



FCC ID: QISCAG-L23 This report concerns (check one): Original Grant Olass I Change Olass II Change
This report concerns (check one): ⊠Original Grant ⊡Class I Change ⊡Class II Change
Project No.: 1701C155LEquipment: Smart PhoneModel Name: CAG-L23Applicant: Huawei Technologies Co.,Ltd.Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District Shenzhen China
Date of Receipt : Jan. 18, 2017 May 09, 2017 Date of Test : Jan. 18, 2017 ~ Feb. 27, 2017 May 14, 2017 ~ Jun. 05, 2017 Issued Date : Jan. 19, 2018 Tested by : BTL Inc.
Testing Engineer : <u>Shawn Xiao</u> (Shawn Xiao)
Technical Manager : David Mao (David Mao)
Authorized Signatory : <u>Seven h</u> (Steven Lu)
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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

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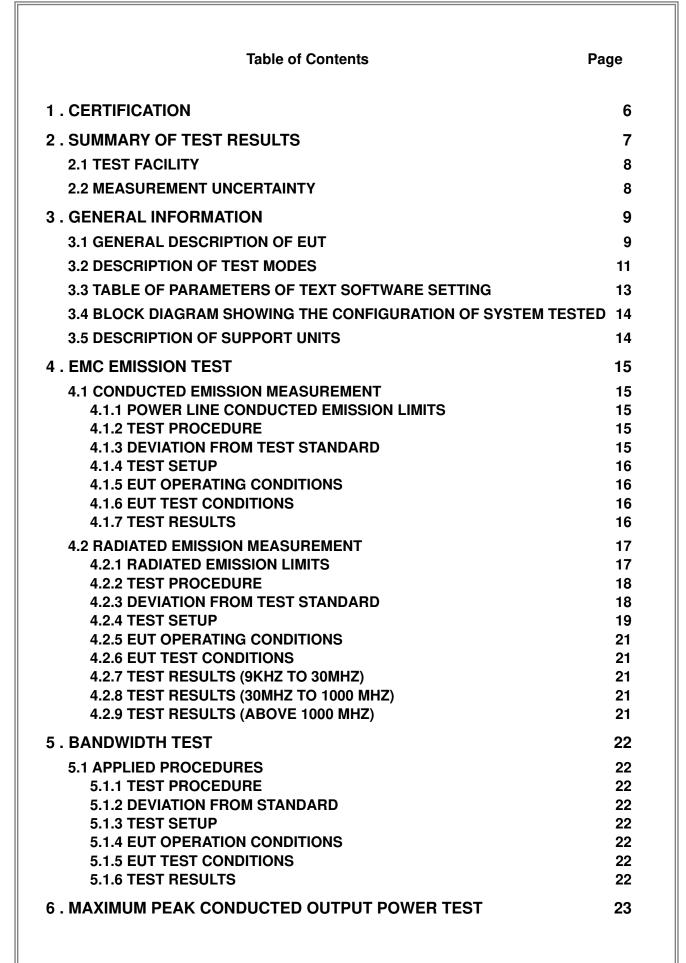
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Limitation

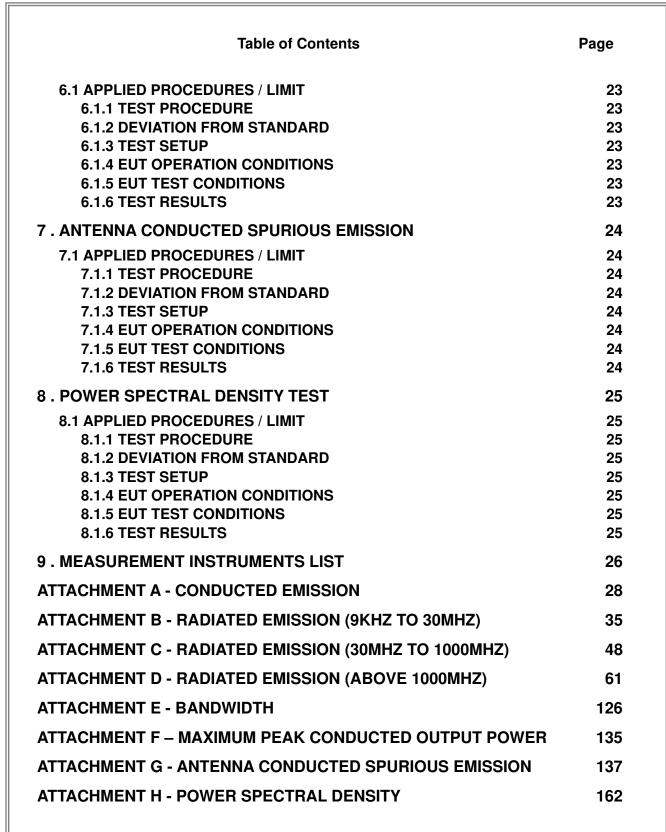
For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.















REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-3-1701C155	Original Report.	Feb. 28, 2017
BTL-FCCP-3-1701C155A	Compared with the original report (BTL-FCCP-3-1701C155), the model CRO-L23 is added and differences please see the below table. According to the differences description below table, CRO-L23 shares the same test data of CRO-L03 of the same bands which does not affect the test results of the test report.	Mar. 23, 2017
BTL-FCCP-3-1701C155E	Compared with the original report (BTL-FCCP-3-1701C155A), the antenna is changed and battery, earphone are added. The Radiated Spurious Emissions had been evaluated and recorded in the test report, the rest are the same.	Jun.06, 2017
BTL-FCCP-3-1701C155L	 Compared with previous report (BTL-FCCP-3-1701C155E) 1. Changed FCC ID. 2. Changed model name CRO-L03, CRO-L23 to CAG-L23. (Only differ in Android Edition) The changes do not affect the test results, the rest are kept the same. 	Jan. 19, 2018





1. CERTIFICATION

Equipment :	
Brand Name :	HUAWEI
Model Name :	CAG-L23
Applicant :	Huawei Technologies Co.,Ltd.
Manufacturer :	Huawei Technologies Co.,Ltd.
Address :	Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
	Bantian, Longgang District Shenzhen China
Factory :	Huawei Technologies Co.,Ltd.
Address :	Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
	Bantian, Longgang District Shenzhen China
Date of Test :	Jan. 18, 2017 ~ Feb. 27, 2017
	May 14, 2017 ~ Jun, 05, 2017
Test Sample :	Engineering Sample
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-3-1701C155L) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP according to the ISO-17025 quality assessment standard and technical standard(s).



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard	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

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

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

A. Conducted Measurement:

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

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)			
		9KHz~30MHz	V	3.79			
		9KHz~30MHz	Н	3.57			
		30MHz ~ 200MHz	V	3.82			
		30MHz ~ 200MHz	Н	3.78			
DG-CB03		200MHz ~ 1,000MHz	V	4.10			
DG-CB03		200MHz ~ 1,000MHz	Н	4.06			
		1GHz~18GHz	V	3.12			
						1GHz~18GHz	Н
		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	Smart Phone		
Brand Name	HUAWEI		
Model Name	CAG-L23		
Model Difference	N/A		
	Operation Frequency	2412~2462 MHz	
	Modulation Technology	802.11b:DSSS 802.11g:OFDM 802.11n:OFDM	
Product Description	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: 19.72dBm 802.11g: 24.35dBm 802.11n(20MHz): 22.11dBm 802.11n(40MHz): 22.39dBm	
Power Source	#1 DC Voltage supplied from AC/DC adapter. #2 Battery Supplied.		
Power Rating	#1:AC 100–240V 50/60Hz DC 5V 1A #2:DC 3.82V 2200mAh		
HW Version	HL1CROM		
SW Version	Cairo-L23C469B022		

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)
1	N/A	N/A	Internal	N/A	2.14





Item	Mfr/Brand	Model.
	SCUD (FUJIAN) Electronics Co., Ltd	
Battery	Shenzhen Desay Battery Tech Co., Ltd.	HB3742A0EZC+
	Sunwoda Electronic Co.,LTD.	
	FOXCONN INTERCONNECT TECHNOLOGY LIMITED	CUBB01M-HC208-
USB Cable	HONGLIN TECHNOLOGY CO.,LTD	130-26654
	Luxshare Precision Industry Co., Ltd.	L99U2013-CS-H
	Jiangxi Lianchuang Hongsheng Electronic Co.,LTD	MEMD1632B580C
	BOLUO COUNTY QUANCHENG ELECTRONIC CO.,LTD	1311-3291-3.5mm-
	MERRY ELECTRONICS CO., LTD.	EMC309-001
Earphone	Jiangxi Lianchuang Hongsheng Electronic Co.,LTD (Black)	MEMD1532B5280
	BOLUO COUNTY QUANCHENG ELECTRONIC CO.,LTD (Black)	1293#+3283# 3.5MM-150
	GoerTek (Black),	HA1-3
	GoerTek (White)	NA12
	HUIZHOU BYD ELECTRONIC CO., LTD.	
Adapter	Shenzhen Huntkey Electric Co., Ltd.	HW-050100U01
	DONG GUAN PHITEK ELECTRONICS CO., LTD.	

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		

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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%.



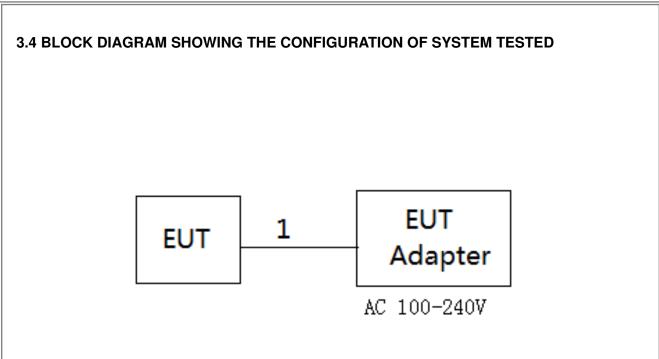
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

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	17	17	17
802.11g	15	16	15
802.11n (20MHz)	12	12	12
Frequency	2422	2437	2452
802.11n (40MHz)	12	12	12







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	1.2m	USB Cable





4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

Fraguanay of Emission (MHz)	Conducted 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 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

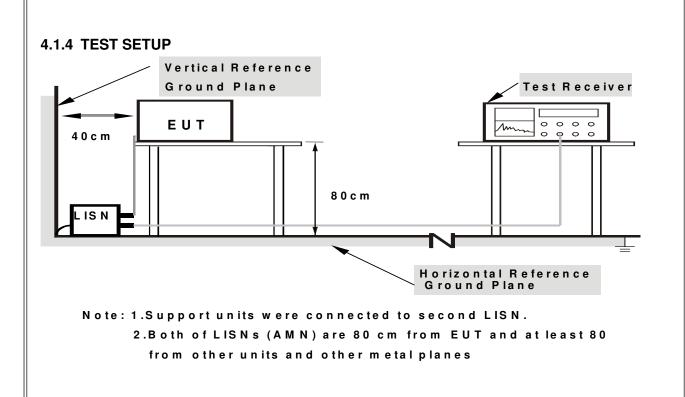
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation







4.1.5 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 Attachment 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)

Frequency (MHz)	Band edge at 3m (dBµV/m)		Harmonic at 1.5m (dBµV/m)	
	Peak	Average	Peak	Average
Above 1000	74	54	80 (Note 5)	60(Note 5)

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

1

7

(5)

$$FS_{\text{limit}} = FS_{\text{max}} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$$

20log d limit/d measure=20log 3/1.5=6dB.





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
Attenuetien	Auto

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 or 1.5m 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.

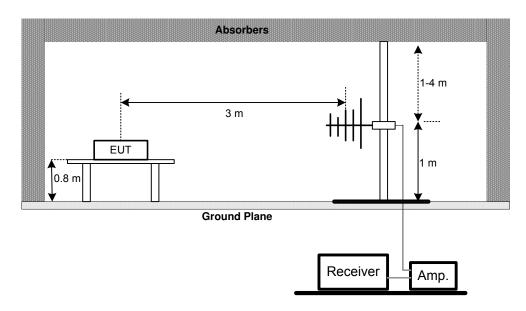
4.2.3 DEVIATION FROM TEST STANDARD

No deviation

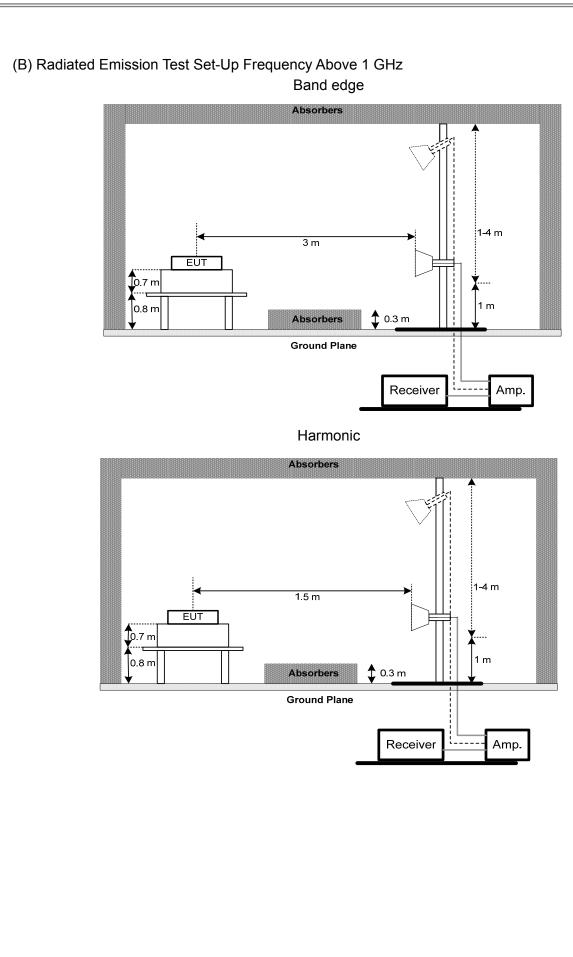


4.2.4 TEST SETUP

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



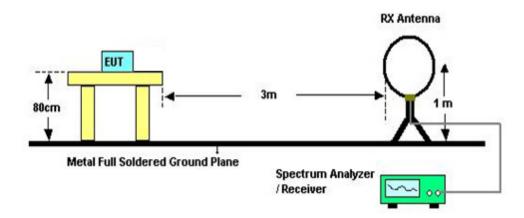








(C) For Radiated Emissions Below 30MHz



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: AC 120V/60Hz

4.2.7 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Attachment B

Remark:

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

4.2.8 TEST RESULTS (30MHZ TO 1000 MHZ)

Please refer to the Attachment C.

4.2.9 TEST RESULTS (ABOVE 1000 MHZ)

Please refer to the Attachment D.

Remark:

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



5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES

FCC Part15 (15.247) , Subpart C					
Section Test Item 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

EUT	SPECTRUM
	ANALYZER

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: AC 120V/60Hz

5.1.6 TEST RESULTS

Please refer to the Attachment 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 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: AC 120V/60Hz

6.1.6 TEST RESULTS

Please refer to the Attachment 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.

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: AC 120V/60Hz

7.1.6 TEST RESULTS

Please refer to the Attachment 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

	1	
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: AC 120V/60Hz

8.1.6 TEST RESULTS

Please refer to the Attachment 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. 26, 2018		
2	LISN	EMCO	3816/2	52765	Mar. 26, 2018		
3	50Ω Terminator	SHX	TF2-3G-A	8122901	Mar. 26, 2018		
4	TWO-LINE V-NETWORK	R&S	ENV216	101447	Mar. 26, 2018		
5	Cable	emci	RG223(9KHz-30 MHz)(5m)	N/A	Mar. 09, 2018		
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		

Radiated Emission Measurement - Below 1GHz

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 26, 2018
2	Amplifier	HP	8447D	2944A09673	Aug. 20, 2018
3	Receiver	Agilent	N9038A	MY52130039	Aug. 20, 2018
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	Jun. 26, 2018
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	Mar. 06, 2018

	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. 26, 2018		
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 08, 2018		
3	Amplifier	Agilent	8449B	3008A02274	May 16, 2018		
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 26, 2018		
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	Jun. 26, 2018		
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		





	6dB Bandwidth Measurement					
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017	

	Peak Output Power Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Power Meter	ANRITSU	ML2495A	1128009	Apr. 25, 2018	
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Apr. 25, 2018	

Antenna Conducted Spurious Emission Measurement									
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until				
1	Spectrum Analyzer	R&S	FSP40	100185	Sep. 04, 2017				

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

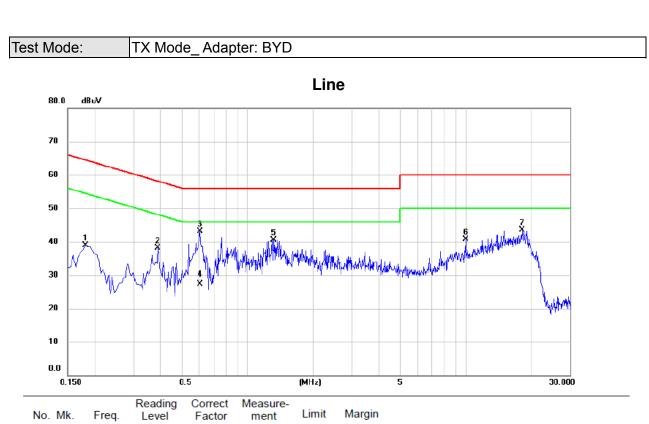
Remark: "N/A" denotes no model name, serial no. or calibration specified. All calibration period of equipment list is one year.



ATTACHMENT A - CONDUCTED EMISSION



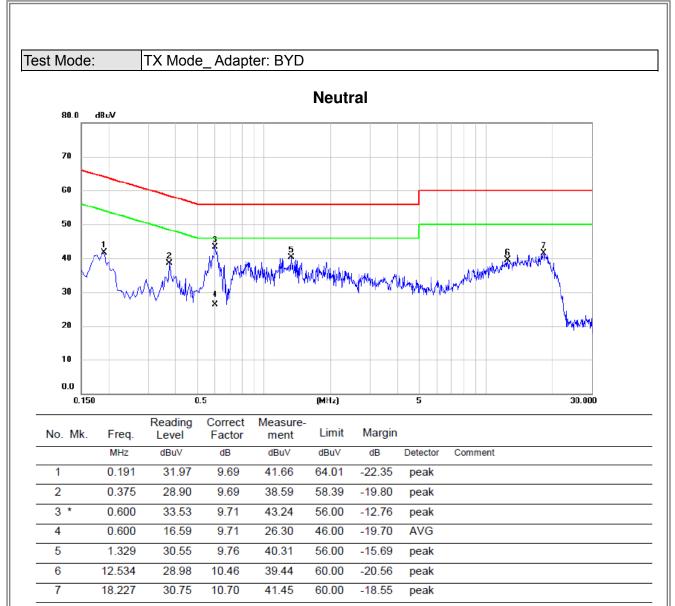




MHz dBuV dB dBuV dBuV dB Detector Comment 1 0.181 29.24 9.68 38.92 64.42 -25.50 peak 2 0.389 28.45 9.68 38.13 58.10 -19.97 peak 3 0.605 33.37 9.71 43.08 56.00 -12.92 peak 4 0.605 17.64 9.71 27.35 46.00 -18.65 AVG 5 1.315 30.83 9.76 40.59 56.00 -15.41 peak 6 10.009 30.52 10.27 40.79 60.00 -19.21 peak 7 18.132 32.86 10.70 43.56 60.00 -16.44 peak	No. Mk.	Freq.	Level	Factor	ment	Limit	Margin		
2 0.389 28.45 9.68 38.13 58.10 -19.97 peak 3 * 0.605 33.37 9.71 43.08 56.00 -12.92 peak 4 0.605 17.64 9.71 27.35 46.00 -18.65 AVG 5 1.315 30.83 9.76 40.59 56.00 -15.41 peak 6 10.009 30.52 10.27 40.79 60.00 -19.21 peak		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
3 * 0.605 33.37 9.71 43.08 56.00 -12.92 peak 4 0.605 17.64 9.71 27.35 46.00 -18.65 AVG 5 1.315 30.83 9.76 40.59 56.00 -15.41 peak 6 10.009 30.52 10.27 40.79 60.00 -19.21 peak	1	0.181	29.24	9.68	38.92	64.42	-25.50	peak	
4 0.605 17.64 9.71 27.35 46.00 -18.65 AVG 5 1.315 30.83 9.76 40.59 56.00 -15.41 peak 6 10.009 30.52 10.27 40.79 60.00 -19.21 peak	2	0.389	28.45	9.68	38.13	58.10	-19.97	peak	
5 1.315 30.83 9.76 40.59 56.00 -15.41 peak 6 10.009 30.52 10.27 40.79 60.00 -19.21 peak	3 *	0.605	33.37	9.71	43.08	56.00	-12.92	peak	
6 10.009 30.52 10.27 40.79 60.00 -19.21 peak	4	0.605	17.64	9.71	27.35	46.00	-18.65	AVG	
	5	1.315	30.83	9.76	40.59	56.00	-15.41	peak	
7 18.132 32.86 10.70 43.56 60.00 -16.44 peak	6	10.009	30.52	10.27	40.79	60.00	-19.21	peak	
	7	18.132	32.86	10.70	43.56	60.00	-16.44	peak	

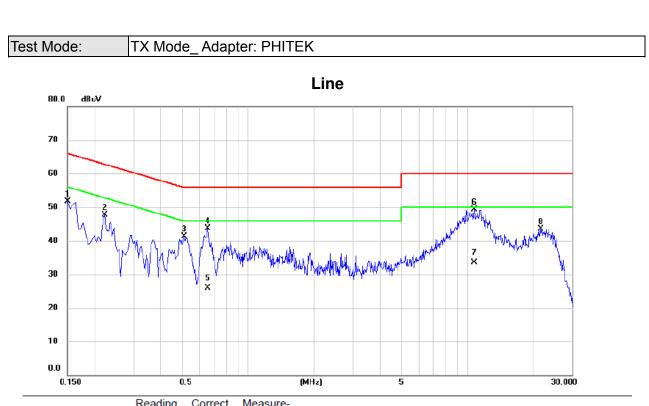








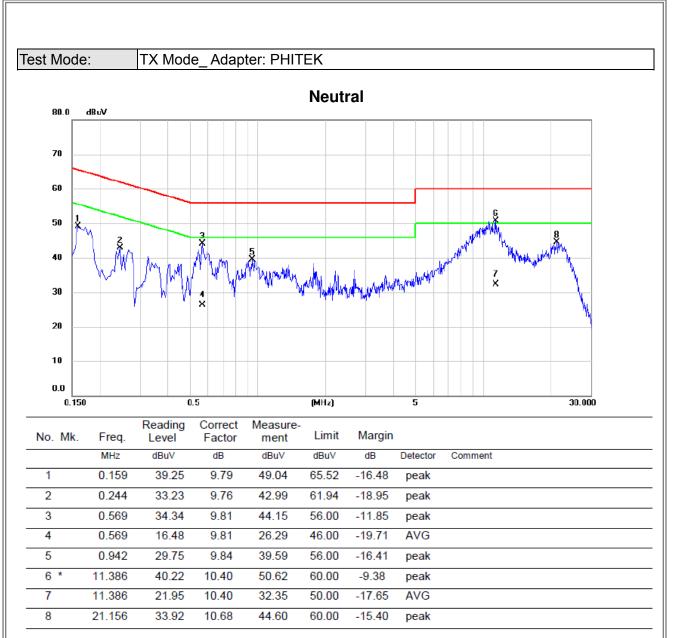




No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.150	41.93	9.79	51.72	66.00	-14.28	peak	
2	0.222	37.92	9.76	47.68	62.74	-15.06	peak	
3	0.510	31.59	9.80	41.39	56.00	-14.61	peak	
4	0.654	33.84	9.82	43.66	56.00	-12.34	peak	
5	0.654	16.12	9.82	25.94	46.00	-20.06	AVG	
6 *	10.757	39.03	10.37	49.40	60.00	-10.60	peak	
7	10.757	23.21	10.37	33.58	50.00	-16.42	AVG	
8	21.534	32.90	10.70	43.60	60.00	-16.40	peak	

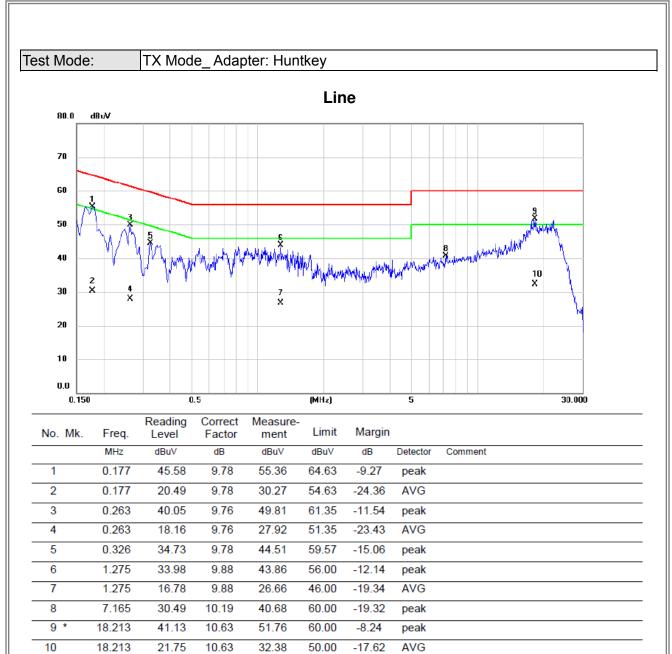














7

8

9

1.743

17.826

17.826

30.22

37.00

23.17

9.81

10.70

10.70

40.03

47.70

33.87

56.00

60.00

50.00

-15.97

-12.30

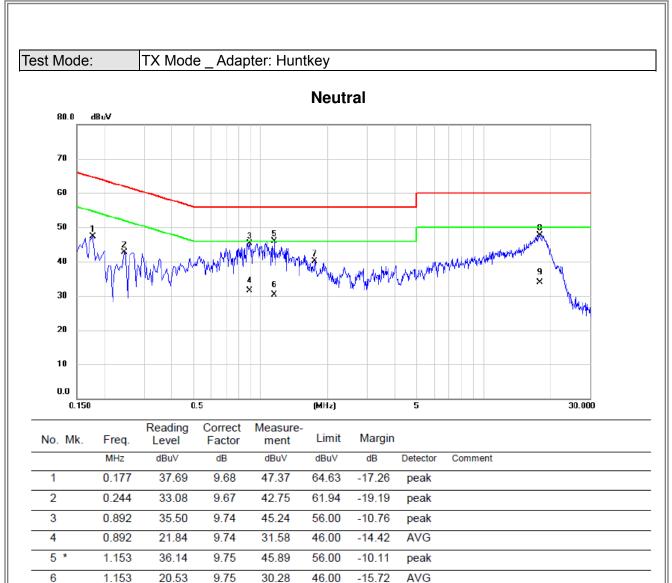
-16.13

peak

peak

AVG



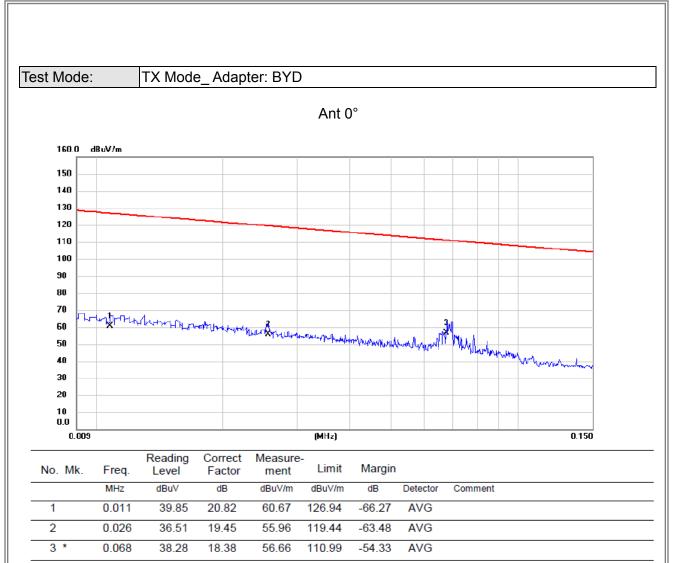




ATTACHMENT B - RADIATED EMISSION (9KHZ TO 30MHZ)

