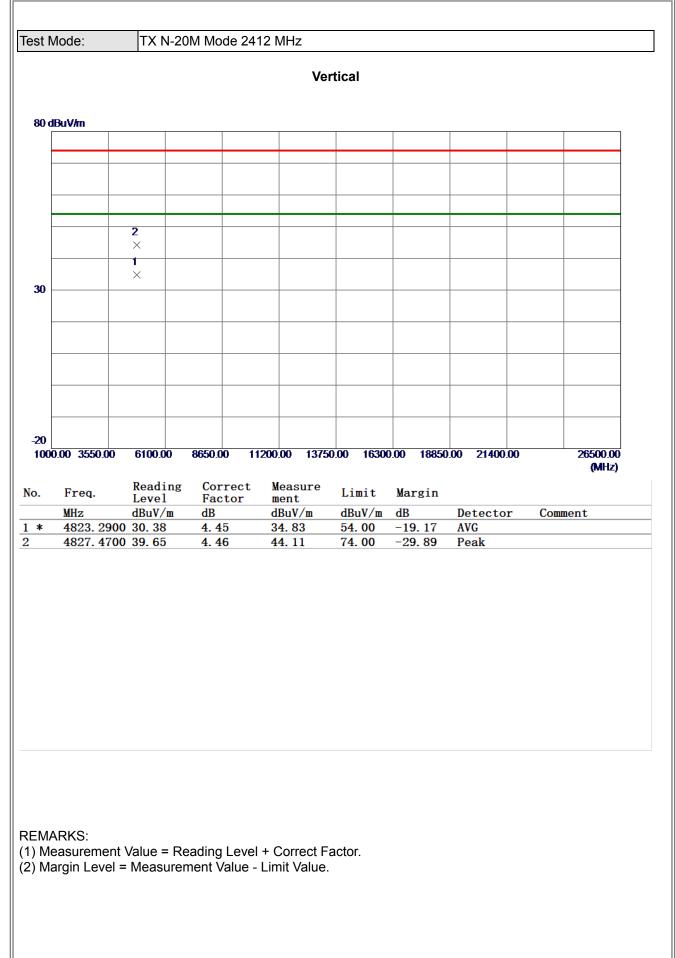




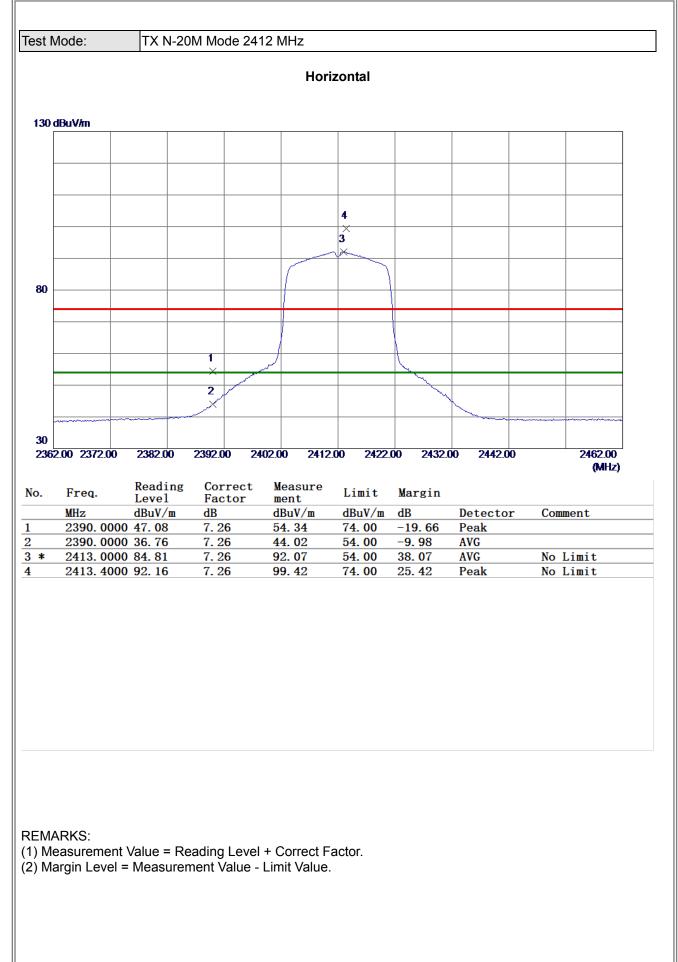




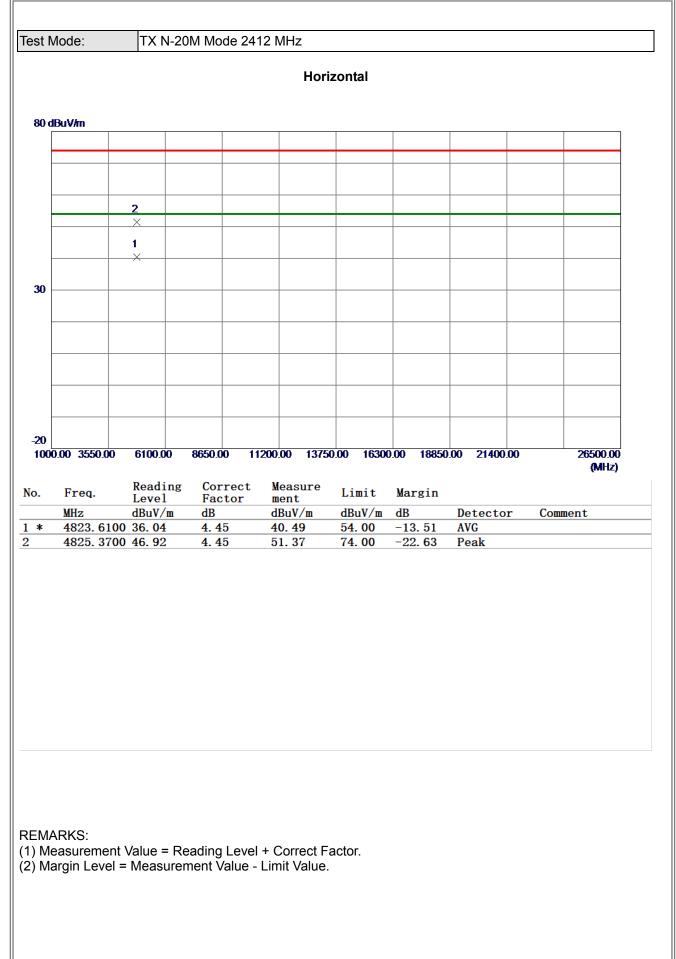




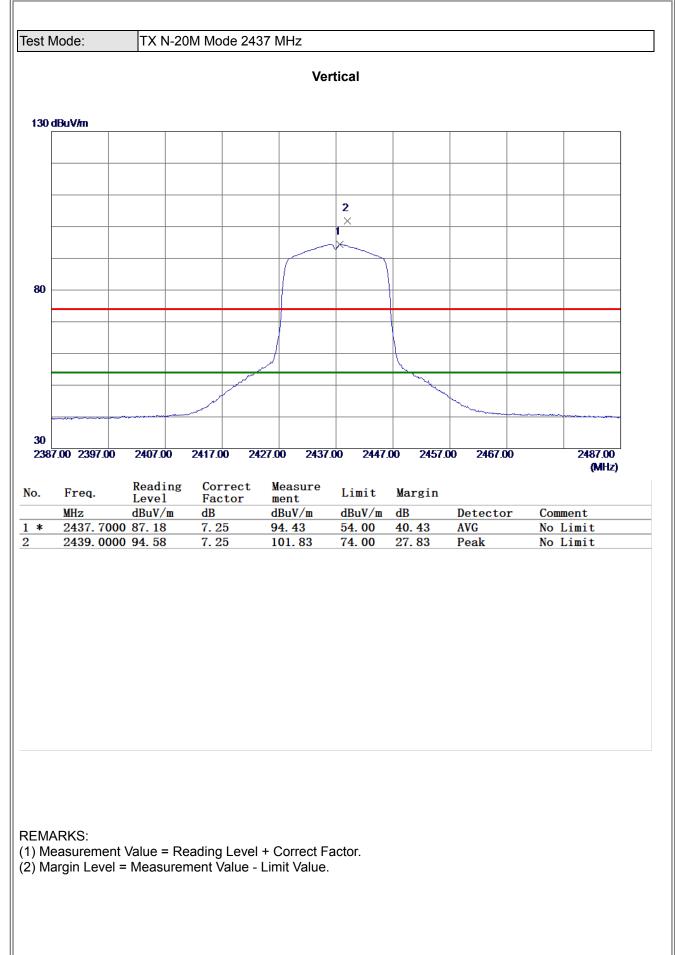




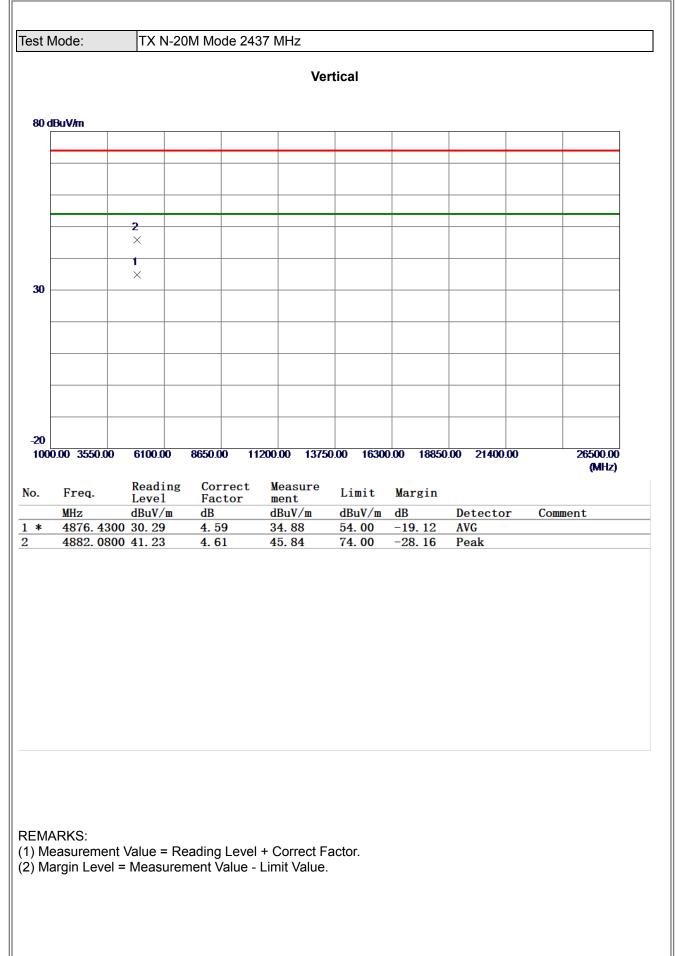




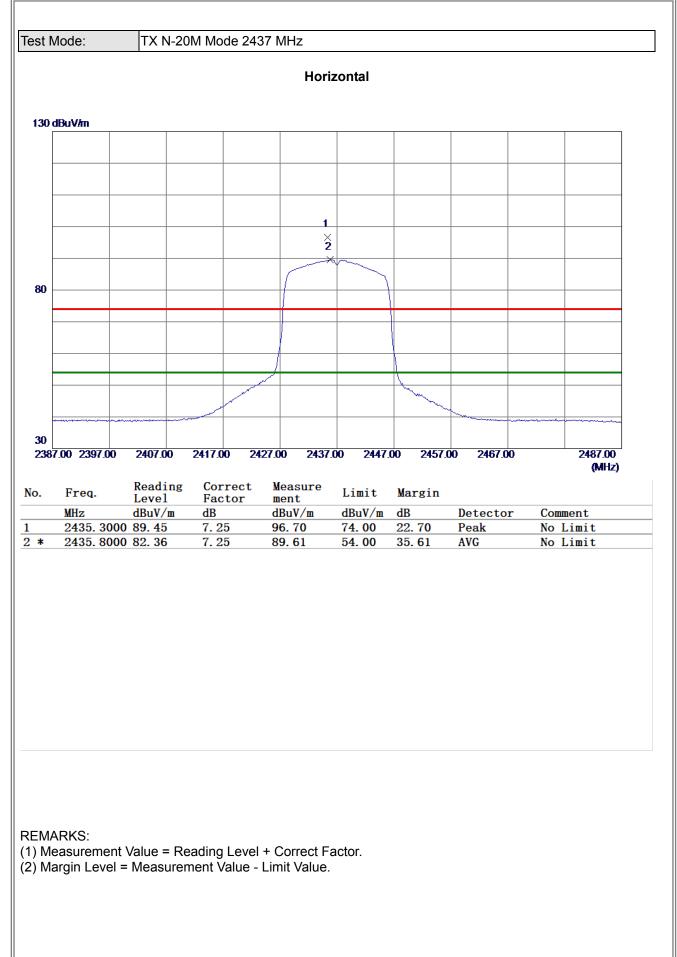




