



# **FCC Radio Test Report**

## FCC ID: KA2CS8600LHA1

This report concerns (check one): Original Grant Class I Change Class II Change

: 1806C009

Project No. Equipment Test Model Series Model : N/A Applicant Address

: Full HD Outdoor Wi-Fi Camera : DCS-8600LH : D-Link Corporation : 17595 Mt. Herrmann, Fountain Valley, California, United States 92708

Date of Receipt : Jun. 04, 2018 Date of Test : Jun. 20, 2018 ~ Jul. 20, 2018 Issued Date : Oct. 18, 2018 : BTL Inc. Tested by

**Testing Engineer** 

incent Tan)

**Technical Manager** 

**Authorized Signatory** 

Shawn Xiao)

PODO

(Steven Lu)

## BTL INC

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China. TEL: +86-769-8318-3000 FAX: +86-769-8319-6000



Certificate #5123.02





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**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, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements in all the possible configurations as representative of its intended use.

#### Limitation

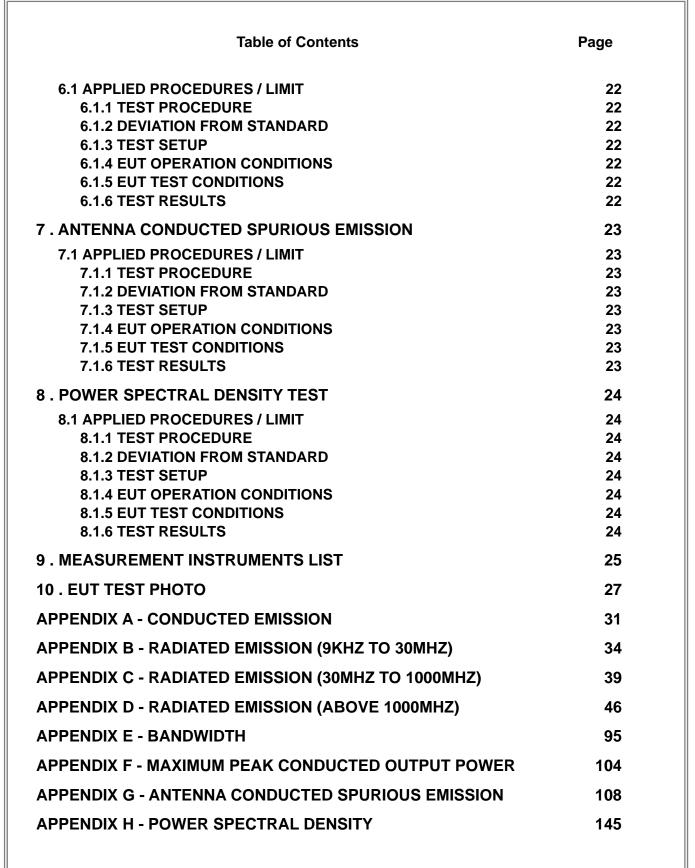
For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.



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#### **REPORT ISSUED HISTORY**

Issued No.	Description	Issued Date
BTL-FCCP-3-1806C009	Original Issue.	Oct. 18, 2018





#### **1. CERTIFICATION**

Equipment : Brand Name :	Full HD Outdoor Wi-Fi Camera D-Link
Test Model :	
Series Model :	
Applicant :	D-Link Corporation
Manufacturer :	D-Link Corporation
Address :	17595 Mt. Herrmann, Fountain Valley, California, United States 92708
Date of Test :	Jun. 20, 2018 ~ Jul. 20, 2018
Test Sample :	Engineering Sample No.: D180605013
Standard(s) :	FCC Part15, Subpart C (15.247)
	ANSI C63.10-2013

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

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-3-1806C009) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO-17025 quality assessment standard and technical standard(s).

Test results included in this report is only for the WIFI 2.4GHz part.



### 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): FCC Part15 (15.247) , Subpart C				
Standard(s) Section	Test Item	Judgment	Remark	
15.207	Conducted Emission	PASS		
15.247(d)	Antenna conducted Spurious Emission	PASS		
15.247(a)(2)	6dB Bandwidth	PASS		
15.247(b)(3)	Peak Output Power	PASS		
15.247(e)	Power Spectral Density	PASS		
15.203	Antenna Requirement	PASS		
15.247(d)/ 15.205/ 15.209	Transmitter Radiated Emissions	PASS		

NOTE:

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





#### 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China. BTL's test firm number for FCC: 854385 BTL's designation number for FCC: CN5020

#### 2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty figures shall be calculated according the methods described in the ETSI TR 100 028 and shall correspond to an expansion factor (coverage factor) k=1.96 or k=2(which provide confidence levels of respectively 90% and 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y).

The BTL measurement uncertainty as below table:

A. Conducted Measurement:

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

#### B. Radiated Measurement:

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

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





#### **3. GENERAL INFORMATION**

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Full HD Outdoor Wi-Fi Ca	mera		
Brand Name	D-Link	D-Link		
Test Model	DCS-8600LH			
Series Model	N/A			
Model Difference	N/A			
	Operation Frequency	2412~2462 MHz		
Product Description	Modulation Technology	802.11b:DSSS 802.11g:OFDM 802.11n:OFDM		
	Bit Rate of Transmitter	802.11b: 11/5.5/2/1 Mbps 802.11g: 54/48/36/24/18/12/9/6 Mbps 802.11n up to 300 Mbps		
	Output Power (Max.)	802.11b: 17.72dBm 802.11g: 27.62dBm 802.11n(20MHz): 28.79dBm 802.11n(40MHz): 28.54dBm		
Power Source	DC Voltage supplied from AC/DC adapter. Brand/Model : D-Link/F10-050200SPAU			
Power Rating	I/P: 100-240V ~ 50/60Hz	0.3A O/P: 5V === 2A		

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(20MHz) CH03 - CH09 for 802.11n(40MHz)						
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	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. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	T&W	N/A	PCB	N/A	3	N/A
2	T&W	N/A	PCB	N/A	3	N/A

Note: The EUT incorporates a MIMO function. Physically, the EUT provides four completed transmitters and receivers (2T2R).



#### 4. The worst case for 1TX and 2TX as follow: Operating Mode 1TX 2TX TX Mode V (ANT 1) 802.11b -V (ANT 1) 802.11g -V (ANT 1+ANT 2) 802.11n(20MHz) -V (ANT 1+ANT 2) 802.11n(40MHz) -



#### 3.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX B MODE CHANNEL 01/06/11
Mode 2	TX G MODE CHANNEL 01/06/11
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09
Mode 5	TX Mode

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

	For Conducted Test
Final Test Mode	Description
Mode 5	TX Mode

For Radiated Test		
Final Test Mode Description		
Mode 1	TX B MODE CHANNEL 01/06/11	
Mode 2	TX G MODE CHANNEL 01/06/11	
Mode 3	TX N-20MHZ MODE CHANNEL 01/06/11	
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09	

For Band Edge 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-20MHZ MODE CHANNEL 01/06/11	
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09	





6dB Spectrum Bandwidth		
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-20MHZ MODE CHANNEL 01/06/11	
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09	

Maximum Conducted Output Power		
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-20MHZ MODE CHANNEL 01/06/11	
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09	

Power Spectral Density		
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-20MHZ MODE CHANNEL 01/06/11	
Mode 4	TX N-40MHZ MODE CHANNEL 03/06/09	

Note:

- (1) The measurements are performed at the high, middle, low available channels.
- (2) 802.11b mode: DBPSK (1Mbps)
  - 802.11g mode: OFDM (6Mbps)
  - 802.11n HT20 mode : BPSK (6.5Mbps)
  - 802.11n HT40 mode : BPSK (13.5Mbps)
  - For radiated emission tests, the highest output powers were set for final test.
- (3) For radiated below 1G test, the 802.11b is found to be the worst case and recorded.
- (4) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.





#### **3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING**

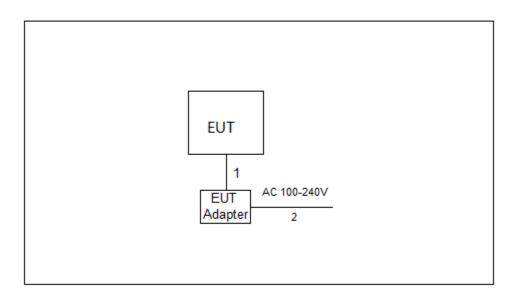
During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final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

Test software version		N/A	
Frequency (MHz)	2412	2437	2462
802.11b	22	28	32
802.11g	45	55	44
802.11n (20MHz)	42	47	43
Frequency (MHz)	2422	2437	2452
802.11n (40MHz)	38	46	44





#### 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



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

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

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

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	3m	USB Cable
2	NO	NO	3.8m	AC Cable





#### 4. EMC EMISSION TEST

#### 4.1 CONDUCTED EMISSION MEASUREMENT

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

Frequency of Emission (MHz)	Conducted Limit (dBµV)		
Frequency of Emission (MHz)	Quasi-peak	Average	
0.15 -0.50	6□ to 56*	56 to 46*	
0.50 -5.0	56	46	
5.0 -30.0	60	50	

Note:

- (1) The limit of " \* " decreases with the logarithm of the frequency
- (2) The test result calculated as following: Measurement Value = Reading Level + Correct Factor Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use) Margin Level = Measurement Value - Limit Value

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

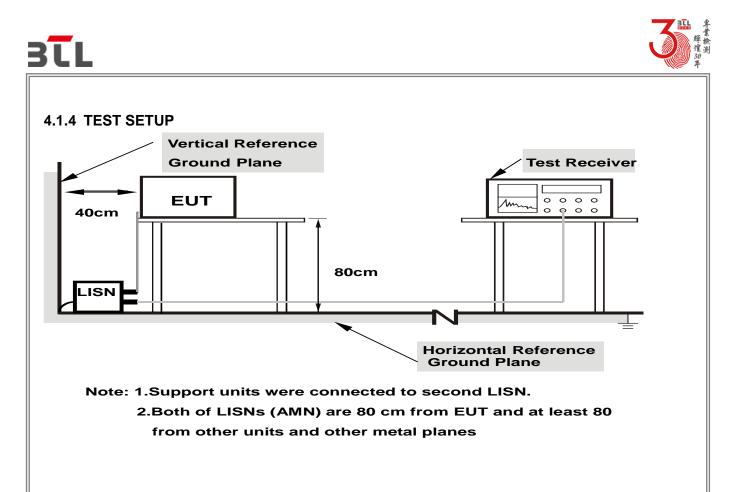
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

#### 4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support 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.

#### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation



#### 4.1.5 EUT OPERATING CONDITIONS

The EUT was placed on the test table and programmed in normal function.

#### 4.1.6 EUT TEST CONDITIONS

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

#### 4.1.7 TEST RESULTS

Please refer to the Appendix A.



#### 4.2 RADIATED EMISSION MEASUREMENT

#### 4.2.1 RADIATED EMISSION LIMITS

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 (9KHz-1000MHz)

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
960~1000	500	3

#### LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

	(dBuV/m) (at 3 meters)	
Frequency (MHz)	PEAK	AVERAGE
Above 1000	74	54

Notes:

(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).
- (4) The test result calculated as following: Measurement Value = Reading Level + Correct Factor Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use) Margin Level = Measurement Value - Limit Value





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

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

#### 4.2.2 TEST PROCEDURE

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

#### 4.2.3 DEVIATION FROM TEST STANDARD

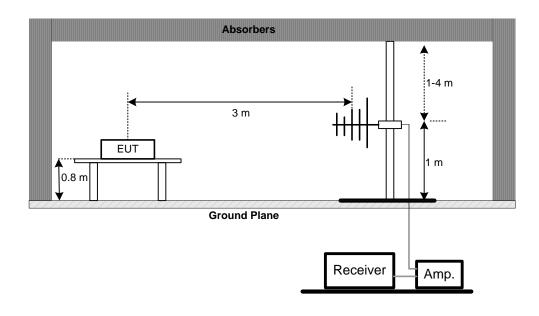
No deviation



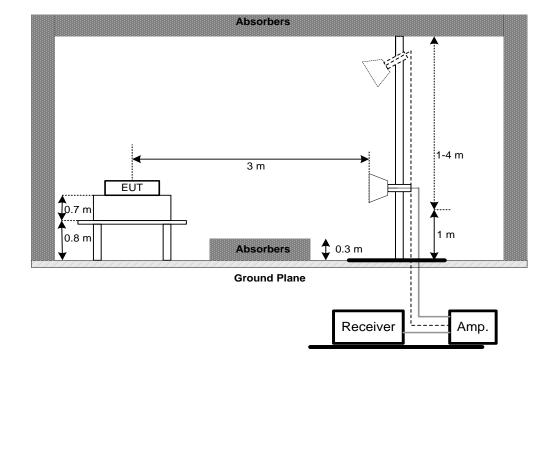


#### 4.2.4 TEST SETUP

#### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz

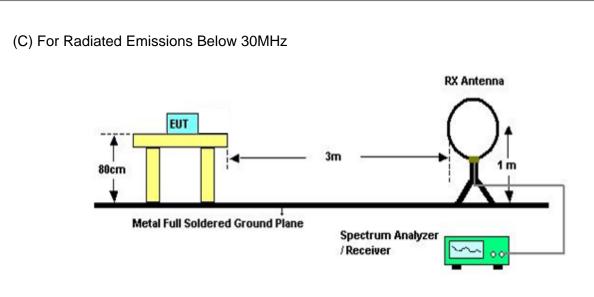


#### (B) Radiated Emission Test Set-Up Frequency Above 1 GHz









#### 4.2.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 4.2.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 5V

#### 4.2.7 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Appendix B

#### Remark:

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

#### 4.2.8 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the Appendix C.

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

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 APPLIED PROCEDURES

FCC Part15 (15.247), Subpart C					
Section	Frequency Range (MHz)	Result			
15.247(a)(2)	Bandwidth	2400-2483.5	PASS		

#### 5.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 5.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 5V

#### 5.1.6 TEST RESULTS

Please refer to the Appendix E.



#### 6. MAXIMUM PEAK CONDUCTED OUTPUT POWER TEST

#### 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Maximum Output Power	1 Watt or 30dBm	2400-2483.5	PASS

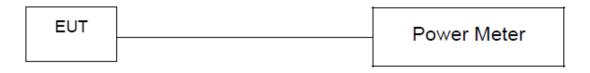
#### 6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 v04 DTS Meas Guidance.

#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP



#### 6.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 6.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 5V

#### 6.1.6 TEST RESULTS

Please refer to the Appendix F.



### 7. ANTENNA CONDUCTED SPURIOUS EMISSION

#### 7.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted 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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))

#### 7.1.1 TEST PROCEDURE

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

#### 7.1.2 DEVIATION FROM STANDARD

No deviation.

#### 7.1.3 TEST SETUP



#### 7.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 7.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 5V

#### 7.1.6 TEST RESULTS

Please refer to the Appendix G.



#### 8. POWER SPECTRAL DENSITY TEST

#### 8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS	

#### 8.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting: RBW=3KHz, VBW=10KHz, Sweep time = Auto.

#### 8.1.2 DEVIATION FROM STANDARD

No deviation.

#### 8.1.3 TEST SETUP

EUT	SPECTRUM
	ANALYZER

#### 8.1.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 8.1.5 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 55% Test Voltage: DC 5V

#### 8.1.6 TEST RESULTS

Please refer to the Appendix H.



#### 9. MEASUREMENT INSTRUMENTS LIST

	Conducted Emission Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 11, 2019		
2	LISN	EMCO	3816/2	52765	Mar. 11, 2019		
3	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 11, 2019		
4	TWO-LINE V-NETWORK	R&S	ENV216	101447	Mar. 11, 2019		
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		
6	Cable	N/A	RG223	12m	Oct. 19, 2018		

	Radiated Emission Measurement - Below 1GHz						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 11, 2019		
2	Amplifier	HP	8447D	2944A09673	Oct. 19, 2018		
3	Receiver	Agilent	N9038A	MY52130039	Aug. 20, 2018		
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May. 25, 2019		
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	Antenna	EM	EM-6876-1	230	Feb. 07, 2019		

	Radiated Emission Measurement - Above 1GHz							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 11, 2019			
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2019			
3	Amplifier	Agilent	8449B	3008A02274	Mar. 11, 2019			
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 11, 2019			
5	Receiver	Agilent	N9038A	MY52130039	Aug. 20, 2018			
6	Controller	СТ	SC100	N/A	N/A			
7	Controller	MF	MF-7802	MF780208416	N/A			
8	Cable	emci	EMC104-SM-SM-1 2000(12m)	N/A	Sep. 29, 2018			
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			





6dB Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 20, 2018

	Peak Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Power Meter	ANRITSU	ML2495A	1128009	Mar. 11, 2019	
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Mar. 11, 2019	

	Antenna Conducted Spurious Emission				
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 20, 2018

	Power Spectral Density					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 20, 2018	

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





#### **10. EUT TEST PHOTO**

#### **Conducted Measurement Photos**



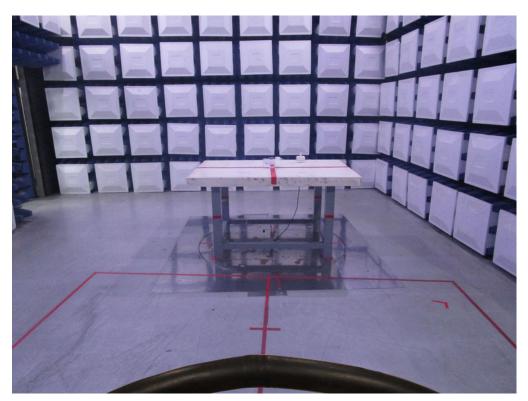


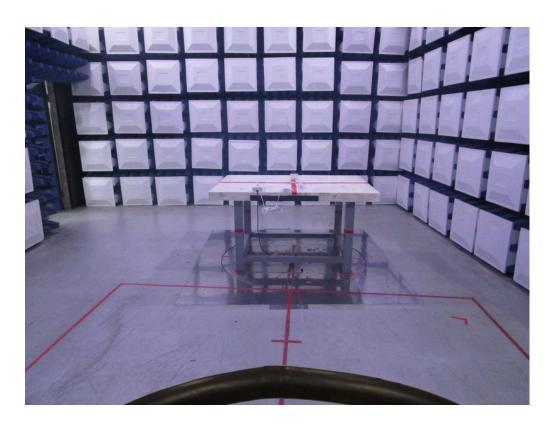




#### Radiated Measurement Photos

9KHz to 30MHz







#### **Radiated Measurement Photos**

30MHz to 1000MHz







#### **Radiated Measurement Photos**

Above 1000MHz





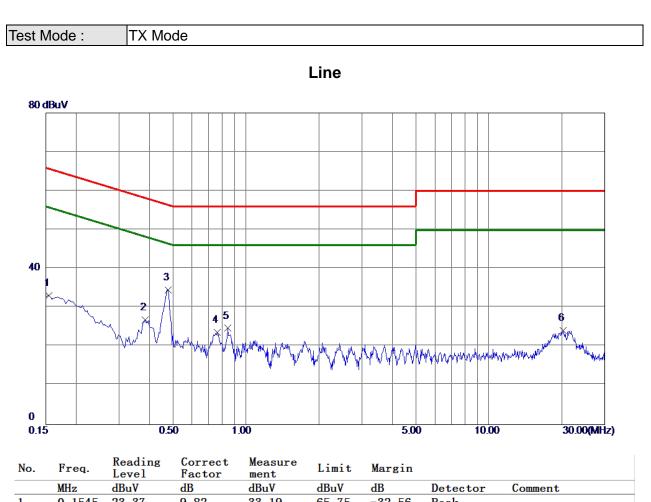




### **APPENDIX A - CONDUCTED EMISSION**







	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1545	23.37	9.82	33.19	<b>65.75</b>	-32.56	Peak	
2	0.3840	17.08	9.81	26.89	58.19	-31. 30	Peak	
3 *	0.4785	24.83	9.79	34.62	56.37	-21.75	Peak	
4	0.7620	13.80	9.89	23.69	56.00	-32.31	Peak	
5	0.8430	14.81	9.91	24.72	56.00	-31.28	Peak	
6	20.1795	12.91	11.19	24.10	60.00	-35. 90	Peak	



