



This report concerns (check one): ⊠Original Grant □Class II Change Project No. : 1608251 Equipment : WiFi repeater Model Name : F9K1127 Applicant : Belkin International, Inc. Address : 12045 E. Waterfront Drive, Playa Vista, CA 90094 USA Date of Receipt : Jul. 29, 2016 Date of Test : Jul. 29, 2016 ~ Oct. 10, 2016 Issued Date : Oct. 11, 2016 Tested by : BTL Inc. Technical Manager : Quefy Signatory : Authorized Signatory :		C ID: K7SF9K1127V1
Equipment : WiFi repeater Model Name : F9K1127 Applicant : Belkin International, Inc. Address : 12045 E. Waterfront Drive, Playa Vista, CA 90094 USA Date of Receipt : Jul. 29, 2016 Date of Test : Jul. 29, 2016 ~ Oct. 10, 2016 Issued Date : Oct. 11, 2016 Tested by : BTL Inc. Technical Manager : . Authorized Signatory : .	This report concer	ns (check one): ⊠Original Grant ⊡Class II Change
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Testing Engineer : KuSh Technical Manager :	Date of Test : Issued Date :	Jul. 29, 2016 ~ Oct. 10, 2016 Oct. 11, 2016
Authorized Signatory :	Testing Engineer	: Rush '
Authorized Signatory :	Technical Manage	
	Authorized Signat	ory : Angli
		o.37, Lane 365, Yang Guang St., J District, Taipei City 114, Taiwan.



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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.



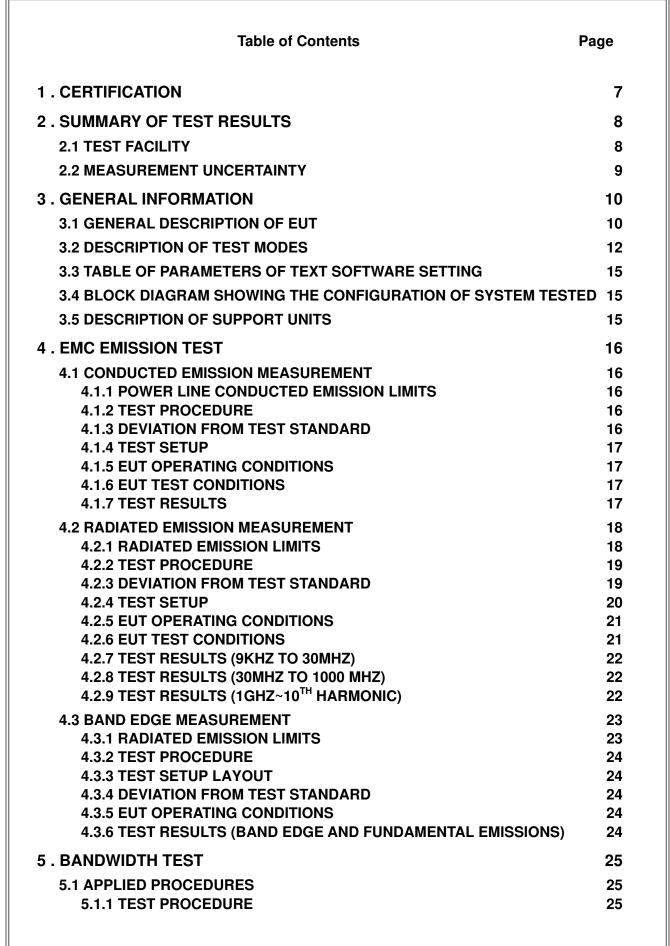






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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1608251	Original Issue.	Oct. 11, 2016





1. CERTIFICATION

Equipment	:	WiFi repeater
Brand Name	:	BelKin
Model Name	:	F9K1127
Applicant	:	Belkin International, Inc.
Date of Test	:	Jul. 29, 2016 ~ Oct. 10, 2016
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-1-1608251) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

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



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

	FCC Part15 (15.247), Subpart C			
Standard(s) Section	Test Item	Judgment	Under Limit	
15.207	Conducted Emission	PASS	Limit Minimum passing margin is -4.63 dB at 0.5540 MHz	
15.247(d)	Antenna conducted Spurious Emission	PASS		
15.247(a)(2)	6dB Bandwidth	PASS		
15.247(b)(3)	Peak Output Power	PASS	Limit Maximum output power is 25.68 dBm	
15.247(e)	Power Spectral Density	PASS		
15.203	Antenna Requirement	PASS		
15.209/15.205	Transmitter Radiated Emissions	PASS	Limit Minimum passing margin is -3.00 dB at 4874.000 MHz	
15.247(d)	Band Edge Emissions	PASS	Limit Minimum passing margin is -1.01 dB at 2389.932 MHz	

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:

Conducted emission Test:

C05: (VCCI RN: C-4742; FCC RN:965108; FCC DN:TW1082) No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Radiated emission Test (Below 1 GHz):

CB11: (VCCI RN: R-4260; FCC RN:949005; FCC DN:TW1082; IC Assigned Code:20088) No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Radiated emission Test (Above 1 GHz):

CB11: (VCCI RN: G-868; FCC RN:949005; FCC DN:TW1082; IC Assigned Code:20088) No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan





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 emission test:

Test Site	Method	Measurement Frequency Range	U, (dB)
C05	CISPR	150 kHz~30MHz	3.20

B. Radiated emission test:

Test Site	Method	Method Measurement Frequency Range	
CB11	CISPR	9kHz ~ 150kHz	2.66
(3m)	CIOFK	150kHz ~ 30MHz	2.42

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
		30MHz ~ 200MHz	V	4.04
CB11	CISPR	30MHz ~ 200MHz	Н	3.76
(3m)	CISPR	200MHz ~ 1,000MHz	V	4.24
		200MHz ~ 1,000MHz	Н	3.84

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
		1GHz ~ 6GHz	V	4.46
CB11	CISPR	1GHz ~ 6GHz	Н	4.40
(3m) (3m)	CIOFK	6GHz ~ 18GHz	V	4.18
		6GHz ~ 18GHz	Н	4.34

Test Site	Method	Measurement Frequency Range	U,(dB)
CB11	CISPR	18 ~ 26.5 GHz	4.80
(1m)	CISER	26.5 ~ 40 GHz	5.28

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology. Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz: 3.6 dB Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz: 5.2 dB

It can be seen that our $U_{\mbox{\tiny lab}}$ values are smaller than $U_{\mbox{\tiny CISPR}}.$

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	WiFi repeater		
Brand Name	BelKin		
Model Name	F9K1127		
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: 14.61 dBm 802.11g: 25.68 dBm 802.11n(20MHz): 25.36 dBm 802.11n(40MHz): 25.62 dBm	
Power Source	AC Mains Power Board: #1 Brand / Model: HON-KWANG / HK-XX12-A12 #2 Brand / Model: AMIGO / AMS174-1201000F #3 Brand / Model: UMEC / UP0121B-12		
Power Rating	I/P: 100-240V~50/60Hz \$	500mA O/P: 12V1A	

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.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	Airgain	N/A	PCB	N/A	2.5	TX/RX
2	Airgain	N/A	PCB	N/A	2.5	TX/RX

Note:

(1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).



3. Table for Filed Antenna:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	Airgain	N/A	PCB	N/A	2.5	TX/RX
2	Airgain	N/A	PCB	N/A	2.5	TX/RX

Note:

(1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).

- (2) For Conducted Output Power (CDD mode)
 - * 802.11b : Gain = 2.5 dBi < 6dBi
 - * 802.11g : Directional Gain = Gain = 2.5 dBi < 6dBi
 - * 802.11n_HT20 : Directional Gain = Gain = 2.5 dBi < 6dBi
 - * 802.11n_HT40 : Directional Gain = Gain = 2.5 dBi < 6dBi
- (3) For Power Spectral Density (CDD mode)
 - * 802.11b : Gain = 2.5 dBi < 6dBi
 - * 802.11g : Directional Gain =
 10*log{[10^(G1/20)+10^(G2/20)+...+10^(Gn/20)]^2/NANT} = 5.51 dBi < 6dBi
 # 900.11p UT20 : Directional Cain</pre>
 - * 802.11n_HT20 : Directional Gain =
 10*log{[10^(G1/20)+10^(G2/20)+...+10^(Gn/20)]^2/NANT} = 5.51 dBi < 6dBi
 * 802.11n HT40 : Directional Gain =</pre>
 - $10^{100}[10^{(G1/20)+10^{(G2/20)+...+10^{(Gn/20)}^2/NANT}] = 5.51 \text{ dBi} < 6 \text{dBi}$

4.

Operating Mode TX Mode	1TX	2TX
802.11b	V (ANT 1)	-
802.11g	-	V (ANT 1 + ANT 2)
802.11n(20MHz)	-	V (ANT 1 + ANT 2)
802.11n(40MHz)	-	V (ANT 1 + ANT 2)

Note:

For IEEE 802.11b mode (1TX/1RX):

The EUT supports the antenna with TX and RX diversity functions.

Both Ant. 1 and Ant. 2 support transmit and receive functions, but only one of them will be used at one time.

The Ant. 1 generated the worst case, so it was selected to test and record in the report.

For IEEE 802.11g/n mode (2TX/2RX):

Both Ant. 1 and Ant. 2 can be used as transmitting/receiving antenna.

Ant. 1 and Ant. 2 could both transmit/receive simultaneously.



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	Normal Link

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	Normal Link	

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		

Antenna conducted Spurious Emission			
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 (13Mbps) 802.11n HT40 mode : BPSK (27Mbps) 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%.
- (5) The EUT was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

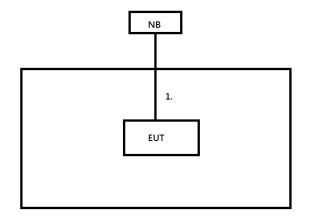


3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

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	ART		
Frequency (MHz)	2412	2437	2462
802.11b	16	16	16
802.11g	22	22	22
802.11n (20MHz)	1D	1D	1D
Frequency (MHz)	2422	2437	2452
802.11n (40MHz)	19	19	19

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.
A	Notebook PC	Acer	TravelMate P446	DOC	NXVAJTA0015520042 C7600

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	10m	RJ45



4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

	Conducted Limit (dBµV)		
Frequency of Emission (MHz)	Quasi-peak	Average	
0.15 -0.5	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

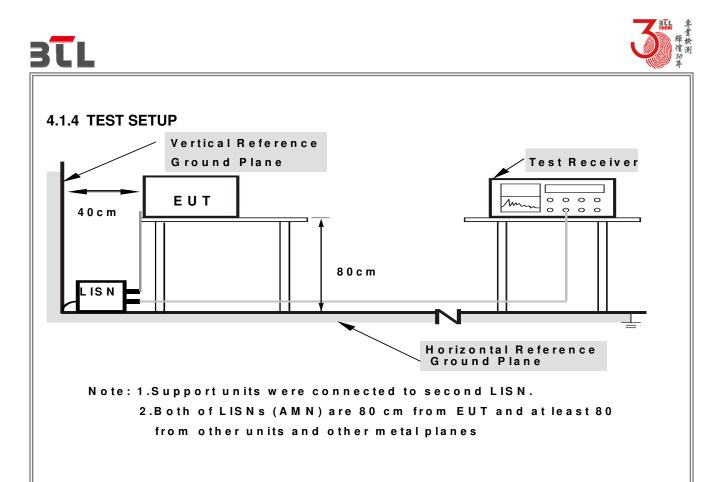
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

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 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 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)	(dBuV/m) (at 3 meters)	
	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 0.8 m or 1.5 m, 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

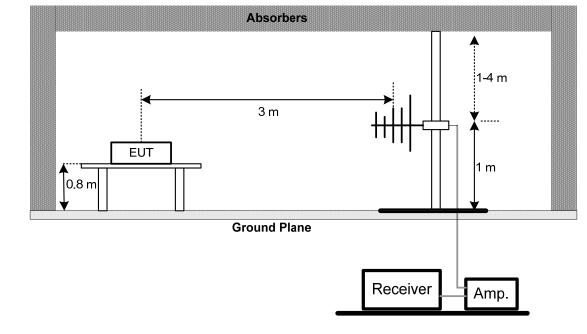
No deviation



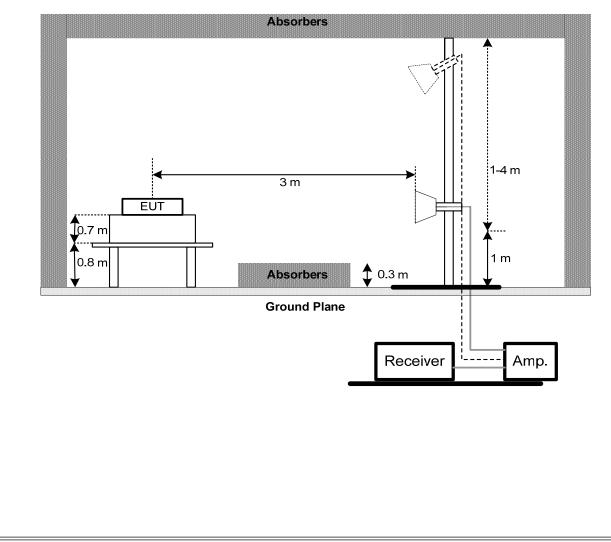


4.2.4 TEST SETUP

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

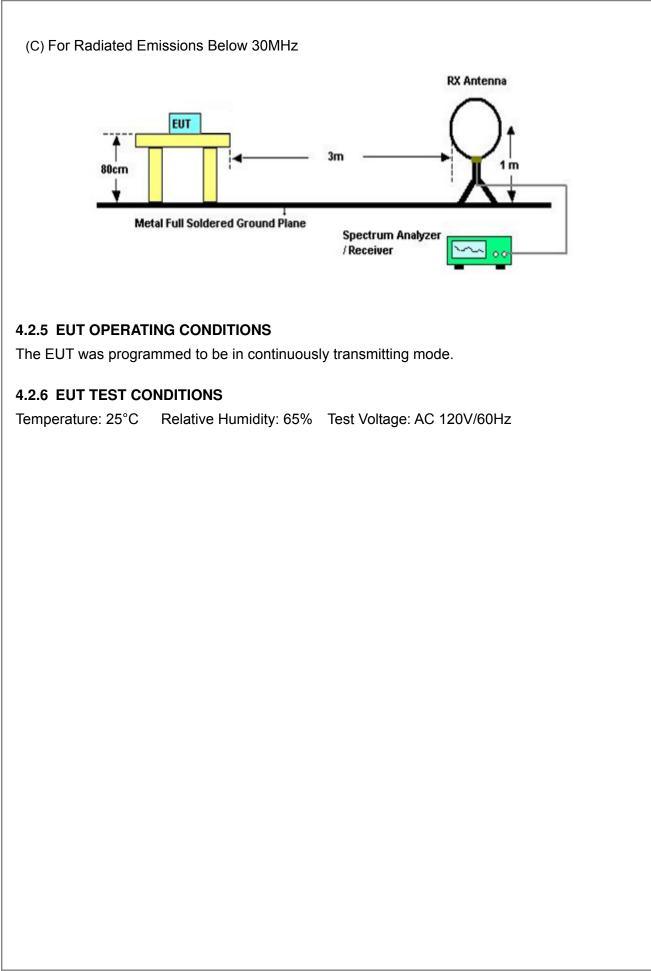


(B) Radiated Emission Test Set-Up Frequency Above 1 GHz













4.2.7 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 (1GHZ~10TH HARMONIC)

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.



4.3 BAND EDGE MEASUREMENT

4.3.1 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)	(dBuV/m) (at 3 meters)	
	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	





4.3.2 TEST PROCEDURE

For Radiated band edges Measurement:

- a. The test procedure is the same as section 4.2.2, only the frequency range investigated is limited to 100MHz around band edges.
- For Radiated Out of Band Emission Measurement:
- a. Test was performed in accordance with KDB 558074 D01 v03r05 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.

4.3.3 TEST SETUP LAYOUT

For Radiated band edges Measurement:

This test setup layout is the same as that shown in section 4.2.4.

For Radiated Out of Band Emission Measurement:

This test setup layout is the same as that shown in section 4.2.4.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.3.6 TEST RESULTS (BAND EDGE AND FUNDAMENTAL EMISSIONS)

Please refer to the Attachment E.

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 = Auto.

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: 65% Test Voltage: AC 120V/60Hz

5.1.6 TEST RESULTS

Please refer to the Attachment F.



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 v03r05 and FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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: 65% Test Voltage: AC 120V/60Hz

6.1.6 TEST RESULTS

Please refer to the Attachment G.



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

EUT	SPECTRUM
	ANALYZER

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: 65% Test Voltage: AC 120V/60Hz

7.1.6 TEST RESULTS

Please refer to the Attachment H.





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: 65% Test Voltage: AC 120V/60Hz

8.1.6 TEST RESULTS

Please refer to the Attachment I.

Г



9. MEASUREMENT INSTRUMENTS LIST

	Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	Jan. 26, 2017	
2	Test Cable	TIMES	CFD300-NL	C02	Jun. 15, 2017	
3	EMI Test Receiver	R&S	ESR7	101433	Dec. 10, 2016	
4	Measurement Software	EZ	EZ_EMC (Version NB-03A)	N/A	N/A	

	Radiated Emission & Band edge Measurement						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Trilog-Broadband Antenna	Schwarzbeck	VULB9168-352	9168-352	Feb. 04, 2017		
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-546	Nov. 05, 2017		
3	Pre-Amplifier	HP	8447D	2944A08891	Mar. 09 2017		
4	Pre-Amplifier	Agilent	8449B	3008A02331	Jan. 24, 2017		
5	Test Cable	EMCI	EMC8D-NM-NM- 8000	150301	Mar. 09, 2017		
6	Test Cable	EMCI	EMC104-SM-SM- 2500	150303	Mar. 09, 2017		
7	Test Cable	EMCI	EMC104-NM-SM- 1000	150304	Mar. 09, 2017		
8	Test Cable	EMCI	EMC104-SM-SM- 5000	150302	Mar. 29, 2017		
9	Test Cable	EMCI	EMC104-SM-SM- 800	150305	Mar. 29, 2017		
10	EXA Spectrum Analyzer	Agilent	N9010A	MY52220990	Feb. 24, 2017		
11	EMI Test Receiver	Agilent	N9038A	MY51210215	Jan. 08, 2017		
12	Loop Antenna	EMCO	6502	00042960	Nov. 06. 2016		





	6dB Bandwidth Measurement				
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Jan. 17, 2017

Peak Output Power Measurement

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Aug. 17, 2017
2	Power Meter Sensor	Anritsu	MA2491A	034138	Aug. 17, 2017
3	Spectrum Analyzer	R&S	FSP-40	100129	Jan. 17, 2017

	Antenna Conducted Spurious Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Spectrum Analyzer	R&S	FSP-40	100129	Jan. 17, 2017	

	Power Spectral Density Measurement				
Ite	m Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Jan. 17, 2017

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

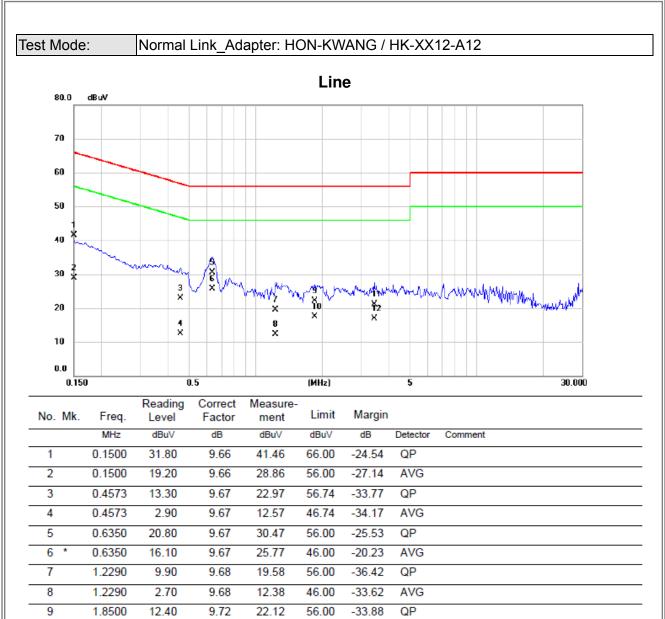
All calibration period of equipment list is one year.





ATTACHMENT A - CONDUCTED EMISSION





1.8500

3.4340

3.4340

10

11

12

7.80

11.30

7.10

9.72

9.77

9.77

17.52

21.07

16.87

46.00

56.00

46.00

-28.48

-34.93

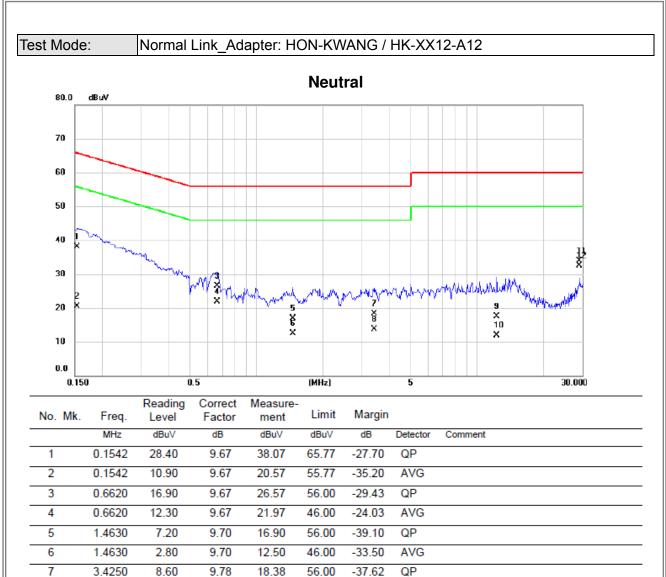
-29.13

AVG

QP

AVG





8

9

10 11

12

3.4250

12.3000

12.3000

29.1500

29.1500

4.00

7.70

2.00

24.00

22.50

9.78

9.88

9.88

9.99

9.99

13.78

17.58

11.88

33.99

32.49

46.00

60.00

50.00

60.00

50.00

-32.22

-42.42

-38.12

-26.01

-17.51

AVG

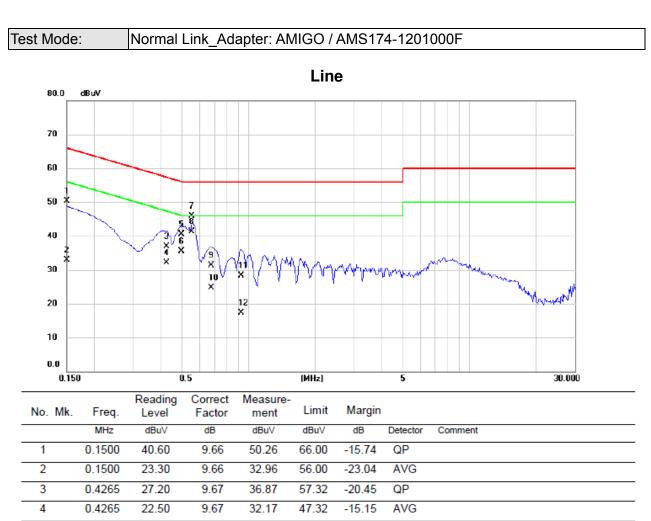
AVG

QP

AVG

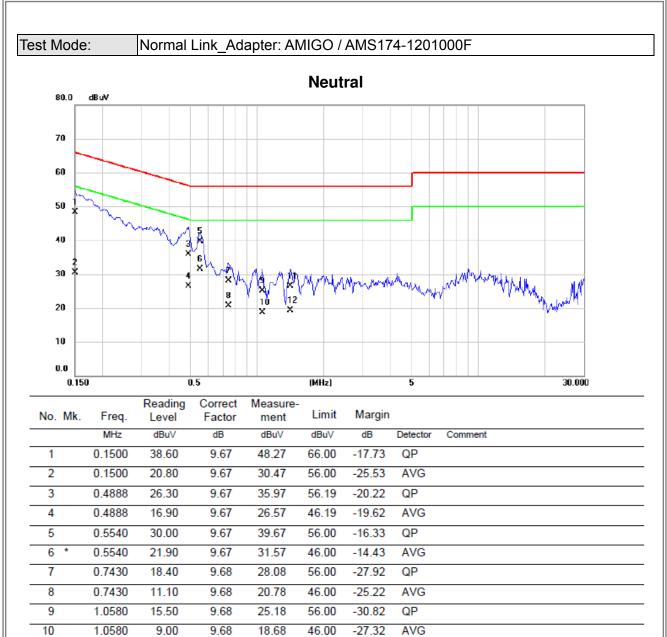
QP





	-							
	4	0.4265	22.50	9.67	32.17	47.32	-15.15	AVG
	5	0.4972	30.80	9.67	40.47	56.05	-15.58	QP
	6	0.4972	25.80	9.67	35.47	46.05	-10.58	AVG
_	7	0.5540	36.20	9.67	45.87	56.00	-10.13	QP
ľ	8 *	0.5540	31.70	9.67	41.37	46.00	-4.63	AVG
	9	0.6800	21.60	9.67	31.27	56.00	-24.73	QP
	10	0.6800	15.10	9.67	24.77	46.00	-21.23	AVG
	11	0.9230	18.60	9.67	28.27	56.00	-27.73	QP
	12	0.9230	7.70	9.67	17.37	46.00	-28.63	AVG





11

12

1.4180

1.4180

16.80

9.70

9.70

9.70

26.50

19.40

56.00

46.00

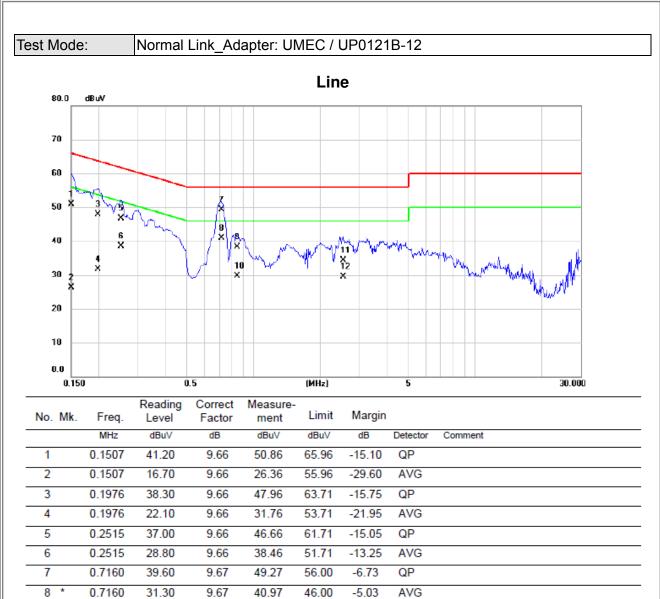
-29.50

-26.60

QP

AVG





38.27

29.77

34.35

29.45

9.67

9.67

9.75

9.75

-17.73

-16.23

-21.65

-16.55

56.00

46.00

56.00

46.00

QP

AVG

QP

AVG

9

10

11

12

0.8420

0.8420

2.5340

2.5340

28.60

20.10

24.60

19.70

BTL

4

5 6

7

8

9

10 11

12

0.1976

0.2466

0.2466

0.7160

0.7160

2.0030

2.0030

2.6600

2.6600

28.80

30.80

16.90

38.00

30.40

27.50

22.30

26.80

22.20

9.66

9.66

9.66

9.68

9.68

9.74

9.74

9.75

9.75

38.46

40.46

26.56

47.68

40.08

37.24

32.04

36.55

31.95

53.71

61.87

51.87

56.00

46.00

56.00

46.00

56.00

46.00

-15.25

-21.41

-25.31

-8.32

-5.92

-18.76

-13.96

-19.45

-14.05

AVG

QP

AVG

QP

AVG

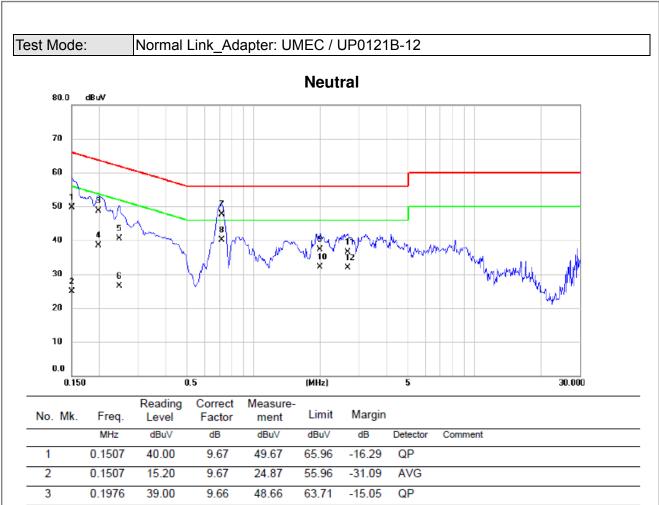
AVG

QP

AVG

QP





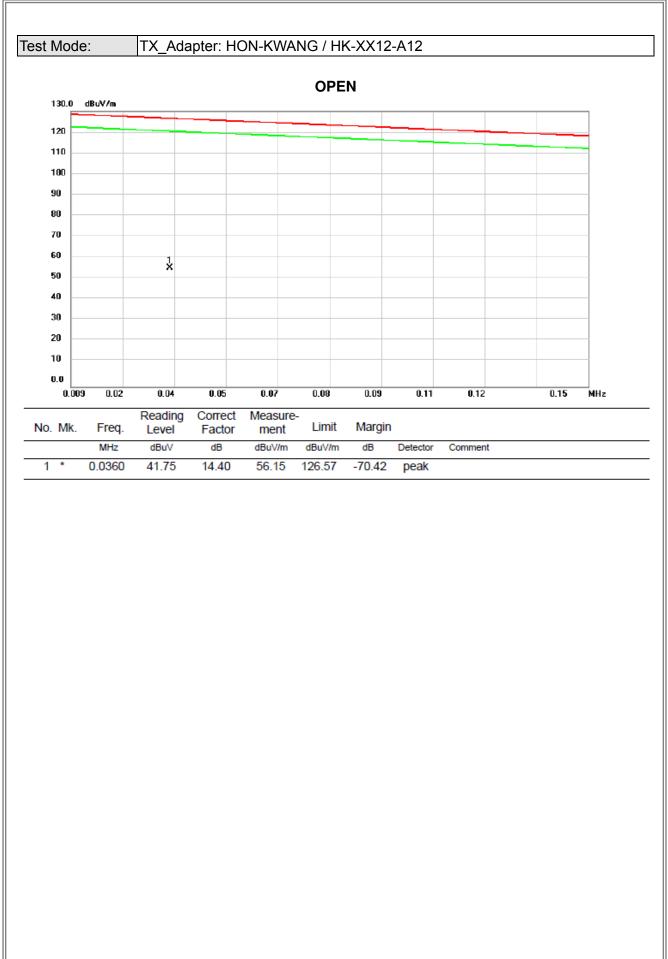




ATTACHMENT B - RADIATED EMISSION (9KHZ TO 30MHZ)