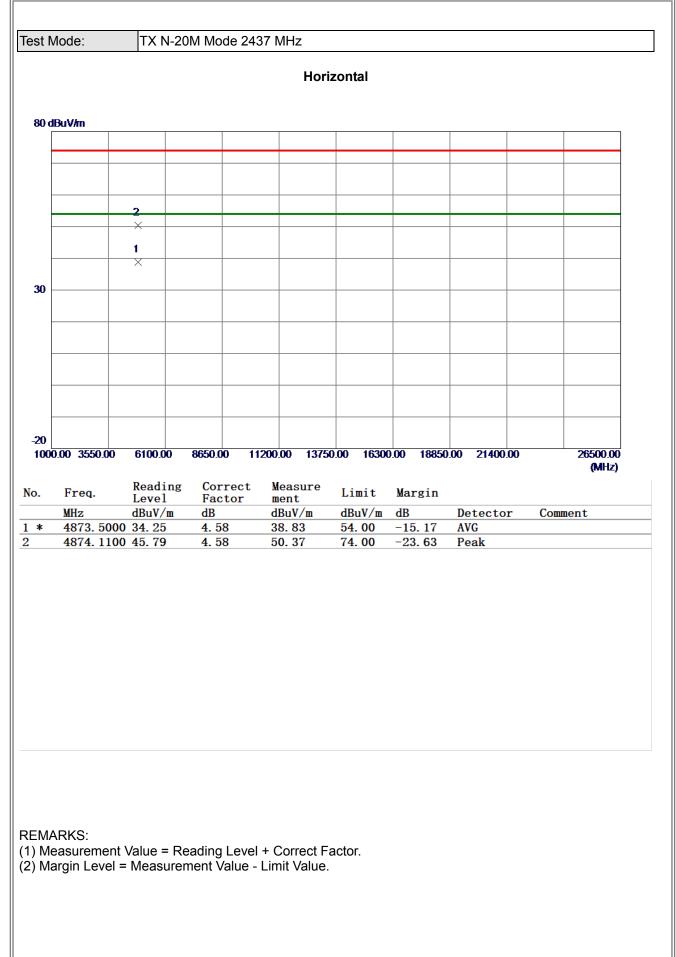




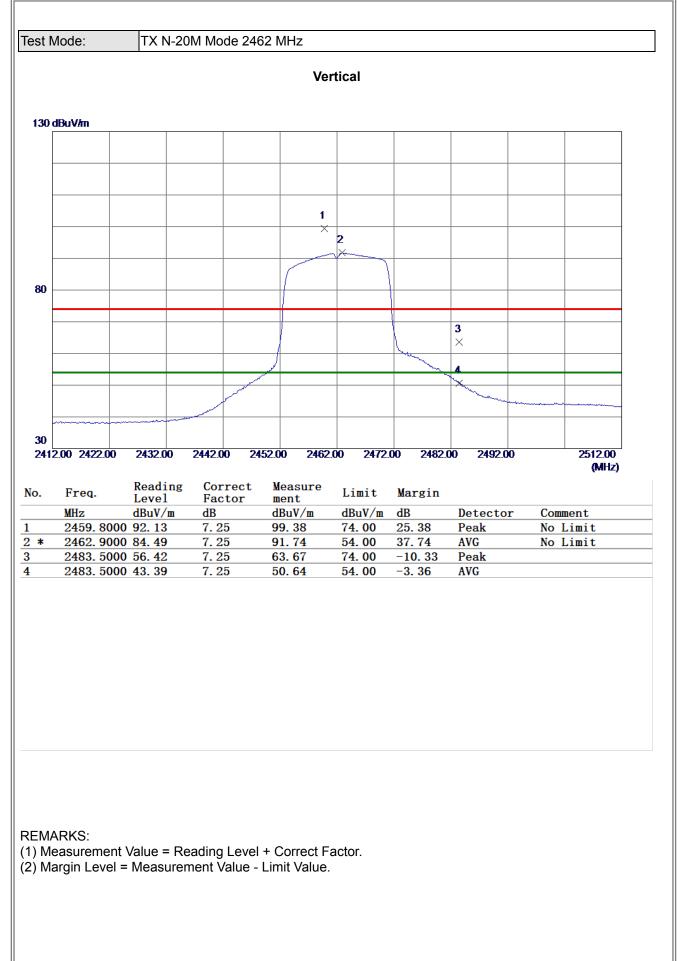




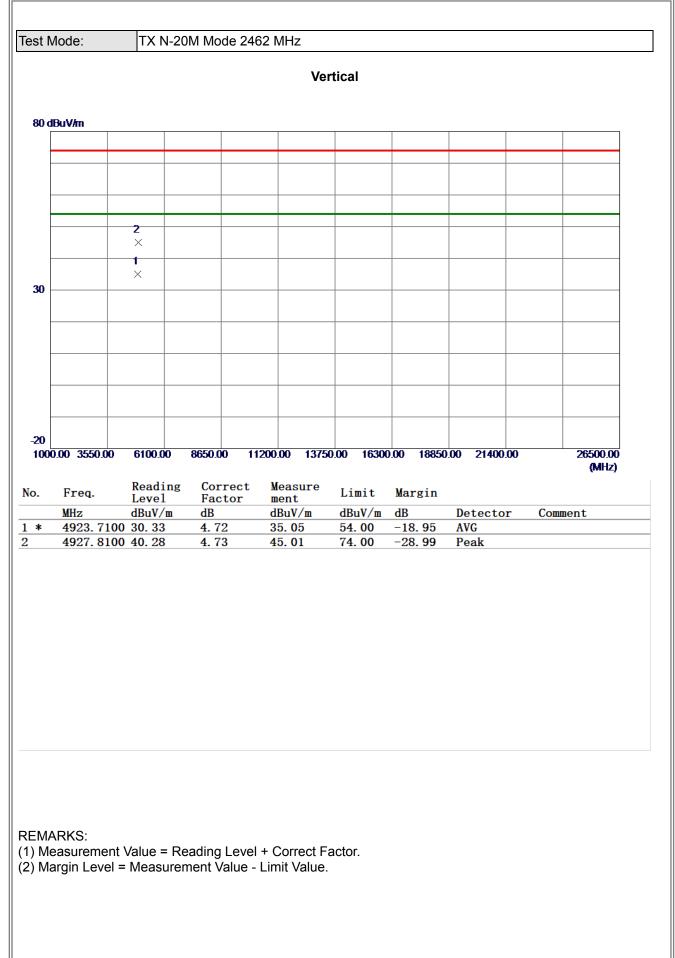




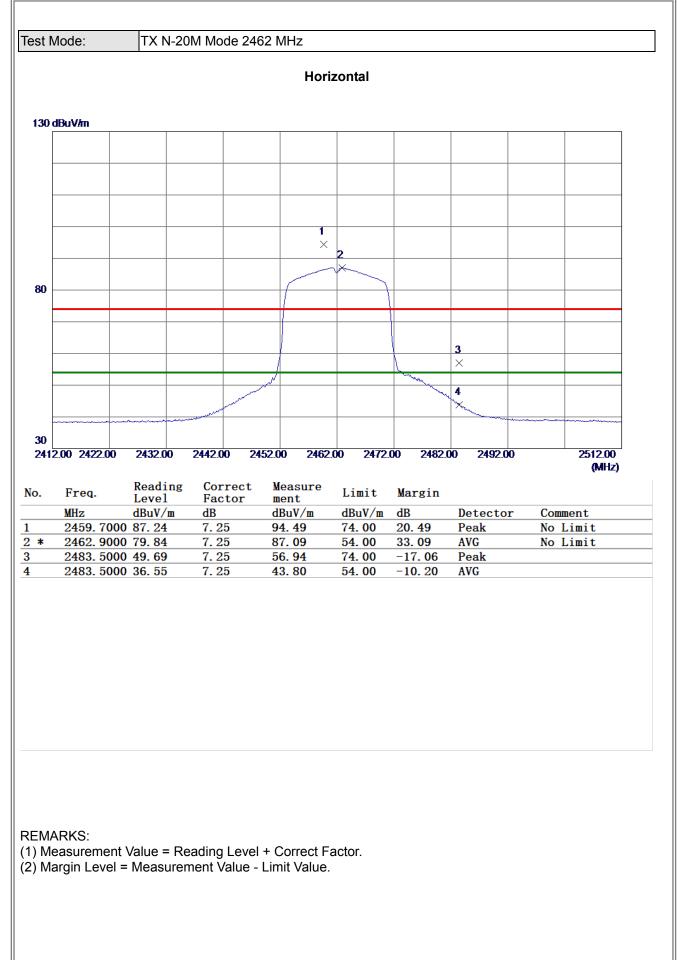




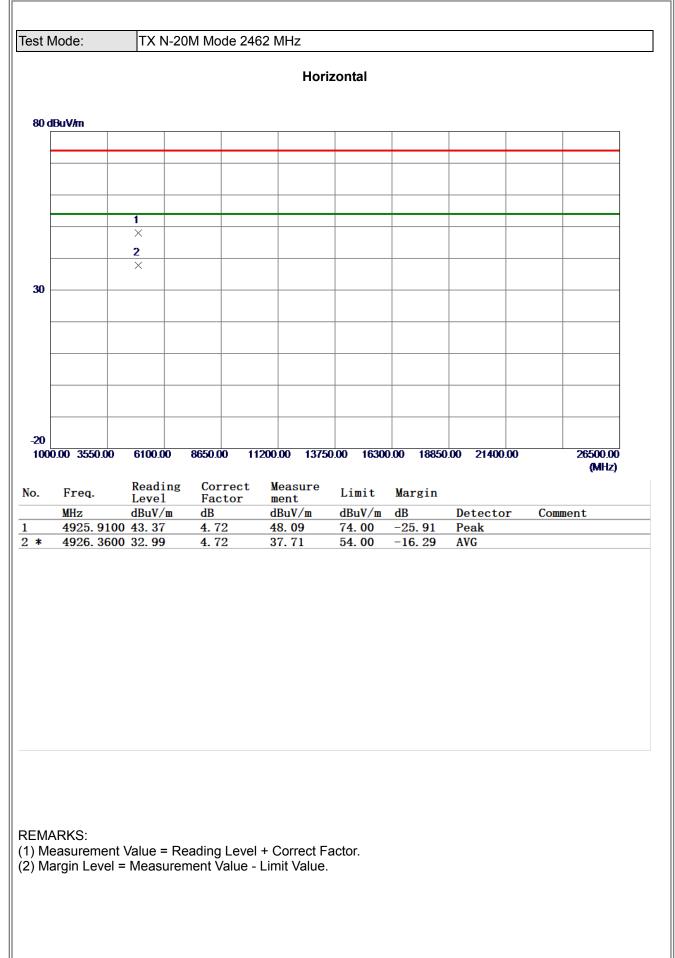




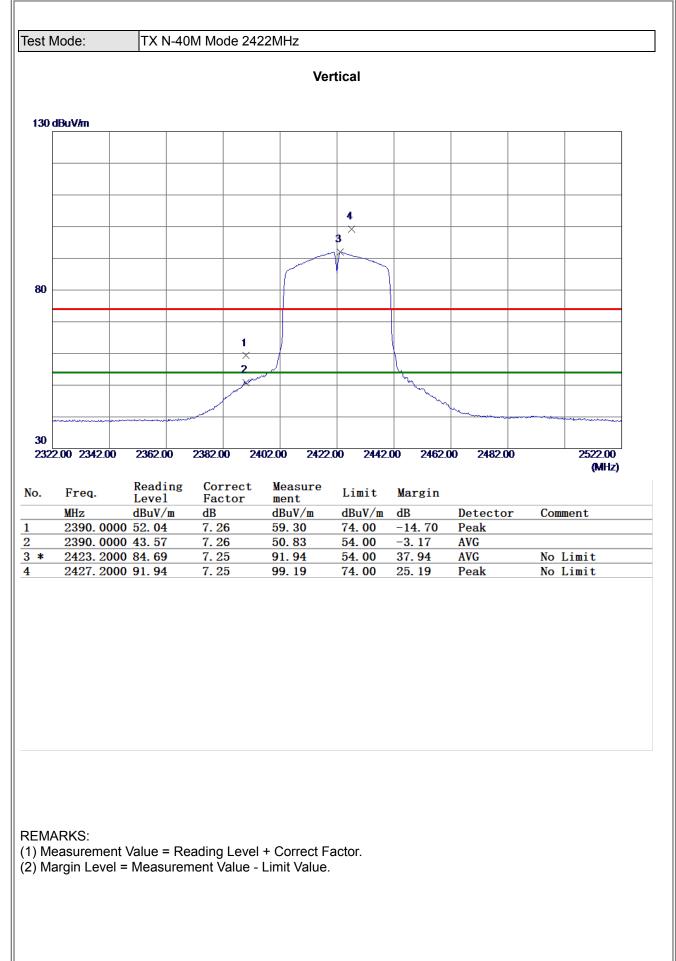




