



Declaration

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

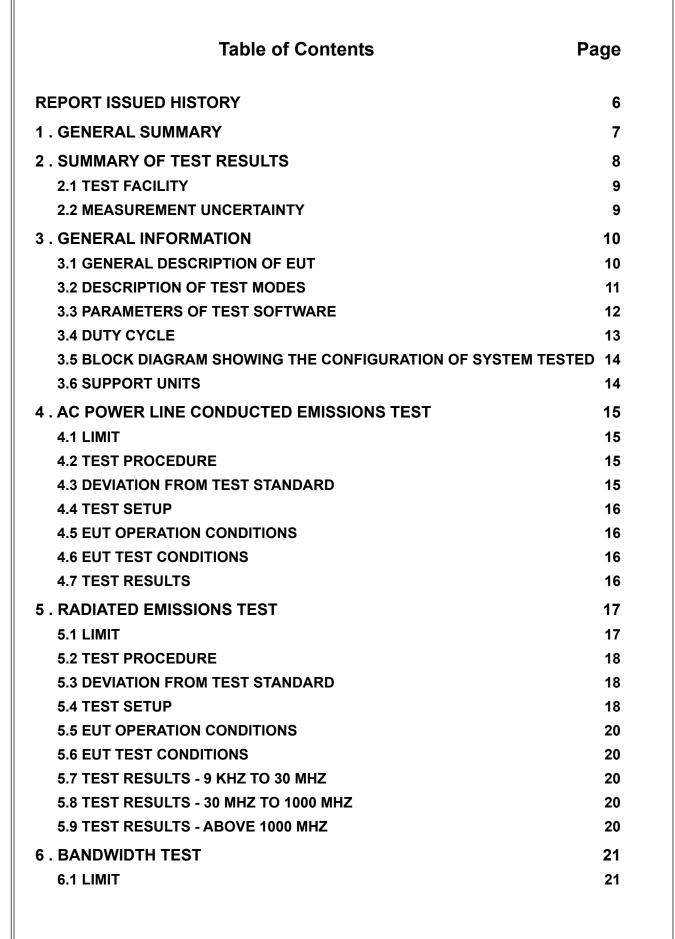
The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended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

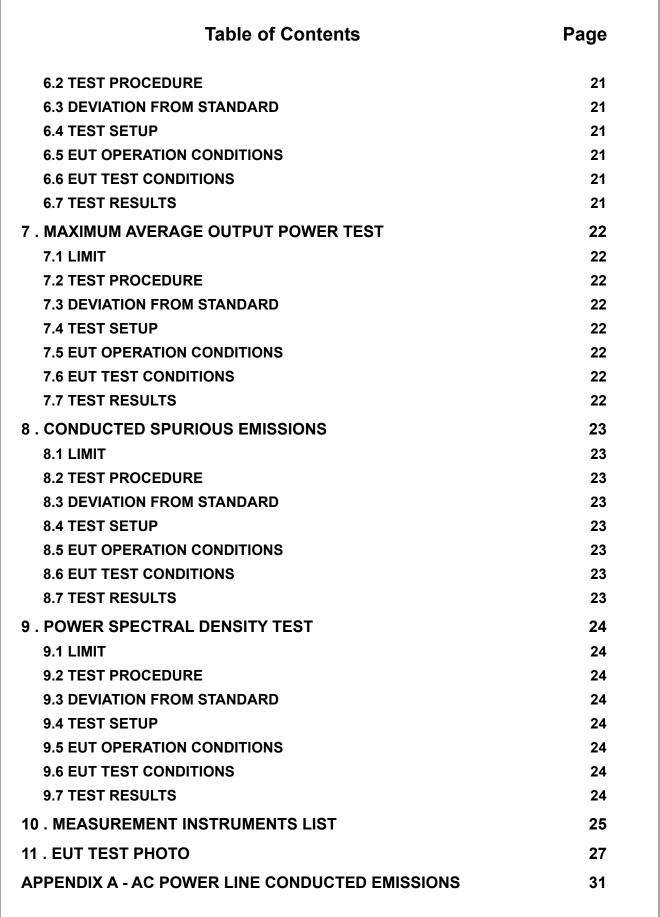
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

















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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Jul. 02, 2019
R01	Changed the product name and model name.	Jul. 16, 2019
R02	Added brand name.	Jul. 22, 2019





1. GENERAL SUMMARY

Equipment : Brand Name :	Pan/Tilt Home Security Wi-Fi Camera
Test Model :	
Series Model :	
	TP-Link Technologies Co., Ltd.
Manufacturer :	TP-Link Technologies Co., Ltd.
Address :	Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Date of Test :	Jun. 01, 2019 ~ Jun. 18, 2019
	Engineering Sample No.: DG19053129 for conducted, DG19053127 for radiated
Standard(s) :	FCC Part15, Subpart C (15.247) ANSI C63.10-2013
	FCC KDB 558074 D01 DTS Meas Guidance v05r02

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-1-1905C161) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 17025 quality assessment standard and technical standard(s).



2. SUMMARY OF TEST RESULTS

	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 Average 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)		

Test procedures according to the technical standard(s):

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.



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 Registration Number for FCC: 357015 BTL's Designation Number for FCC: CN1240

2.2 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	150 kHz ~ 30 MHz	2.32

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Ant. Range H / V U, (d			
		9 KHz~30 MHz	V	3.79	
		9 KHz~30 MHz	Н	3.57	
		30 MHz~200 MHz	V	3.82	
			30 MHz~200 MHz	Н	3.78
DG-CB03	CISPR	200 MHz~1,000 MHz	V	4.10	
DG-CB03	200 MHz~1,000 MHz <u>1 GHz~18 GHz</u> <u>1 GHz~18 GHz</u> <u>18 GHz</u> ~40 GHz	200 MHz~1,000 MHz	Н	4.06	
		1 GHz~18 GHz	V	3.12	
			1 GHz~18 GHz	Н	3.68
		18 GHz~40 GHz	V	4.15	
		18 GHz~40 GHz	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	Pan/Tilt Home Security Wi-Fi Camera		
Brand Name	tp-link, tapo		
Test Model	Таро С200		
Series Model	N/A		
Model Difference(s)	N/A		
Power Source	DC Voltage supplied from AC/DC adapter. Model: T050060-2C1		
Power Rating	I/P: 100-240V~ 50/60Hz 0.3A O/P: 5V === 0.6A		
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 Average Output Power	EF IEEE 802.11b: 16.86 dBm (0.0485 W) IEEE 802.11g: 16.94 dBm (0.0494 W) IEEE 802.11n (HT20): 16.93 dBm (0.0493 W) IEEE 802.11n (HT40): 16.80 dBm (0.0479 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 802.11b, 802.11g, 802.11n(20 MHz) CH03 - CH09 for 802.11n(40 MHz)							
Channel Frequency (MHz) Channel Frequency (MHz) Channel Frequency (MHz) Channel (MHz) Channel (MHz)				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	N/A	Internal	N/A	2



3.2 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 06
Mode 6	TX B Mode Channel 01/02/06/10/11
Mode 7	TX G Mode Channel 01/02/06/10/11
Mode 8	TX N-20 MHz Mode Channel 01/02/06/10/11
Mode 9	TX N-40 MHz Mode Channel 03/04/06/08/09

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 06	

Radiated emissions test - Below 1GHz		
Final Test Mode: Description		
Mode 5	TX G Mode Channel 06	

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	
Mode 6	TX B Mode Channel 01/02/06/10/11	
Mode 7	TX G Mode Channel 01/02/06/10/11	
Mode 8	TX N-20 MHz Mode Channel 01/02/06/10/11	
Mode 9	TX N-40 MHz Mode Channel 03/04/06/08/09	



Conducted test		
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	

NOTE:

- (1) The measurements are performed at the high, middle, low available channels.
- (2) 802.11b mode: CCK (1 Mbps) 802.11g mode: OFDM (6 Mbps) 802.11n HT20 mode : BPSK (6.5 Mbps) 802.11n HT40 mode : BPSK (13.5 Mbps) For all tests, the highest output powers were set for final test.
- (3) For radiated emission below 1 GHz test, the IEEE 802.11g channel 06 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.
- (5) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.

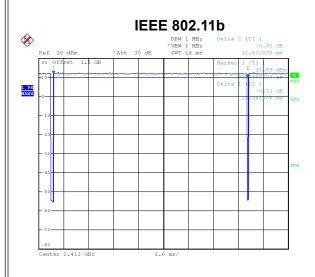
3.3 PARAMETERS OF TEST SOFTWARE

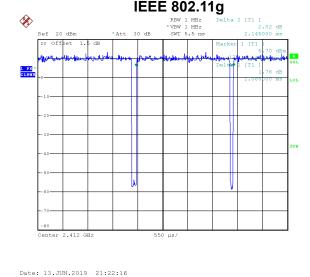
Test Software	N/A		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	39	39	40
IEEE 802.11g	52	52	54
IEEE 802.11n (HT20)	52	52	54
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	52	52	53



3.4 DUTY CYCLE

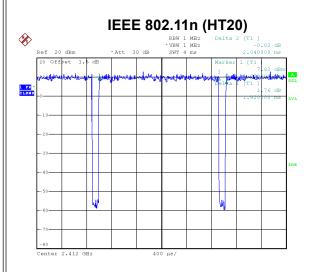
If duty cycle is \geq 98 %, duty factor is not required. If duty cycle is < 98 %, duty factor shall be considered.





Date: 13.JUN.2019 21:20:58

Duty cycle = 12.448 ms / 12.512 ms = 99.49% Duty Factor = 10 log(1/Duty cycle) = 0.00



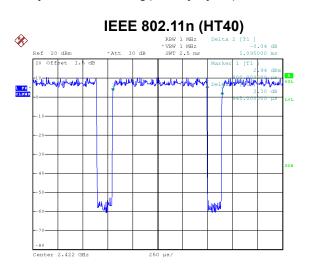
Date: 13.JUN.2019 21:23:58

Duty cycle = 1.920 ms / 2.040 ms = 94.12% Duty Factor = 10 log(1/Duty cycle) = 0.26

NOTE:

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

Duty cycle = 2.068 ms / 2.145 ms = 96.41% Duty Factor = 10 log(1/Duty cycle) = 0.16



Date: 13.JUN.2019 21:25:51

Duty cycle = 0.945 ms / 1.095 ms = 86.30% Duty Factor = 10 log(1/Duty cycle) = 0.64

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%).

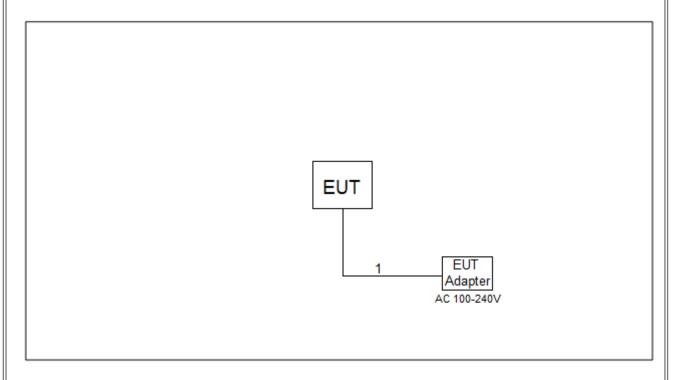
For IEEE 802.11n (HT40):

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%).





3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.6 SUPPORT UNITS

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

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	3m

4. AC POWER LINE CONDUCTED EMISSIONS TEST

4.1 LIMIT

Fraguanov of Emission (MHz)	Limit (dBµV)		
Frequency of Emission (MHz)	Quasi-peak	Average	
0.15 - 0.50	66 to 56*	56 to 46*	
0.50 - 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

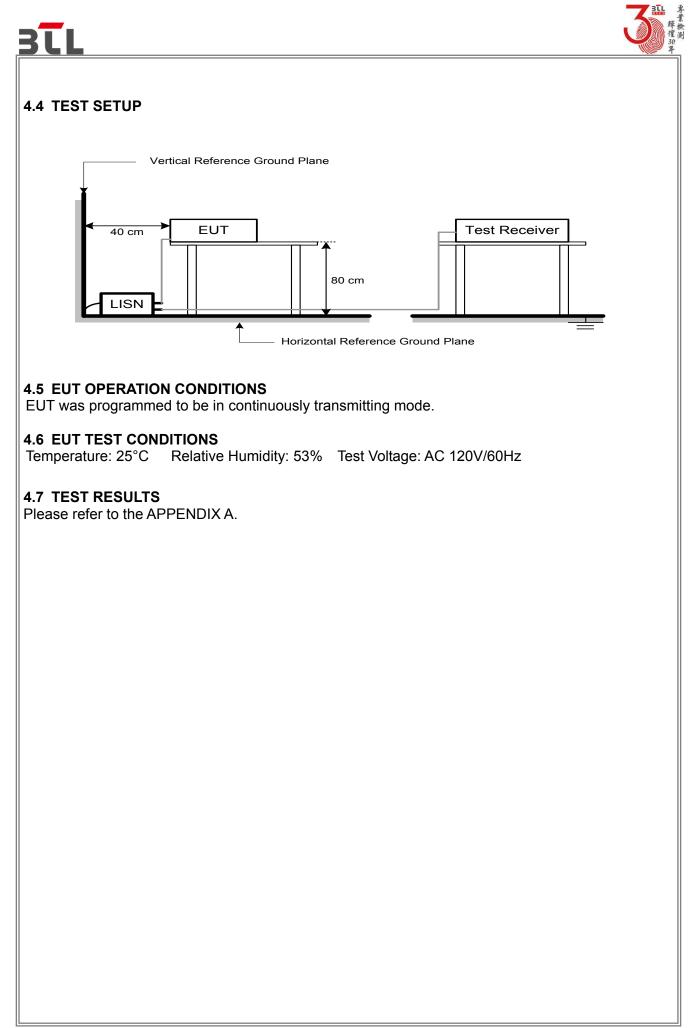
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.2 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.

4.3 DEVIATION FROM TEST STANDARD

No deviation





5. RADIATED EMISSIONS TEST

5.1 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	
Receiver Parameter	Setting	
Attenuation	Auto	
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector	
Start ~ Stop Frequency 90 kHz~110 kHz for QP detector		
Start ~ Stop Frequency 110 kHz~490 kHz for PK/AVG detect		
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector	
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector	

5.2 TEST PROCEDURE

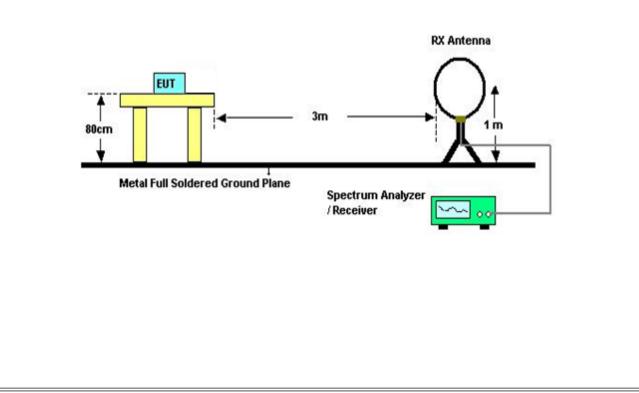
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance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

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

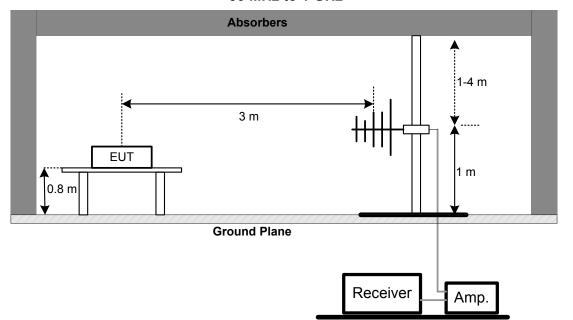
9 kHz-30 MHz



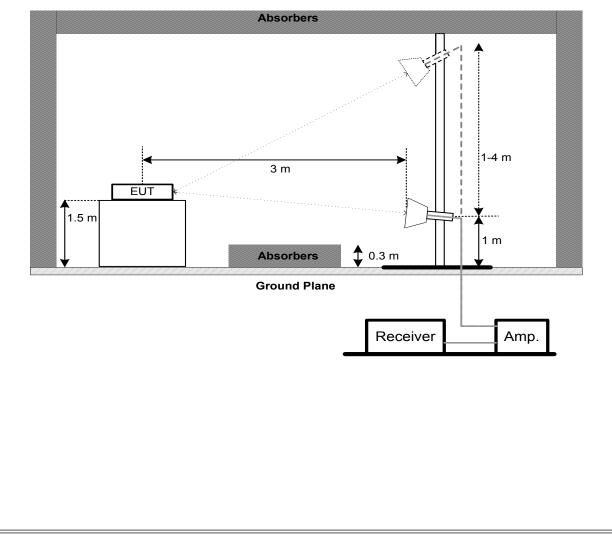




30 MHz to 1 GHz



Above 1 GHz







5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 EUT TEST CONDITIONS

Temperature: 26°C Relative Humidity: 66% Test Voltage: AC 120V/60Hz

5.7 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.

5.8 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

5.9 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.



6. BANDWIDTH TEST

6.1 LIMIT

FCC Part15, Subpart C (15.247)			
Section	Test Item	Limit	
	6 dB Bandwidth	Minimum 500 kHz	
15.247(a)(2)	99% Emission Bandwidth	-	

6.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. For 6dB Bandwidth Spectrum setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms. For 99% OBW Spectrum Setting: For B,G,N20 mode: RBW= 300KHz, VBW=1MHz,For N40 mode: RBW= 1MHz, VBW=3MHz, Sweep time = 2.5 ms.
- c. The bandwidth was performed in accordance with method 11.8.1 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 EUT TEST CONDITIONS

Temperature: 26°C Relative Humidity: 65% Test Voltage: AC 120V/60Hz

6.7 TEST RESULTS

Please refer to the APPENDIX E.





7. MAXIMUM AVERAGE OUTPUT POWER TEST

7.1 LIMIT

FCC Part15, Subpart C (15.247)		
Section Test Item Limit		
15.247(b)(3)	Maximum Average Output Power	1 Watt or 30dBm

7.2 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.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

EUT	Power Meter

7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 EUT TEST CONDITIONS

Temperature: 26°C Relative Humidity: 65% Test Voltage: AC 120V/60Hz

7.7 TEST RESULTS

Please refer to the APPENDIX F.



8. CONDUCTED SPURIOUS EMISSIONS

8.1 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. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

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= 100 kHz, VBW=300 kHz, Sweep time = Auto.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 EUT TEST CONDITIONS

Temperature: 26°C Relative Humidity: 65% Test Voltage: AC 120V/60Hz

8.7 TEST RESULTS

Please refer to the APPENDIX G.





9. POWER SPECTRAL DENSITY TEST

9.1 LIMIT

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

9.2 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.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



SPECTRUM

ANALYZER

9.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

9.6 EUT TEST CONDITIONS

Temperature: 26°C Relative Humidity: 65% Test Voltage: AC 120V/60Hz

9.7 TEST RESULTS

Please refer to the APPENDIX H.

10. 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	Mar. 10, 2020				
2	LISN	EMCO	3816/2	52765	Mar. 10, 2020				
3	50ohm Terminator	SHX	TF5-3	15041305	Mar. 10, 2020				
4	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Mar. 10, 2020				
5	TRANSIENT LIMITER			772	Mar. 10, 2020				
6	Measurement Farad		EZ-EMC Ver.NB-03A1-01	N/A	N/A				
7	Cable	N/A	RG223	12m	Mar. 12, 2020				

	Radiated Emissions - 9 kHz to 30 MHz								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until				
1	Loop Antenna	EM	EM-6876-1	230	Jan. 15, 2020				
2	Cable	N/A	N/A RG 213/U	C-102	May 31, 2020 Mar. 10, 2020				
3	EMI Test Receiver	R&S	ESCI	100895					
4 Measurement Software Farad		Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A				

	Radiated Emissions - 30 MHz to 1 GHz									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until					
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2020					
2	Amplifier	HP	8447D	2944A09673	Aug. 11, 2019					
3	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019					
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 24, 2020					
5	Controller	СТ	SC100	N/A	N/A					
6	Controller	MF	MF-7802	MF780208416	N/A					
7	7 Measurement Software Farad		EZ-EMC Ver.NB-03A1-01	N/A	N/A					

		Radiated Emi	ssions - Above 1 G	Hz	
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 09, 2020
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2019
3	Amplifier	Amplifier Agilent 8449B 3008A02333		Mar. 10, 2020	
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 10, 2020
5	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019
6	Controller	СТ	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	mitron	B10-01-01-12M	18072744	Jul. 30, 2019
9 Measurement Software Farad		Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A





	Bandwidth									
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until					
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019					
		Maximum	Average Output P	ower						
Item	Kind of Equipment Manufacture		Type No.	Serial No.	Calibrated until					
1	P-series power meter	Agilent	N1911A	MY45100473	Aug. 11, 2019					
2	wideband power sensor	Agilent	N1921A	MY51100041	Aug. 11, 2019					

Antenna Conducted Spurious Emissions							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019		

Power Spectral Density								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019			

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

All calibration period of equipment list is one year.