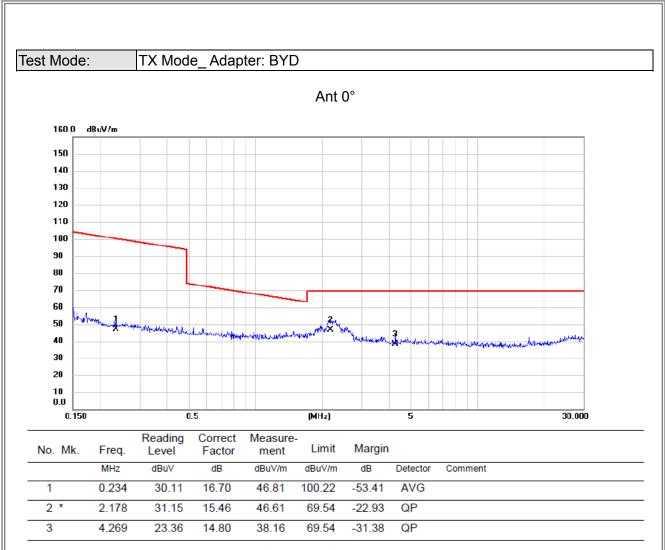






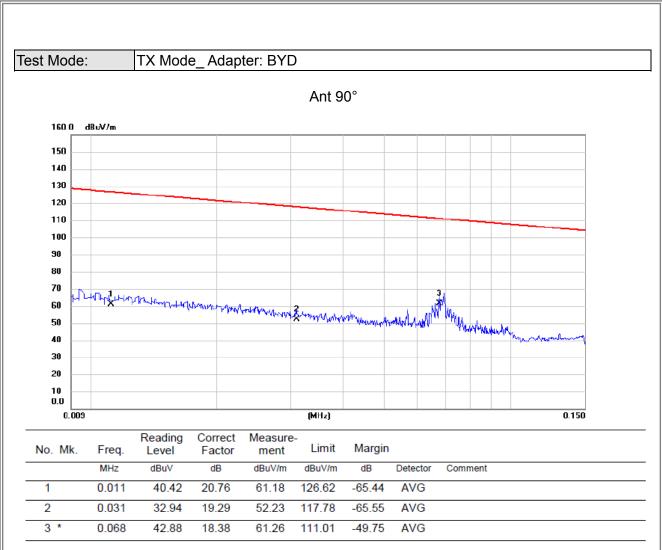






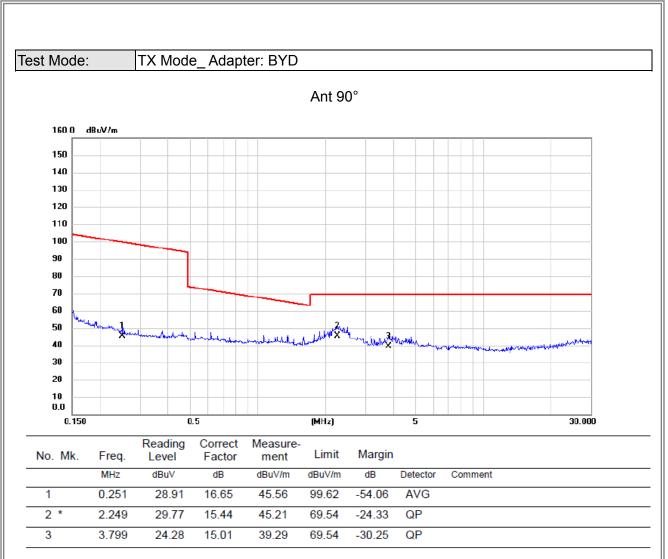






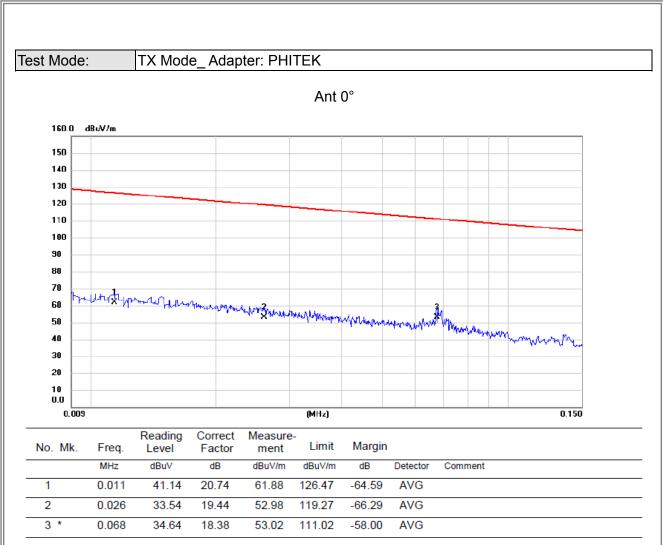






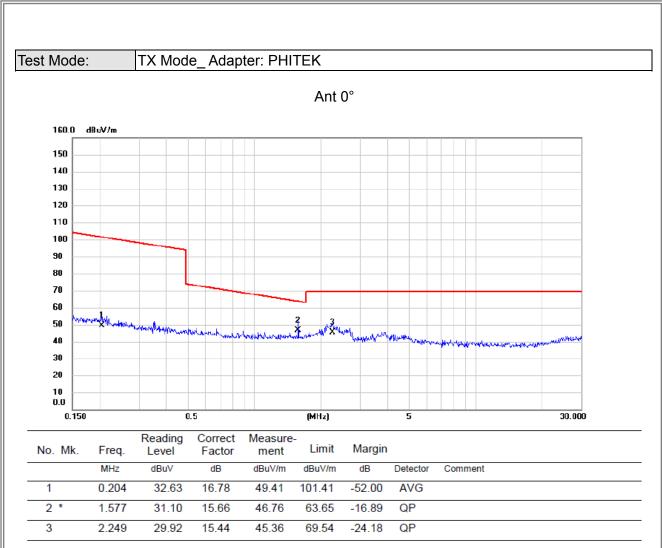






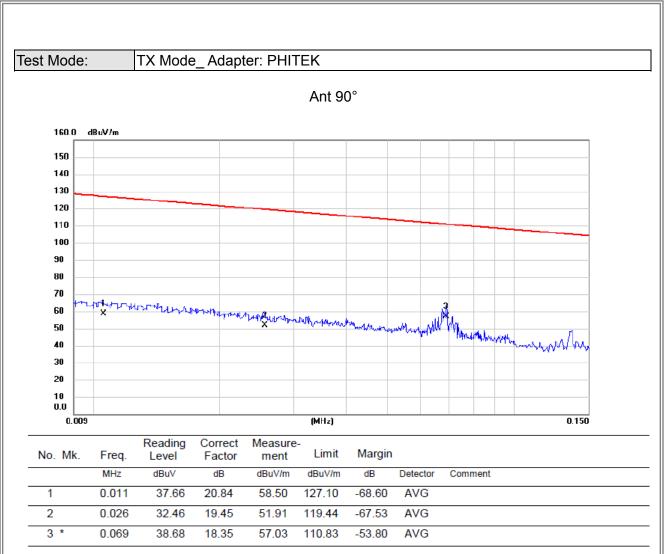






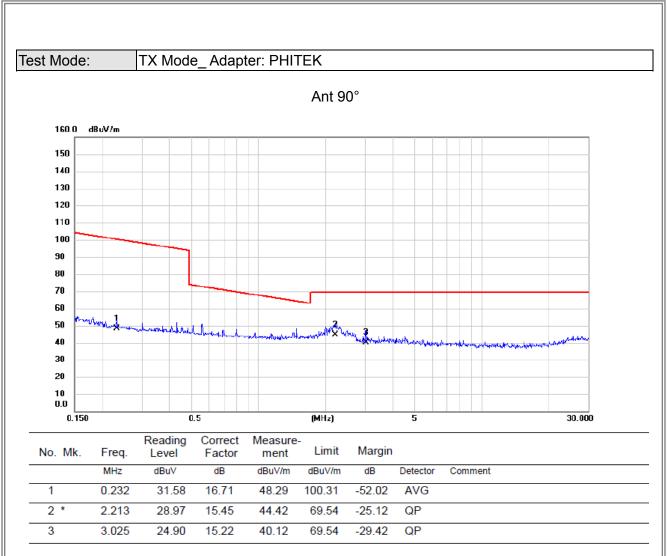






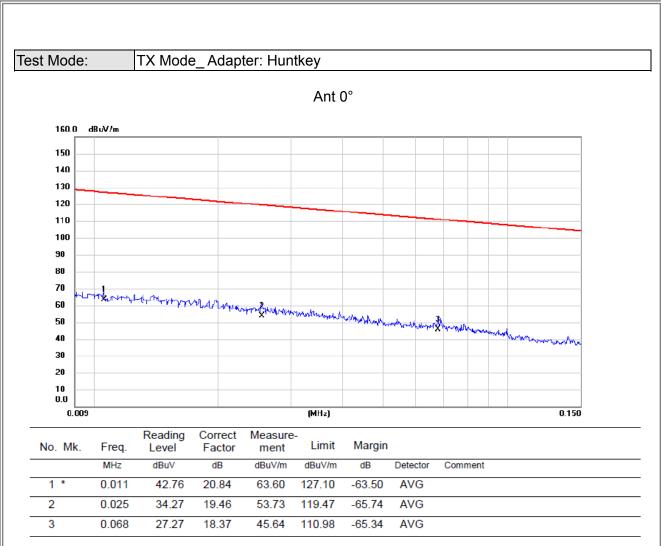






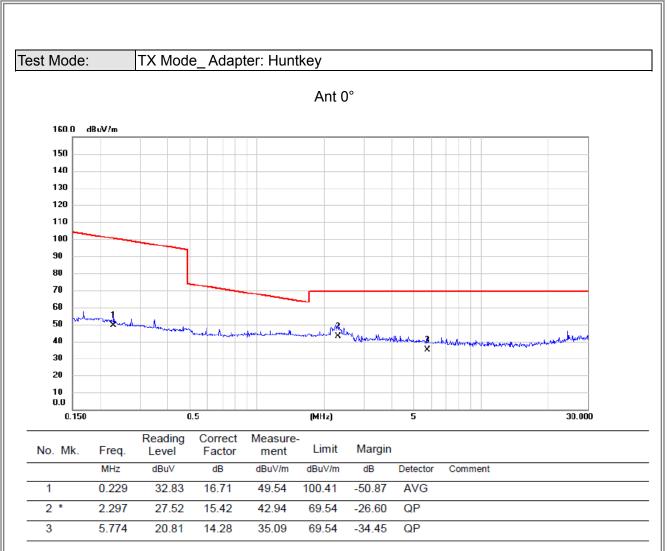






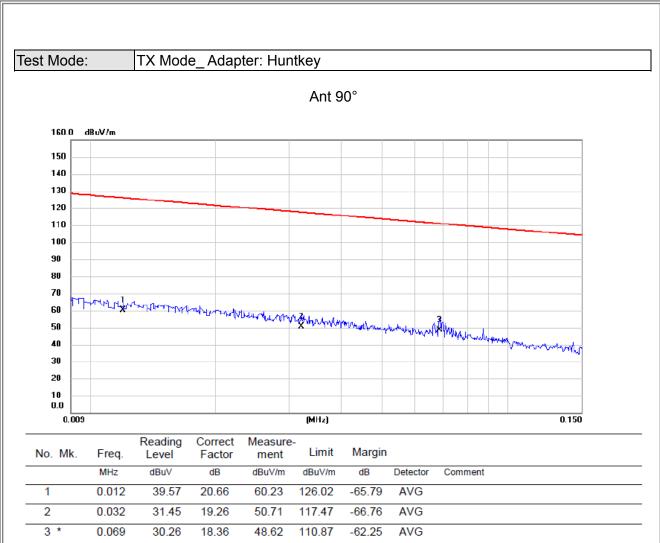






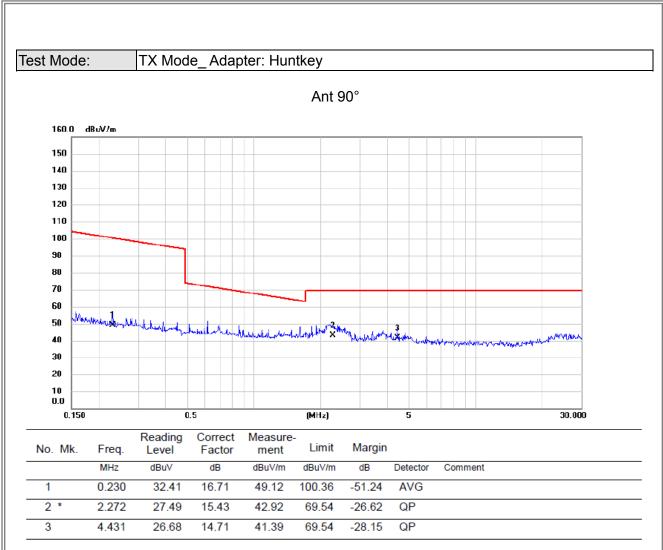












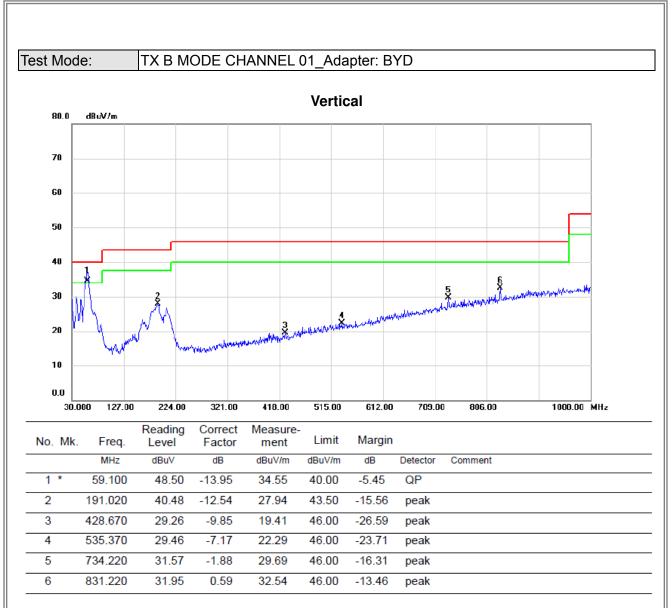




ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

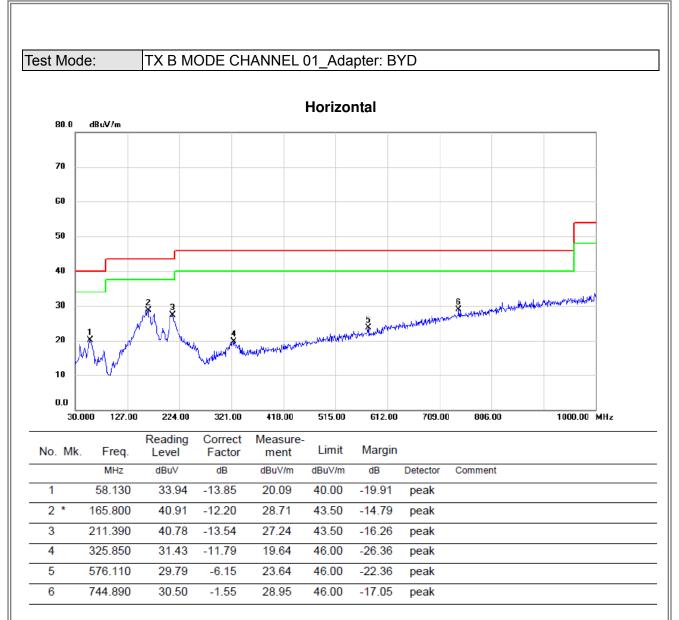






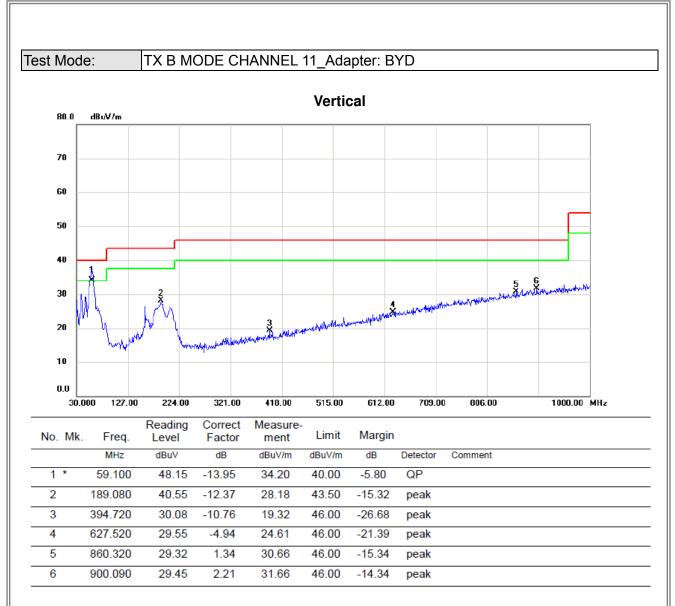






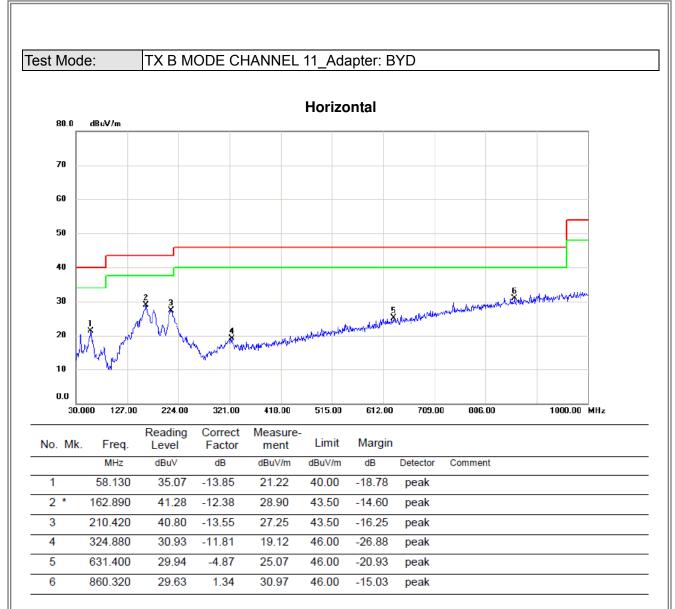






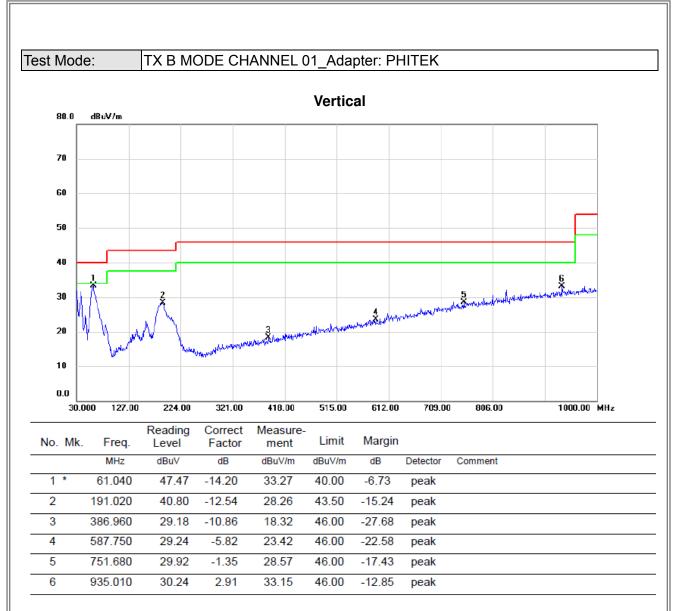






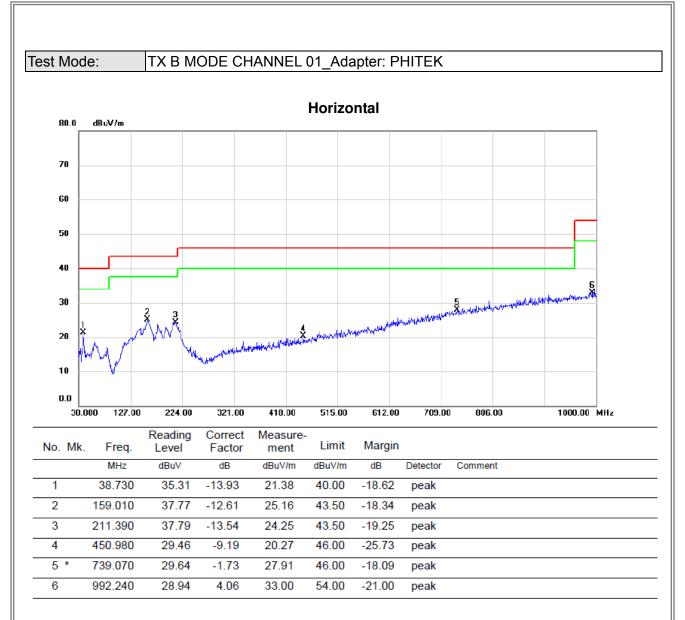






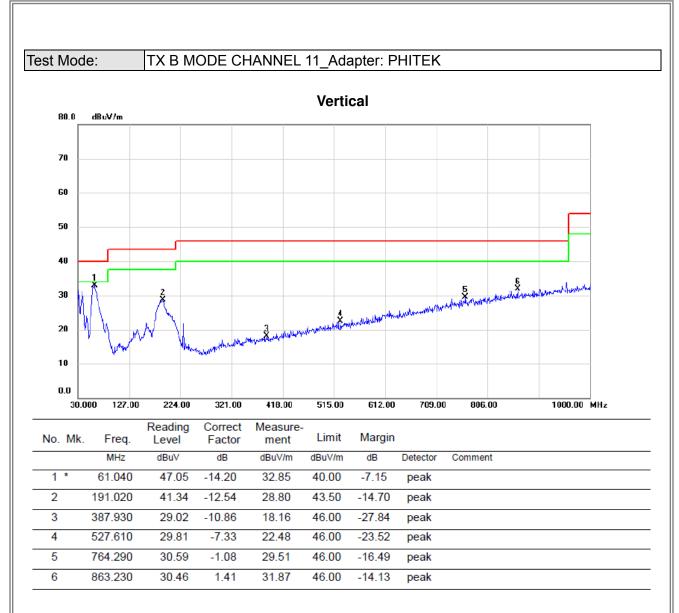






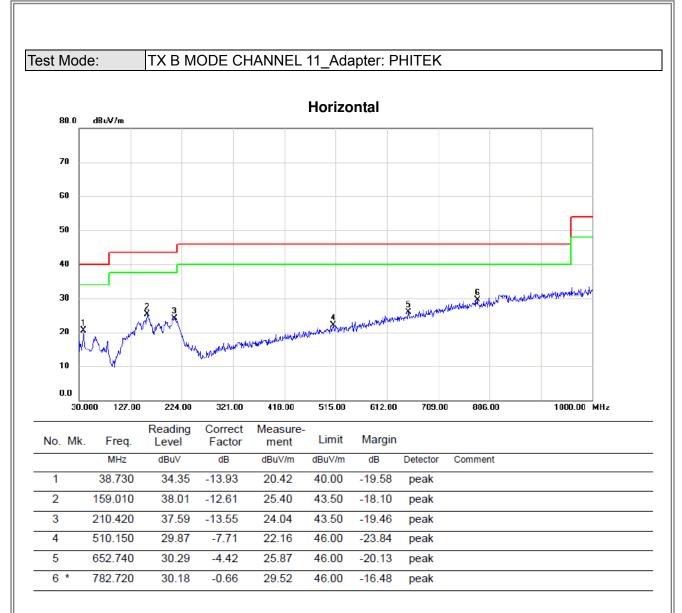