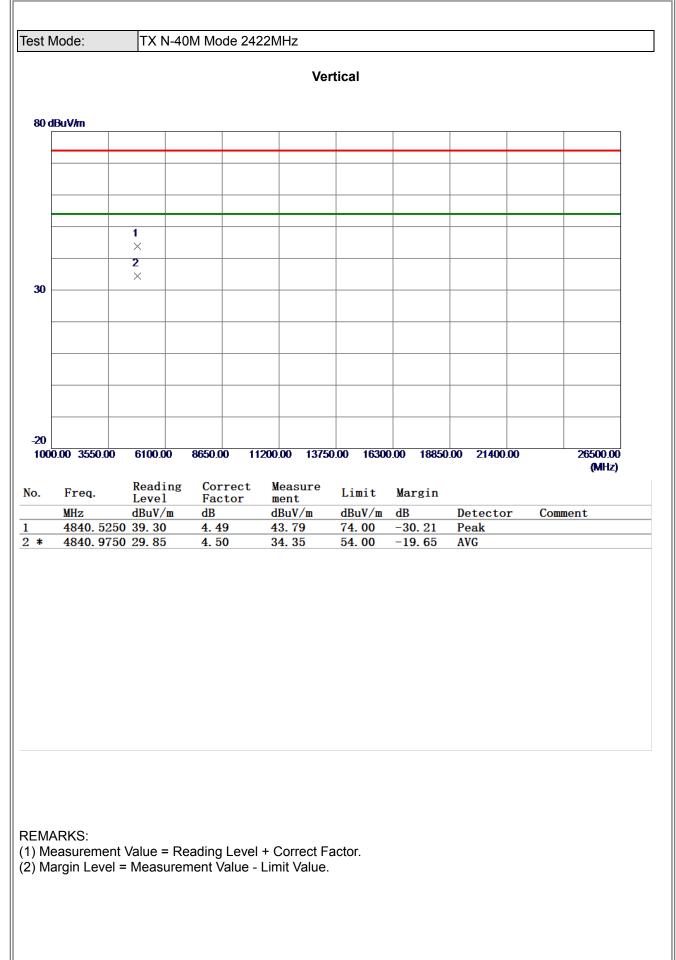




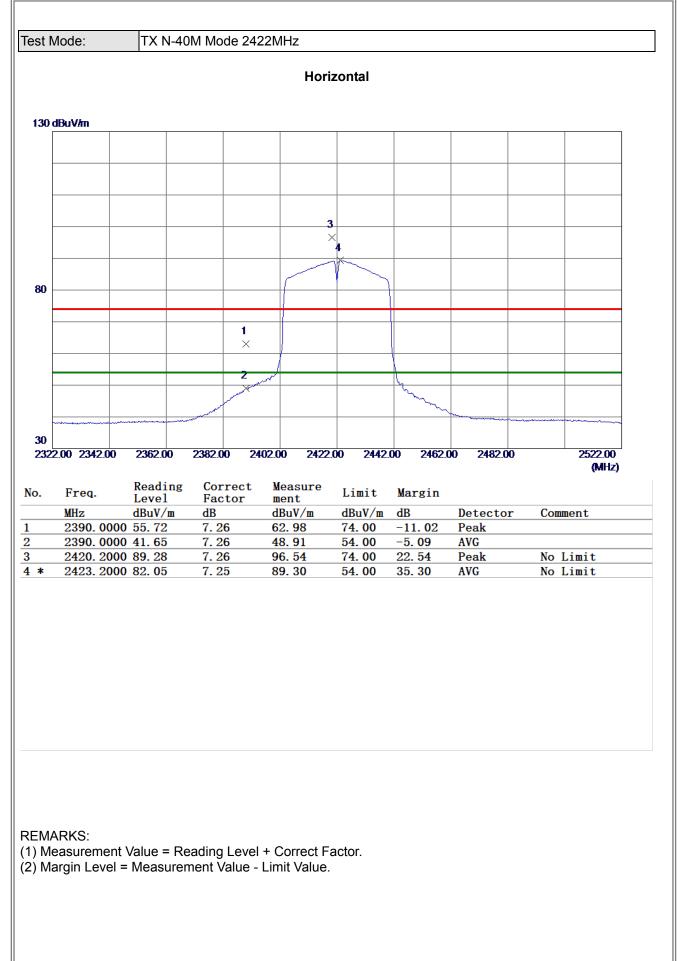




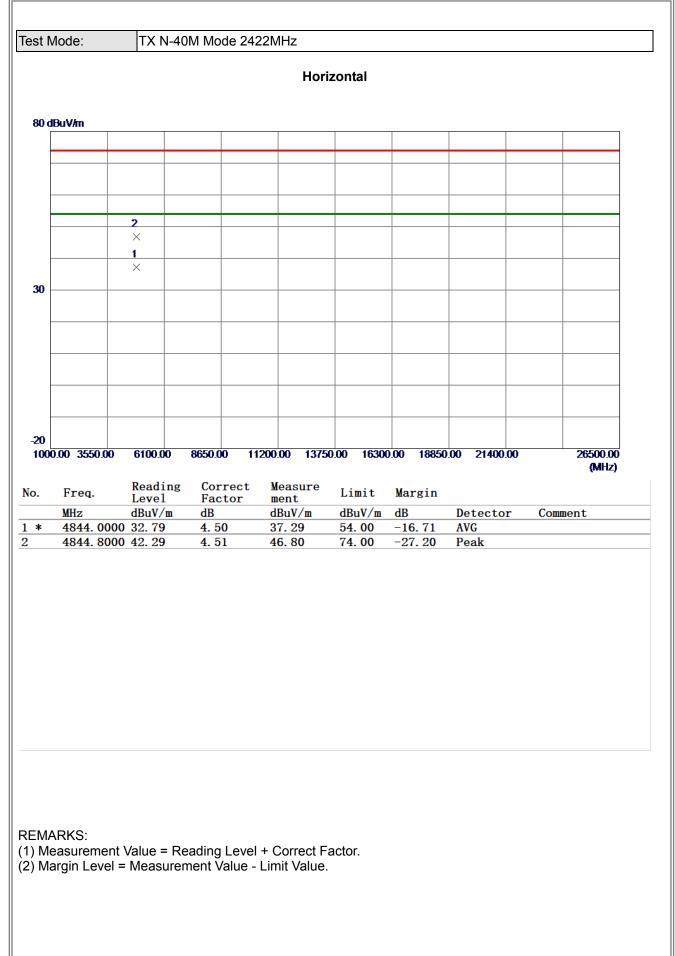




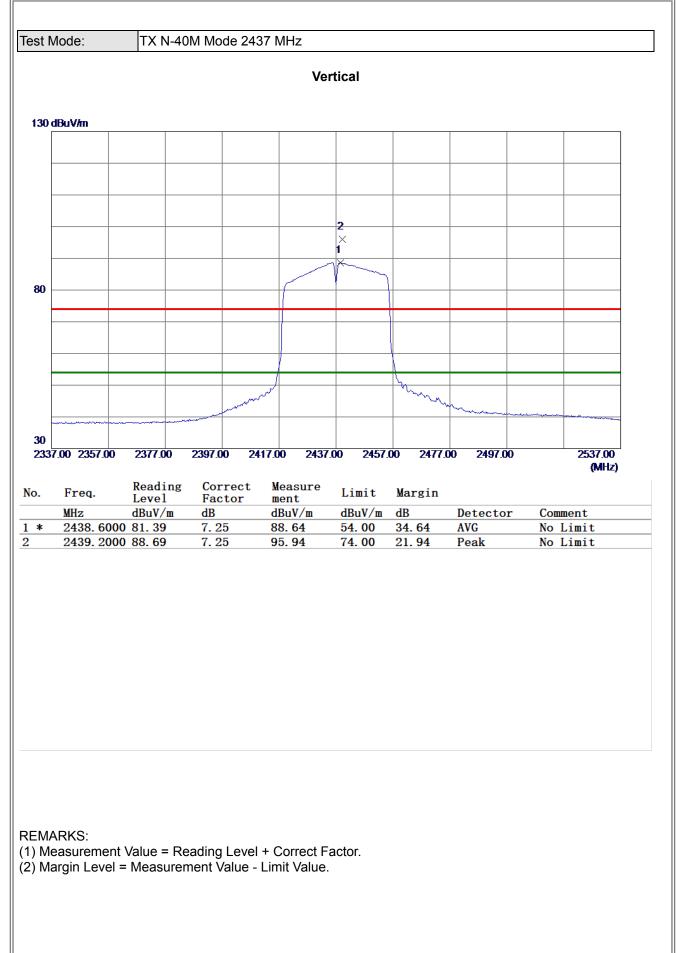




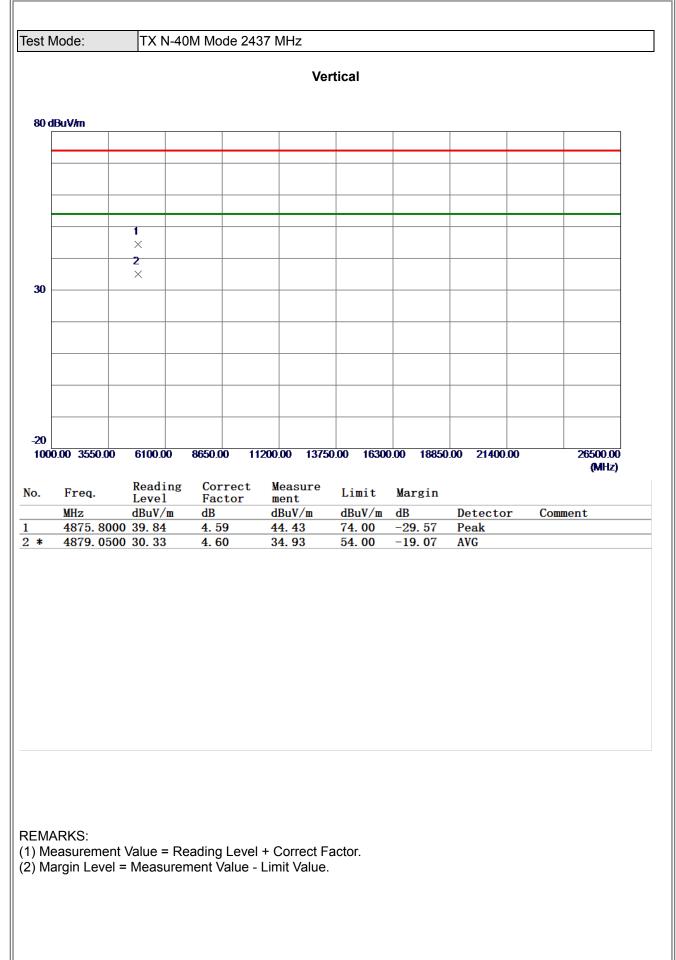




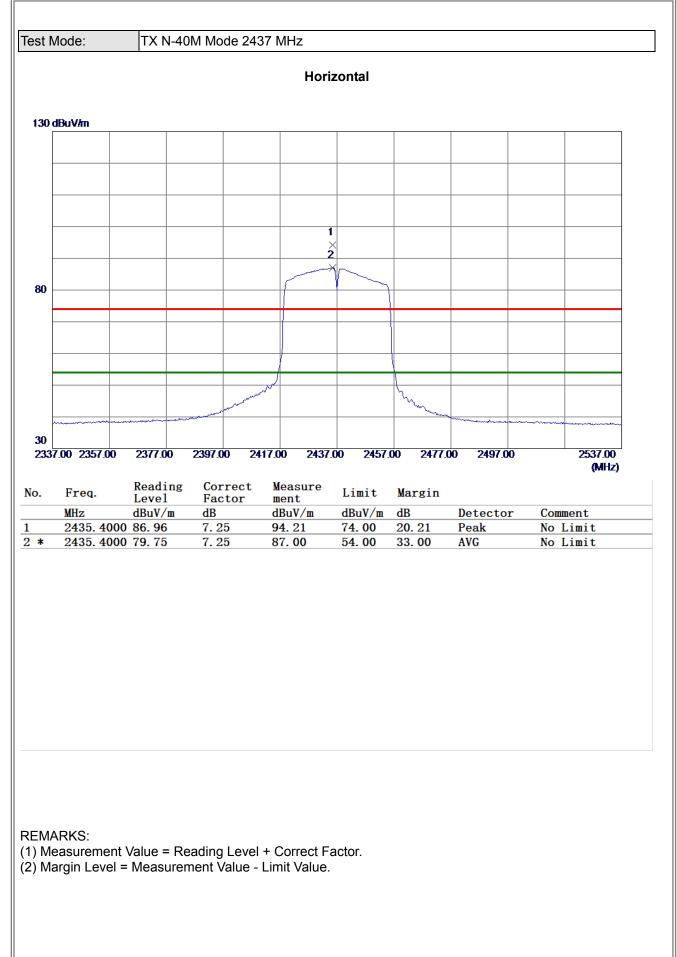