11. EUT TEST PHOTO

AC Power Line Conducted Emissions Test Photos





Report No.: BTL-FCCP-1-1905C161

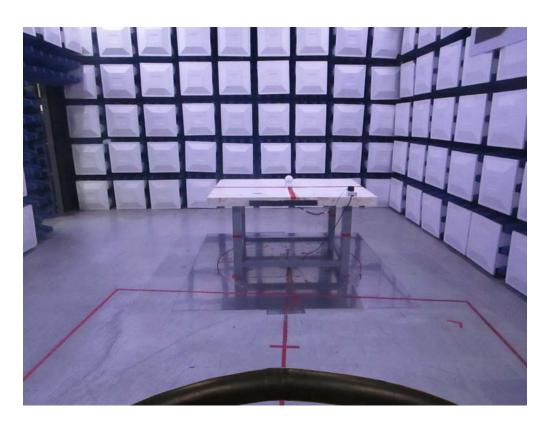
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Radiated Emissions Test Photos

9 kHz to 30 MHz





Page 28 of 137 Report Version: R02



Radiated Emissions Test Photos

30 MHz to 1 GHz





Page 29 of 137 Report Version: R02



Radiated Emissions Test Photos

Above 1 GHz





Page 30 of 137 Report Version: R02



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS



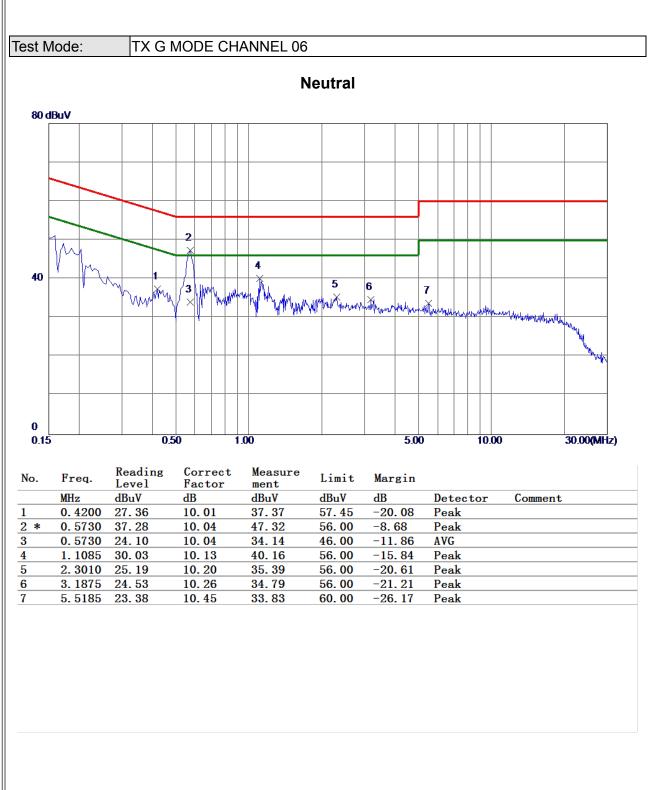


Test Mode: TX G MODE CHANNEL 06 Line 80 dBuV thomas 40 4 3 w W 41 0 0.15 0.50 1.00 5.00 10.00 30.00(MHz) Reading Measure Correct No. Freq. Limit Margin Level Factor ment MHz dB dBuV Comment dBuV dB dBuV Detector 42.17 0.5910 32.28 9.89 56. **00** 1 * -13.83 Peak 2 1.0320 30.01 9.92 39.93 5**6. 00** -16. 07 Peak 2.1435 3 25.62 10.01 35.63 56.00 -20.37 Peak 4 3.4125 25.20 10.09 35.29 56.00 -20.71 Peak 20.32 30.53 5 5.2619 10.21 60.00 -29.47 Peak 6 10.0320 19.17 10.49 29.66 60.00 -30.34 Peak

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



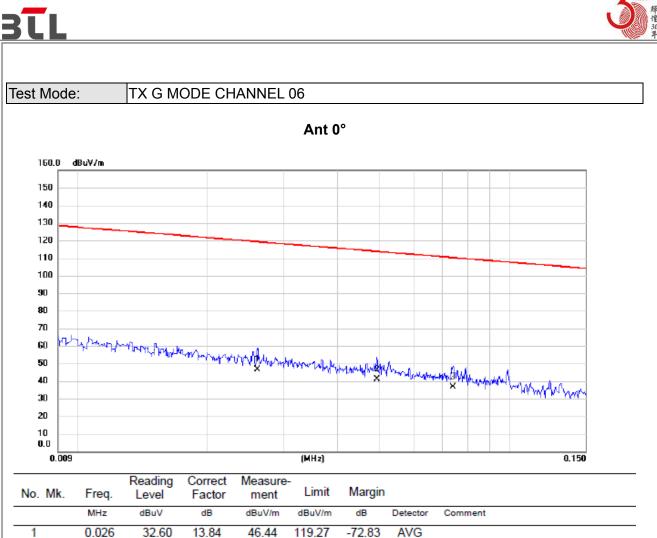




REMARKS: (1) Measurement Value = Reading Level + Correct Factor. (2) Margin Level = Measurement Value - Limit Value.



APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ



REMARKS:

2 *

3

0.049

0.074

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

13.93

13.55

41.13

36.45

113.73

110.22

-72.60

-73.77

AVG

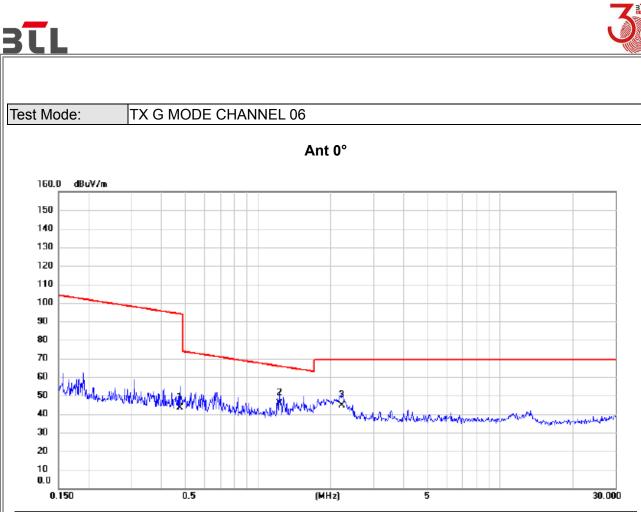
AVG

(2) Margin Level = Measurement Value - Limit Value.

27.20

22.90

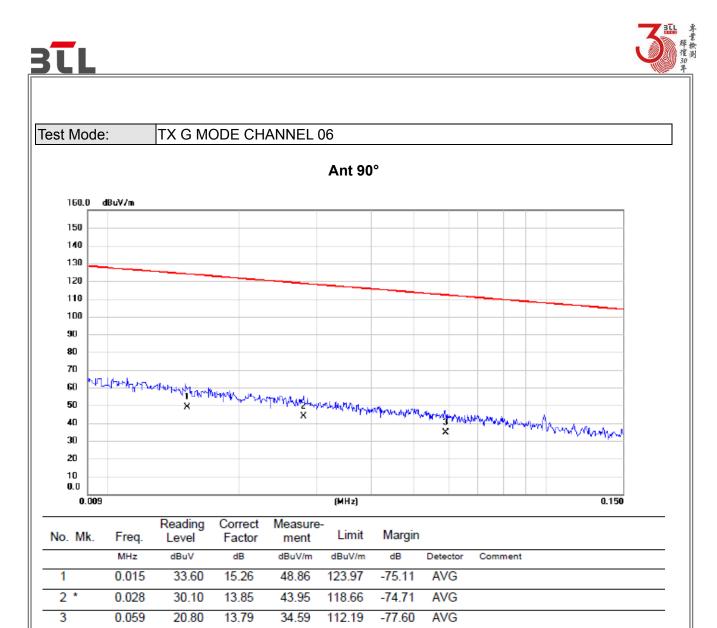




No. Mk.	Freq.		Correct Factor	Measure- ment	Limit	Margin			
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	0.476	30.10	13.12	43.22	94.05	-50.83	AVG		
2 *	1.229	33.60	12.34	45.94	65.81	-19.87	QP		
3	2.225	33.11	11.68	44.79	69.54	-24.75	QP		

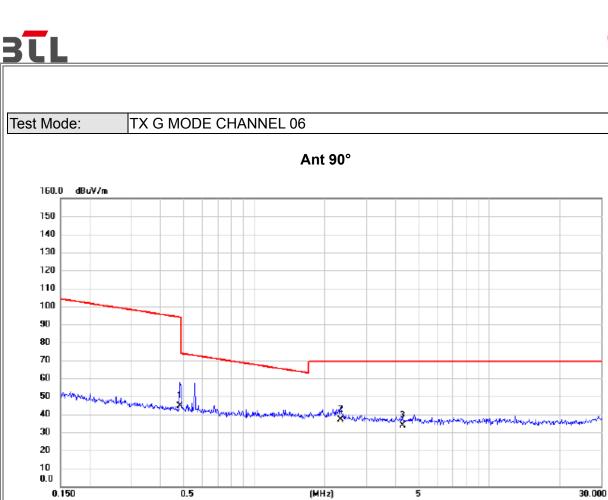
REMARKS:

- (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.



No. Mk.	Freq.			Measure- ment		Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.484	31.60	13.10	44.70	93.91	-49.21	AVG	
2 *	2.334	25.30	11.62	36.92	69.54	-32.62	QP	
3	4.292	22.80	10.92	33.72	69.54	-35.82	QP	

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

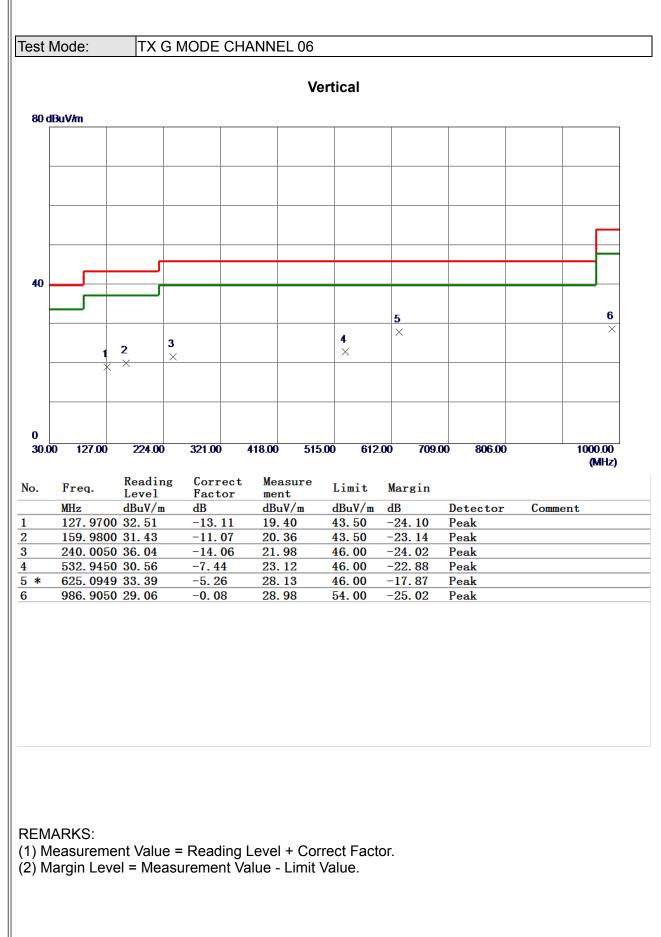




APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

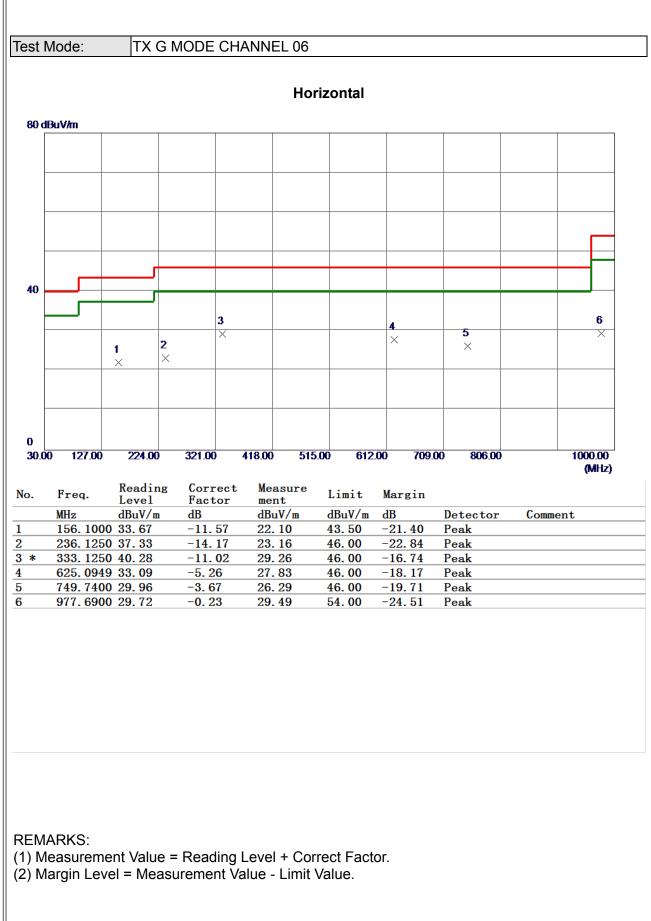






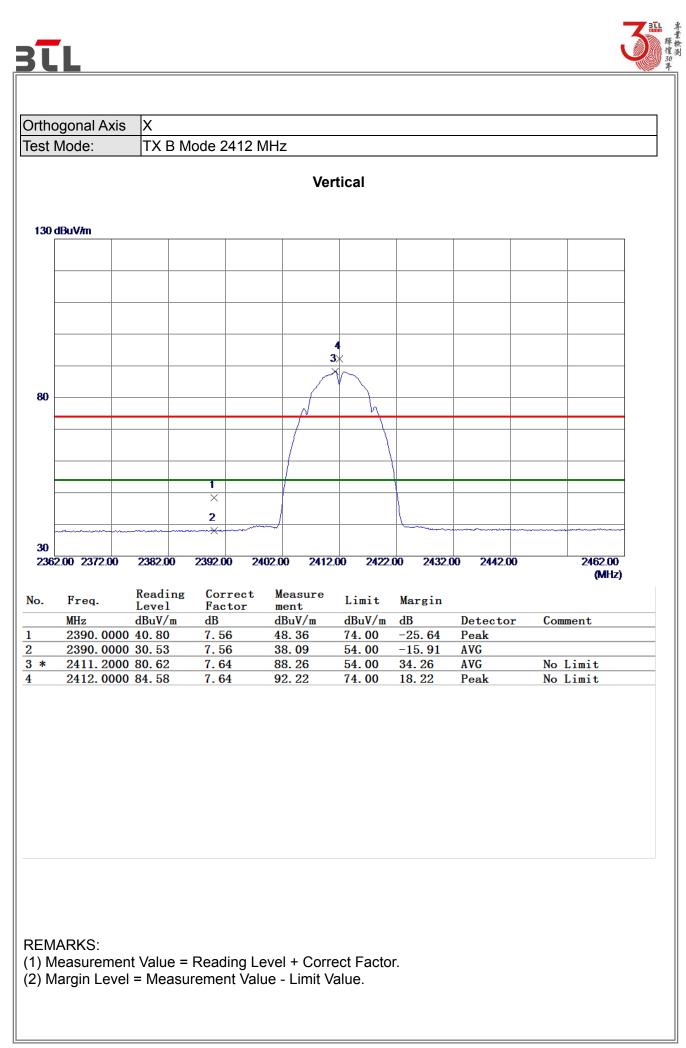


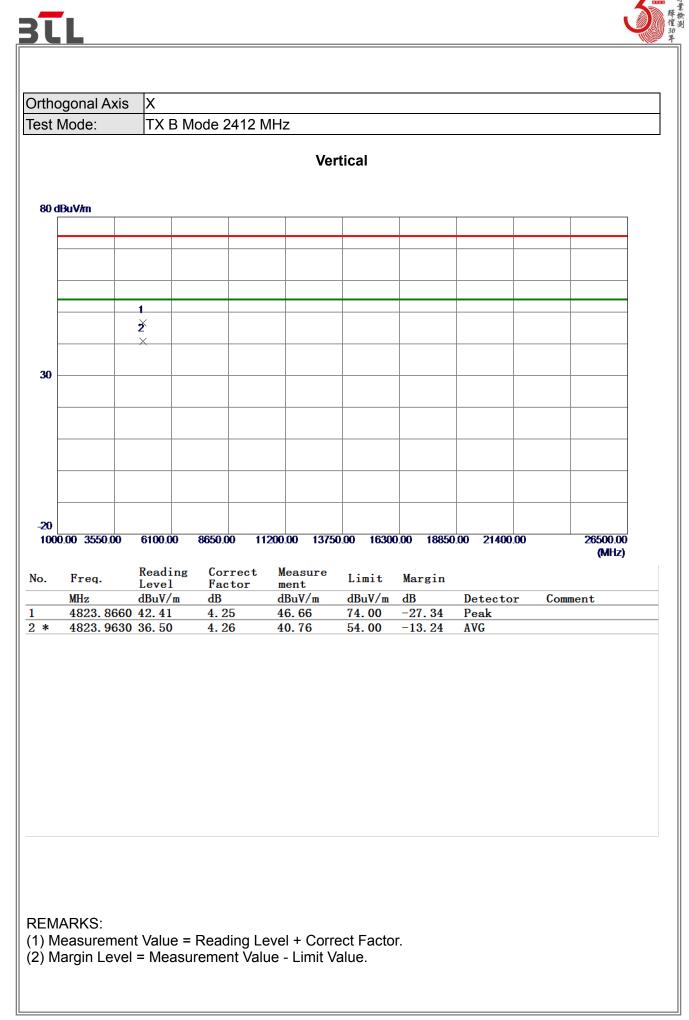


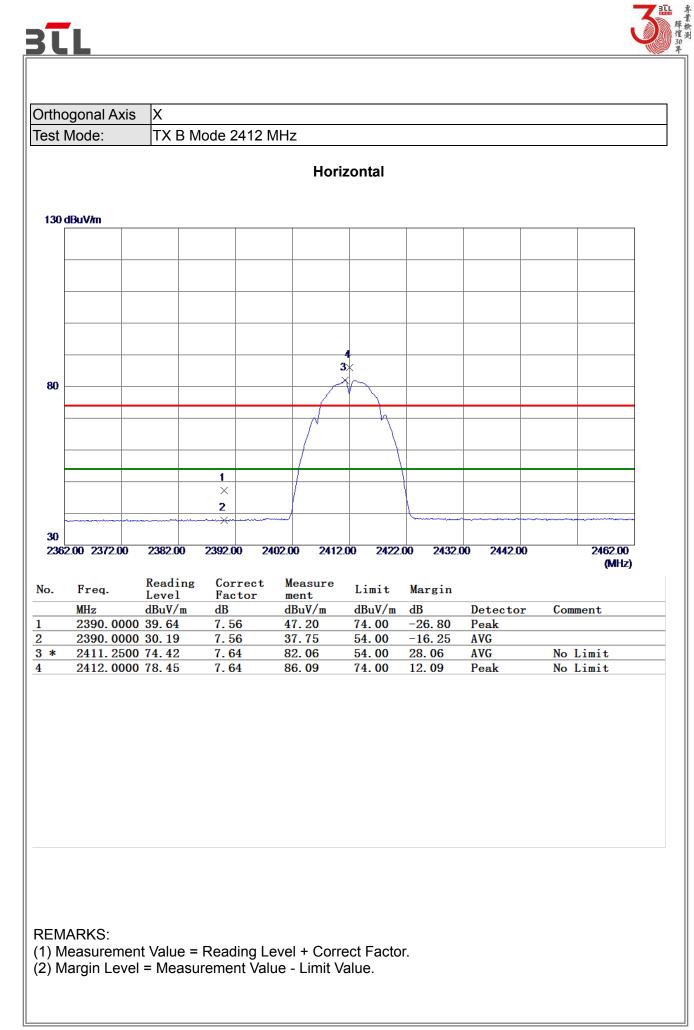




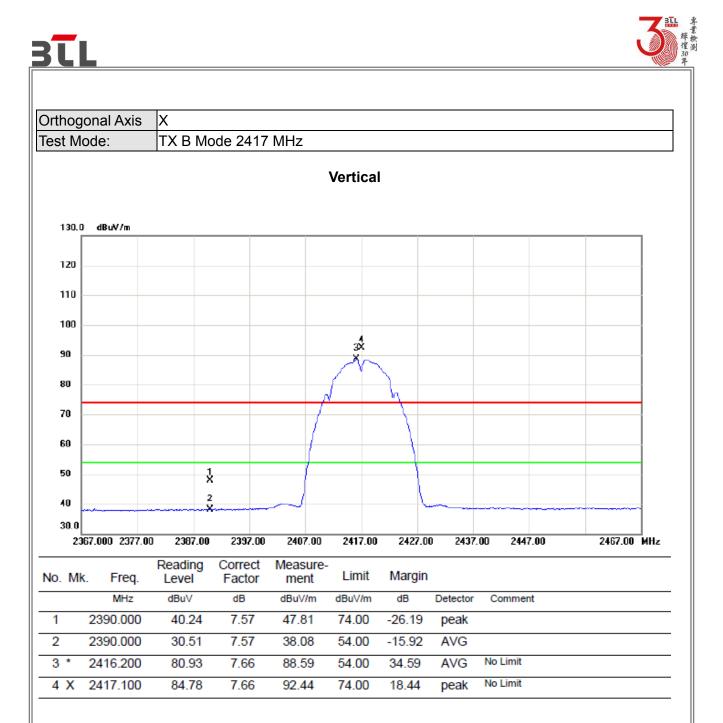
APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ