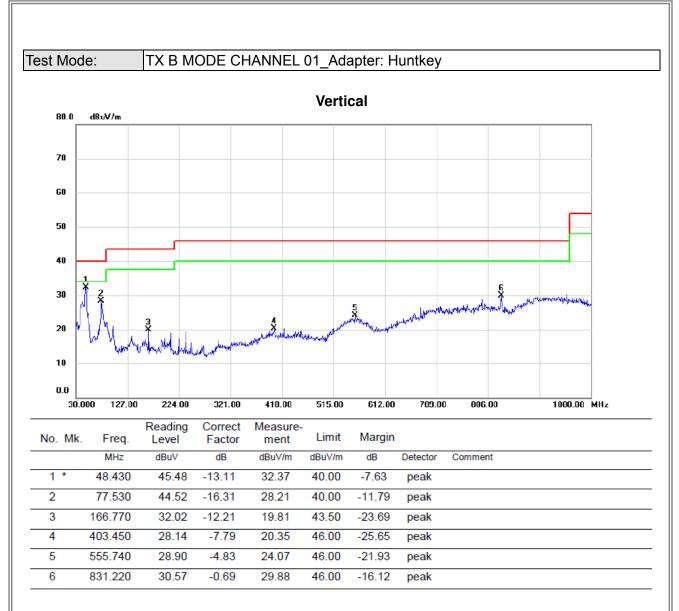






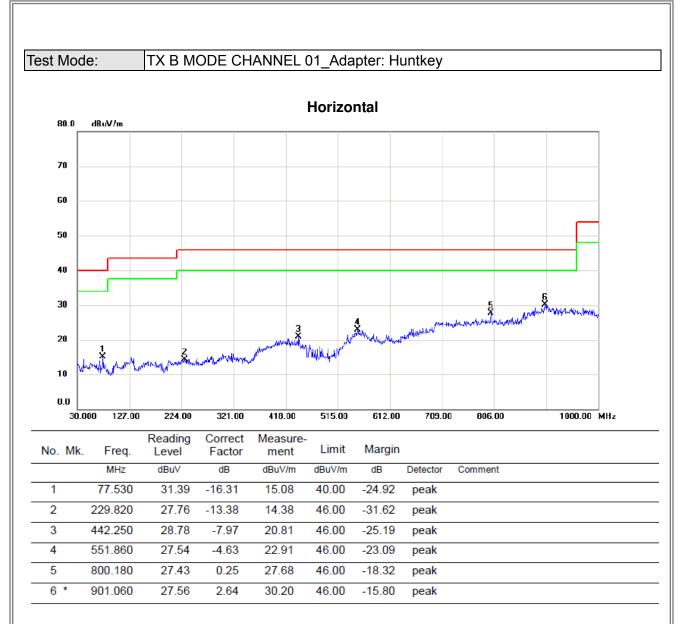






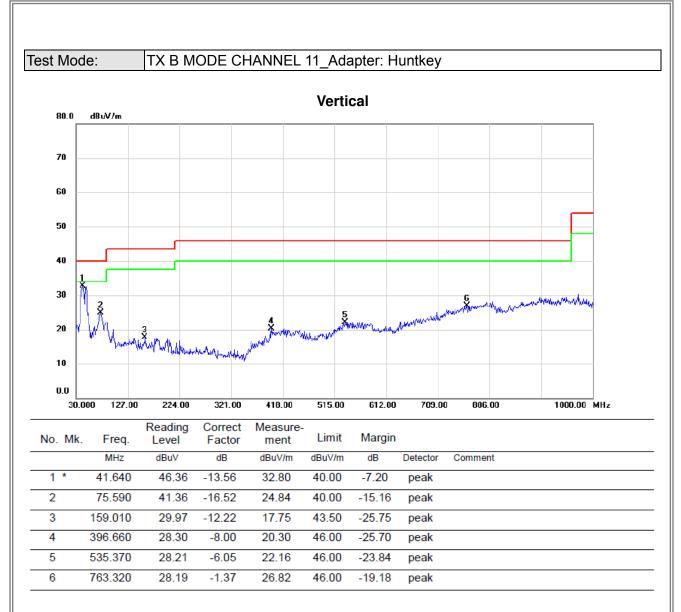






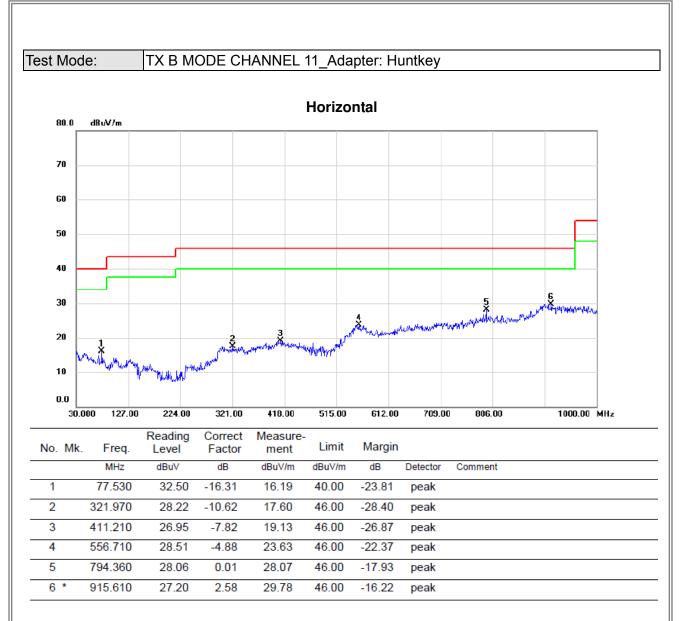










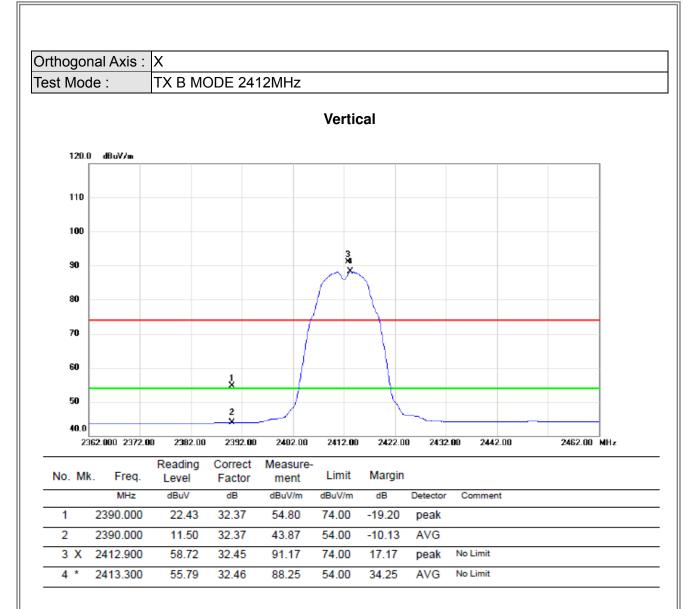




ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

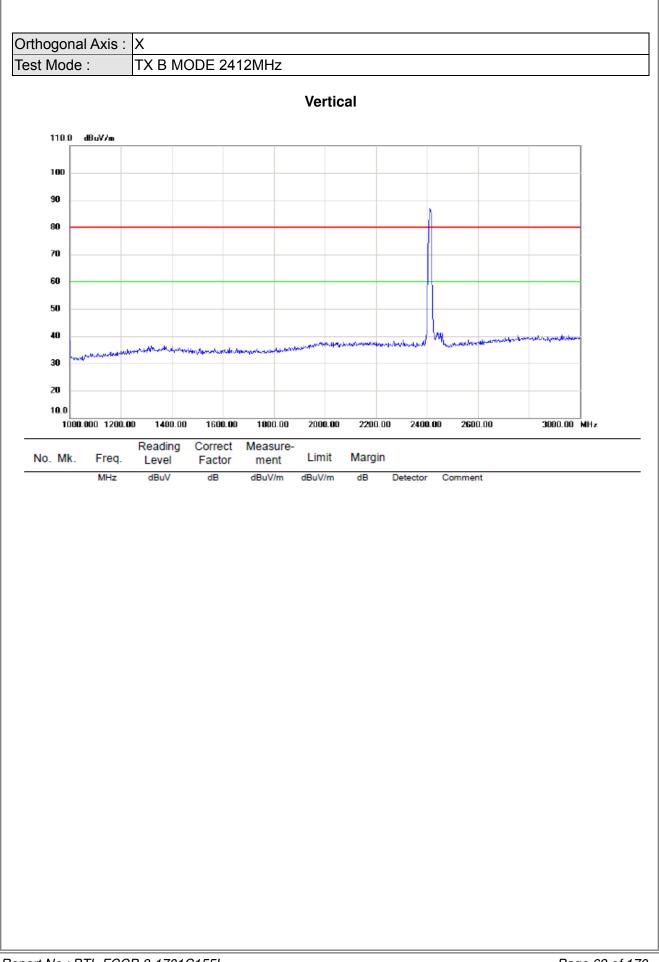






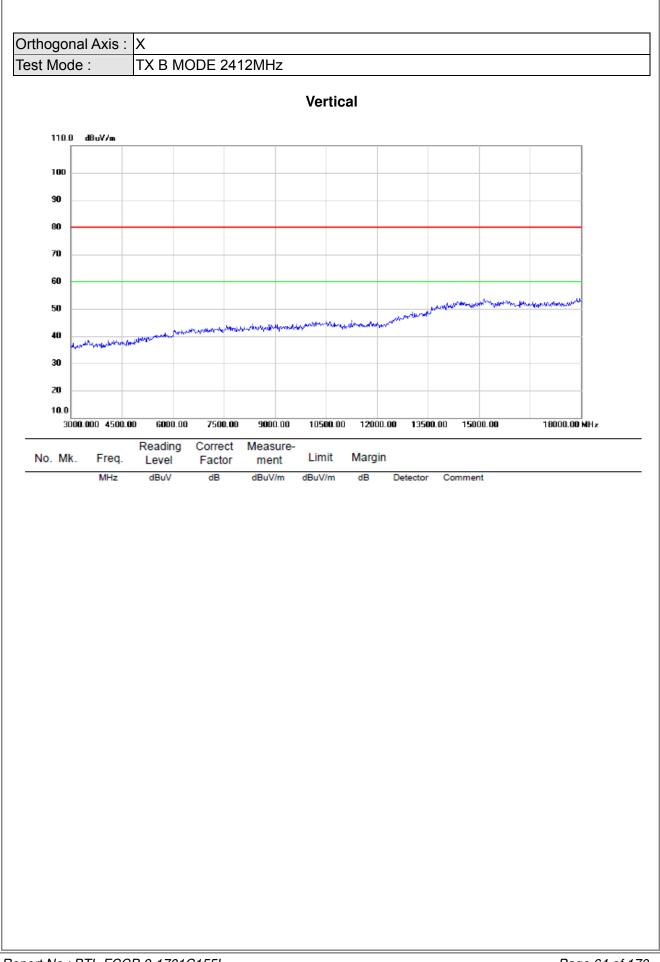






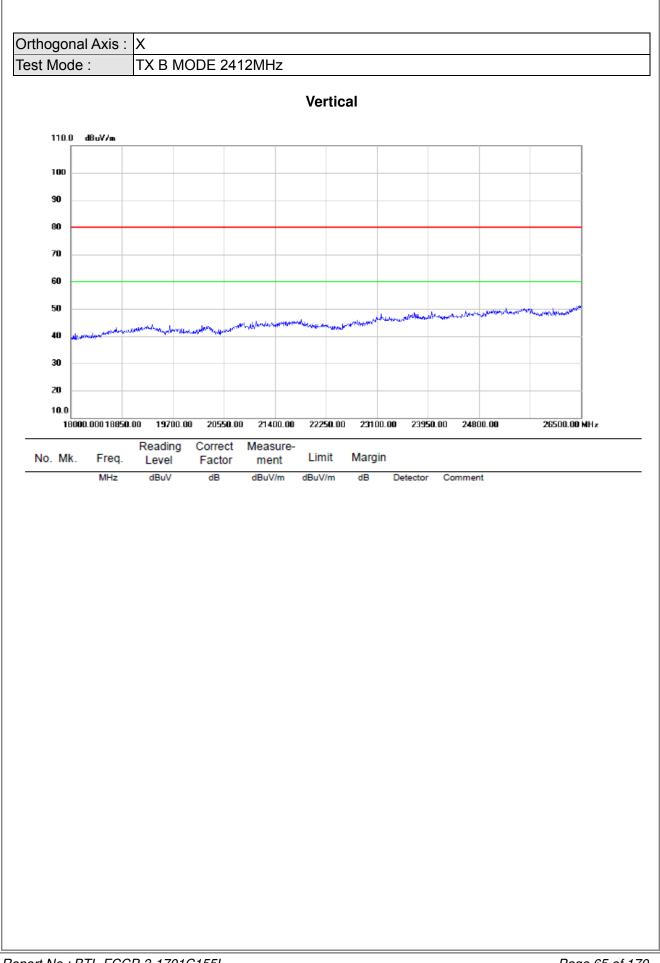






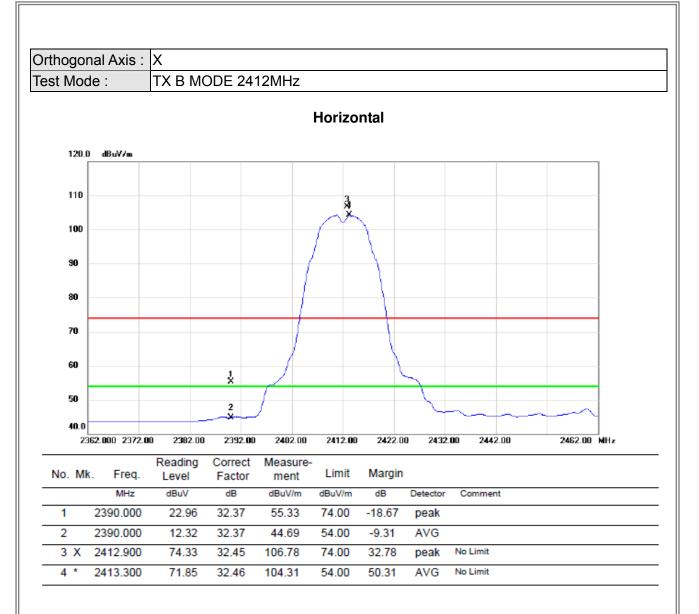






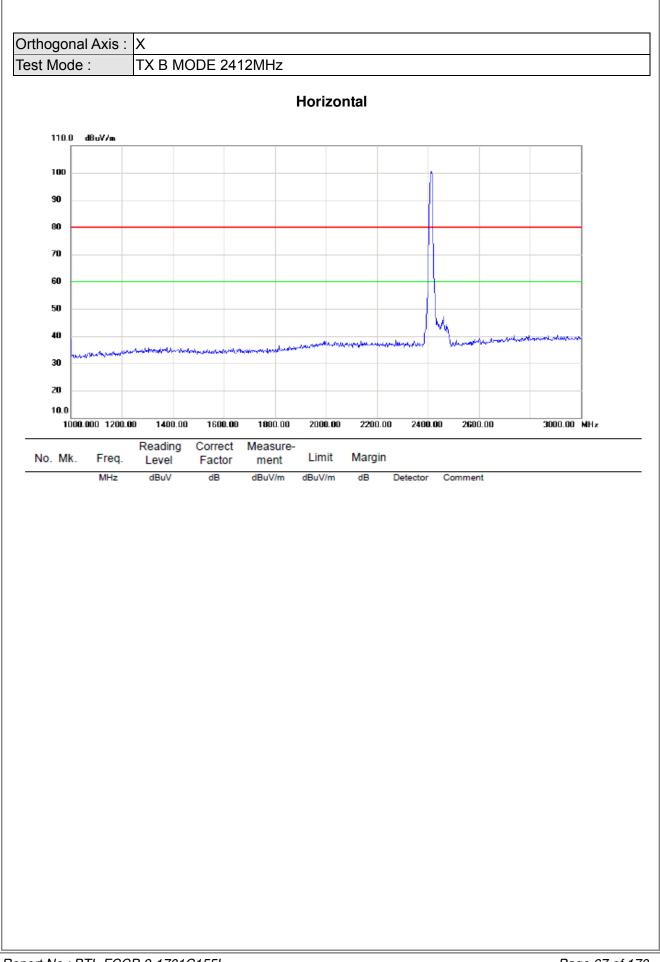






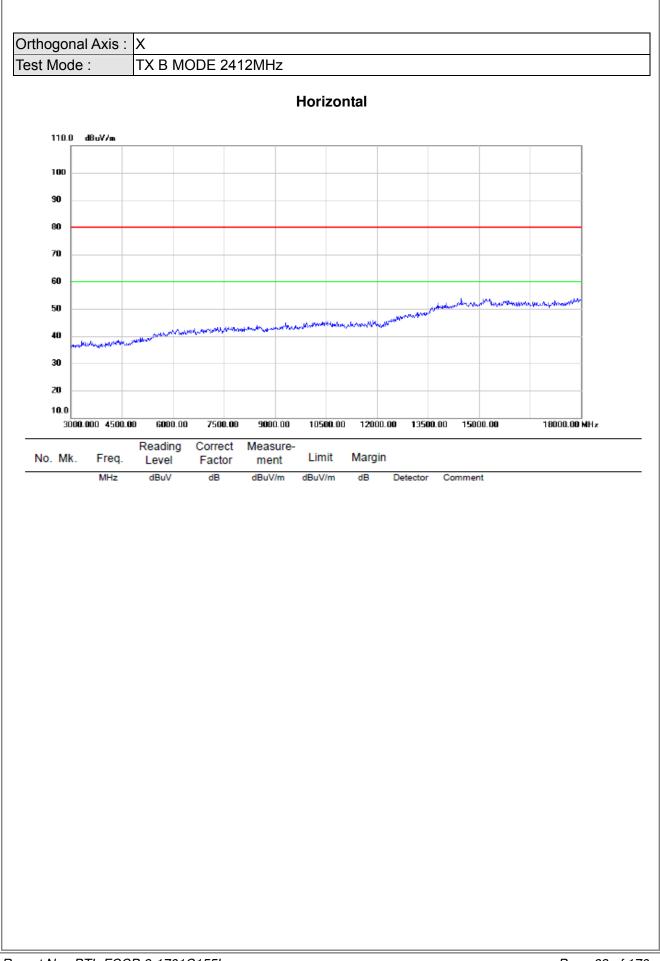






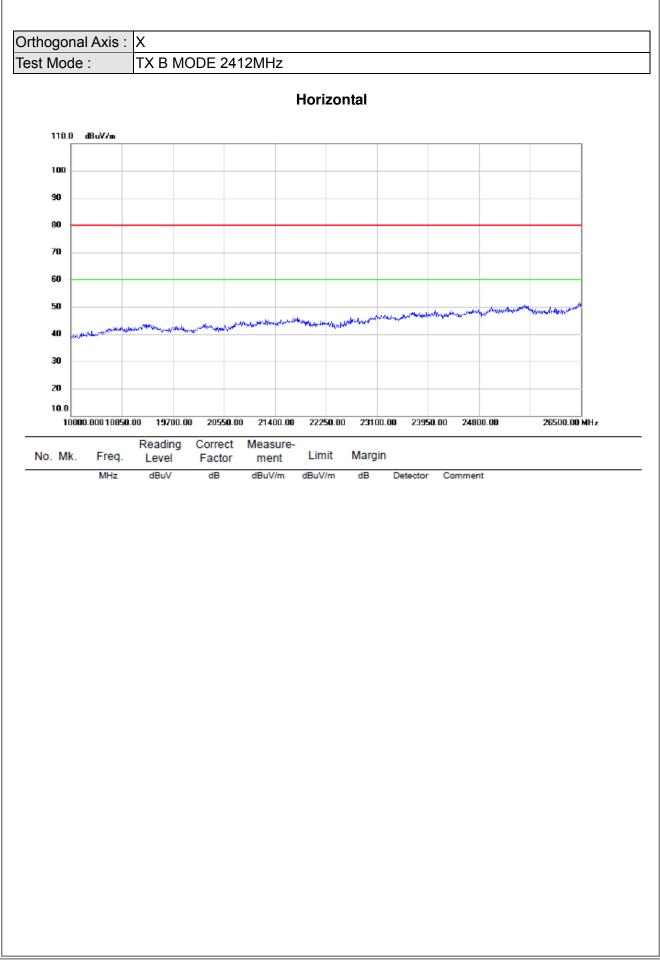






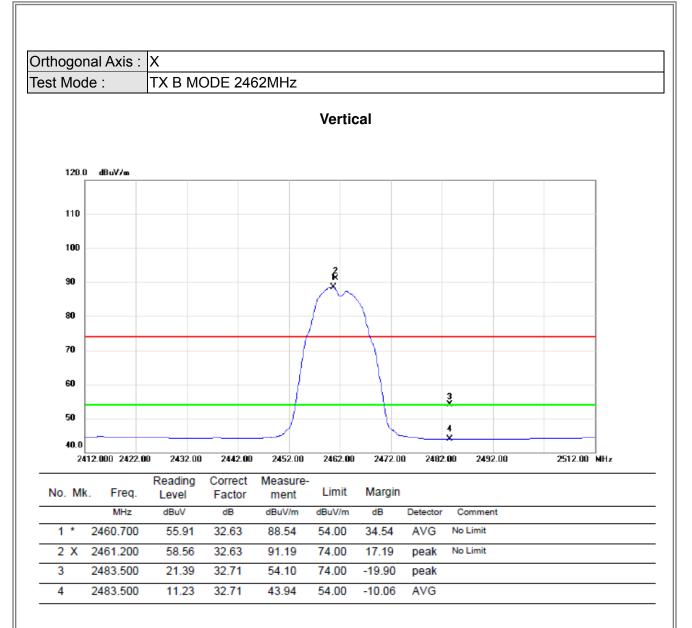






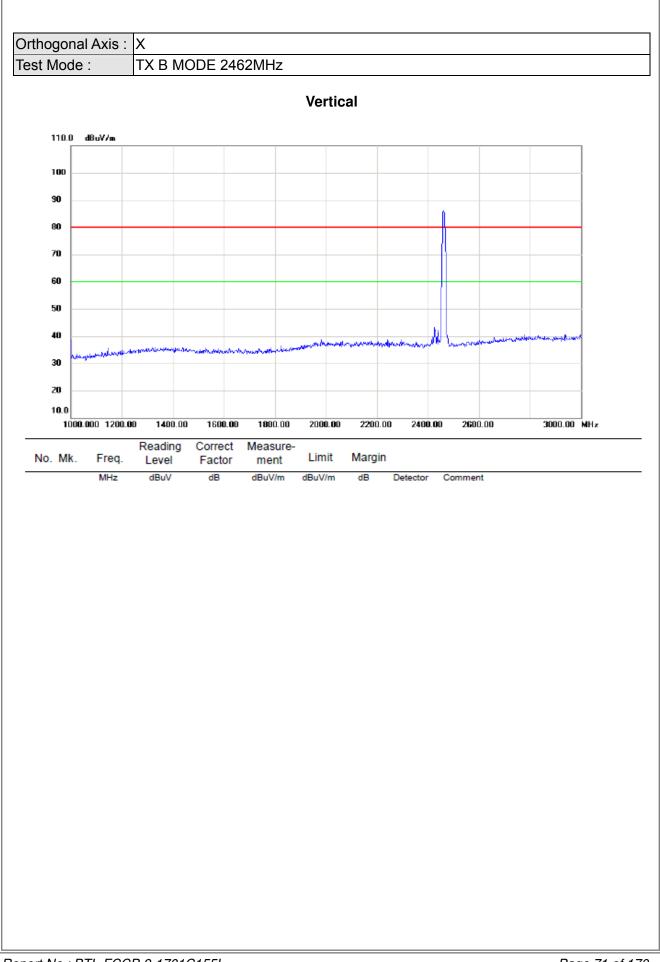






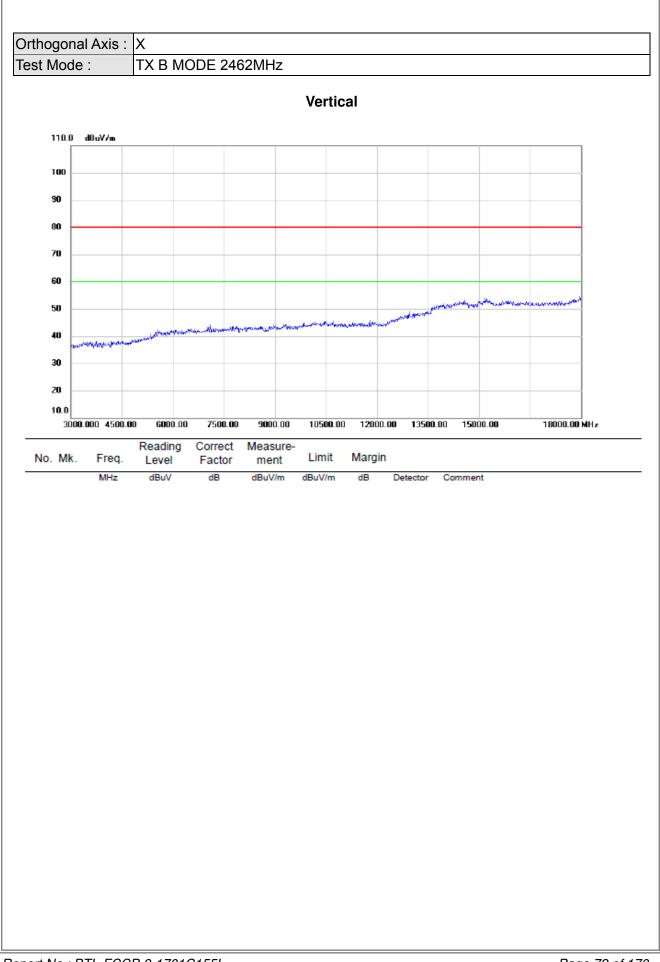






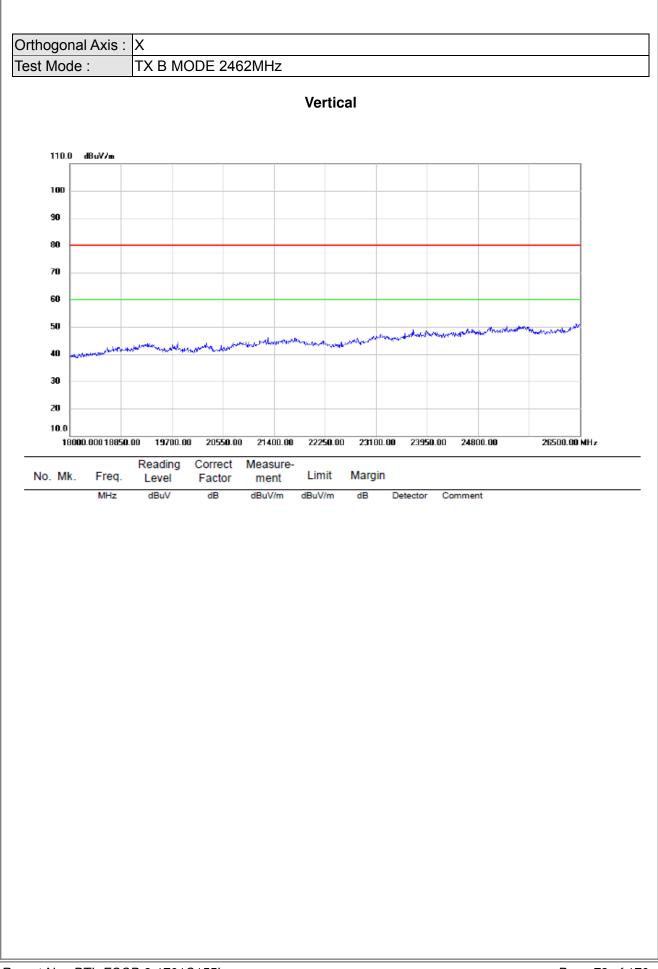






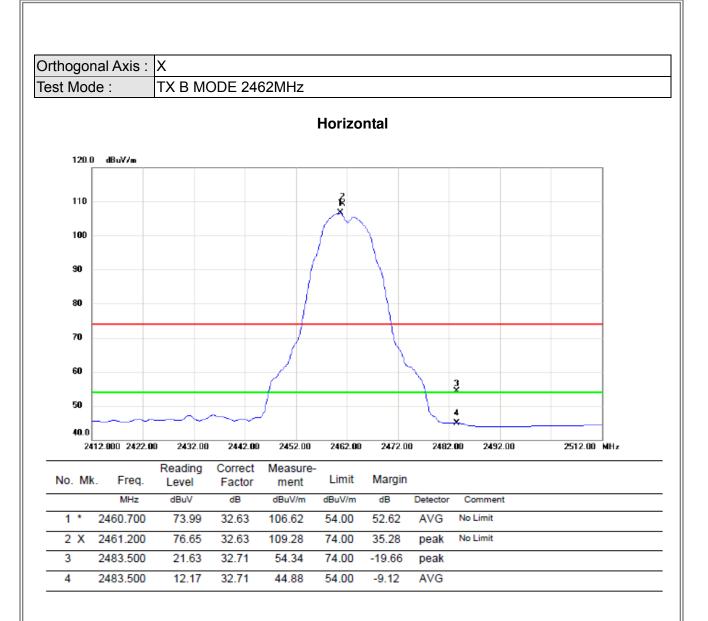






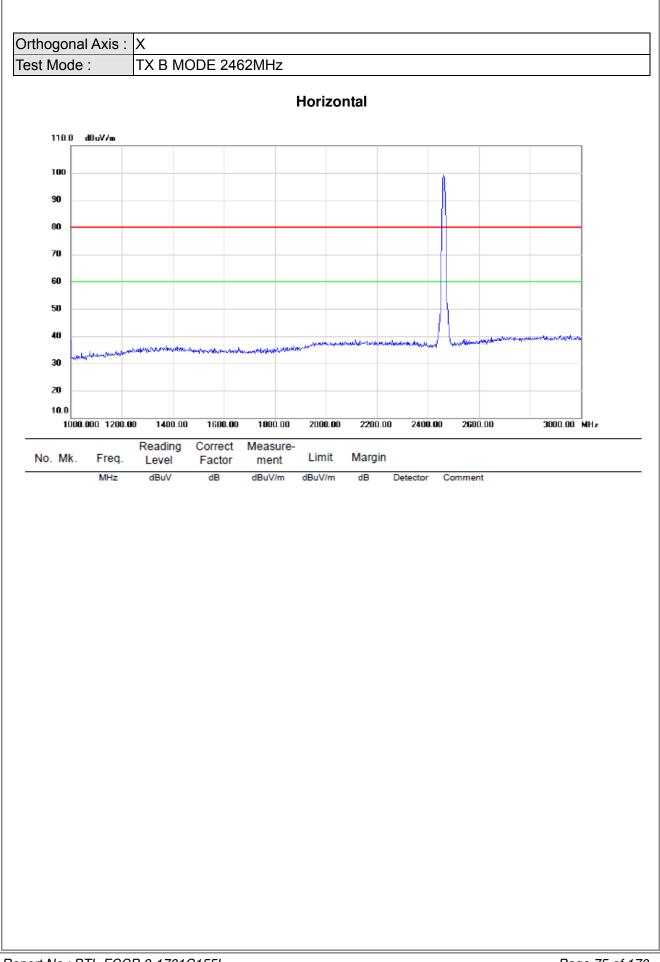






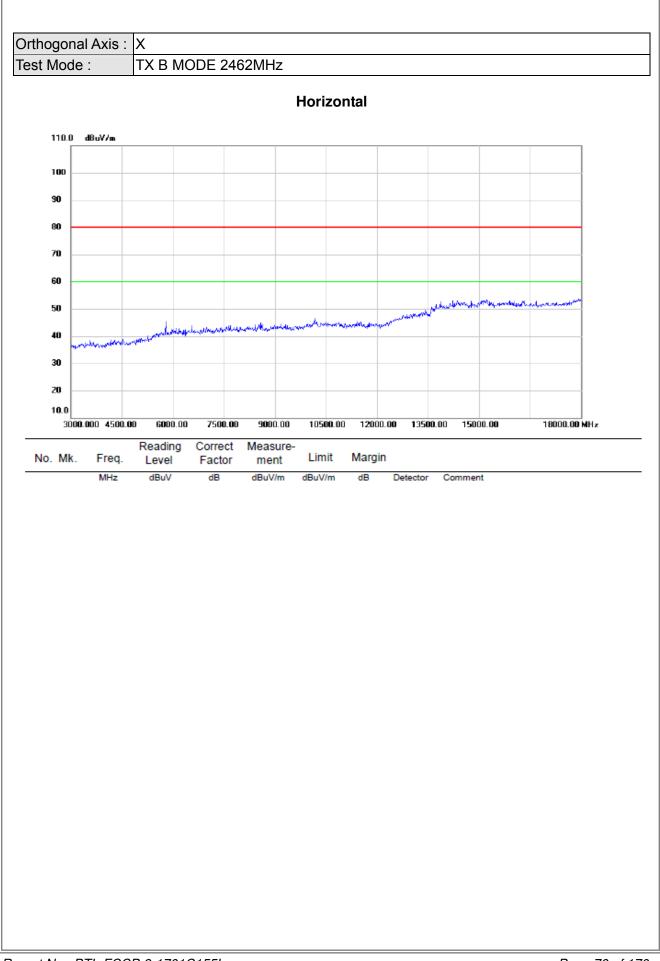