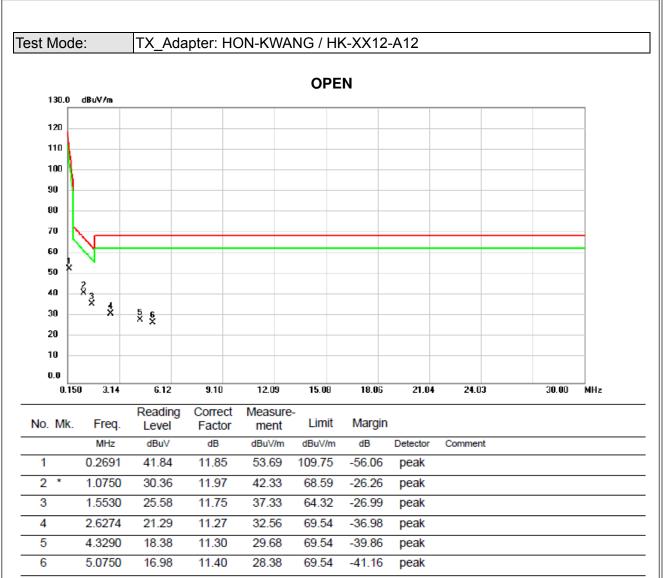






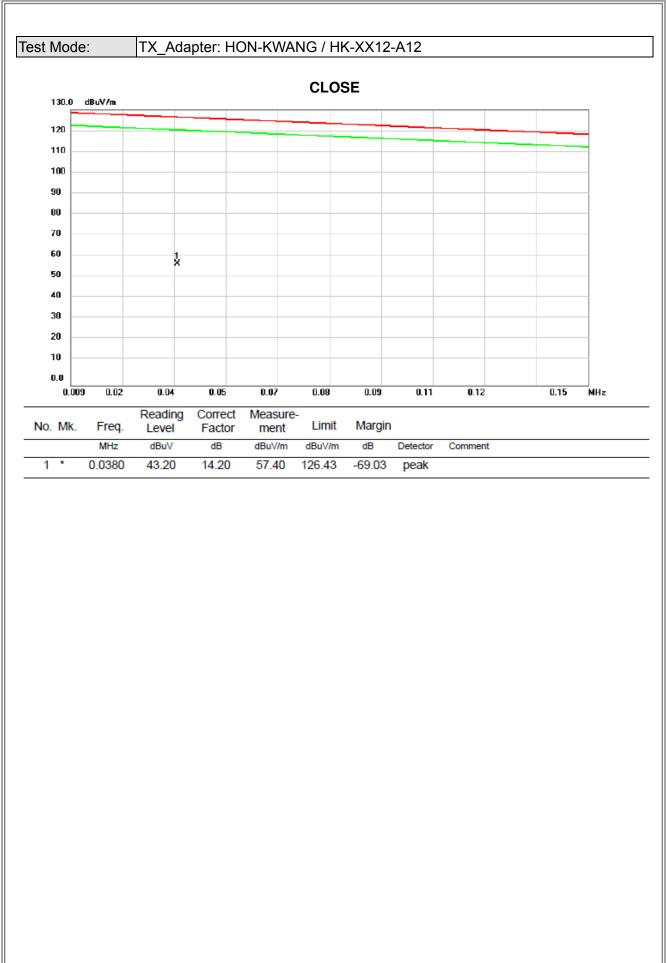






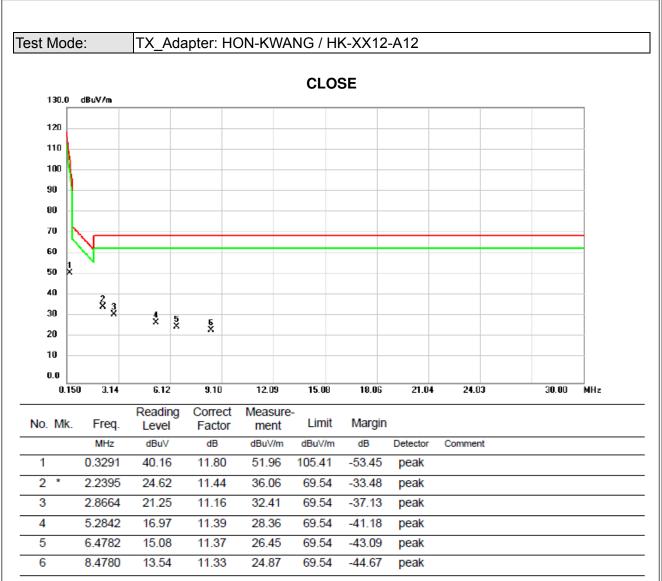






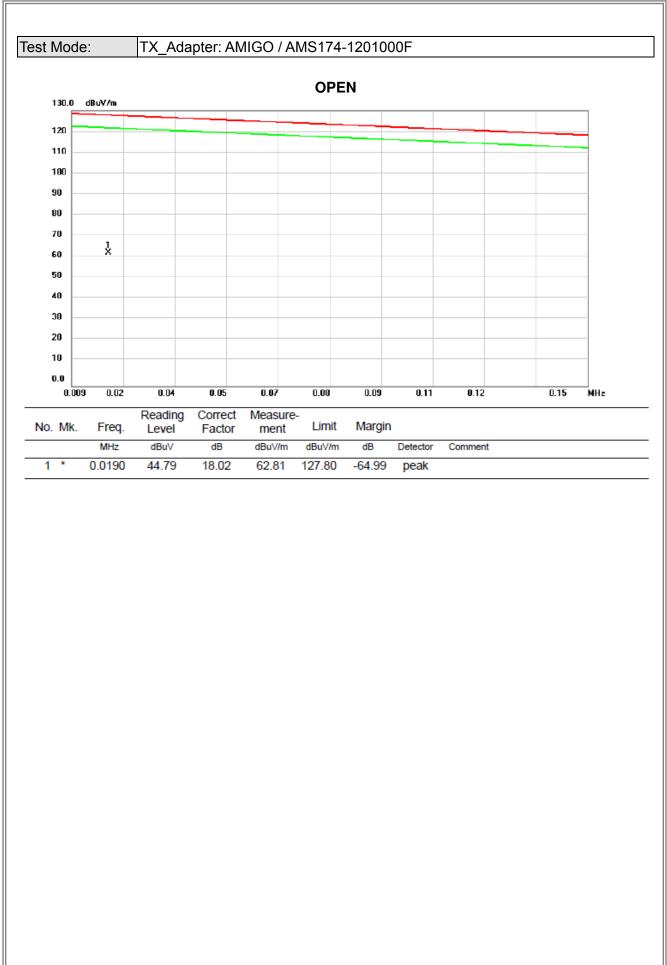














5

6

8.7170

11.5228

12.70

11.36

11.33

11.25

24.03

22.61

69.54

69.54

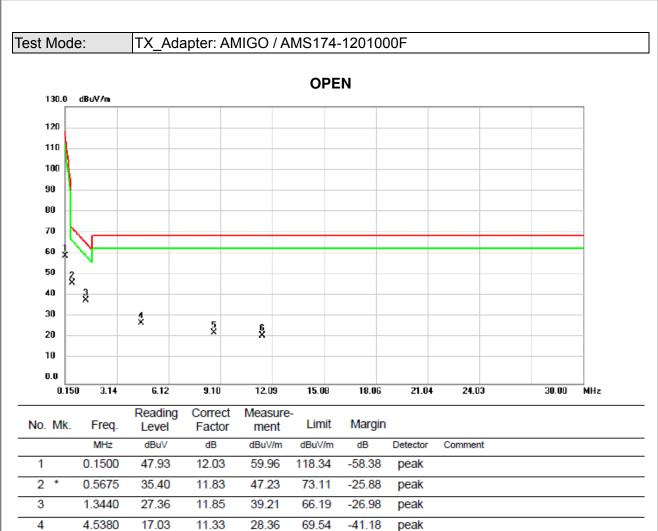
-45.51

-46.93

peak

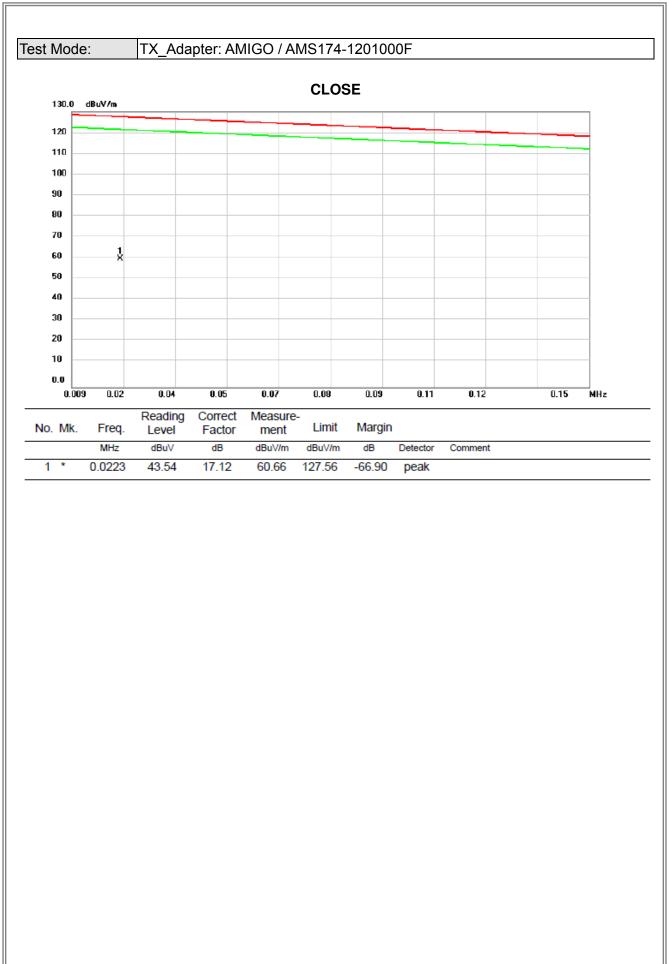
peak





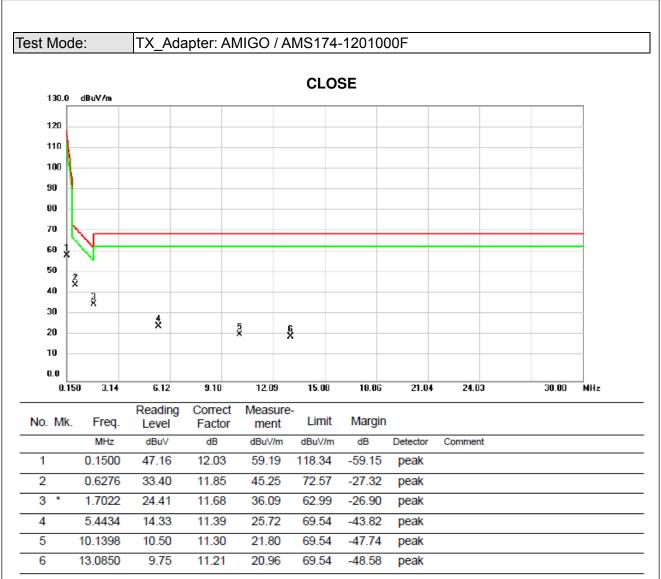






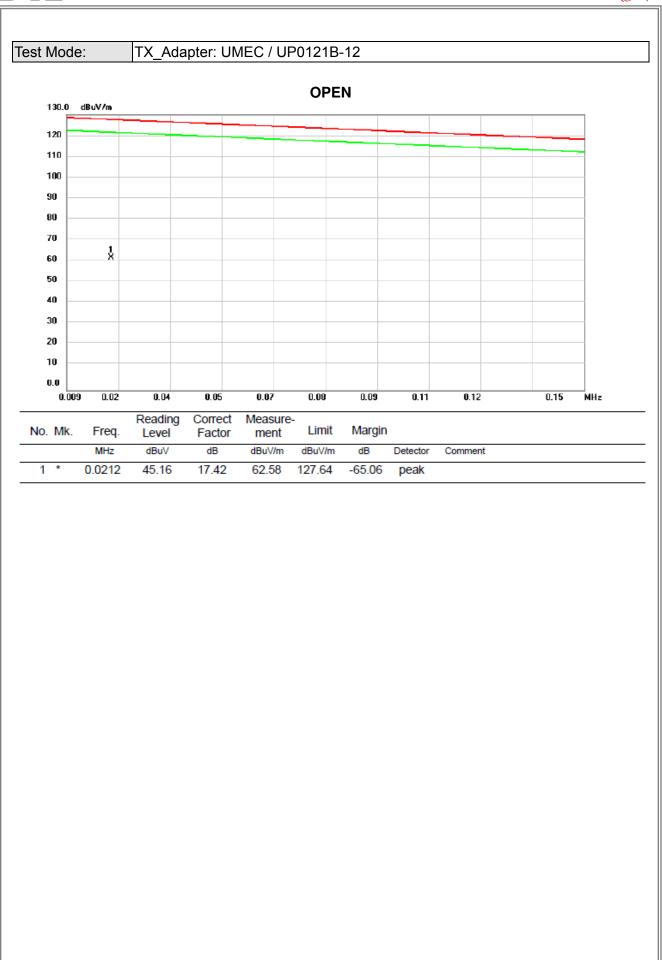














6

3.9110

18.67

11.24

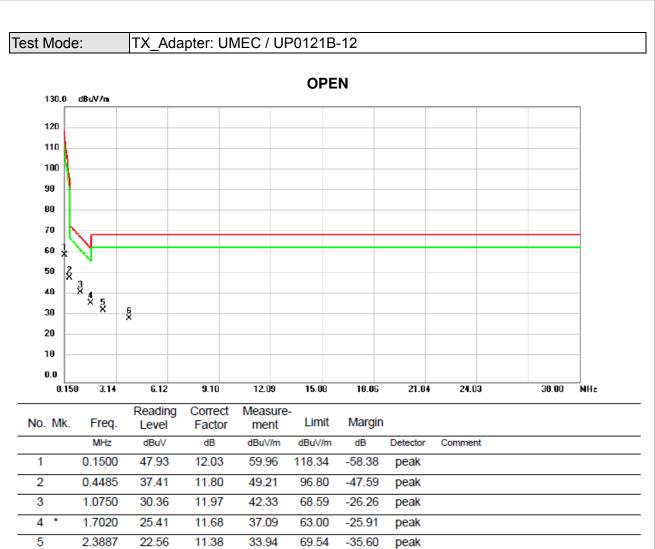
29.91

69.54

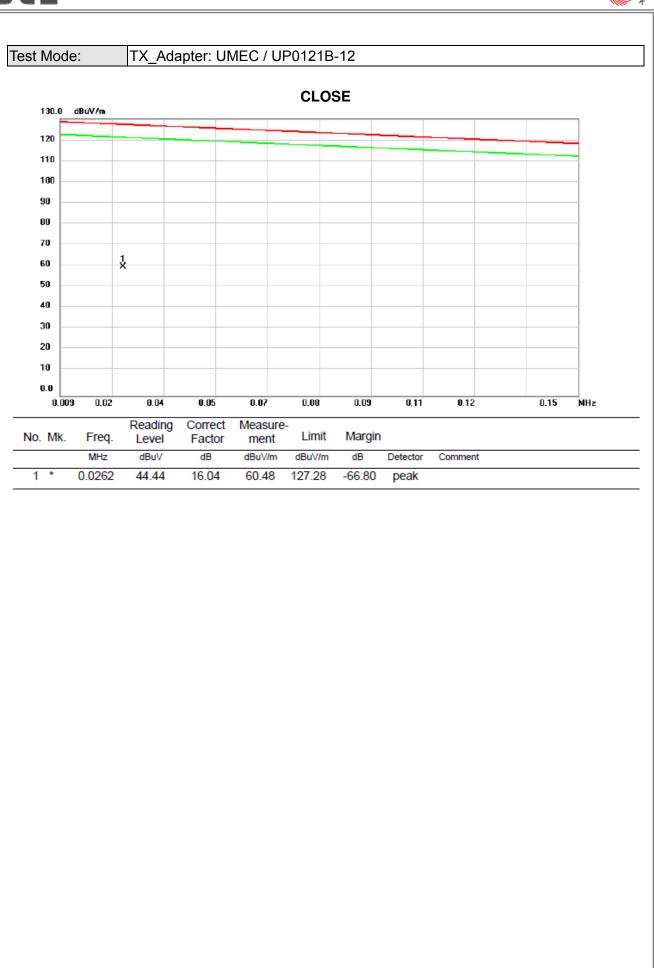
-39.63

peak



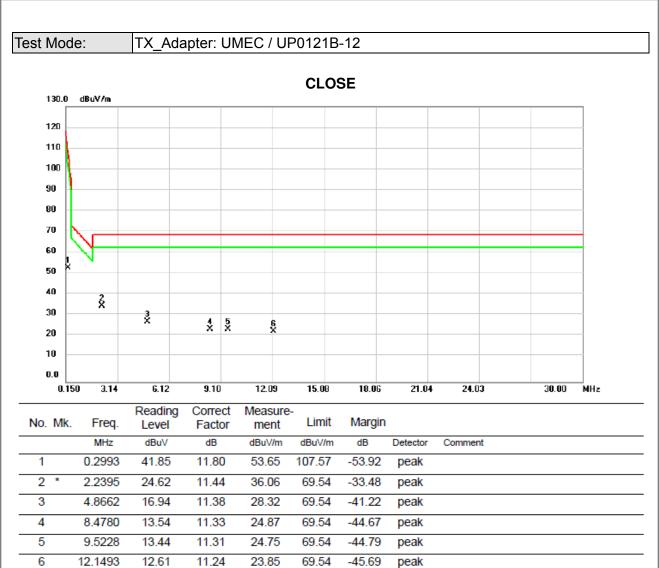












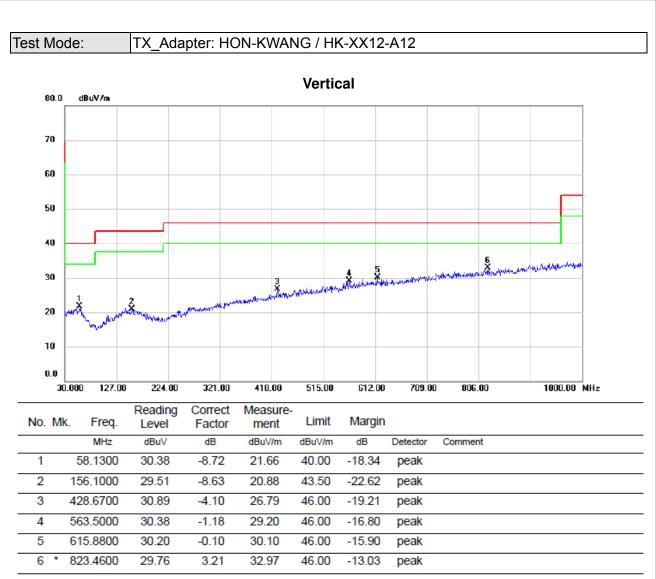




ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

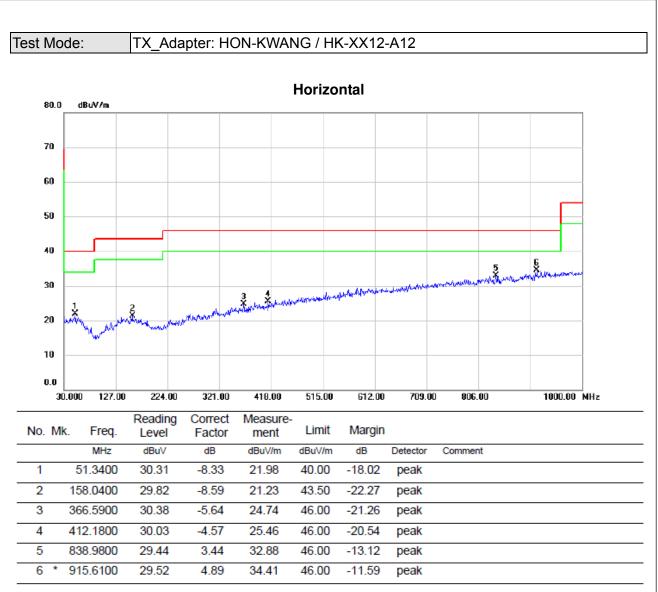






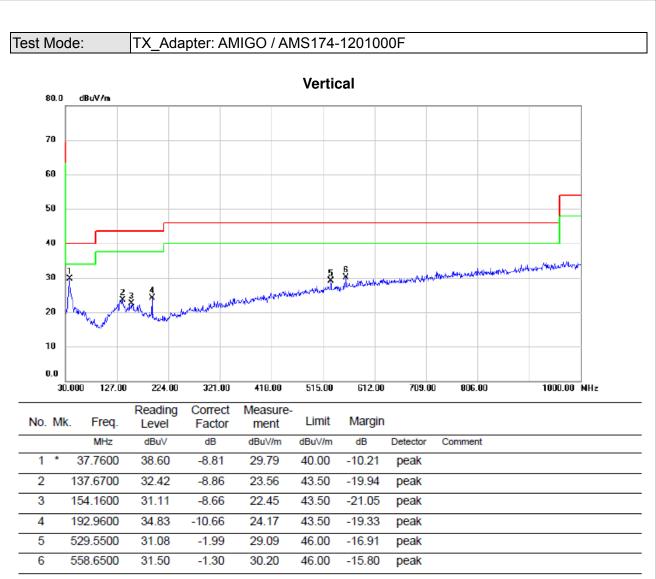






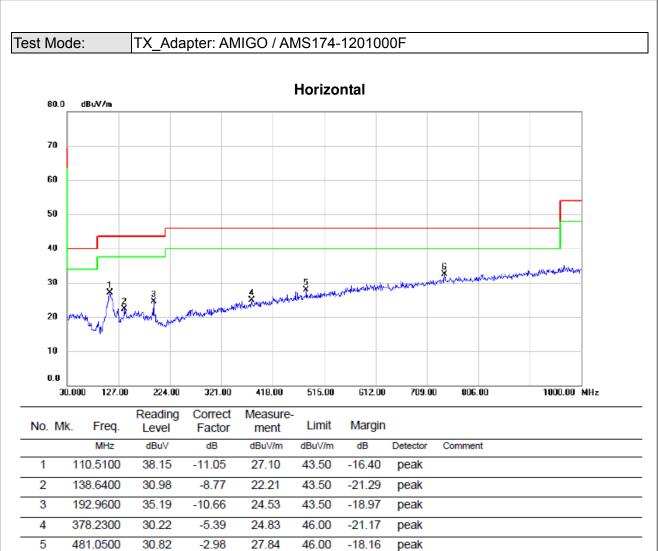












6 *

741.9800

30.39

2.16

32.55

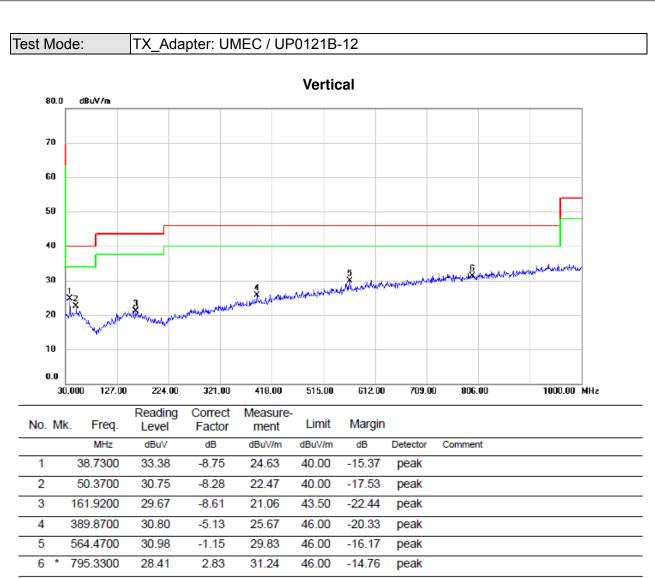
46.00

-13.45

peak

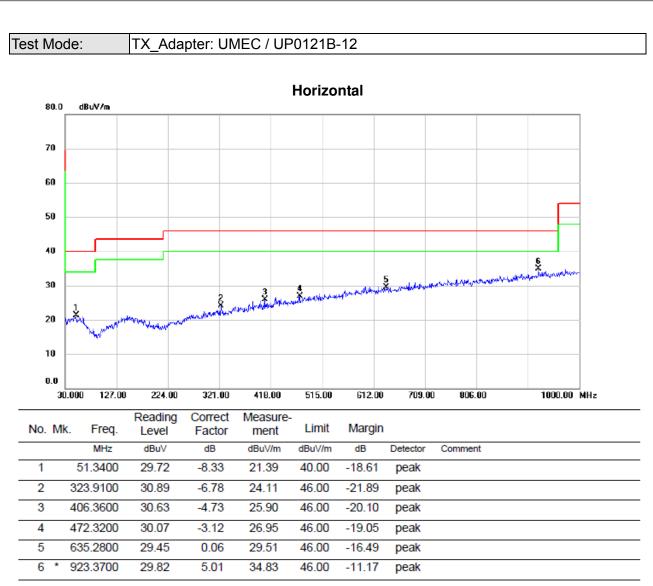












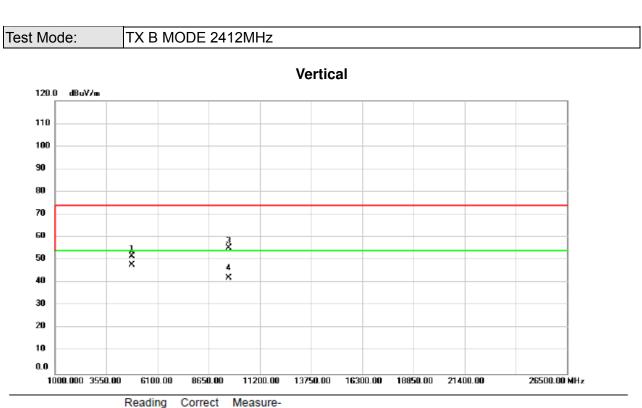




ATTACHMENT D - RADIATED EMISSION (1GHZ~10TH HARMONIC)



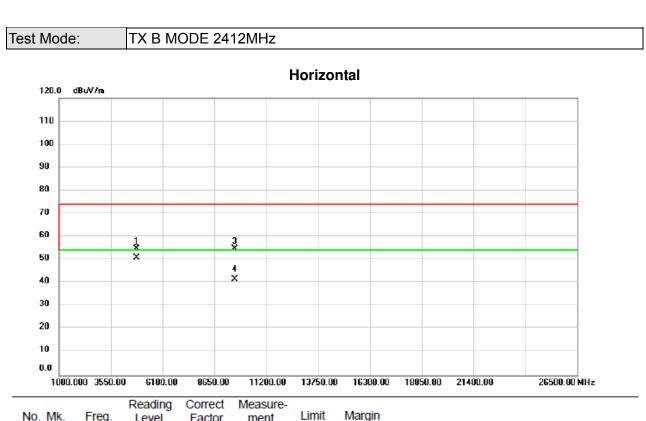




No.	Mk	. Fre		-	ment	Limit	Margin		
		MH:	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.00	0 63.12	-11.47	51.65	74.00	-22.35	peak	
2	*	4824.00	0 59.47	-11.47	48.00	54.00	-6.00	AVG	
3		9648.00	0 54.60	0.81	55.41	74.00	-18.59	peak	
4		9648.00	0 41.20	0.81	42.01	54.00	-11.99	AVG	



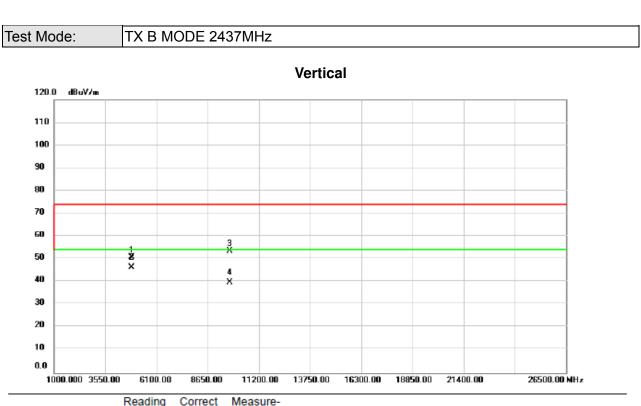




	No.	Mk.	Freq.	Level		ment	Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1	4	4824.000	66.20	-11.47	54.73	74.00	-19.27	peak	
-	2	* 4	4824.000	62.42	-11.47	50.95	54.00	-3.05	AVG	
-	3	9	9648.000	54.06	0.81	54.87	74.00	-19.13	peak	
	4	9	9648.000	40.85	0.81	41.66	54.00	-12.34	AVG	