5

6

1.7430

18.5190 13.02

15.09

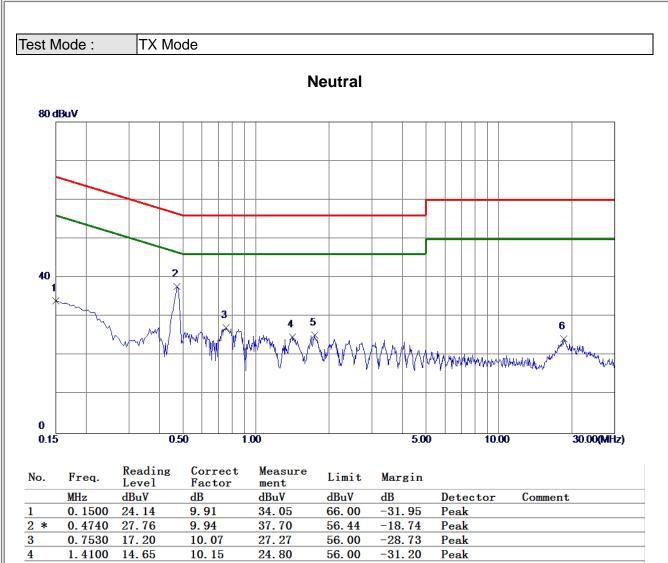
10.17

11.36

25.26

24.38





56.00

60.00

-30.74

-35.62

Peak

Peak

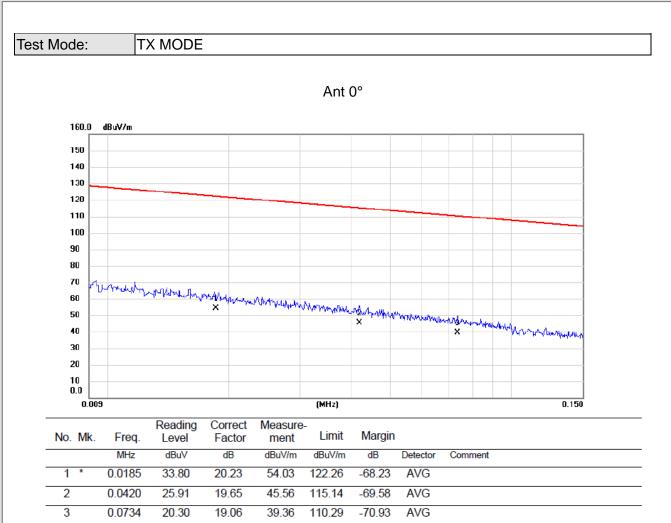




## APPENDIX B - RADIATED EMISSION (9KHZ TO 30MHZ)

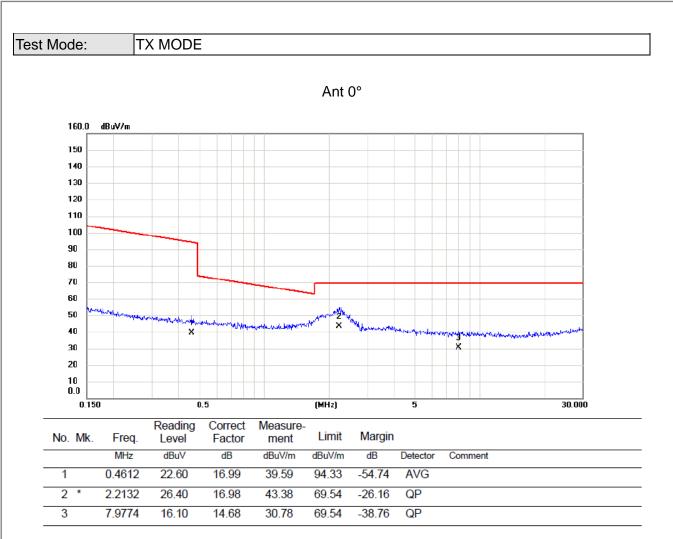






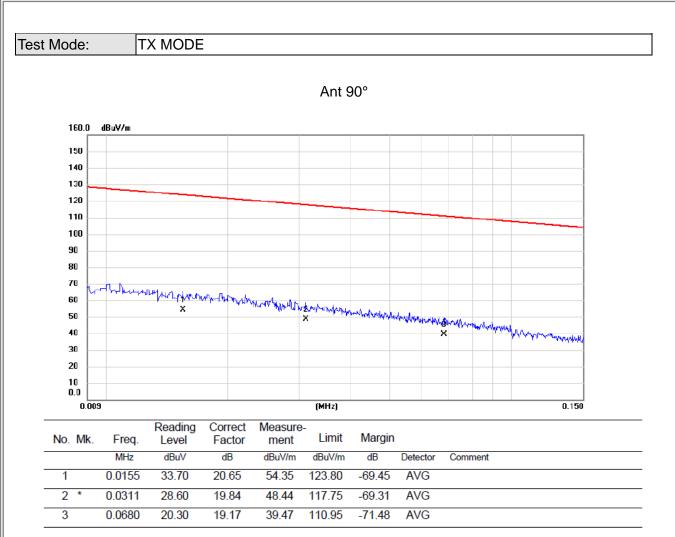






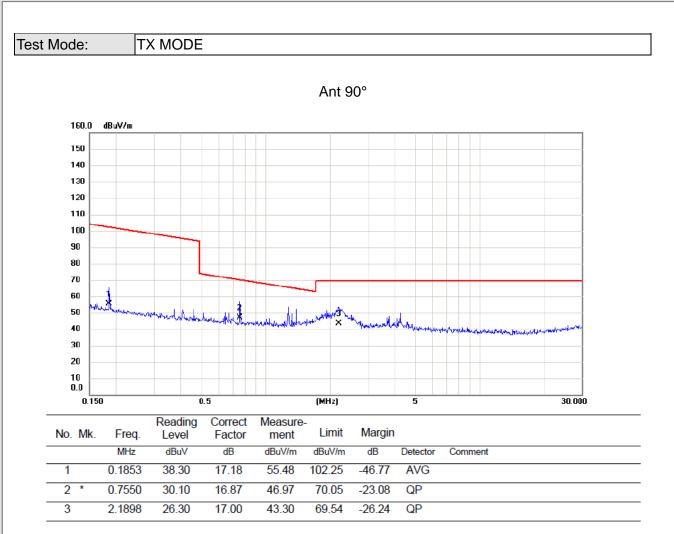












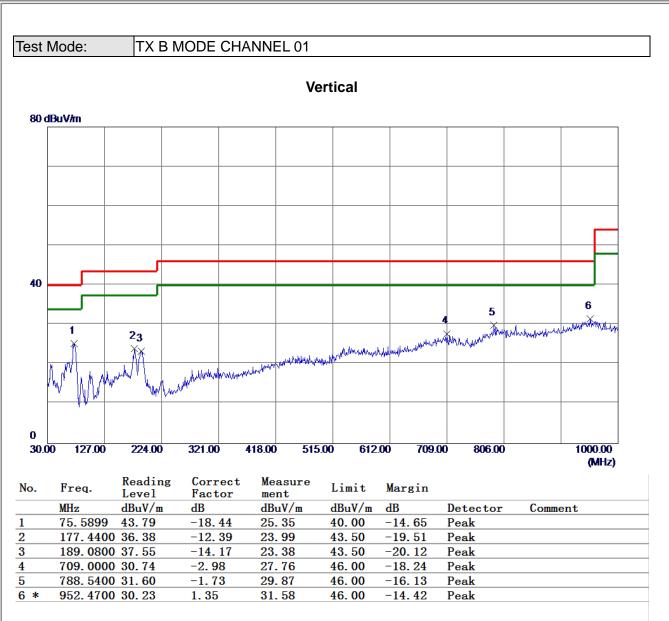




## APPENDIX C - RADIATED EMISSION (30MHZ TO 1000MHZ)

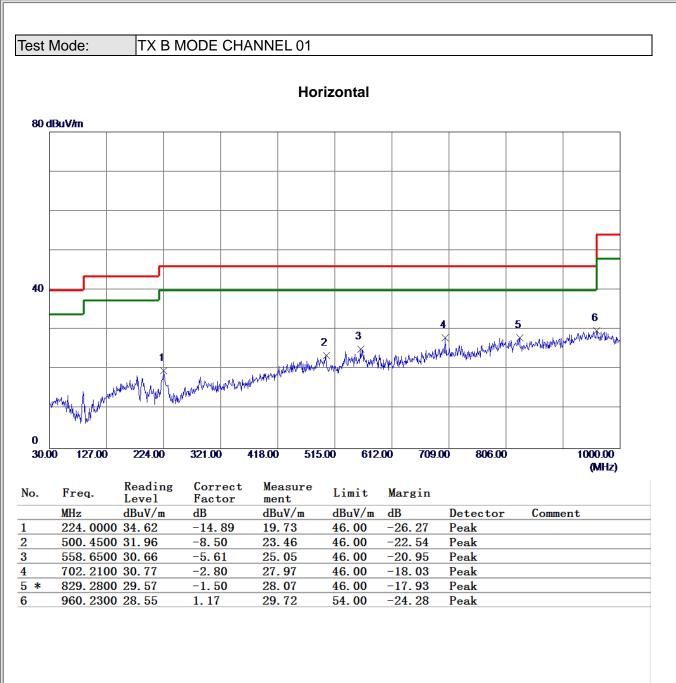






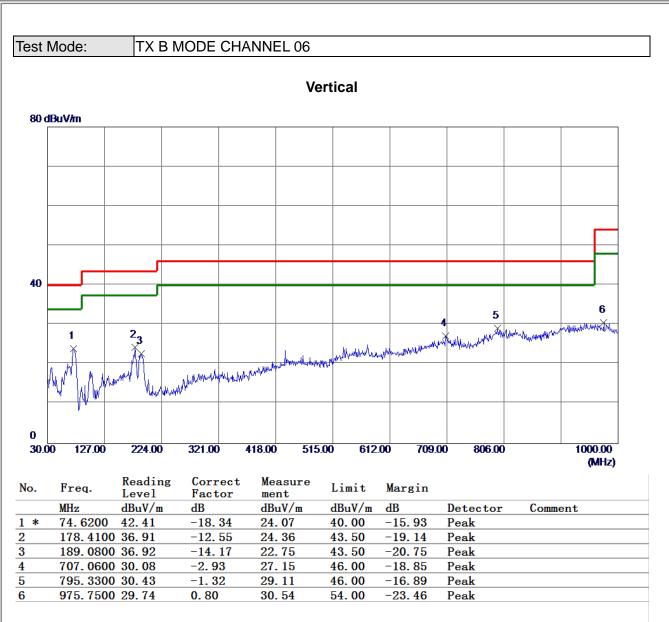






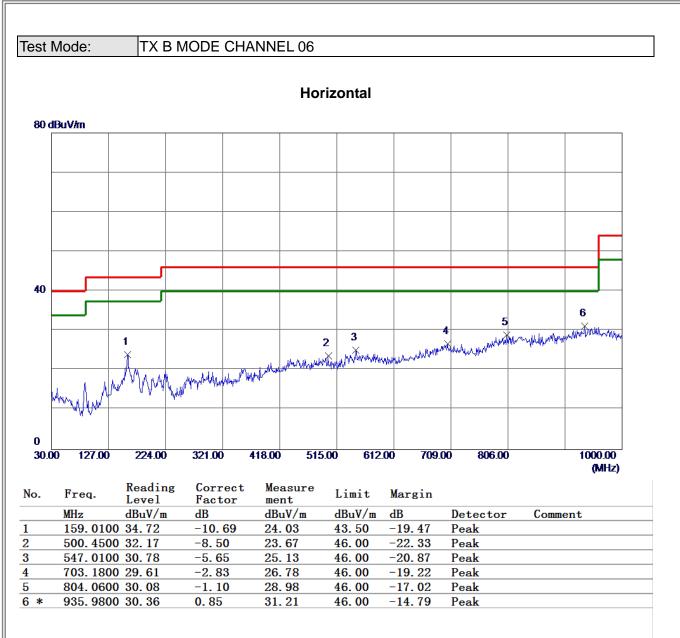






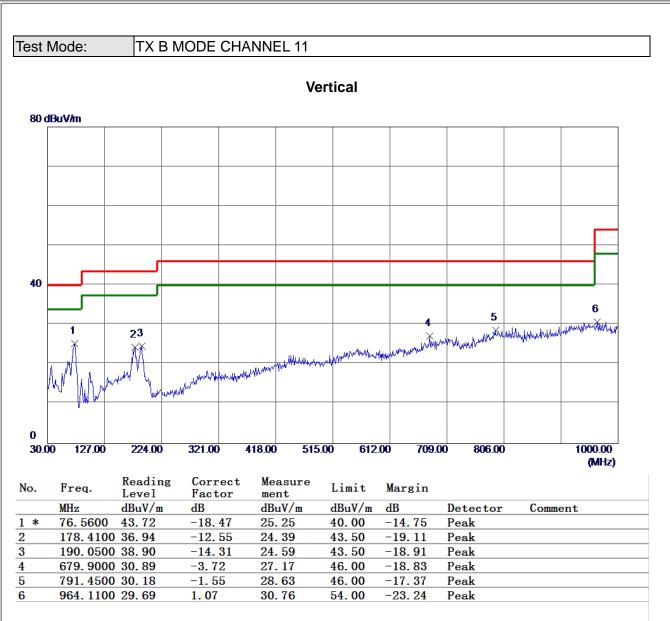






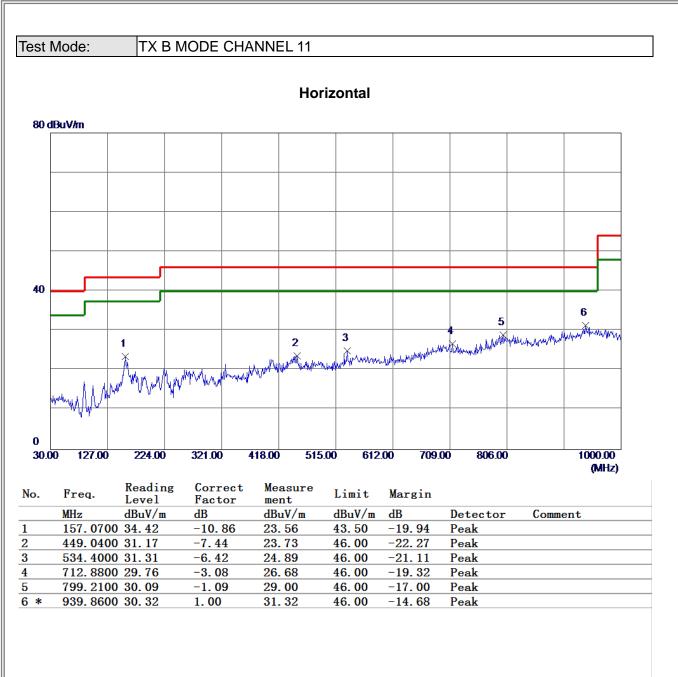












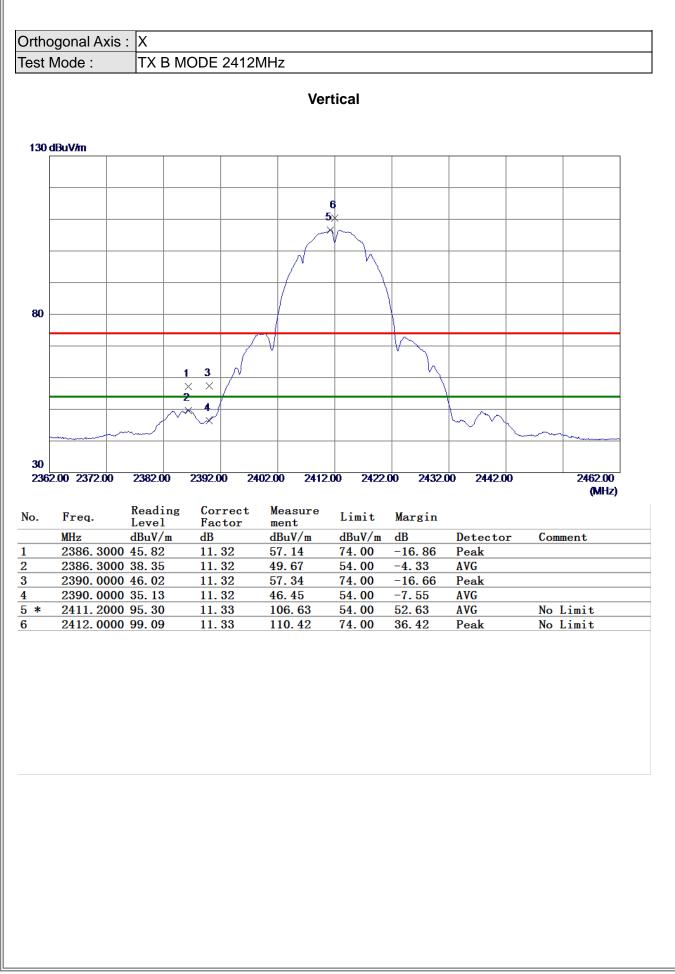




## **APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)**

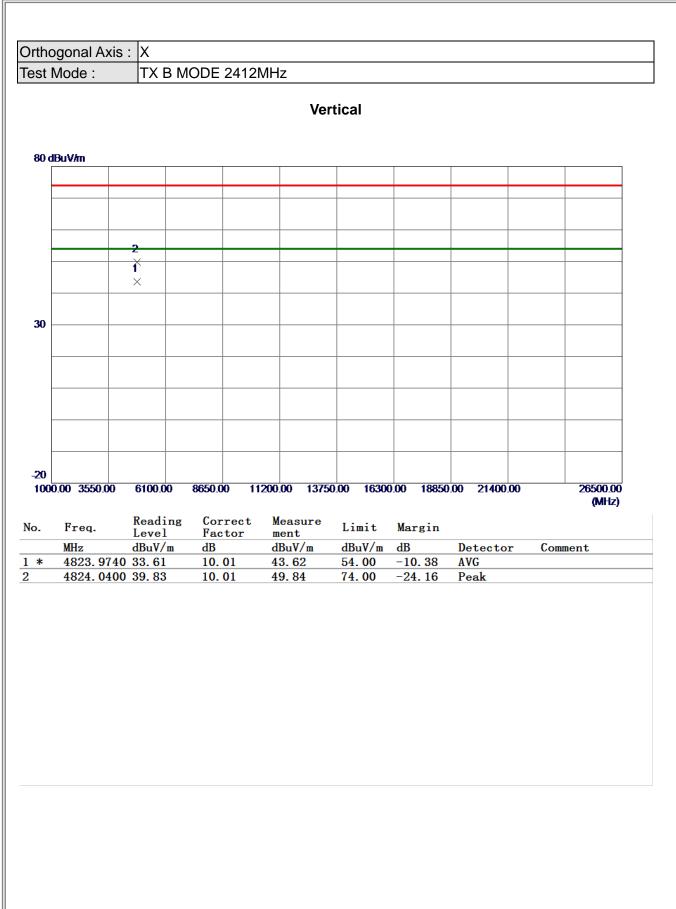






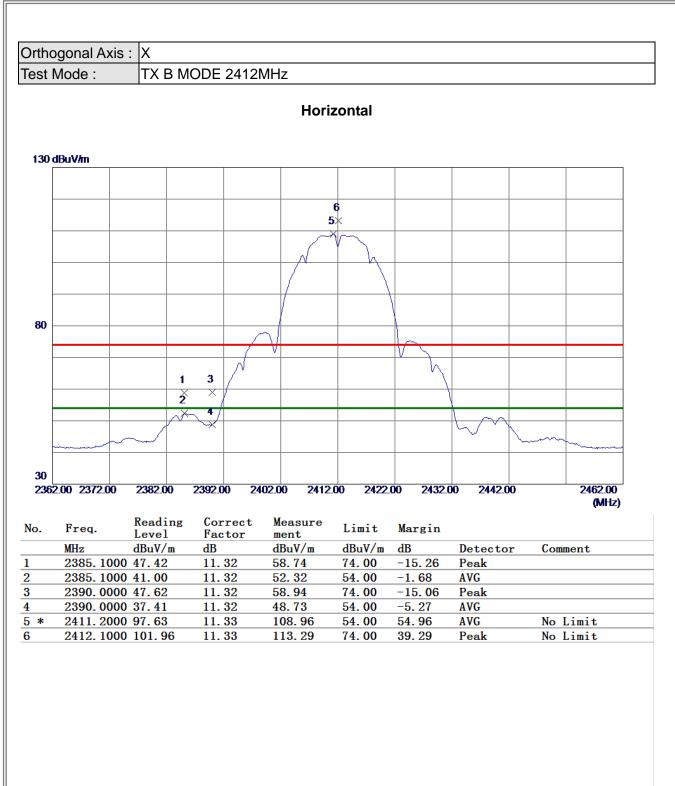












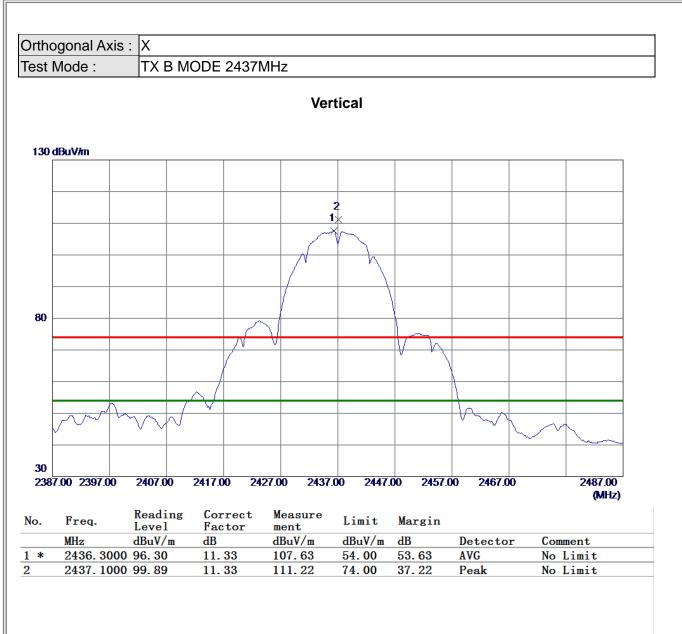






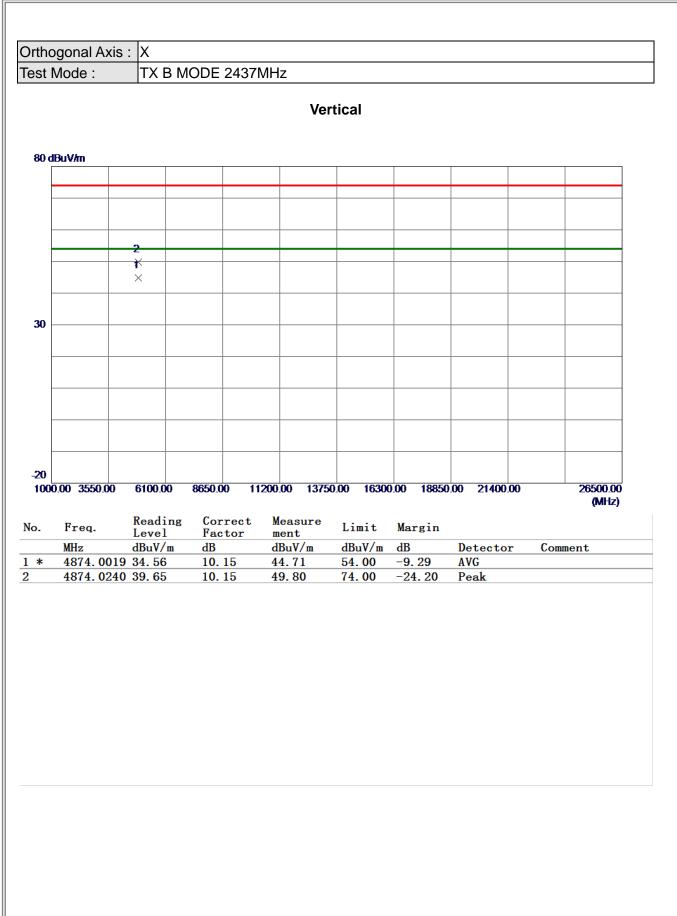