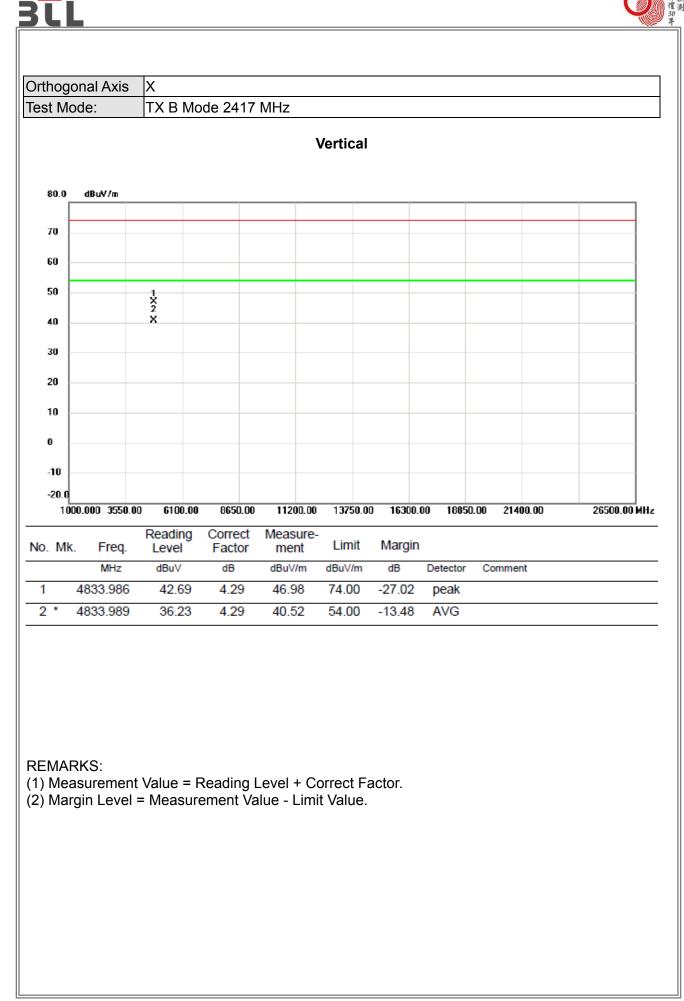


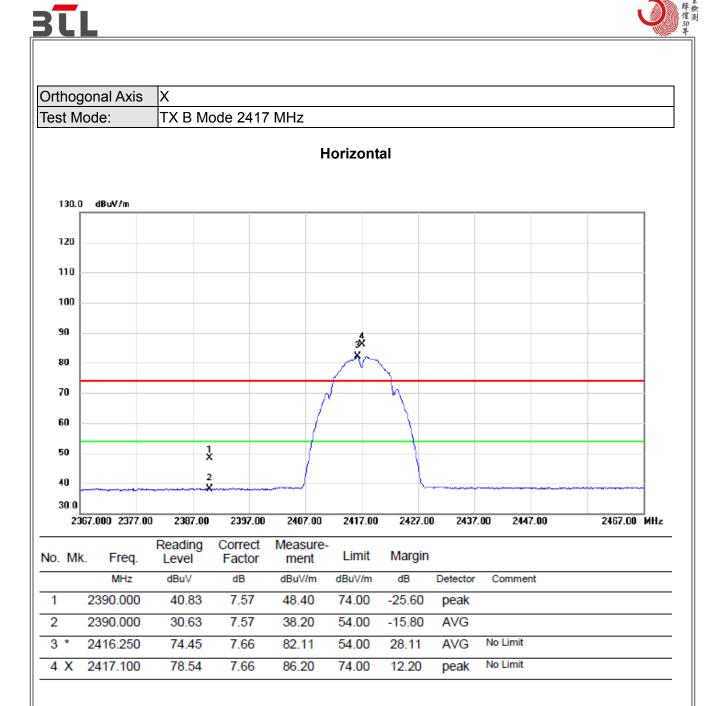




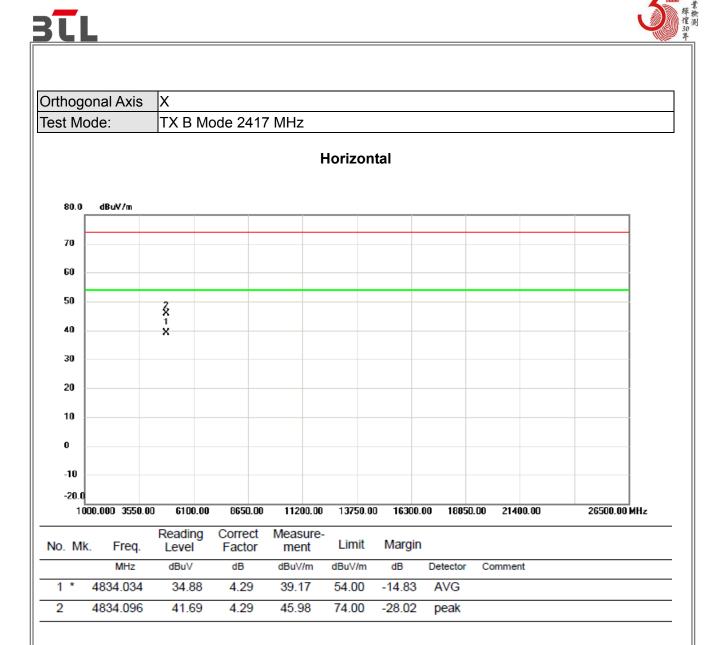


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

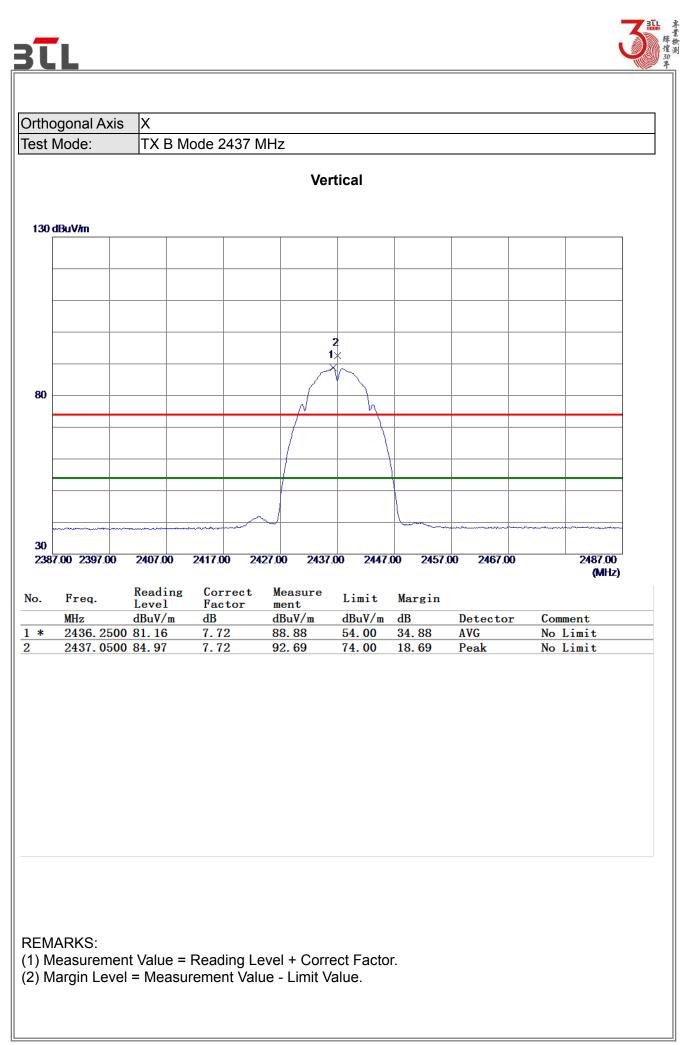


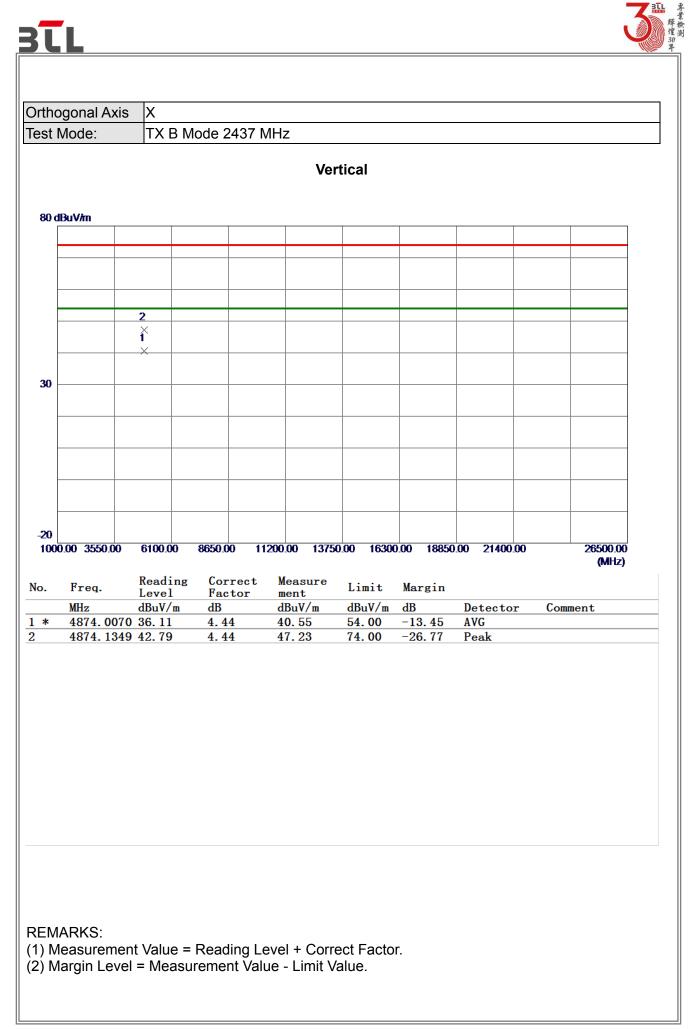


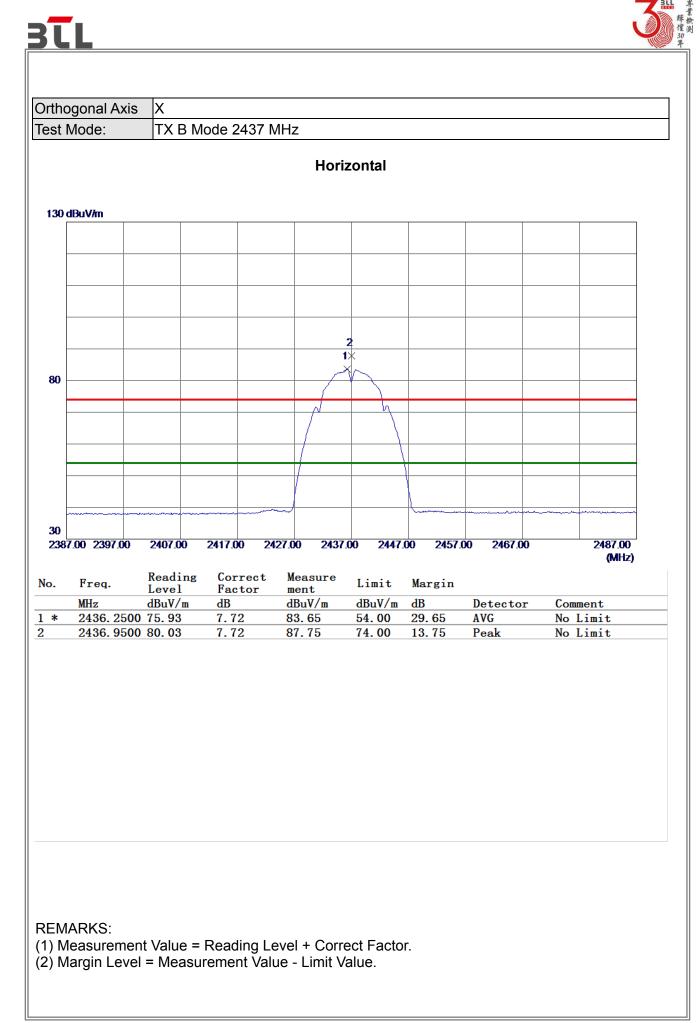
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

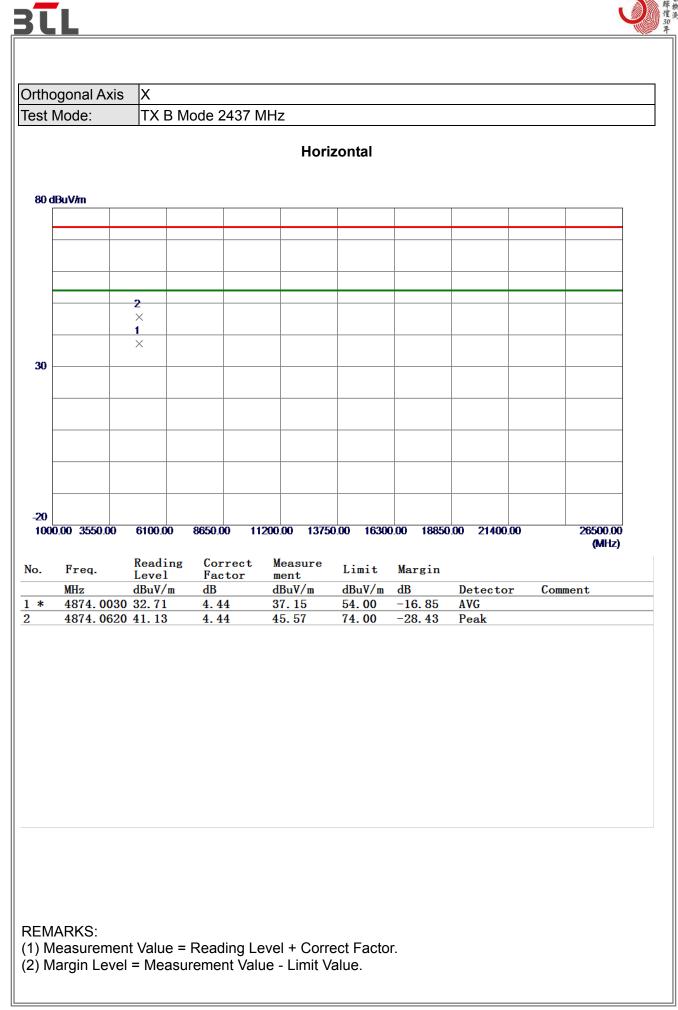


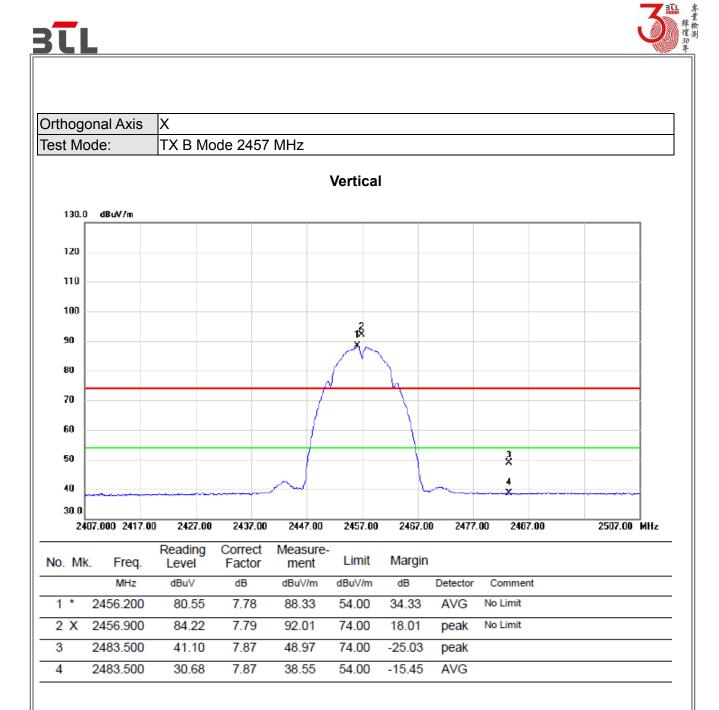
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- (2) Margin Level = Measurement Value Limit Value.



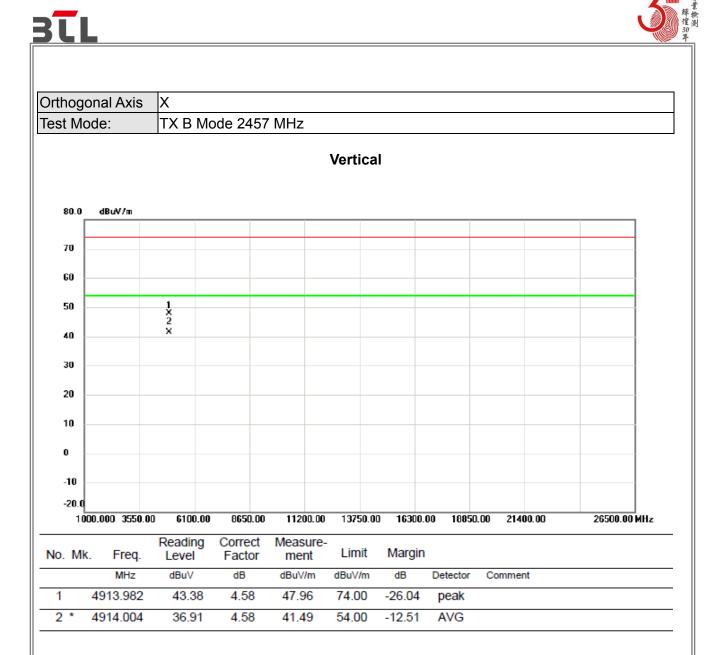




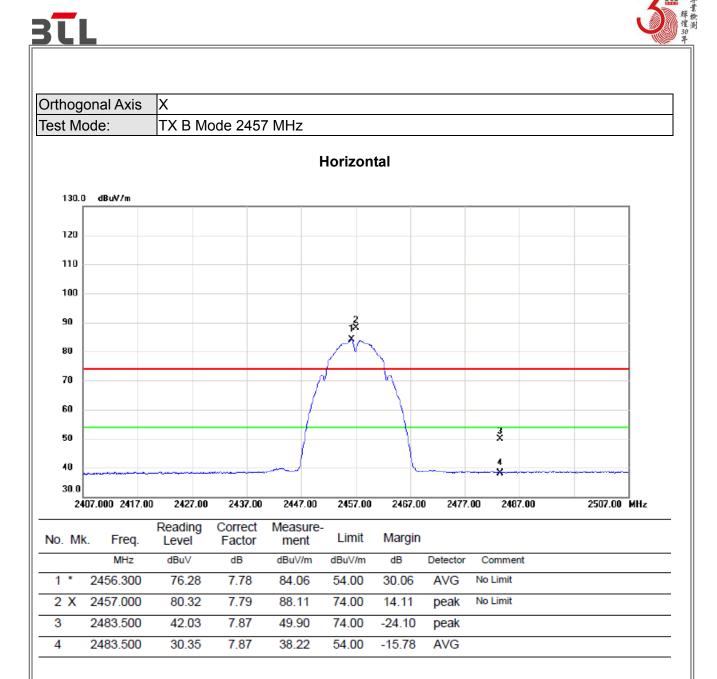




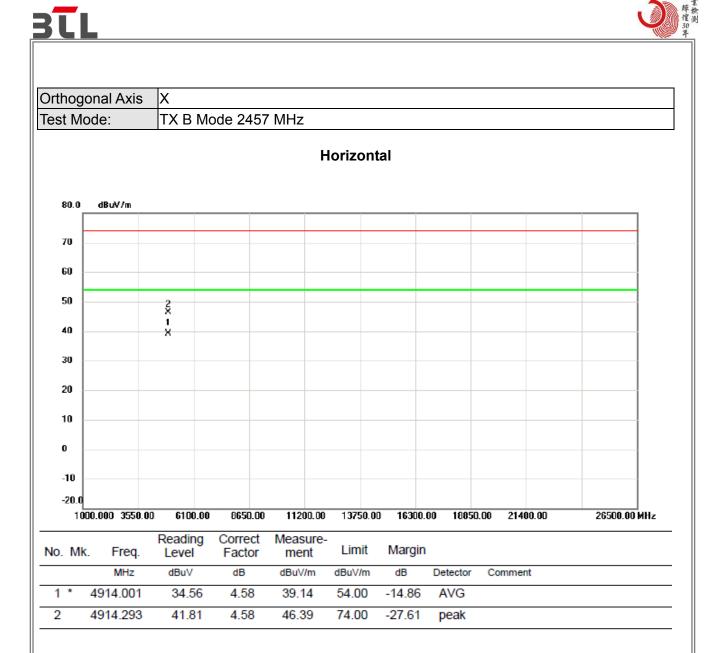
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- (2) Margin Level = Measurement Value Limit Value.



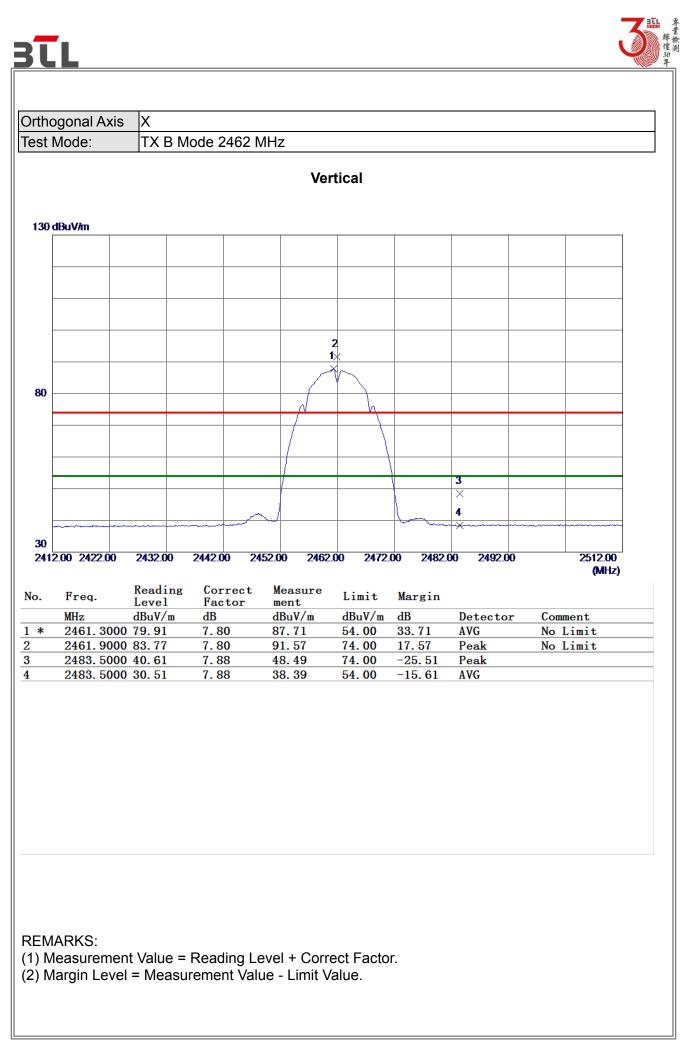
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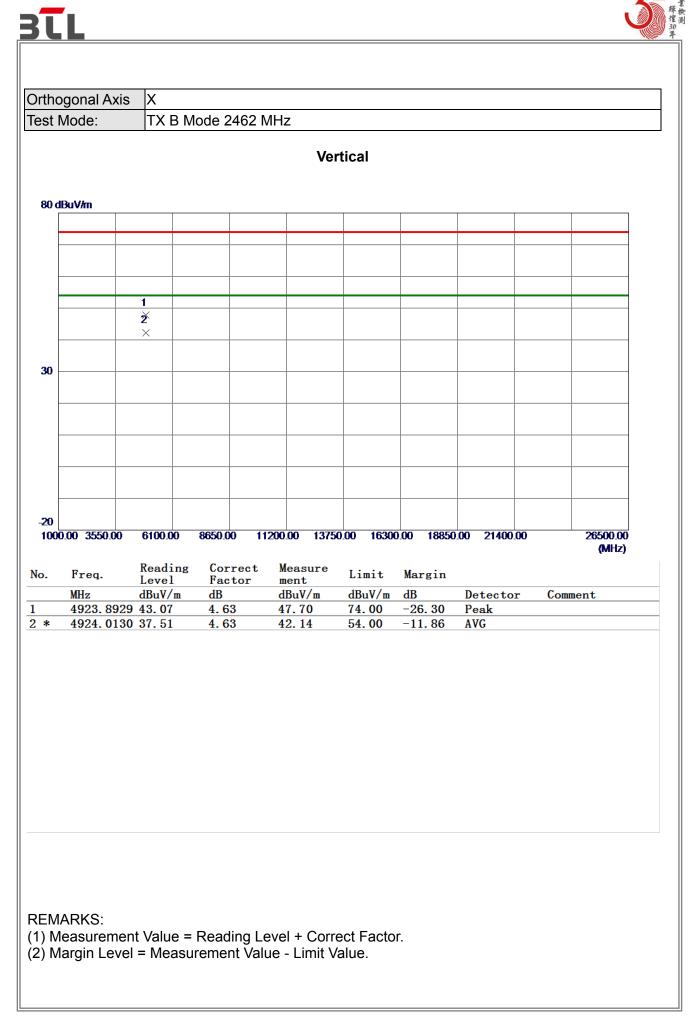


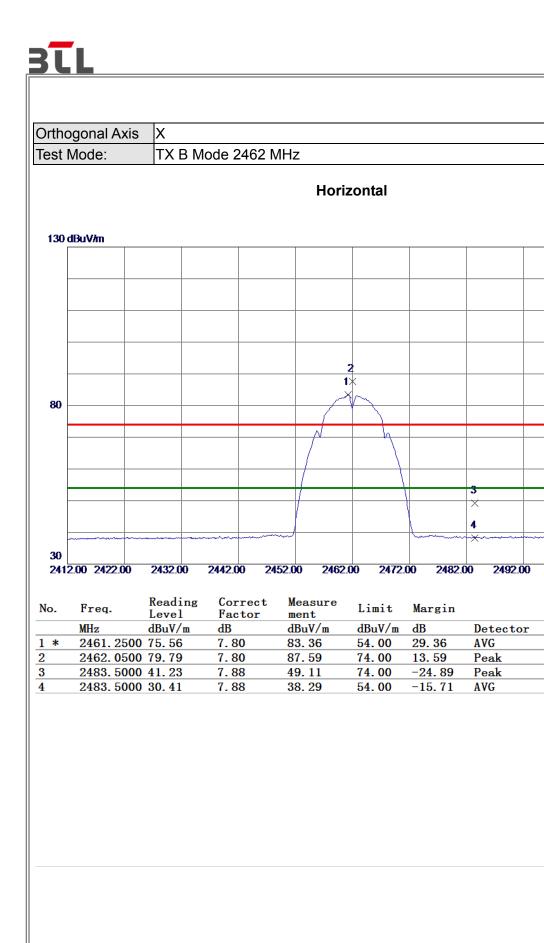
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



- (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.