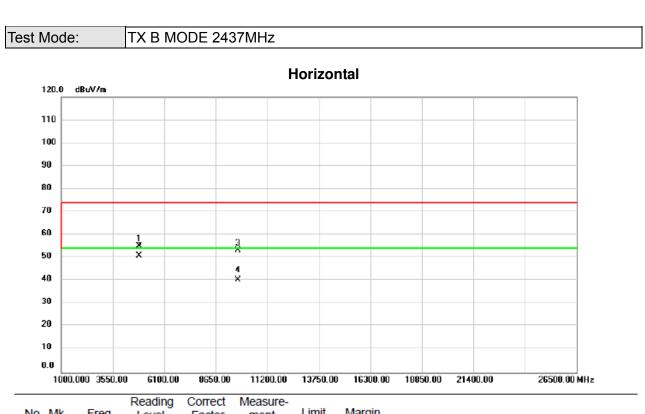




No.	Mk	. Fi	req.	Level	Factor	ment	Limit	Margin		
		М	Hz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.	000	62.10	-11.39	50.71	74.00	-23.29	peak	
2	*	4874.	000	57.72	-11.39	46.33	54.00	-7.67	AVG	
3		9748.	000	52.37	1.10	53.47	74.00	-20.53	peak	
4		9748.	000	38.70	1.10	39.80	54.00	-14.20	AVG	



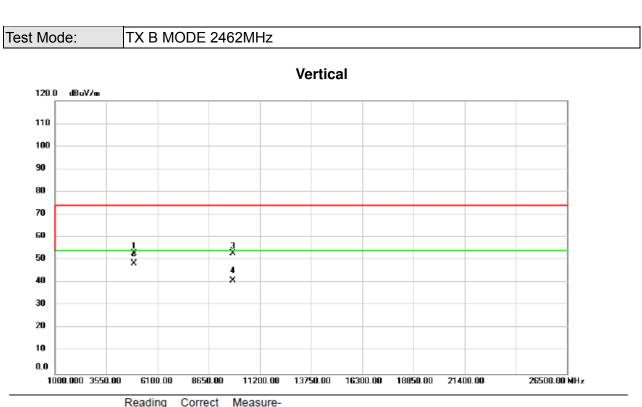




	No.	Mk.	Freq.			ment	Limit	Margin		
_			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
_	1	4	1874.000	66.53	-11.39	55.14	74.00	-18.86	peak	
Γ	2	* 4	4874.000	62.39	-11.39	51.00	54.00	-3.00	AVG	
	3	ç	9748.000	52.30	1.10	53.40	74.00	-20.60	peak	
_	4	9	9748.000	39.33	1.10	40.43	54.00	-13.57	AVG	



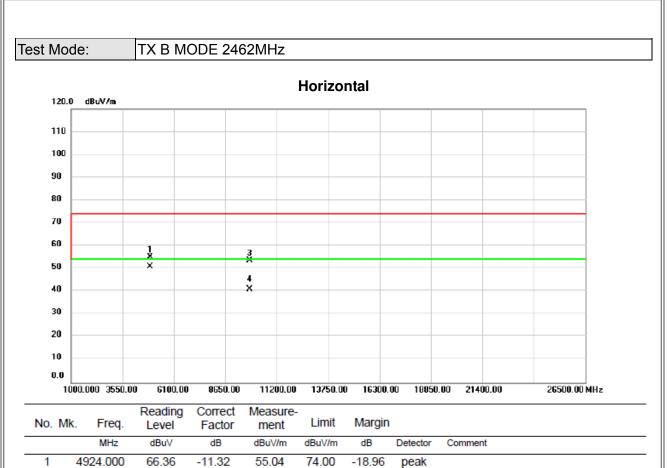




No.	Mk	. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.000	64.14	-11.32	52.82	74.00	-21.18	peak	
2	*	4924.000	59.91	-11.32	48.59	54.00	-5.41	AVG	
3		9848.000	51.65	1.39	53.04	74.00	-20.96	peak	
4		9848.000	39.62	1.39	41.01	54.00	-12.99	AVG	







AVG

peak

AVG

-3.02

-20.34

-13.11

4924.000

9848.000

9848.000

2

3

4

62.30

52.27

39.50

-11.32

1.39

1.39

50.98

53.66

40.89

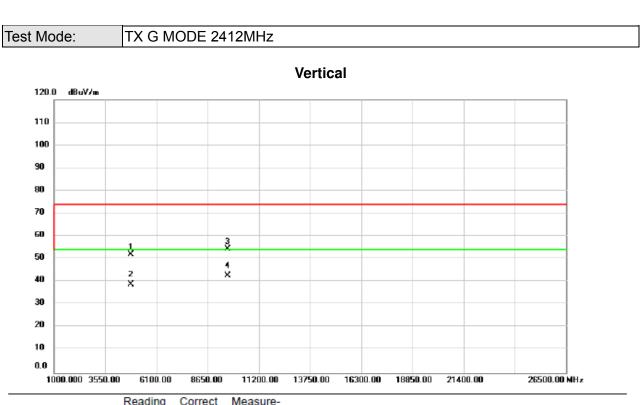
54.00

74.00

54.00



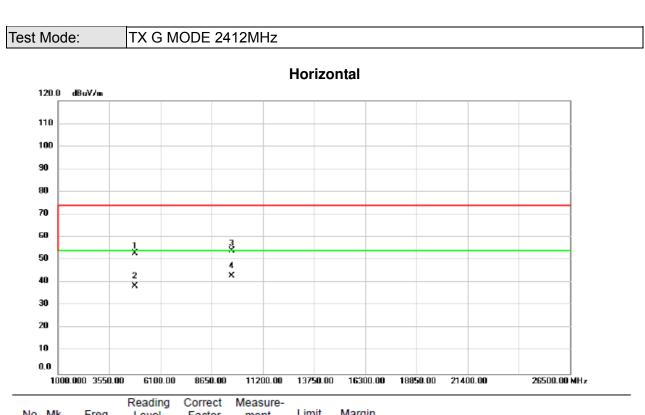




No.	Mk.	. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	63.40	-11.47	51.93	74.00	-22.07	peak	
2		4824.000	50.29	-11.47	38.82	54.00	-15.18	AVG	
3		9648.000	53.57	0.81	54.38	74.00	-19.62	peak	
4	*	9648.000	41.86	0.81	42.67	54.00	-11.33	AVG	



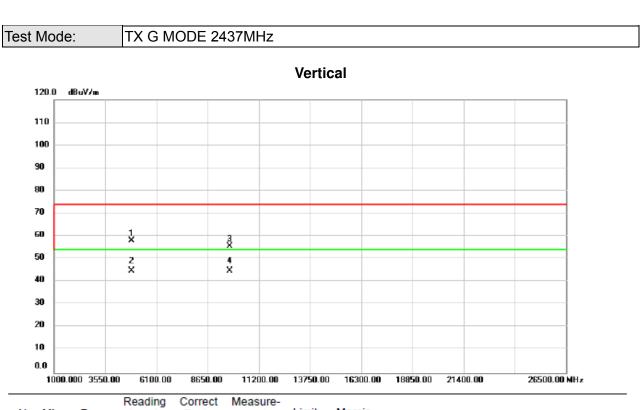




	No.	Mk	. Freq.	Level	Factor	ment	Limit	Margin		
_			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1		4824.000	64.40	-11.47	52.93	74.00	-21.07	peak	
	2		4824.000	49.97	-11.47	38.50	54.00	-15.50	AVG	
	3		9648.000	53.41	0.81	54.22	74.00	-19.78	peak	
	4	*	9648.000	42.31	0.81	43.12	54.00	-10.88	AVG	



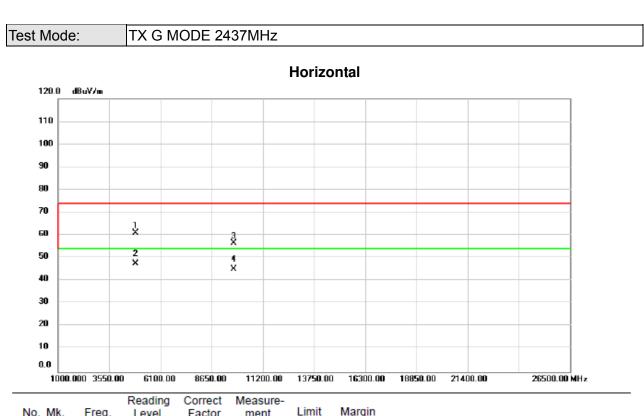




No.	Mk	κ.	Freq.	Level	Factor	ment	Limit	Margin		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		487	4.000	69.57	-11.39	58.18	74.00	-15.82	peak	
2		487	4.000	56.19	-11.39	44.80	54.00	-9.20	AVG	
3		974	8.000	54.46	1.10	55.56	74.00	-18.44	peak	
4	*	974	8.000	43.78	1.10	44.88	54.00	-9.12	AVG	







No.	Mk	. Freq.	Level	Factor		Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.000	72.36	-11.39	60.97	74.00	-13.03	peak	
2	*	4874.000	58.88	-11.39	47.49	54.00	-6.51	AVG	
3		9748.000	55.56	1.10	56.66	74.00	-17.34	peak	
4		9748.000	43.91	1.10	45.01	54.00	-8.99	AVG	



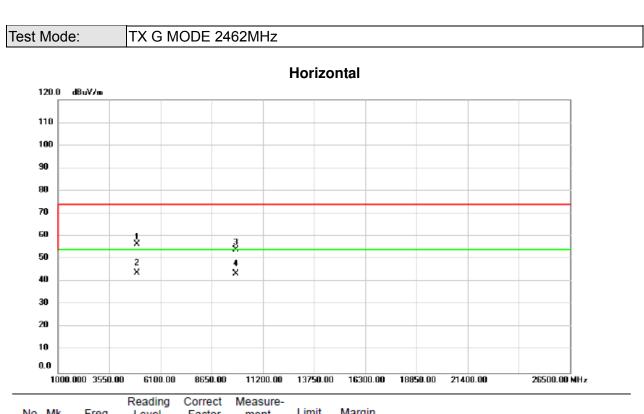


Test Mode: TX G MODE 2462MHz Vertical 120.0 dBuV/m 110 100 90 80 70 60 3 ķ 50 4 × 2 X 40 30 20 10 0.0 1000.000 3550.00 6100.00 11200.00 13750.00 16300.00 18850.00 21400.00 26500.00 MHz 8650.00 Reading Correct Measure-Freq. Limit Margin No. Mk. Level Factor ment

	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924.000	64.31	-11.32	52.99	74.00	-21.01	peak	
2	4924.000	52.17	-11.32	40.85	54.00	-13.15	AVG	
3	9848.000	52.61	1.39	54.00	74.00	-20.00	peak	
4 *	9848.000	40.51	1.39	41.90	54.00	-12.10	AVG	



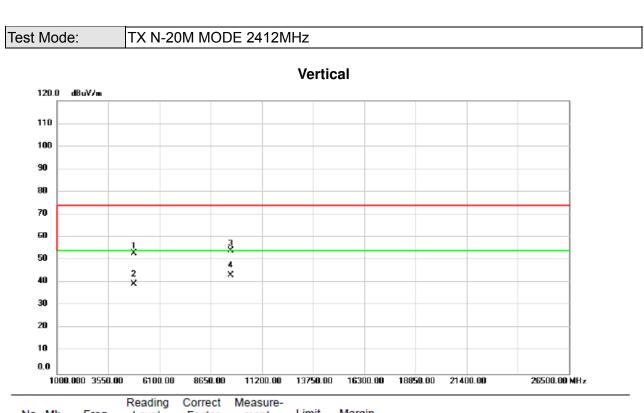




No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.000	67.92	-11.32	56.60	74.00	-17.40	peak	
2	* .	4924.000	55.26	-11.32	43.94	54.00	-10.06	AVG	
3		9848.000	52.73	1.39	54.12	74.00	-19.88	peak	
4		9848.000	42.30	1.39	43.69	54.00	-10.31	AVG	



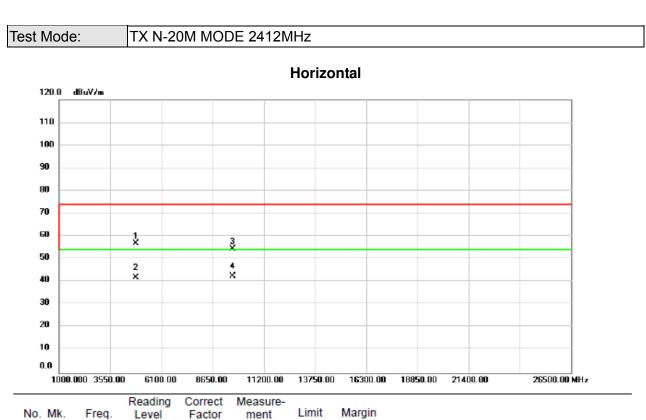




No.	Mk	. Freq		-	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.00	0 64.43	-11.47	52.96	74.00	-21.04	peak	
2		4824.00	0 50.91	-11.47	39.44	54.00	-14.56	AVG	
3		9648.00	53.27	0.81	54.08	74.00	-19.92	peak	
4	*	9648.00	0 42.61	0.81	43.42	54.00	-10.58	AVG	



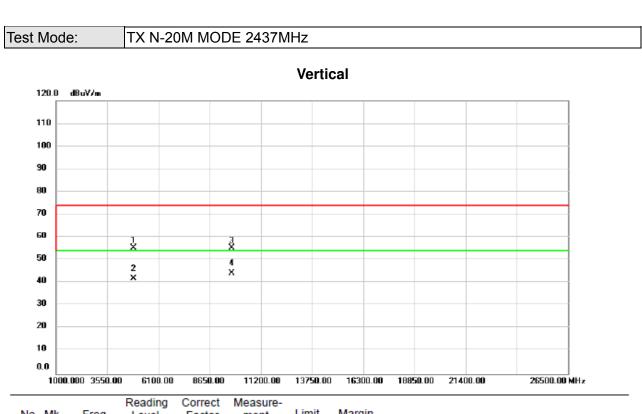




No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	68.29	-11.47	56.82	74.00	-17.18	peak	
2		4824.000	53.30	-11.47	41.83	54.00	-12.17	AVG	
3		9648.000	53.55	0.81	54.36	74.00	-19.64	peak	
4	*	9648.000	41.64	0.81	42.45	54.00	-11.55	AVG	



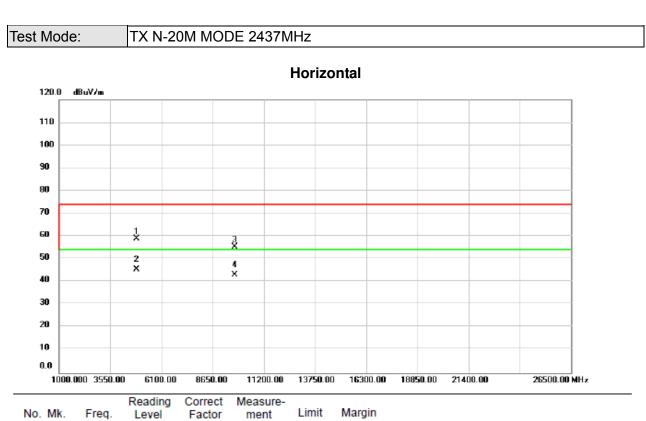




No.	Mk.	. Freq.			ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.000	66.77	-11.39	55.38	74.00	-18.62	peak	
2		4874.000	53.22	-11.39	41.83	54.00	-12.17	AVG	
3		9748.000	54.37	1.10	55.47	74.00	-18.53	peak	
4	*	9748.000	43.11	1.10	44.21	54.00	-9.79	AVG	



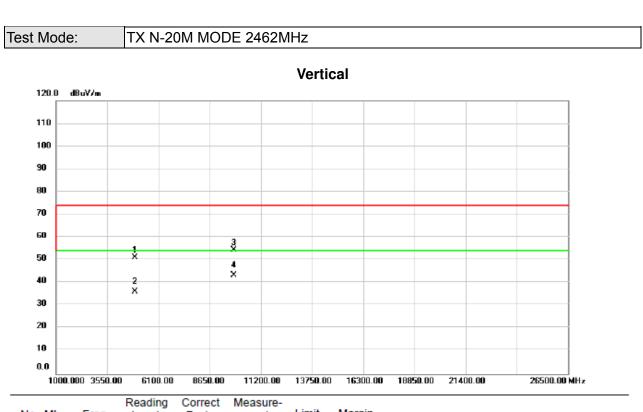




No. M	1k.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	487	74.000	70.33	-11.39	58.94	74.00	-15.06	peak	
2 *	487	74.000	56.84	-11.39	45.45	54.00	-8.55	AVG	
3	974	48.000	54.21	1.10	55.31	74.00	-18.69	peak	
4	974	48.000	42.02	1.10	43.12	54.00	-10.88	AVG	



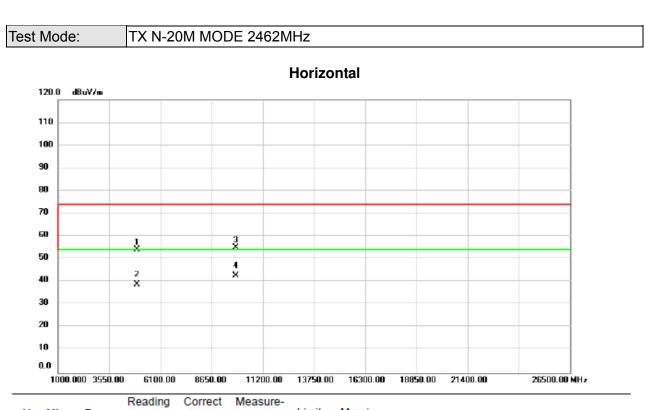




No.	Mk	. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.000	62.56	-11.32	51.24	74.00	-22.76	peak	
2		4924.000	47.39	-11.32	36.07	54.00	-17.93	AVG	
3		9848.000	53.05	1.39	54.44	74.00	-19.56	peak	
4	*	9848.000	42.11	1.39	43.50	54.00	-10.50	AVG	



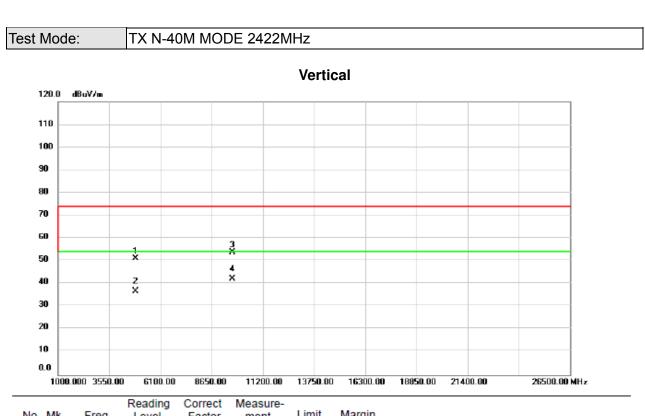




No.	Mk	. Fr	eq.	Level	Factor	ment	Limit	Margin		
		м	Hz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4924.	000	65.37	-11.32	54.05	74.00	-19.95	peak	
2		4924.	000	50.31	-11.32	38.99	54.00	-15.01	AVG	
3		9848.	000	53.73	1.39	55.12	74.00	-18.88	peak	
4	*	9848.	000	41.44	1.39	42.83	54.00	-11.17	AVG	



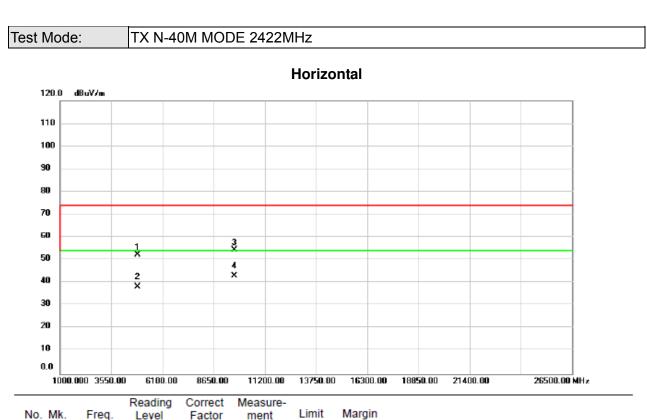




No.	Mk.	Freq.	Level		ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4844.000	62.73	-11.44	51.29	74.00	-22.71	peak	
2		4844.000	48.15	-11.44	36.71	54.00	-17.29	AVG	
3		9688.000	52.92	0.93	53.85	74.00	-20.15	peak	
4	*	9688.000	41.23	0.93	42.16	54.00	-11.84	AVG	



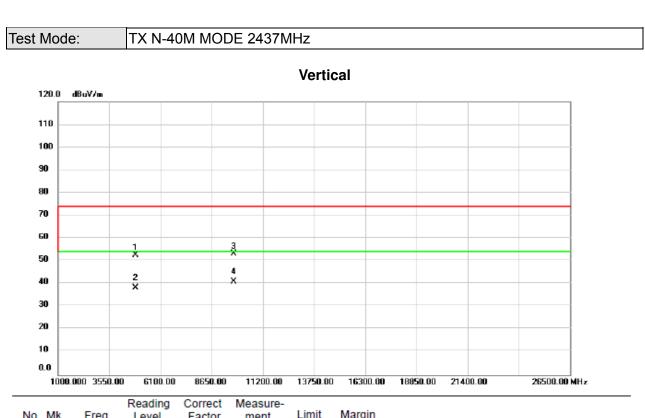




No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4844.000	63.64	-11.44	52.20	74.00	-21.80	peak	
2		4844.000	49.80	-11.44	38.36	54.00	-15.64	AVG	
3		9688.000	53.57	0.93	54.50	74.00	-19.50	peak	
4	*	9688.000	42.02	0.93	42.95	54.00	-11.05	AVG	



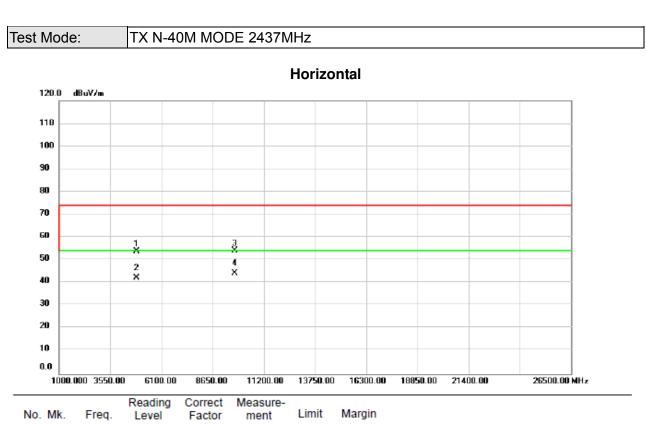




No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4874.000	64.14	-11.39	52.75	74.00	-21.25	peak	
2		4874.000	49.76	-11.39	38.37	54.00	-15.63	AVG	
3		9748.000	52.15	1.10	53.25	74.00	-20.75	peak	
4	*	9748.000	39.94	1.10	41.04	54.00	-12.96	AVG	



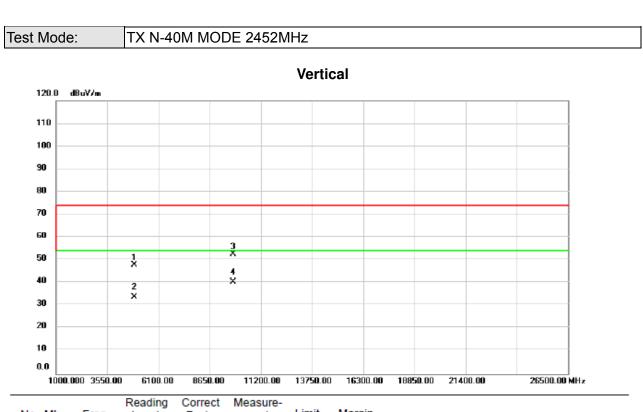




No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4874.000	65.25	-11.39	53.86	74.00	-20.14	peak	
2	4874.000	53.40	-11.39	42.01	54.00	-11.99	AVG	
3	9748.000	53.14	1.10	54.24	74.00	-19.76	peak	
4 *	9748.000	43.02	1.10	44.12	54.00	-9.88	AVG	



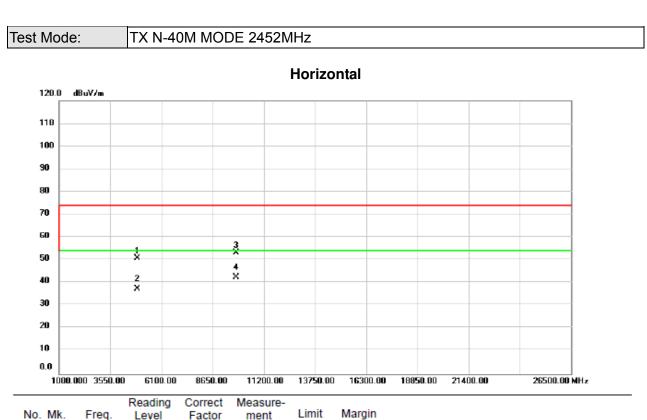




No.	Mk	. Freq.	Level		ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4904.000	59.18	-11.34	47.84	74.00	-26.16	peak	
2		4904.000	44.99	-11.34	33.65	54.00	-20.35	AVG	
3		9808.000	51.47	1.27	52.74	74.00	-21.26	peak	
4	*	9808.000	39.00	1.27	40.27	54.00	-13.73	AVG	







No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4904.000	62.34	-11.34	51.00	74.00	-23.00	peak	
2		4904.000	48.63	-11.34	37.29	54.00	-16.71	AVG	
3		9808.000	51.84	1.27	53.11	74.00	-20.89	peak	
4	*	9808.000	41.06	1.27	42.33	54.00	-11.67	AVG	

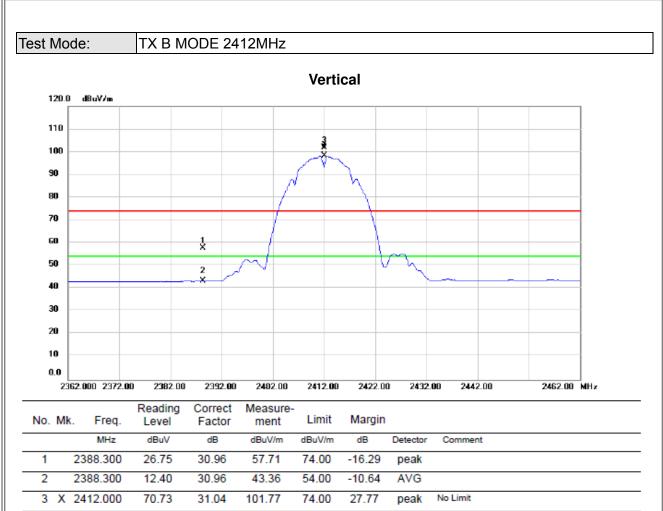




ATTACHMENT E - BAND EDGE AND FUNDAMENTAL EMISSIONS







4 * 2412.000

67.08

31.04

98.12

54.00

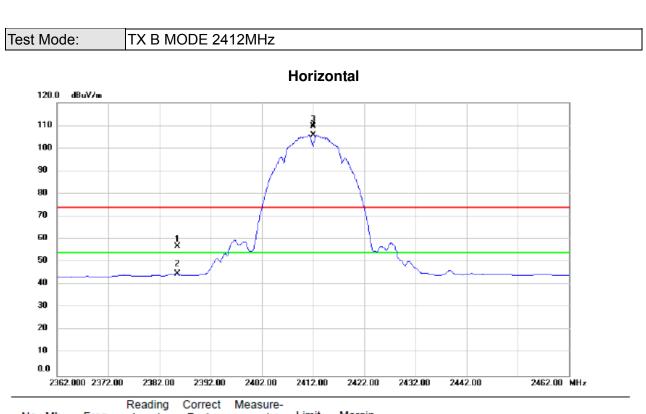
44.12

AVG

No Limit



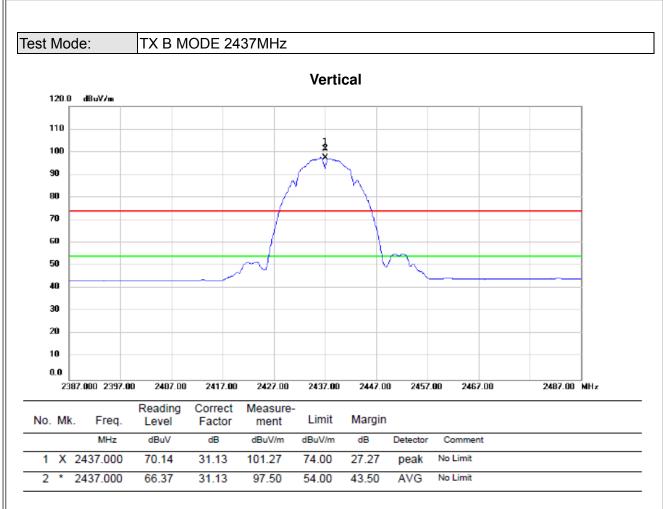




No.	Mk	. Freq.	Level		ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2385.576	25.82	30.95	56.77	74.00	-17.23	peak	
2		2385.576	13.99	30.95	44.94	54.00	-9.06	AVG	
3	Х	2412.000	78.64	31.04	109.68	74.00	35.68	peak	No Limit
4	*	2412.000	74.74	31.04	105.78	54.00	51.78	AVG	No Limit