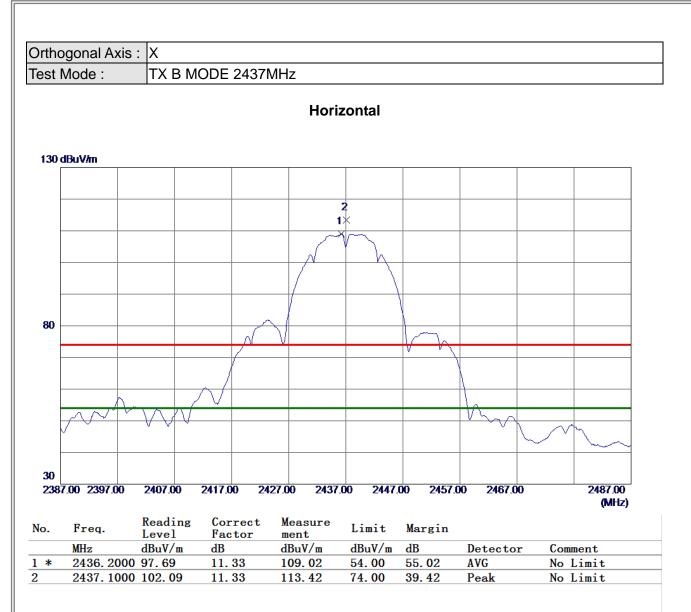






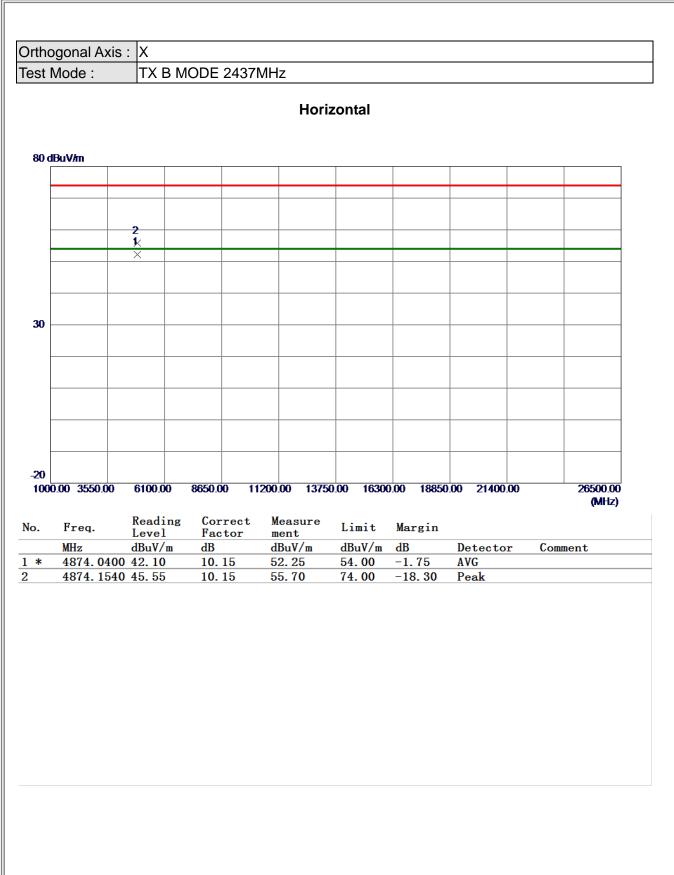






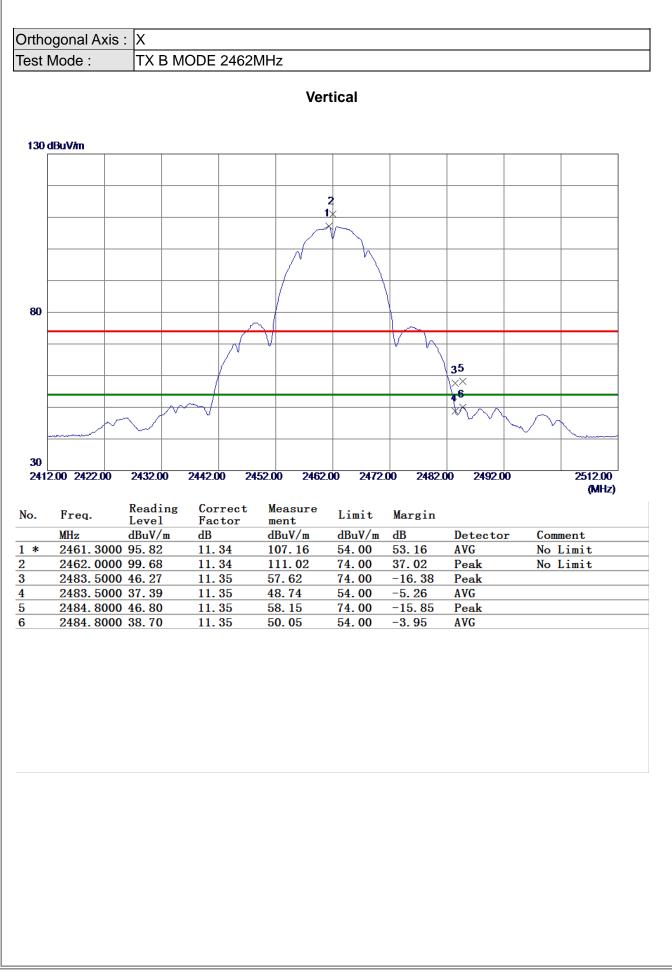






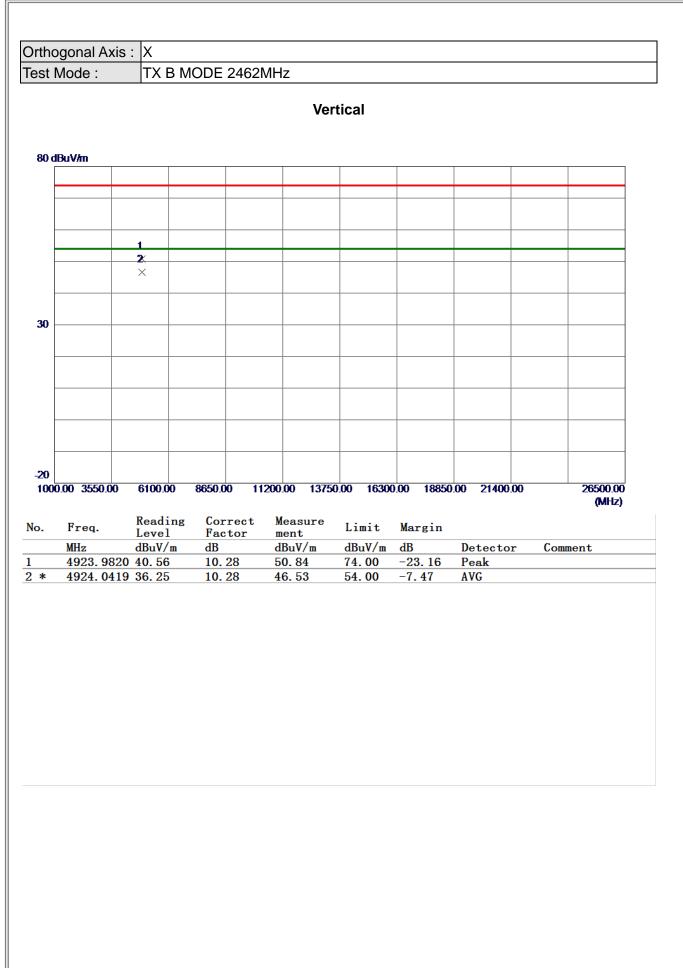






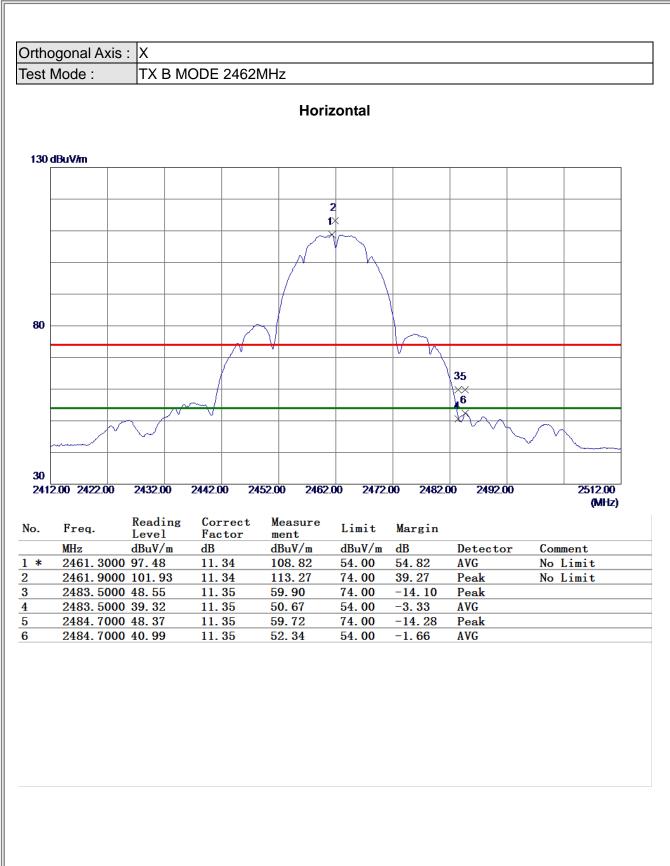






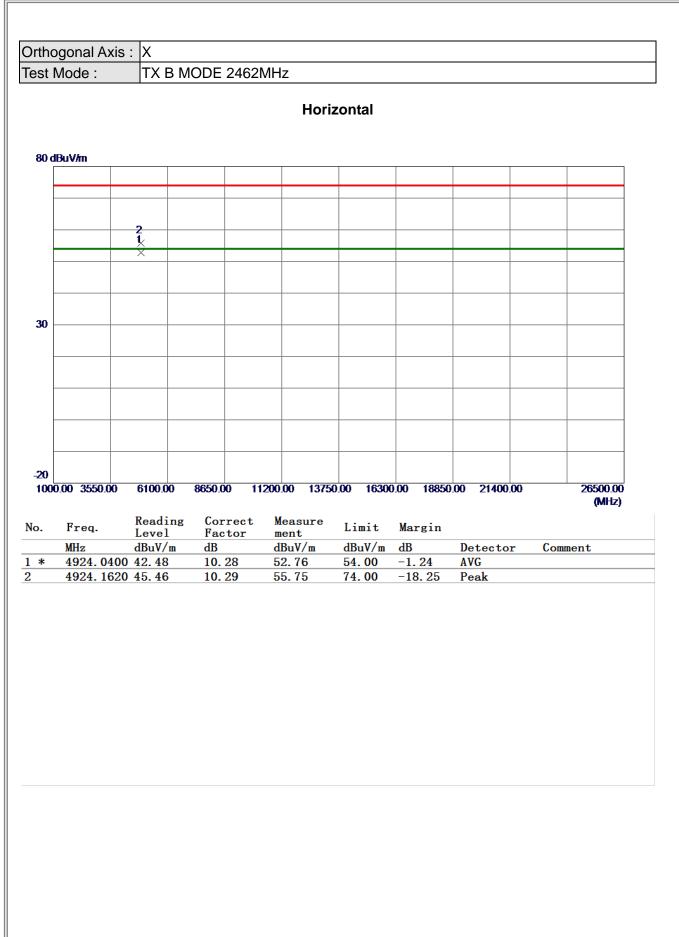






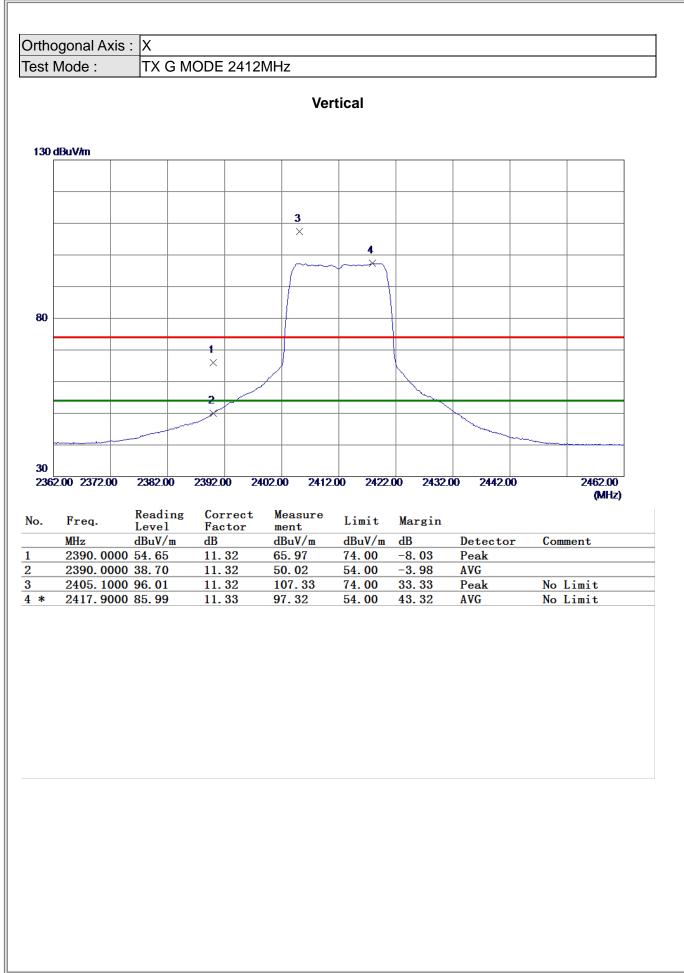






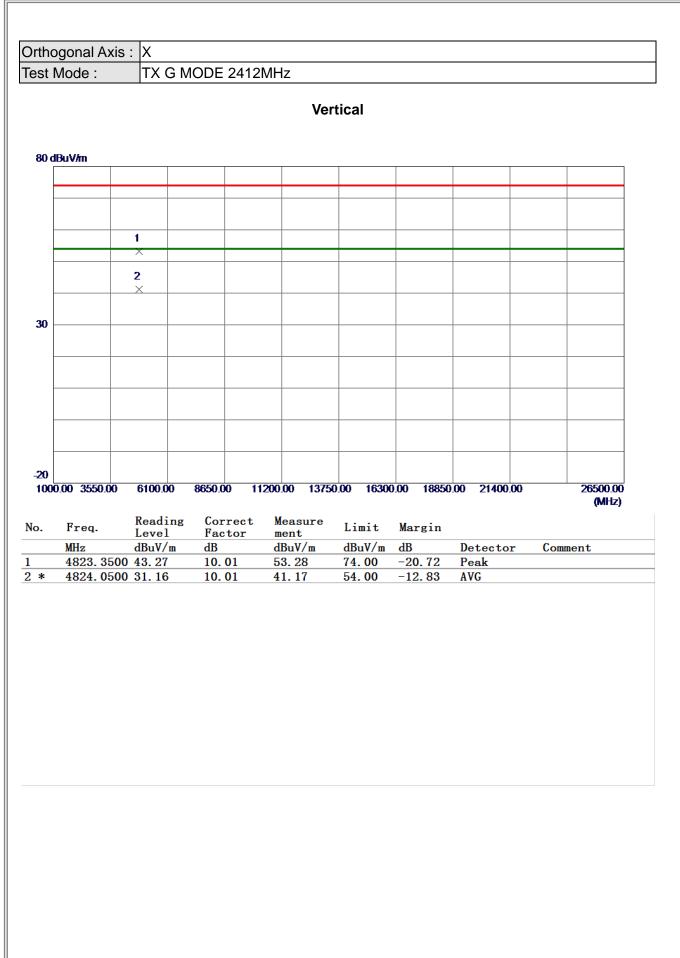






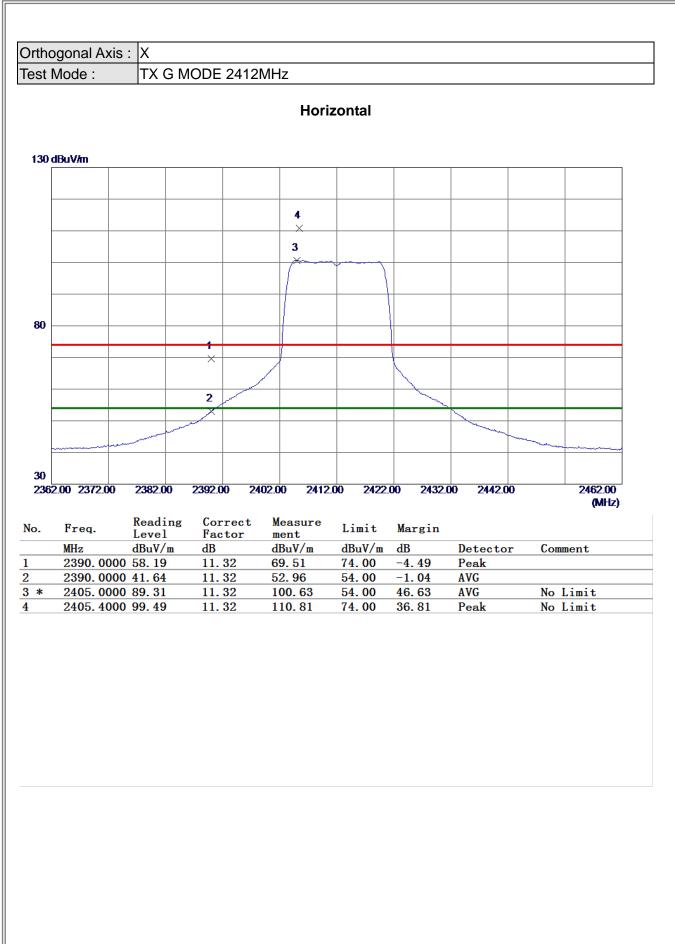






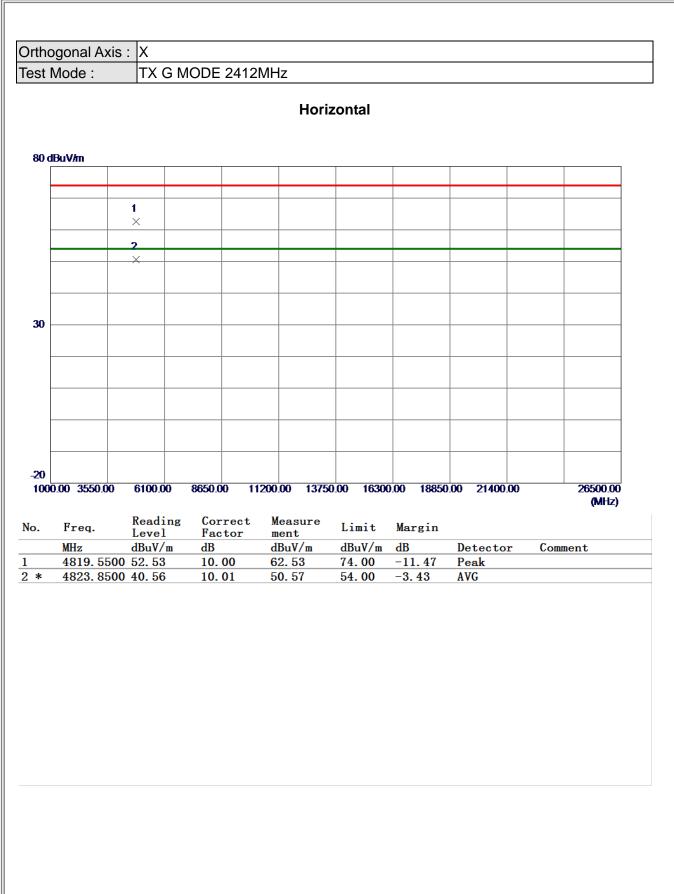






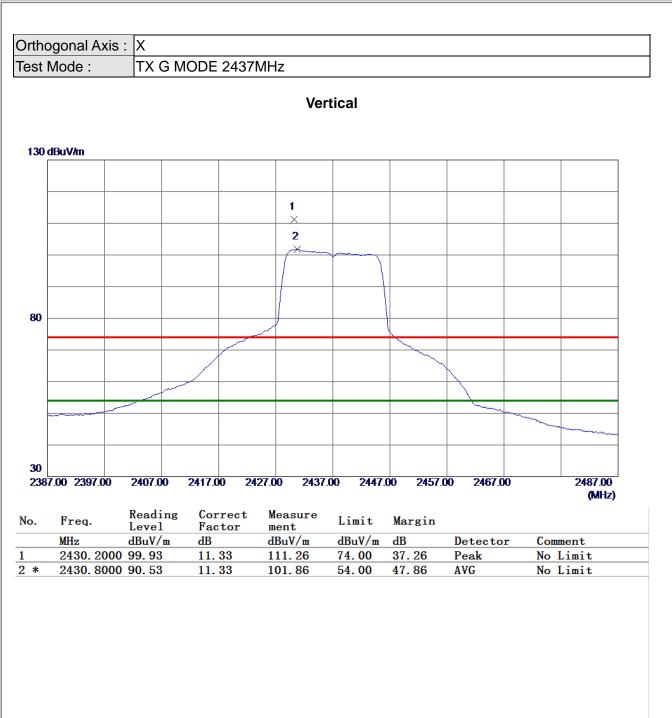






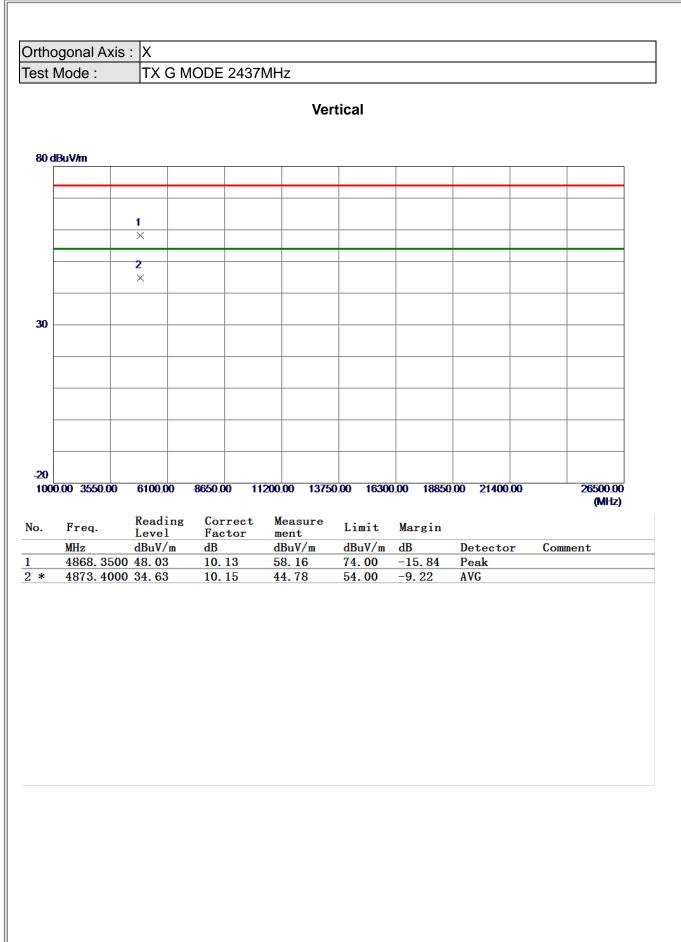






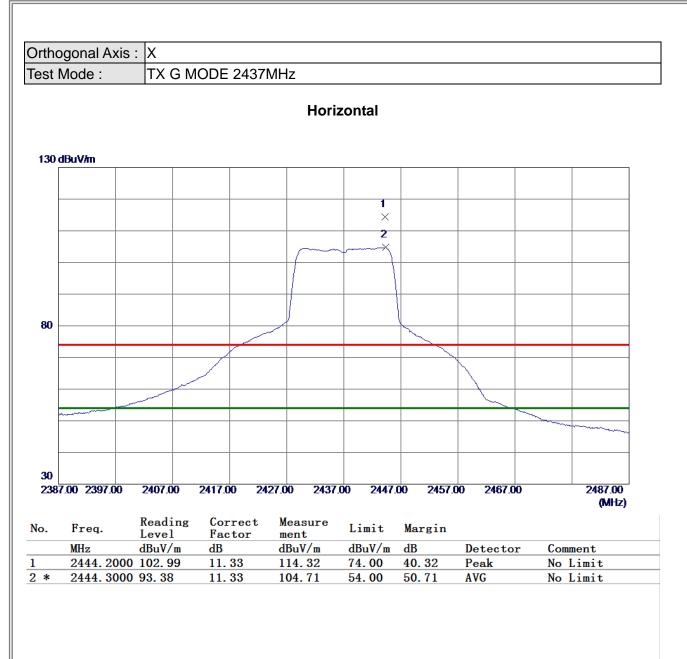






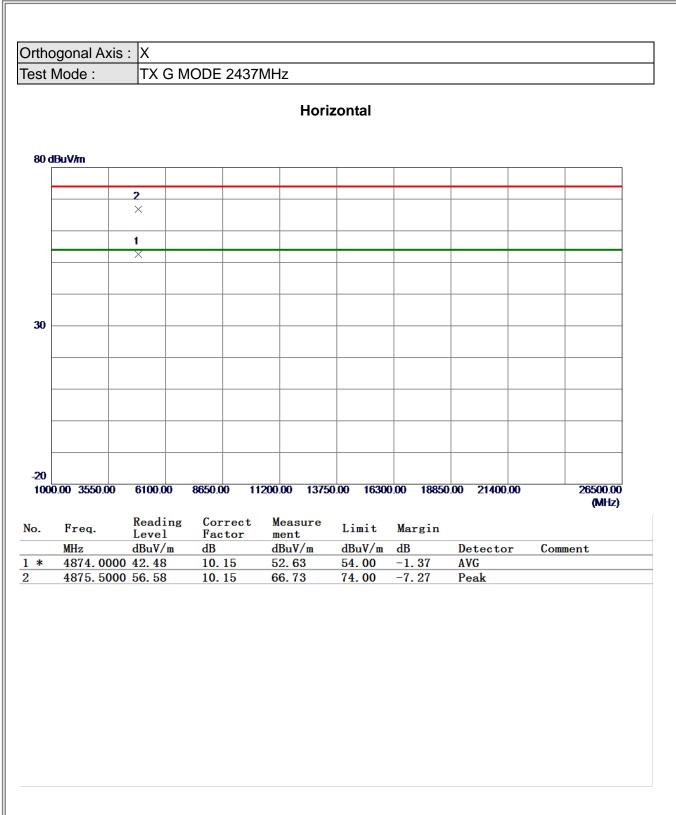






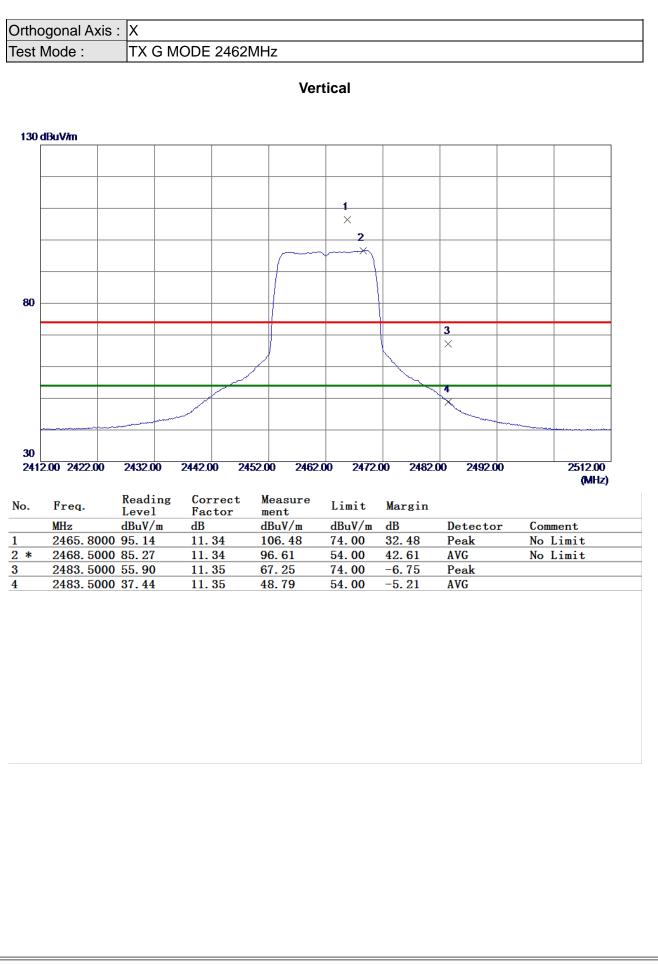






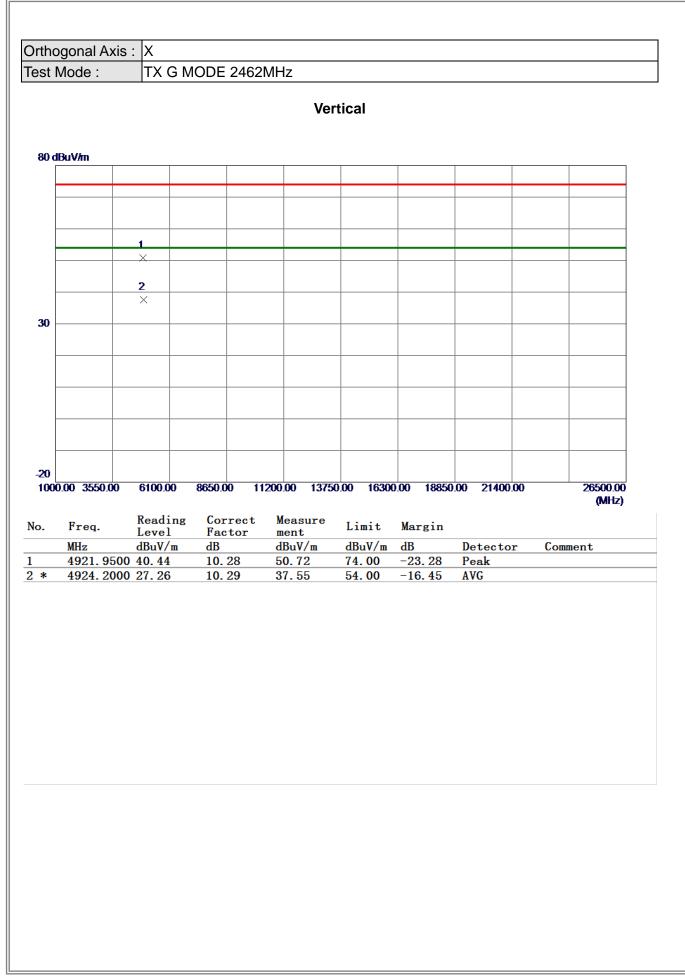






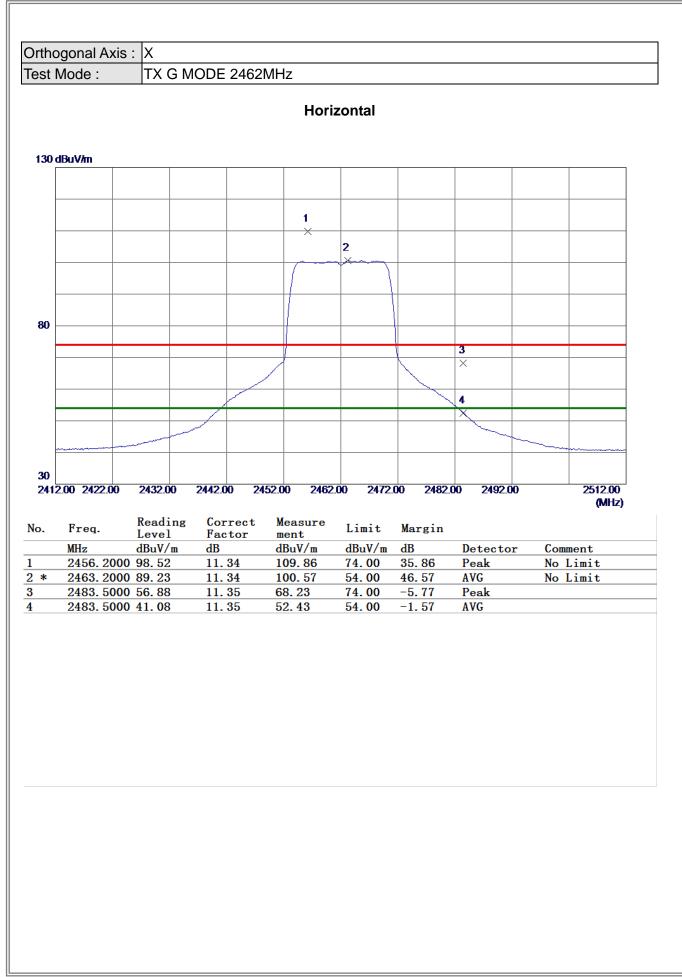






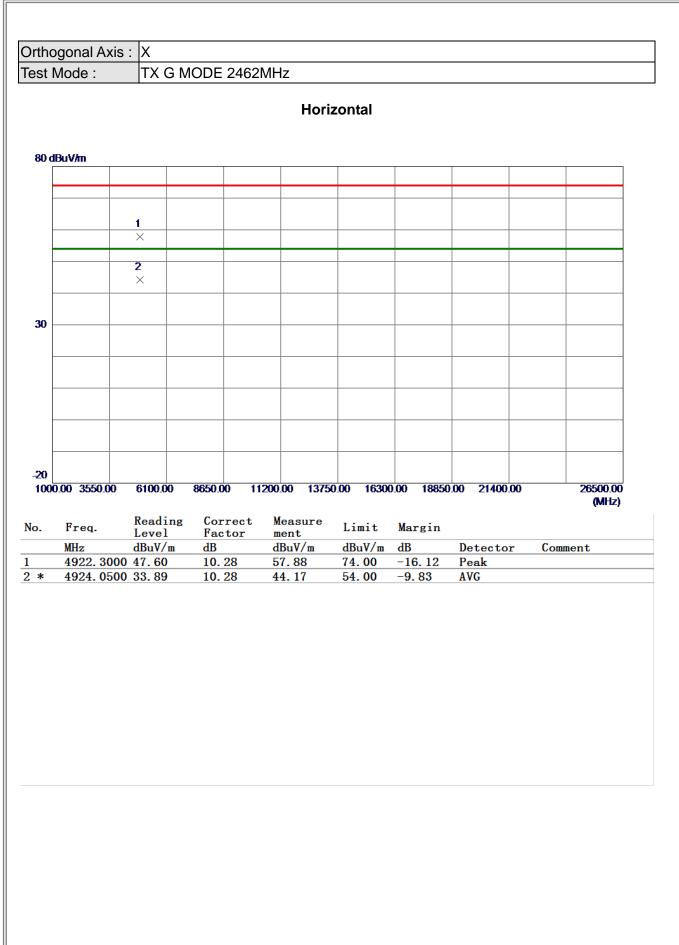






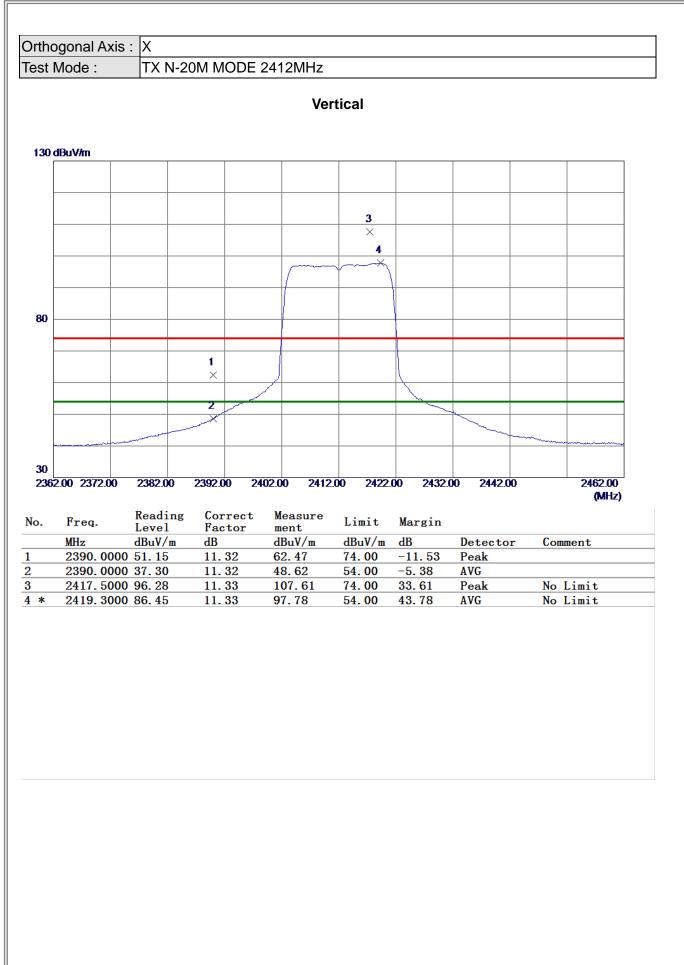






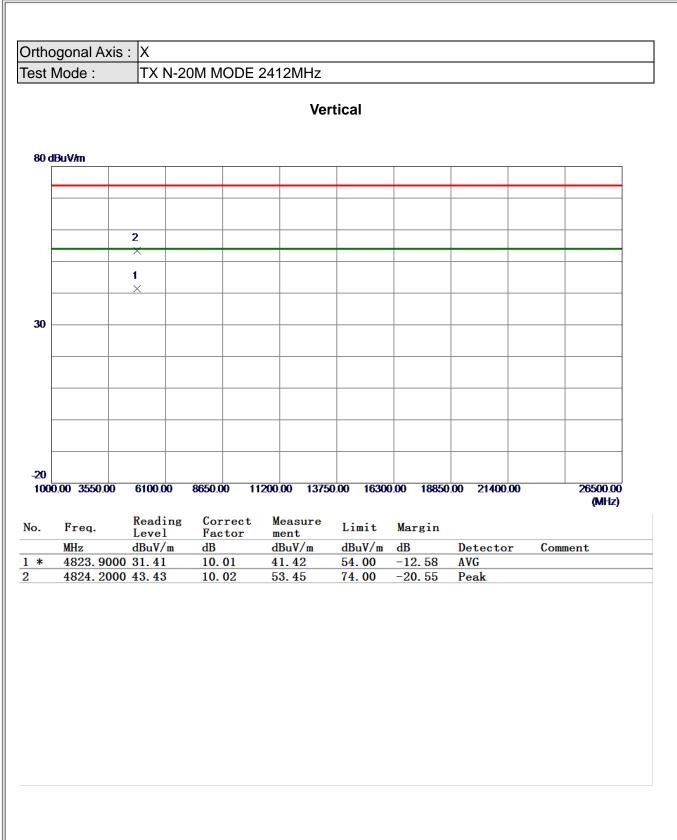






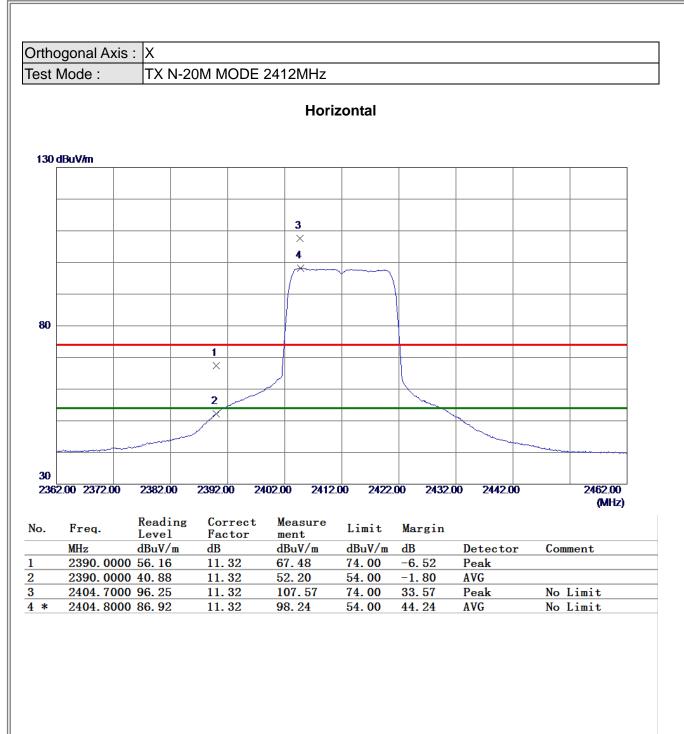






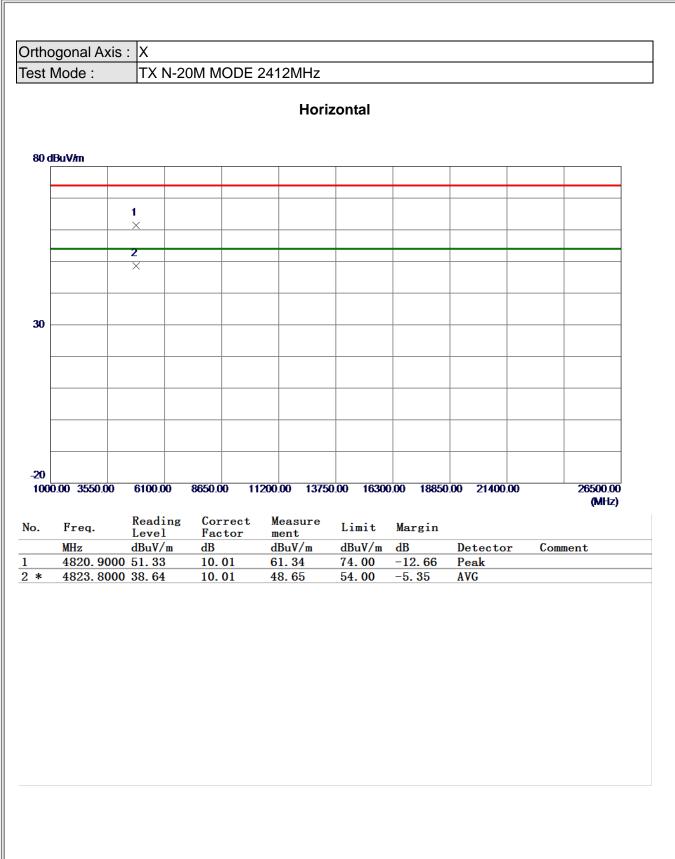