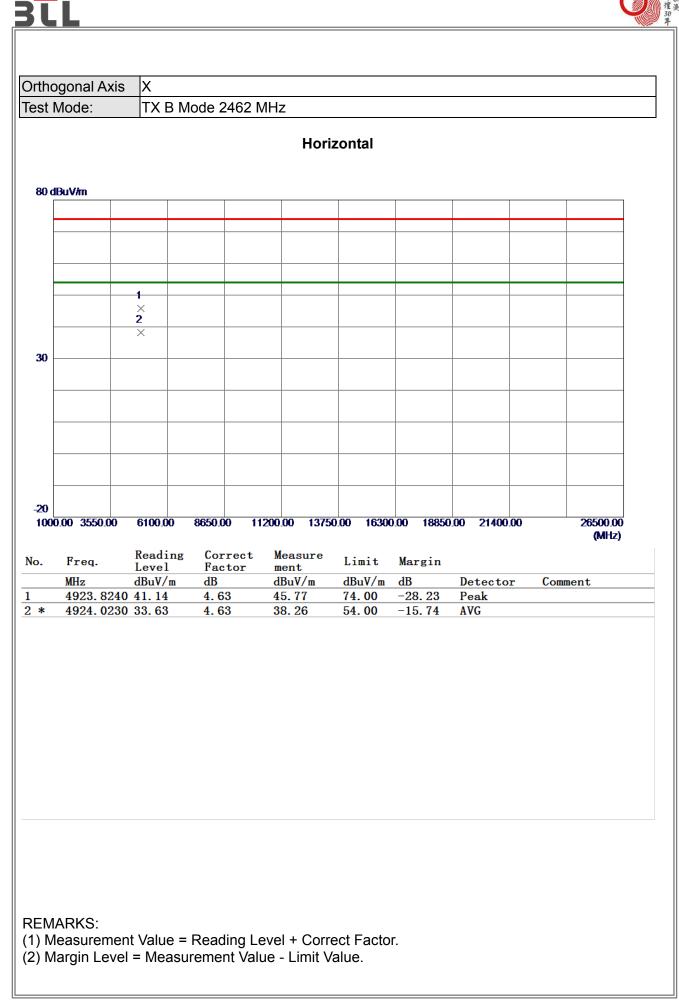
2512.00 (MHz)

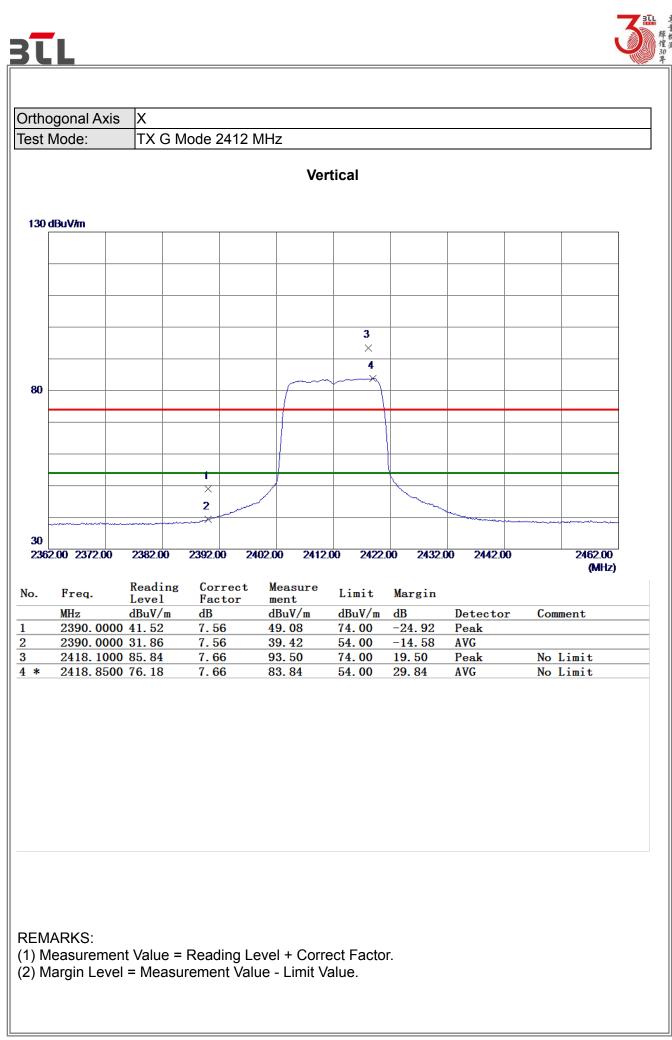
Comment

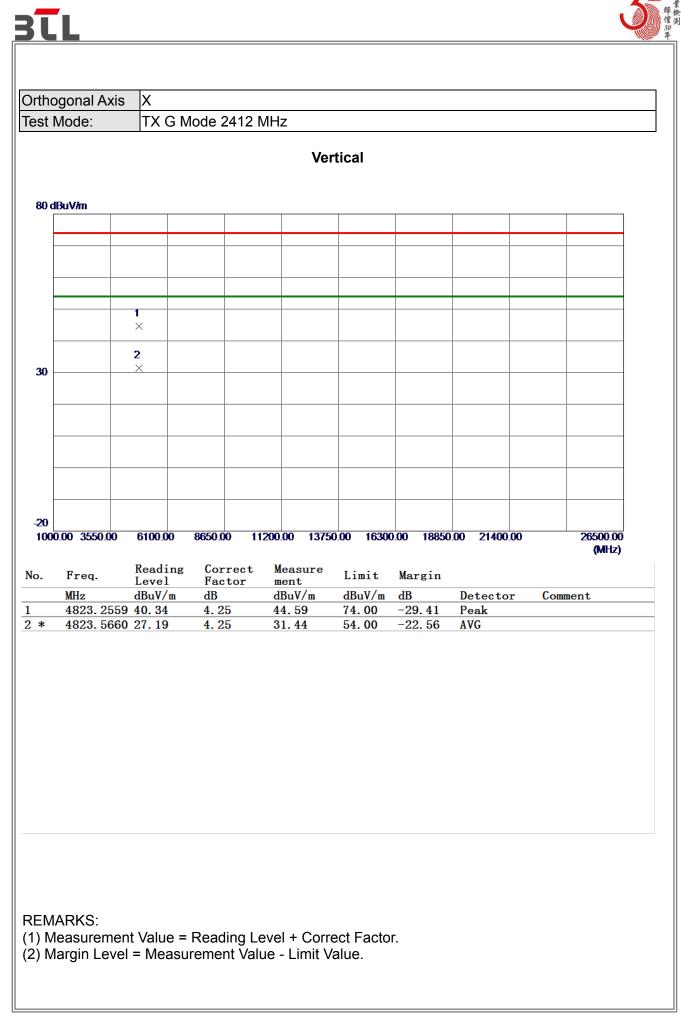
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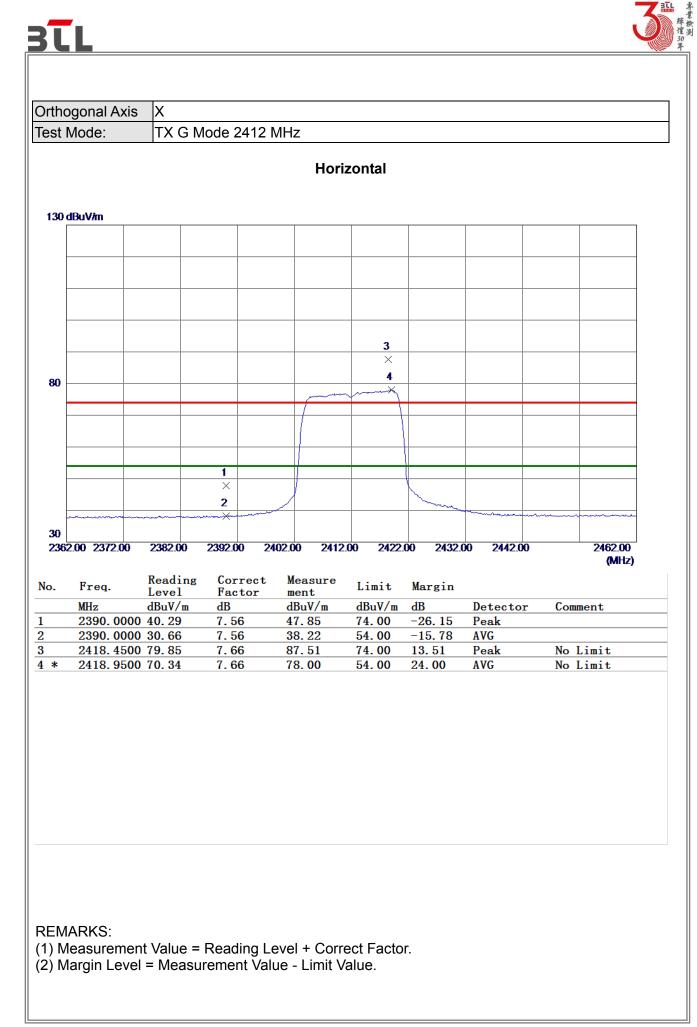
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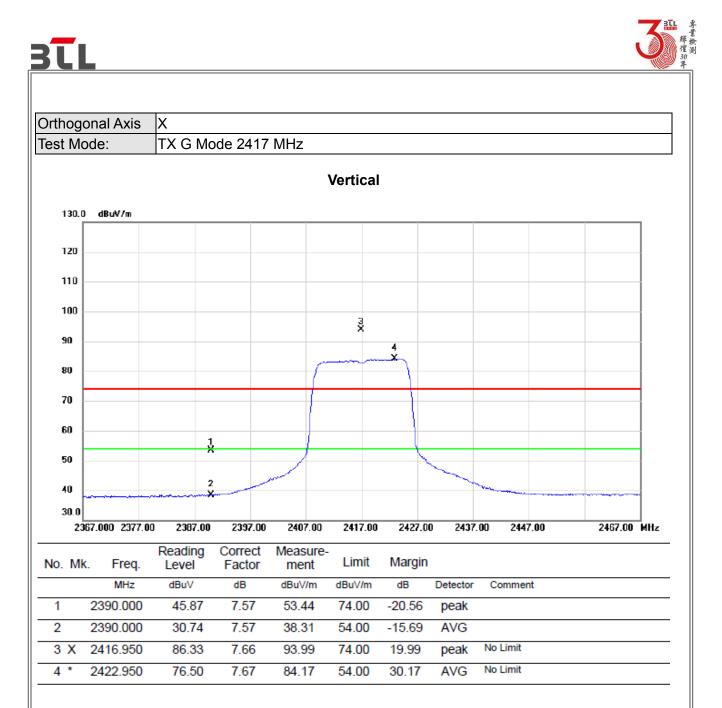




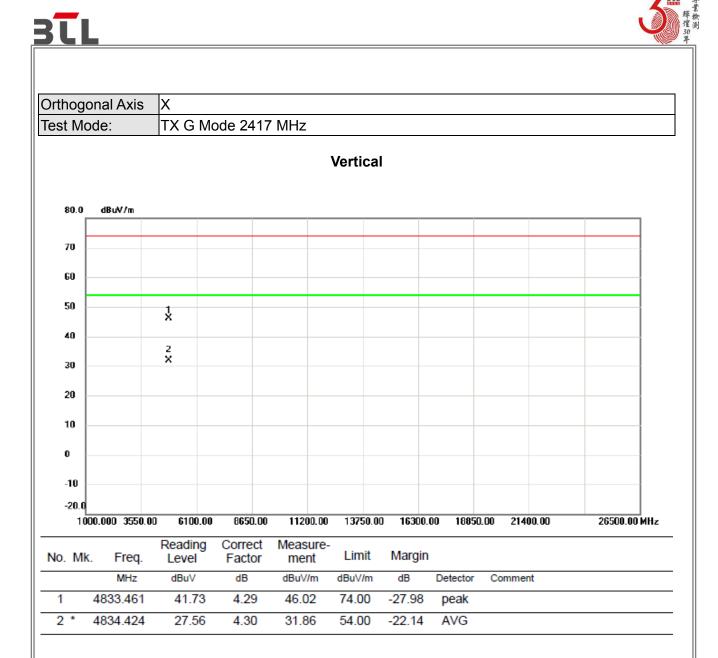




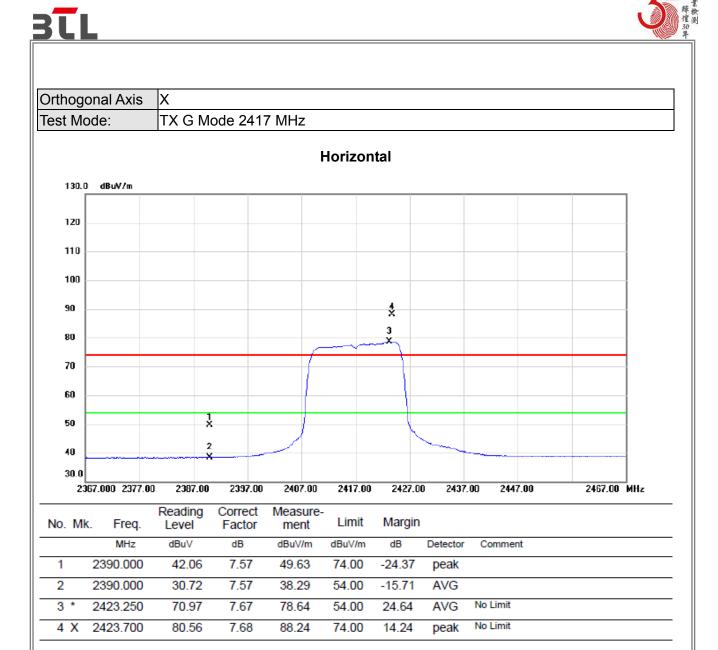




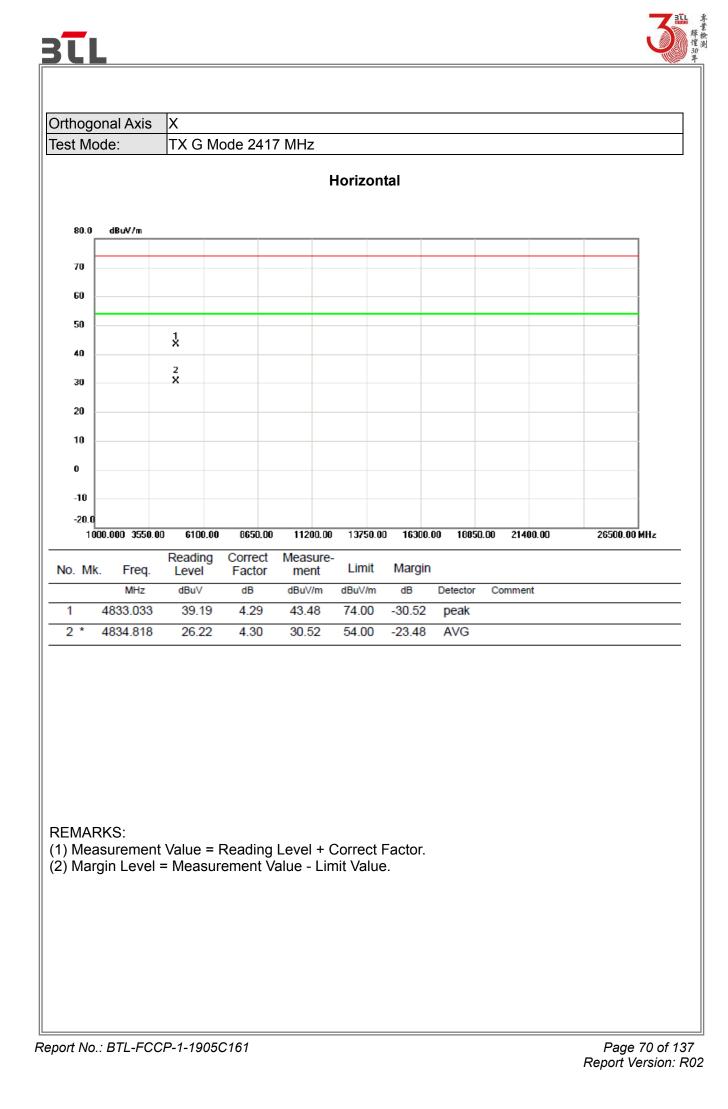
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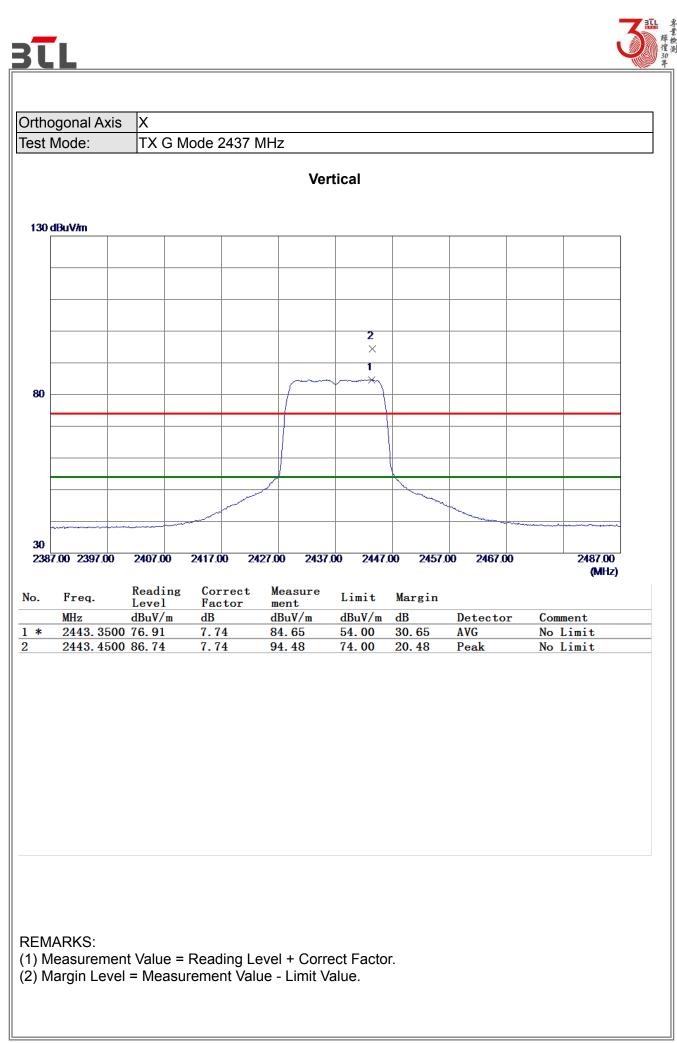


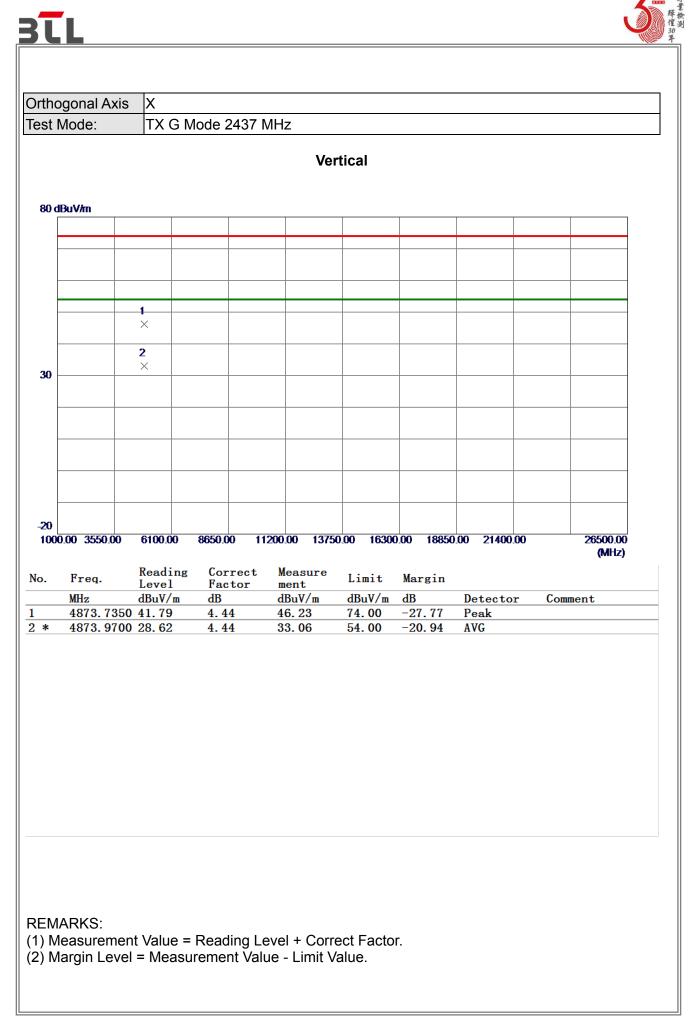
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- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