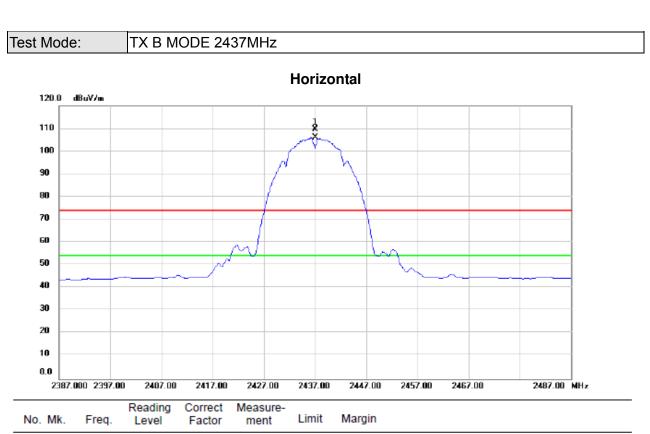












	NO.	MI	k. Freq.	Level	Factor	ment	LIIIIII	wargin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1	Х	2437.000	78.58	31.13	109.71	74.00	35.71	peak	No Limit
-	2	*	2437.000	74.85	31.13	105.98	54.00	51.98	AVG	No Limit



2483.800

13.07

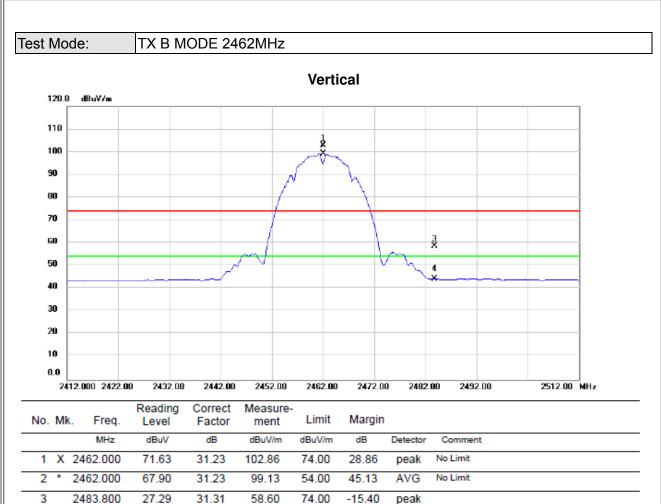
31.31

44.38

54.00

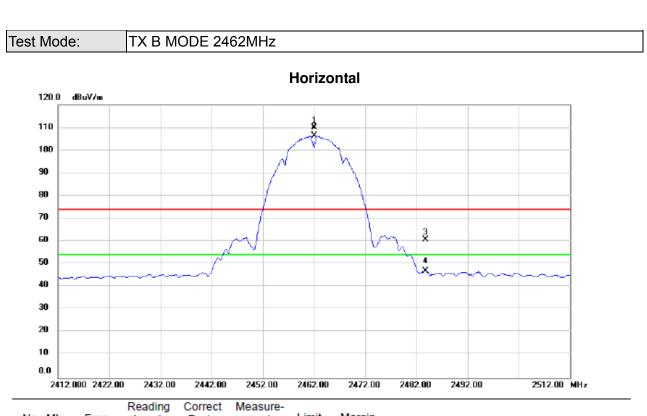
-9.62







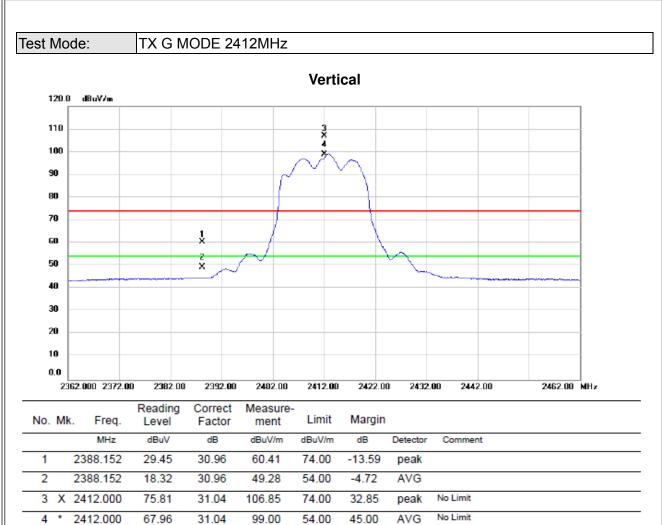




No.	M	. Freq.	Level		ment	Limit	Margin			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1	Х	2462.000	78.85	31.23	110.08	74.00	36.08	peak	No Limit	
2	*	2462.000	75.06	31.23	106.29	54.00	52.29	AVG	No Limit	
3		2483.800	29.40	31.31	60.71	74.00	-13.29	peak		
4		2483.800	15.65	31.31	46.96	54.00	-7.04	AVG		

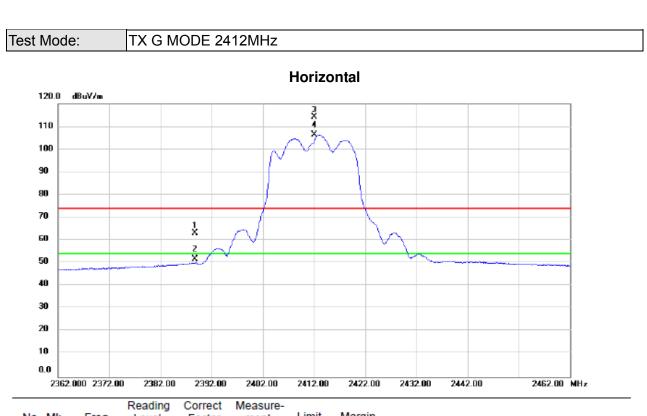








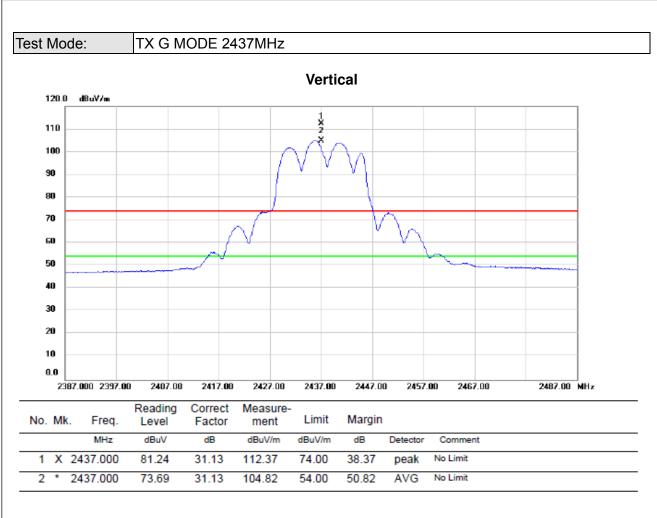




No.	Mk.	Freq.			ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2388.740	32.17	30.96	63.13	74.00	-10.87	peak	
2		2388.740	20.92	30.96	51.88	54.00	-2.12	AVG	
3	Х	2412.000	83.13		114.17		40.17	peak	No Limit
4	*	2412.000	75.33	31.04	106.37	54.00	52.37	AVG	No Limit

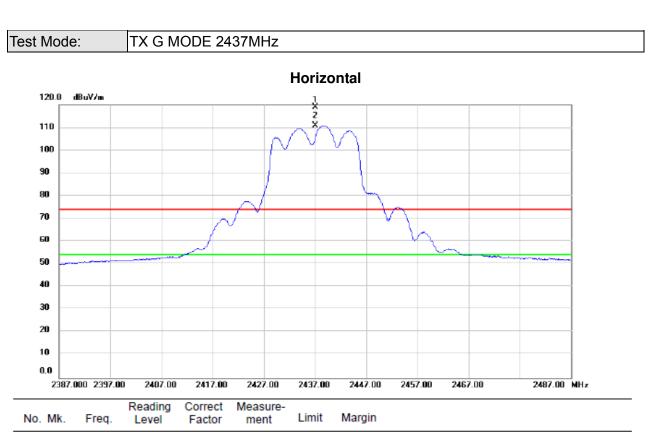












	NO.	INIK	. Freq.	Level	Factor	ment	Linnt	maryin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1	Х	2437.000	87.77	31.13	118.90	74.00	44.90	peak	No Limit
	2	*	2437.000	79.60	31.13	110.73	54.00	56.73	AVG	No Limit



2483.500

14.96

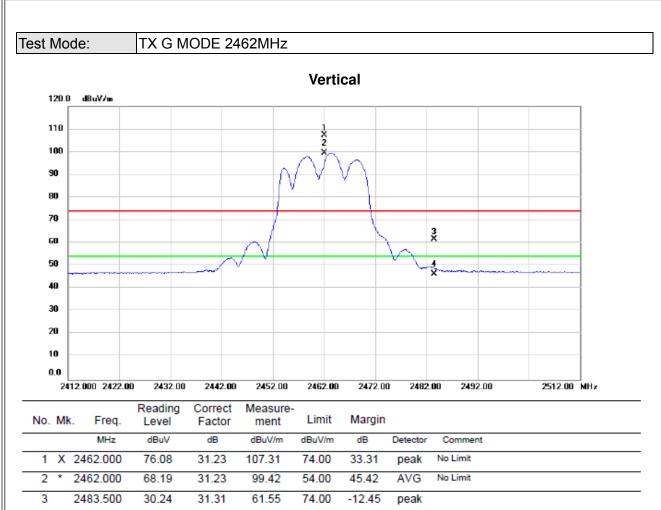
31.31

46.27

54.00

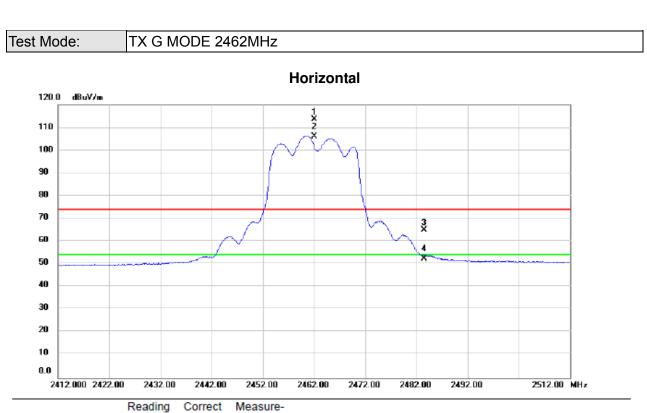
-7.73







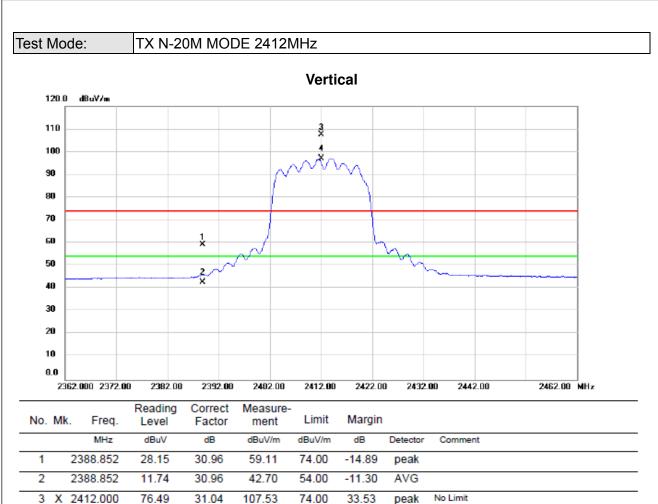




No	. M	k.	Freq.	Level	Factor	ment	Limit	Margin		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	Х	246	62.000	82.45	31.23	113.68	74.00	39.68	peak	No Limit
2	*	246	62.000	74.96	31.23	106.19	54.00	52.19	AVG	No Limit
3		248	83.599	33.50	31.31	64.81	74.00	-9.19	peak	
4		248	83.599	21.04	31.31	52.35	54.00	-1.65	AVG	







43.07

AVG

No Limit

97.07

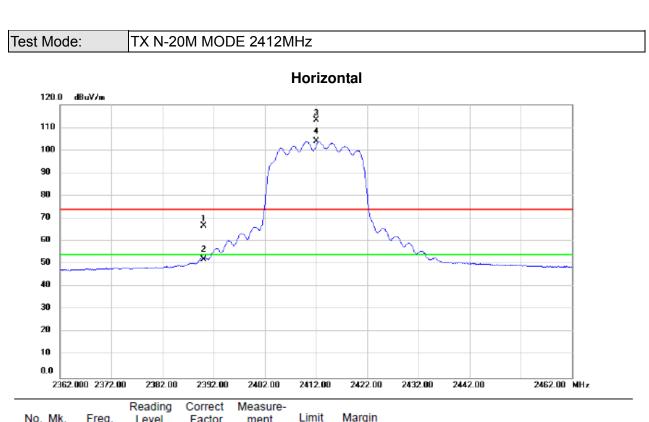
4 * 2412.000

66.03

31.04



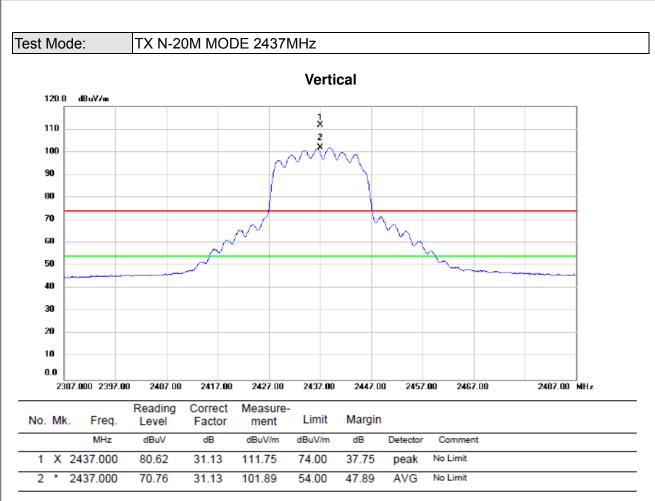




MHz dBuV dB dBuV/m dBuV/m dB Detector Comment 1 2390.000 35.65 30.96 66.61 74.00 -7.39 peak 2 2390.000 21.21 30.96 52.17 54.00 -1.83 AVG 3 X 2412.000 82.14 31.04 113.18 74.00 39.18 peak No Limit 4 * 2412.000 72.81 31.04 103.85 54.00 49.85 AVG No Limit	No.	Mk	. Freq.	Level	Factor		Limit	Margin		
2 2390.000 21.21 30.96 52.17 54.00 -1.83 AVG 3 X 2412.000 82.14 31.04 113.18 74.00 39.18 peak No Limit			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
3 X 2412.000 82.14 31.04 113.18 74.00 39.18 peak No Limit	1		2390.000	35.65	30.96	66.61	74.00	-7.39	peak	
	2		2390.000	21.21	30.96	52.17	54.00	-1.83	AVG	
4 * 2412.000 72.81 31.04 103.85 54.00 49.85 AVG No Limit	3	Х	2412.000	82.14	31.04	113.18	74.00	39.18	peak	No Limit
	4	*	2412.000	72.81	31.04	103.85	54.00	49.85	AVG	No Limit

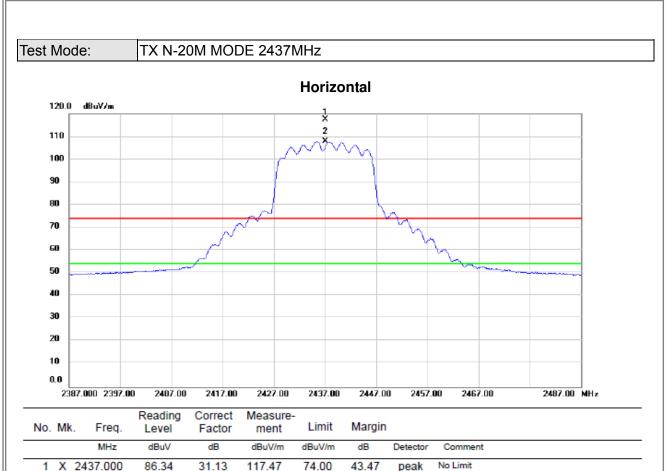












AVG

No Limit

54.00

2437.000

2 *

76.78

107.91

31.13



4

2483.500

2483.500

27.21

12.18

31.31

31.31

58.52

43.49

74.00

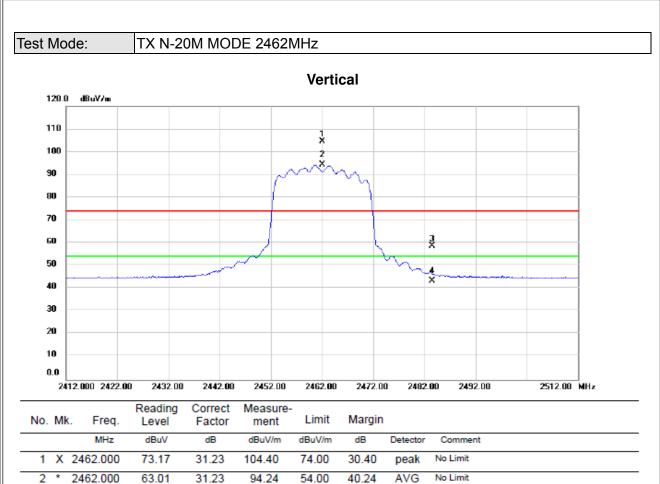
54.00

-15.48

-10.51

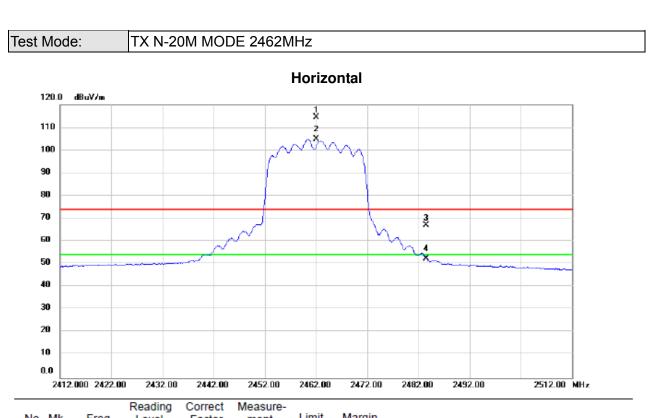
peak







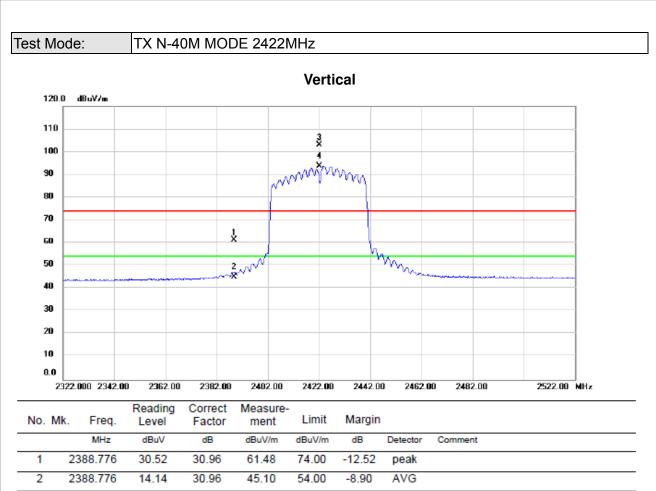




NO.	MK	. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	Х	2462.000	83.11	31.23	114.34	74.00	40.34	peak	No Limit
2	*	2462.000	73.64	31.23	104.87	54.00	50.87	AVG	No Limit
3		2483.500	35.59	31.31	66.90	74.00	-7.10	peak	
4		2483.500	21.16	31.31	52.47	54.00	-1.53	AVG	







54.00

29.12

39.81

No Limit

No Limit

peak

AVG

3 X 2422.000

4 * 2422.000

72.04

62.73

31.08

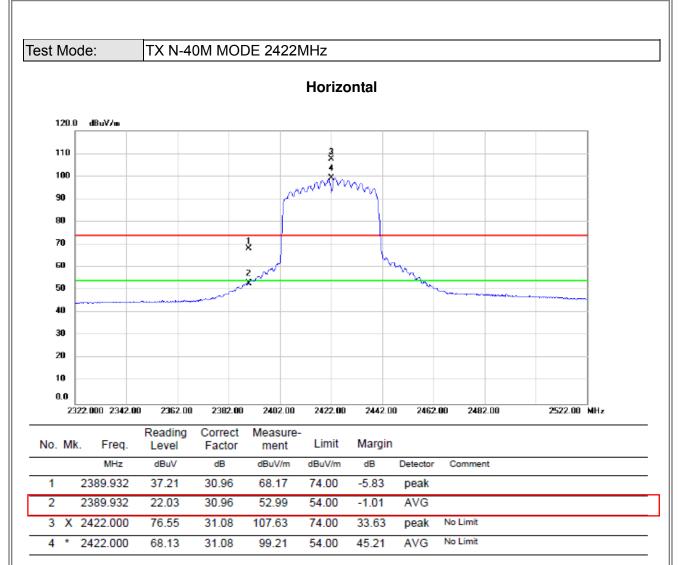
31.08

103.12

93.81

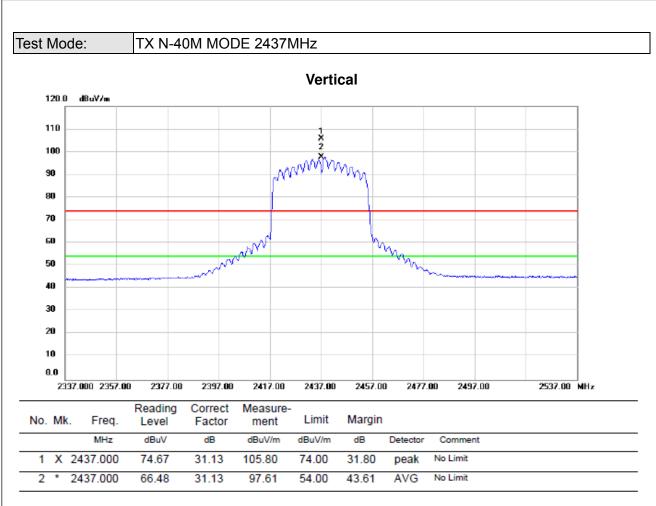






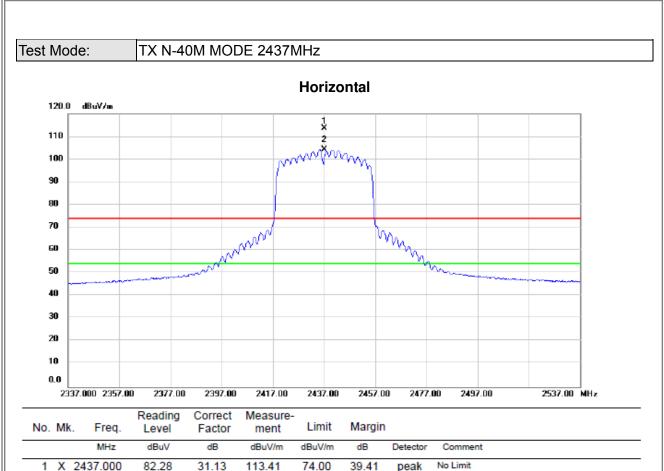












73.02

31.13

104.15

54.00

50.15

AVG

No Limit

2 *



2483.843

14.36

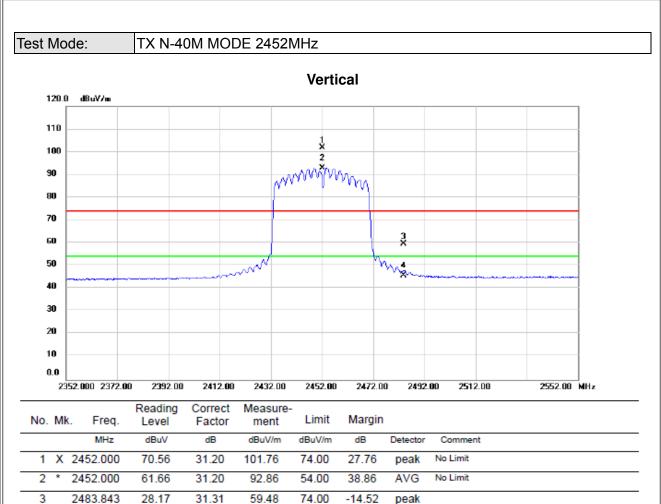
31.31

45.67

54.00

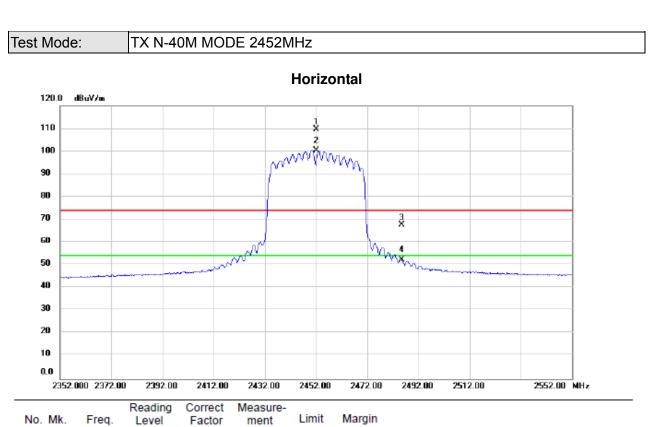
-8.33











No.	Mk	. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	Х	2452.000	78.31	31.20	109.51	74.00	35.51	peak	No Limit
2	*	2452.000	69.29	31.20	100.49	54.00	46.49	AVG	No Limit
3		2485.398	36.45	31.32	67.77	74.00	-6.23	peak	
4		2485.398	20.98	31.32	52.30	54.00	-1.70	AVG	



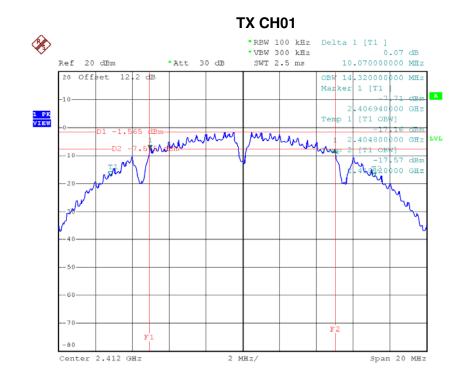


ATTACHMENT F - BANDWIDTH



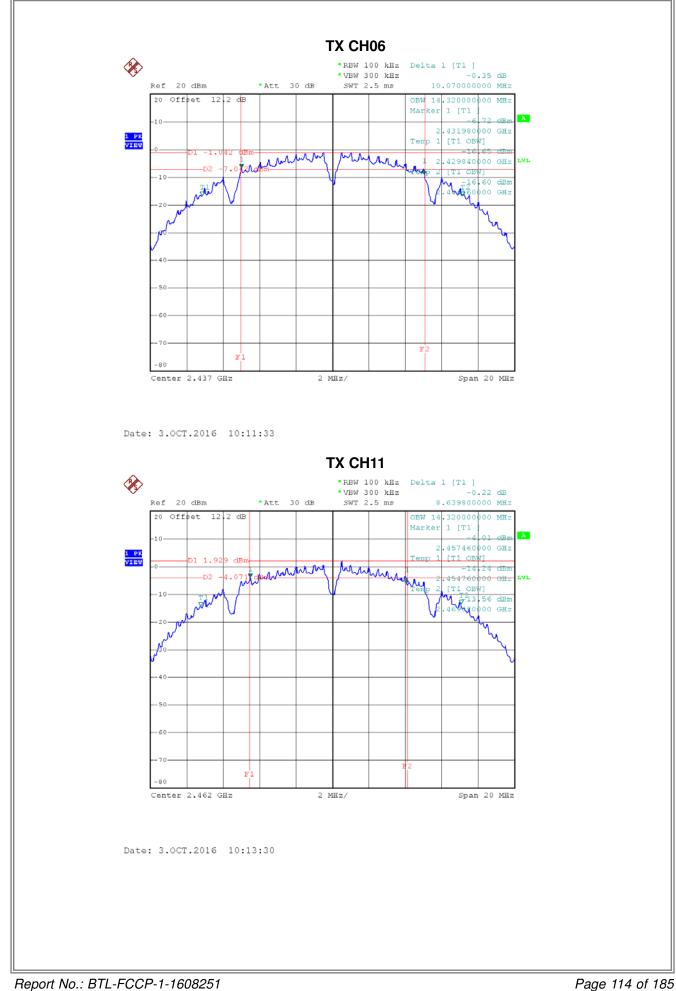


Test Mode: TX B Mode_CH01/06/11							
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result			
2412	10.07	14.32	500	Complies			
2437	10.07	14.32	500	Complies			
2462	8.64	14.32	500	Complies			



Date: 3.0CT.2016 09:56:15

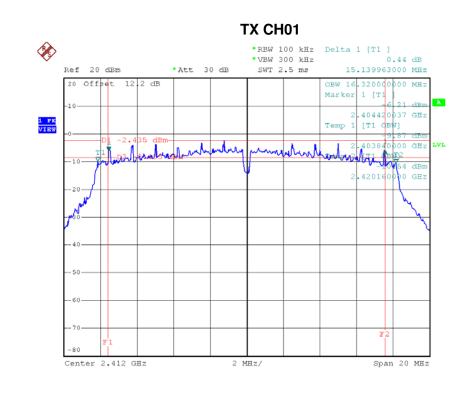








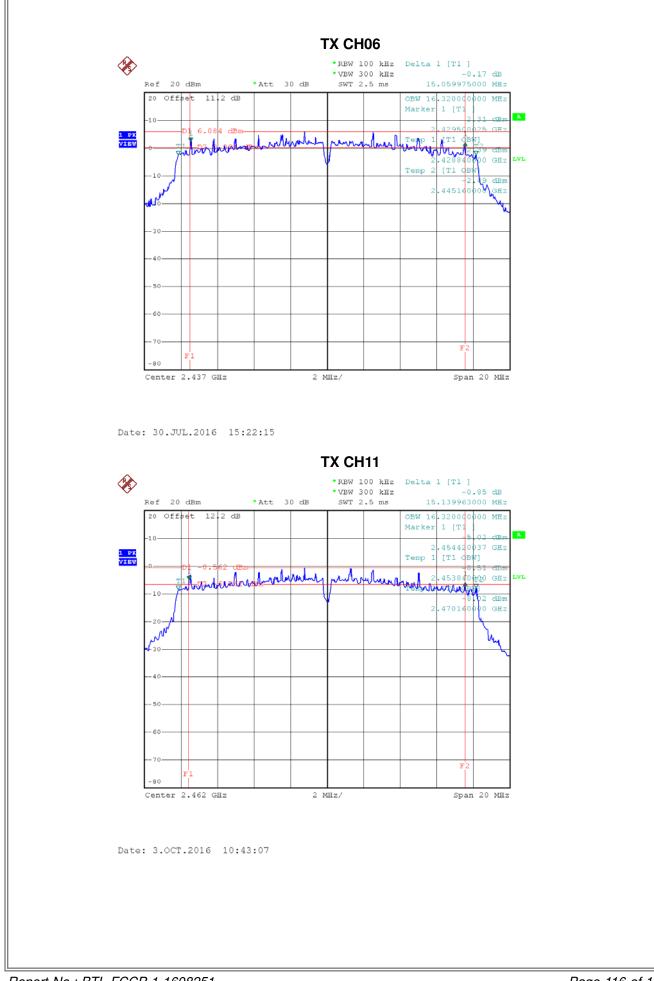
Test Mode: TX G Mode_CH01/06/11						
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result		
2412	15.14	16.32	500	Complies		
2437	15.06	16.32	500	Complies		
2462	15.14	16.32	500	Complies		