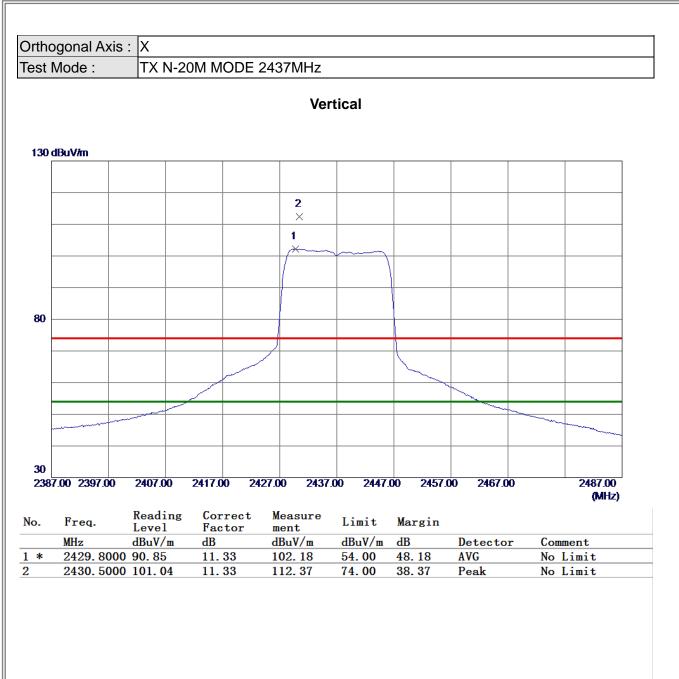












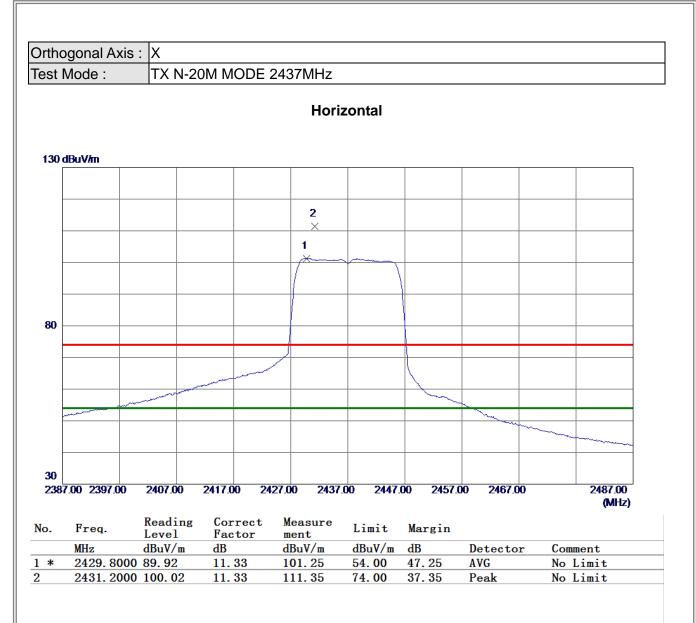






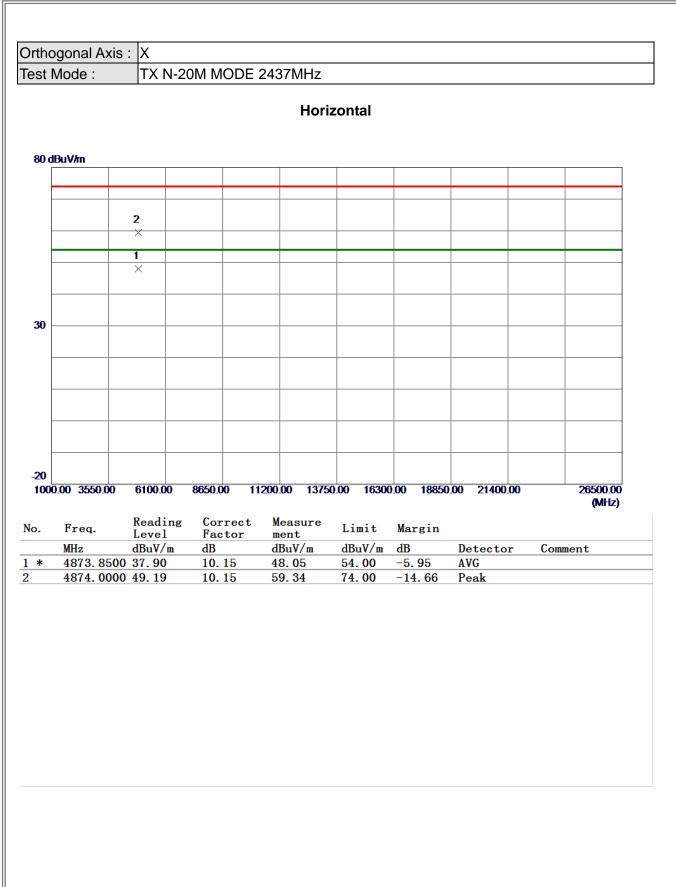






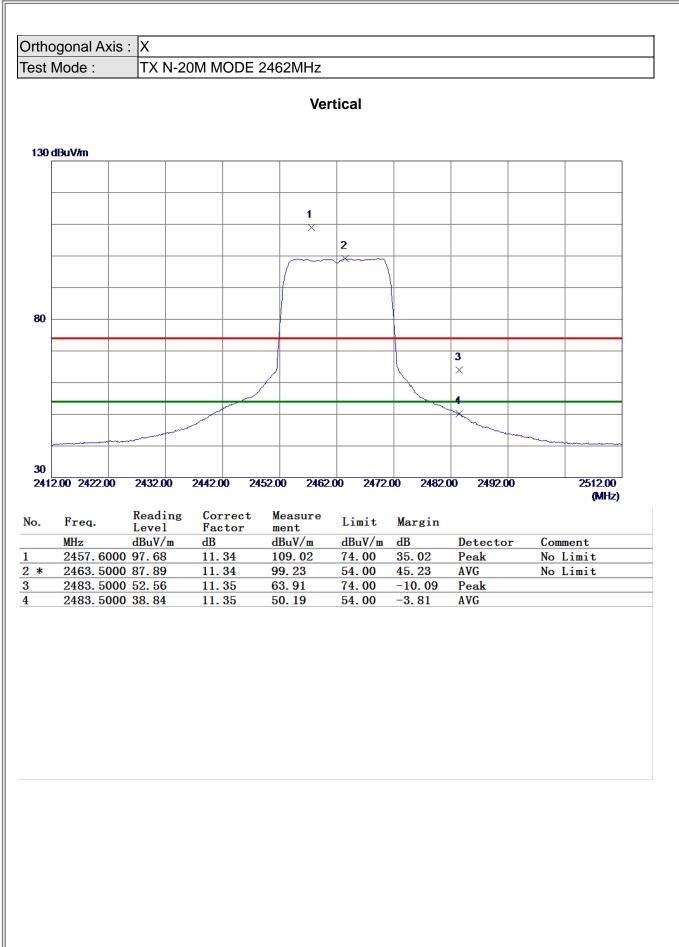






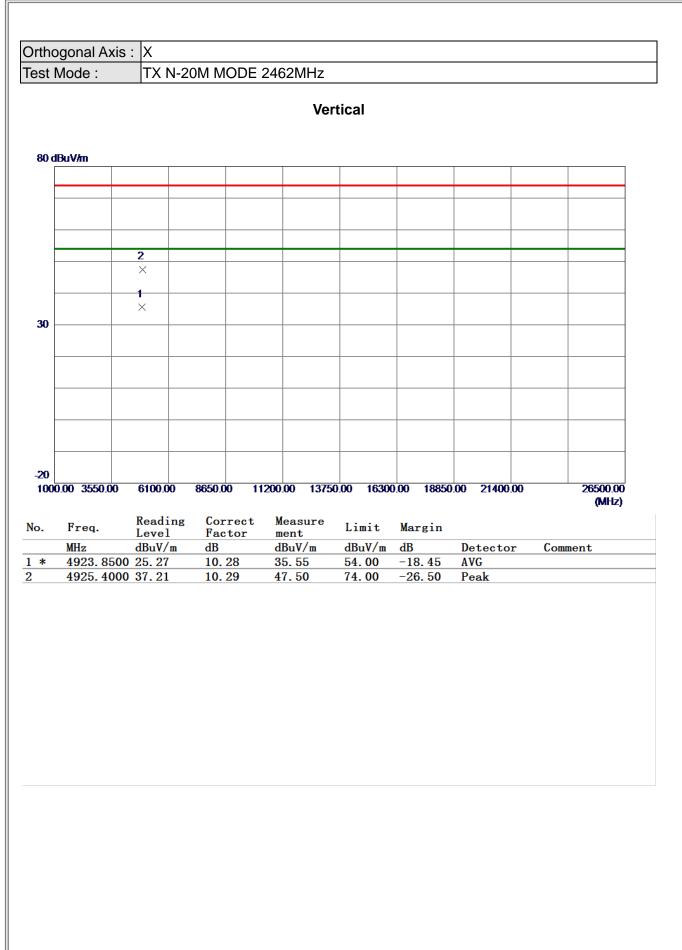






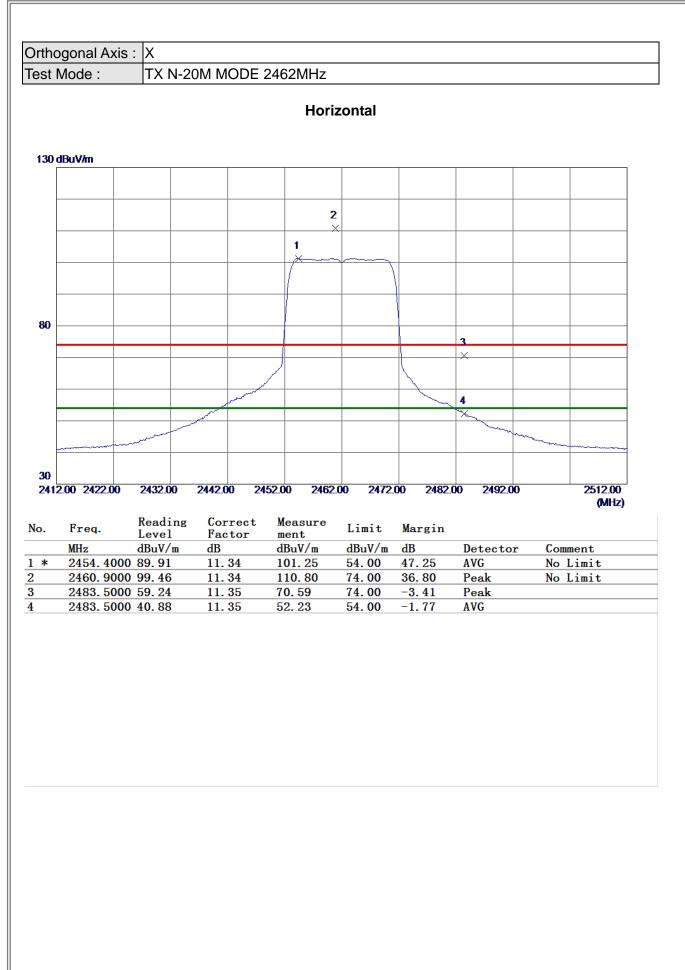






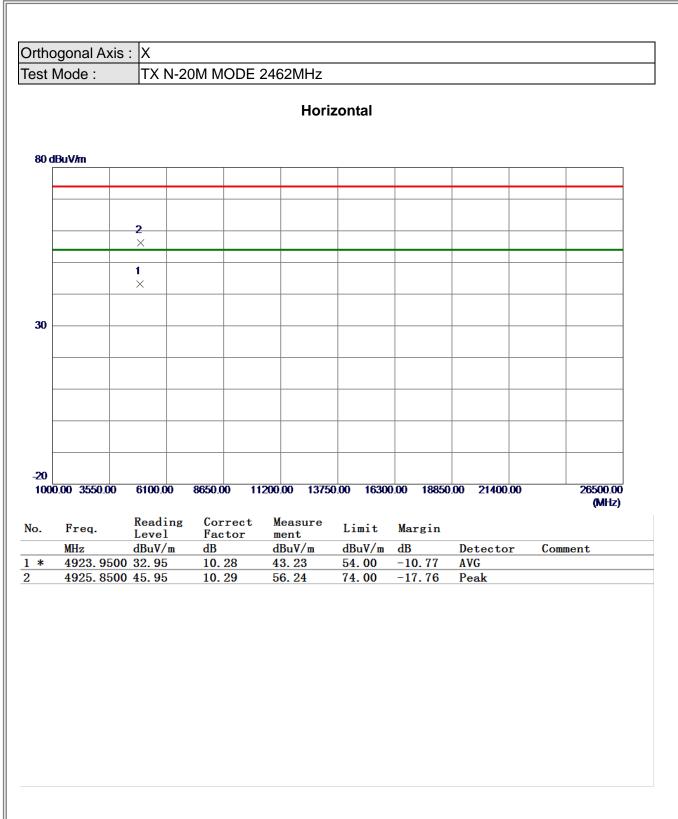






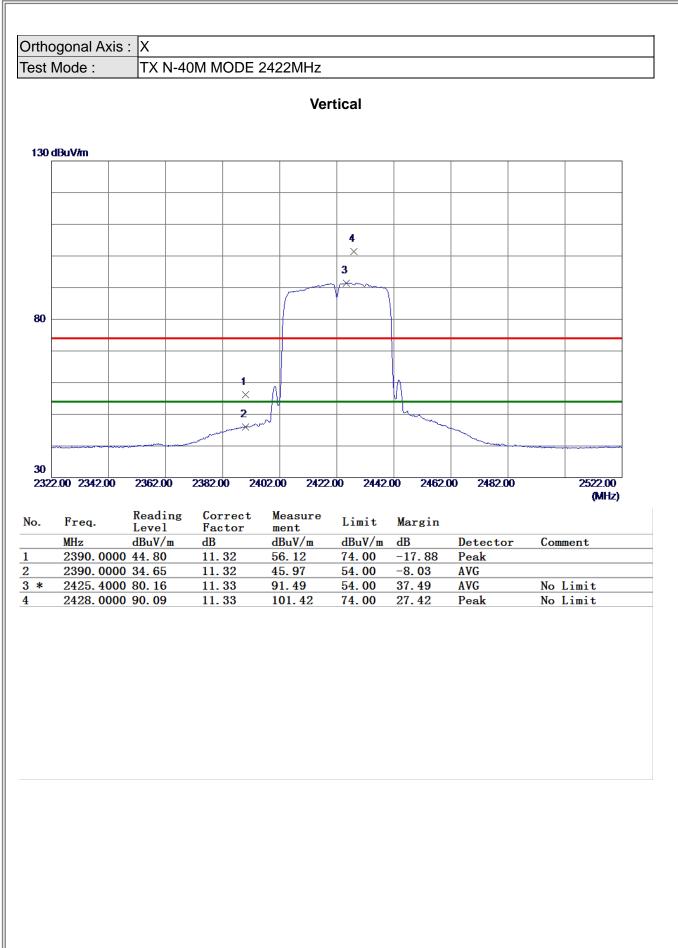






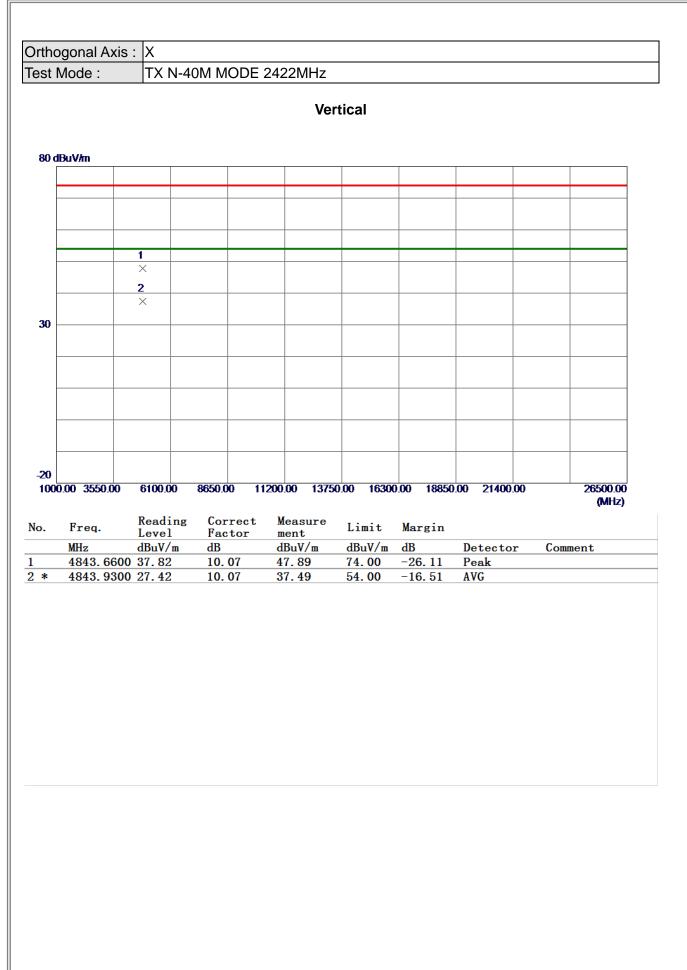






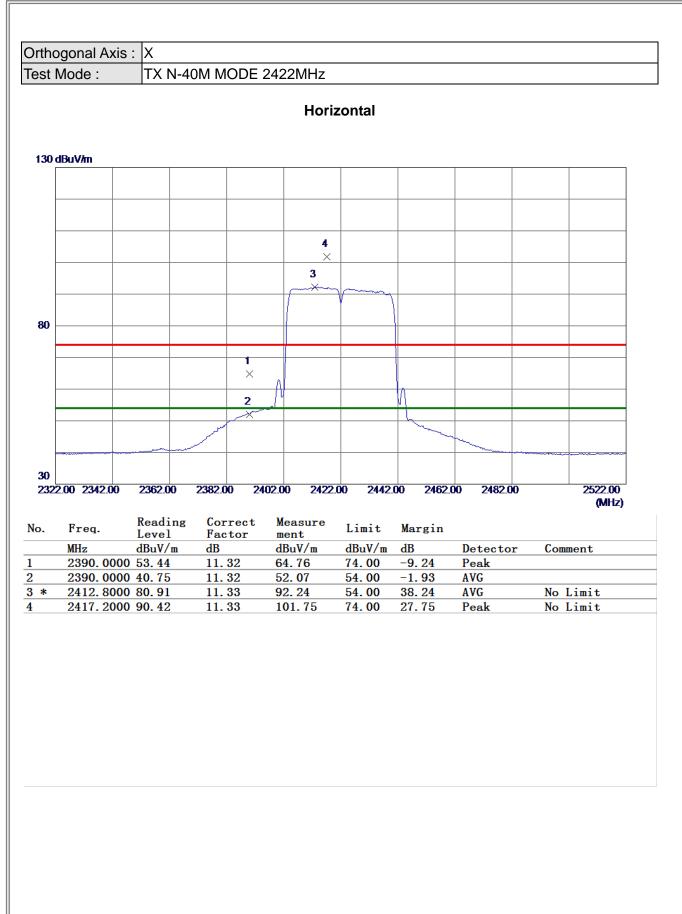






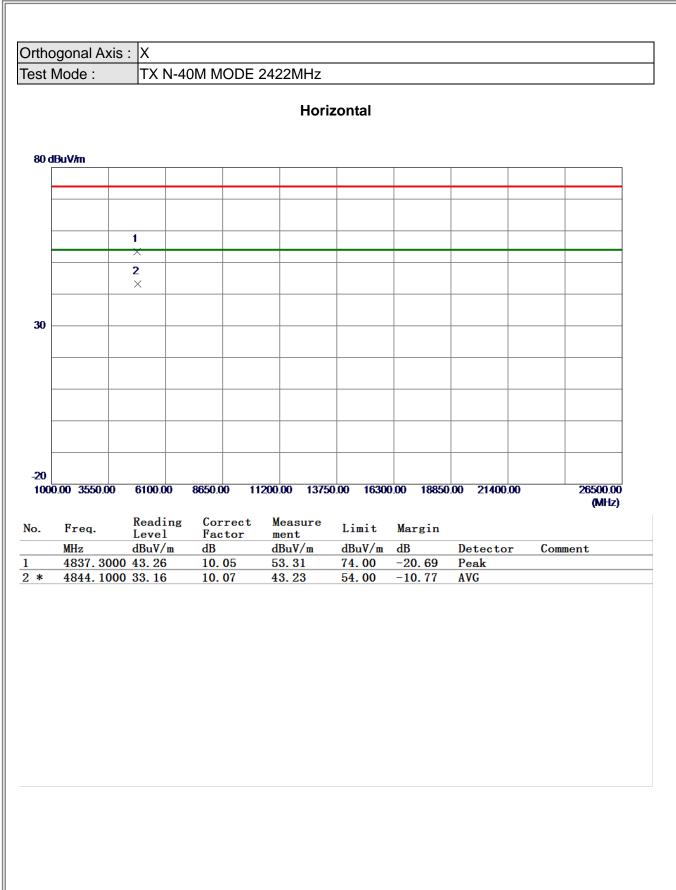






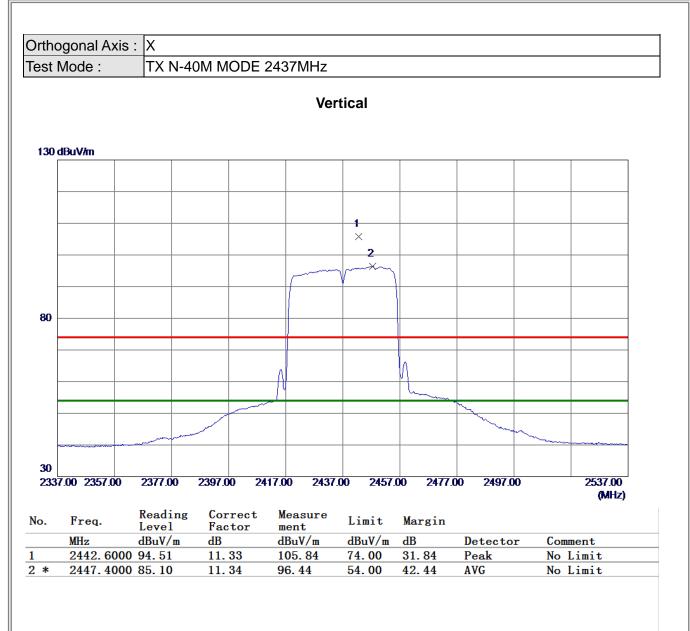






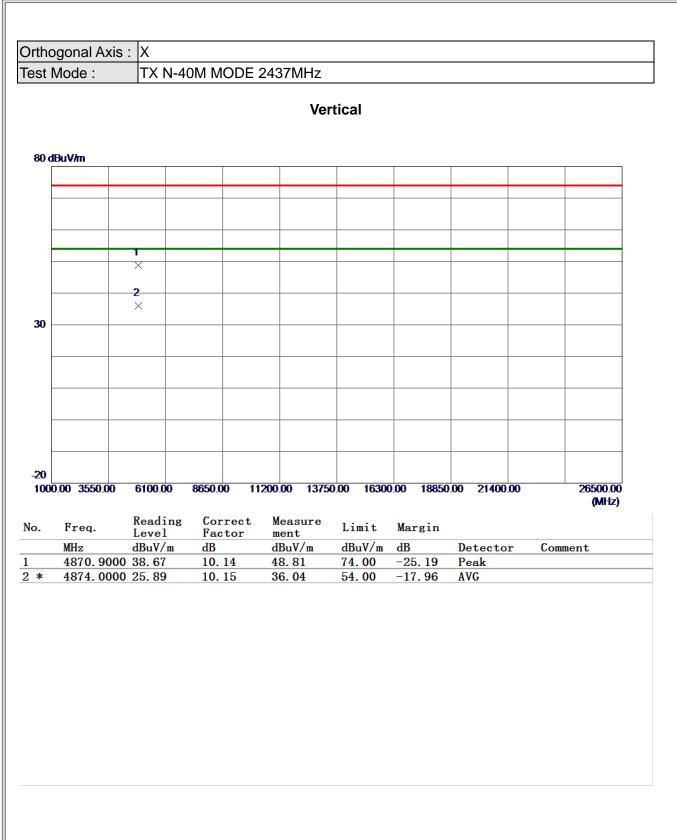






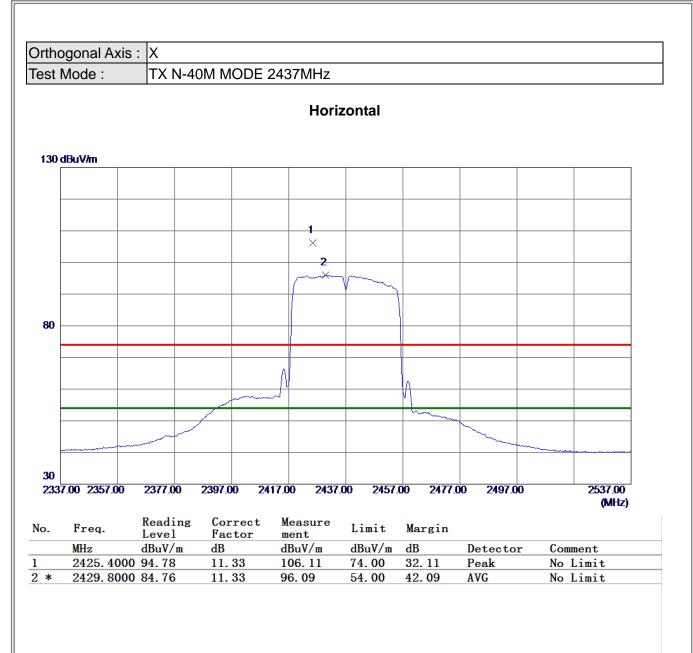






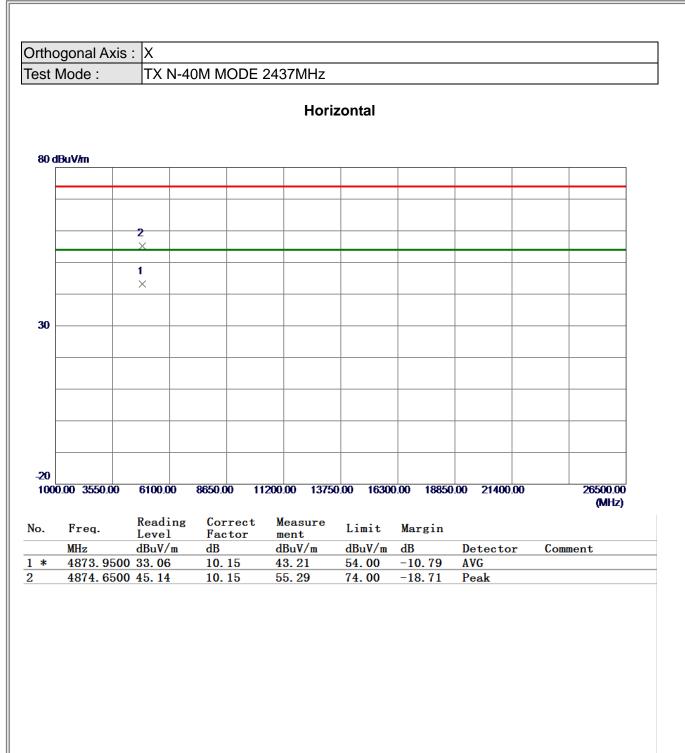






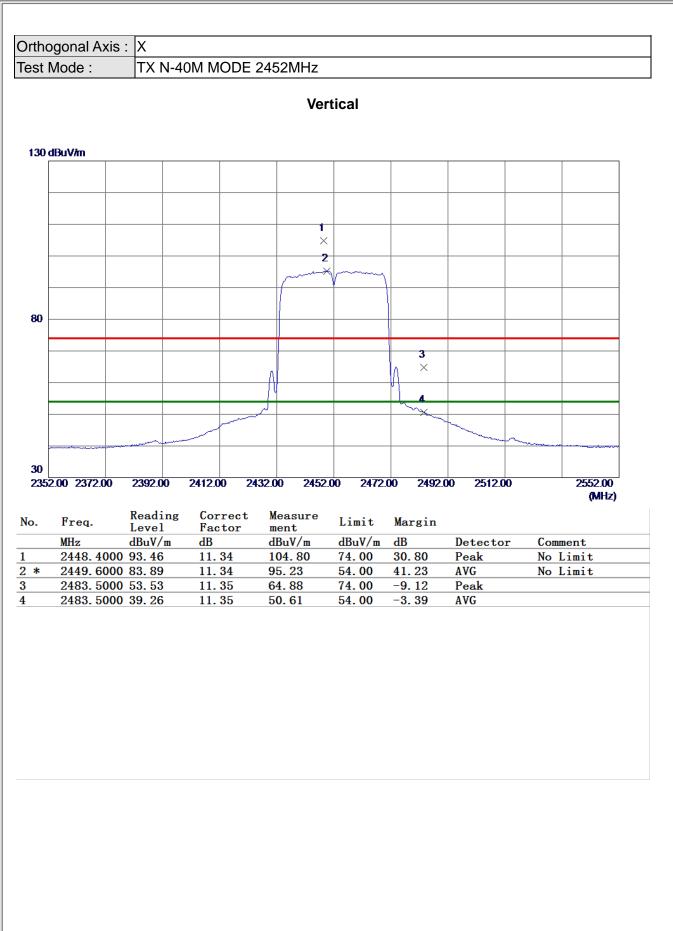






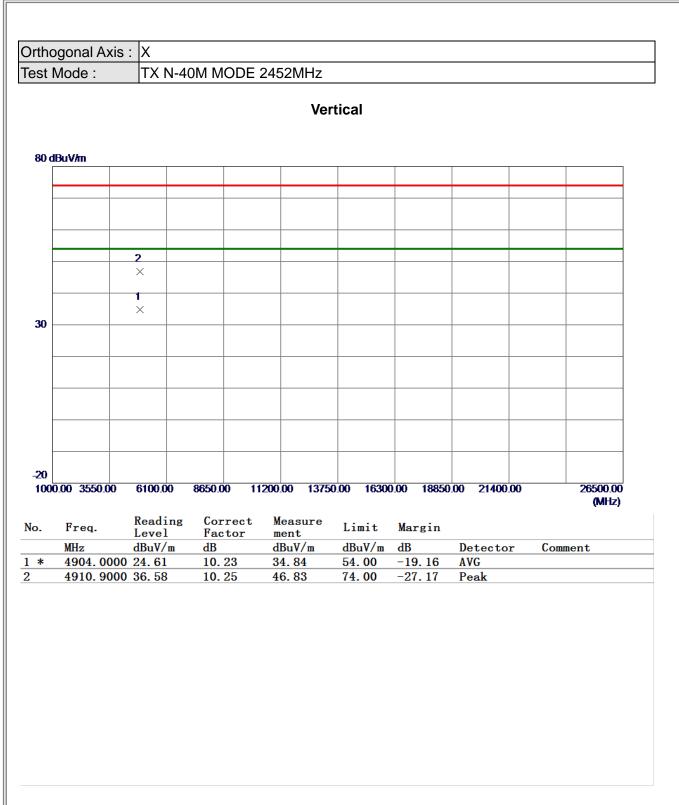






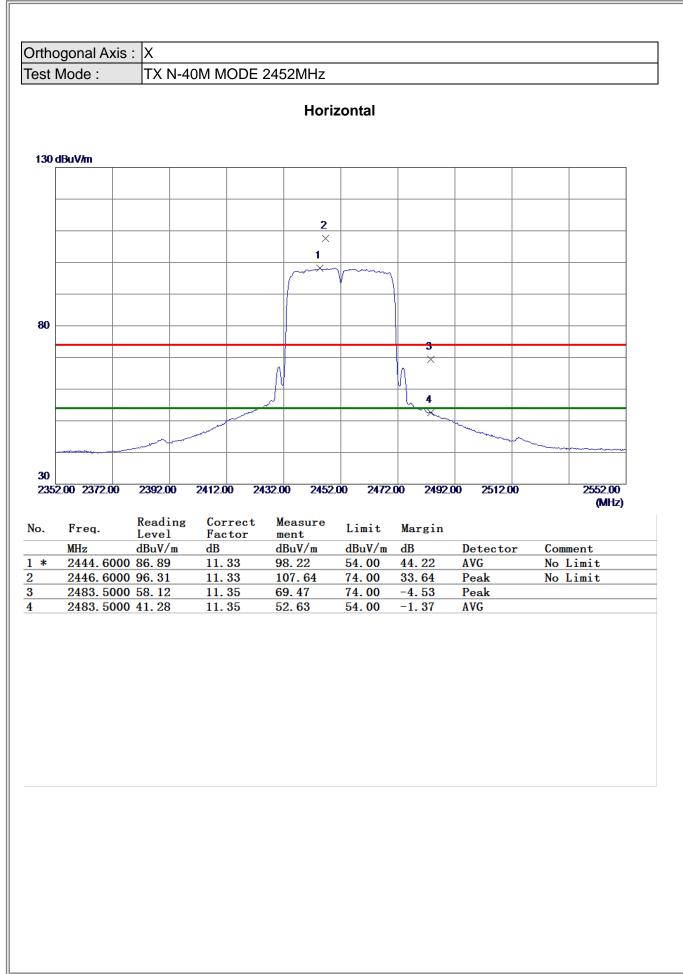






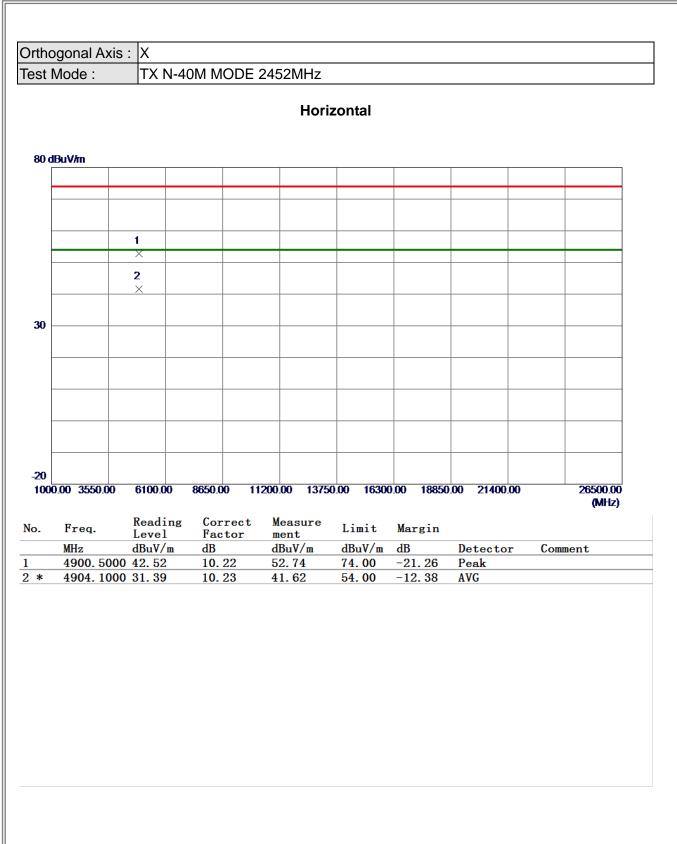
















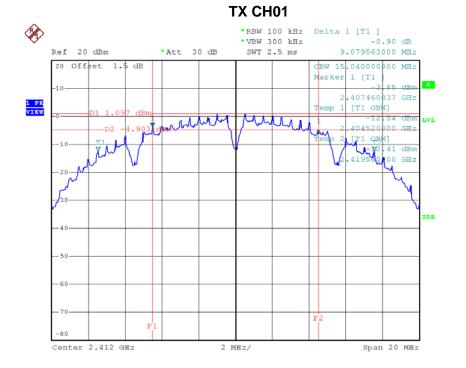
## **APPENDIX E - BANDWIDTH**





## Test Mode : TX B Mode\_CH01/06/11

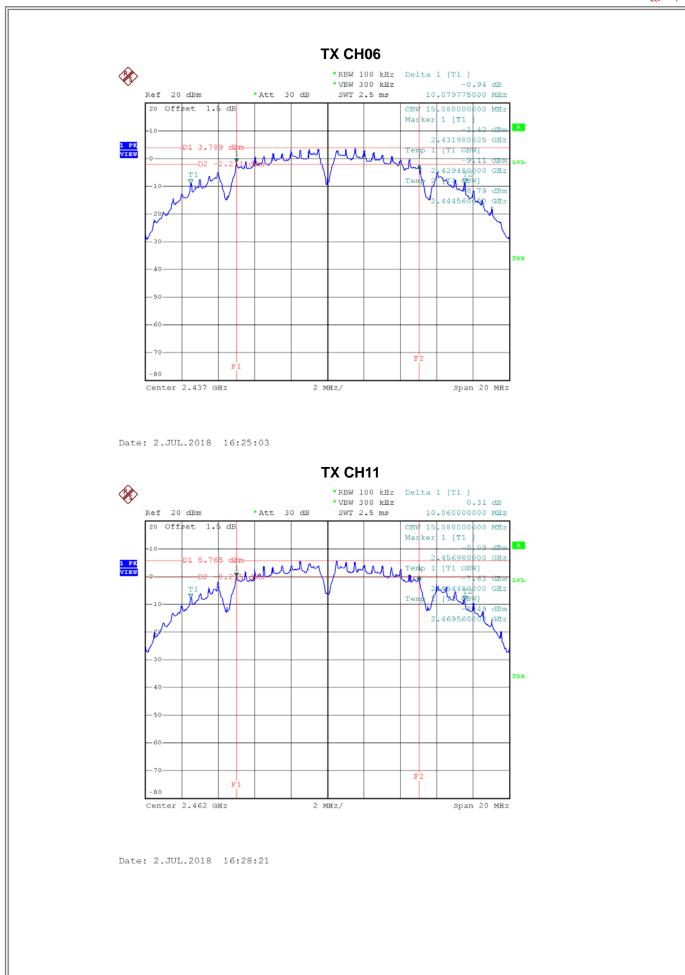