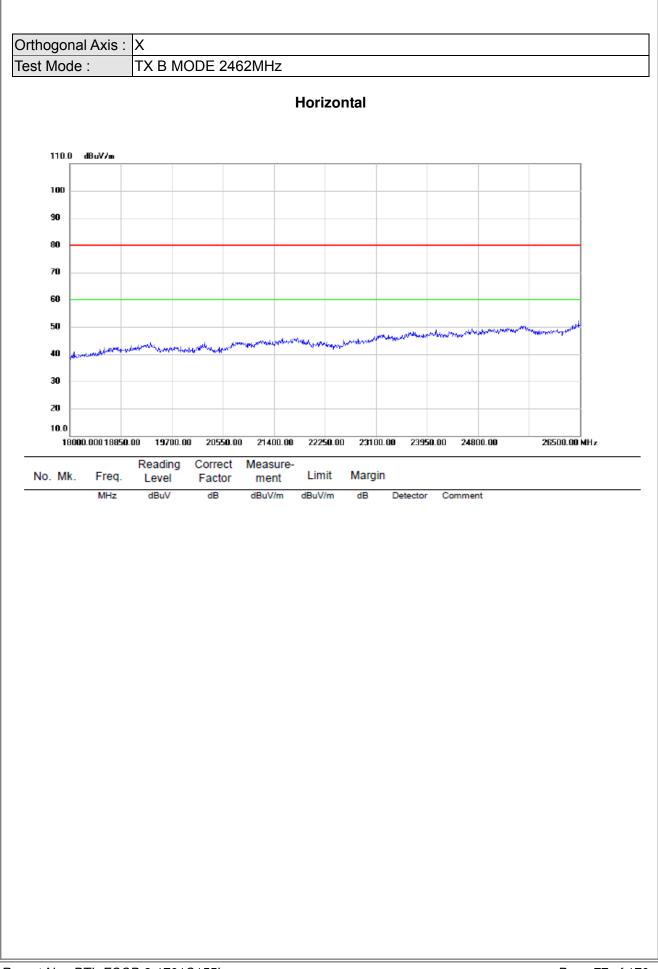






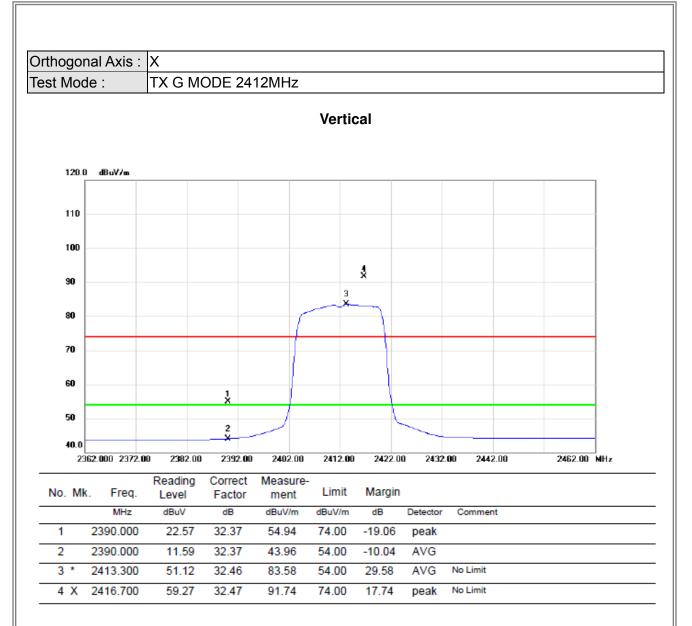






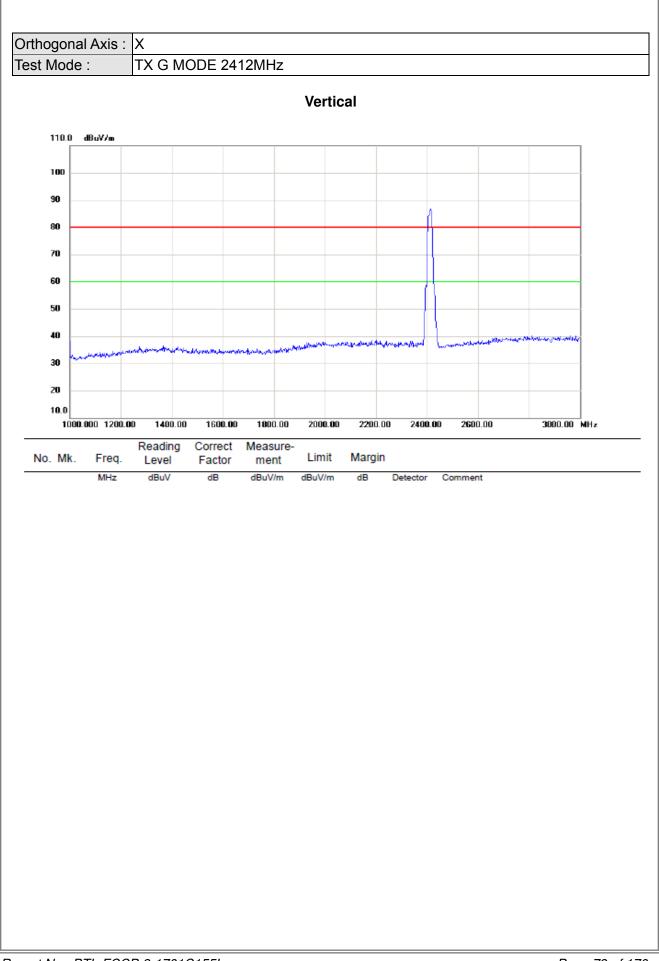






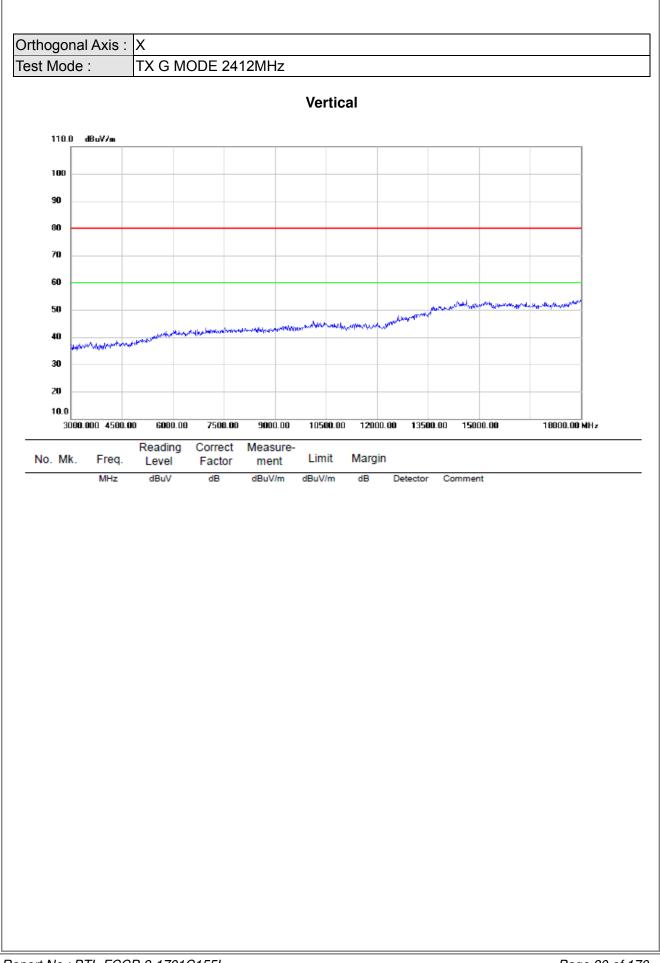






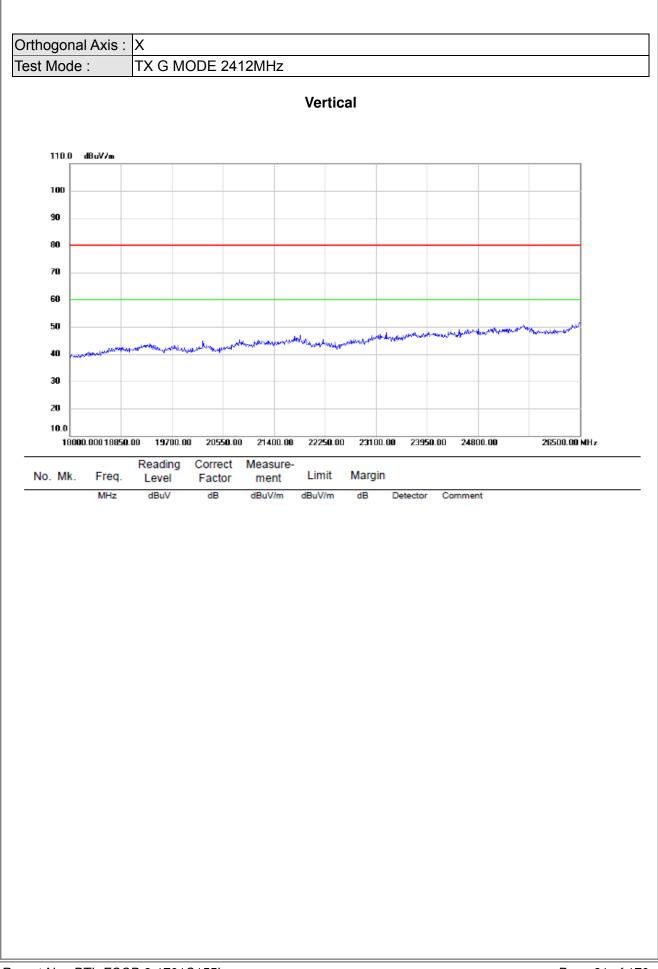






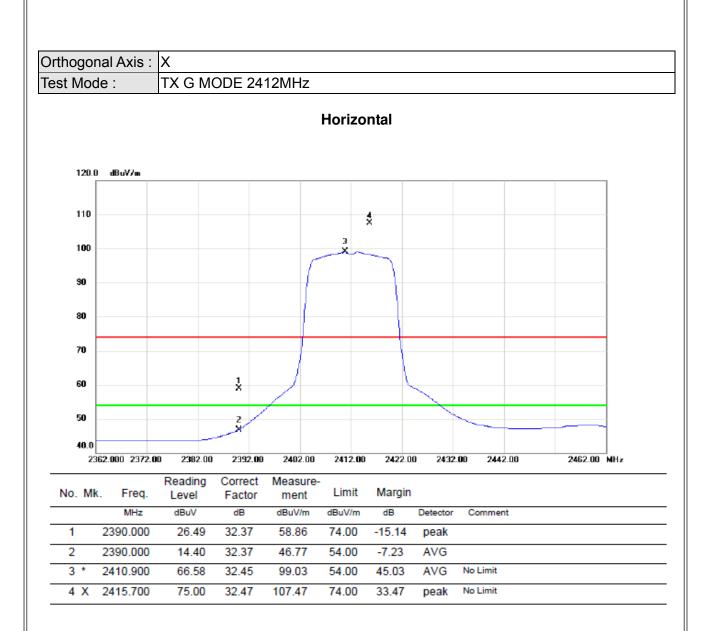






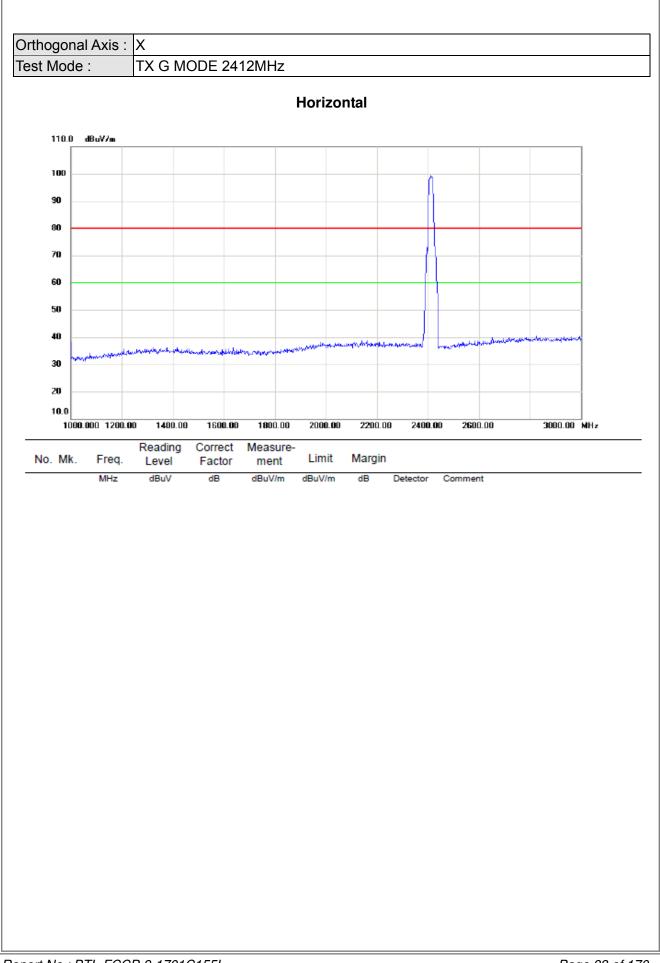






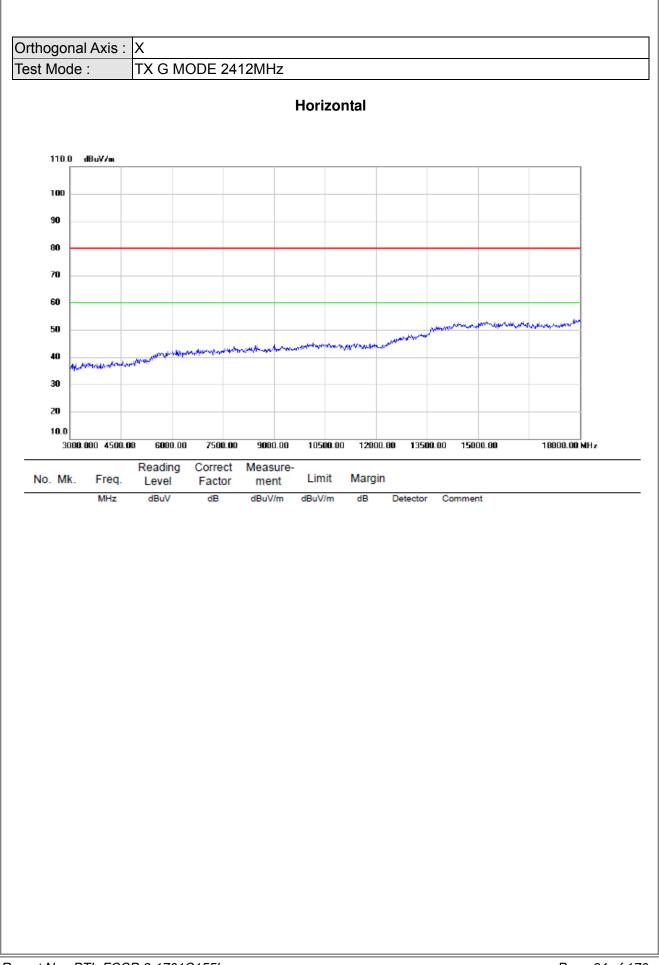






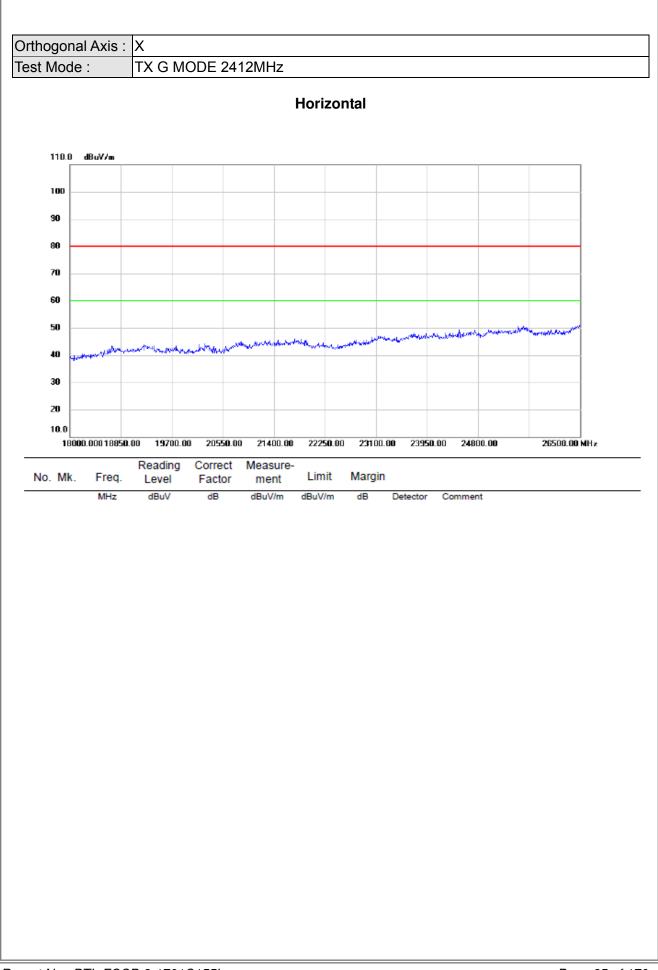






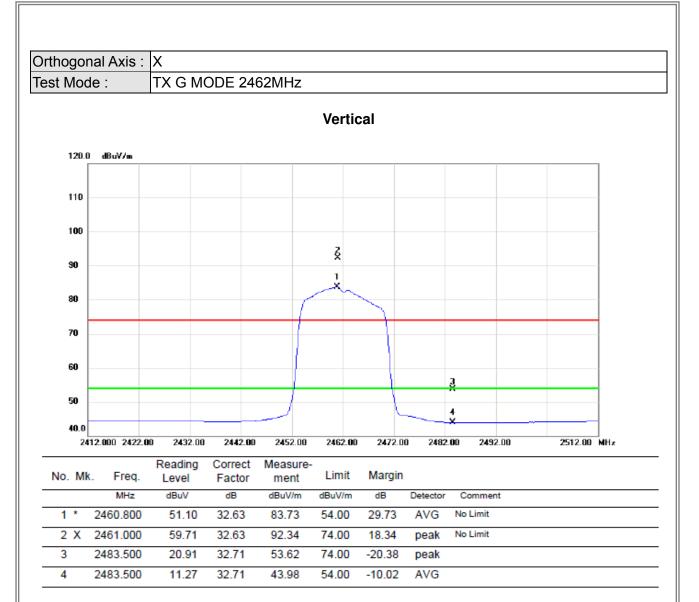






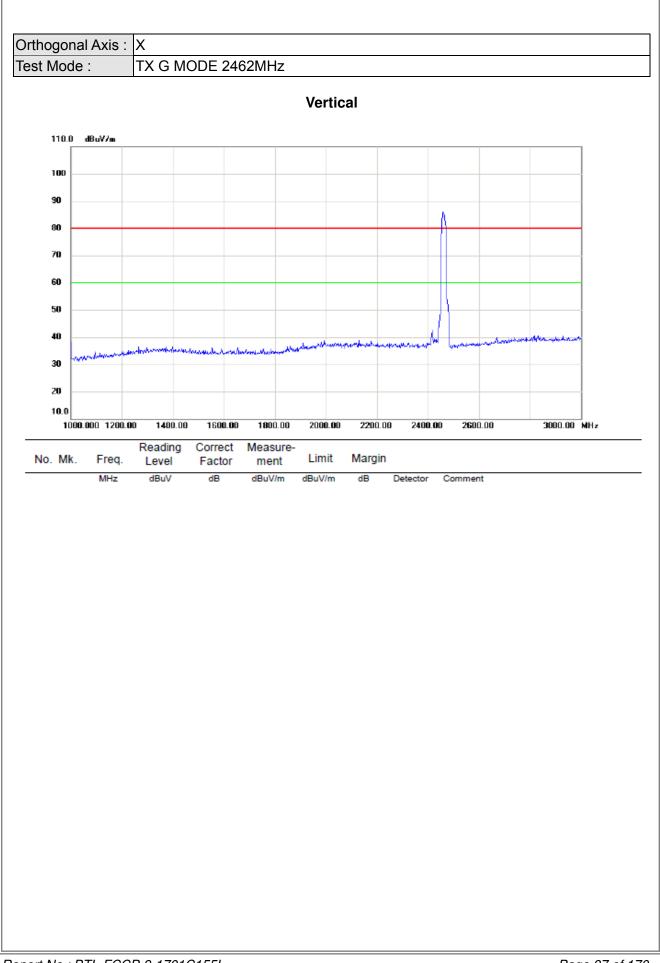






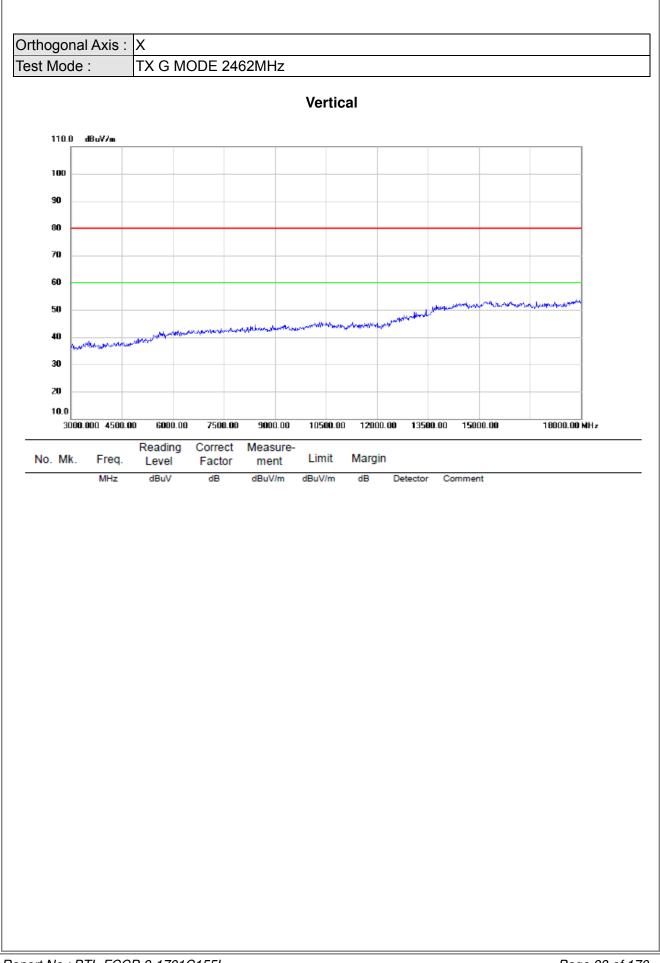






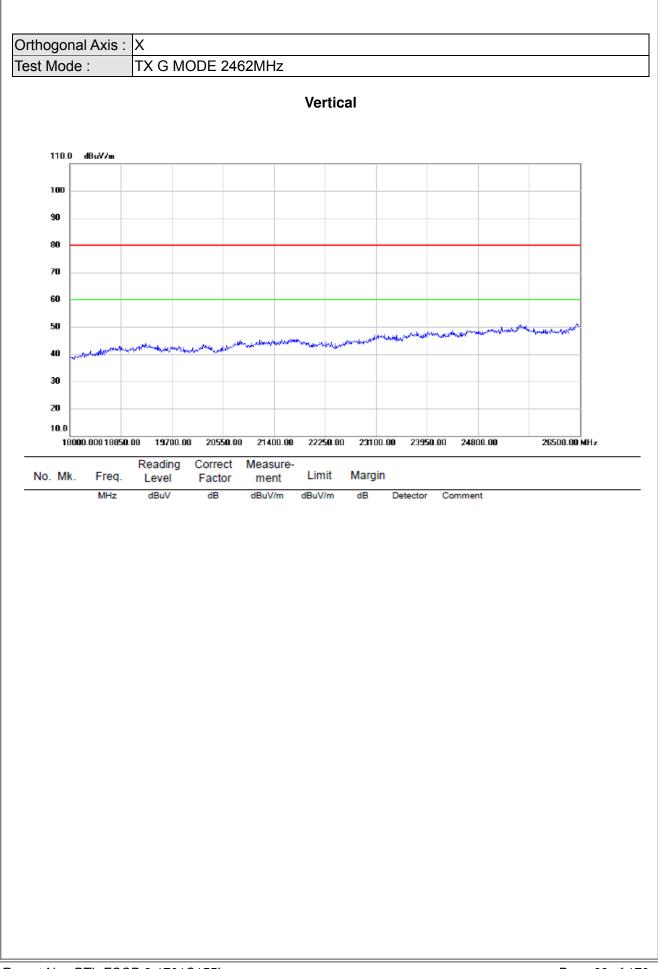






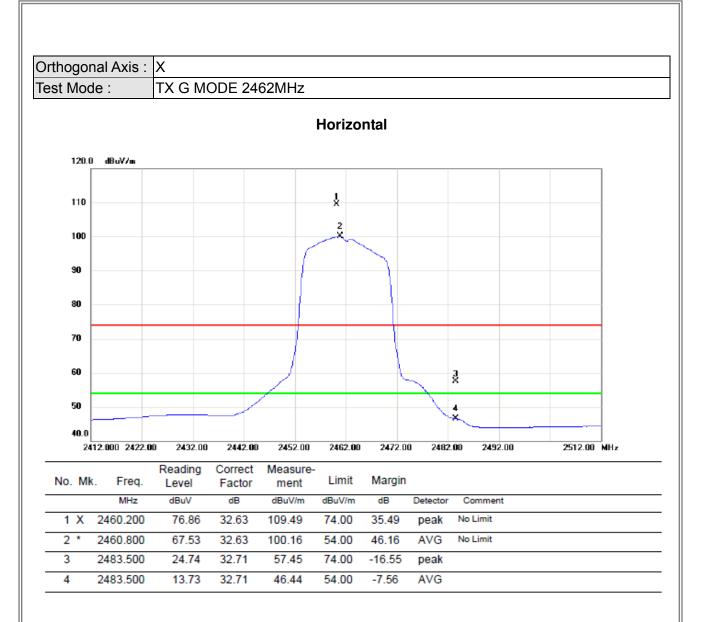






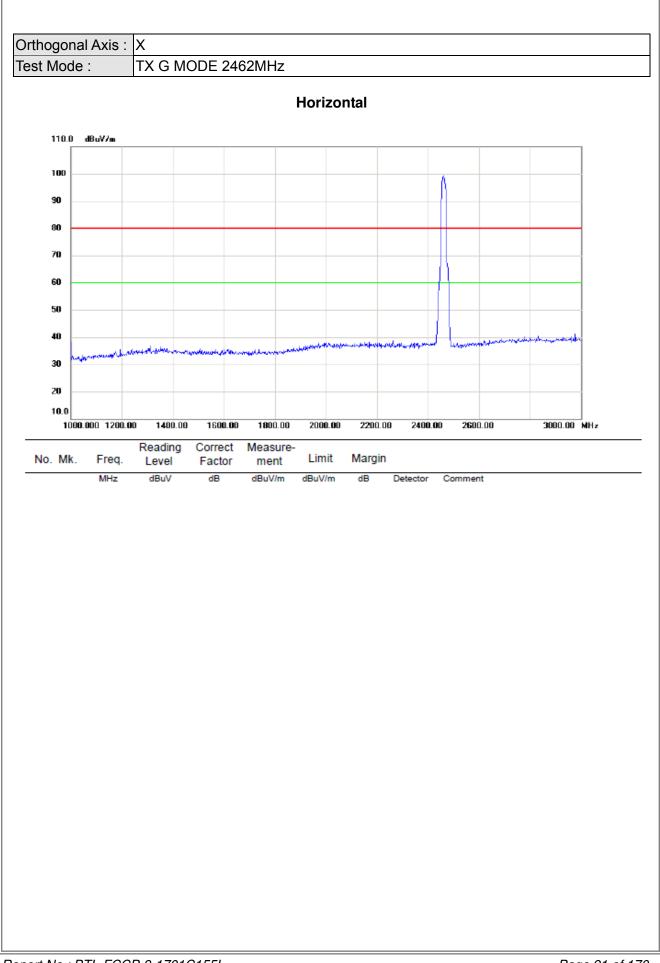






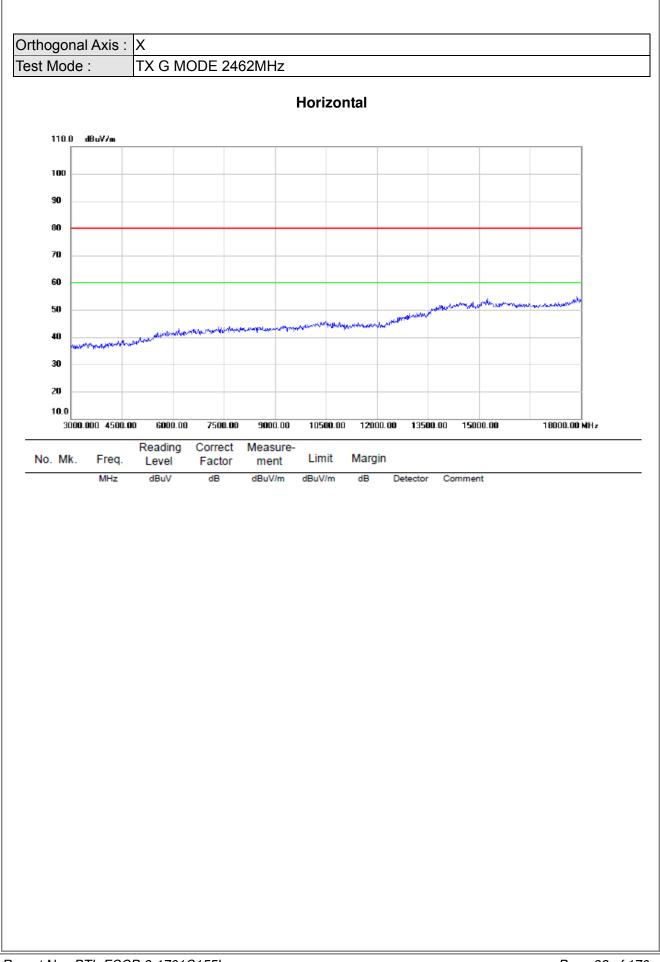






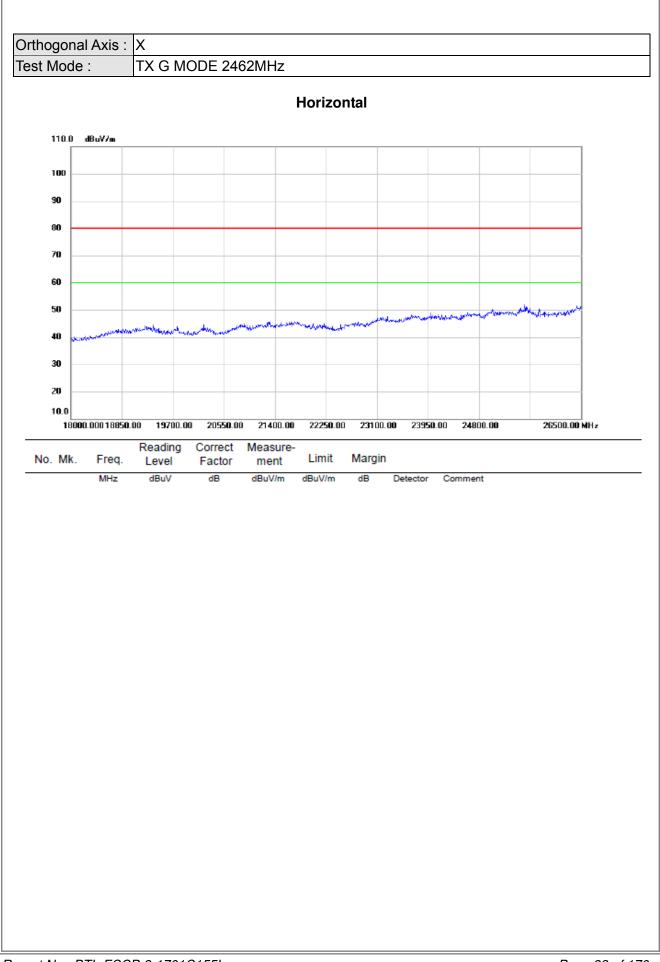






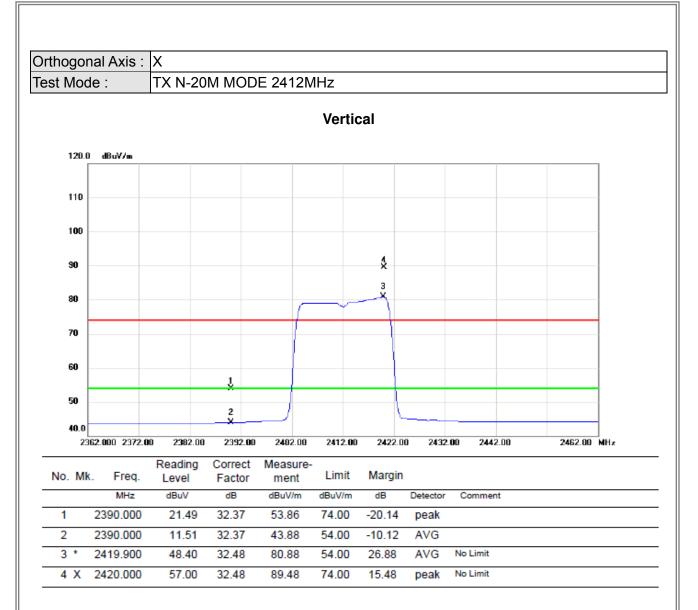






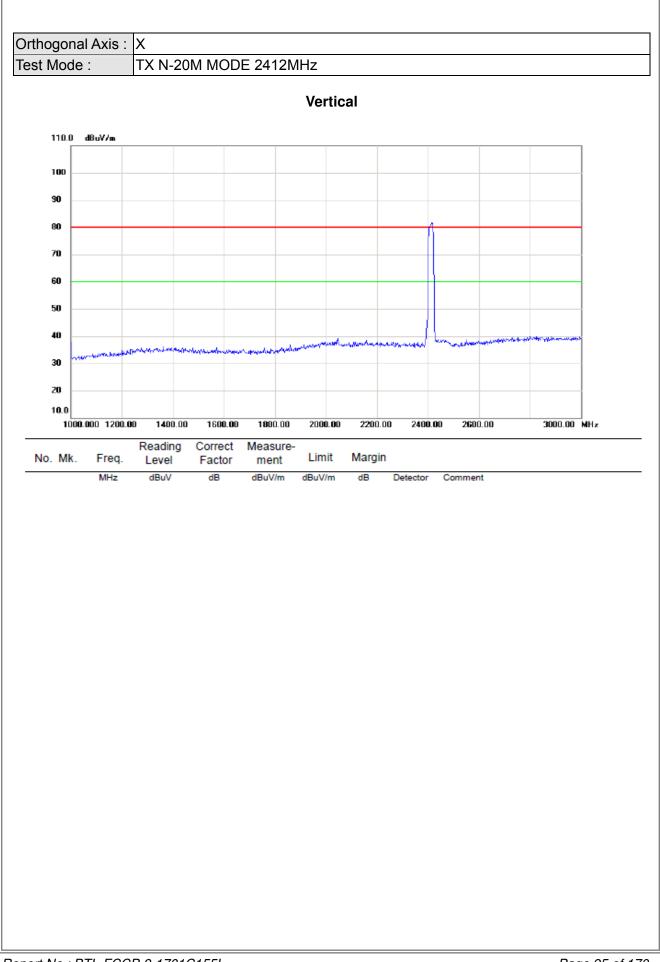






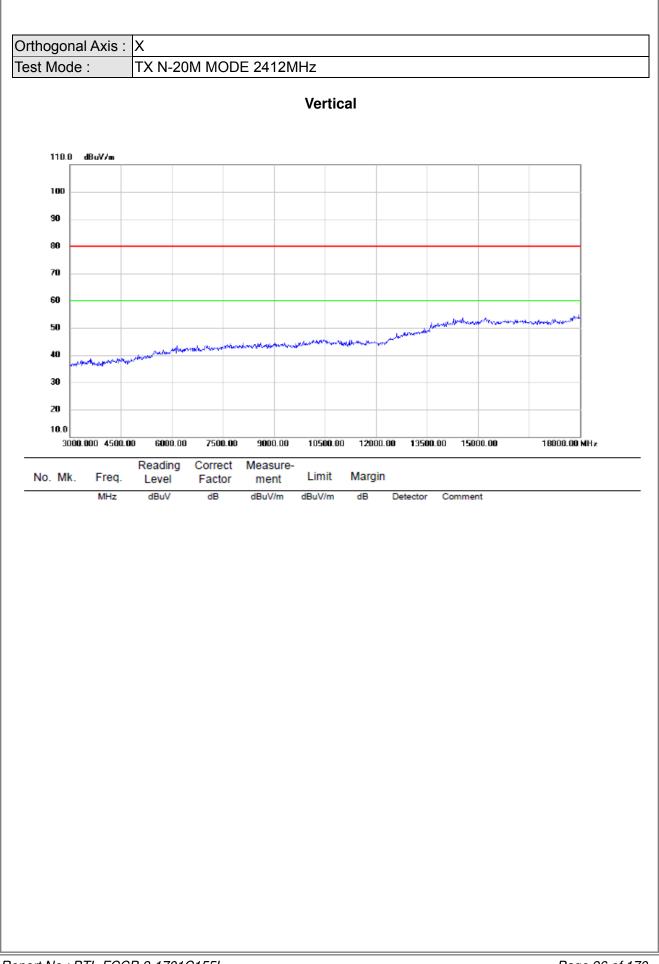