Date: 3.0CT.2016 10:39:05

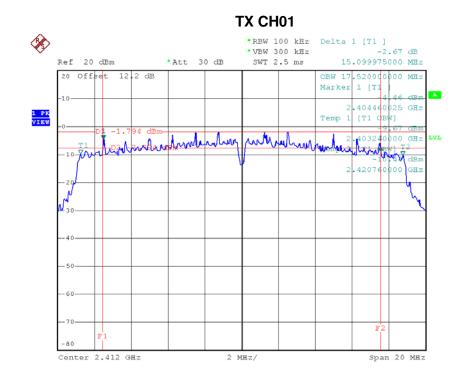
<u> STL</u>





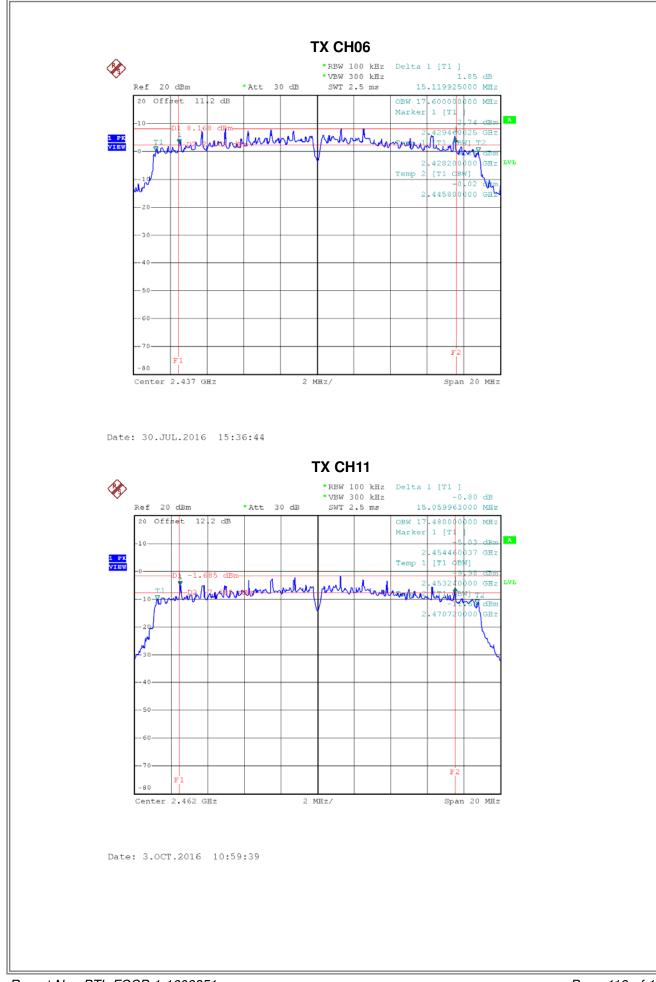


Test Mode: TX N-20MHz Mode_CH01/06/11						
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result		
2412	15.10	17.52	500	Complies		
2437	15.12	17.60	500	Complies		
2462	15.06	17.48	500	Complies		



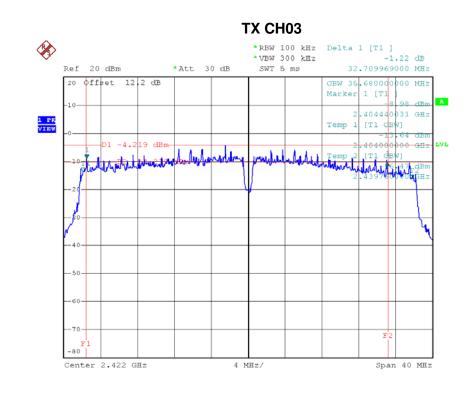
Date: 3.0CT.2016 10:56:39





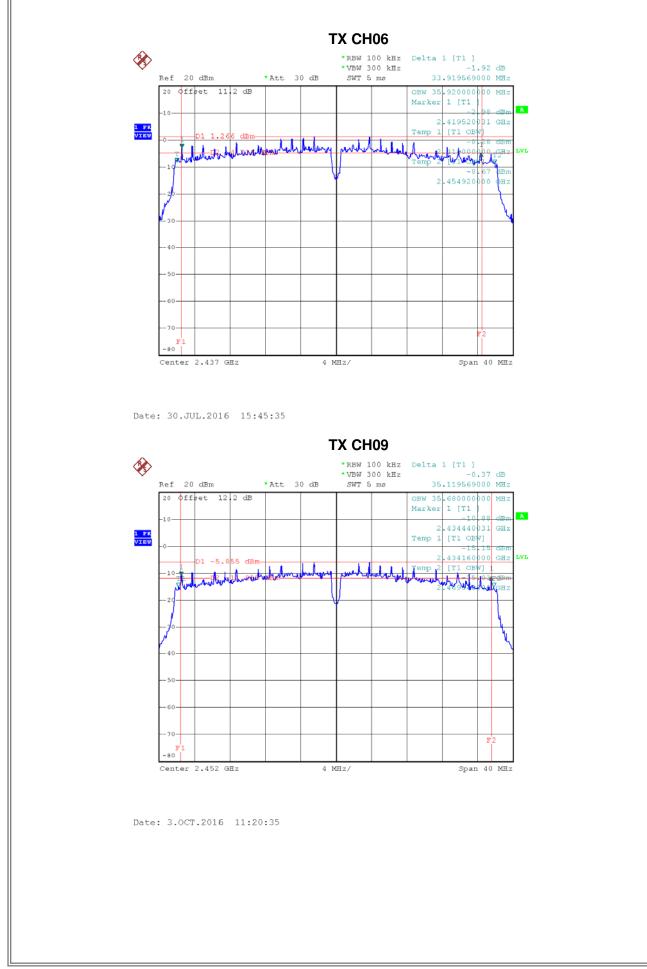


Test Mode: TX N-40MHz Mode_CH03/06/09						
Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result		
2422	32.71	35.68	500	Complies		
2437	33.92	35.92	500	Complies		
2452	35.12	35.68	500	Complies		



Date: 3.0CT.2016 11:17:12









ATTACHMENT G – MAXIMUM PEAK CONDUCTED OUTPUT POWER





Test Mode: TX B Mode_CH01/06/11						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Decult	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	14.61	0.0289	30.00	1.00	Complies	
2437	14.59	0.0288	30.00	1.00	Complies	
2462	14.08	0.0256	30.00	1.00	Complies	

Test Mode:	TX G Mode	CH01/06/11	ANT 1

— — — —					
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result
2412	16.83	0.0482	30.00	1.00	Complies
2437	22.73	0.1875	30.00	1.00	Complies
2462	18.83	0.0764	30.00	1.00	Complies

Test Mode: TX G Mode_CH01/06/11_ANT 2						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Result	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	16.23	0.0420	30.00	1.00	Complies	
2437	22.61	0.1824	30.00	1.00	Complies	
2462	18.46	0.0701	30.00	1.00	Complies	

Test Mode: TX G Mode_CH01/06/11_Total						
Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Popult	
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Result	
2412	19.55	0.0902	30.00	1.00	Complies	
2437	25.68	0.3699	30.00	1.00	Complies	
2462	21.66	0.1465	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	18.05	0.0638	30.00	1.00	Complies
2437	22.49	0.1774	30.00	1.00	Complies
2462	16.71	0.0469	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	16.93	0.0493	30.00	1.00	Complies	
2437	22.21	0.1663	30.00	1.00	Complies	
2462	15.87	0.0386	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	20.54	0.1131	30.00	1.00	Complies	
2437	25.36	0.3438	30.00	1.00	Complies	
2462	19.32	0.0855	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	19.66	0.0925	30.00	1.00	Complies		
2437	22.65	0.1841	30.00	1.00	Complies		
2452	18.49	0.0706	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)			
2422	19.55	0.0902	30.00	1.00	Complies		
2437	22.56	0.1803	30.00	1.00	Complies		
2452	18.33	0.0681	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	22.62	0.1826	30.00	1.00	Complies		
2437	25.62	0.3644	30.00	1.00	Complies		
2452	21.42	0.1387	30.00	1.00	Complies		

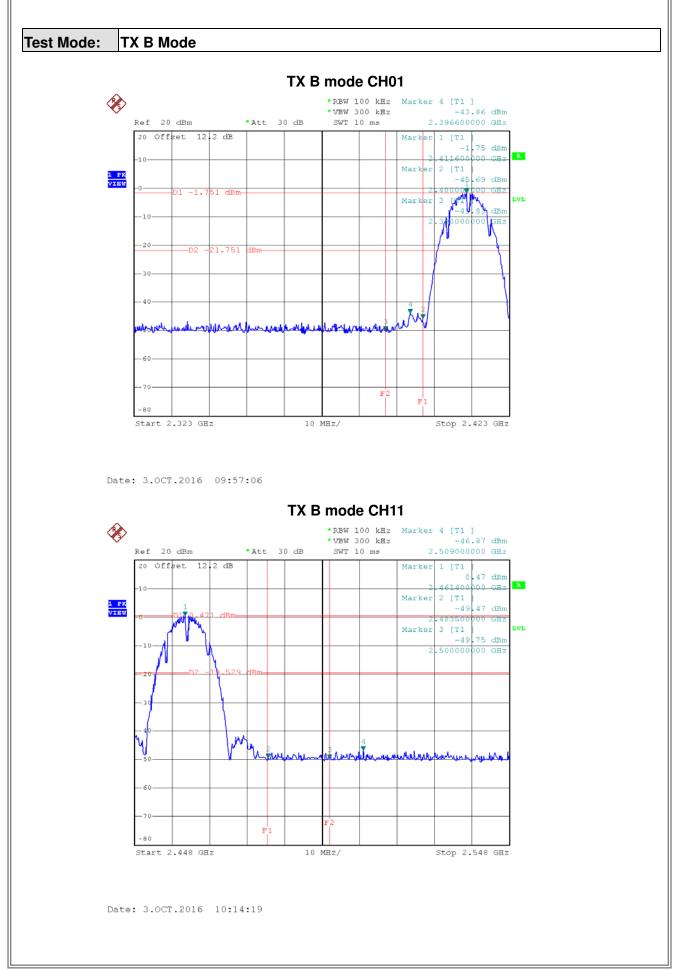




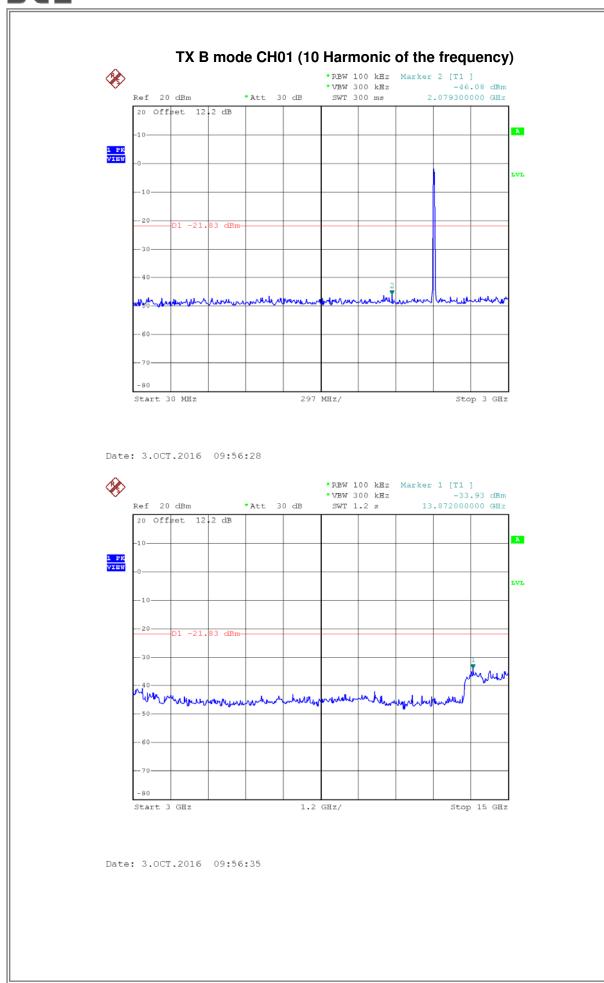
ATTACHMENT H - ANTENNA CONDUCTED SPURIOUS EMISSION

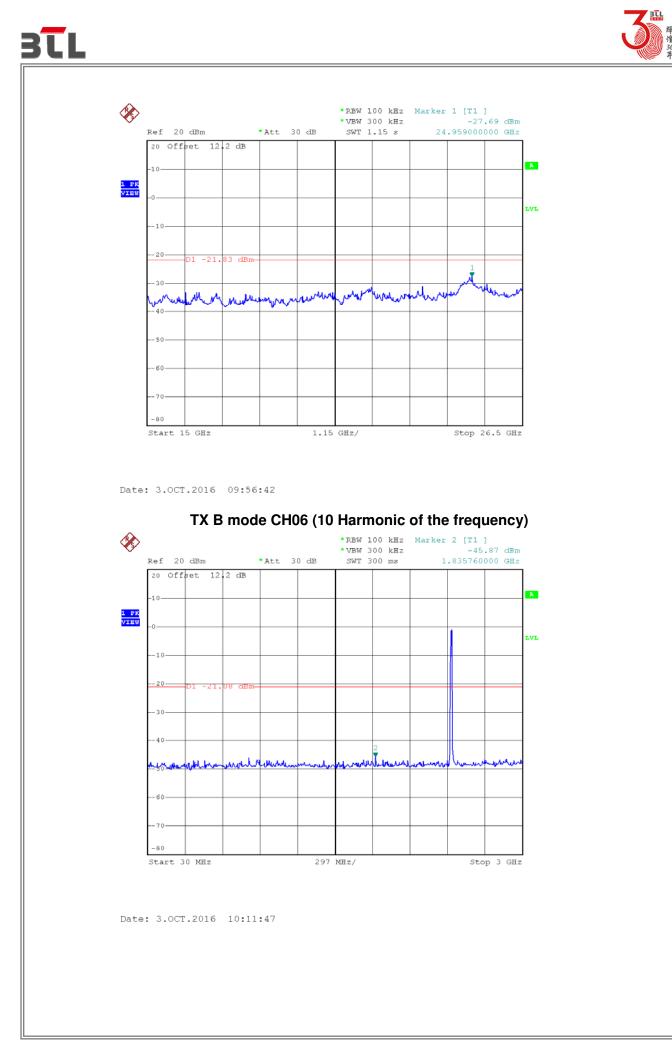


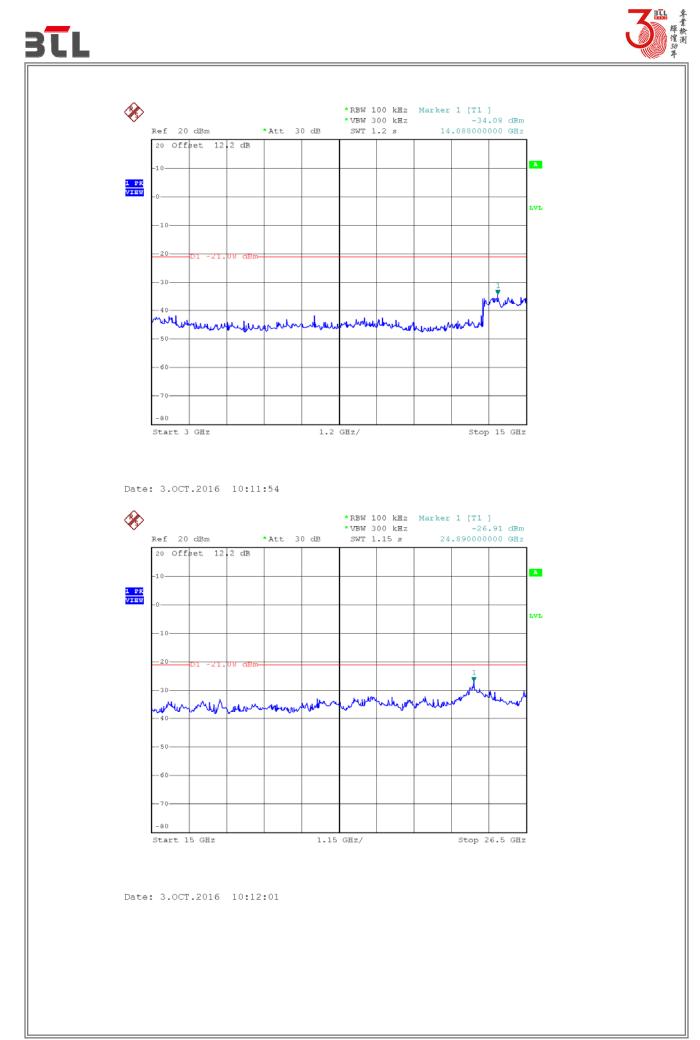




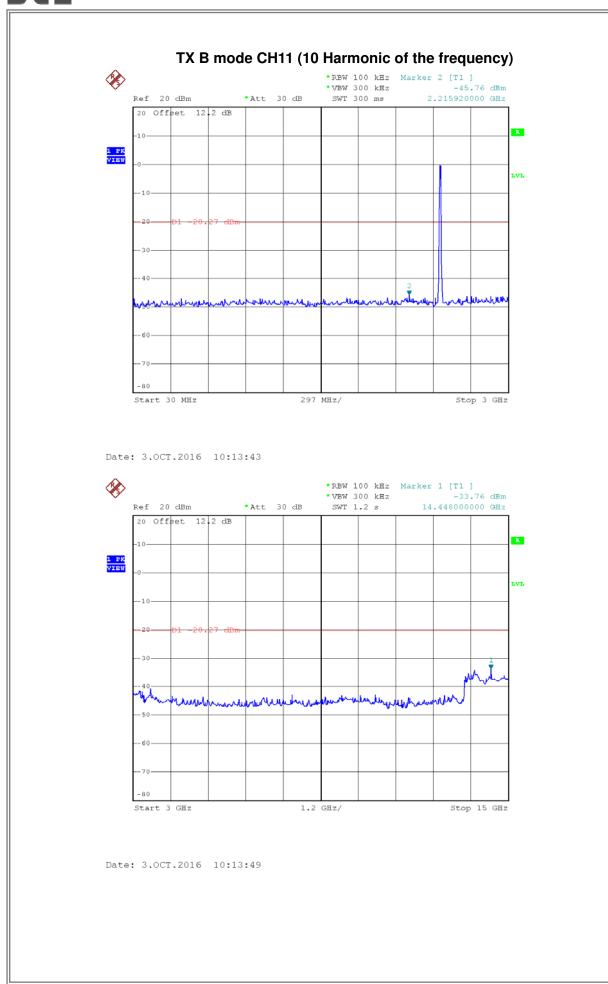


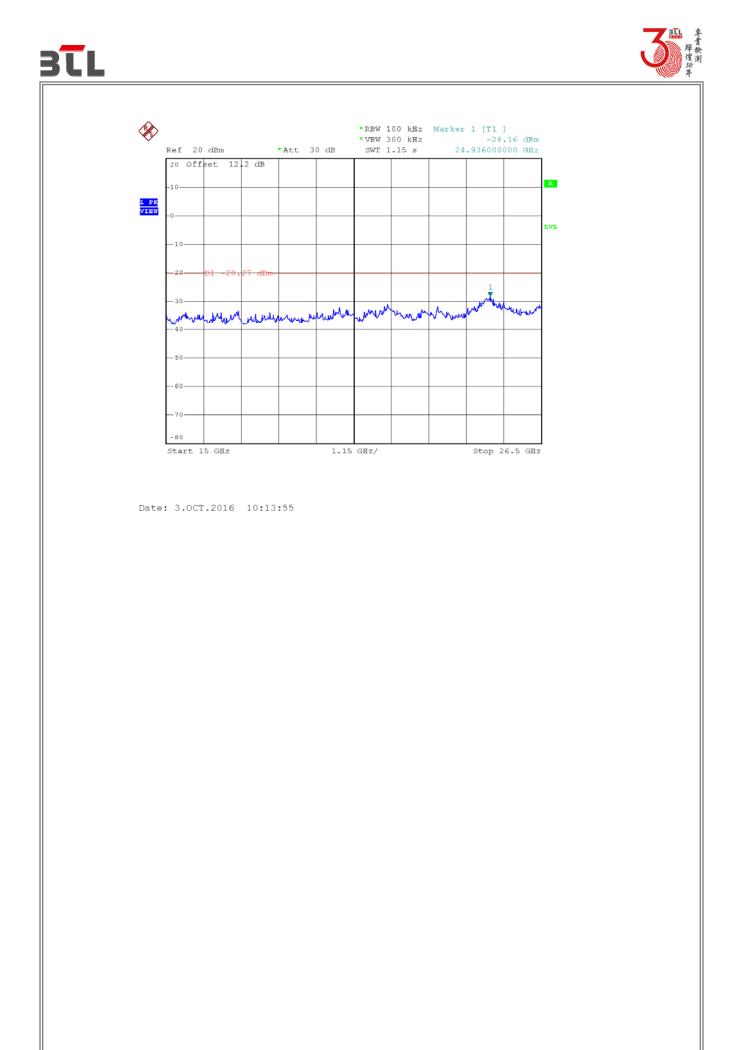






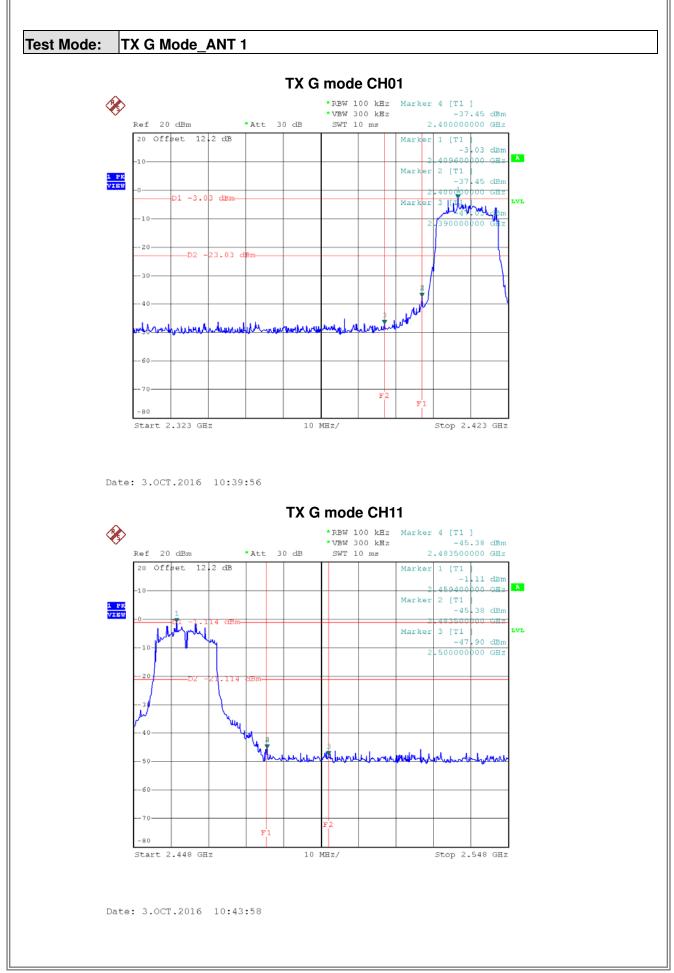






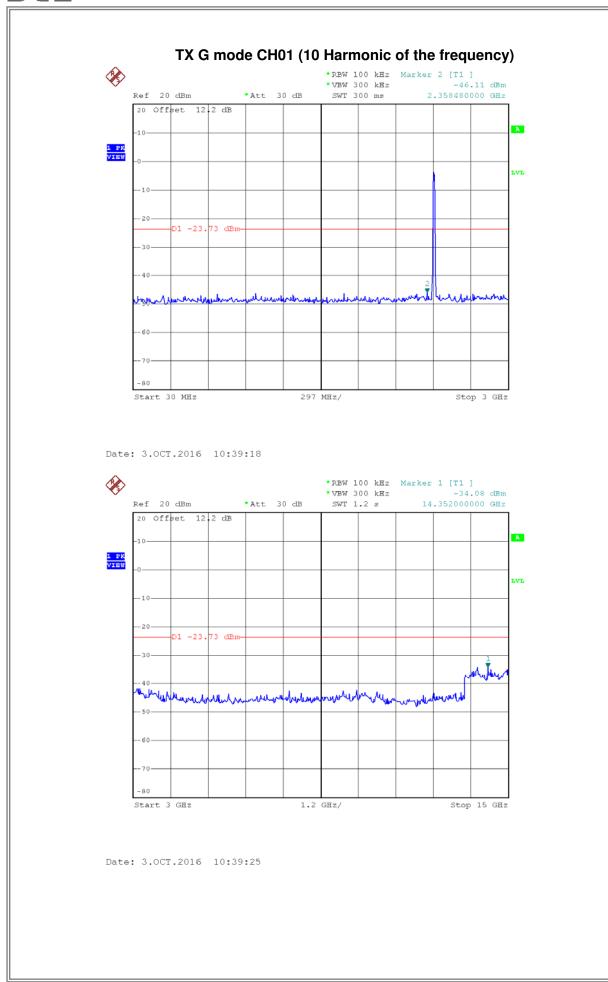


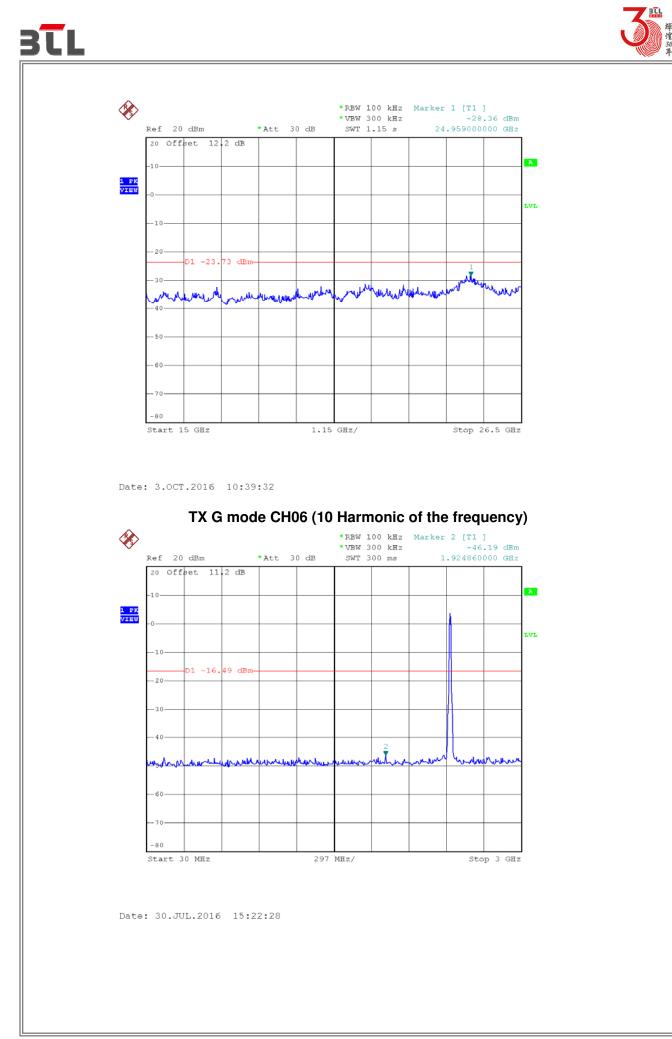


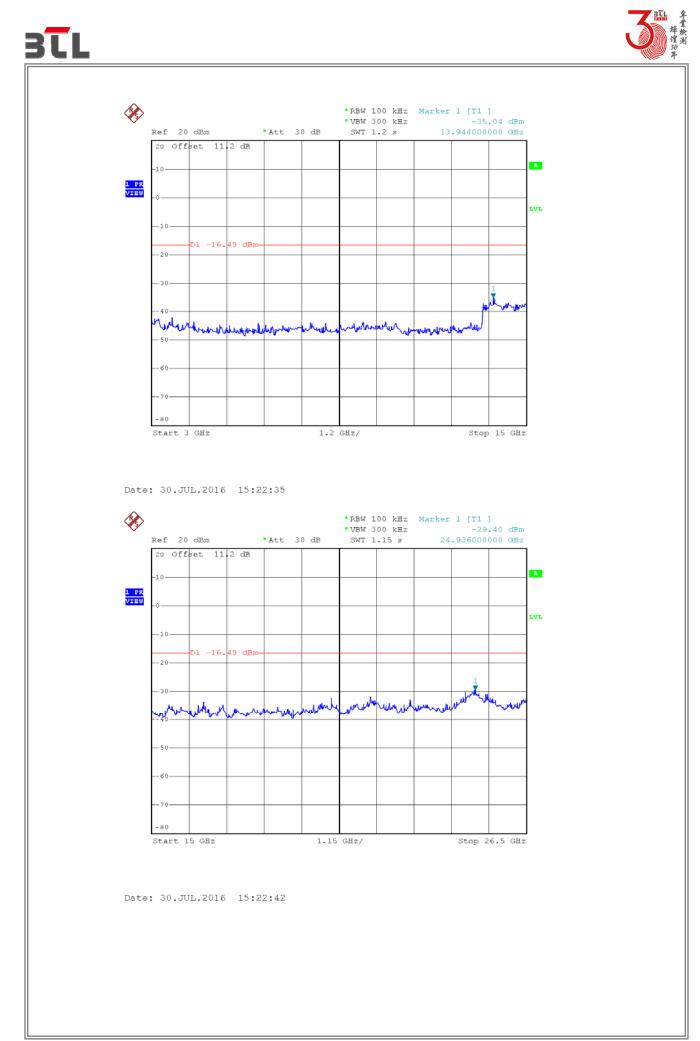


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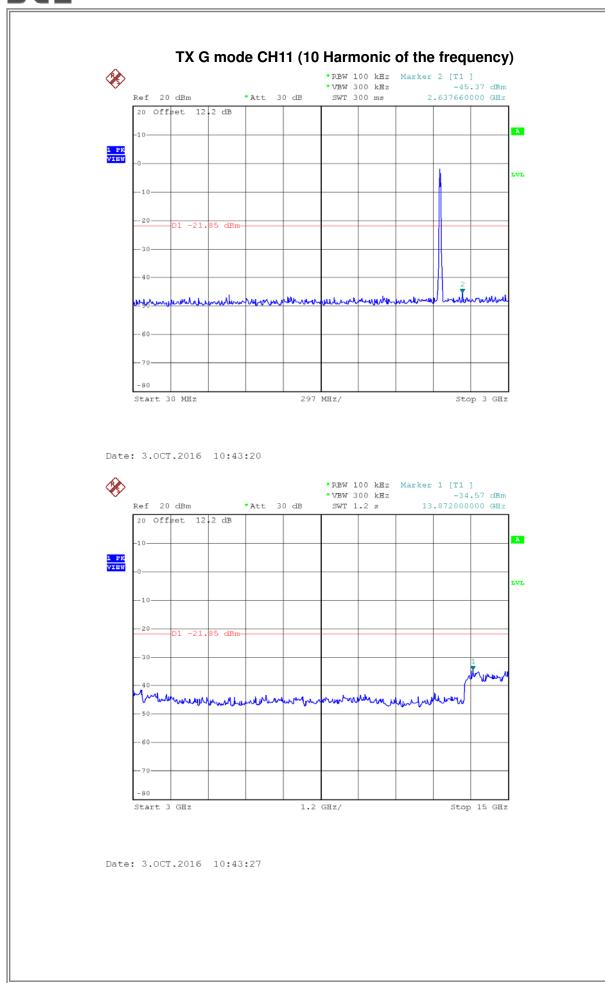