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	9.08	15.04	500	Complies
2437	10.08	15.08	500	Complies
2462	10.06	15.08	500	Complies



Date: 2.JUL.2018 16:20:20





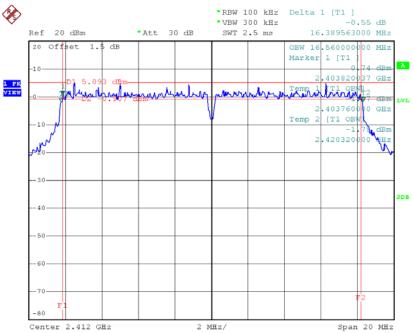






Test Mode: TX G Mode_CH01/06/11						
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result		
2412	16.39	16.56	500	Complies		
2437	16.39	16.56	500	Complies		
2462	16.46	16.56	500	Complies		

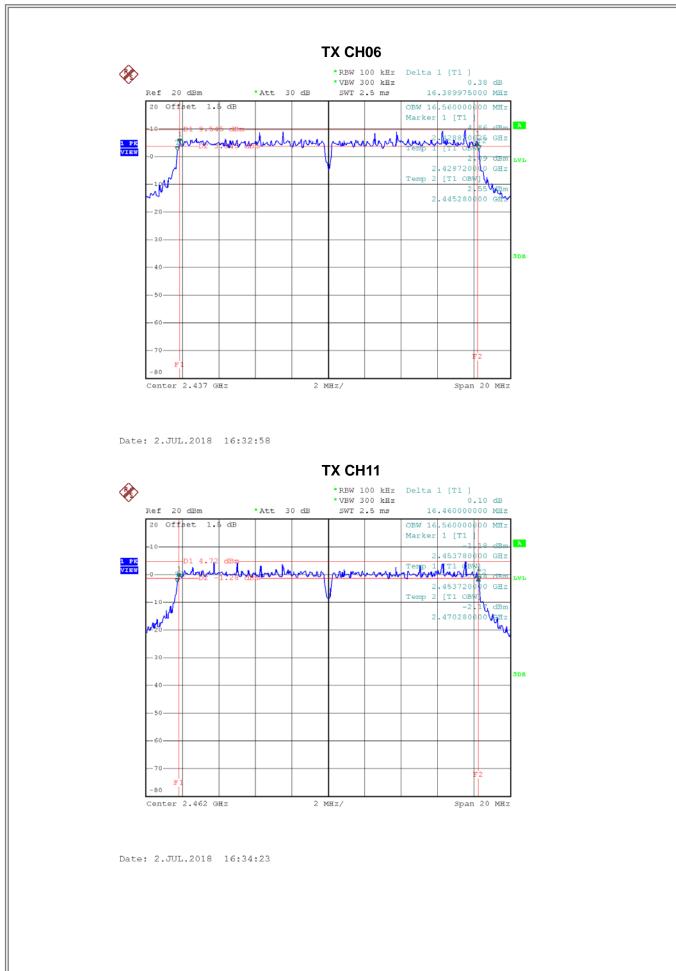




Date: 2.JUL.2018 16:30:49



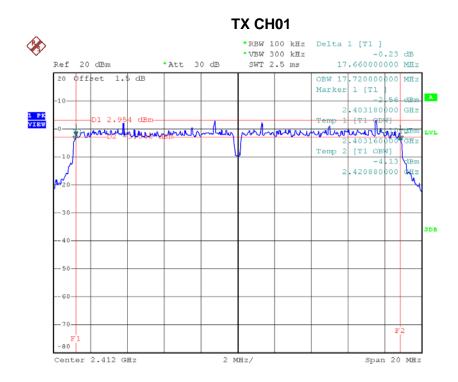




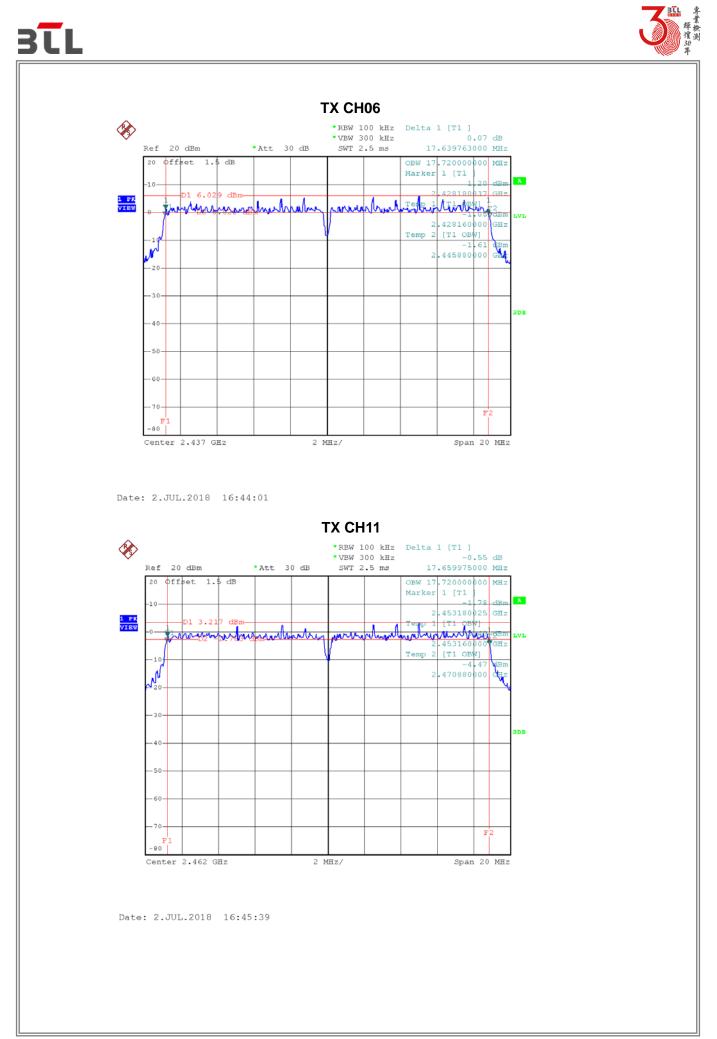




Test Mode : TX N-20MHz Mode_CH01/06/11						
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result		
2412	17.66	17.72	500	Complies		
2437	17.64	17.72	500	Complies		
2462	17.66	17.72	500	Complies		



Date: 2.JUL.2018 16:37:43

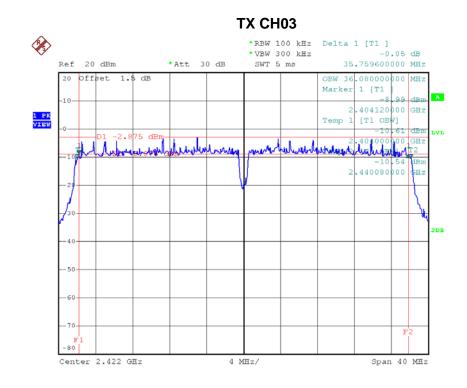


Report No.: BTL-BTL-FCCP-3-1806C009



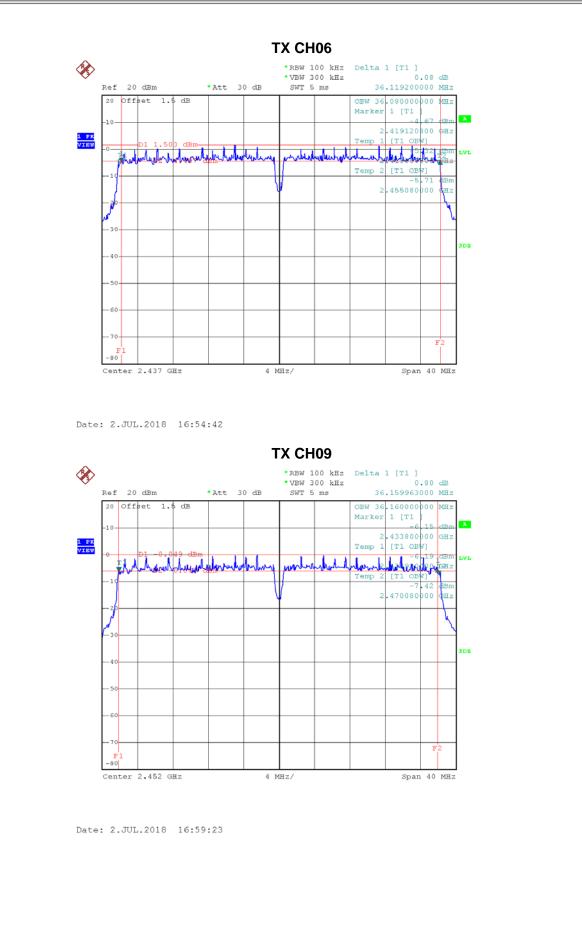


Test Mode : TX N-40MHz Mode_CH03/06/09						