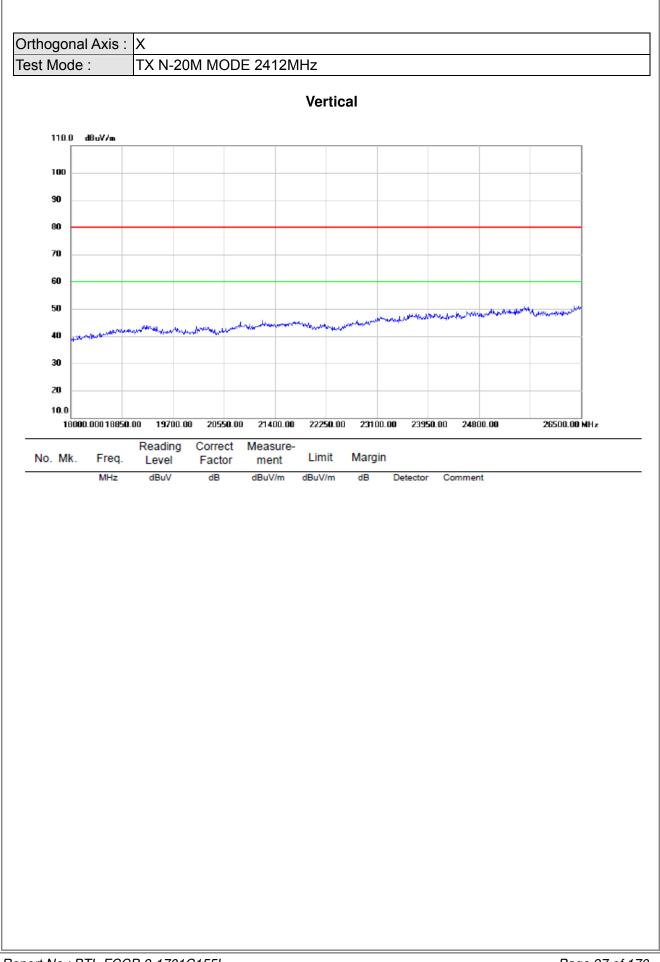






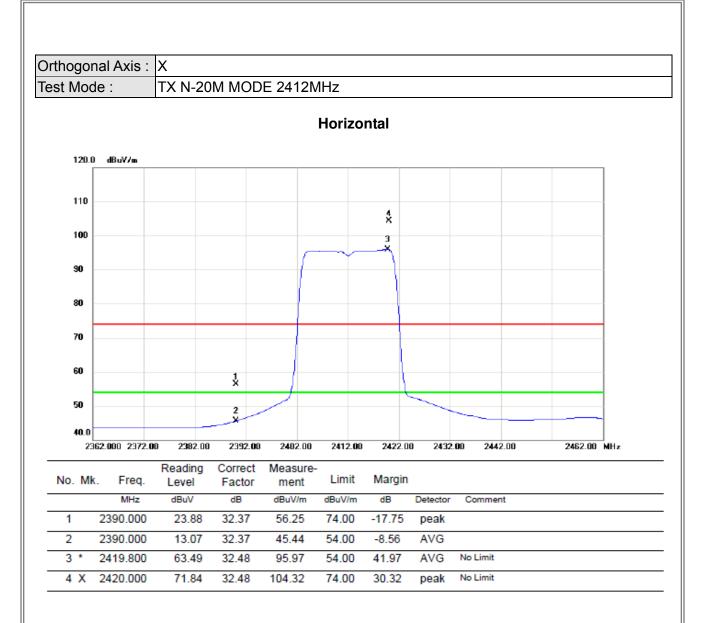






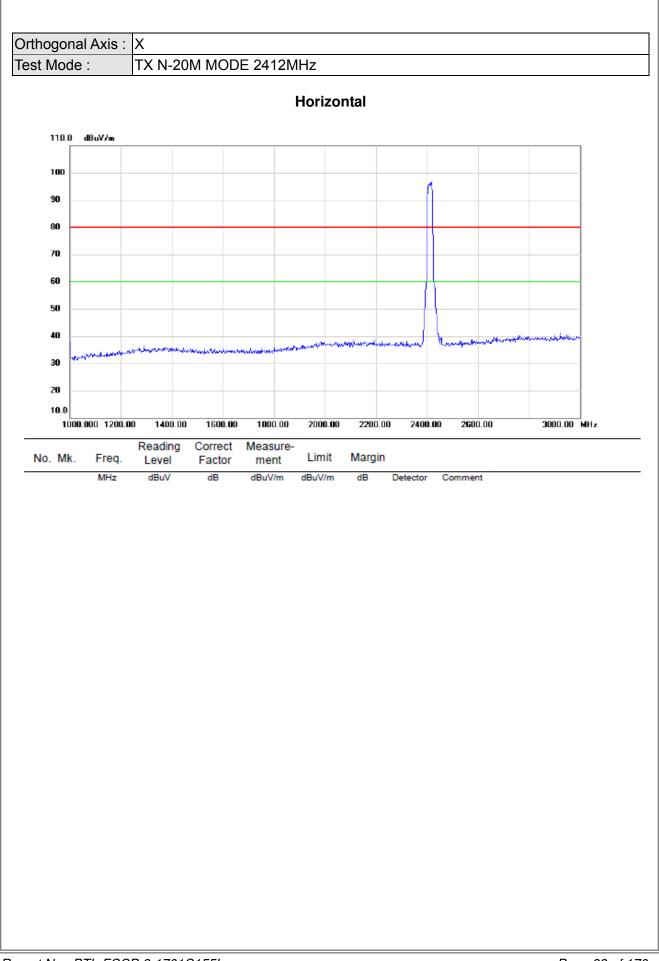






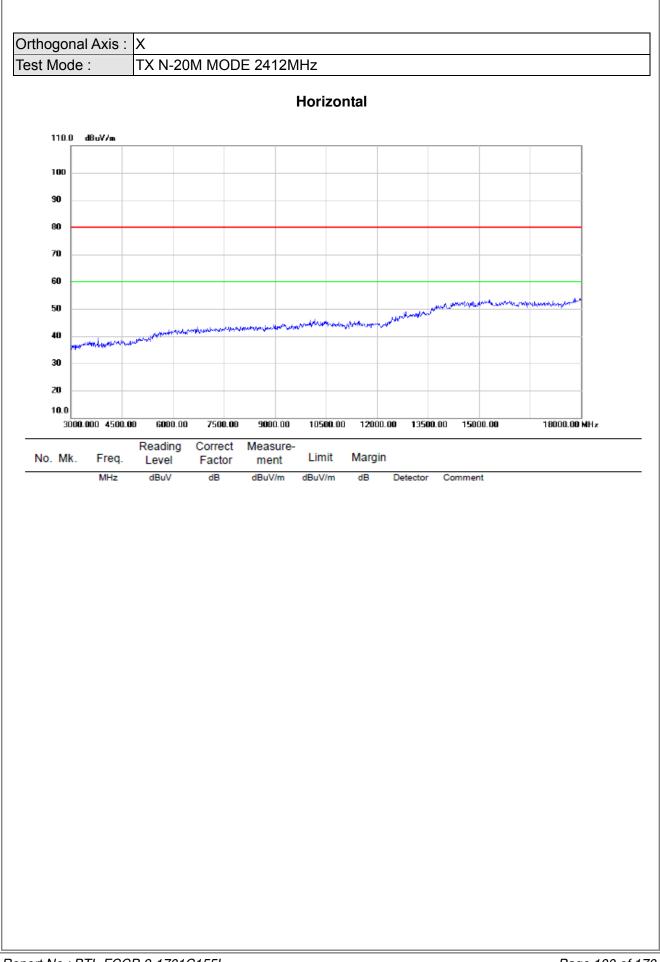






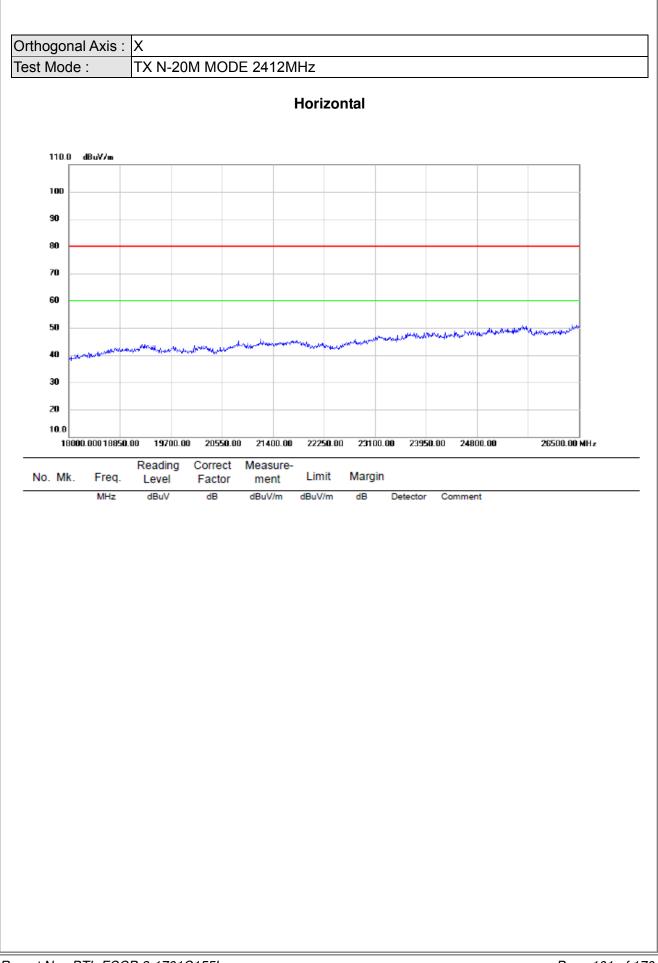






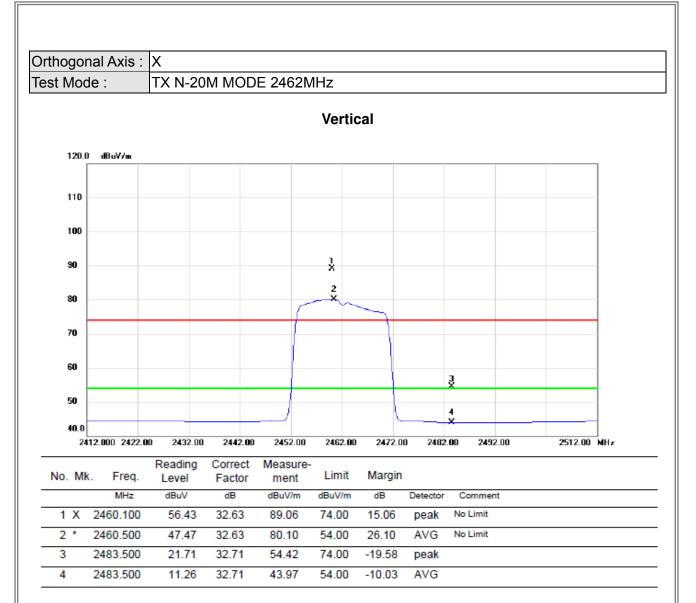






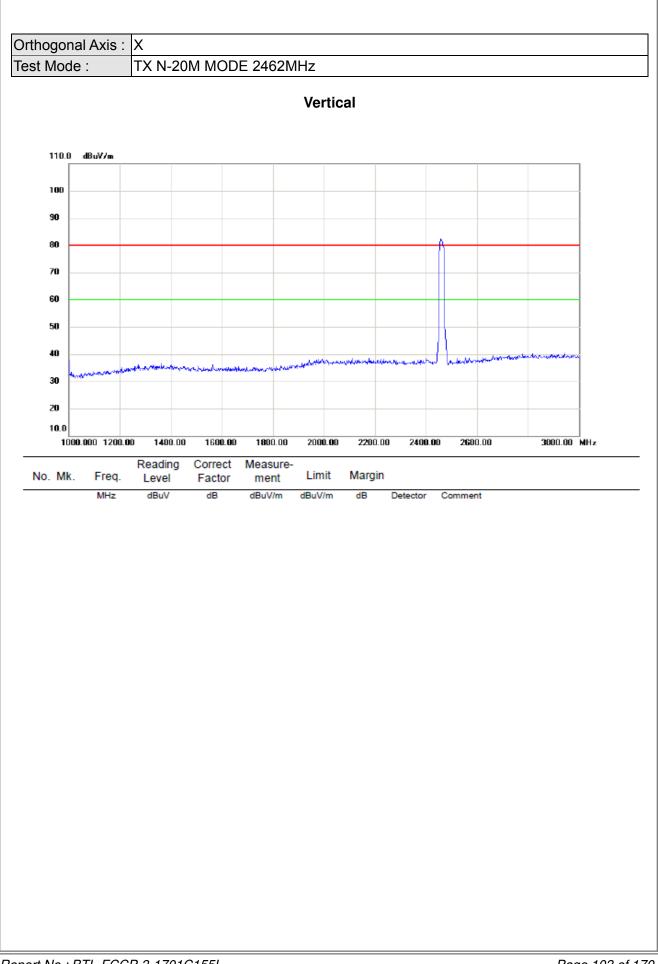






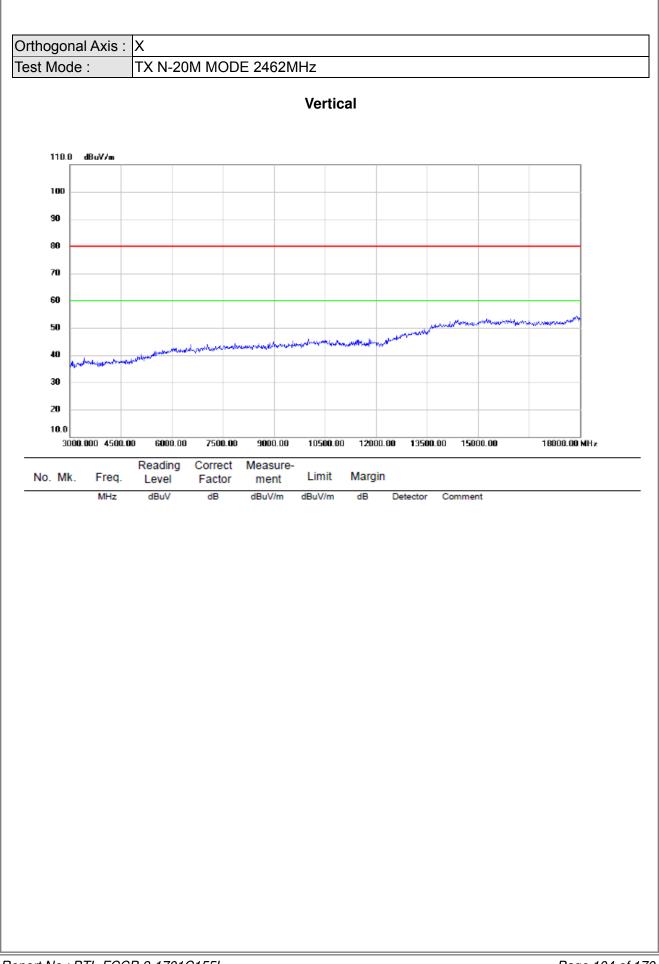






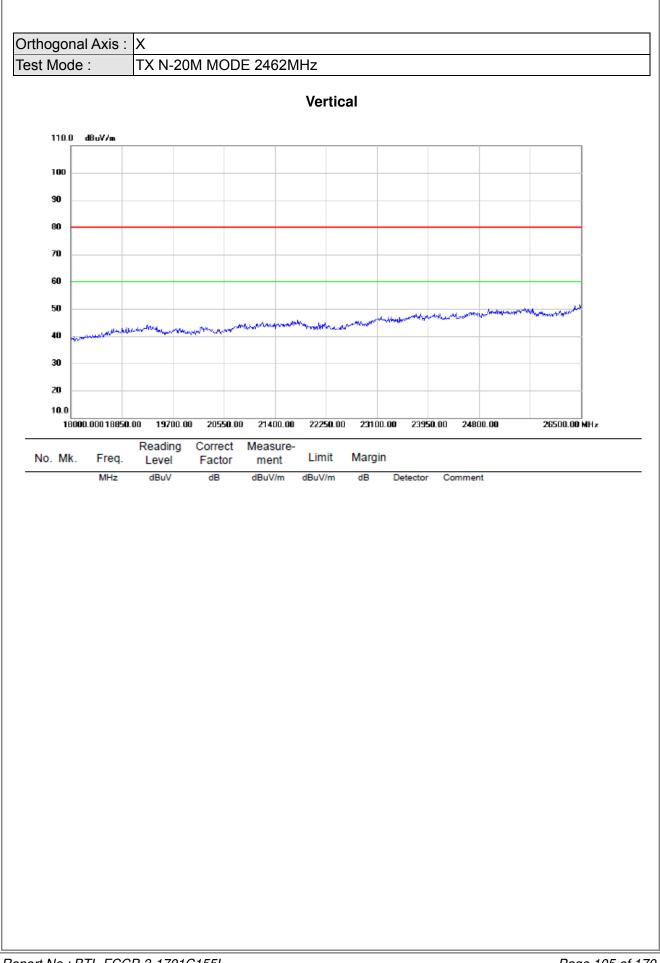






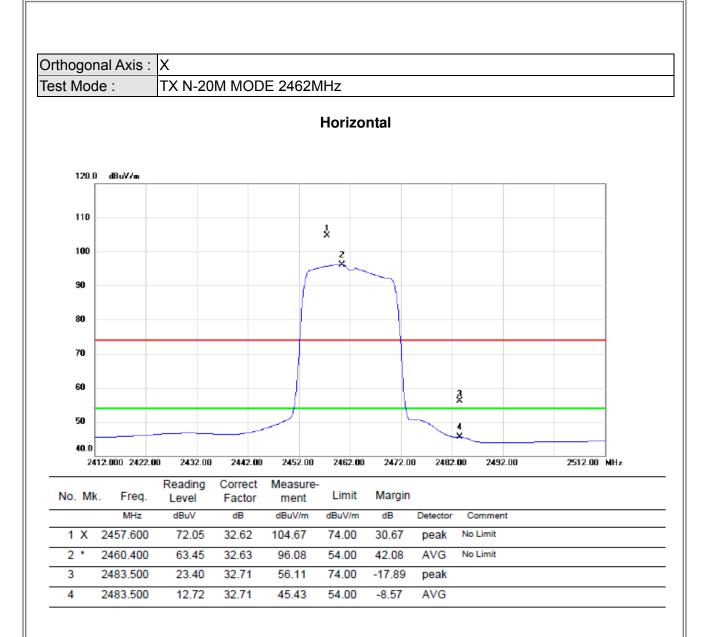






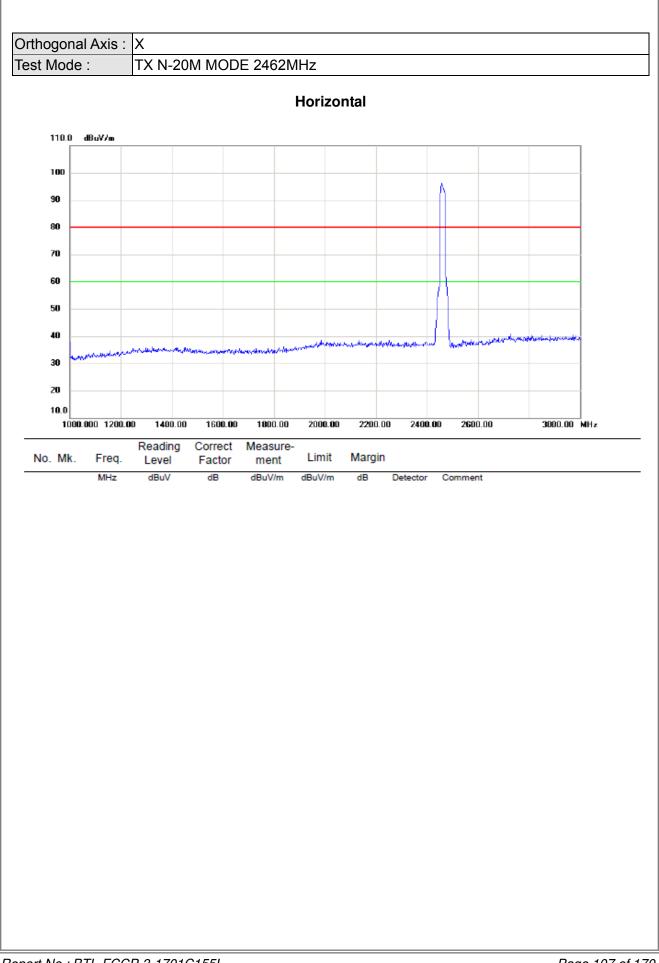






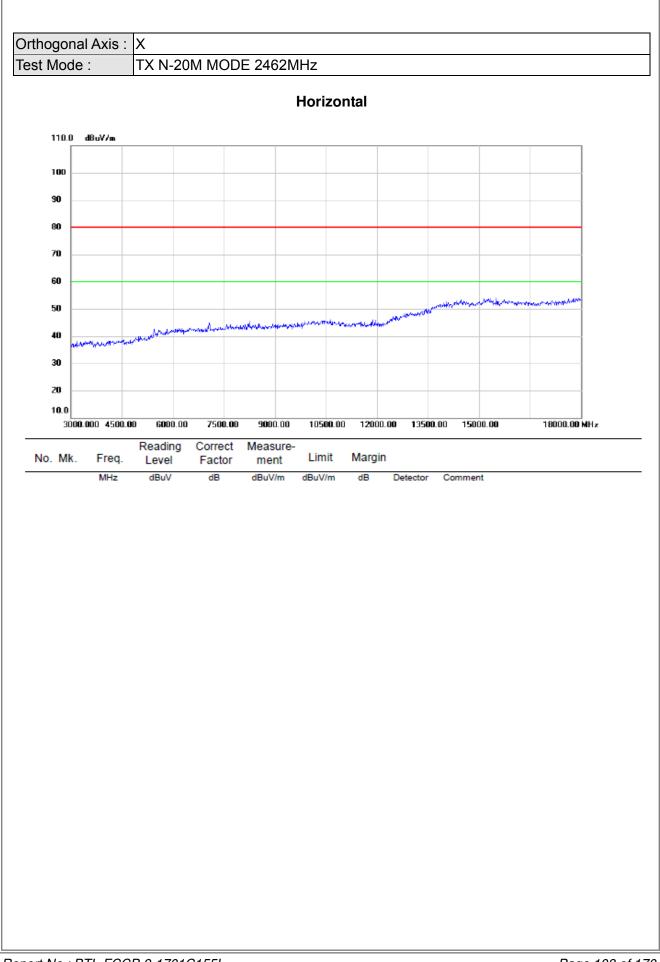






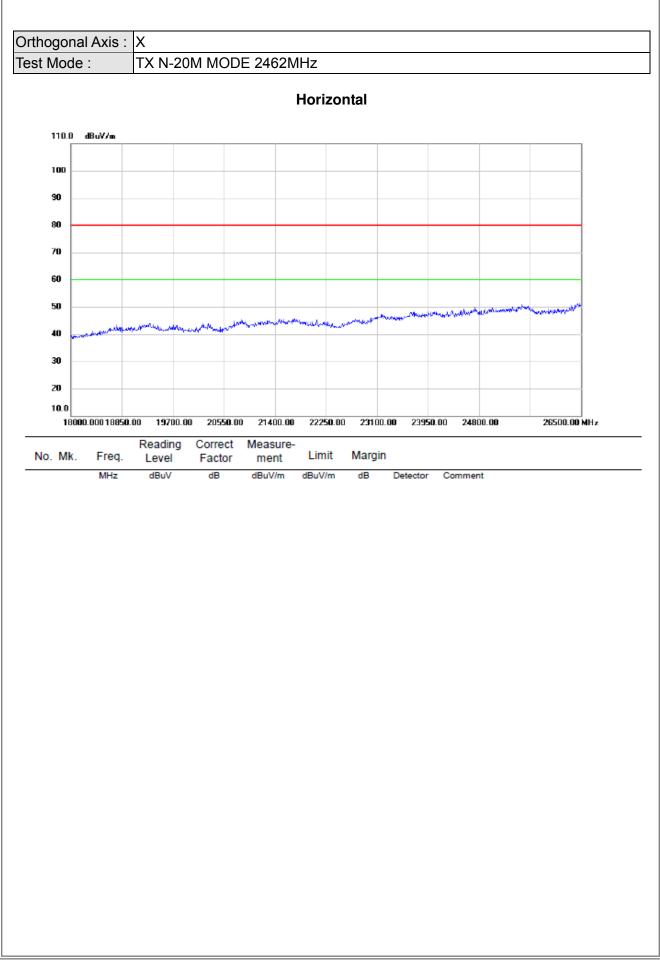






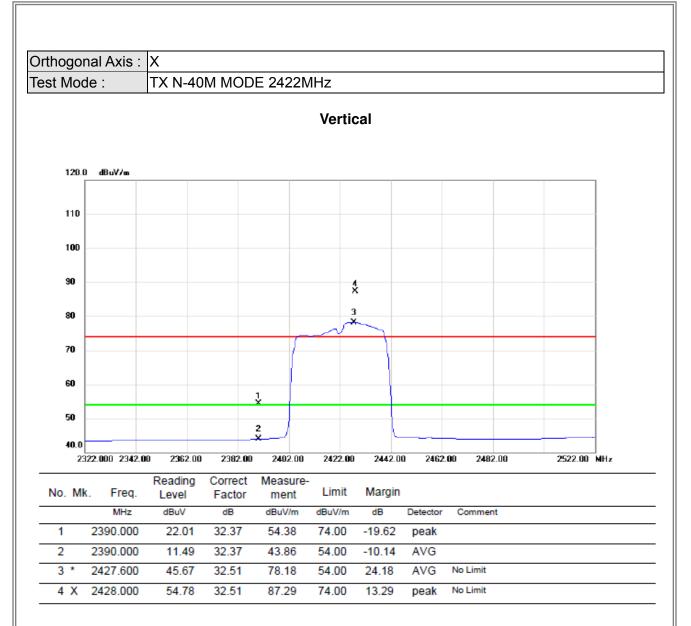






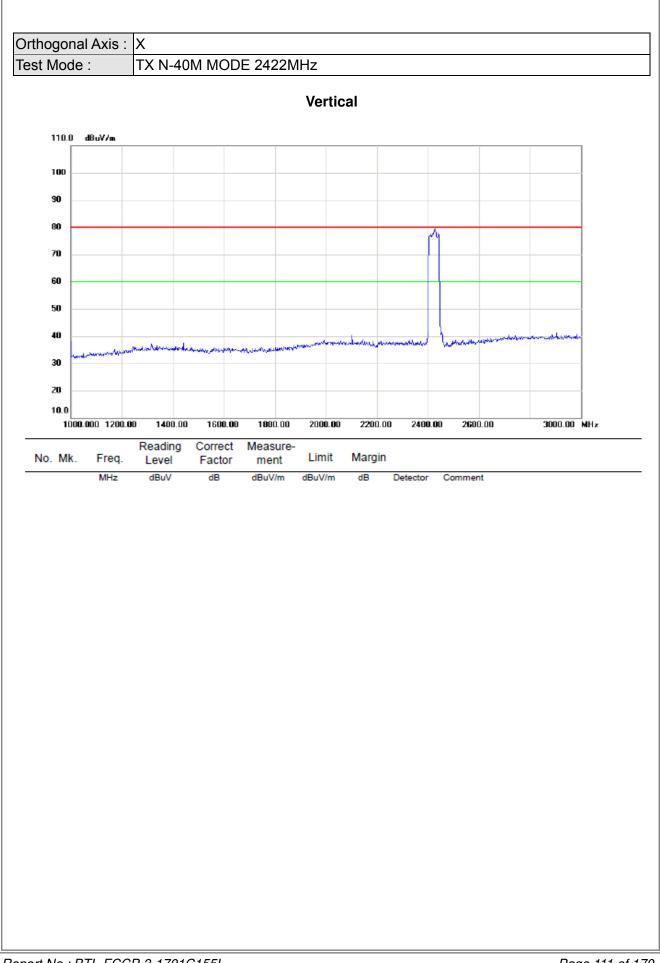






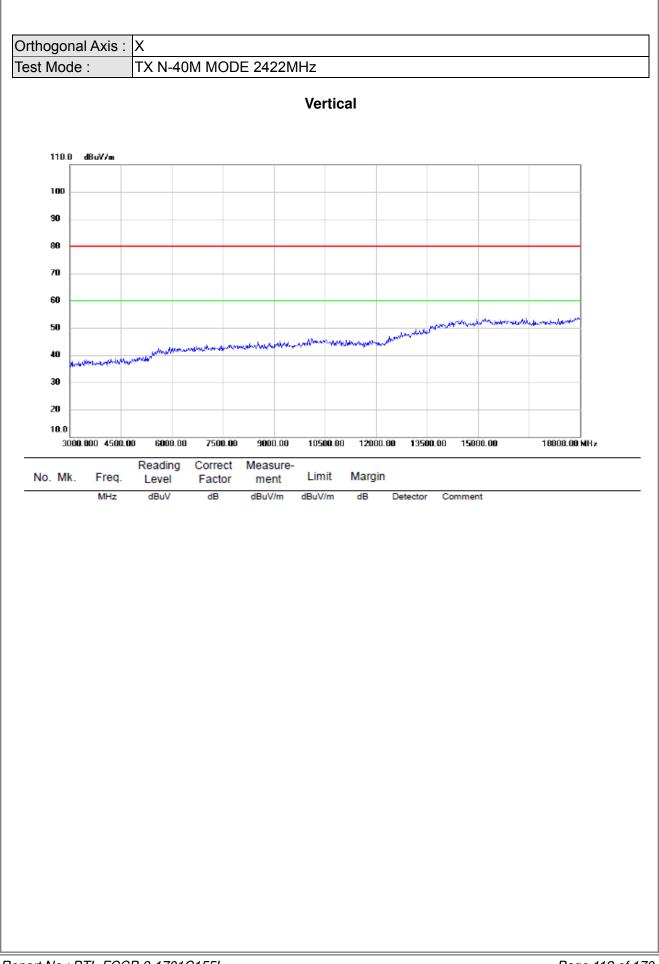






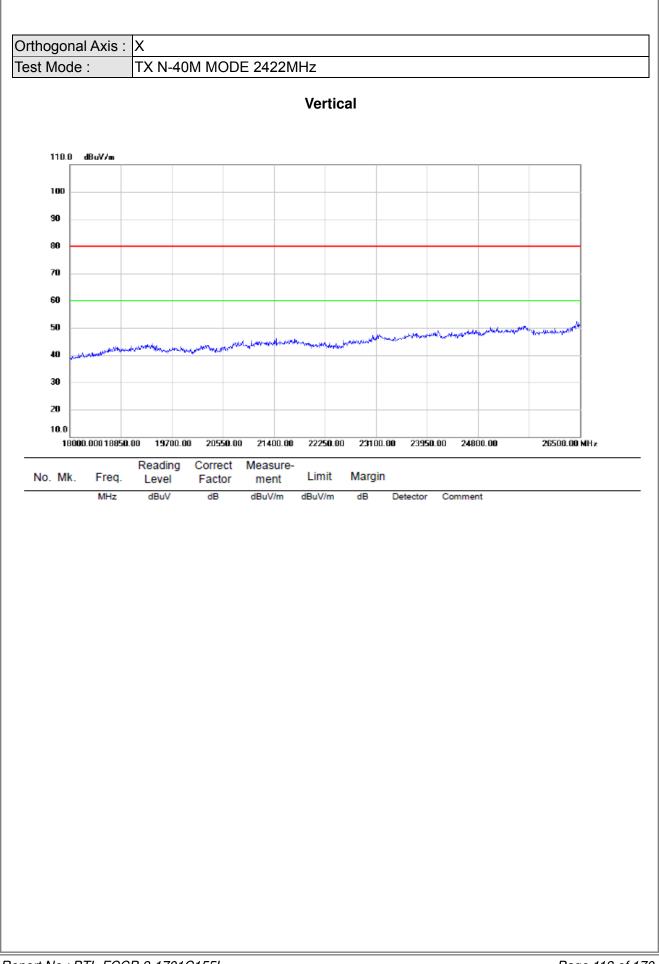






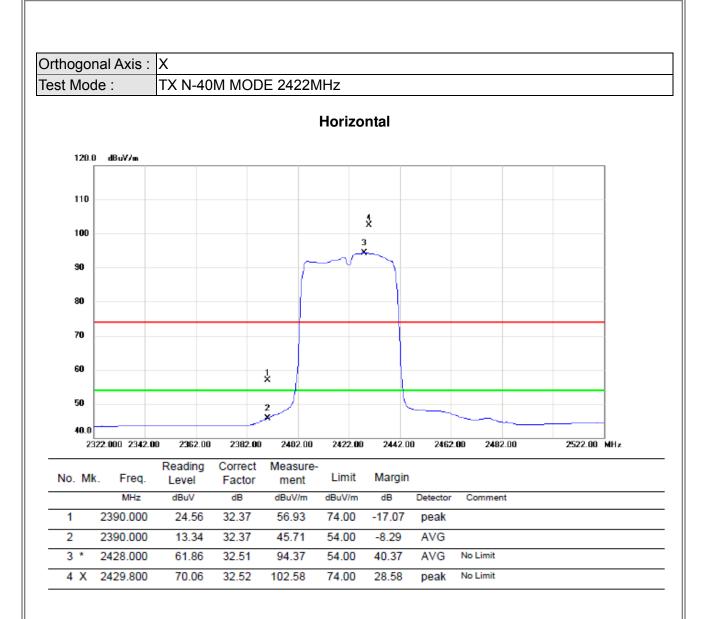






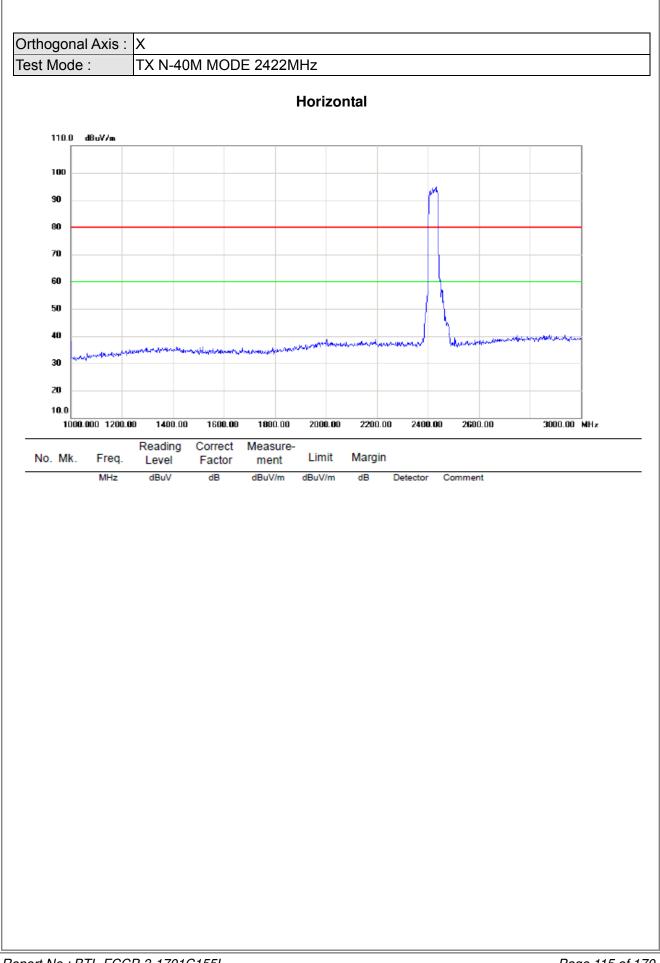






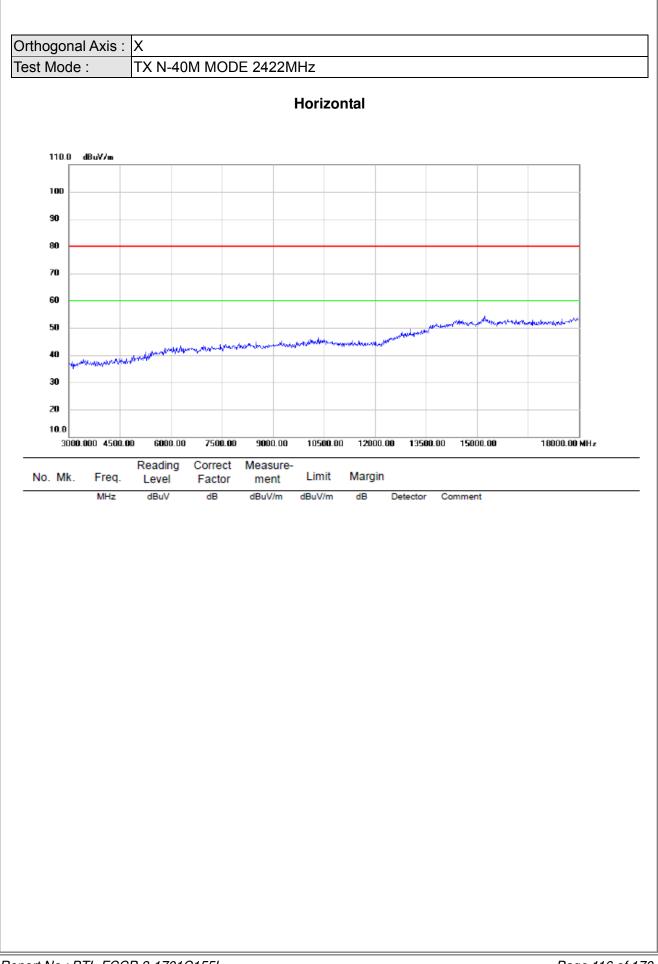






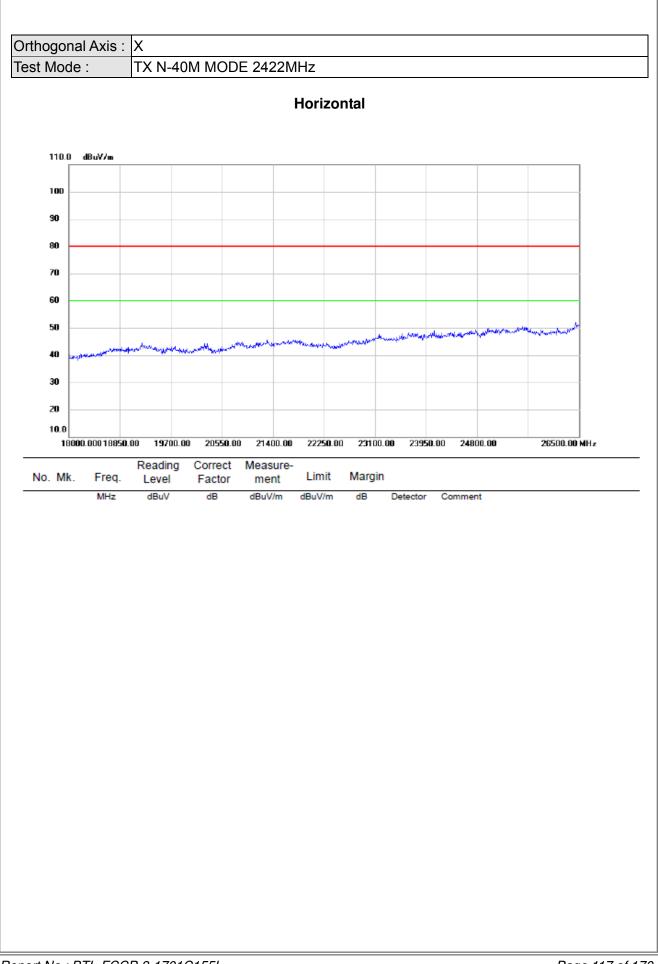