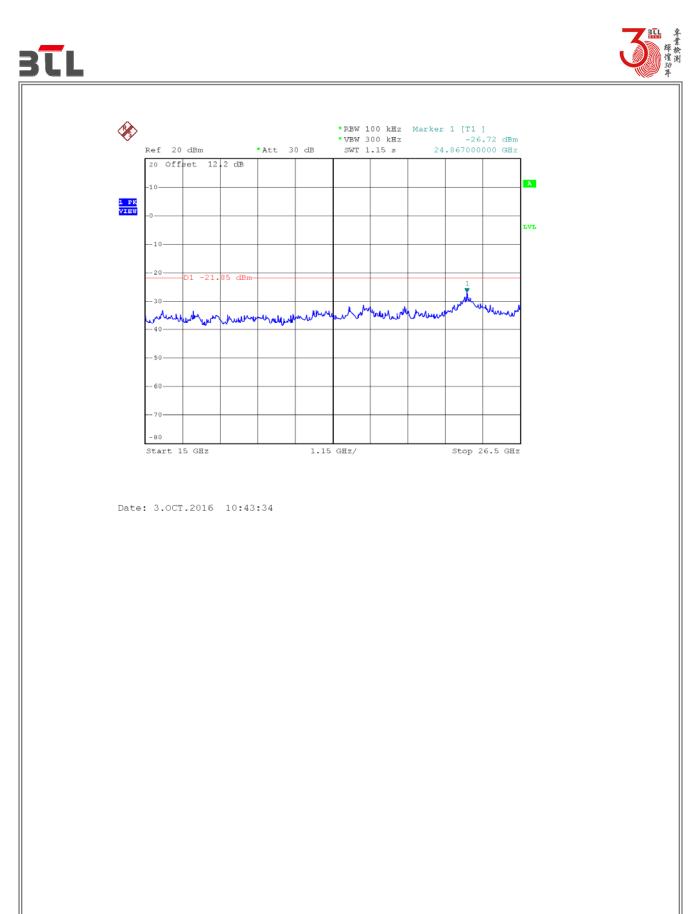




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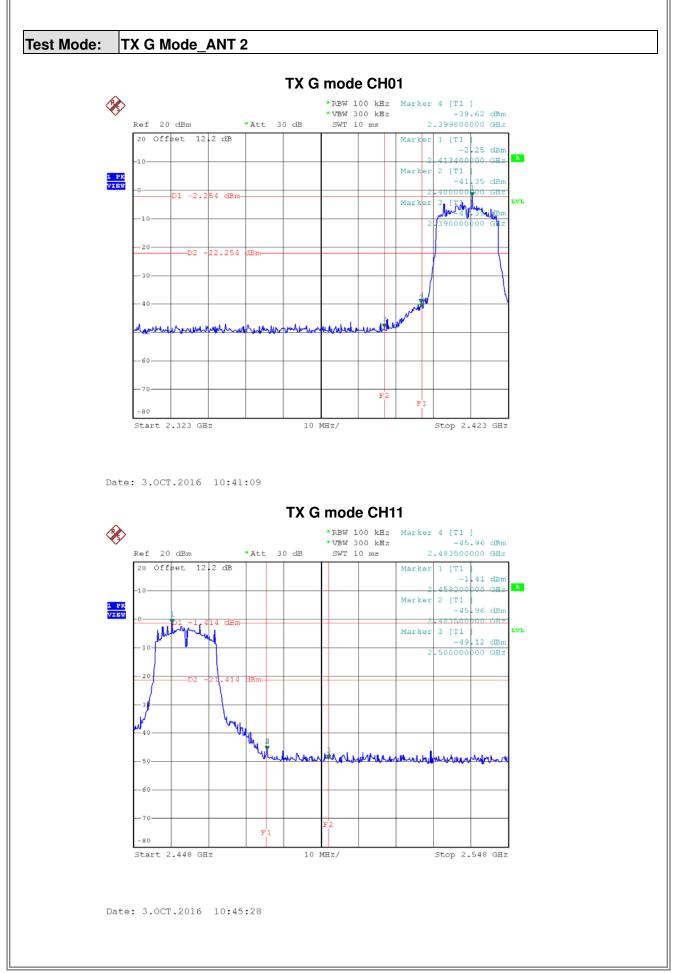