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result		
2422	35.76	36.08	500	Complies		
2437	36.12	36.08	500	Complies		
2452	36.16	36.16	500	Complies		



Date: 2.JUL.2018 16:52:19









## **APPENDIX F - MAXIMUM PEAK CONDUCTED OUTPUT POWER**





Test Mode :TX B Mode_CH01/06/11						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	13.49	0.02	30.00	1.00	Complies	
2437	16.13	0.04	30.00	1.00	Complies	
2462	17.72	0.06	30.00	1.00	Complies	

Test Mode :TX G Mode_CH01/06/11						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	26.36	0.43	30.00	1.00	Complies	
2437	27.62	0.58	30.00	1.00	Complies	
2462	26.38	0.43	30.00	1.00	Complies	





Test Mode :TX N20 Mode_CH01/06/11_ANT 1						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	25.37	0.34	30.00	1.00	Complies	
2437	26.18	0.41	30.00	1.00	Complies	
2462	24.59	0.29	30.00	1.00	Complies	

Test Mode :TX N20 Mode_CH01/06/11_ANT 2						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	23.63	0.23	30.00	1.00	Complies	
2437	25.33	0.34	30.00	1.00	Complies	
2462	25.02	0.32	30.00	1.00	Complies	

Test Mode :TX N20 Mode_CH01/06/11_Total						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	27.60	0.58	30.00	1.00	Complies	
2437	28.79	0.76	30.00	1.00	Complies	
2462	27.82	0.61	30.00	1.00	Complies	





Test Mode :TX N40 Mode_CH03/06/09_ANT 1						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2422	23.42	0.22	30.00	1.00	Complies	
2437	25.72	0.37	30.00	1.00	Complies	
2452	24.08	0.26	30.00	1.00	Complies	

Test Mode :TX N40 Mode_CH03/06/09_ANT 2						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2422	22.81	0.19	30.00	1.00	Complies	
2437	25.34	0.34	30.00	1.00	Complies	
2452	24.59	0.29	30.00	1.00	Complies	

Test Mode :TX N40 Mode_CH03/06/09_Total						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2422	26.14	0.41	30.00	1.00	Complies	
2437	28.54	0.72	30.00	1.00	Complies	
2452	27.35	0.54	30.00	1.00	Complies	

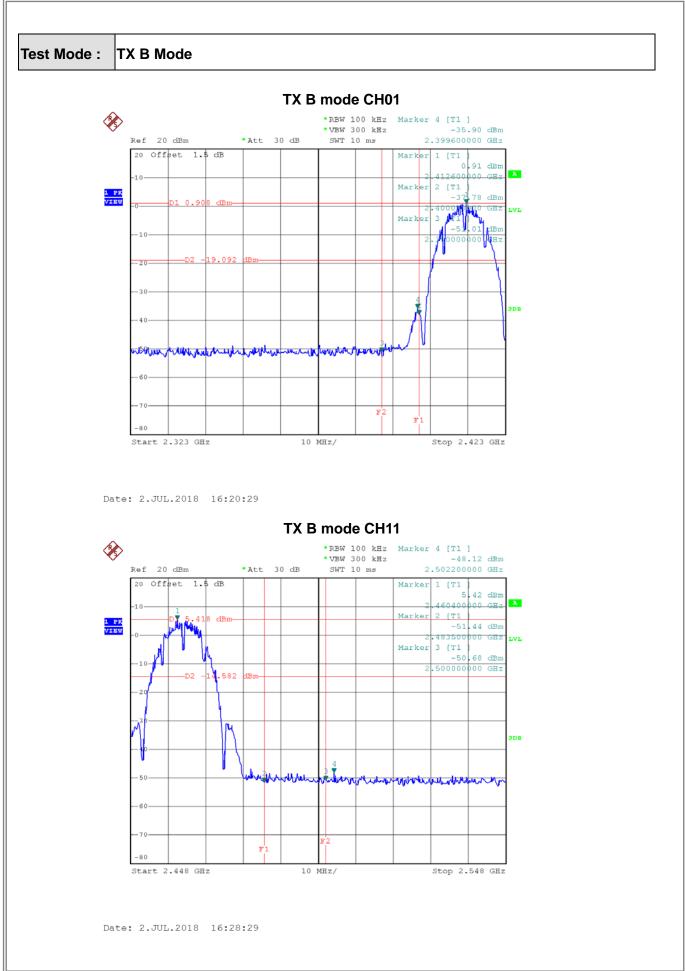




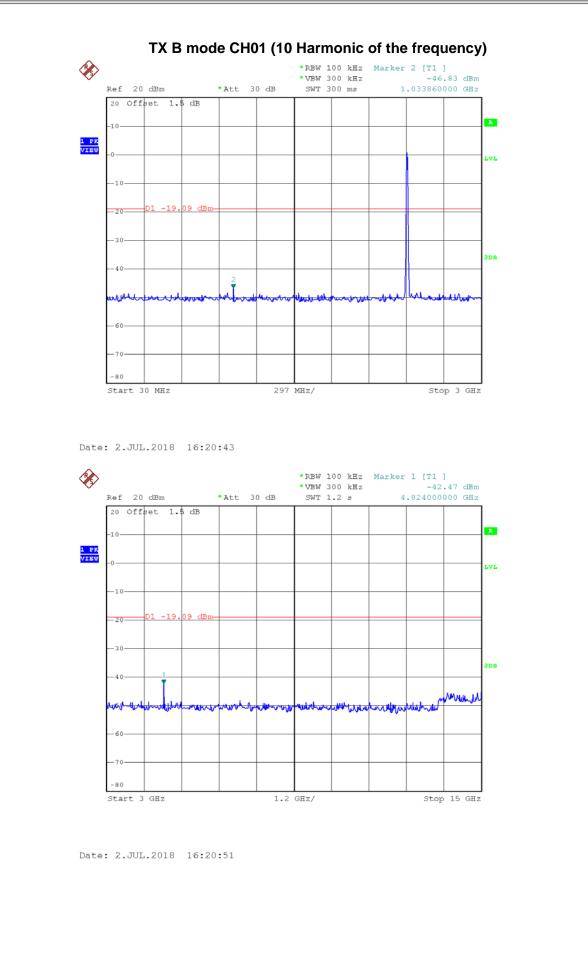
## **APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION**