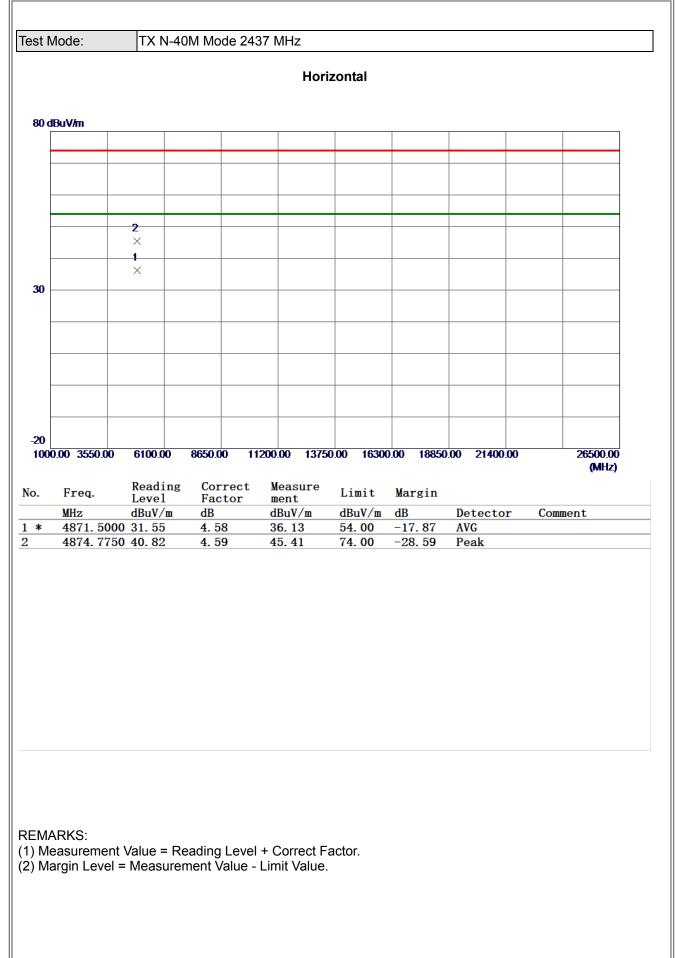




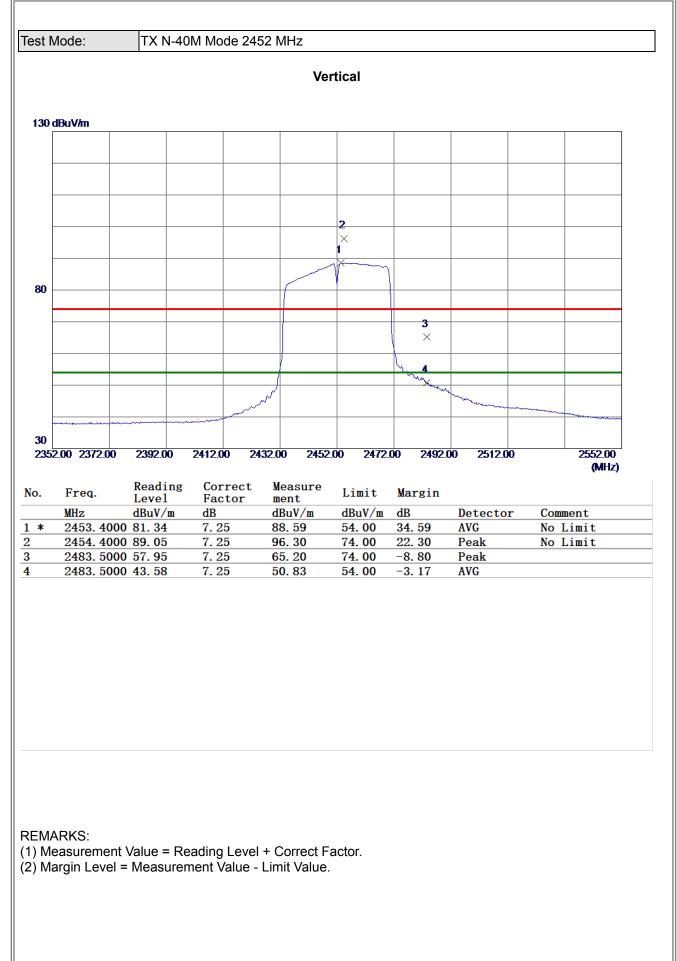




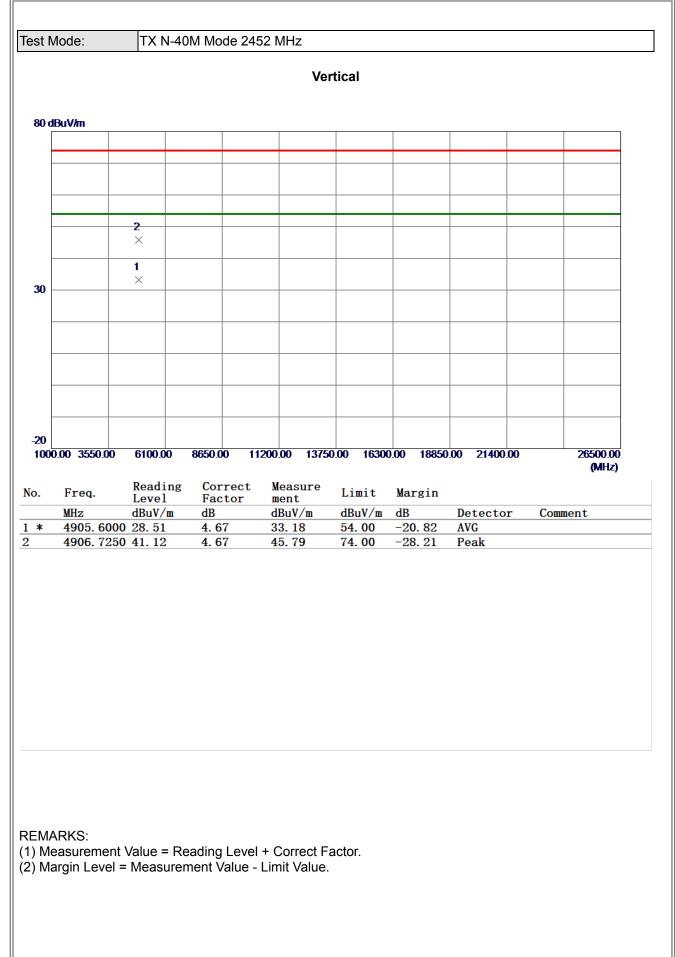




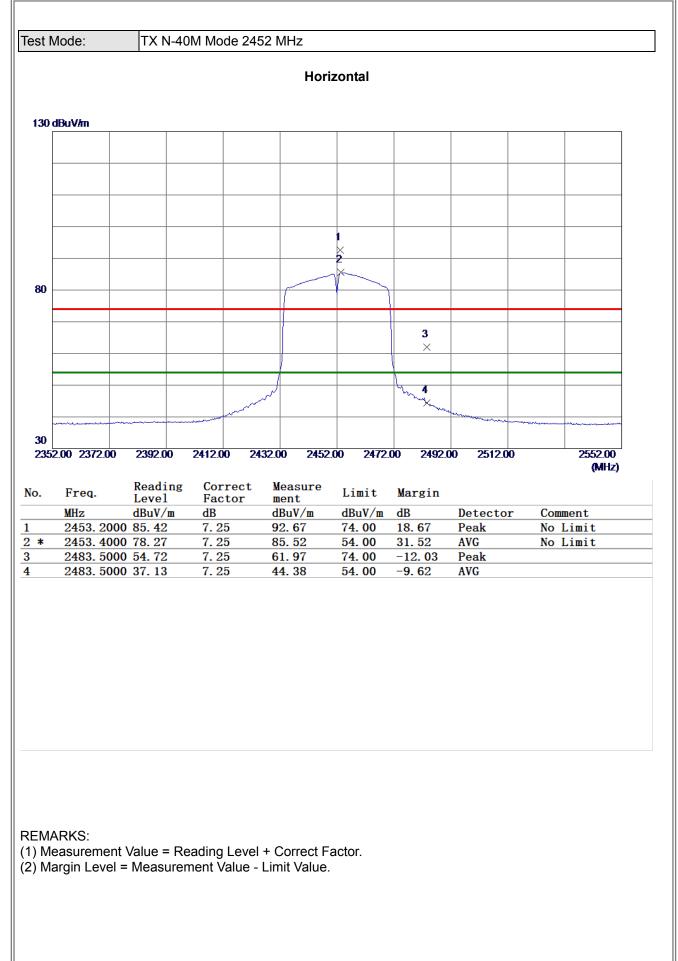




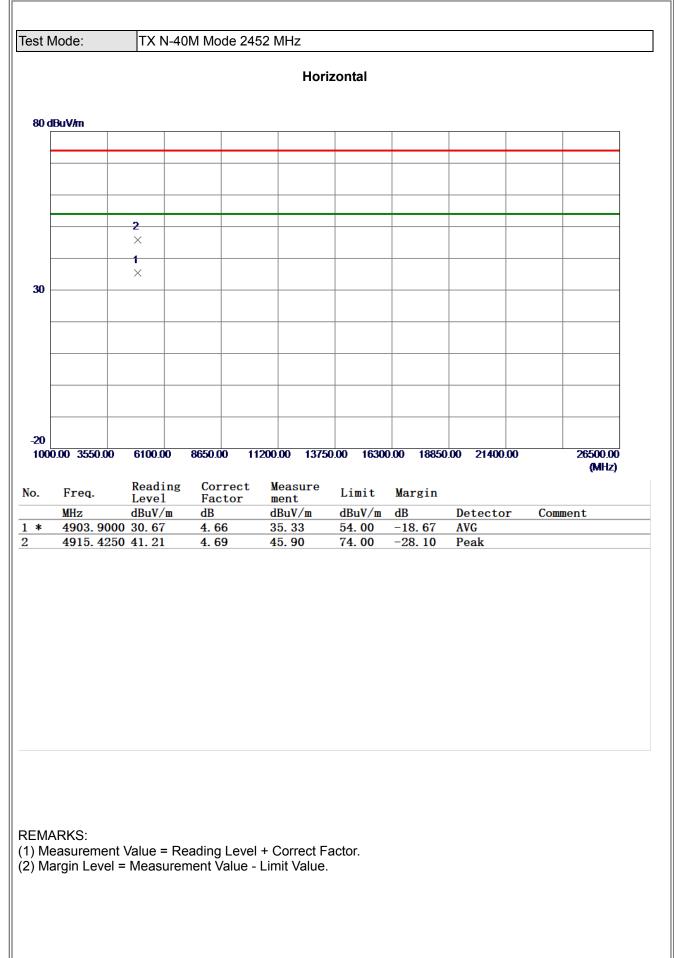










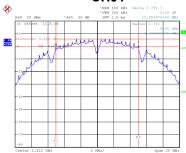