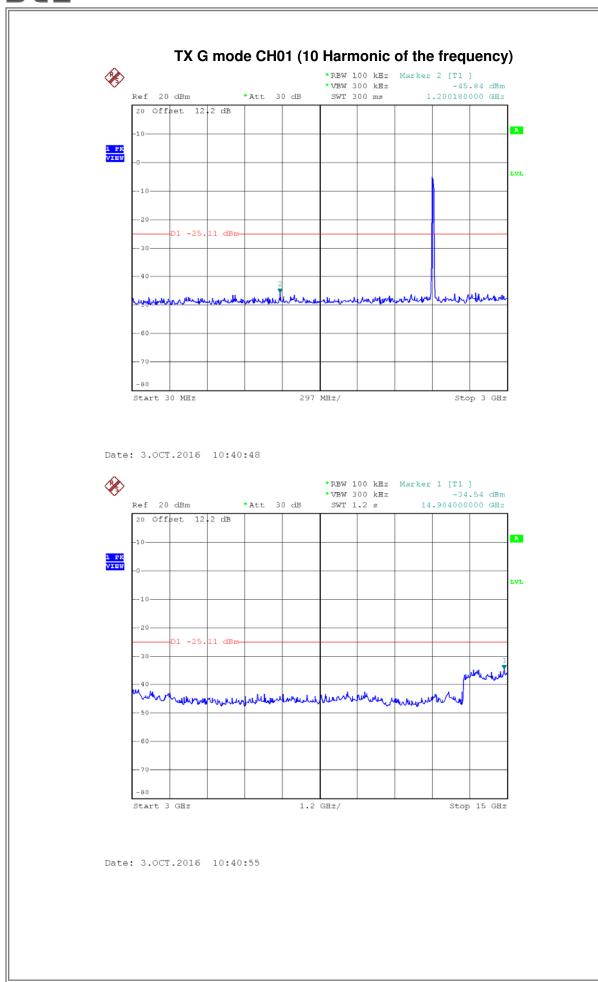


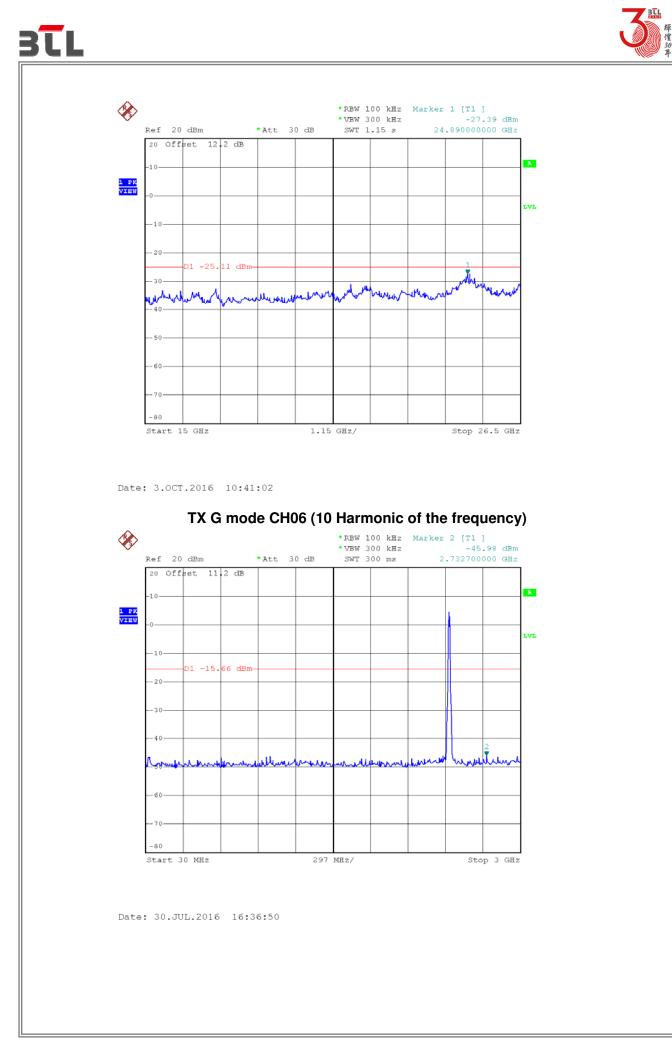


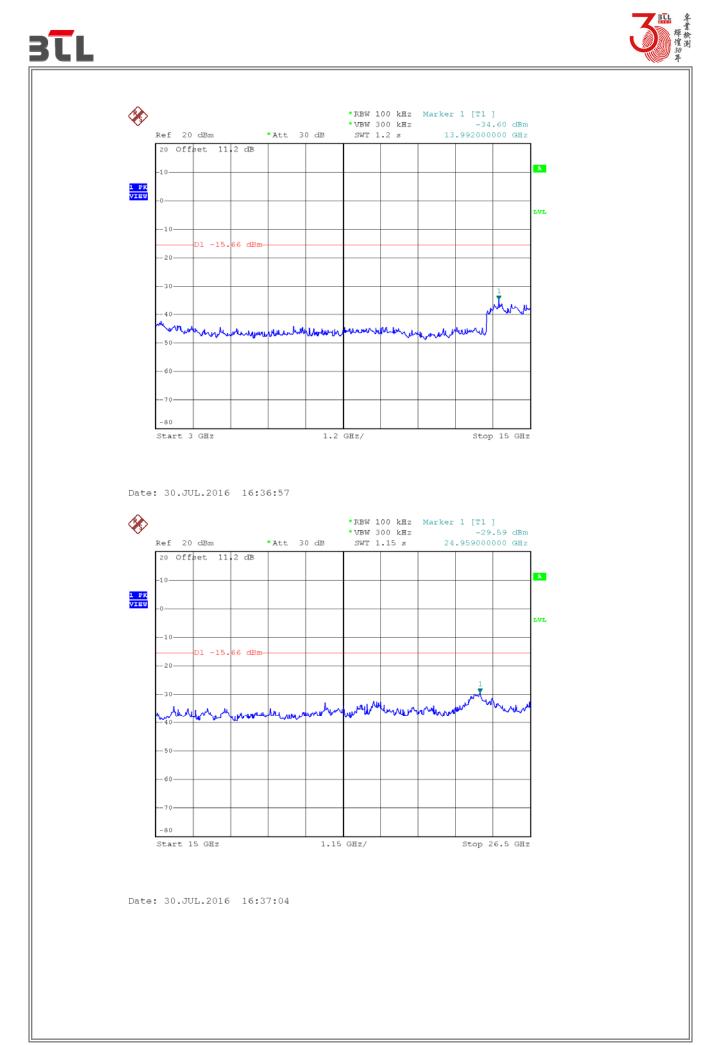




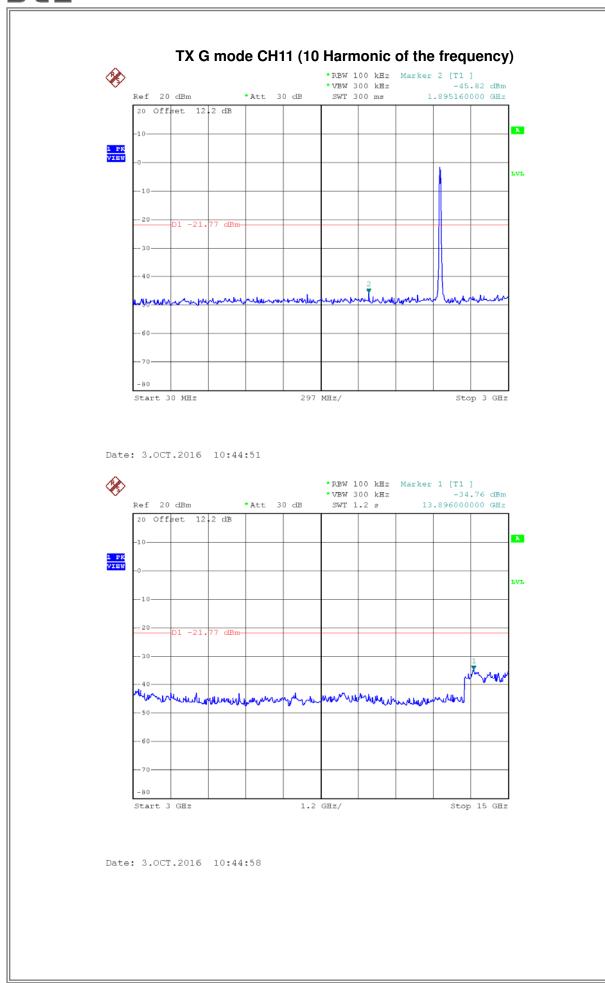




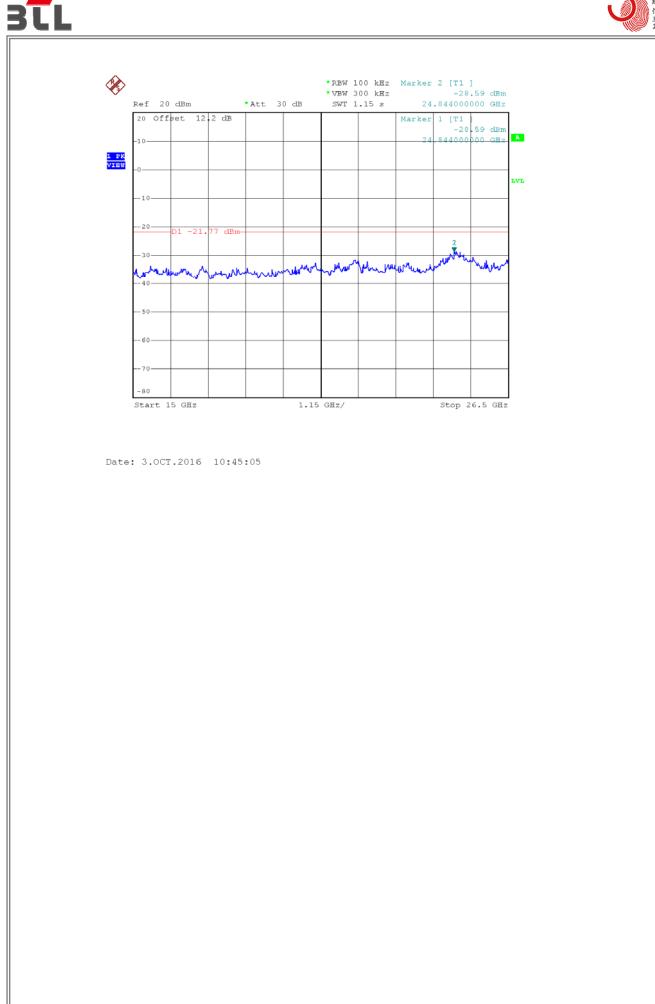






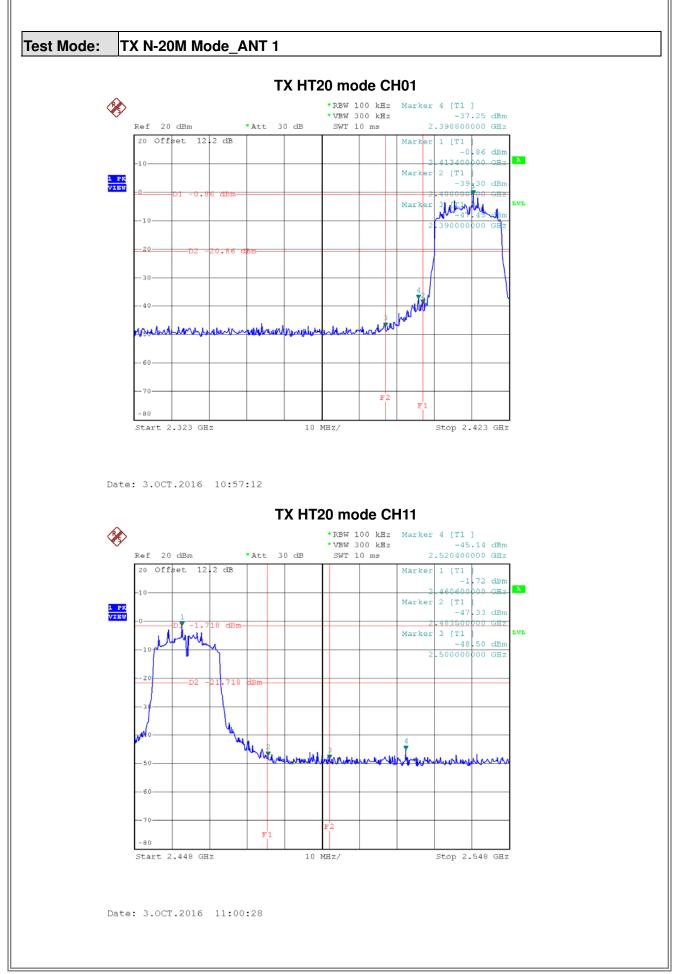




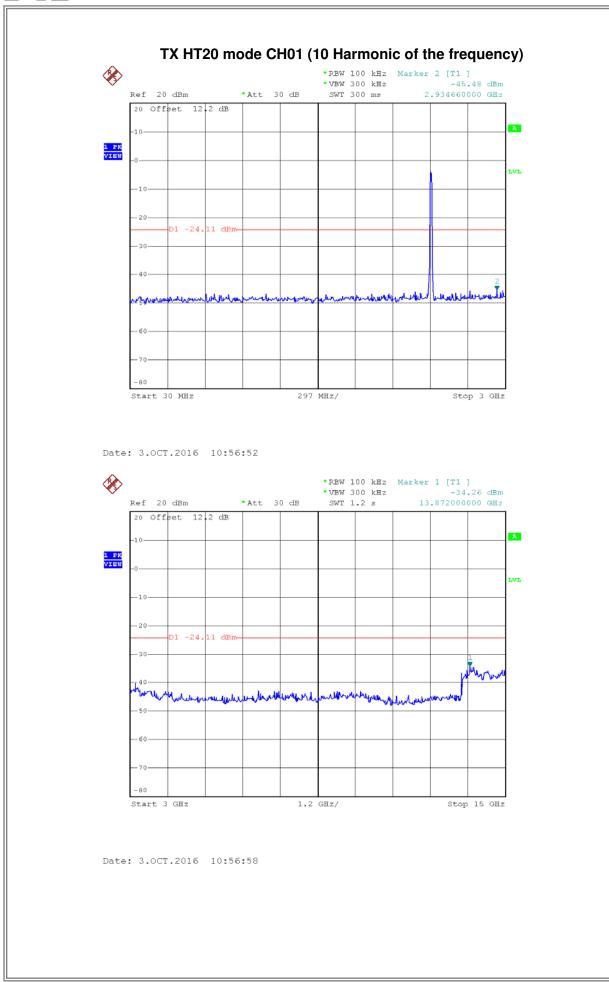


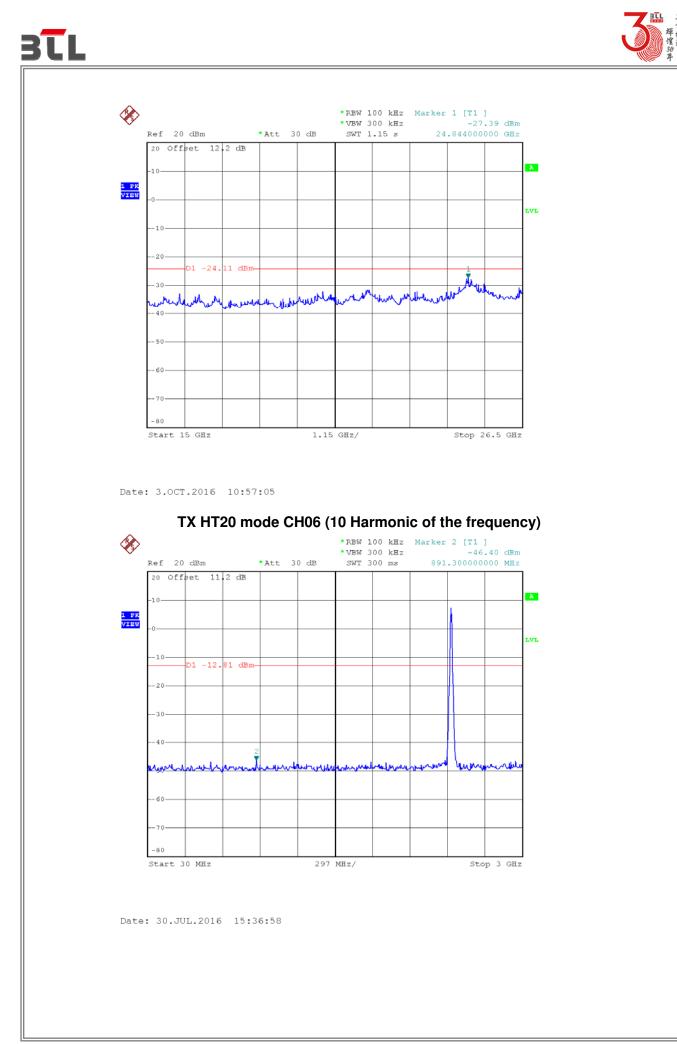


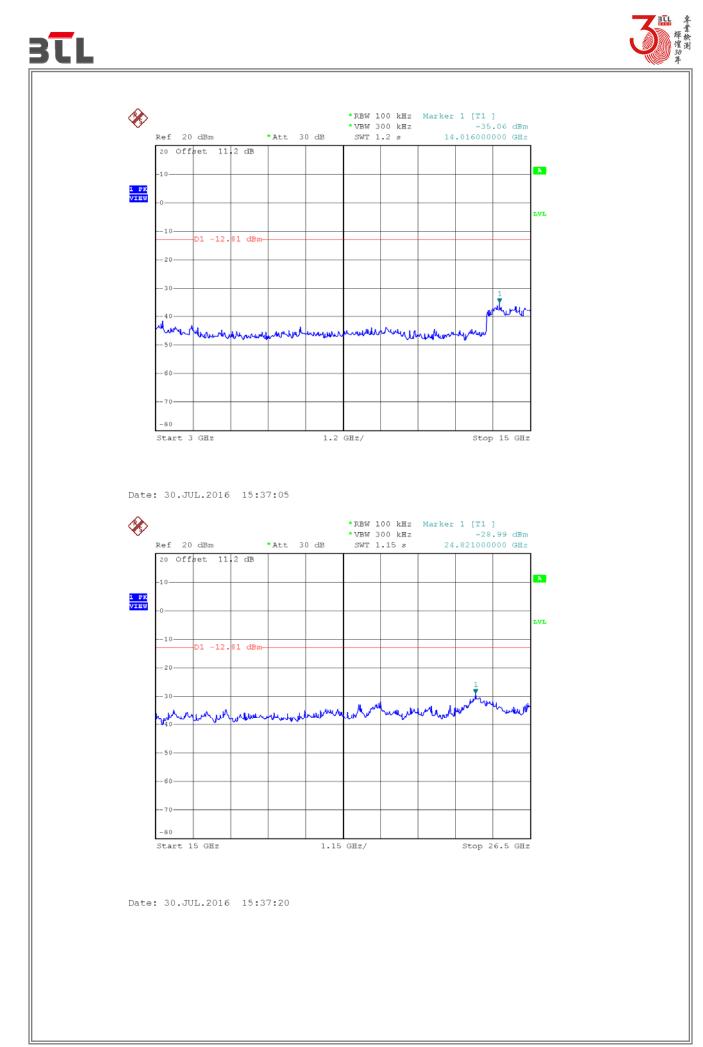






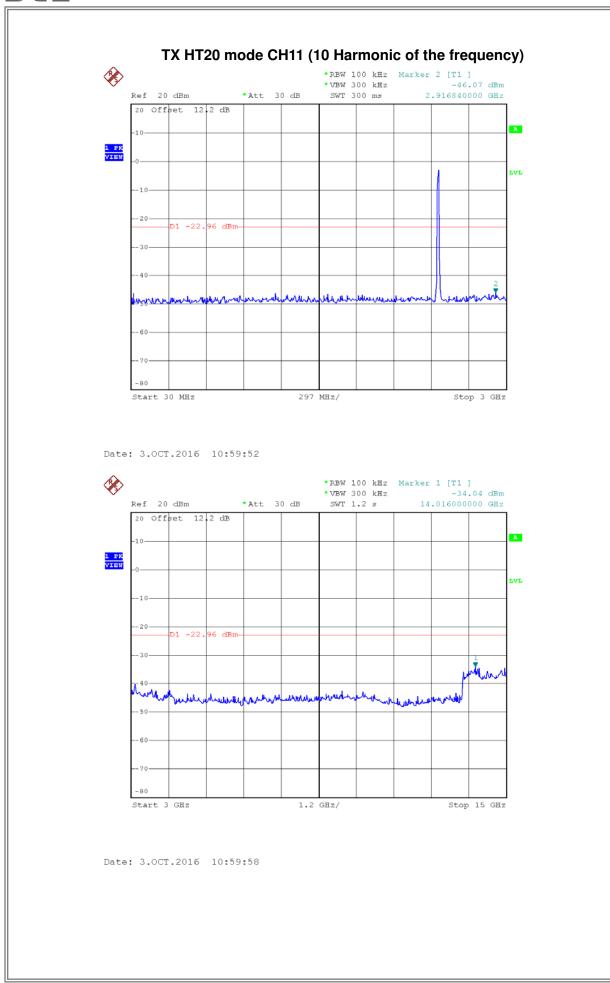




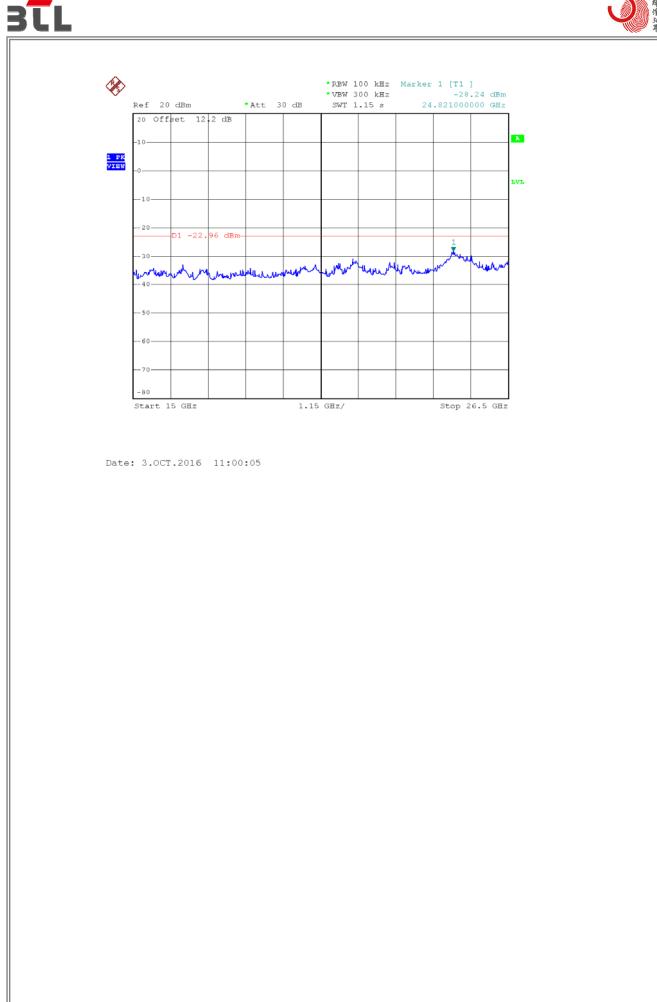


Report No.: BTL-FCCP-1-1608251



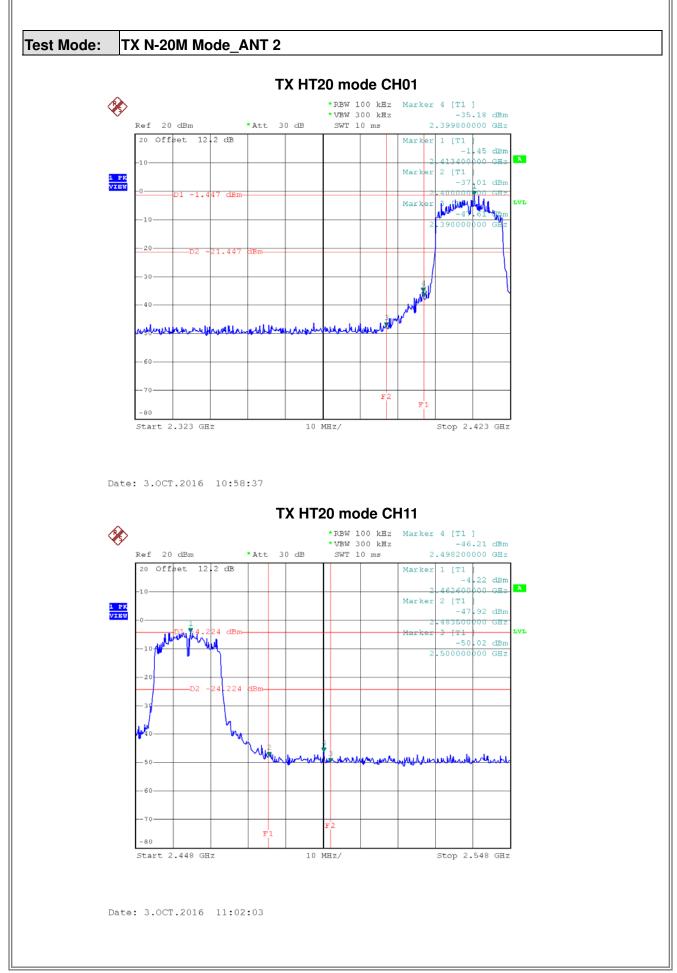






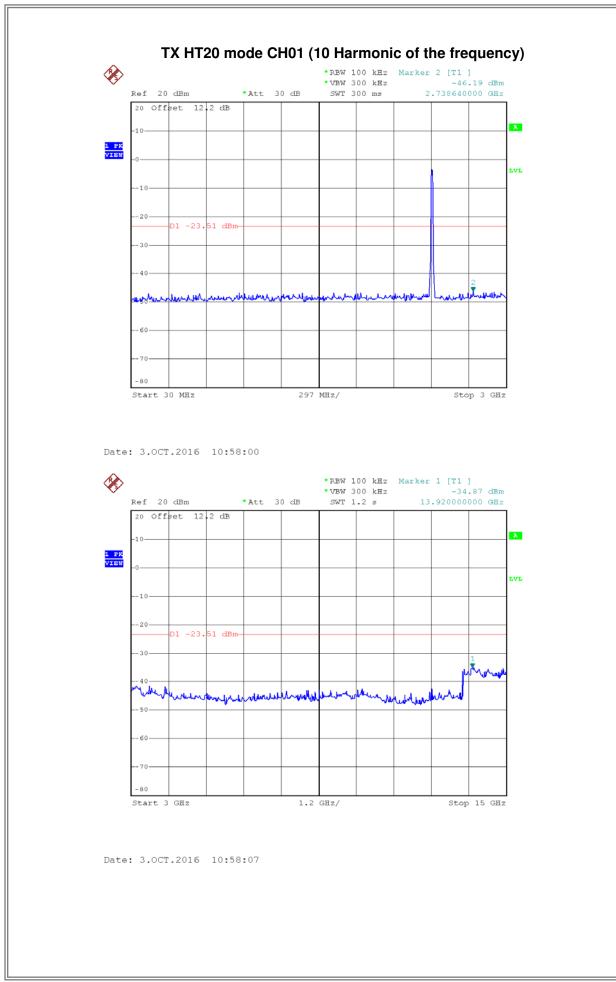


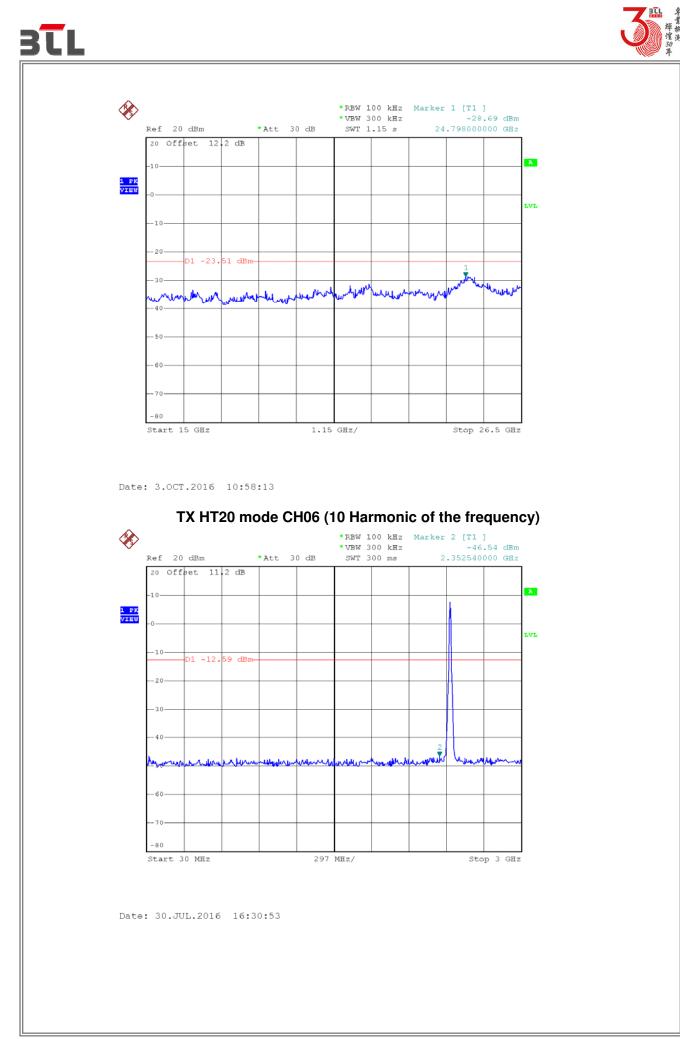


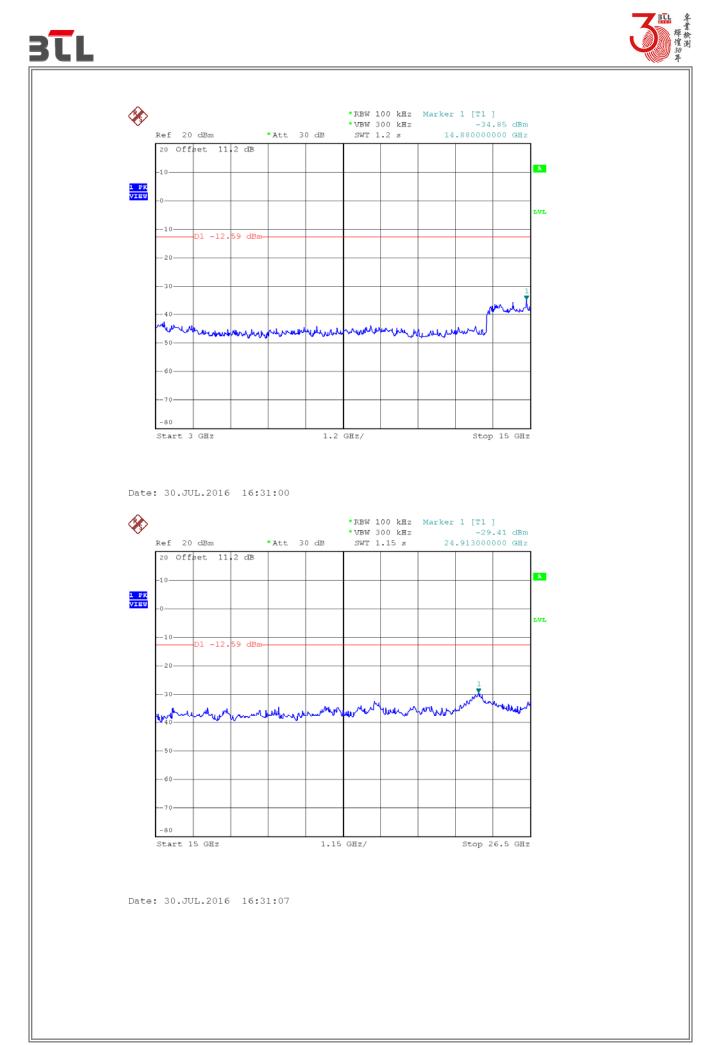


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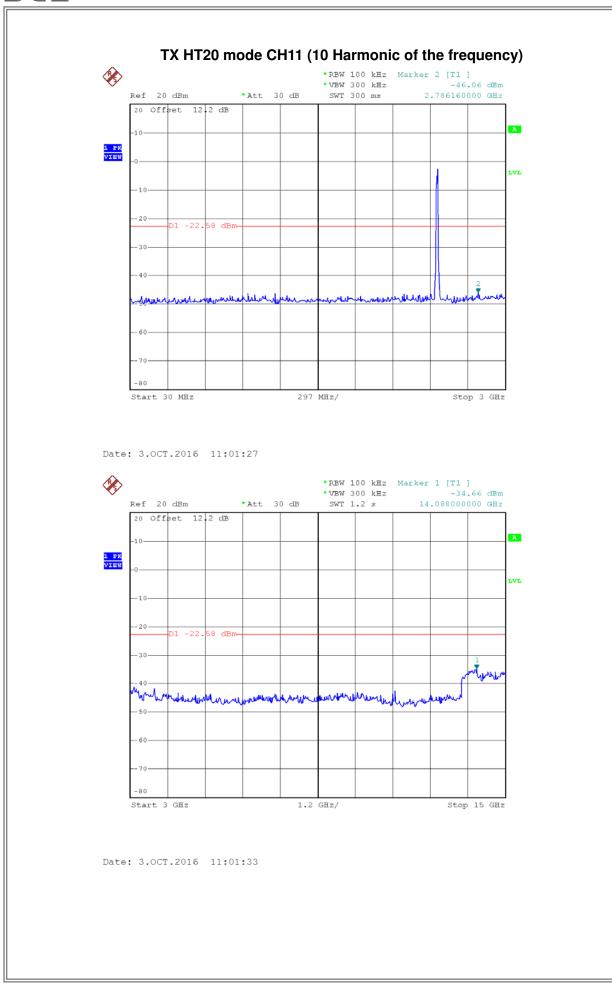


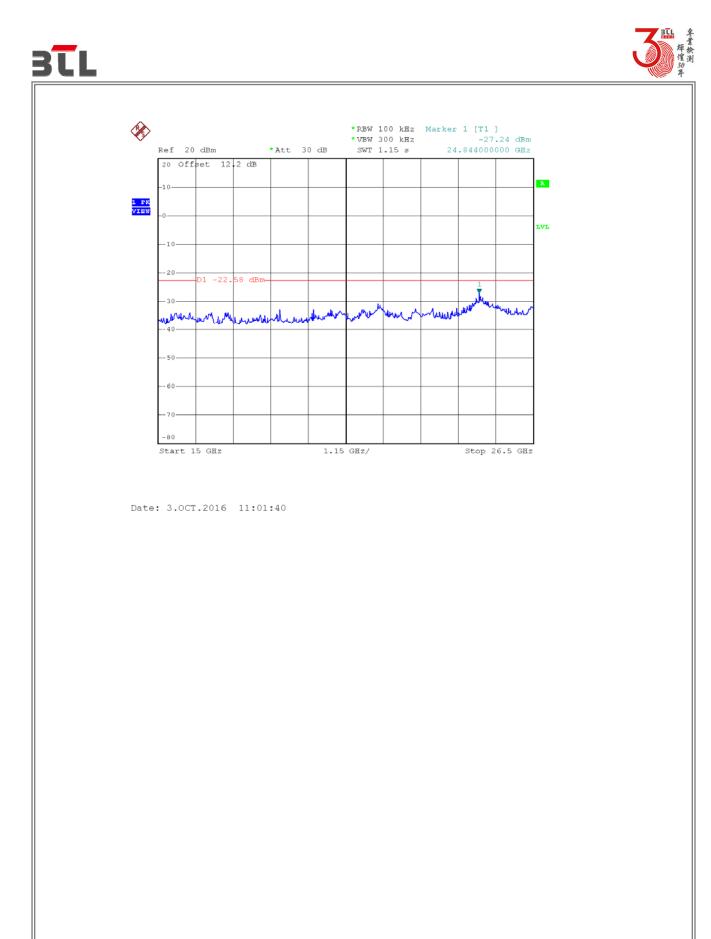






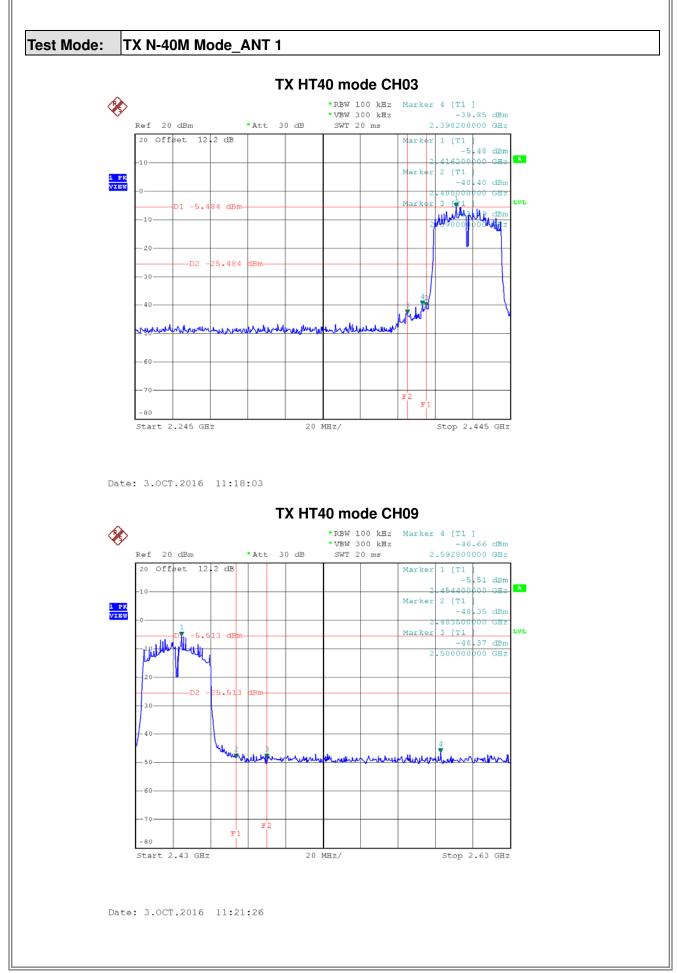




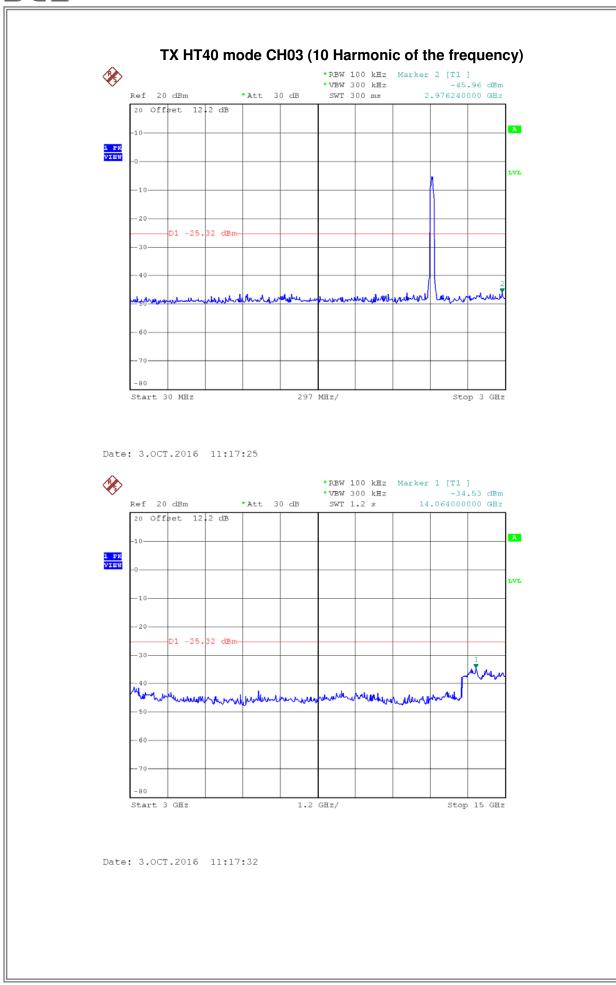


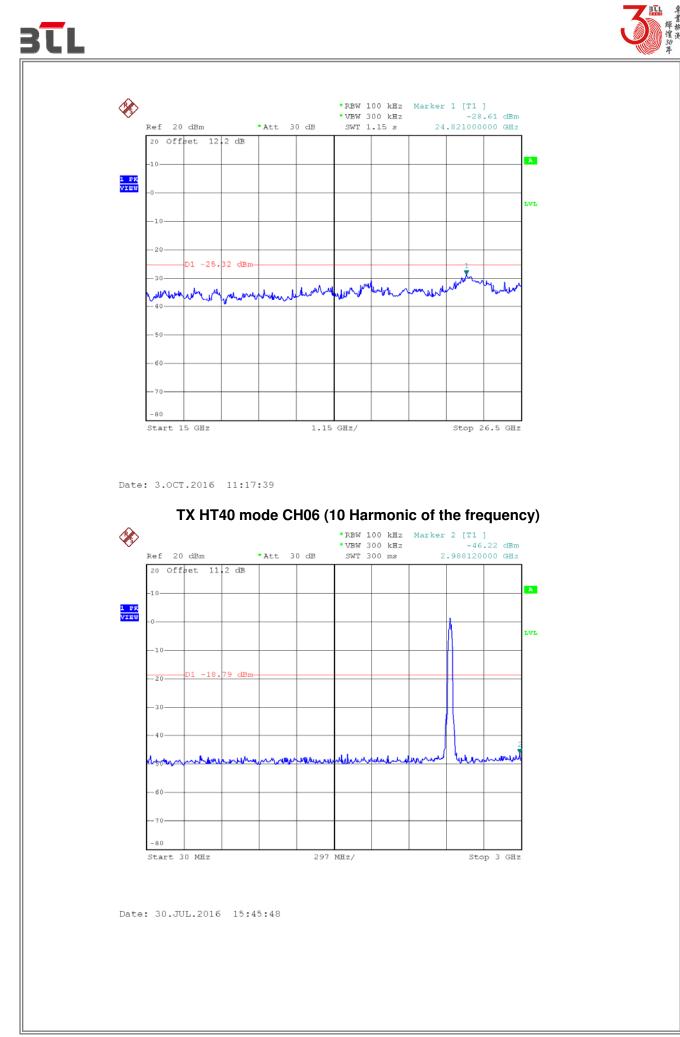


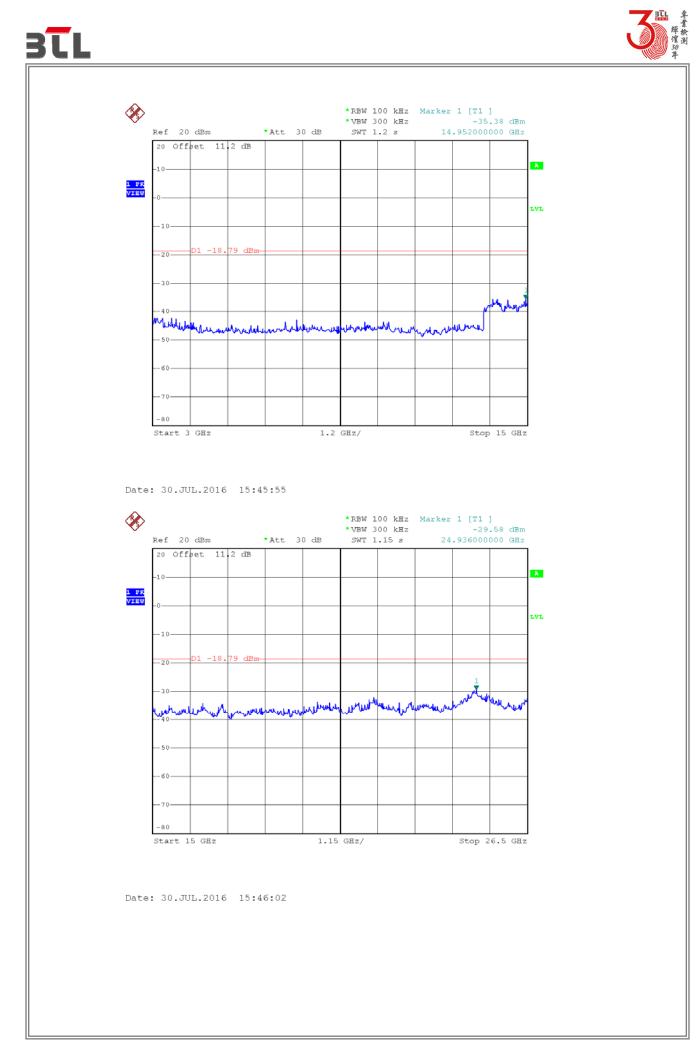






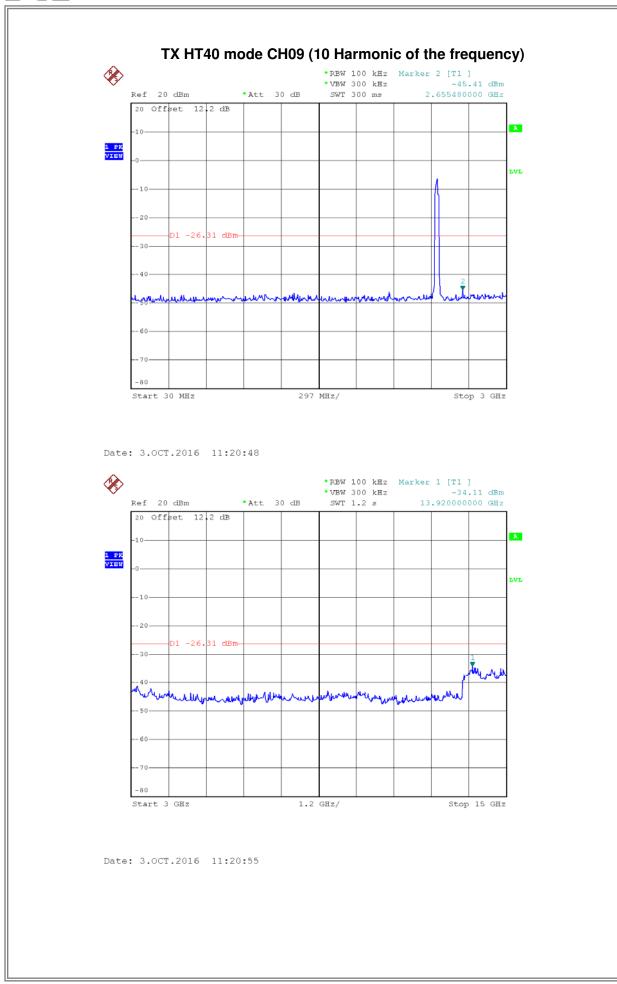


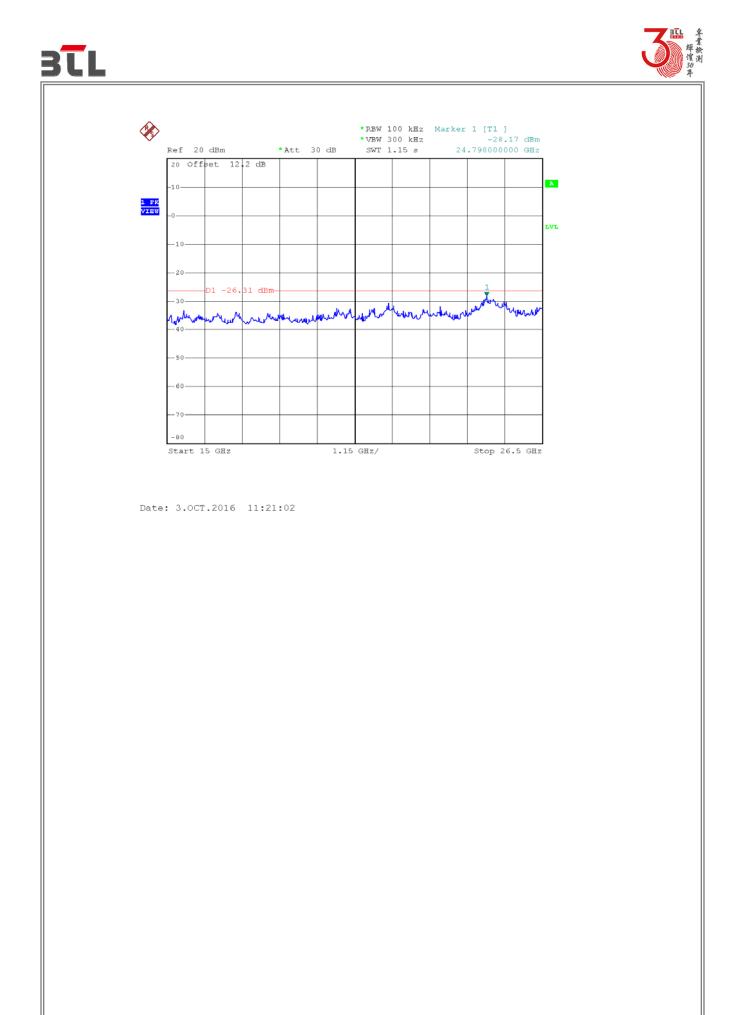




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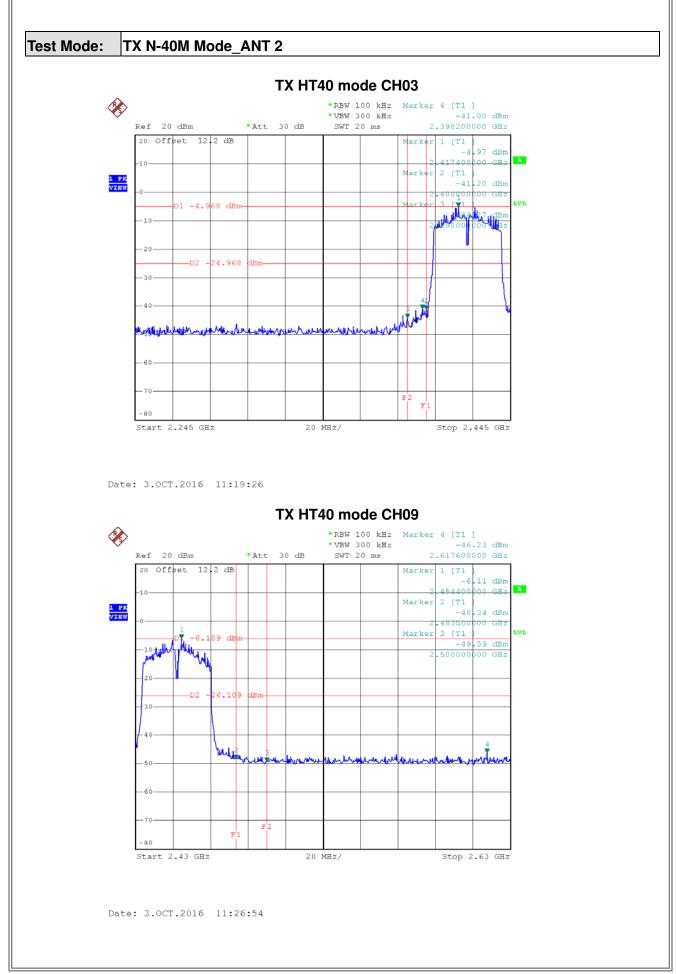