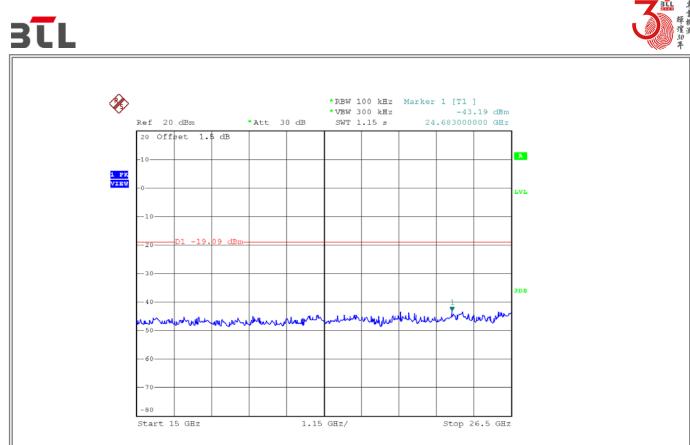




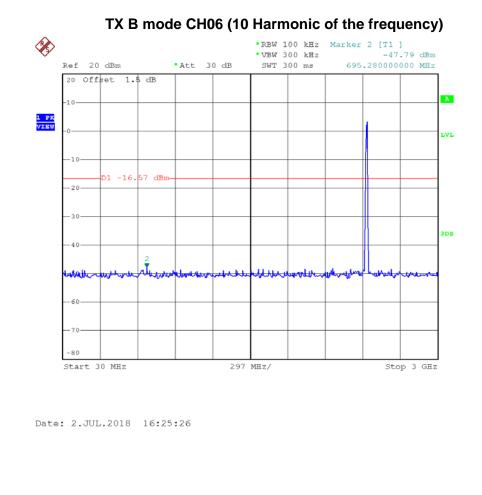


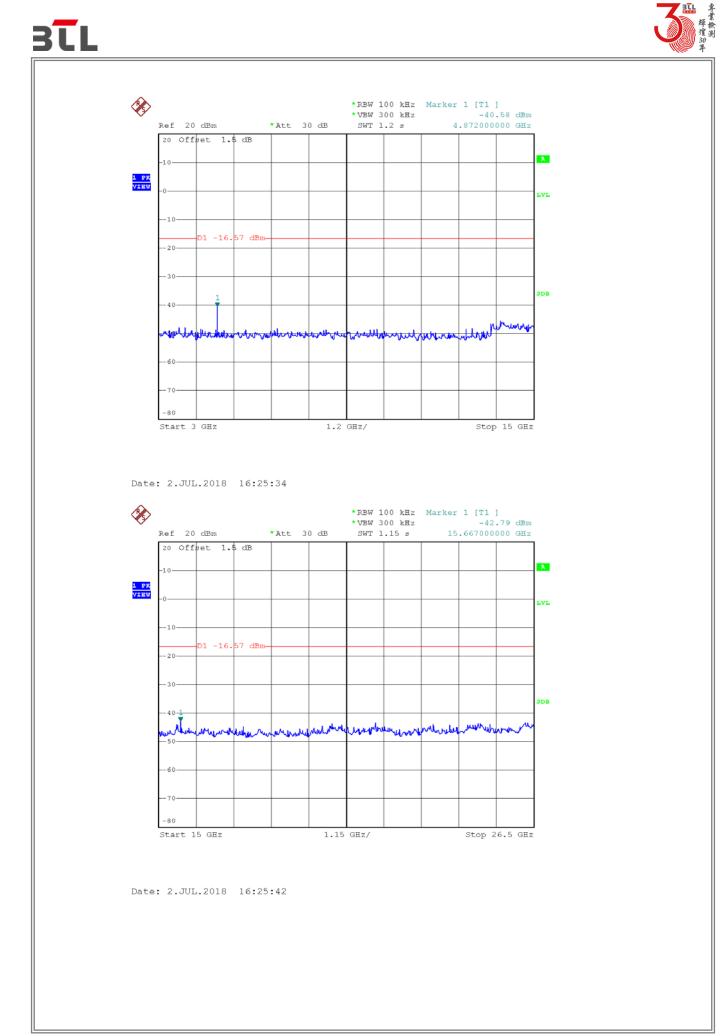




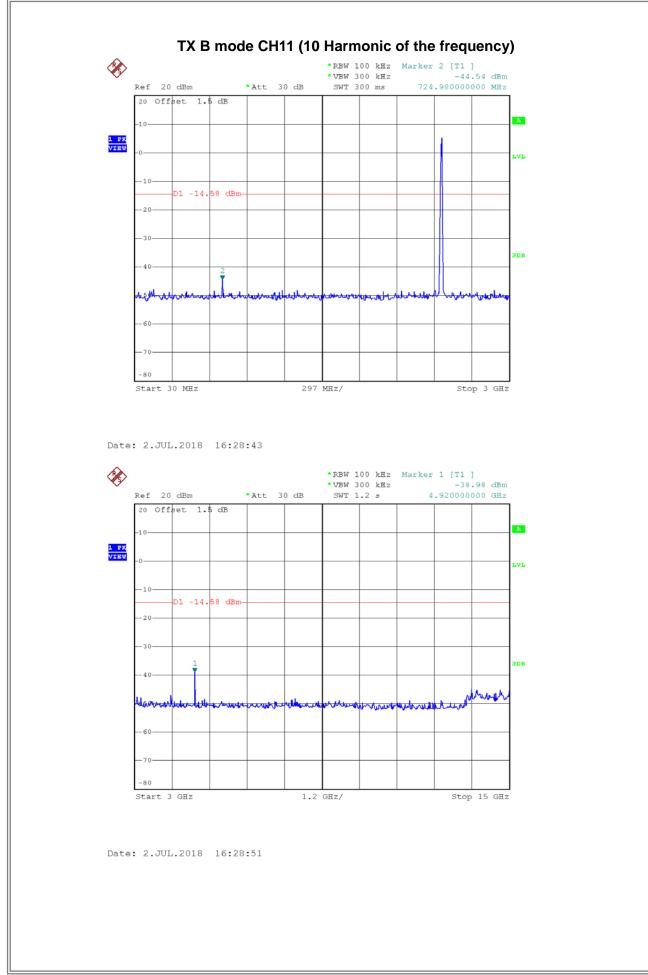


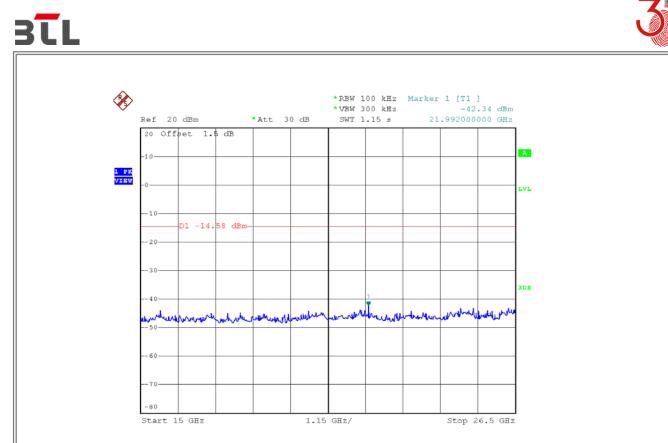
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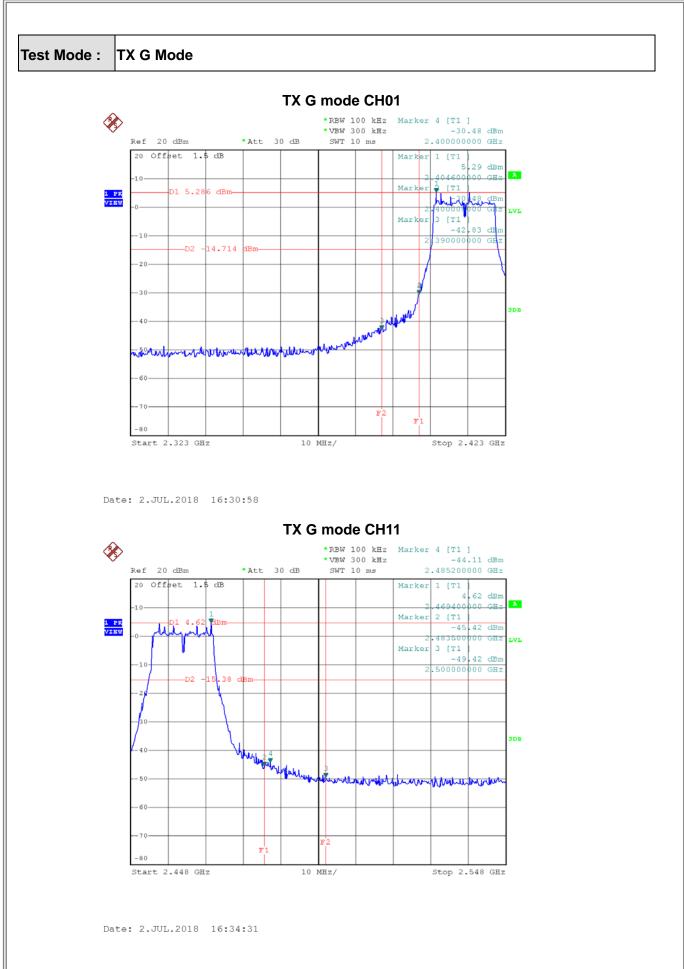


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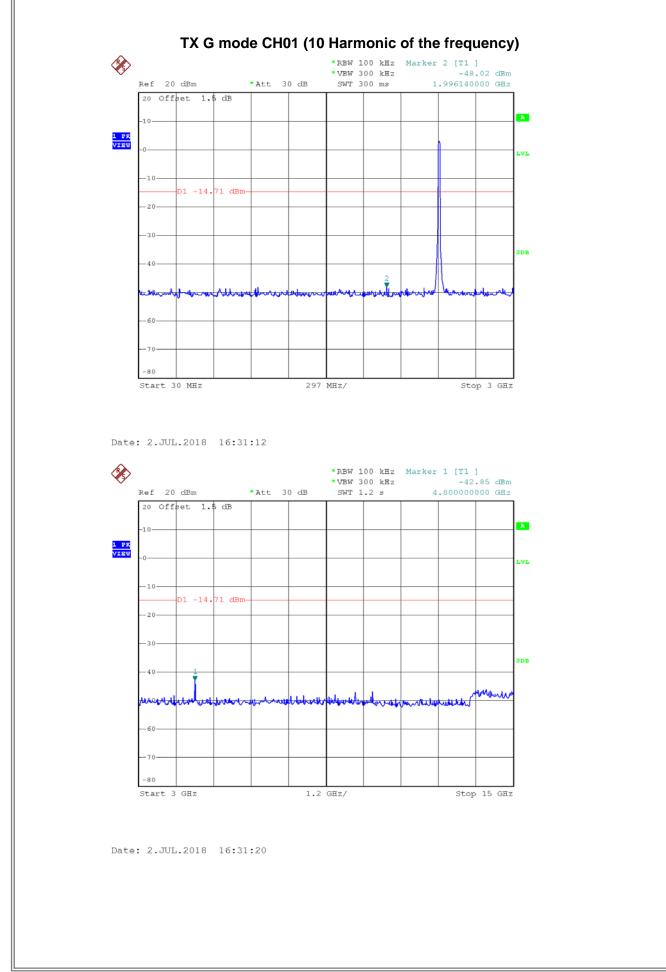
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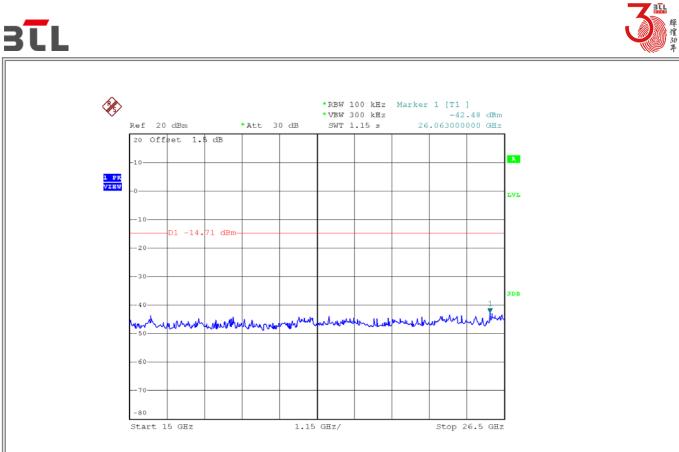




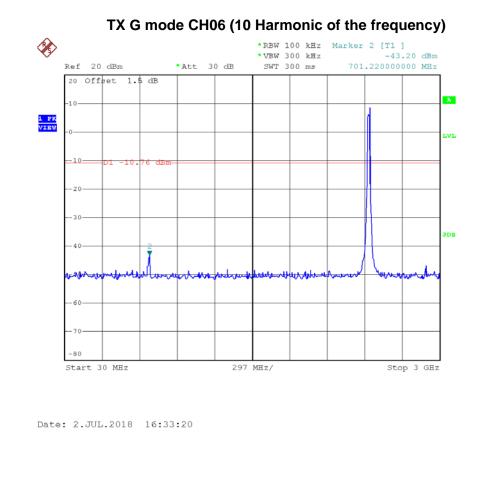


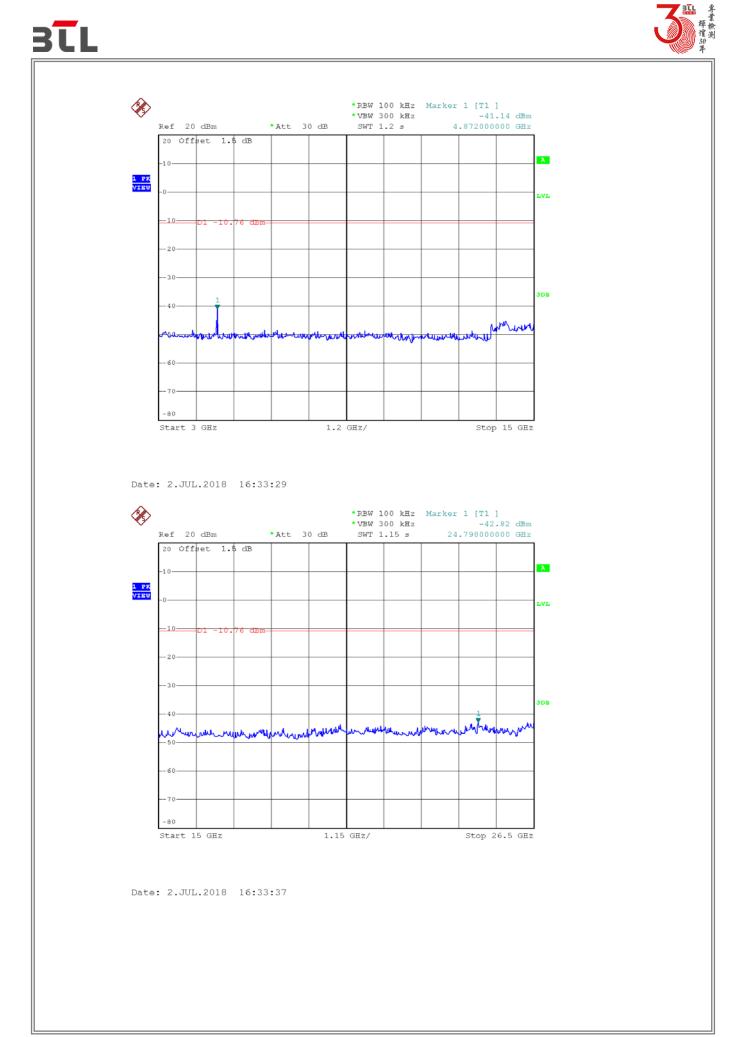




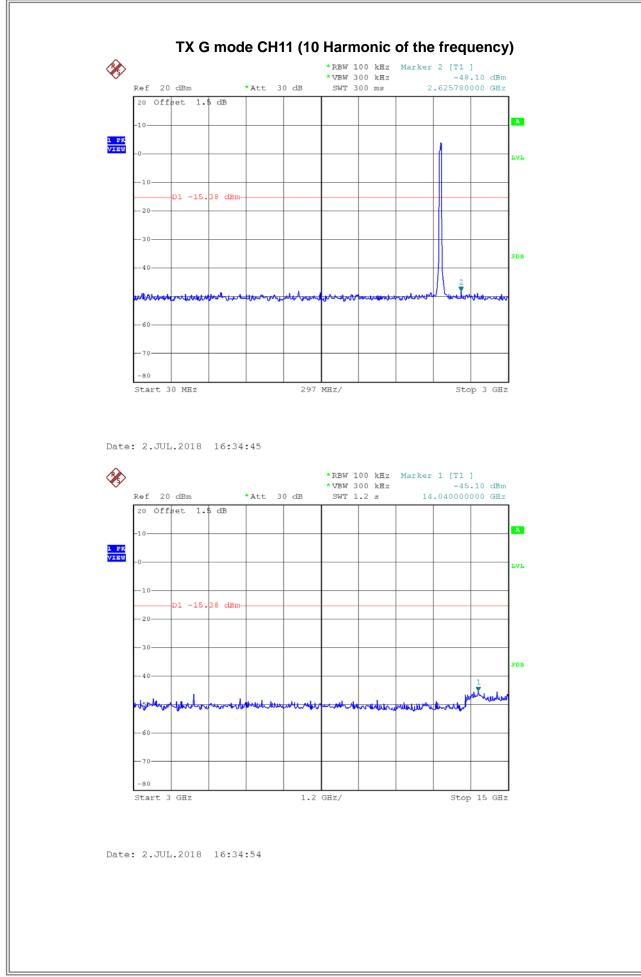


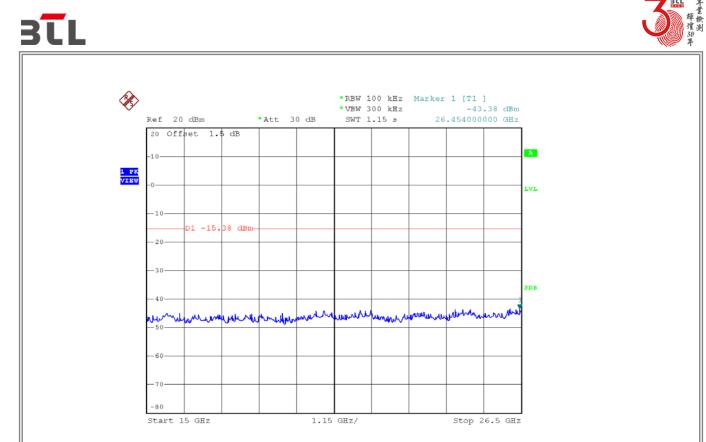
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Date: 2.JUL.2018 16:35:02