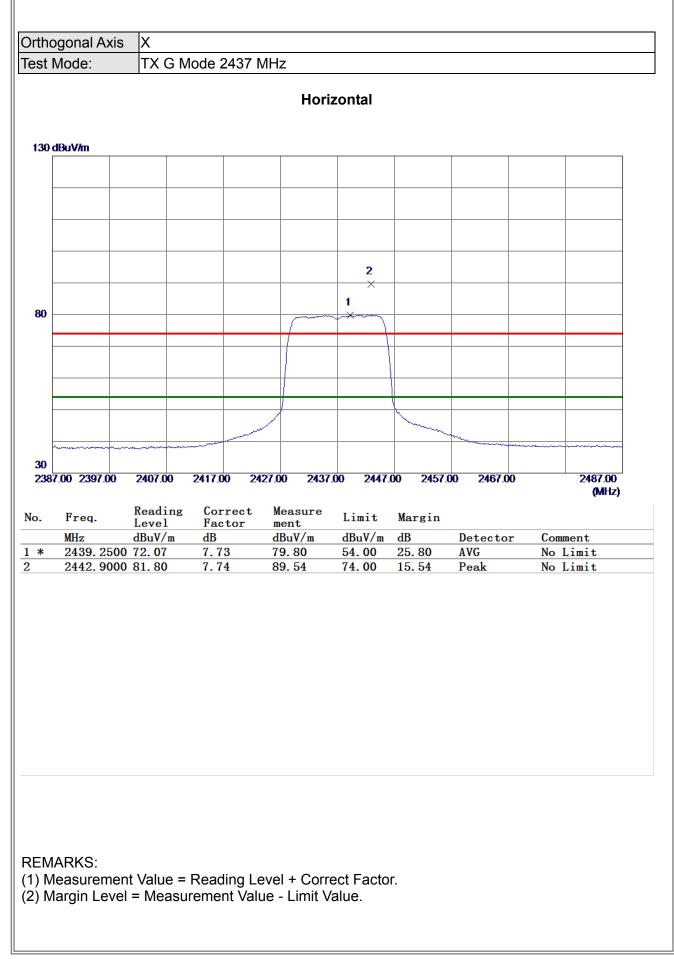


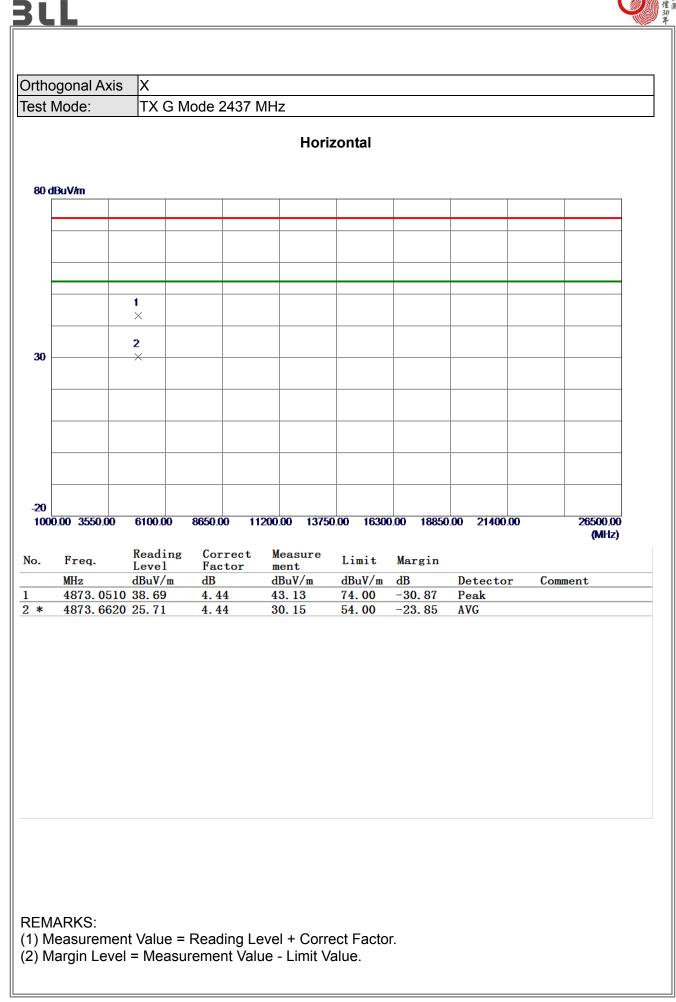


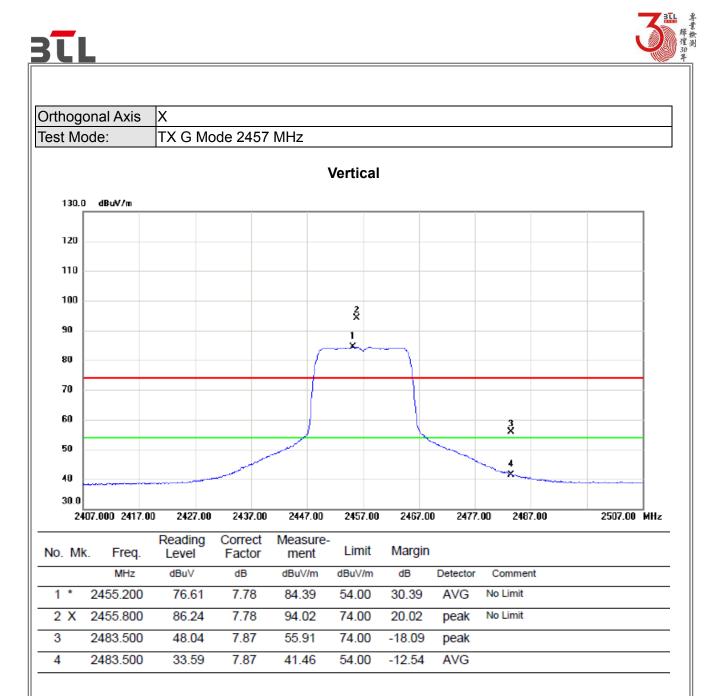




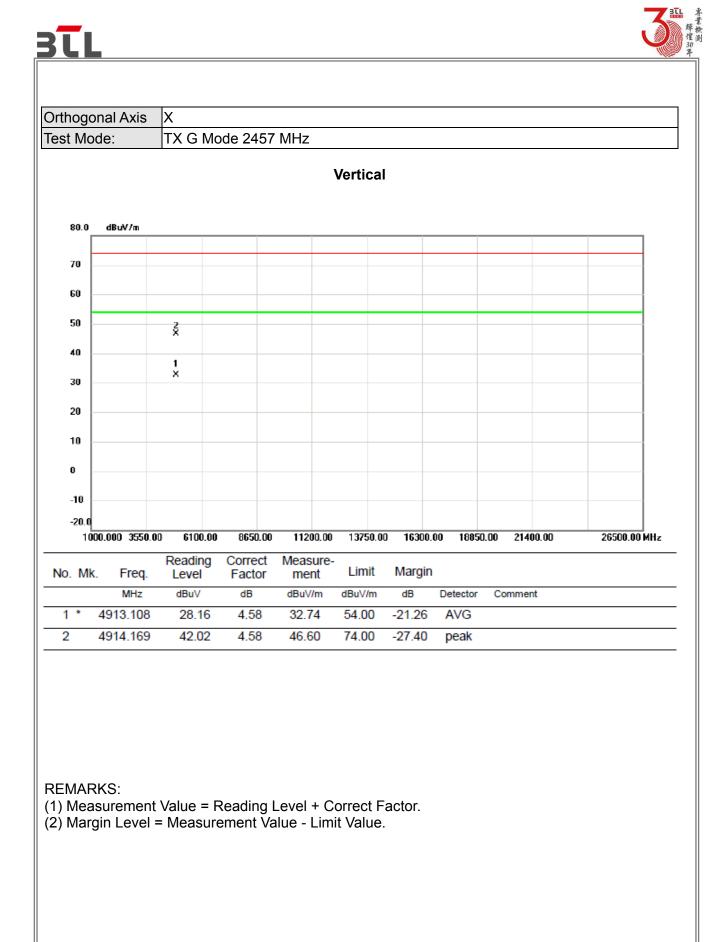


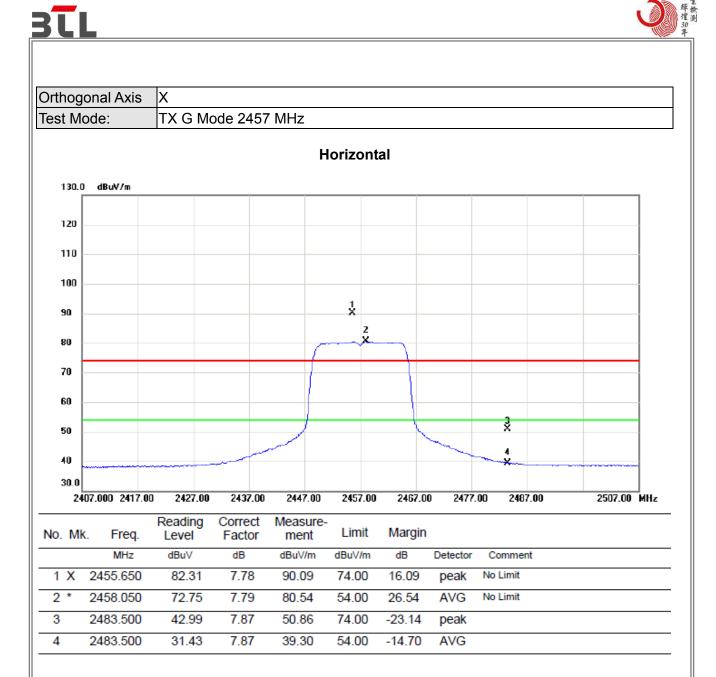




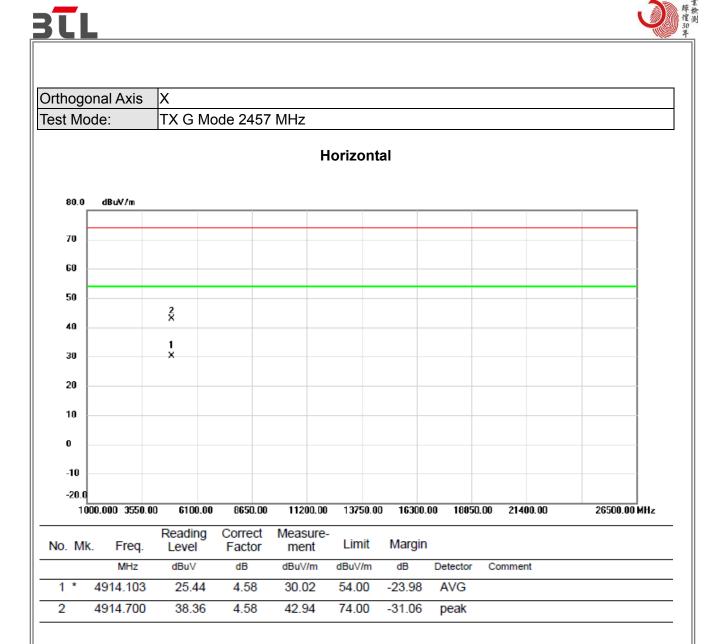


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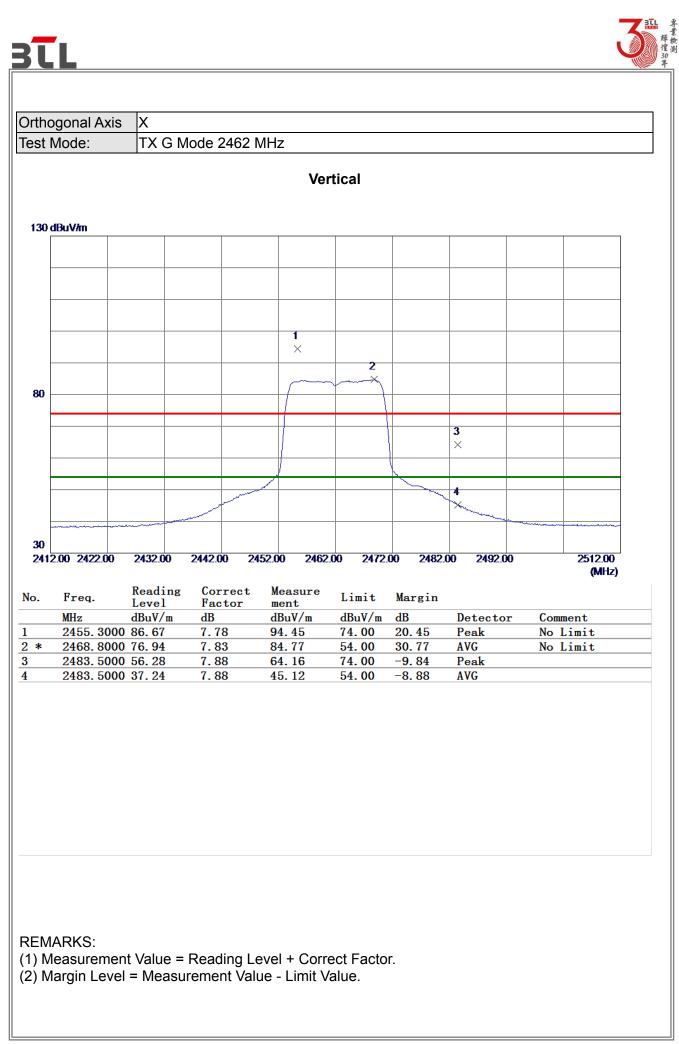


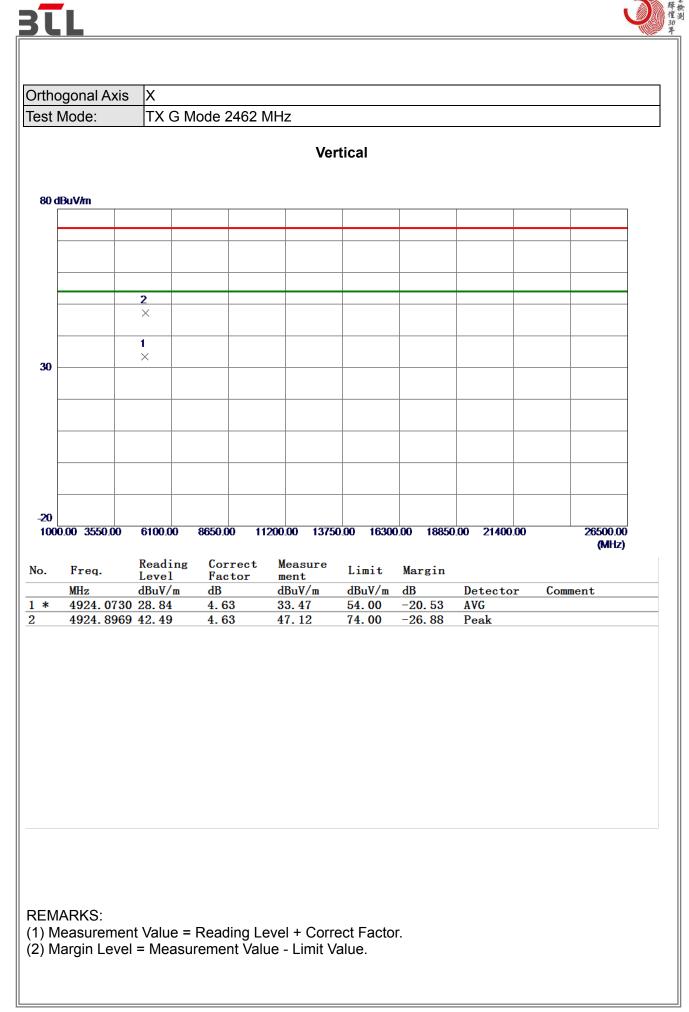


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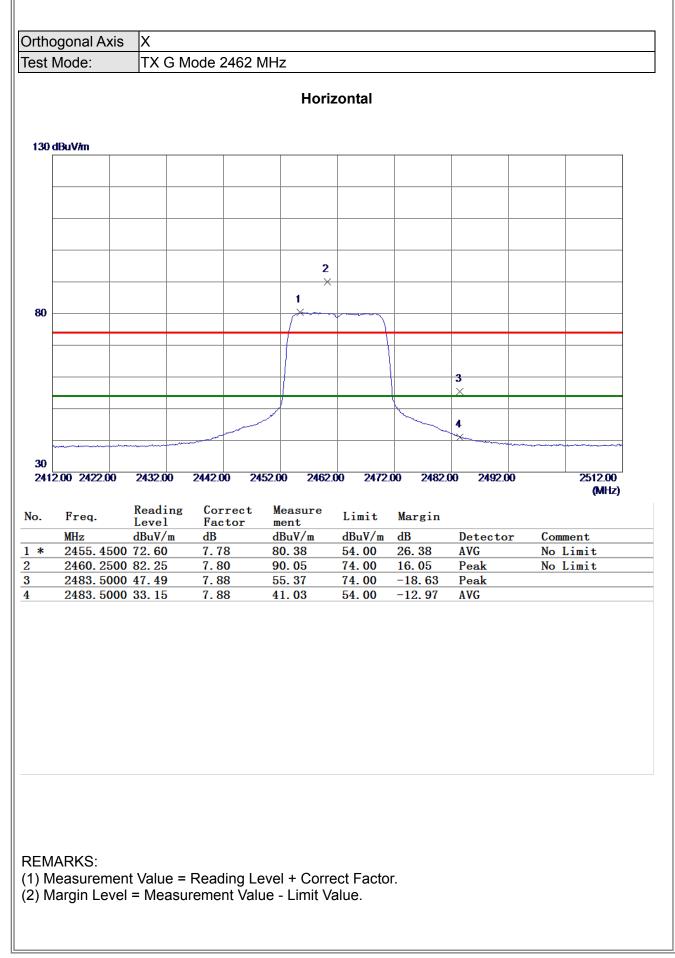
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- (2) Margin Level = Measurement Value Limit Value.