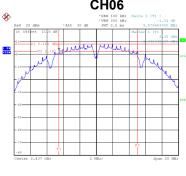


APPENDIX E - BANDWIDTH



Test Mode	TX B Mode			
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	10.06	500	Complies
06	2437	9.58	500	Complies
11	2462	9.10	500	Complies
CI	H01	CH06	С	H11
××	RBN 100 kHz Delta 1 (T1) VEW 300 kHz -0.08 dB SWT 2.5 ms 10.059975000 MHz	*RBM 100 kHz Delta *VBM 300 kHz Ref 20 dBm *Att 30 dB SWT 2.5 mm		*RBW 100 kHz Delta 1 [T1] *VEW 300 kHz 0.05 dB SWT 2.5 ms 9.099200000 MHz
20 Offset 11.5 dB	Marker 1 [71 0 50 dBm	20 Offset 11 5 dB Marker	1 [71] 3.35 dBm 42202007.089	Marker 1 [T1 2 11 dBm 3 457410400 GBT

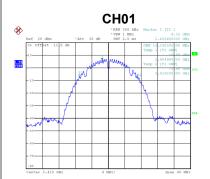


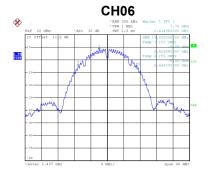




Date: 29.JAN.2021 11:31:45

Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	14.24	Complies
06	2437	14.32	Complies
11	2462	14.32	Complies