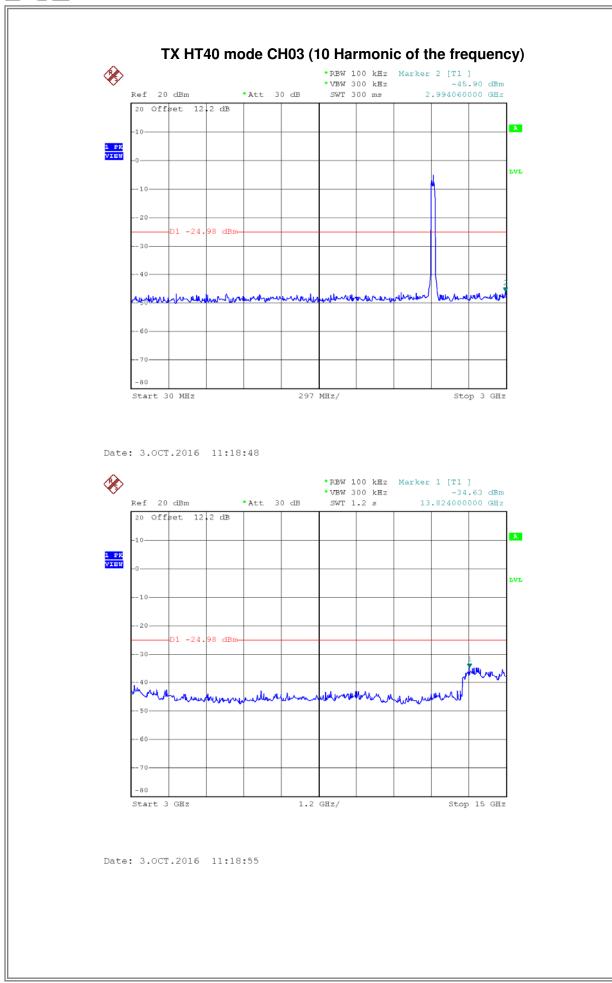


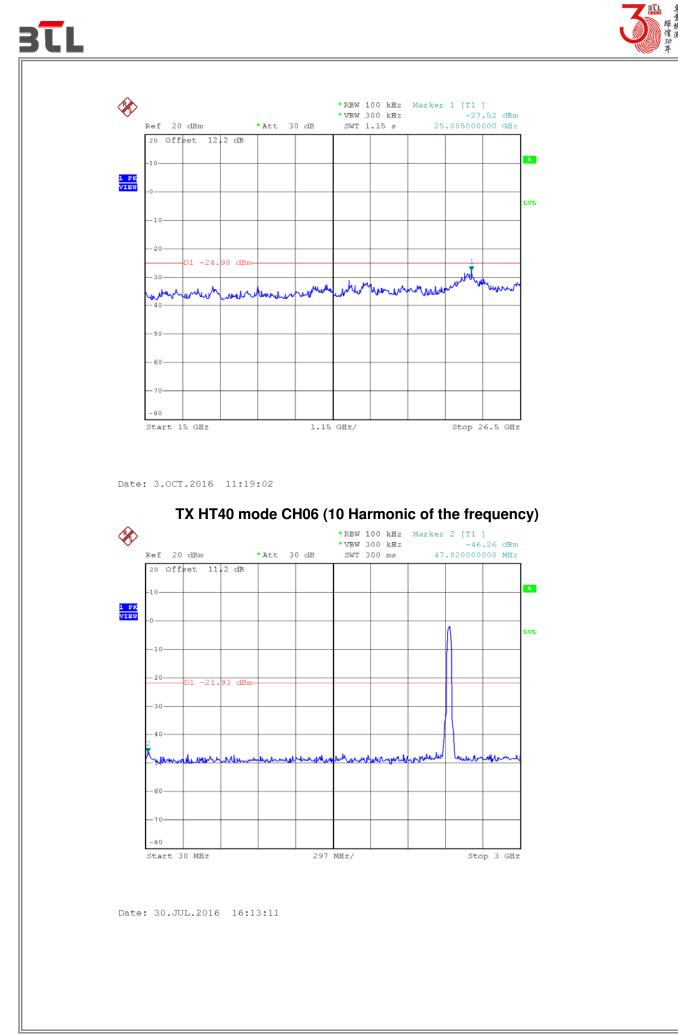


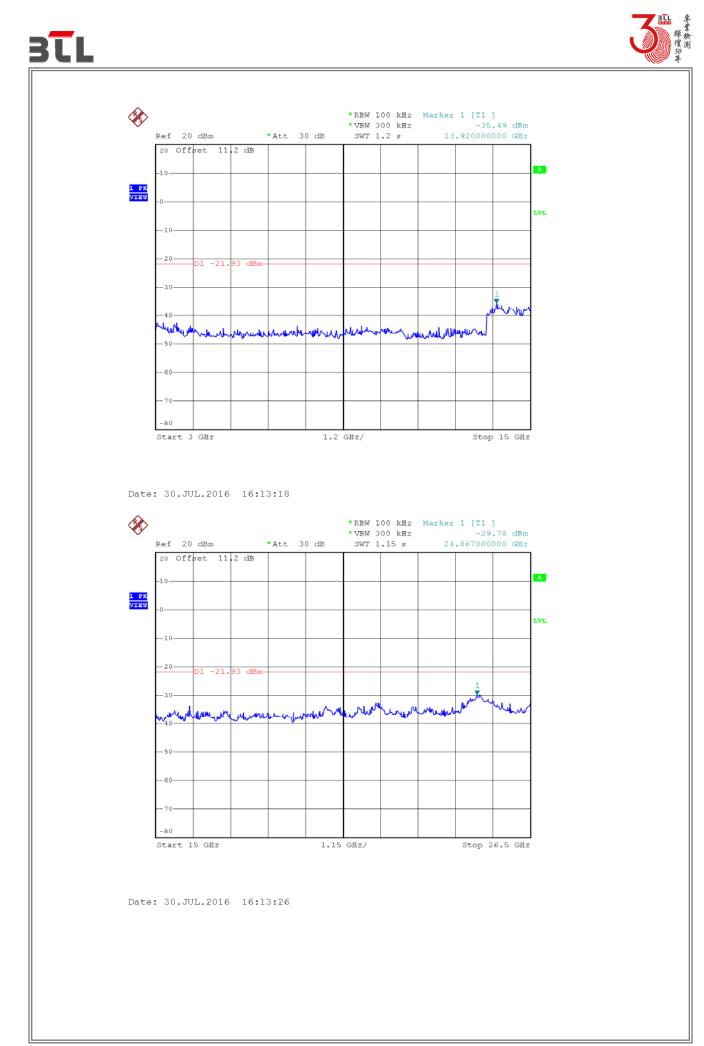




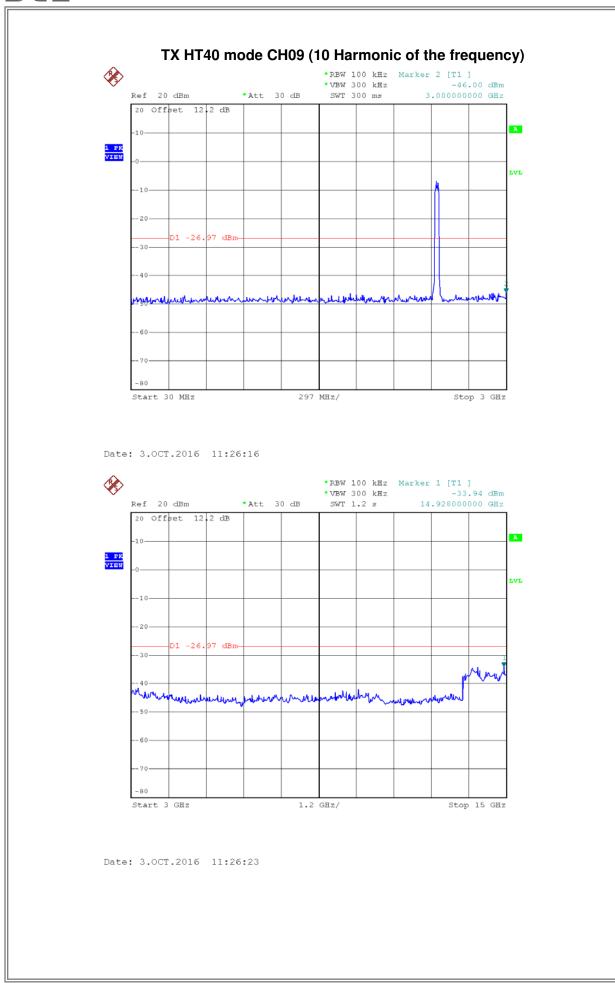


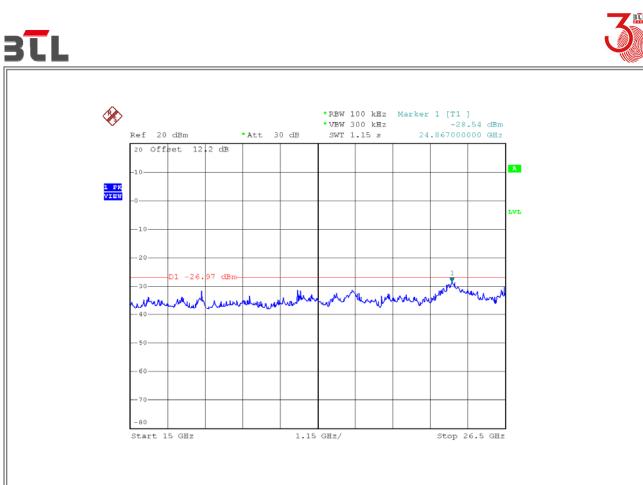












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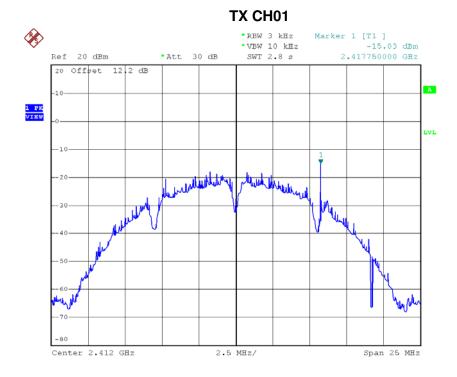


ATTACHMENT I - POWER SPECTRAL DENSITY



Test Mode: TX B Mode_CH01/06/11

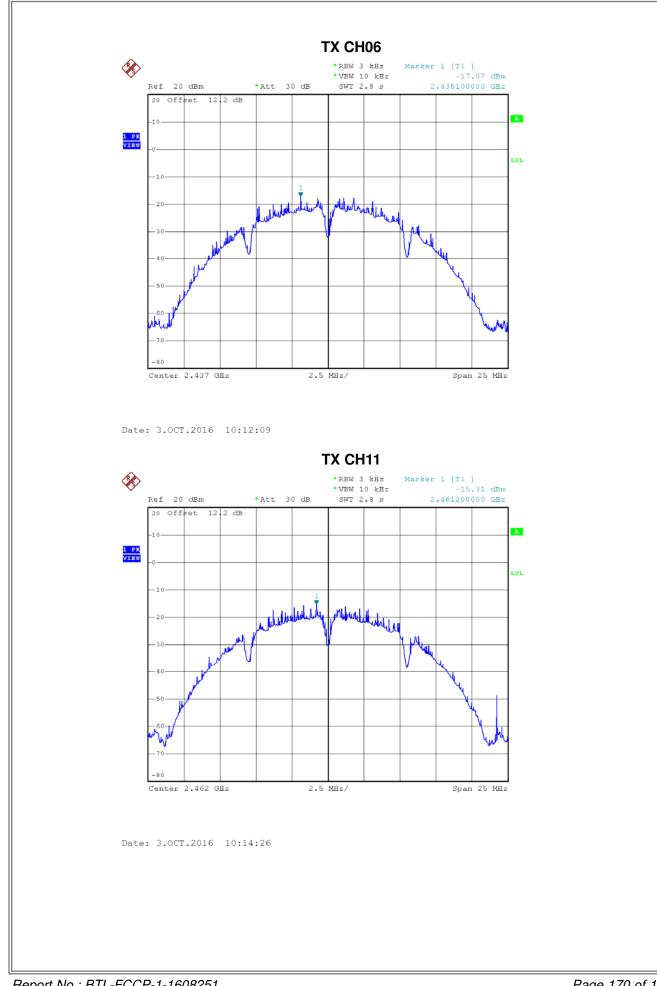
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-15.03	0.03	8.00	Complies
2437	-17.07	0.02	8.00	Complies
2462	-15.31	0.03	8.00	Complies



Date: 3.0CT.2016 09:57:15

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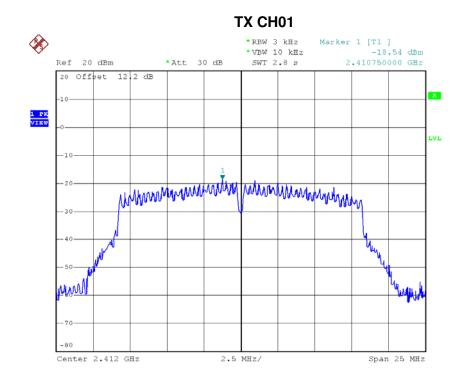






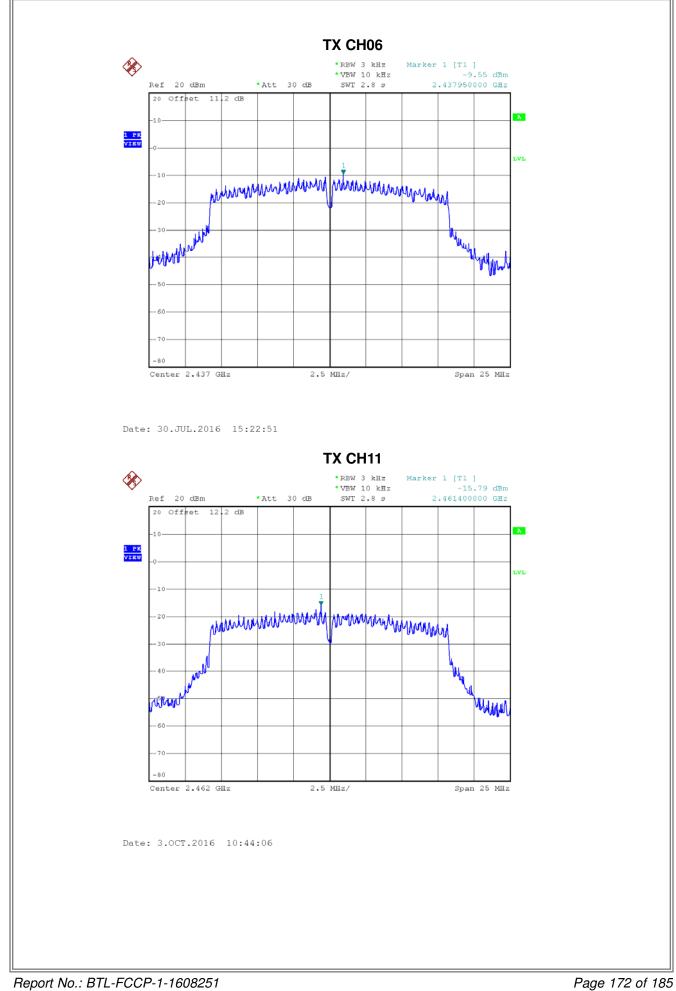
Test Mode: TX G Mode_CH01/06/11_ANT 1

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-18.54	0.01	8.00	Complies
2437	-9.55	0.11	8.00	Complies
2462	-15.79	0.03	8.00	Complies



Date: 3.0CT.2016 10:40:04

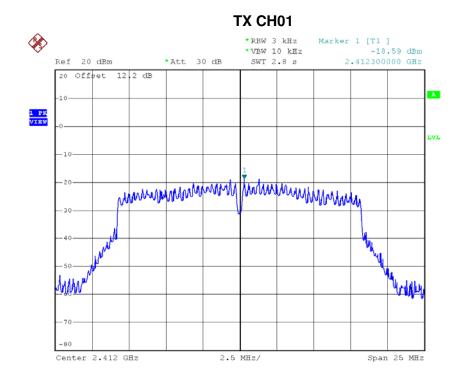






Test Mode: TX G Mode_CH01/06/11_ANT 2

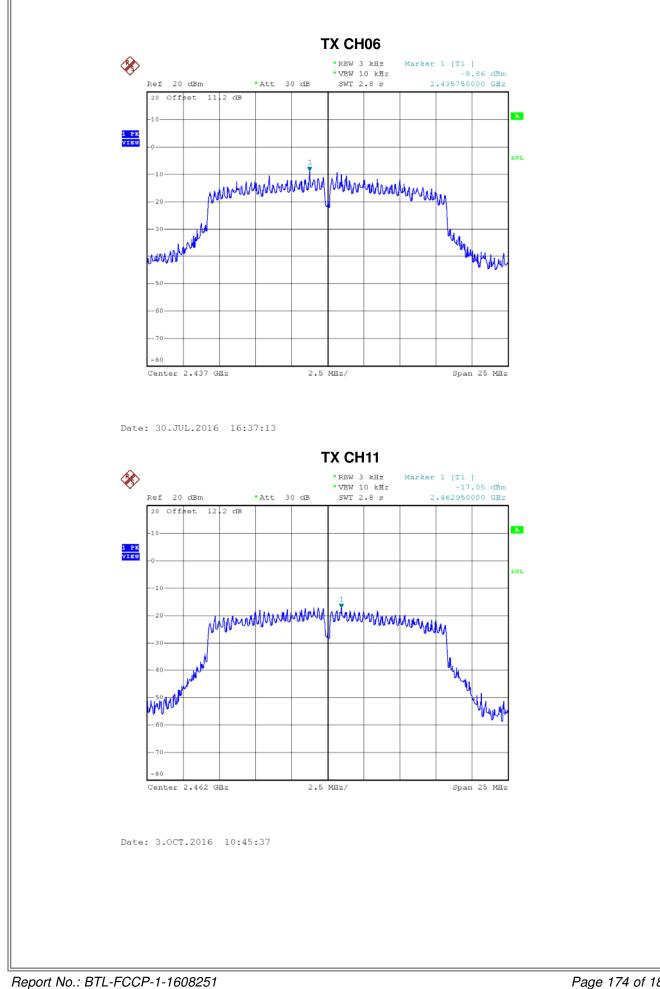
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-18.59	0.01	8.00	Complies
2437	-8.86	0.13	8.00	Complies
2462	-17.06	0.02	8.00	Complies



Date: 3.0CT.2016 10:41:17

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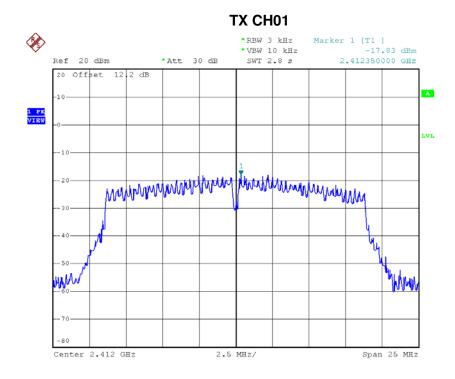
Test Mode: TX G Mode_CH01/06/11_Total

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-15.55	0.03	8.00	Complies
2437	-6.18	0.24	8.00	Complies
2462	-13.37	0.05	8.00	Complies



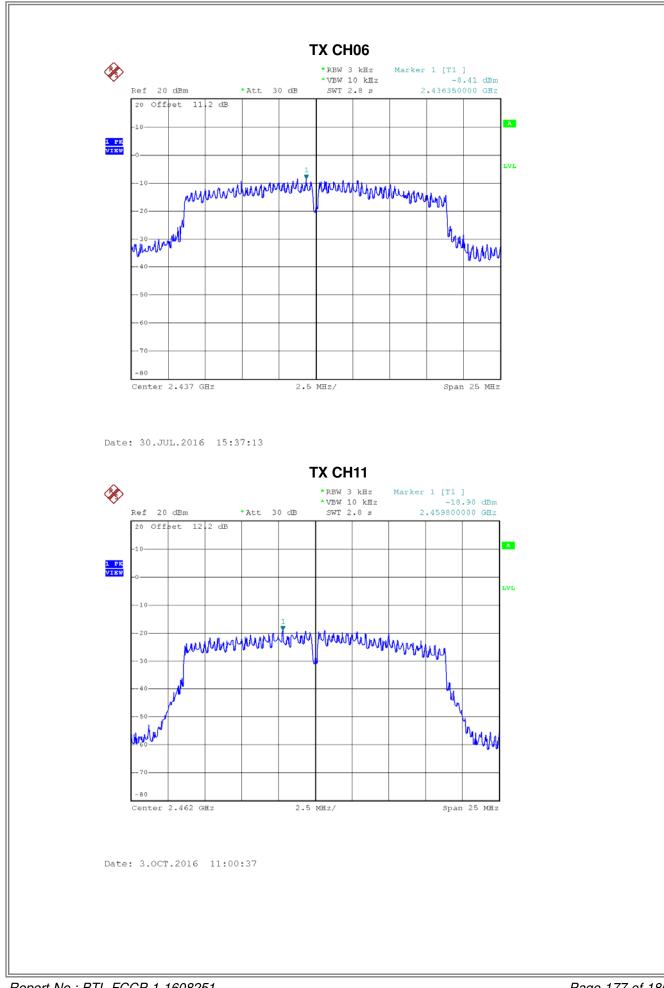
Test Mode: TX N-20M Mode_CH01/06/11_ANT 1

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-17.83	0.02	8.00	Complies
2437	-8.41	0.14	8.00	Complies
2462	-18.90	0.01	8.00	Complies



Date: 3.0CT.2016 10:57:20

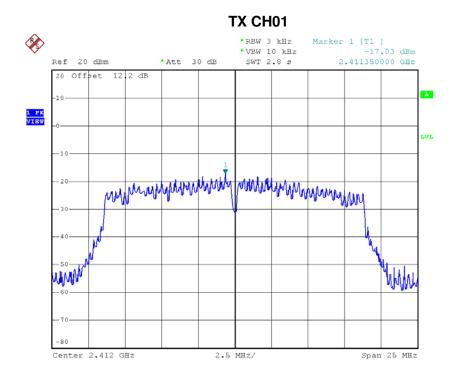






Test Mode: TX N-20M Mode_CH01/06/11_ANT 2

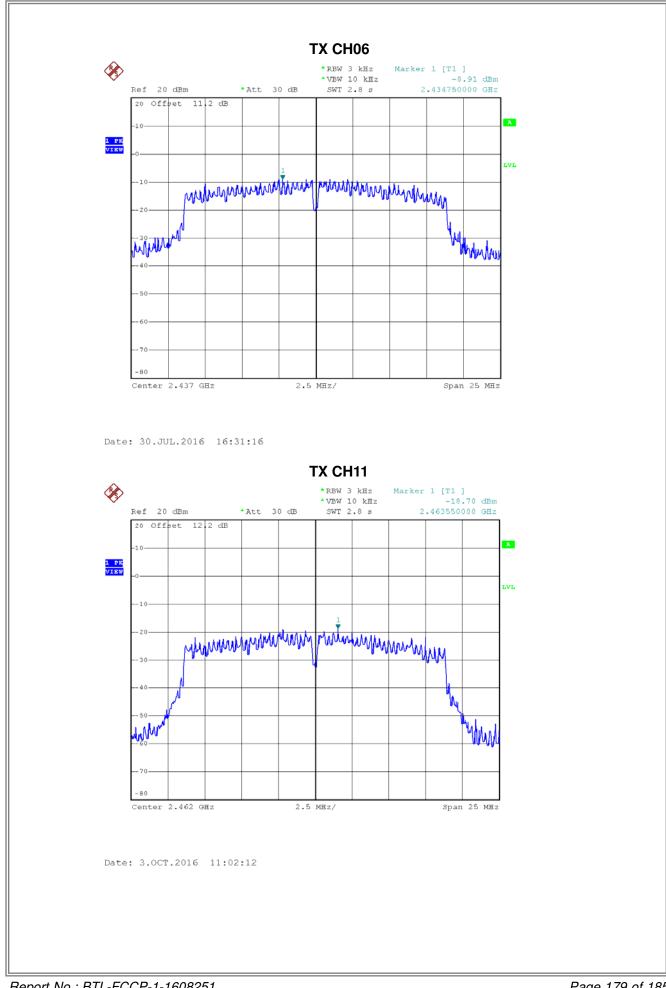
Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-17.03	0.02	8.00	Complies
2437	-8.91	0.13	8.00	Complies
2462	-18.70	0.01	8.00	Complies



Date: 3.0CT.2016 10:58:45

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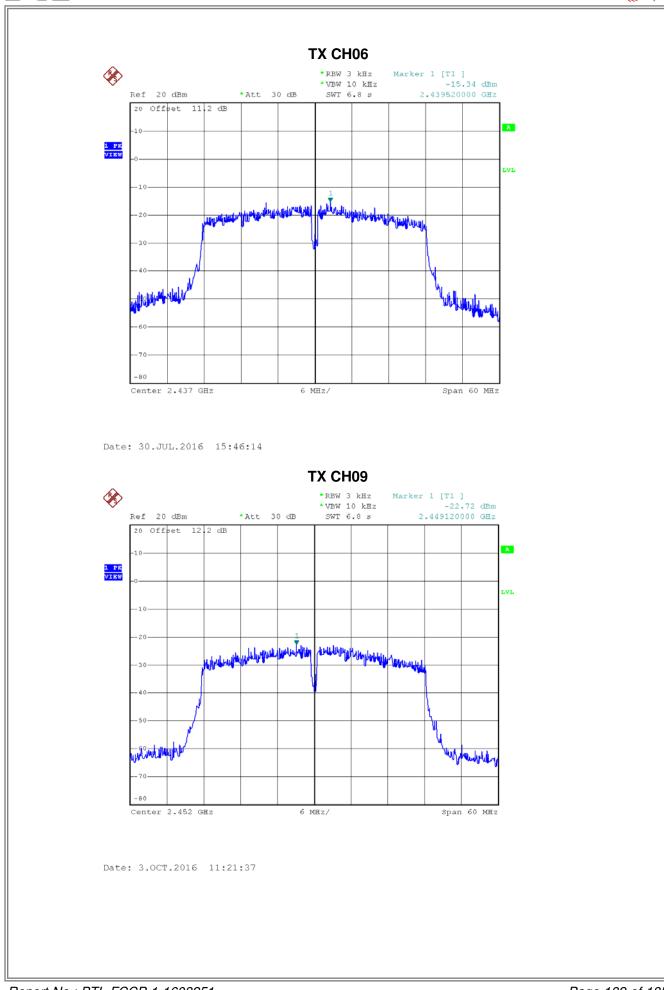
Test Mode: TX N-20M Mode_CH01/06/11_Total

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2412	-14.40	0.04	8.00	Complies
2437	-5.64	0.27	8.00	Complies
2462	-15.79	0.03	8.00	Complies



Test Mode: TX N-40M Mode_CH03/06/09_ANT 1 **Power Density Power Density** Frequency Max. Limit Result (dBm/3kHz) (mW/3kHz) (dBm/3kHz) (MHz) 2422 Complies 8.00 -22.44 0.01 2437 8.00 Complies -15.34 0.03 2452 Complies 8.00 -22.72 0.01 TX CH03 \bigotimes *RBW 3 kHz Marker 1 [T1] *VBW 10 kHz SWT 6.8 s -22.44 dBm 2.426080000 GHz Ref 20 dBm *Att 30 dB 20 Offset 12 2 dB А 1 PK VIEW LVL mannesprenter United where the second of Center 2.422 GHz Span 60 MHz 6 MHz/ Date: 3.0CT.2016 11:18:14

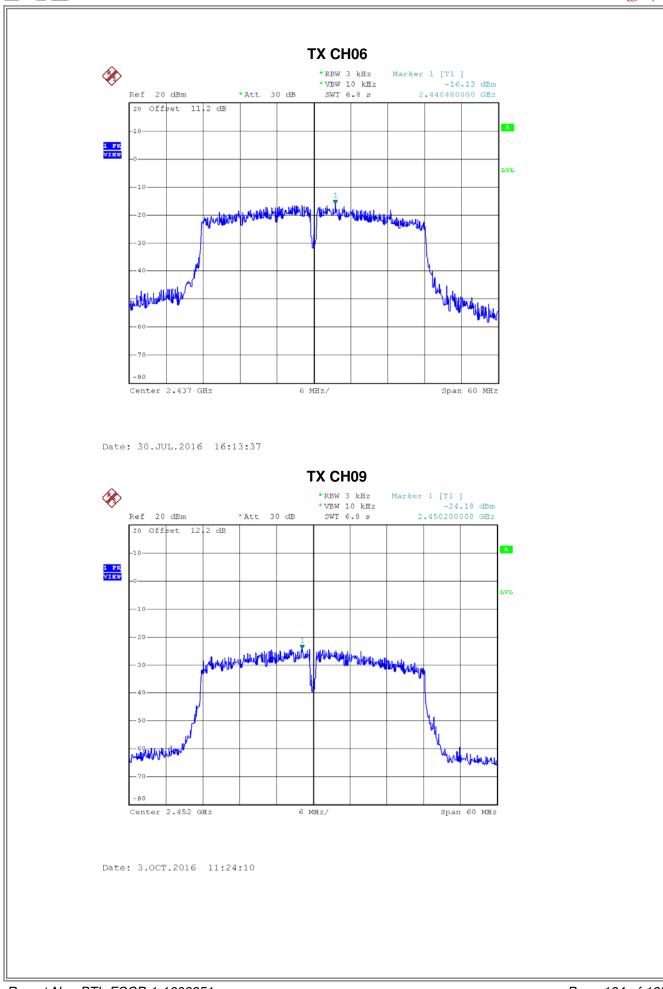






Test Mode: TX N-40M Mode_CH03/06/09_ANT 2 **Power Density Power Density** Frequency Max. Limit Result (dBm/3kHz) (mW/3kHz) (dBm/3kHz) (MHz) 2422 Complies 8.00 -21.09 0.01 2437 8.00 Complies -16.13 0.02 2452 Complies 8.00 -24.18 0.00 TX CH03 \bigotimes *RBW 3 kHz Marker 1 [T1] -21.09 dBm 2.419480000 GHz *VBW 10 kHz SWT 6.8 s Ref 20 dBm *Att 30 dB 20 Offset 12 2 dB А 1 PK VIEW LVL An and an a start and a start and a start and a start a Hartillunger und have water langed TERNIN and the states Center 2.422 GHz Span 60 MHz 6 MHz/ Date: 3.0CT.2016 11:19:37







Test Mode: TX N-40M Mode_CH03/06/09_Total

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Result
2422	-18.70	0.01	8.00	Complies
2437	-12.71	0.05	8.00	Complies
2452	-20.38	0.01	8.00	Complies