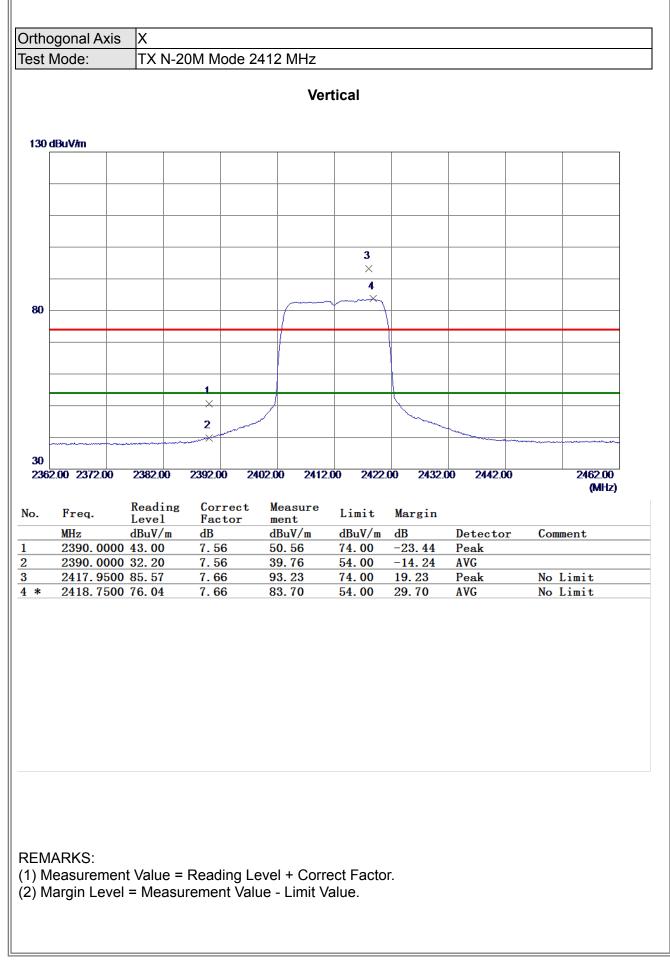


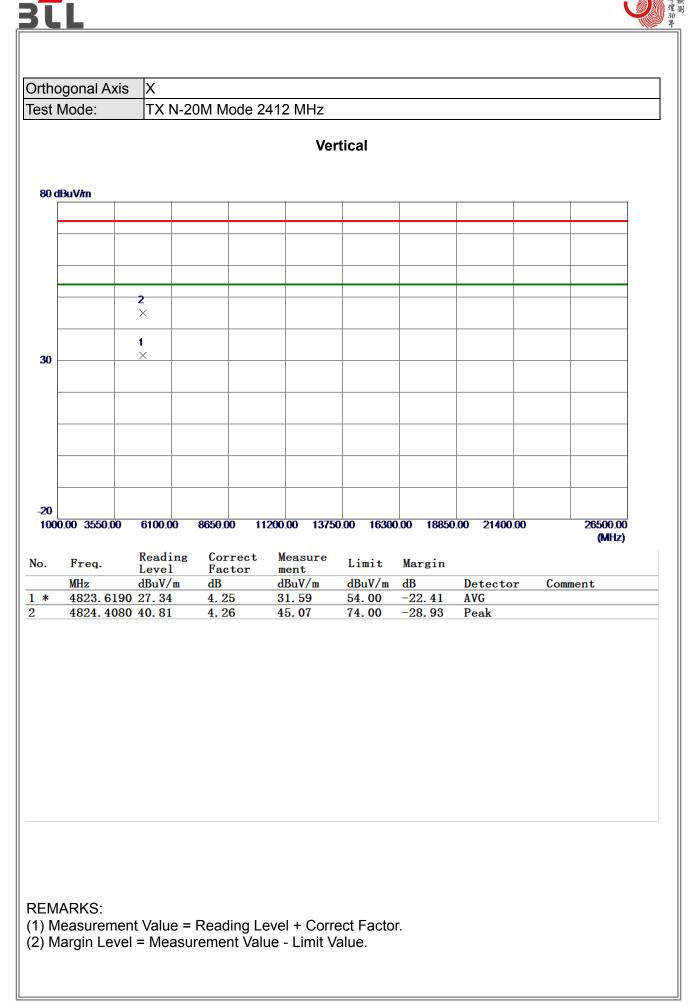






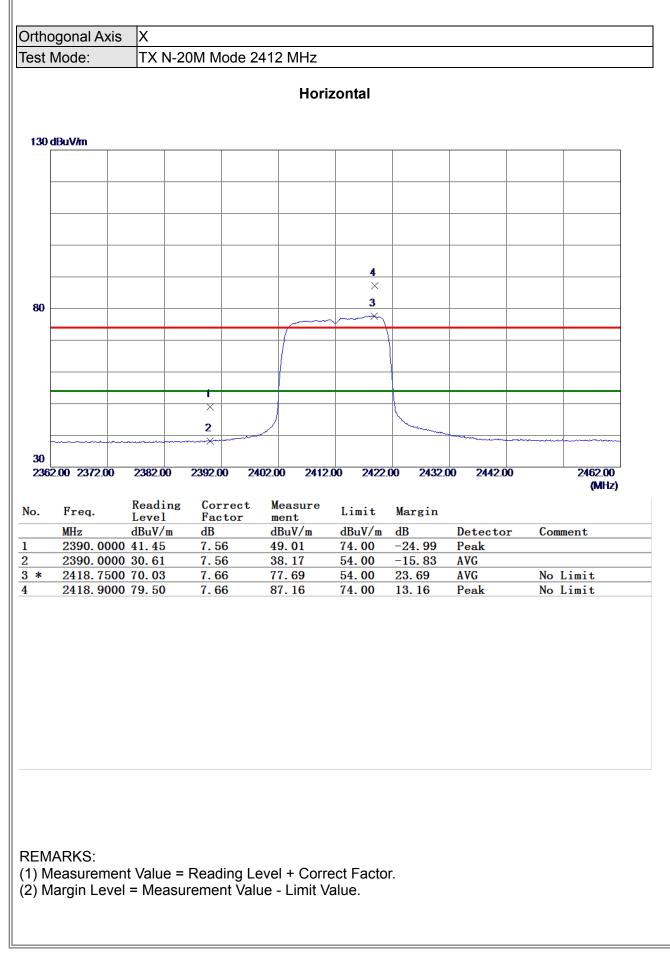


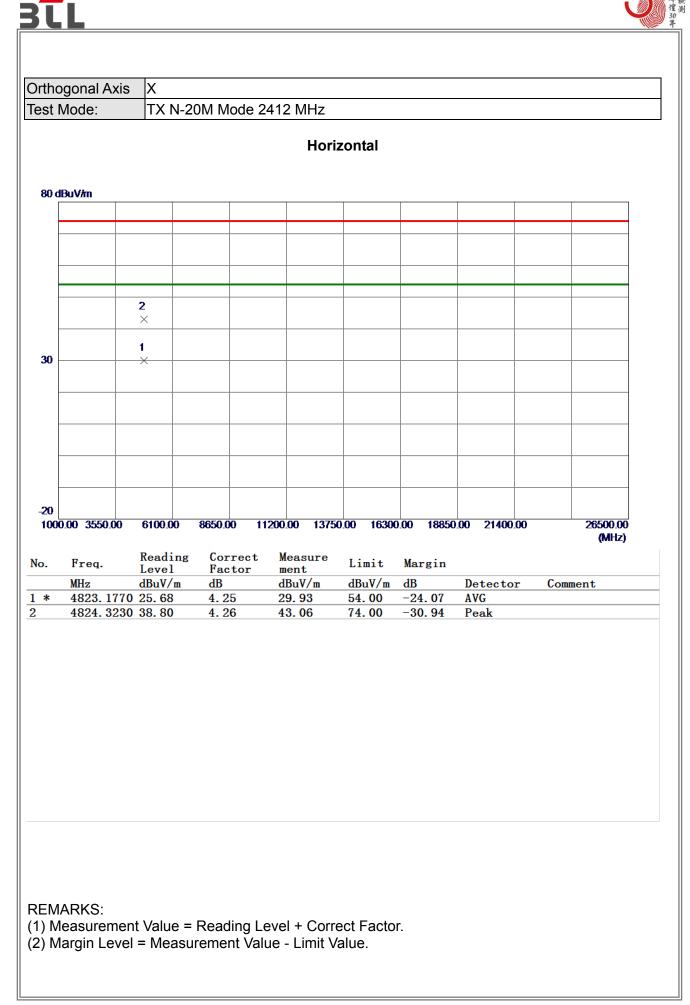


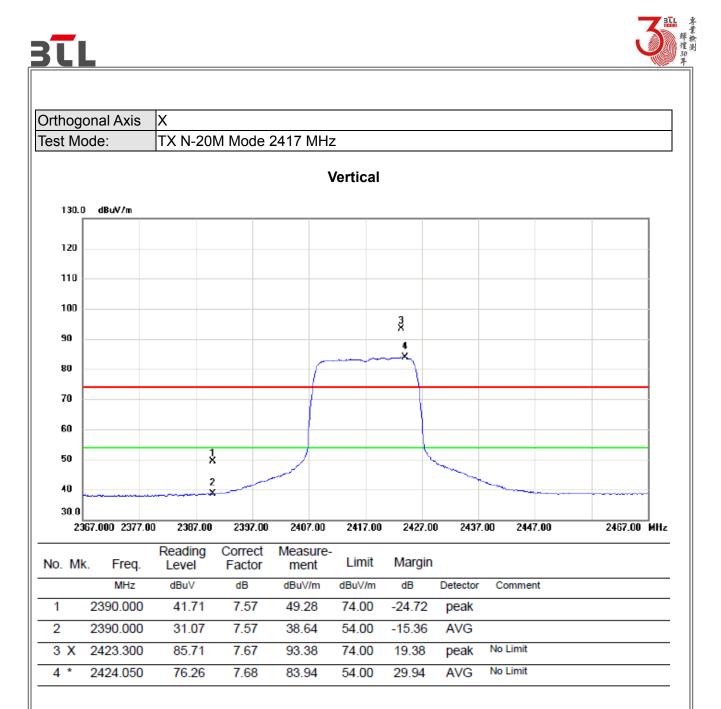




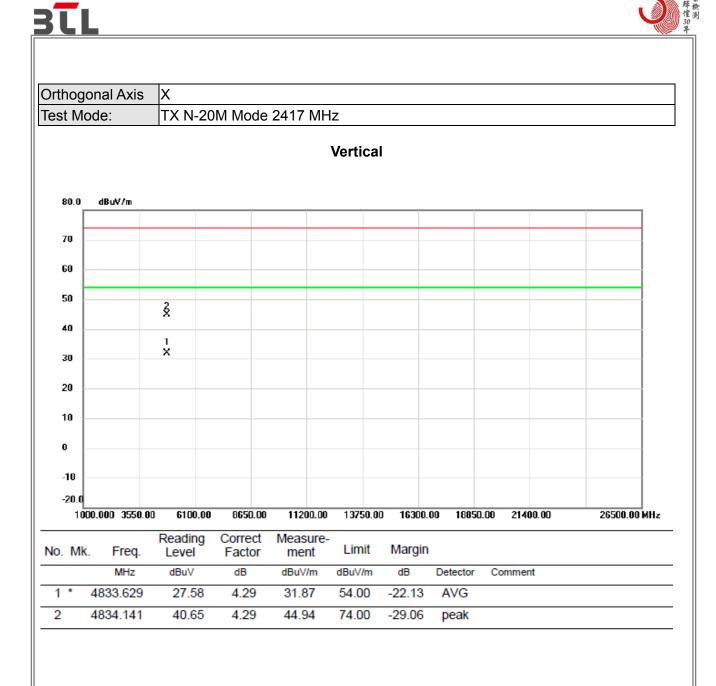




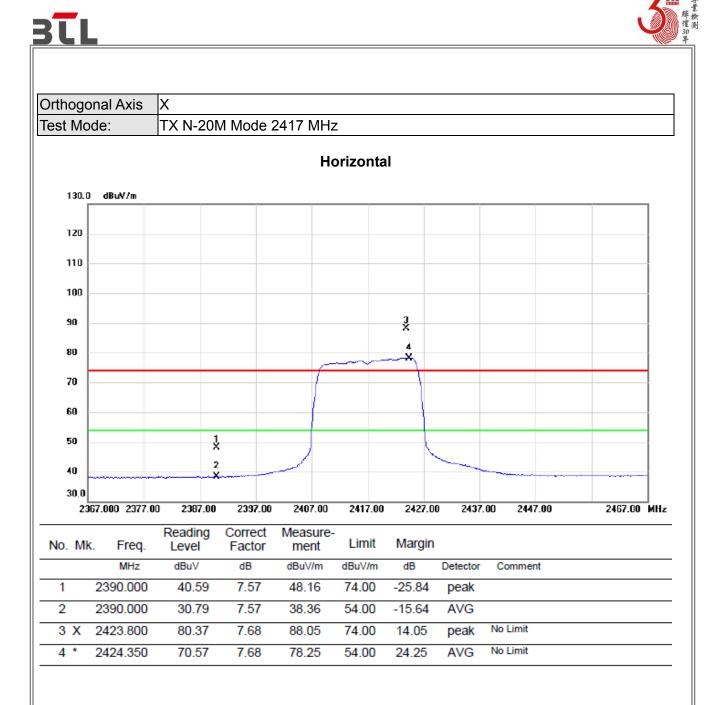




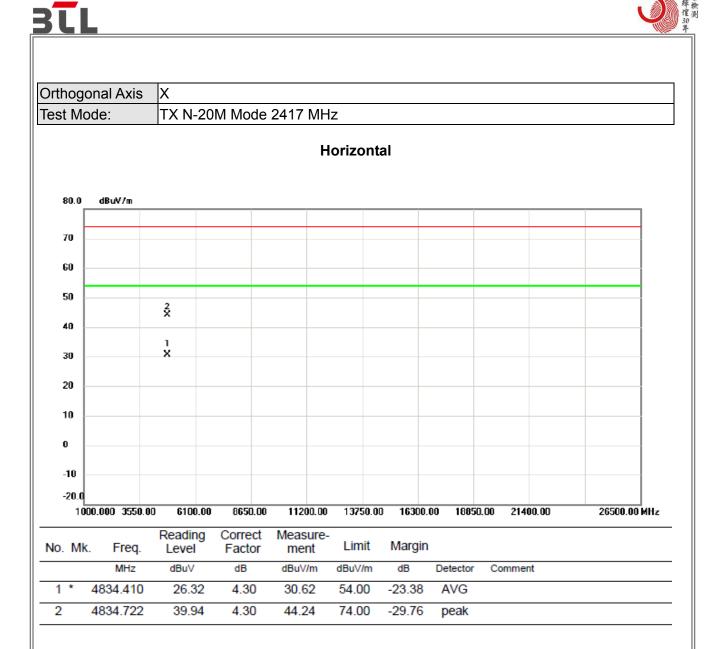
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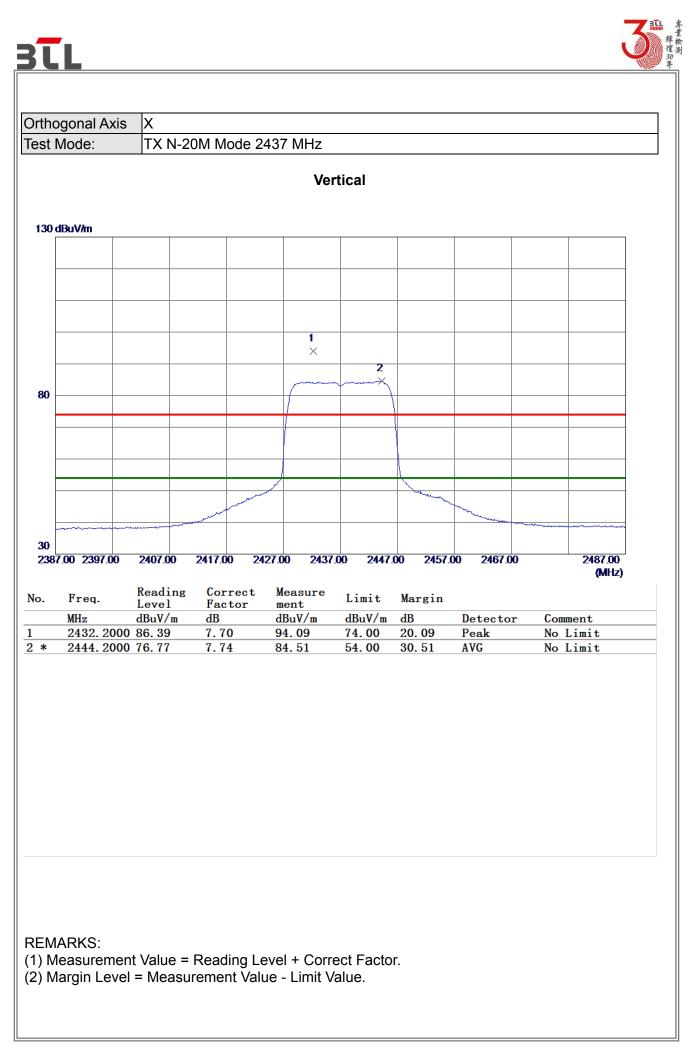
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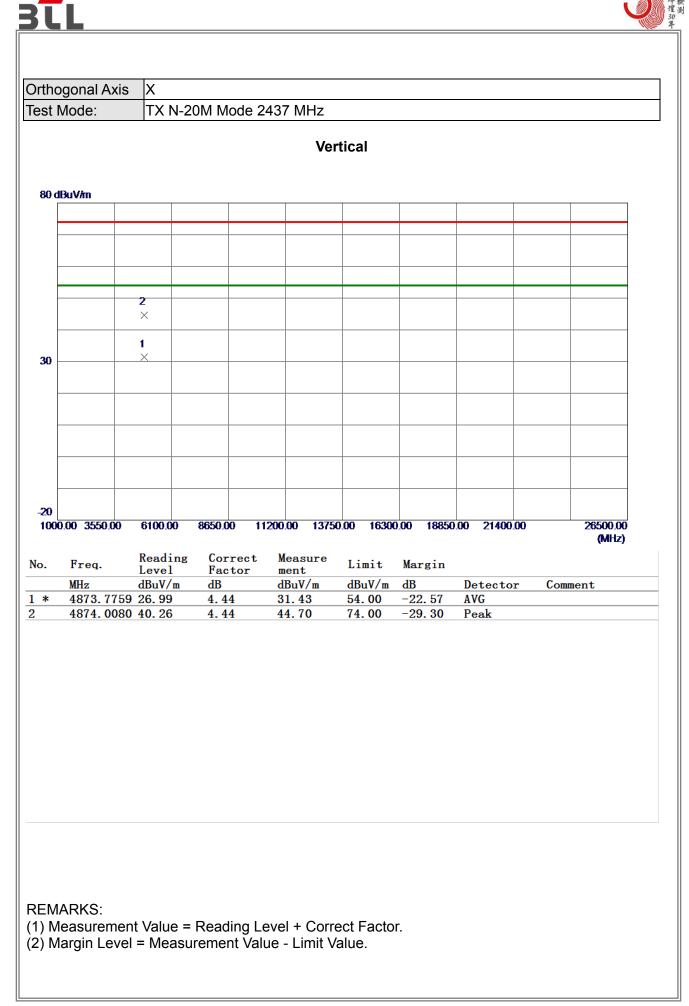


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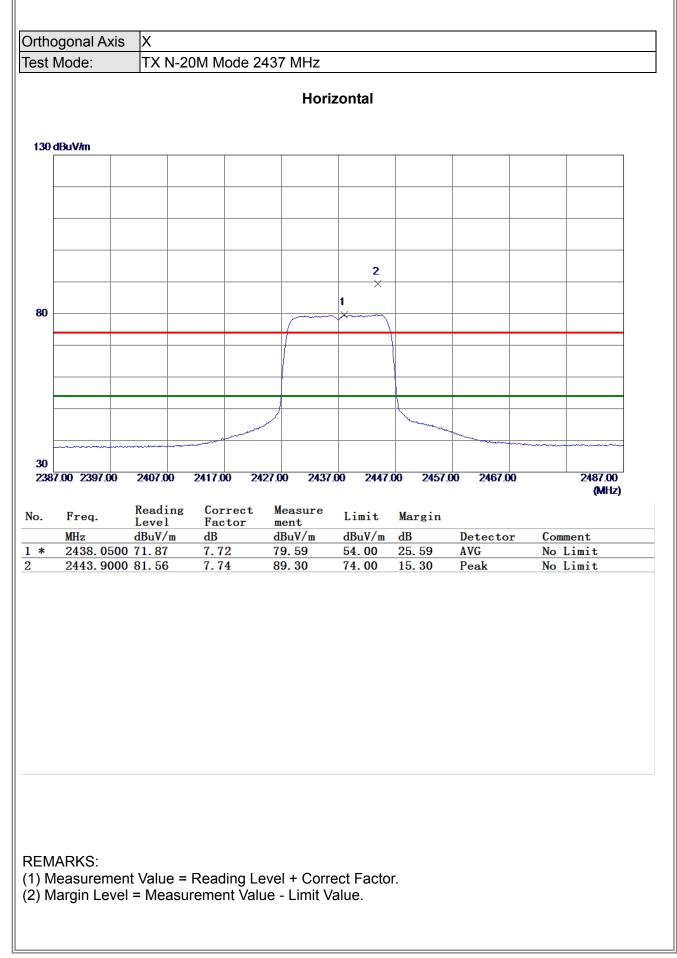
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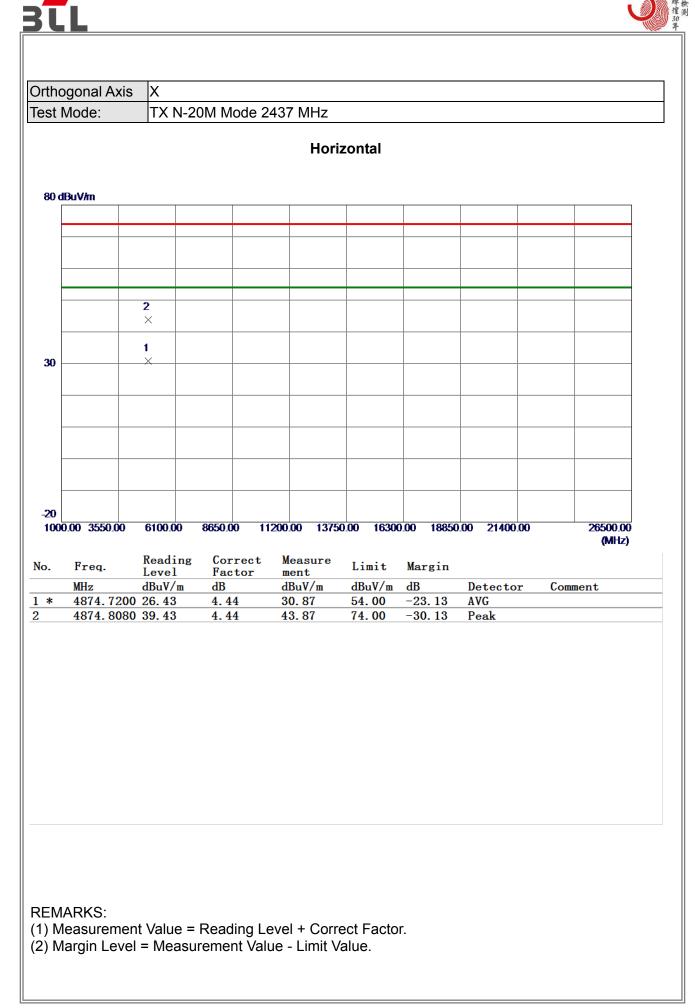


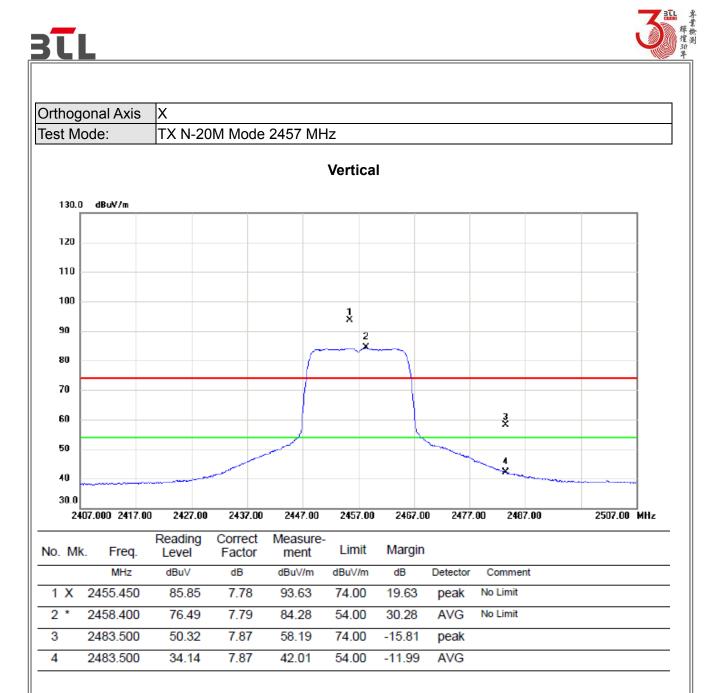




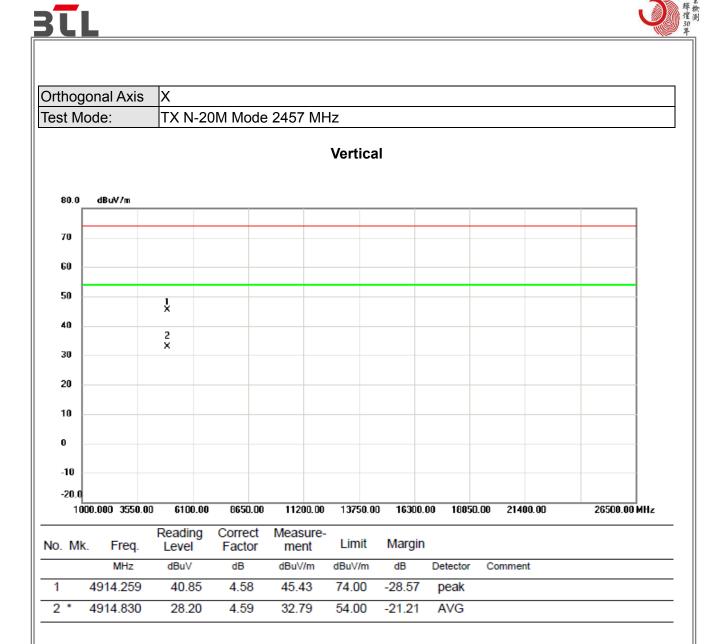




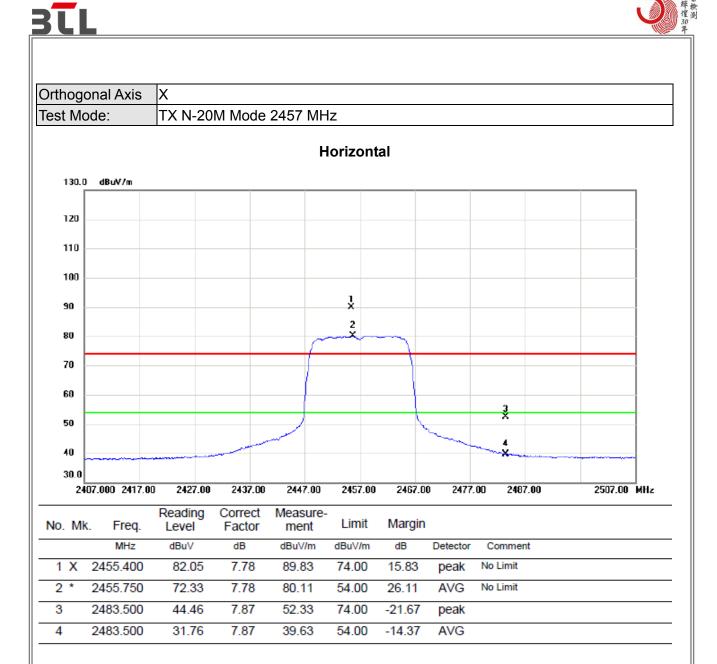




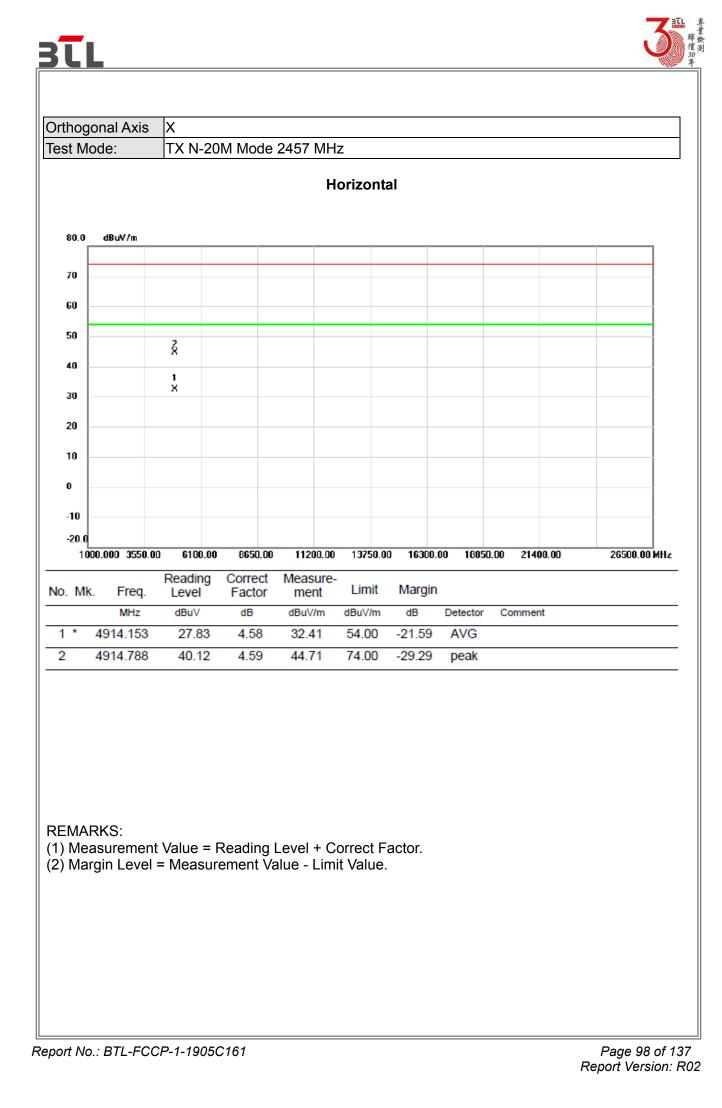
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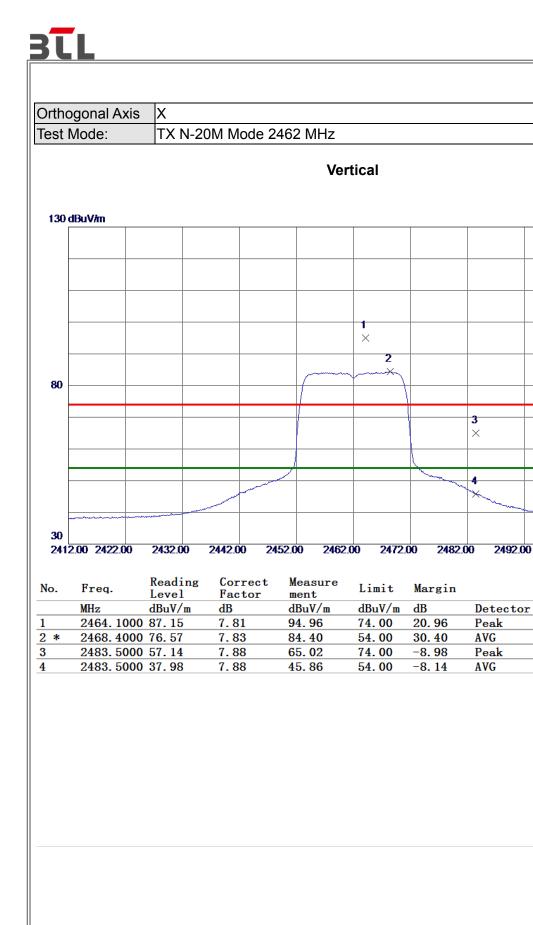