Date: 29.JAN.2021 11:31:52

Date: 29.JAN.2021 11:34:10

Date: 29.JAN.2021 11:34:03

Date: 29.JAN.2021 13:39:28

Date: 29.JAN.2021 13:39:20



Test Mode	TX G Mode			
Channel 01	Frequency (MHz) 2412	6 dB Bandwidth (MHz) 16.12	6 dB Bandwidth Min. Limit (kHz) 500	Result Complies
06	2437	16.38	500	Complies
11	2462	16.37	500	Complies
		Image: constraint of the second of	1.111	************************************
Channel	Frequency (MHz)	99 % Emissio	n Bandwidth (MHz)	Result
01	2412		16.72	Complies
06	2437		16.88	Complies
11	2462		17.04	Complies
A	H011 202 35 MBR Kacker 1 [1] J 202 35 MBR Kacker 1 [1] J 2.41296000 005 Temp 1 [1] 2.6001 Temp 1 [1] 2.6001 0.00000 005 1 [1] 2.0001 0.00000 005 1 [1] 2.0001 0 [1] 2.0001	CHO6	1 1.11 1.15 0.00 4.2072000100 000 <td< td=""><td>CH11 1980 0.04 Marker 1 [1] . 1970 2.04 Marker 1 [1] . 1970 2.04 Marker 1 [1] . 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.4620000 005 1.462000000000000000000000000000000000000</td></td<>	CH11 1980 0.04 Marker 1 [1] . 1970 2.04 Marker 1 [1] . 1970 2.04 Marker 1 [1] . 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.46200000 005 1.4620000 005 1.462000000000000000000000000000000000000

Date: 29.JAN.2021 13:44:21

Date: 29.JAN.2021 13:46:38



Test Mode	TX N-20M Mode			
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	17.64	500	Complies
06	2437	17.36	500	Complies
11	2462	17.34	500	Complies
A	H011 30 100 MHz 0-51 (71) 70 300 MHz 0-51 (80 7-51 (3095000 MHz	CH06	1 [71.] . 150.00 . 15012000 Mm Me Mef 20 dm *Att 30 d0	-100 MBs Dalta 1 [71] *190 100 MBs 0.56 dB 907 2.5 Fes 17.33600000 MBs
Image: state		10 07/14t 11.5 00 No.160 11 1.2 00 00 00 00 11 1.2 00 00 00 00 00 11 1.2 00 00 00 00 00 00 11 1.1	1 1 <td></td>	
Channel	Frequency (MHz)	99 % Emissio	n Bandwidth (MHz)	Result
01	2412		17.68	Complies
06	2437		17.84	Complies
11	2462		18.00	Complies
A	MT 2.5 ms 2.410960000 GBr	CH06 ************************************	1 1.1 5.5 0.0 1.1 1.1 0.0	EH11 ****** 300 Min: Norker 1 [71.] ************************************

Date: 29.JAN.2021 13:51:47

h.M

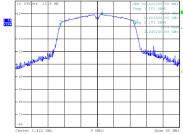
Date: 29.JAN.2021 13:53:20

Date: 29.JAN.2021 13:54:53

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Test Mode	TX N-40M Mode			
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. L (kHz)	imit Result
03	2422	36.04	500	Complies
06	2437	34.96	500	Complies
09	2452	33.00	500	Complies
*	H03 30 10 kHz Selsa 1 (T1) 30 20 kHz Selsa	CH06	0.68 dB	CH09 -250 100 MHz Delsa 1 [7]] - 300 00 007 5 mm 33,0000000 MHz - 300 delsa 1 [7]] - 300 00 007 5 mm 33,0000000 MHz - 300 00000 HHz - 300 00000 HHz - 300 0000 HHZ -
Center 2.422 Off. 4 MEZ	pan pan pan pan pan pan pan pan	- 1	••••••• •• •••••• •• ••••• •• ••••• •• •••• •• •••• •• •••• •• ••• •• •• ••	4 ME/ Spec 40 ME
Channel	Frequency (MHz)	99 % Emission	n Bandwidth (MHz)	Result
03	2422		36.32	Complies
06	2437	;	36.48	Complies
09	2452	:	36.48	Complies
CHO3 ************************************		* VEN 3 MEz	1 (17.1) 	CH09 ************************************



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APPENDIX F - MAXIMUM OUTPUT POWER



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Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	13.94	0.00	13.94	30.00	1.0000	Complies
06	2437	13.91	0.00	13.91	30.00	1.0000	Complies
11	2462	13.91	0.00	13.91	30.00	1.0000	Complies
Test Mode	TX G Mo	de					
Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.95	0.00	14.95	30.00	1.0000	Complies
06	2437	14.88	0.00	14.88	30.00	1.0000	Complies
11	2462	13.82	0.00	13.82	30.00	1.0000	Complies
	TX N-20	M Mode					
Test Mode	Frequency	Output Power	Duty	Output Power	Max. Limit	Max. Limit	Result
			Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
Test Mode	Frequency	Output Power		+ Duty Factor			
Test Mode Channel 01 06	Frequency (MHz) 2412 2437	Output Power (dBm)	Factor	+ Duty Factor (dBm)	(dBm)	(W)	Complies
Test Mode Channel 01	Frequency (MHz) 2412	Output Power (dBm) 13.91	Factor 0.00	+ Duty Factor (dBm) 13.91	(dBm) 30.00	(W) 1.0000	Complies Complies
Test Mode Channel 01 06 11	Frequency (MHz) 2412 2437 2462	Output Power (dBm) 13.91 13.71 12.83	Factor 0.00 0.00	+ Duty Factor (dBm) 13.91 13.71	(dBm) 30.00 30.00	(W) 1.0000 1.0000	Result Complies Complies Complies
Test Mode Channel 01 06	Frequency (MHz) 2412 2437	Output Power (dBm) 13.91 13.71 12.83	Factor 0.00 0.00	+ Duty Factor (dBm) 13.91 13.71	(dBm) 30.00 30.00	(W) 1.0000 1.0000	Complies Complies
Test Mode Channel 01 06 11	Frequency (MHz) 2412 2437 2462	Output Power (dBm) 13.91 13.71 12.83	Factor 0.00 0.00	+ Duty Factor (dBm) 13.91 13.71	(dBm) 30.00 30.00	(W) 1.0000 1.0000	Complies Complies
Test Mode Channel 01 06 11 Test Mode	Frequency (MHz) 2412 2437 2462 TX N-40 Frequency	Output Power (dBm) 13.91 13.71 12.83 W Mode	Factor 0.00 0.00 0.00	+ Duty Factor (dBm) 13.91 13.71 12.83 Output Power + Duty Factor	(dBm) 30.00 30.00 30.00 Max. Limit	(W) 1.0000 1.0000 1.0000	Complies Complies Complies
Test Mode Channel 01 06 11 Test Mode Channel	Frequency (MHz) 2412 2437 2462 TX N-401 Frequency (MHz)	Output Power (dBm) 13.91 13.71 12.83 M Mode	Factor 0.00 0.00 0.00 Duty Factor	+ Duty Factor (dBm) 13.91 13.71 12.83 Output Power + Duty Factor (dBm)	(dBm) 30.00 30.00 30.00 Max. Limit (dBm)	(W) 1.0000 1.0000 1.0000 Max. Limit (W)	Complies Complies Complies



APPENDIX G - CONDUCTED SPURIOUS EMISSIONS