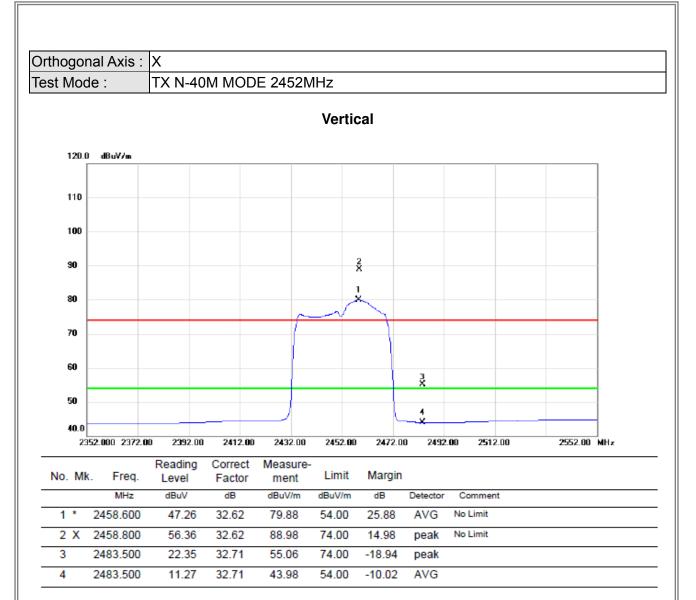






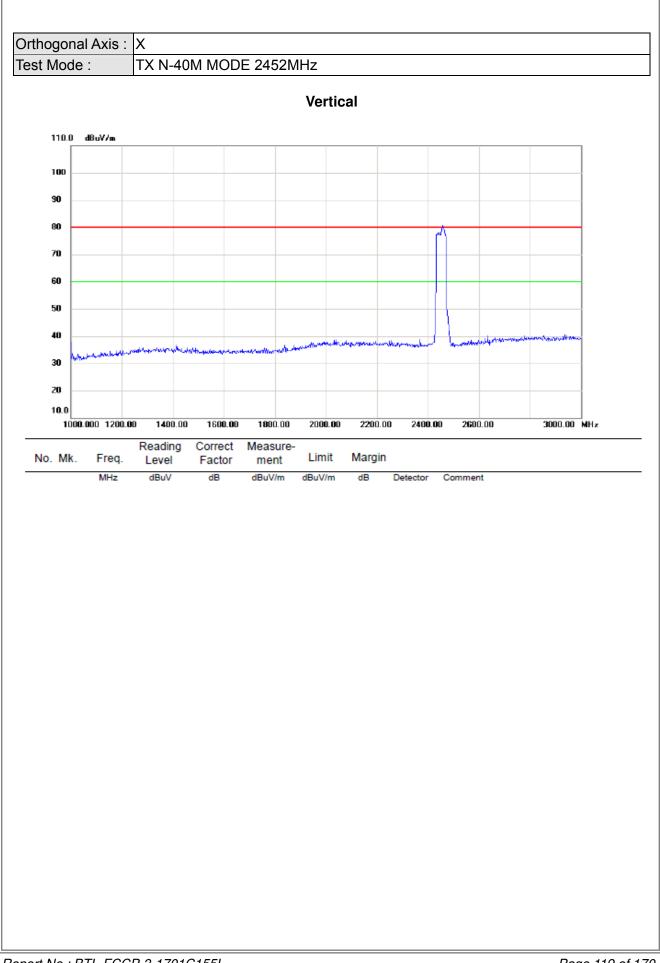






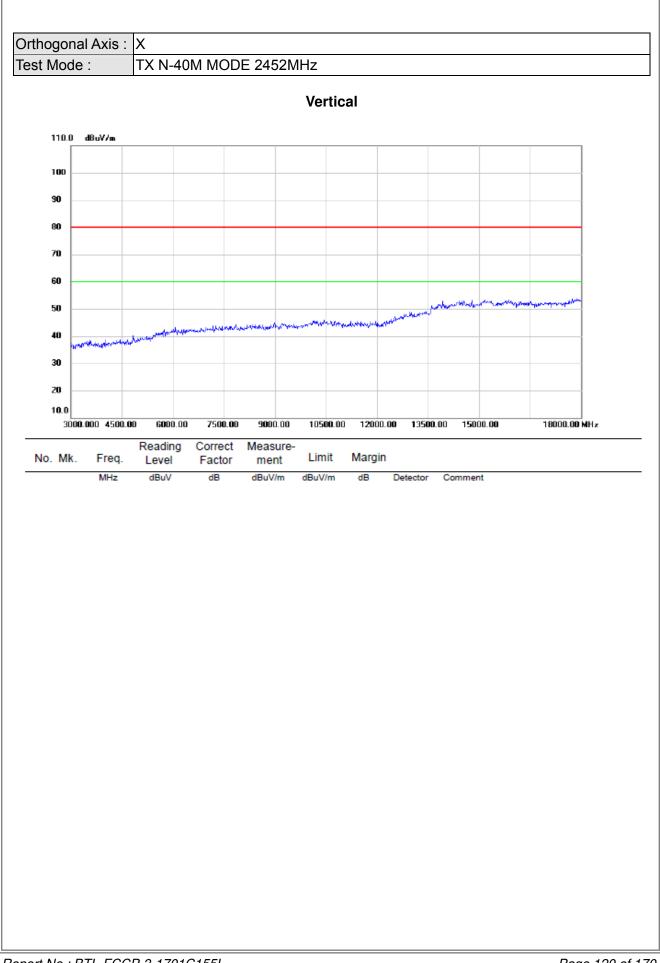






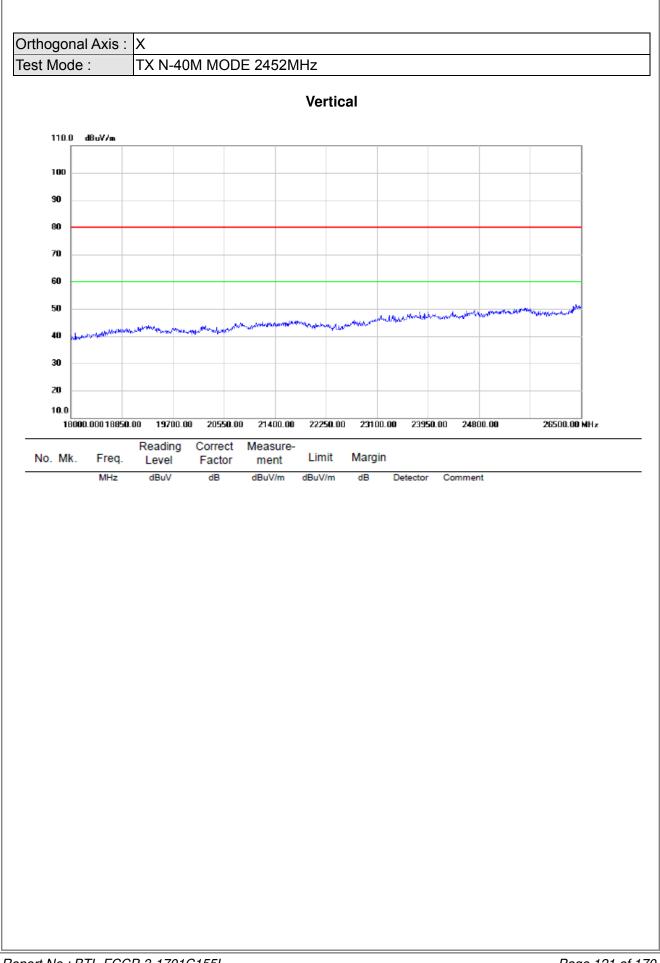






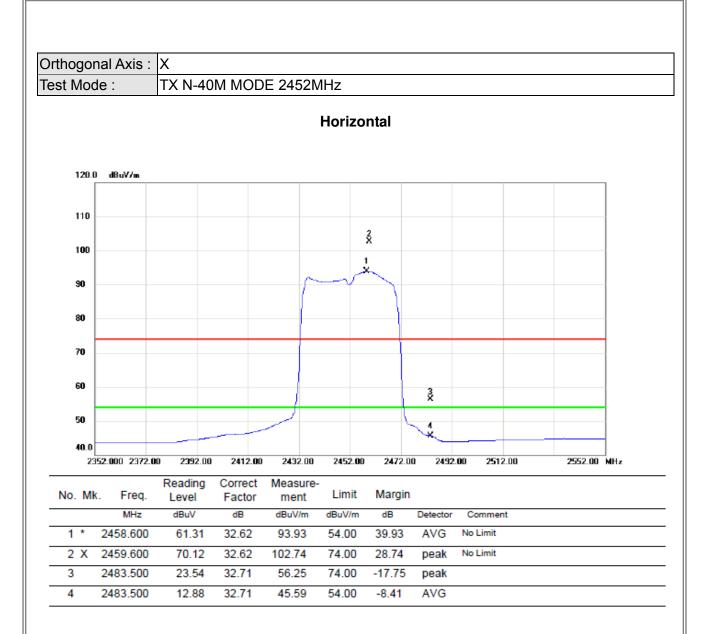






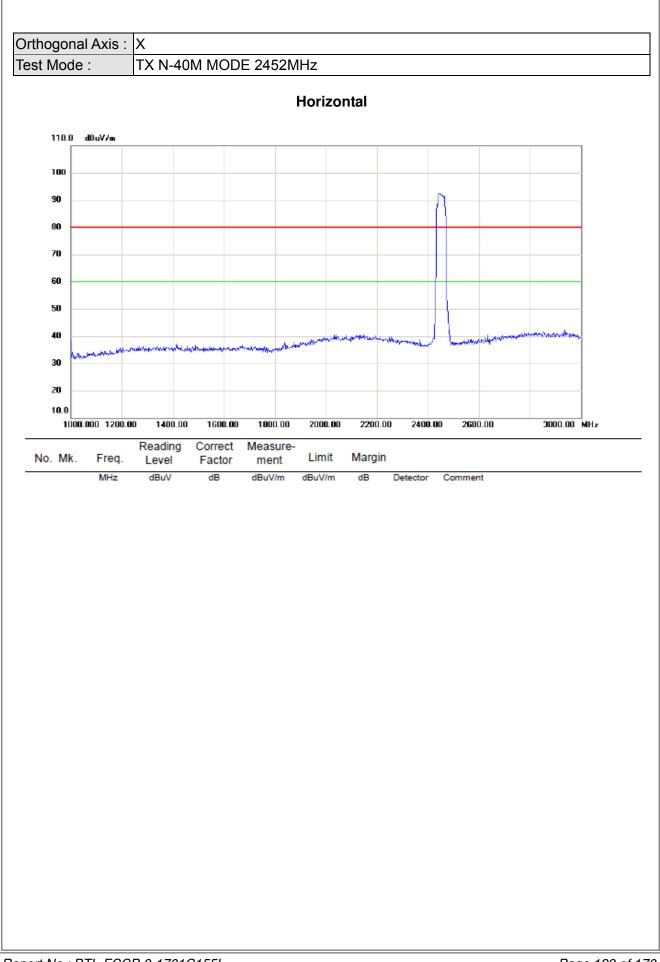






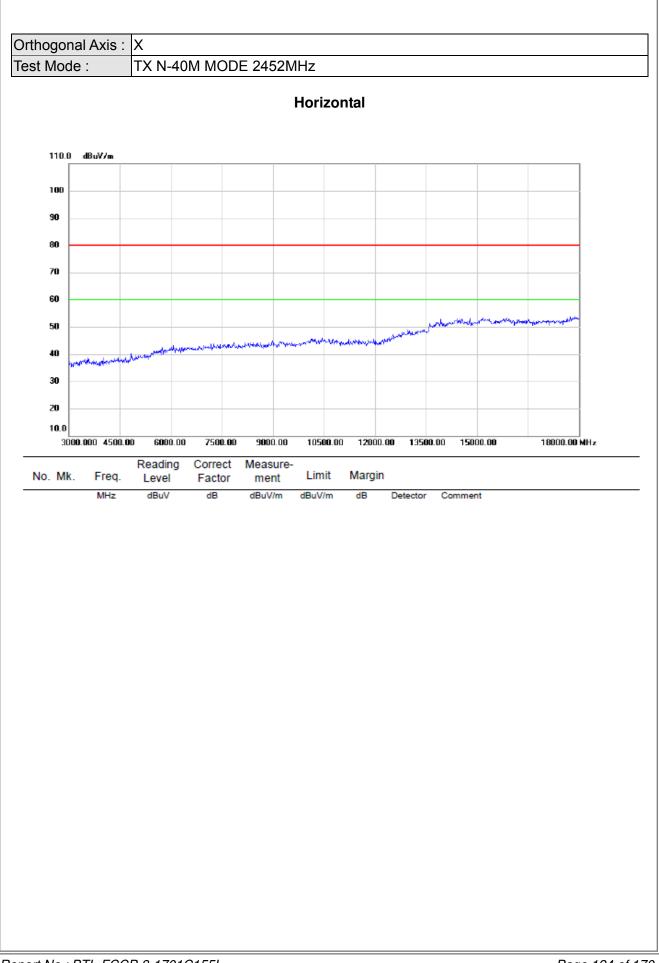






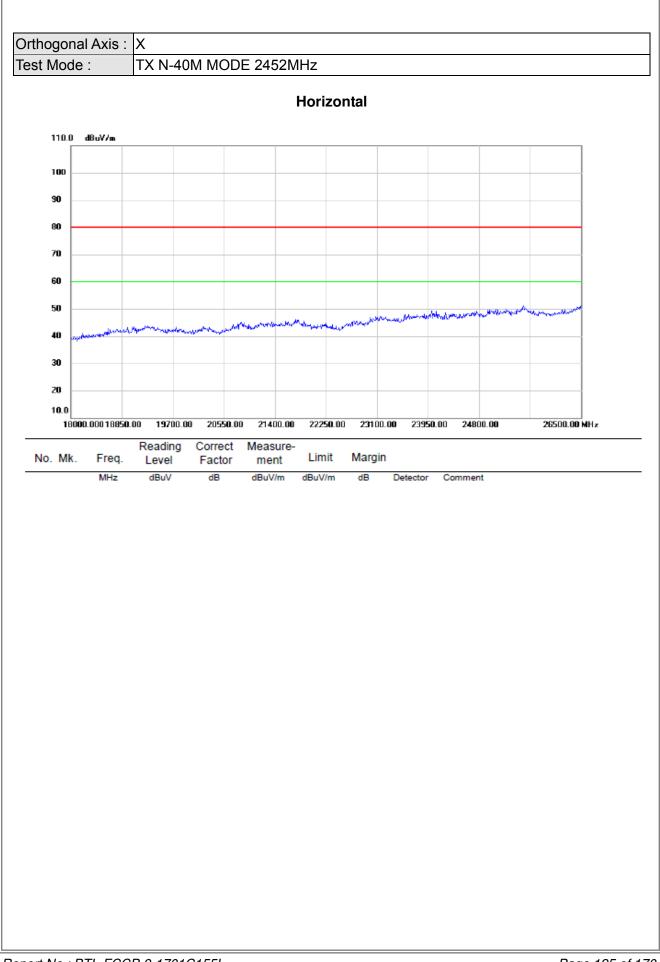












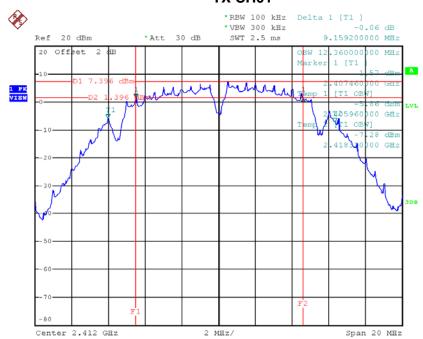


ATTACHMENT E - BANDWIDTH



Test Mode : TX B Mode_CH01/06/11

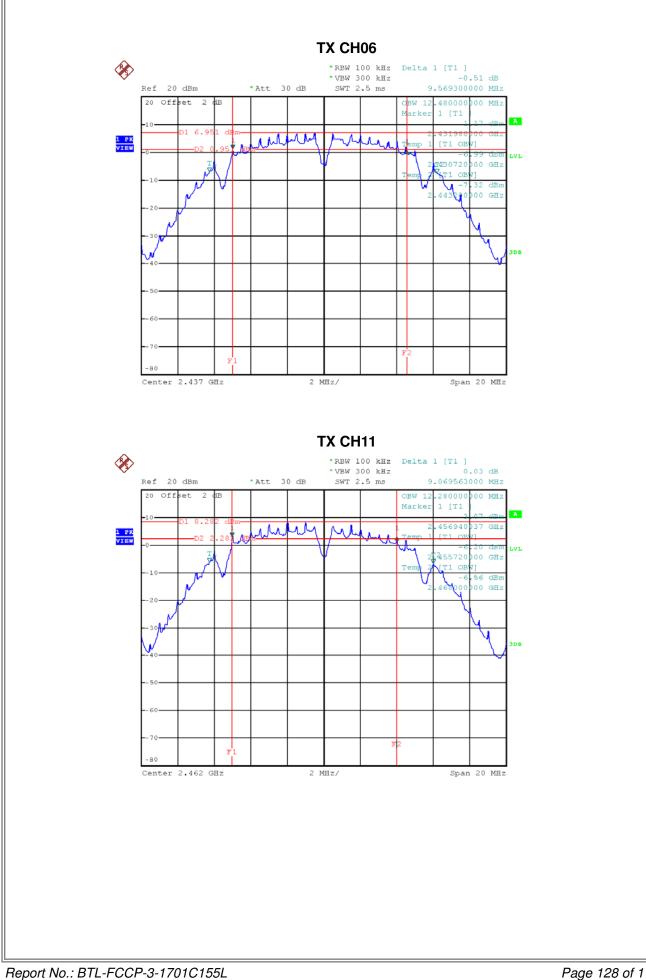
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2412	9.16	12.36	500	Complies
2437	9.57	12.48	500	Complies
2462	9.07	12.28	500	Complies



TX CH01



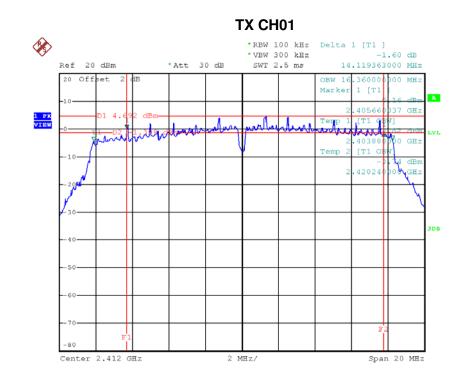






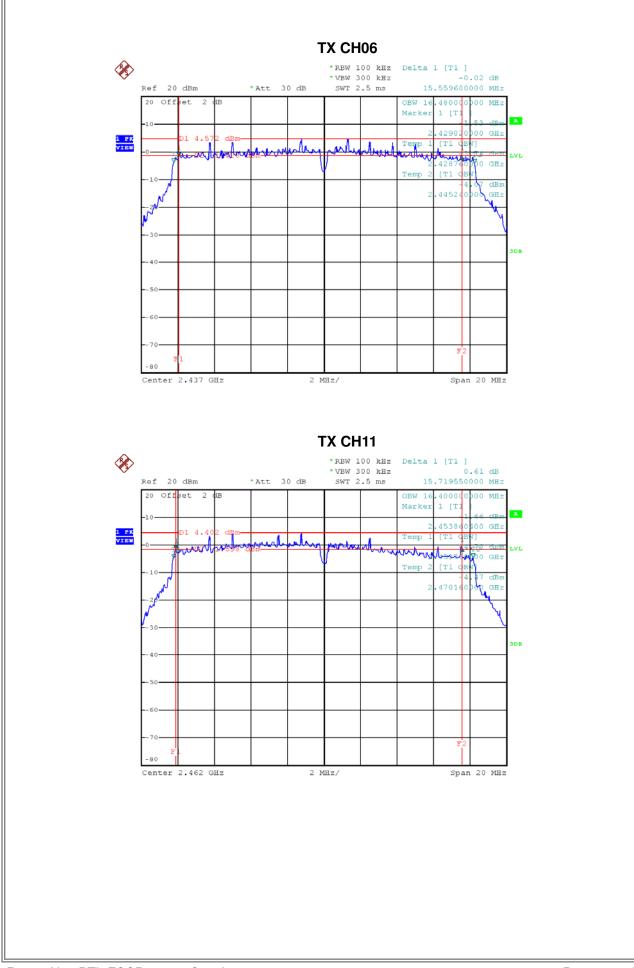


	Test Mode: TX G Mode_CH01/06/11						
Frequency (MHz)	Test Resu						
2412	14.12	16.36	500	Complies			
2437	15.56	16.48	500	Complies			
2462	15.72	16.4	500	Complies			