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- (1) Measurement Value = Reading Level + Correct Factor.
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(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

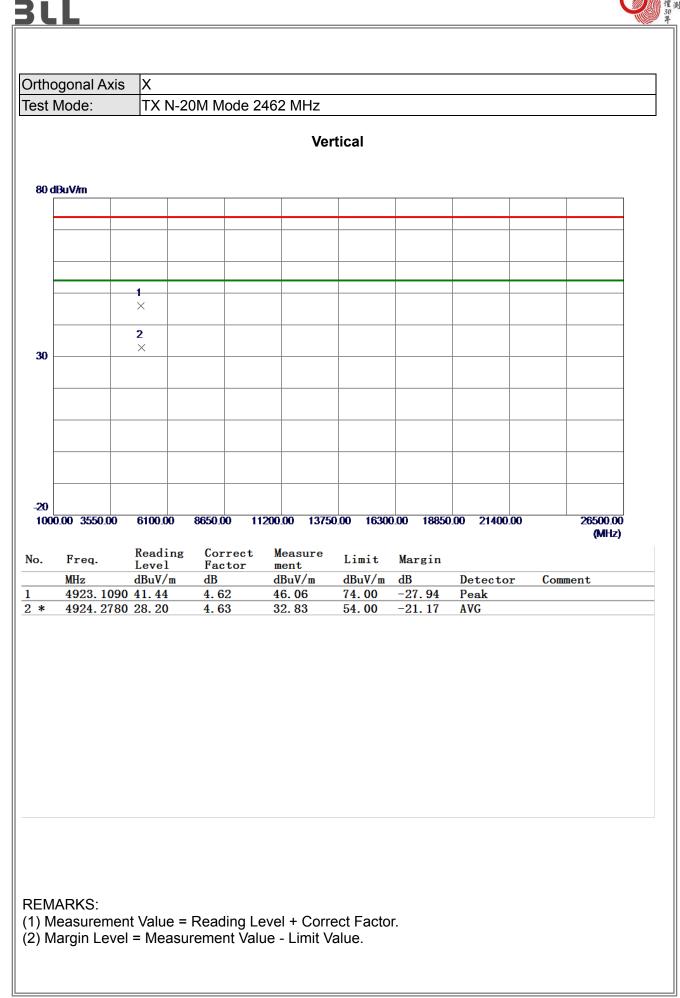
2512.00 (MHz)

Comment

No Limit

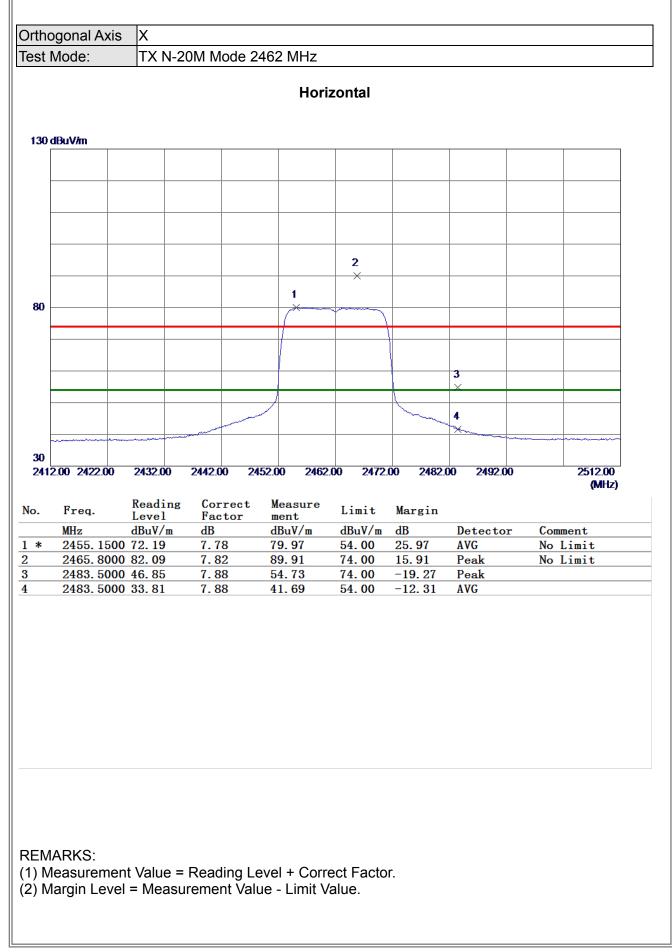
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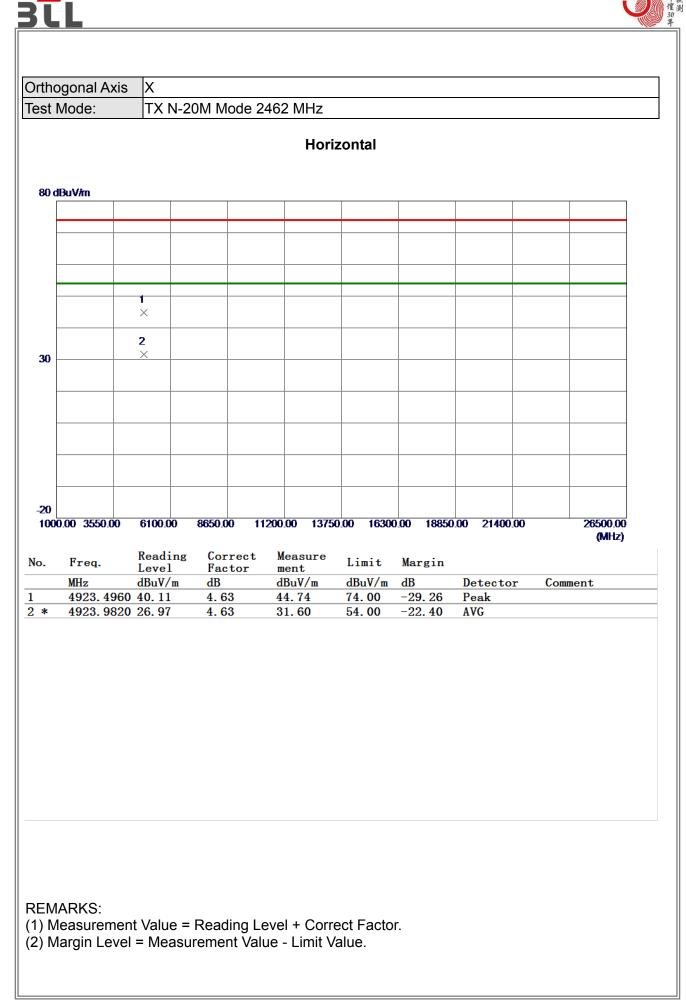






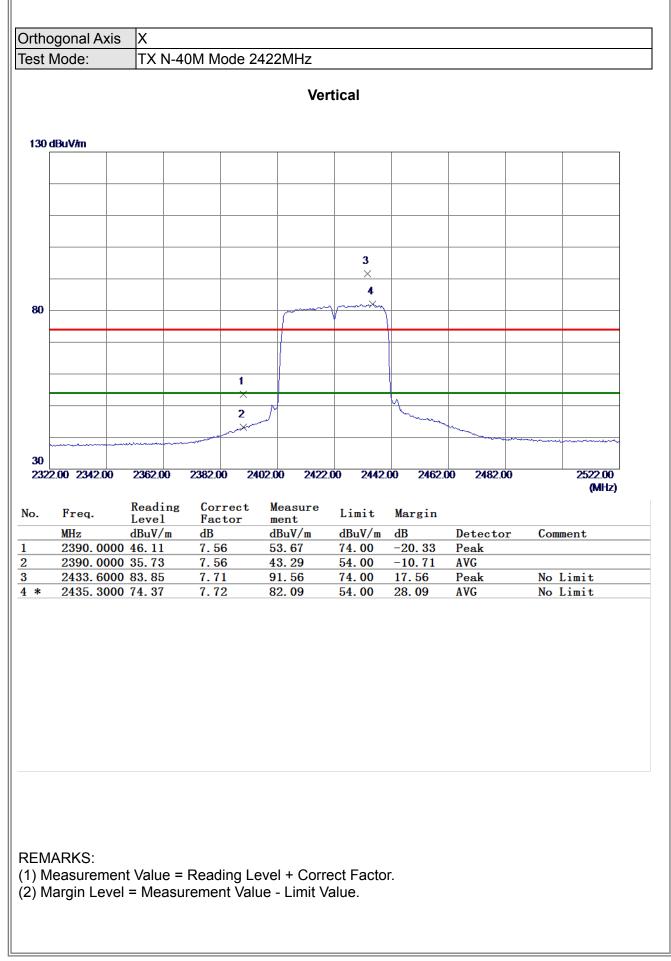


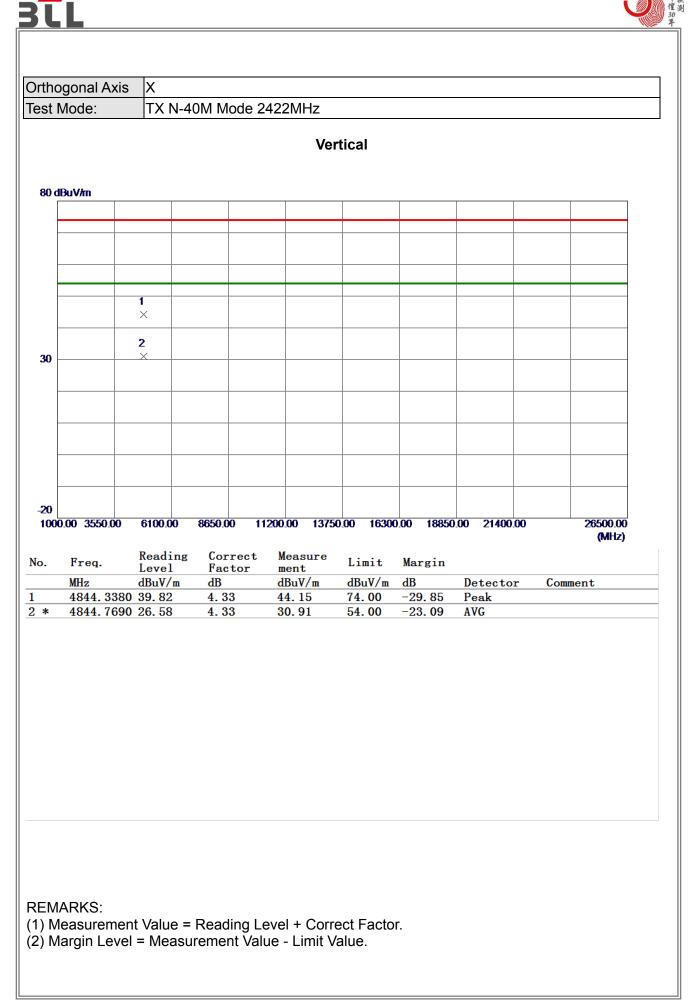






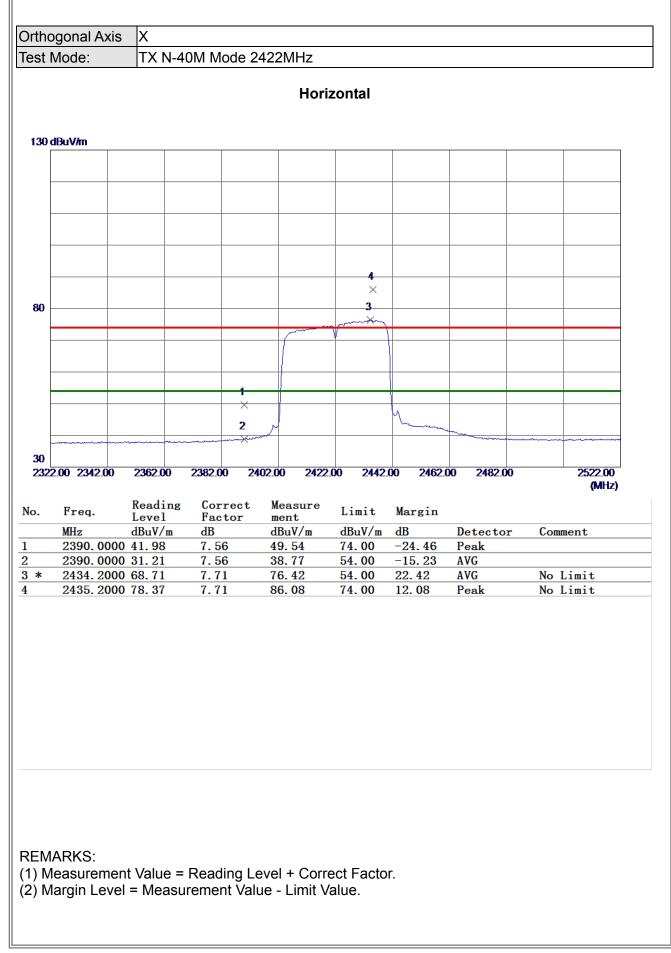


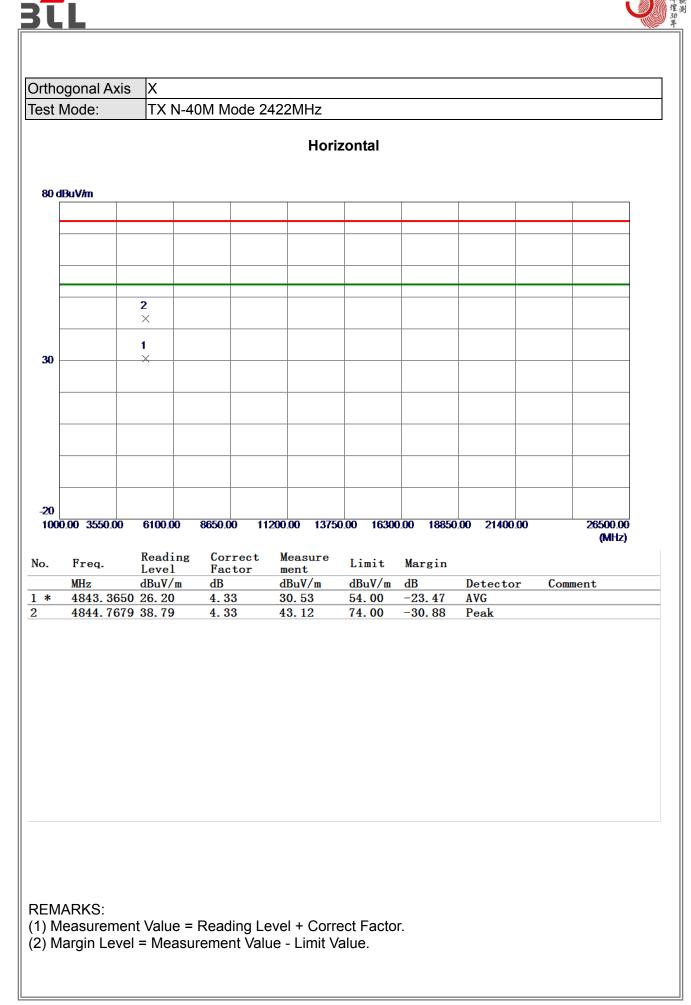


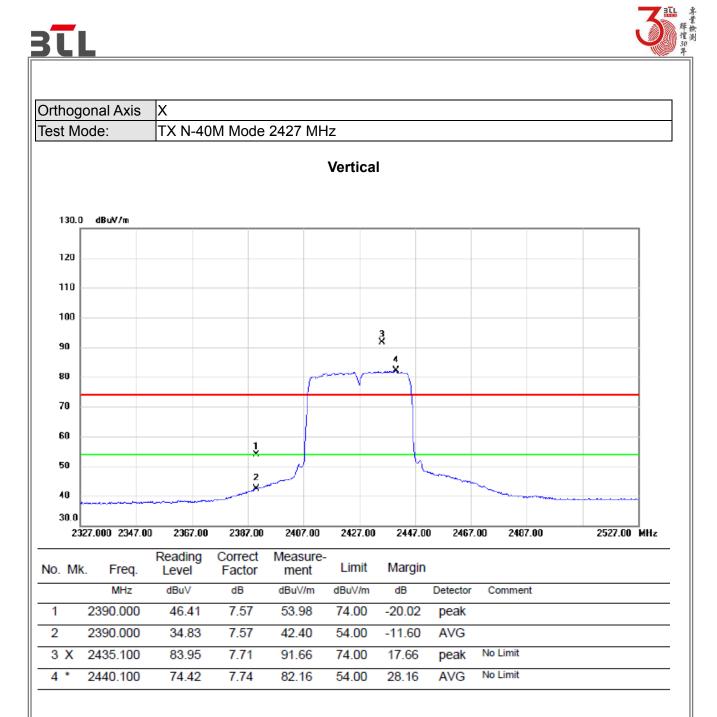




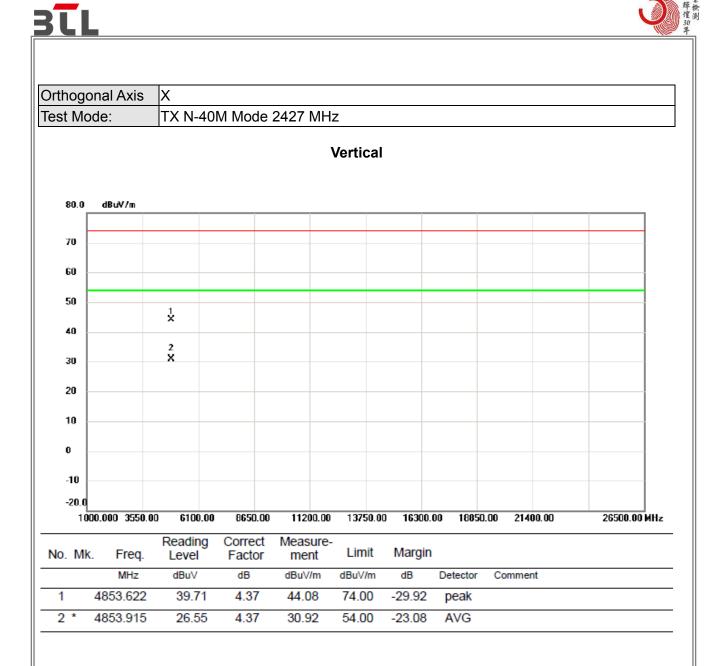




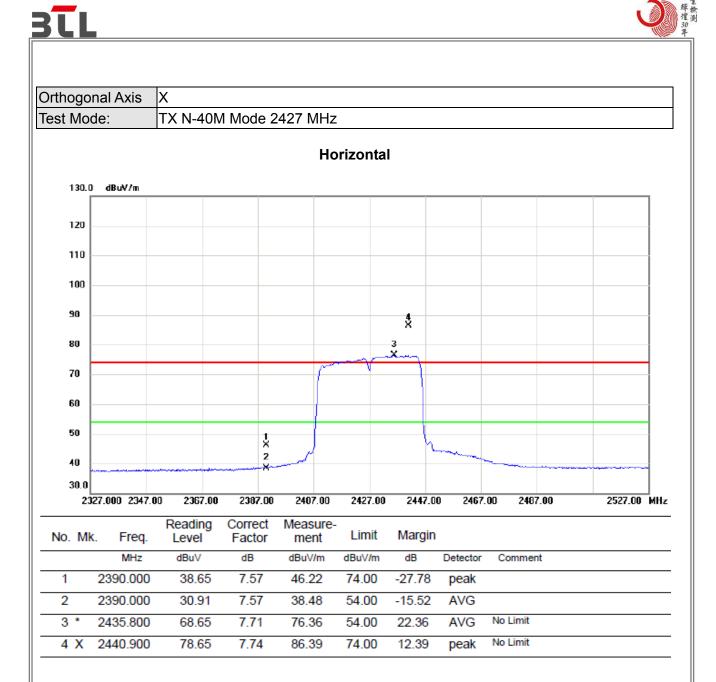




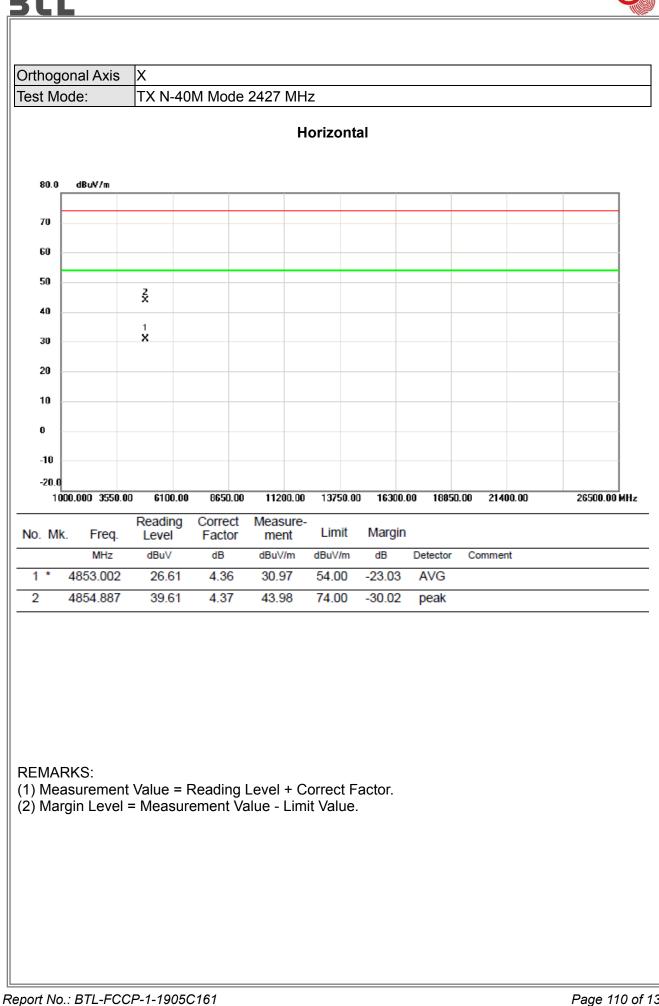
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- (2) Margin Level = Measurement Value Limit Value.

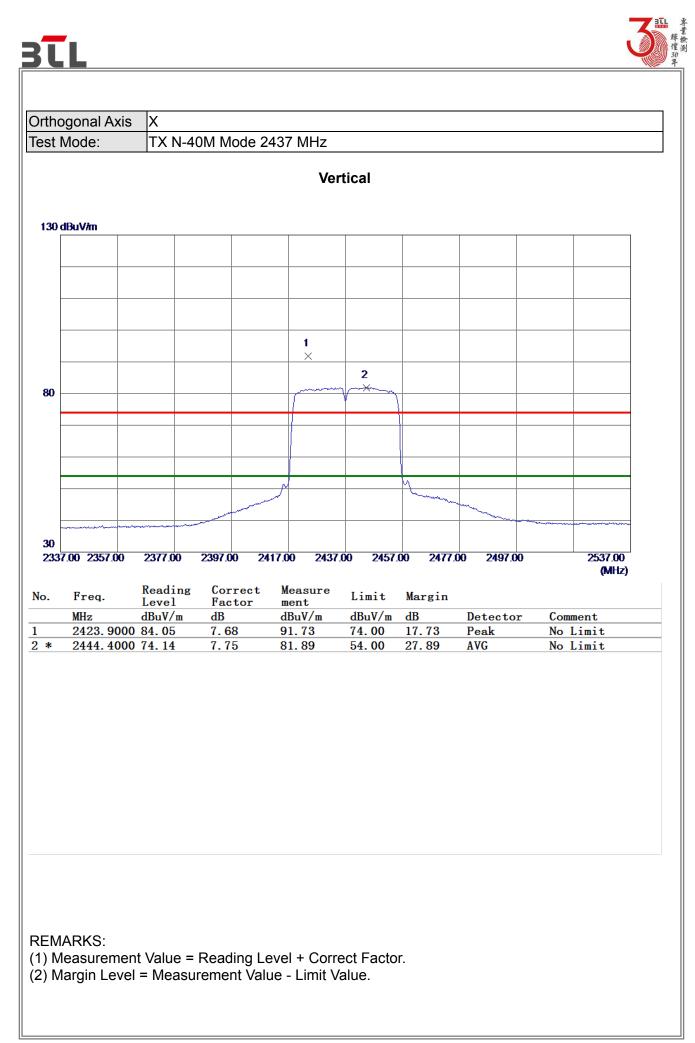


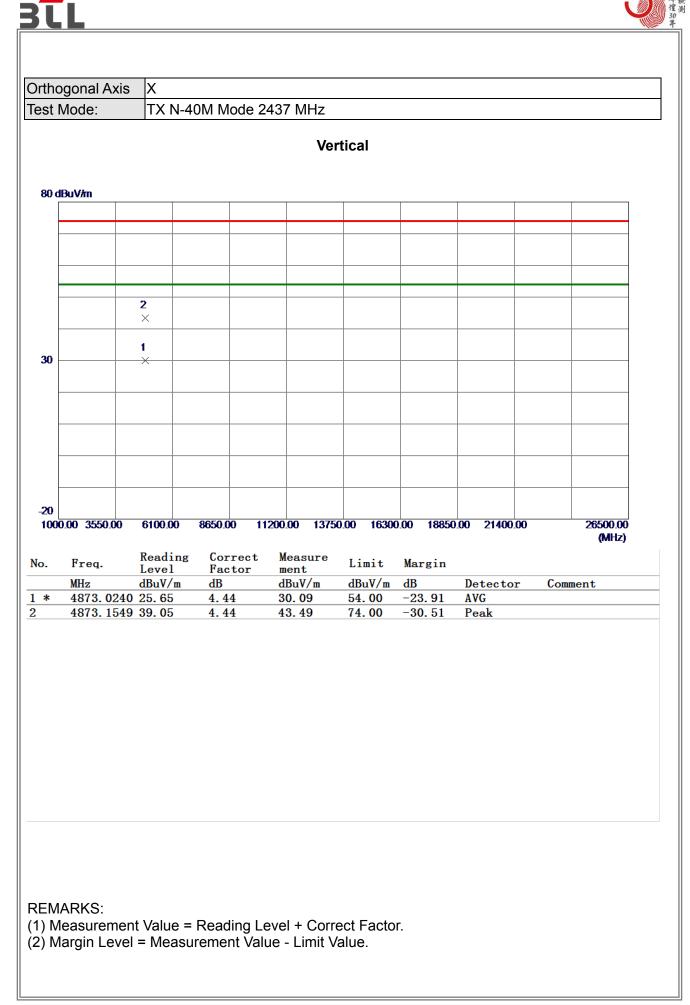
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- (2) Margin Level = Measurement Value Limit Value.



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

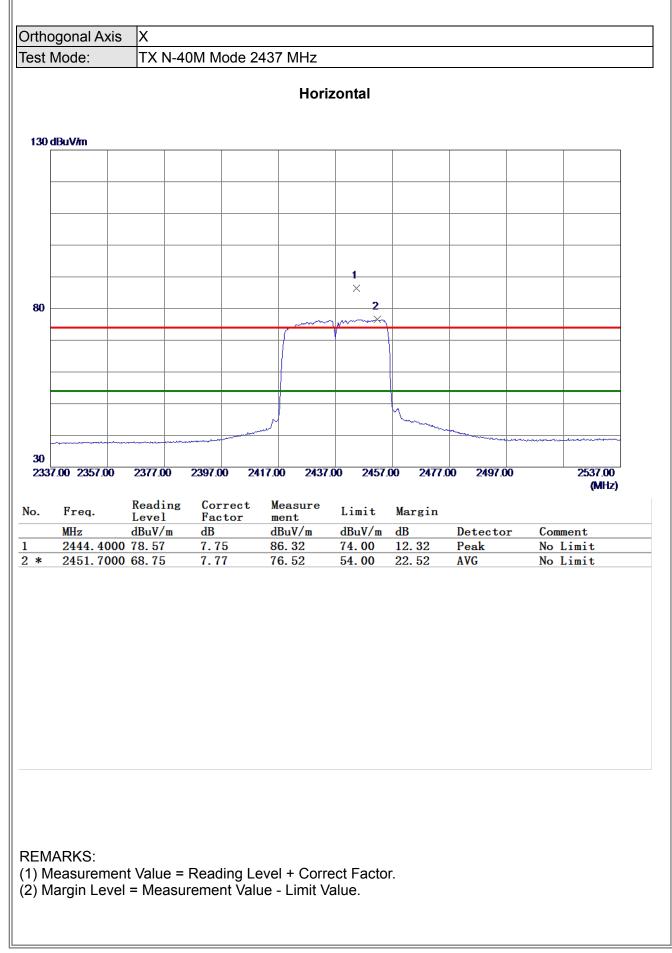


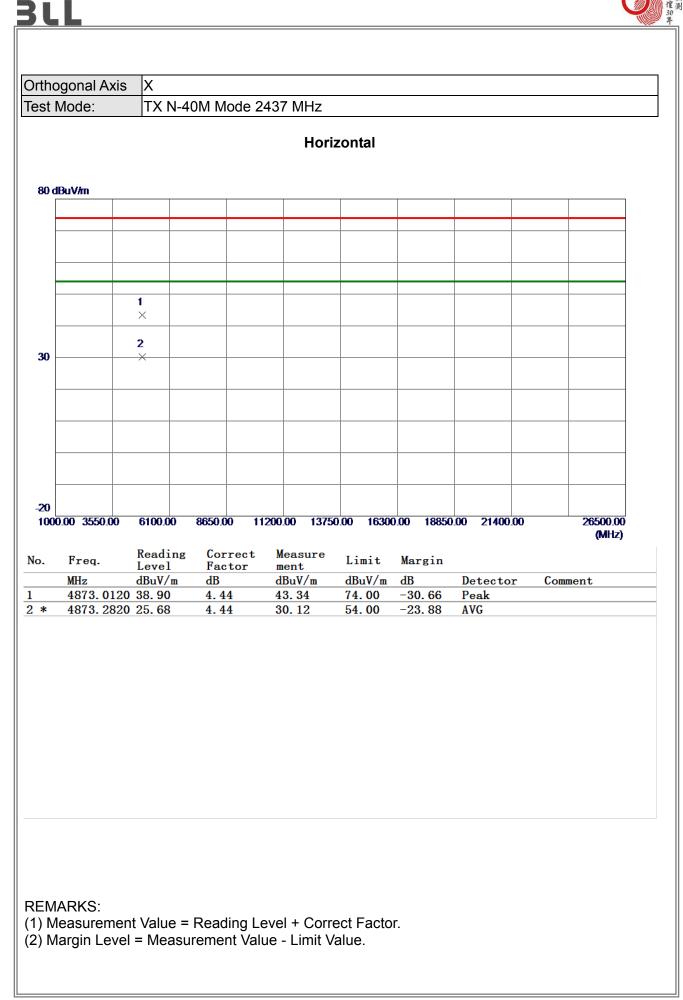


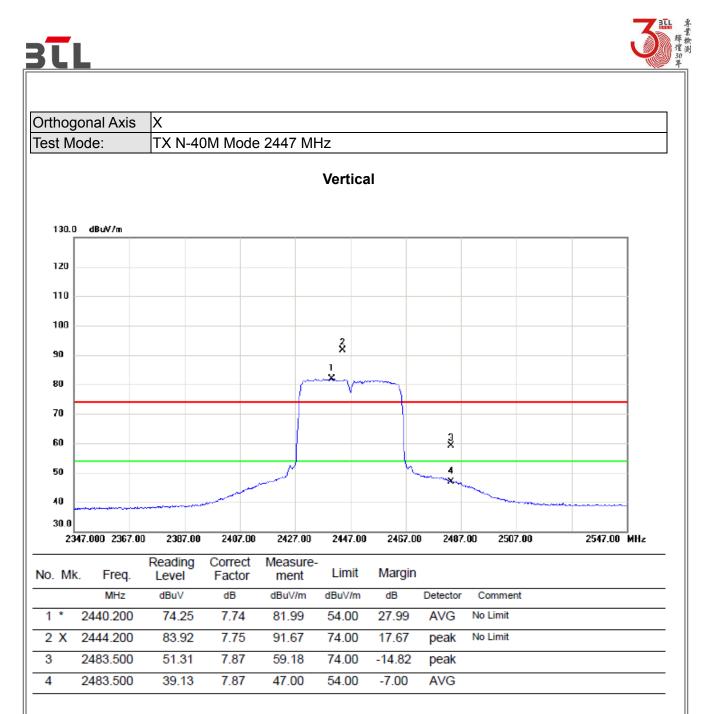




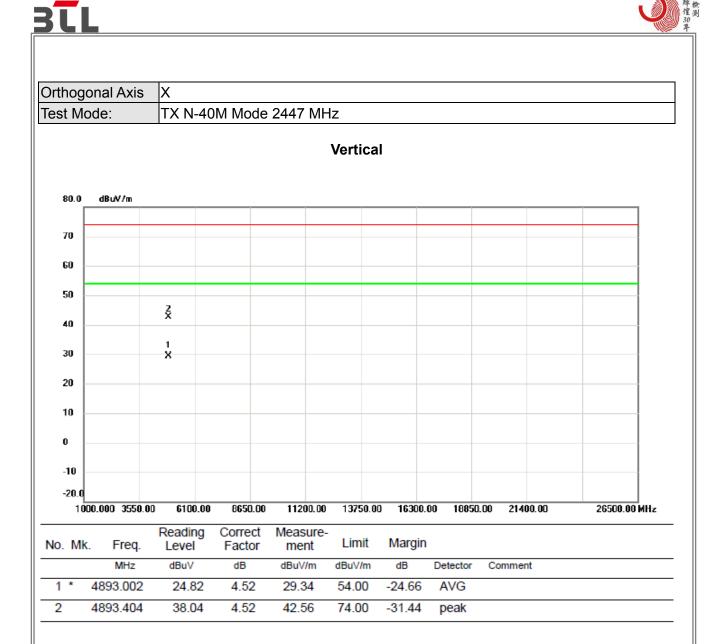




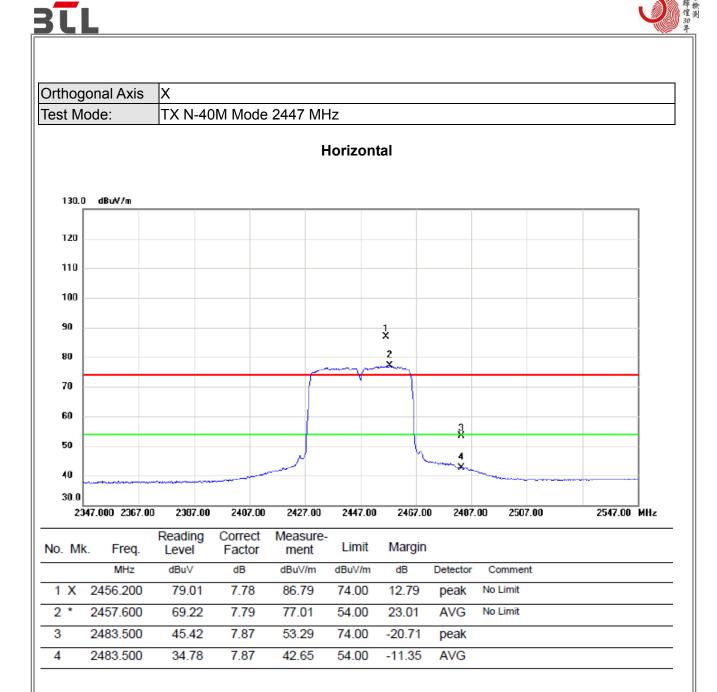




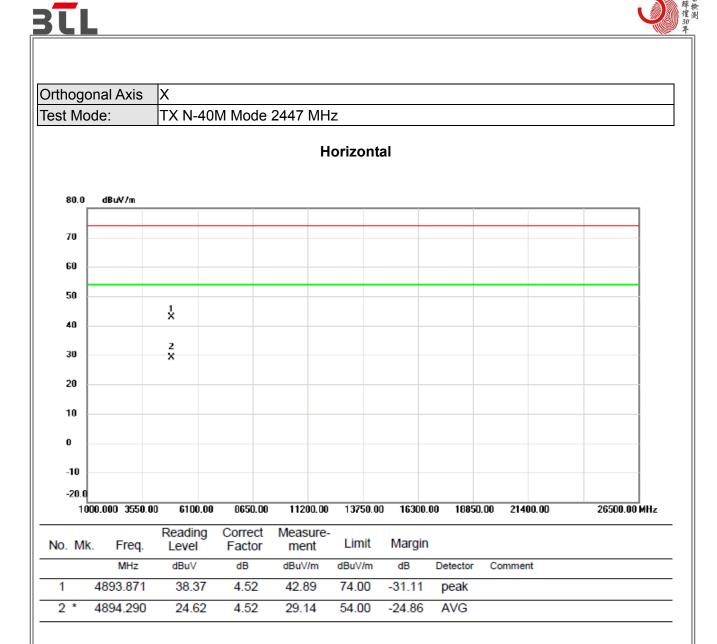
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- (1) Measurement Value = Reading Level + Correct Factor.
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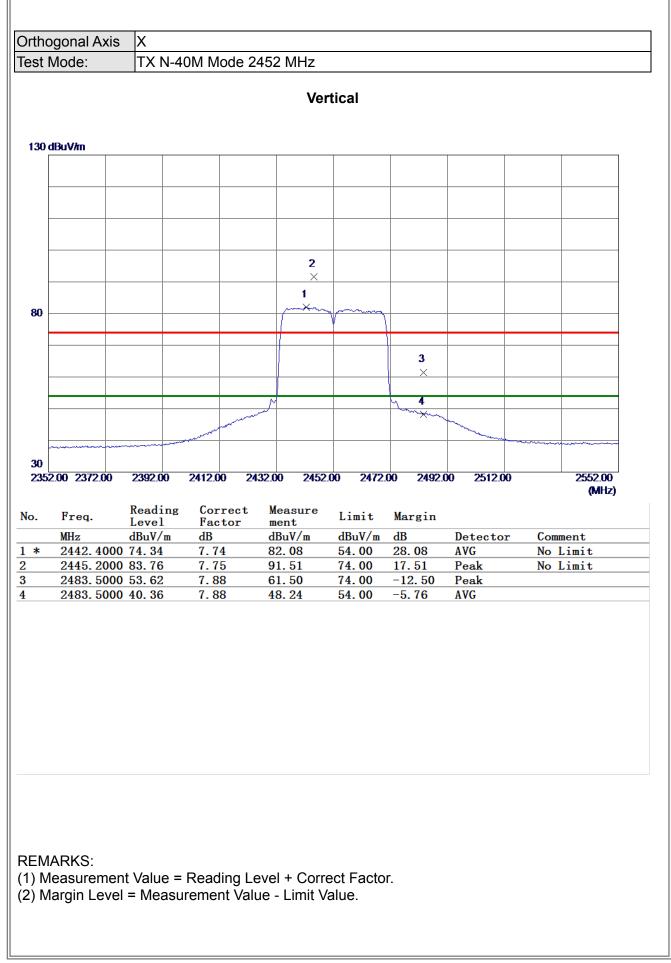
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- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



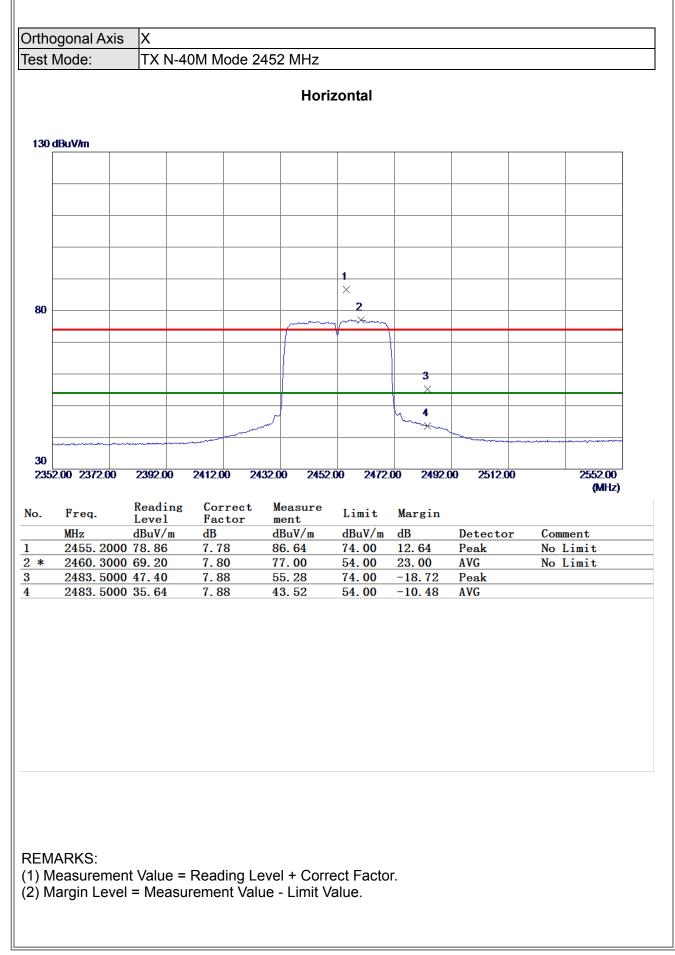


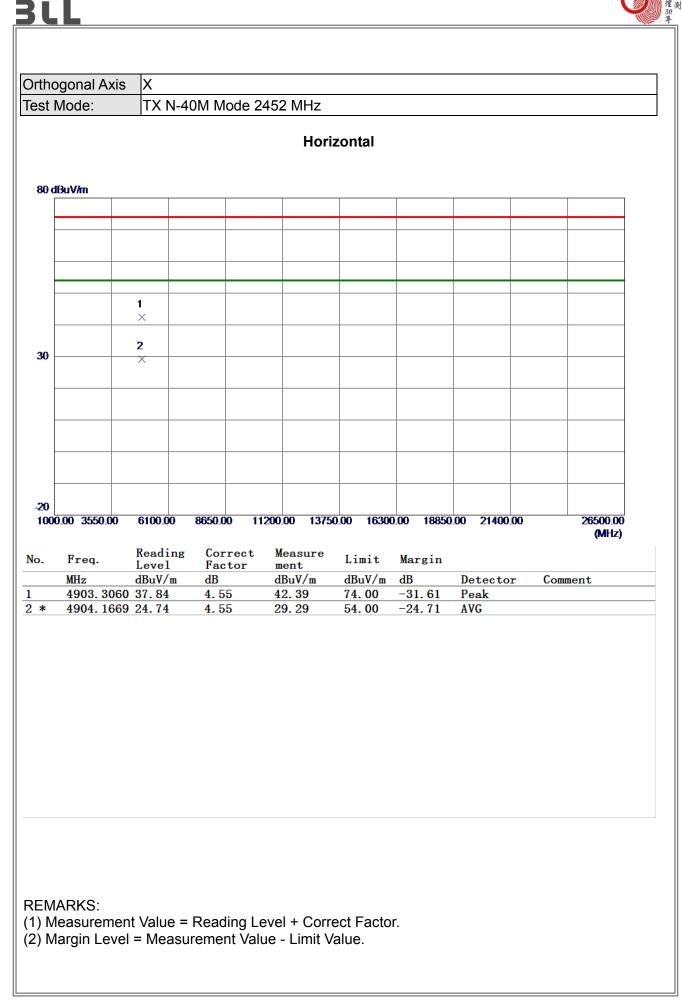














APPENDIX E - BANDWIDTH