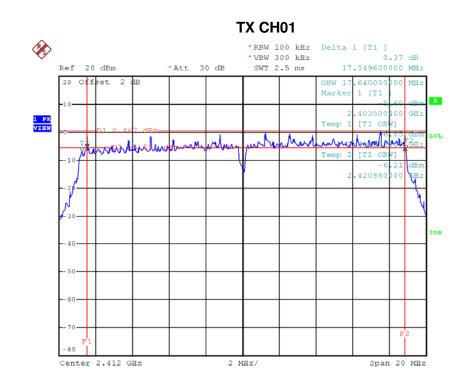




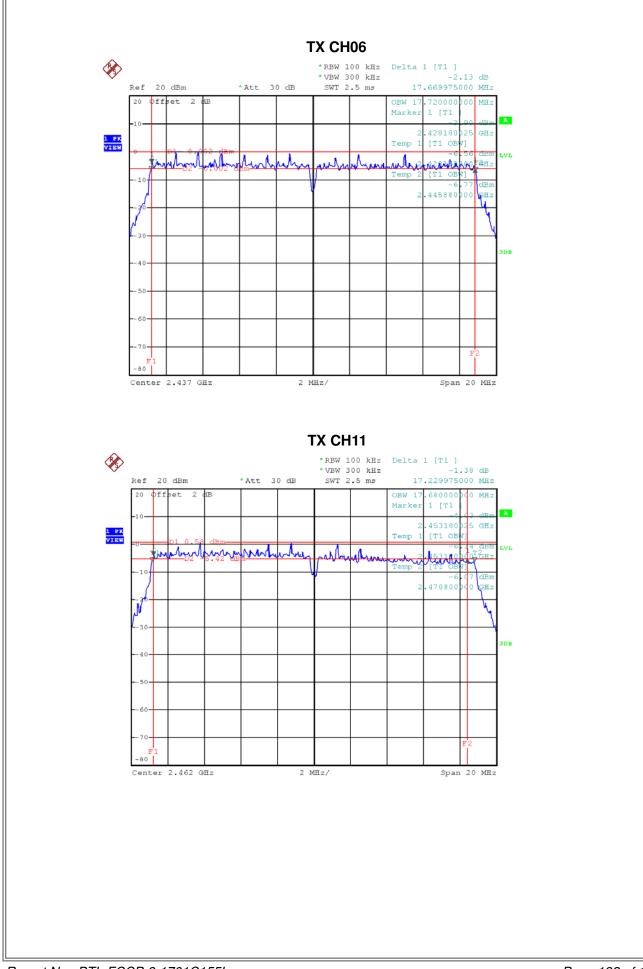




Test Mode : TX N-20MHz Mode_CH01/06/11					
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result	
2412	17.35	17.64	500	Complies	
2437	17.67	17.72	500	Complies	
2462	17.23	17.68	500	Complies	





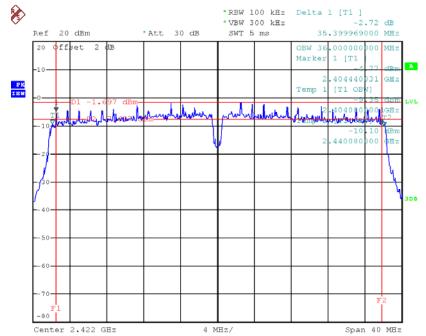




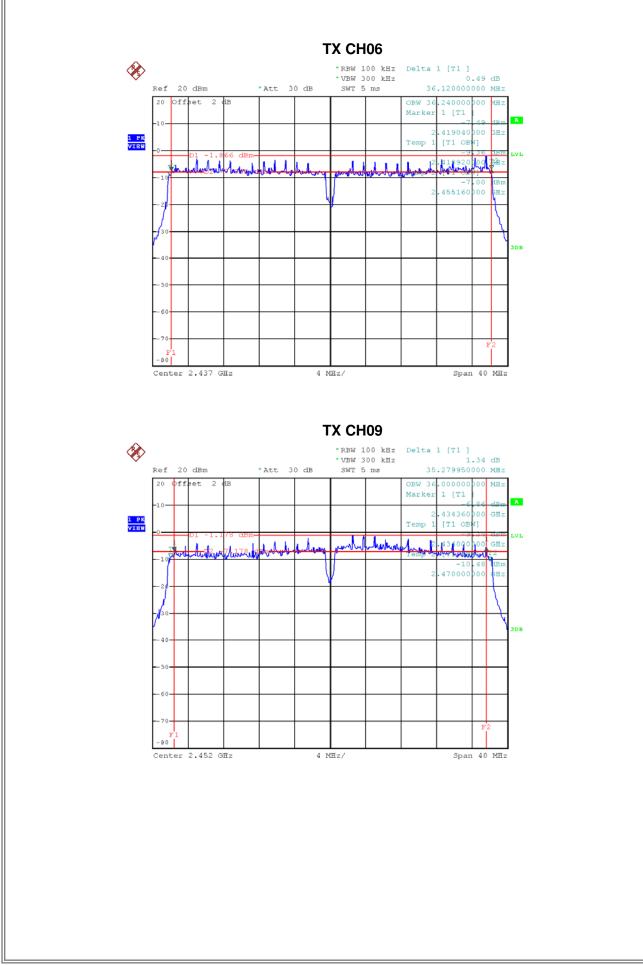


Test Mode : TX N-40MHz Mode_CH03/06/09								
Frequency (MHz)	Test Result							
2422	35.4	36	500	Complies				
2437	36.12	36.24	500	Complies				
2452	35.28	36	500	Complies				













ATTACHMENT 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	19.59	0.09	30.00	1.00	Complies	
2437	19.36	0.09	30.00	1.00	Complies	
2462	19.72	0.09	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	24.05	0.25	30.00	1.00	Complies	
2437	24.35	0.27	30.00	1.00	Complies	
2462	23.75	0.24	30.00	1.00	Complies	

Test Mode :TX N20 Mode_CH01/06/11						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Pocult	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	21.80	0.15	30.00	1.00	Complies	
2437	21.62	0.15	30.00	1.00	Complies	
2462	22.11	0.16	30.00	1.00	Complies	

Test Mode :TX N40 Mode_CH03/06/09						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Popult	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2422	22.10	0.16	30.00	1.00	Complies	
2437	22.39	0.17	30.00	1.00	Complies	
2452	21.89	0.15	30.00	1.00	Complies	

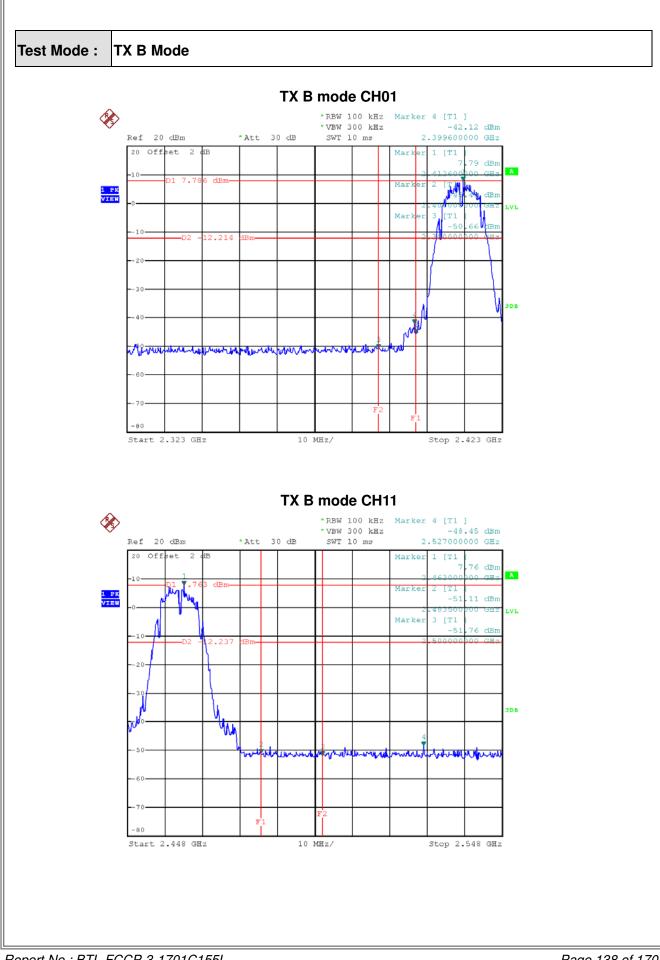




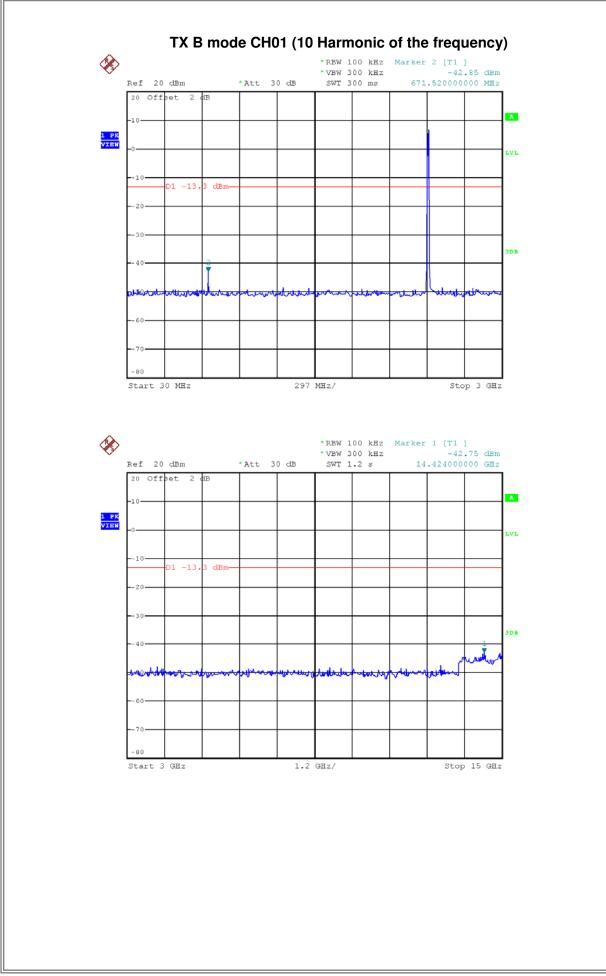
ATTACHMENT G - ANTENNA CONDUCTED SPURIOUS EMISSION



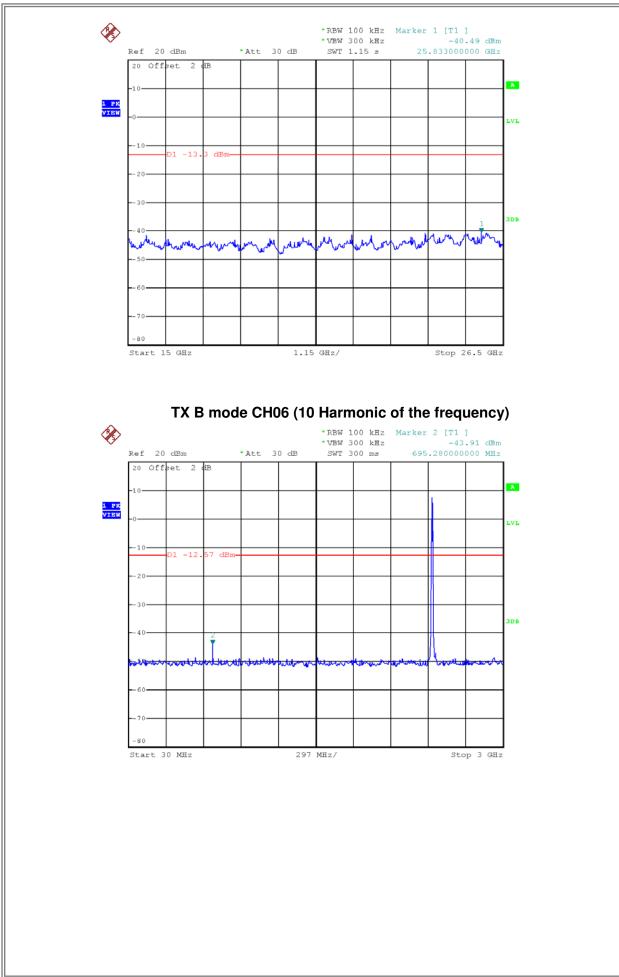




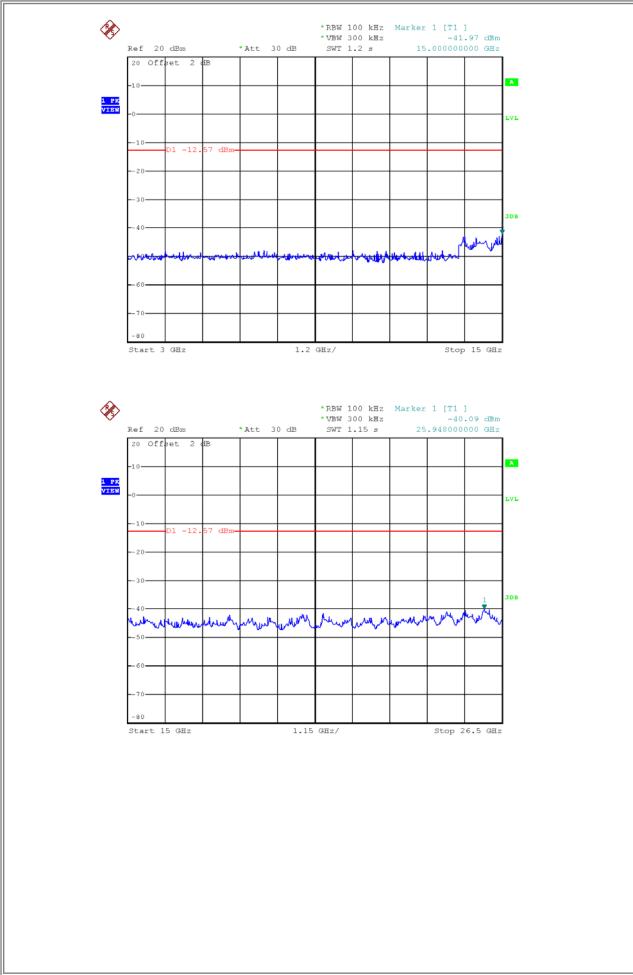




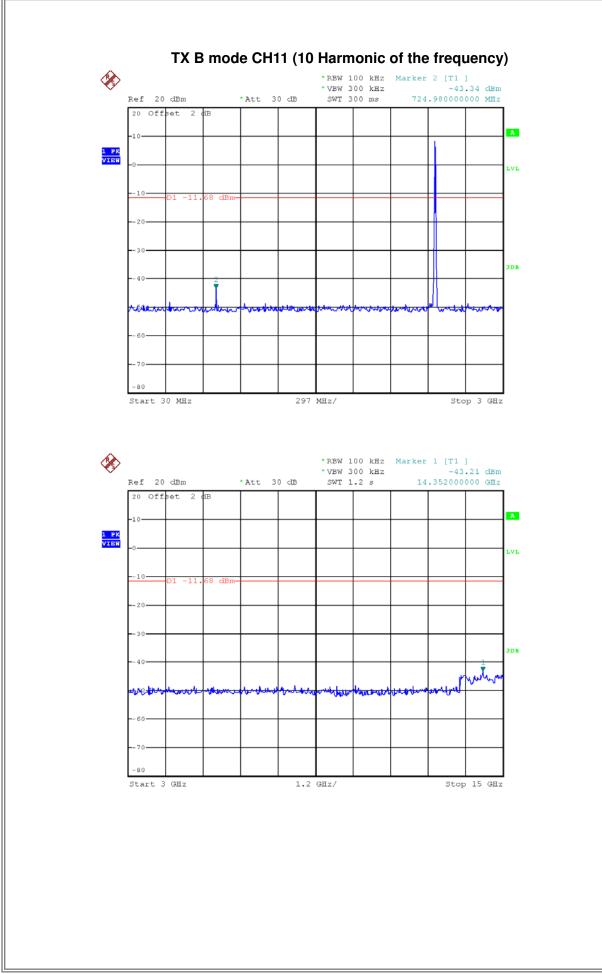




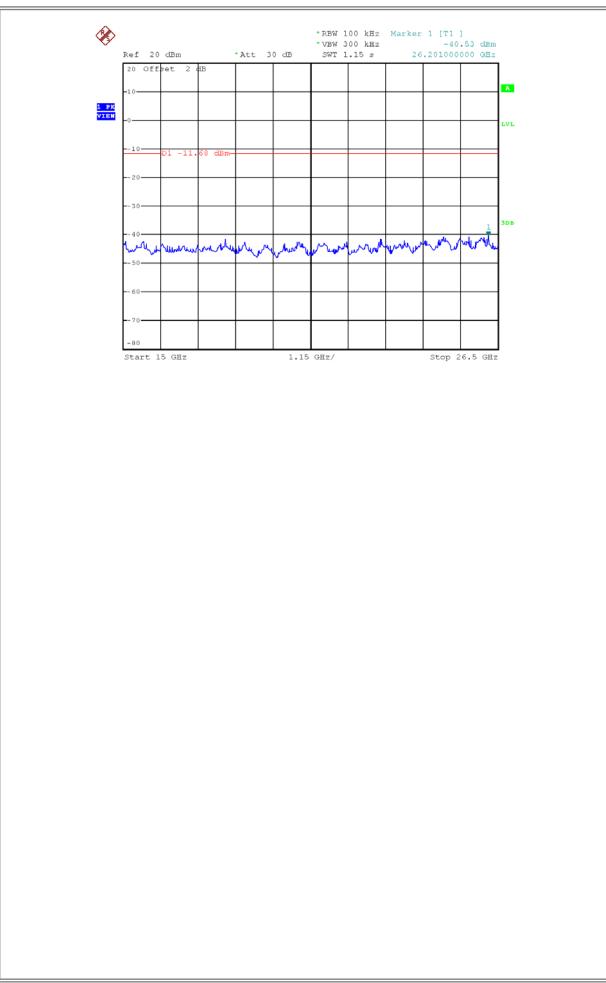






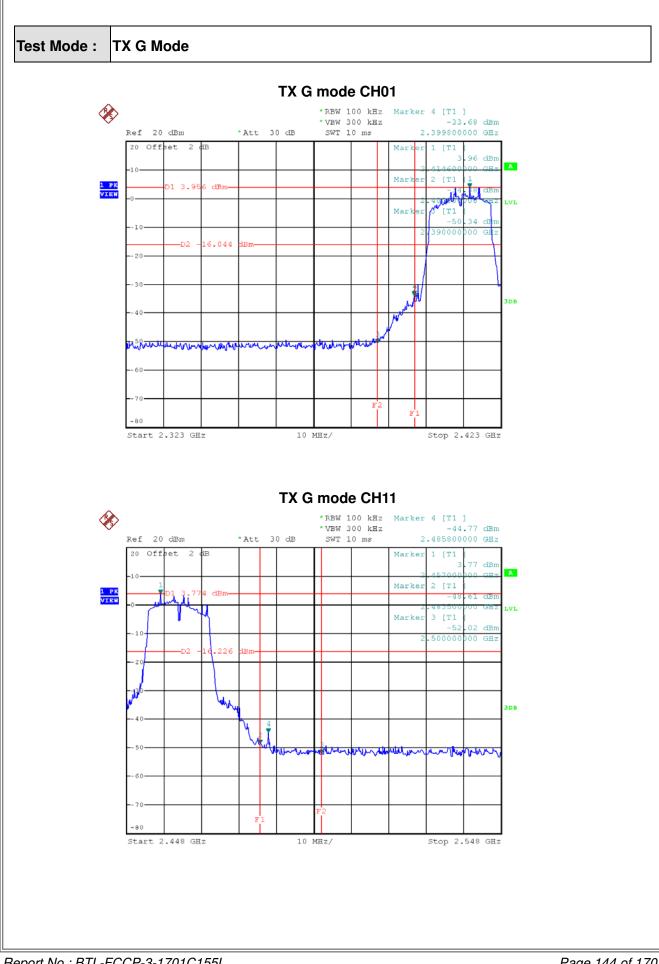




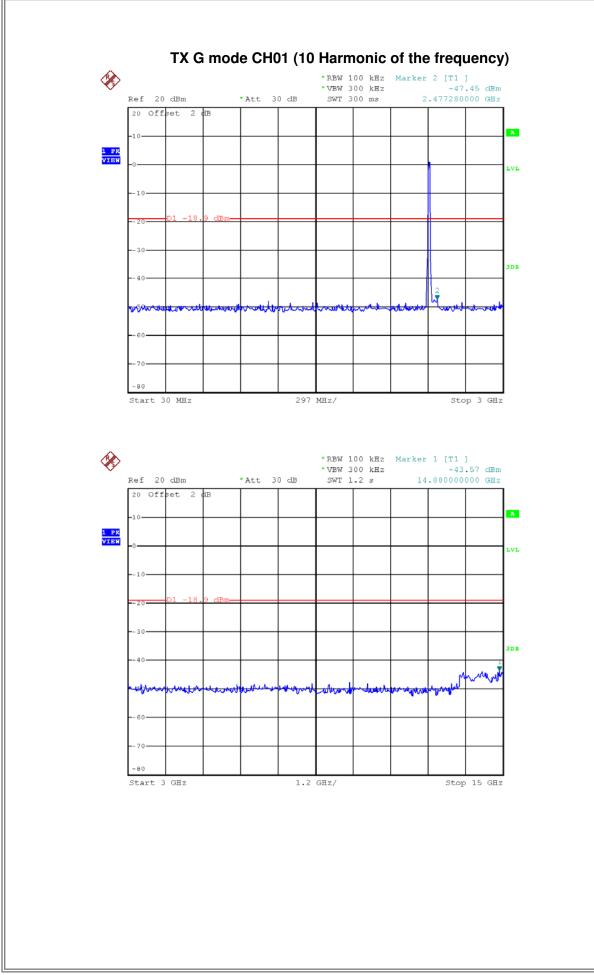




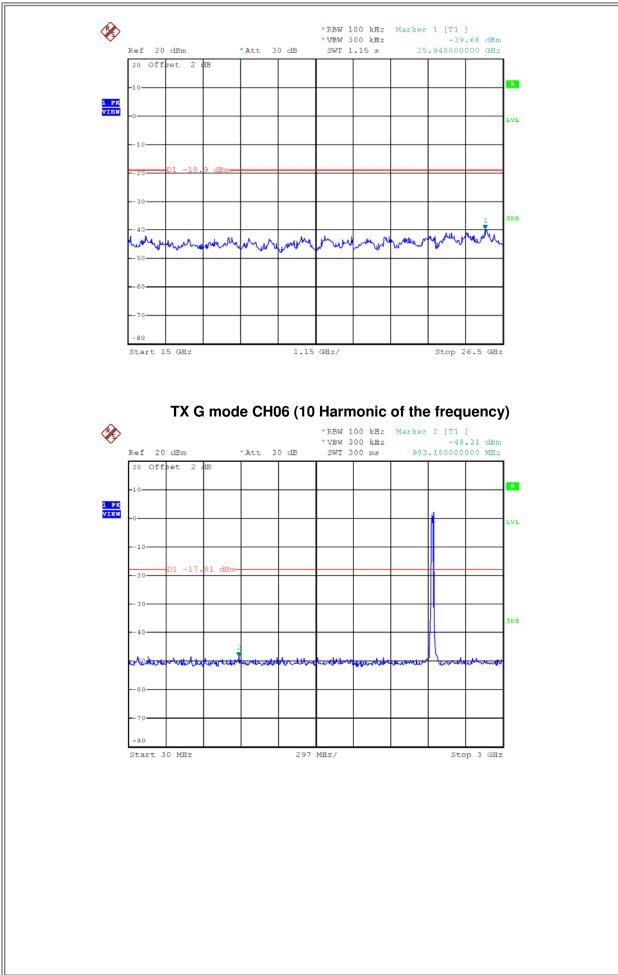




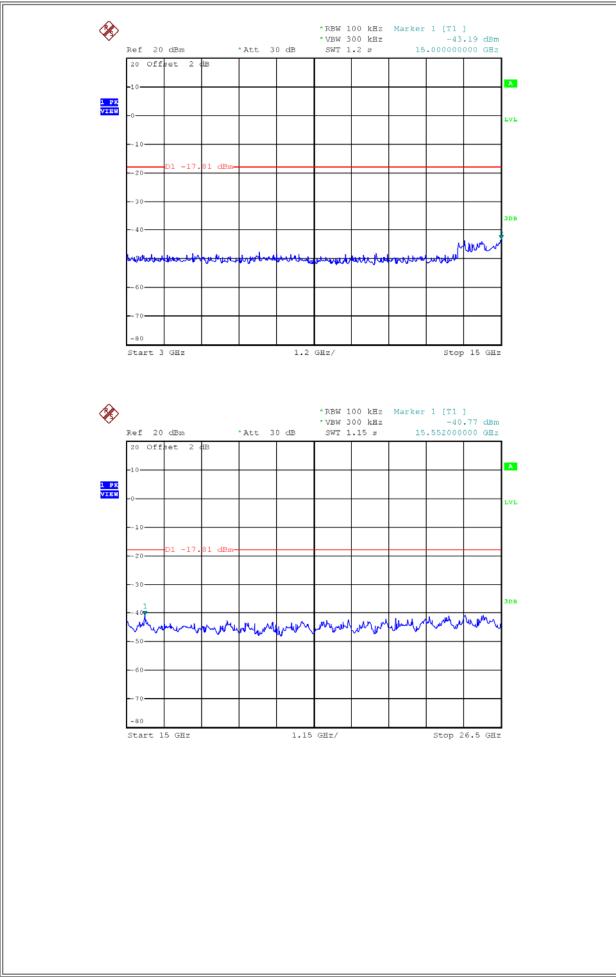




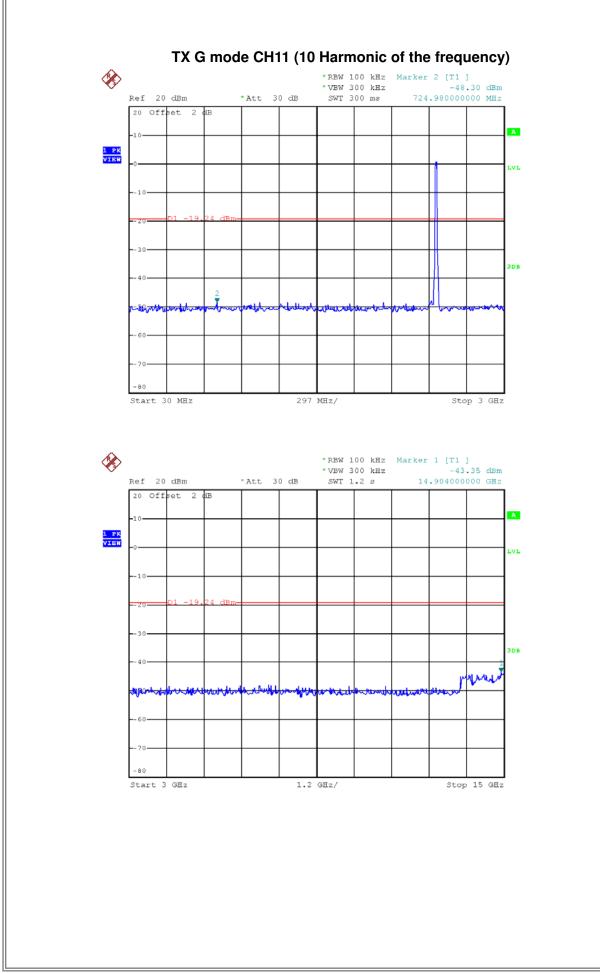




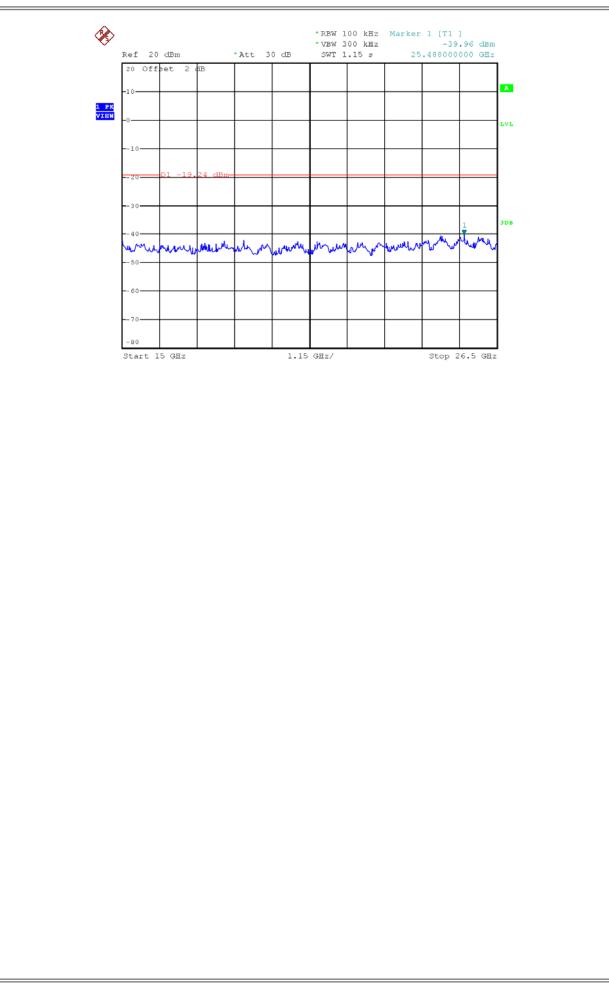






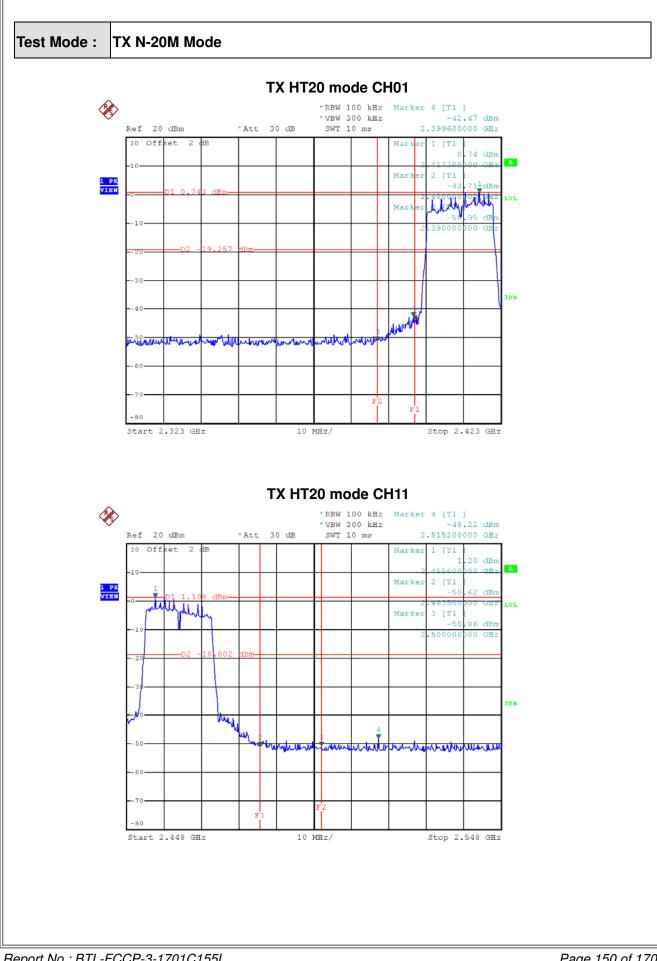




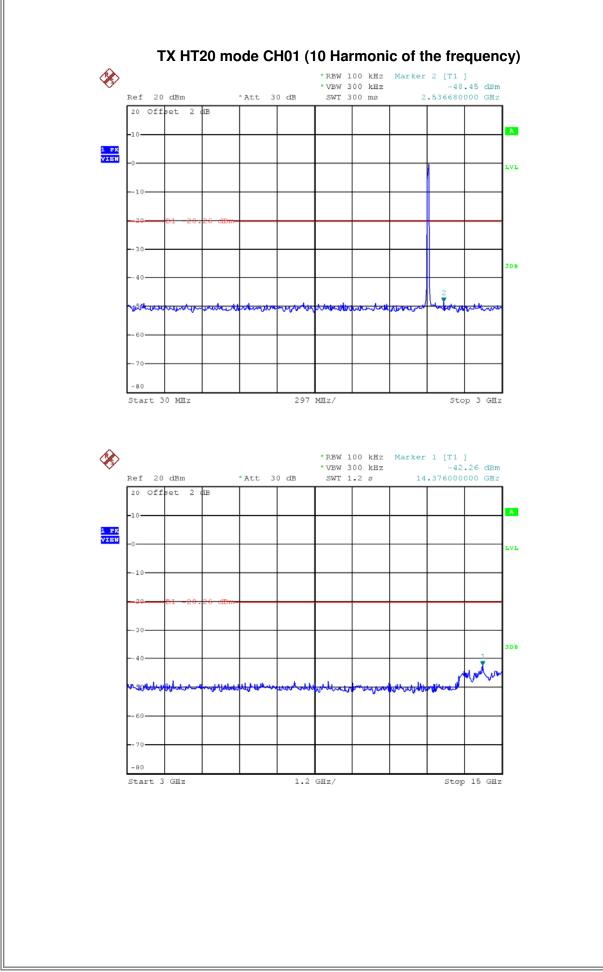




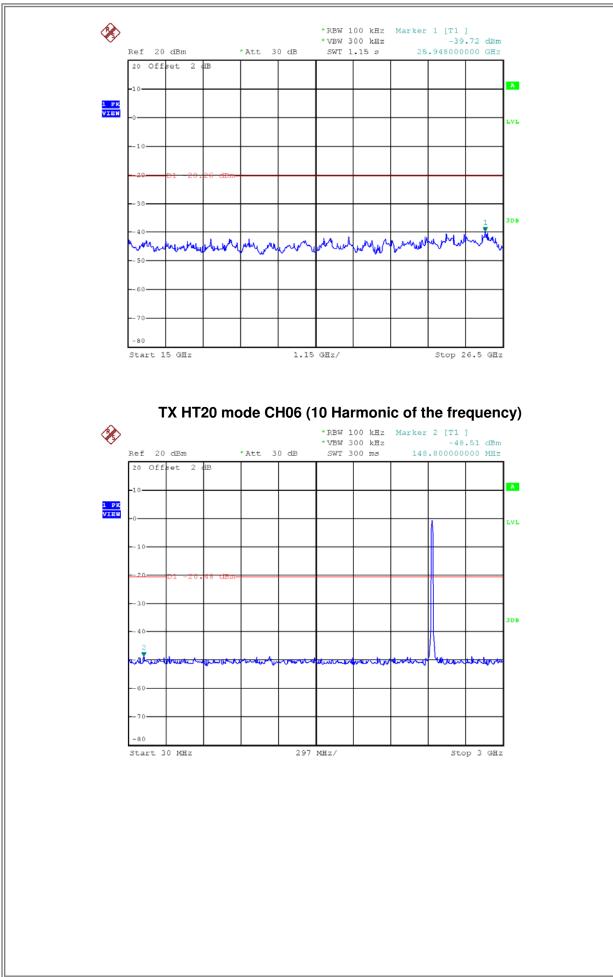




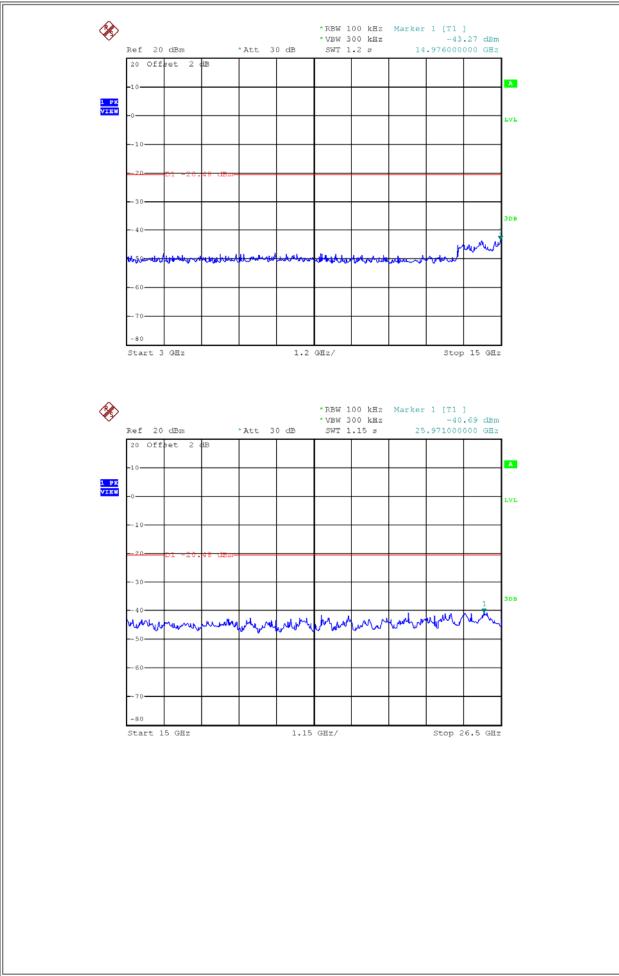




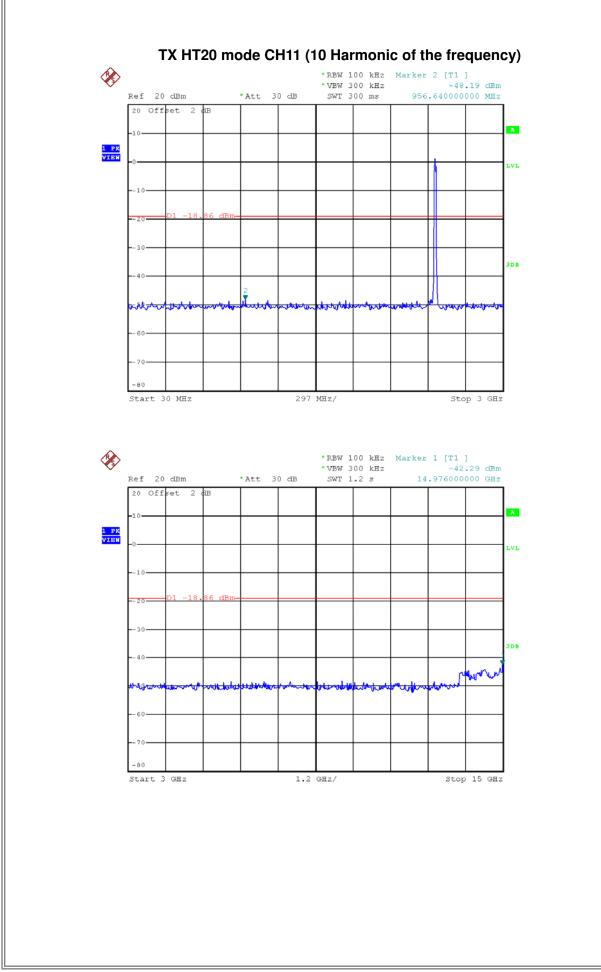




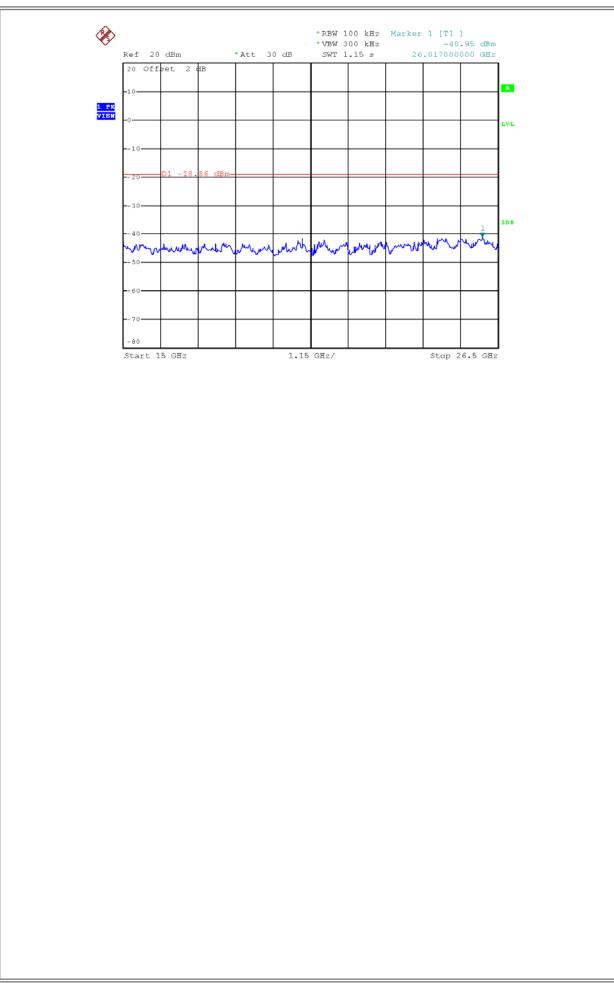






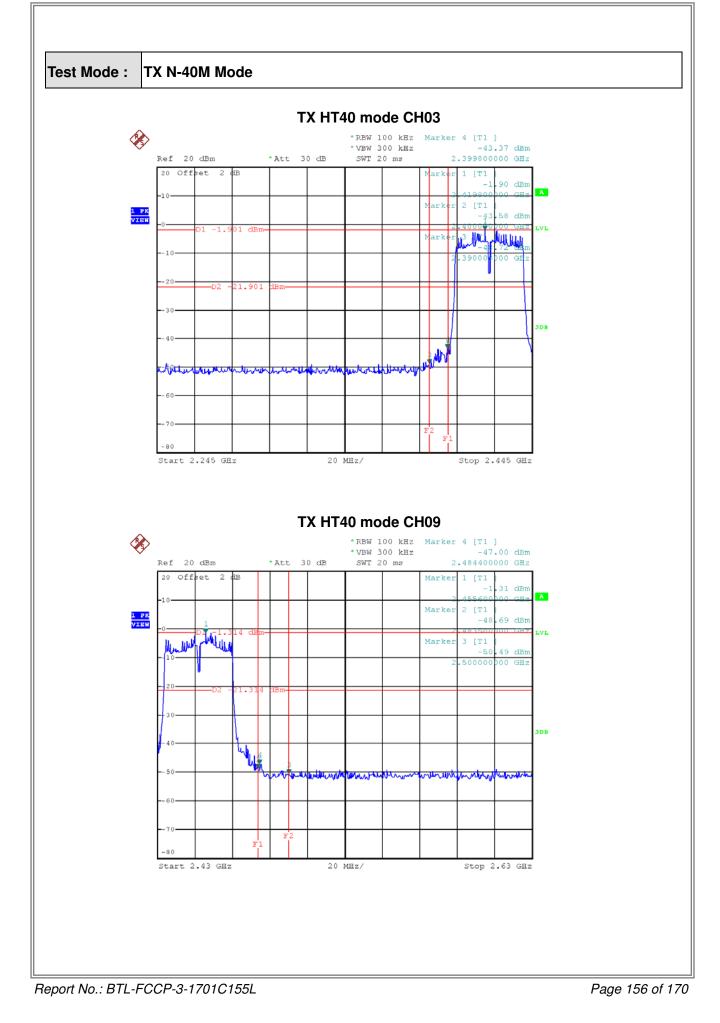




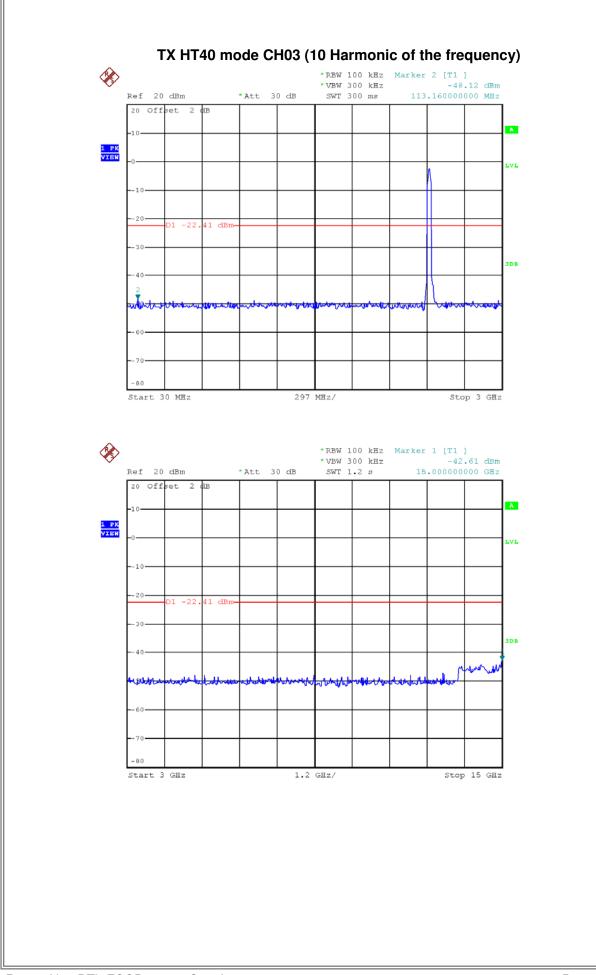






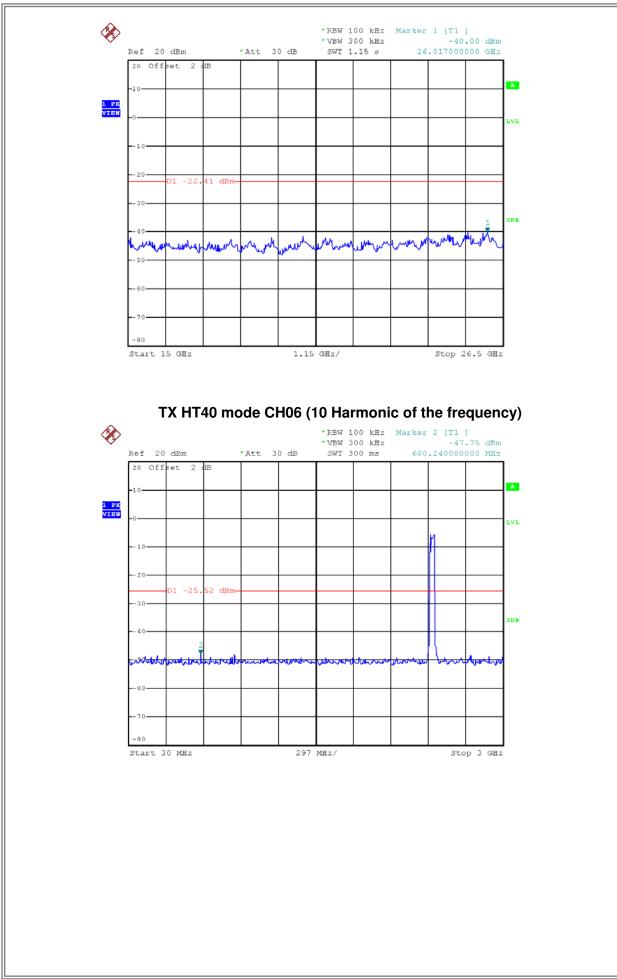




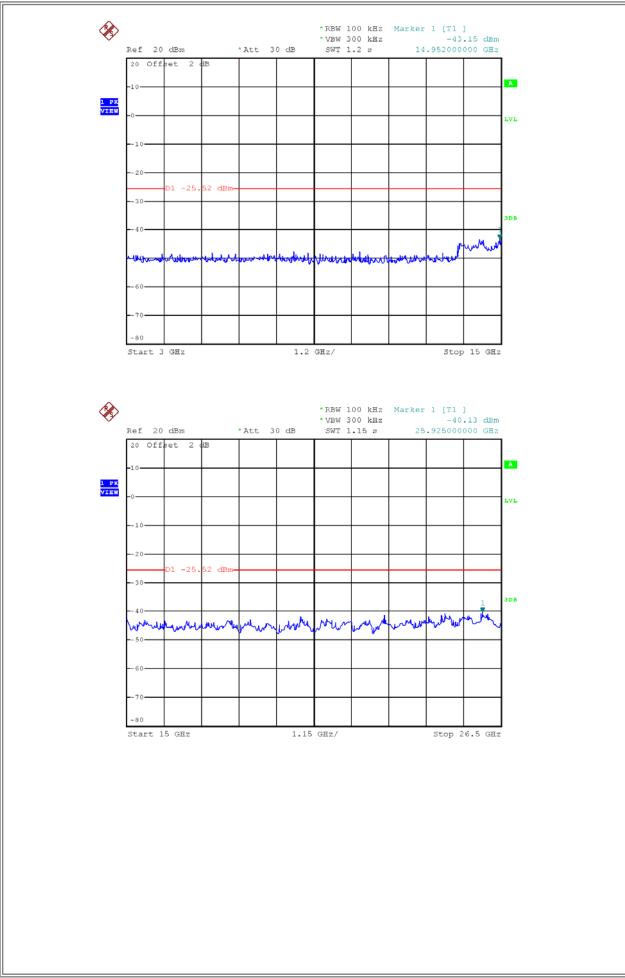


BTL

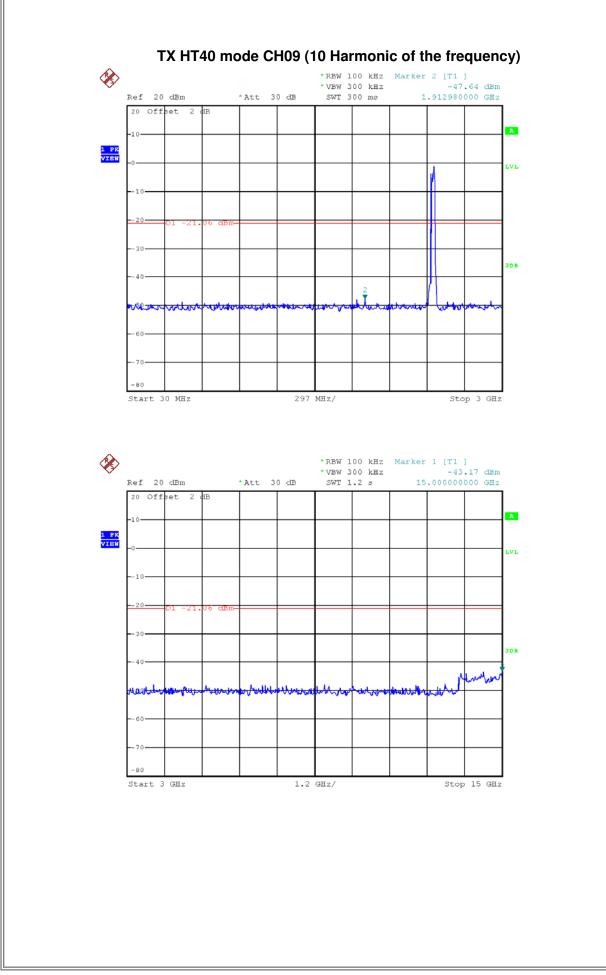




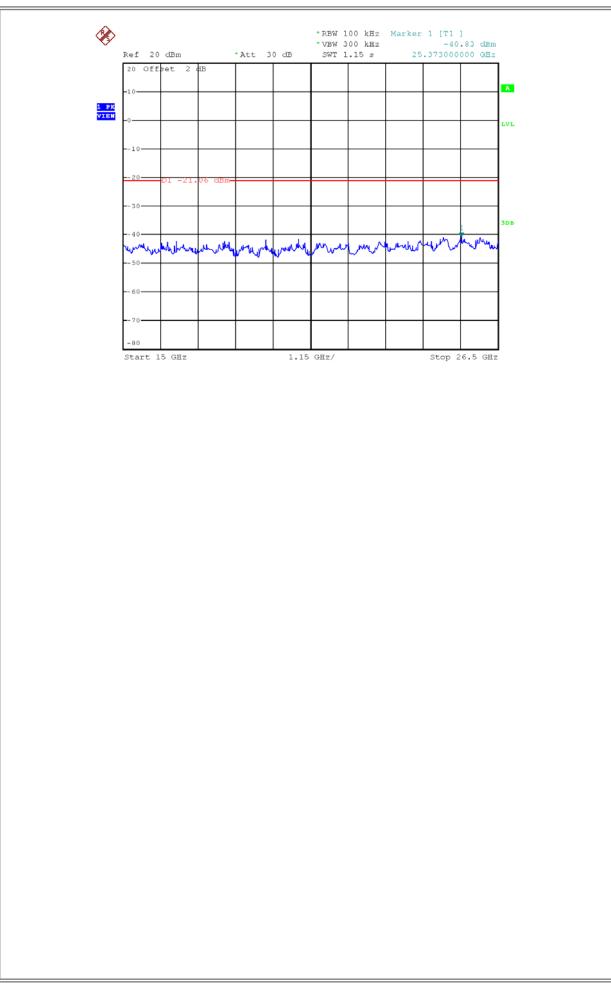














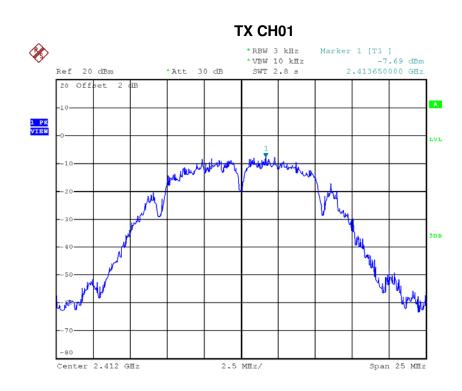
ATTACHMENT H - POWER SPECTRAL DENSITY

Report No.: BTL-FCCP-3-1701C155L



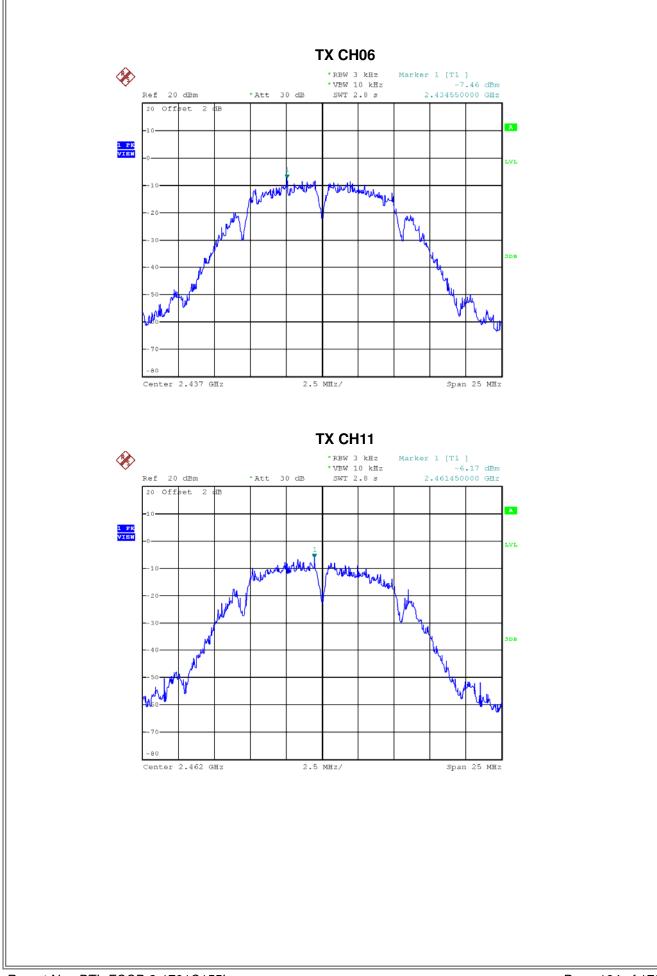


Test Mode :TX B Mode_CH01/06/11					
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result	
2412	-7.69	0.1702	8.00	Complies	
2437	-7.46	0.1795	8.00	Complies	
2462	-6.17	0.2415	8.00	Complies	





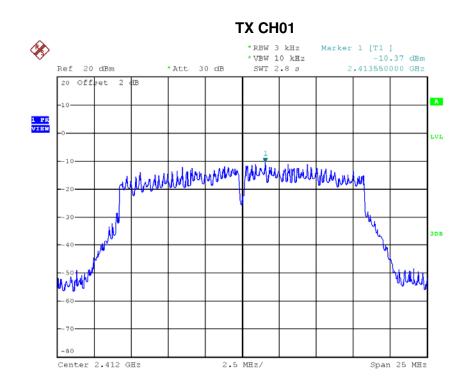






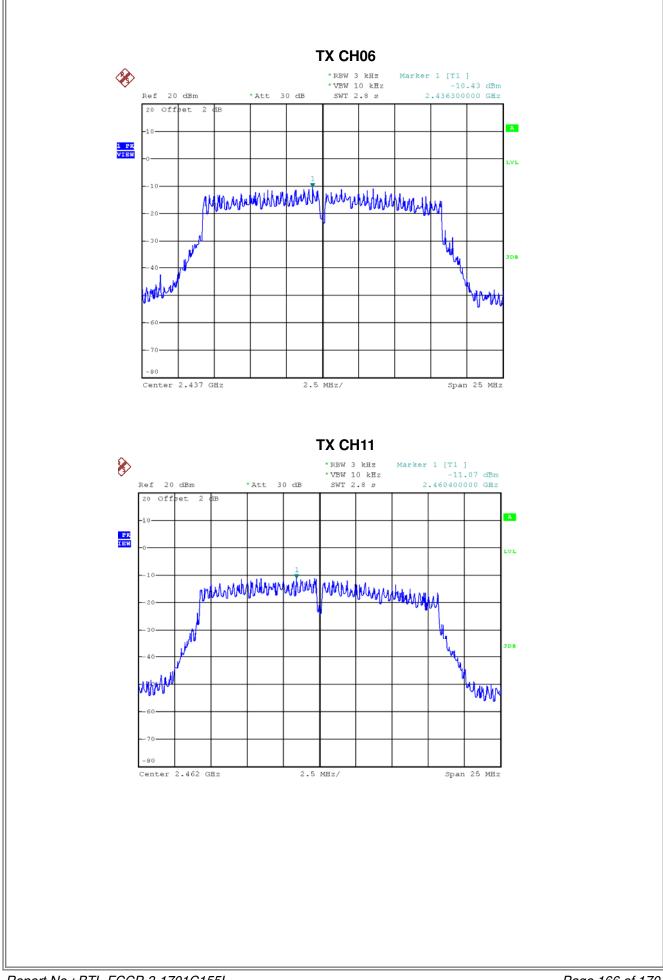


Test Mode :TX G Mode_CH01/06/11					
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result	
2412	-10.37	0.0918	8.00	Complies	
2437	-10.43	0.0906	8.00	Complies	
2462	-11.07	0.0782	8.00	Complies	



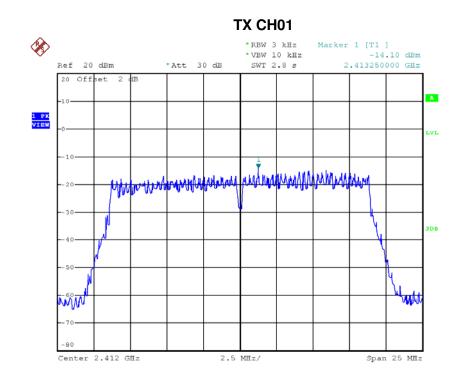




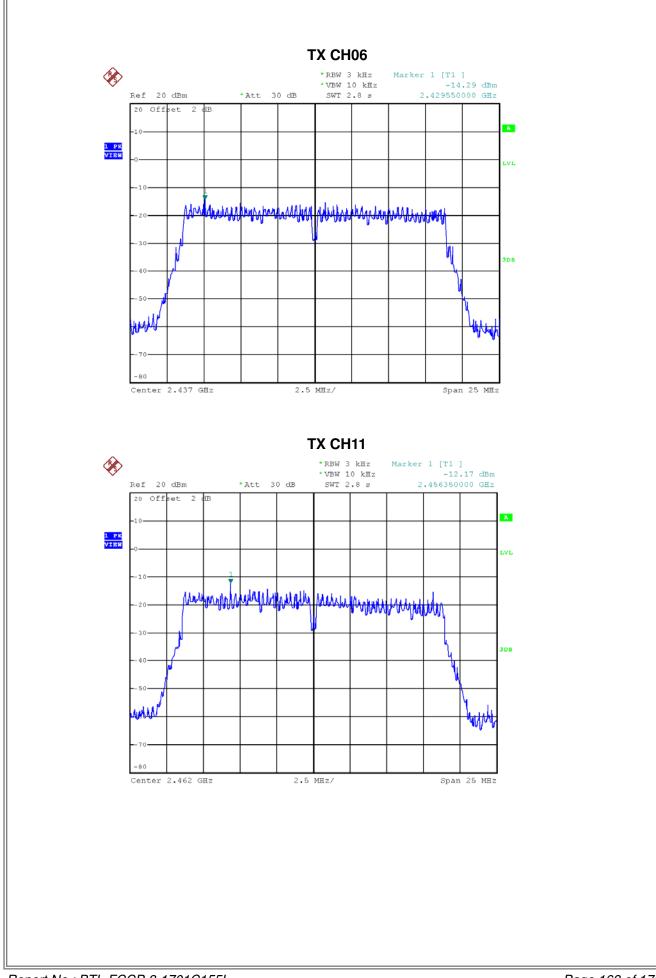




Test Mode : TX N-20M Mode_CH01/06/11					
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result	
2412	-14.10	0.0389	8.00	Complies	
2437	-14.29	0.0372	8.00	Complies	
2462	-12.17	0.0607	8.00	Complies	

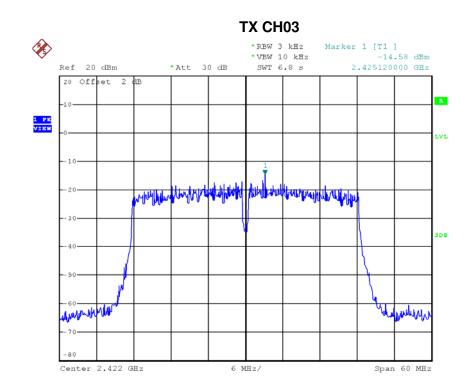








Test Mode : TX N-40M Mode_CH03/06/09					
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result	
2422	-14.58	0.0348	8.00	Complies	
2437	-17.44	0.0180	8.00	Complies	
2452	-15.96	0.0254	8.00	Complies	



Report No.: BTL-FCCP-3-1701C155L





