



# **FCC** Radio Test Report FCC ID: CWU-ACBVIBE

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

: 1709C130 Project No. Equipment : Sound Bar Test Model : ACV-5100BL

Series Model : ACV-5100GR, ACV-2100BL, ACV-2100GR

Applicant : AMX LLC

: 3000 Research Dr Richardson TX USA 75082 Address

Date of Receipt : Sep. 15, 2017

: Sep. 15, 2017 ~ Oct. 17, 2017 Date of Test

Issued Date : Oct. 19, 2017 Tested by : BTL Inc.

**Testing Engineer** 

**Technical Manager** 

(Shawn Xiao)

**Authorized Signatory** 

## BTL INC

No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

TEL: +86-769-8318-3000 FAX: +86-769-8319-6000





#### **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).

**BTL**'s reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

**BTL**'s report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **BTL-self**, extracts from the test report shall not be reproduced except in full with **BTL**'s authorized written approval.

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

#### 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 No.: BTL-FCCP-2-1709C130 Page 2 of 83





Table of Contents Pa	age
1. CERTIFICATION	6
2 . SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
3 . GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	9 11
312 2 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	11
3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	
3.5 DESCRIPTION OF SUPPORT UNITS	12
4 . EMC EMISSION TEST	13
4.1 CONDUCTED EMISSION MEASUREMENT	13
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS	13
4.1.2 TEST PROCEDURE 4.1.3 DEVIATION FROM TEST STANDARD	13
4.1.3 DEVIATION FROM TEST STANDARD 4.1.4 TEST SETUP	13 14
4.1.5 EUT OPERATING CONDITIONS	14
4.1.6 EUT TEST CONDITIONS	14
4.1.7 TEST RESULTS	14
4.2 RADIATED EMISSION MEASUREMENT	15
4.2.1 RADIATED EMISSION LIMITS	15
4.2.2 TEST PROCEDURE	16
4.2.3 DEVIATION FROM TEST STANDARD	16
4.2.4 TEST SETUP 4.2.5 FUT OPERATING CONDITIONS	17 18
4.2.6 EUT TEST CONDITIONS	18
4.2.7 TEST RESULTS (9KHZ TO 30MHZ)	18
4.2.8 TEST RESULTS (30MHZ TO 1000MHZ)	18
4.2.9 TEST RESULTS (ABOVE 1000MHZ)	18
5 . BANDWIDTH TEST	19
5.1 APPLIED PROCEDURES / LIMIT	19
5.1.1 TEST PROCEDURE	19
5.1.2 DEVIATION FROM STANDARD	19
5.1.3 TEST SETUP	19 10
5.1.4 EUT OPERATION CONDITIONS 5.1.5 EUT TEST CONDITIONS	19 19
5.1.6 TEST RESULTS	19
6 . MAXIMUM OUTPUT POWER TEST	20

Report No.: BTL-FCCP-2-1709C130





Table of Contents	Page
6.1 APPLIED PROCEDURES / LIMIT 6.1.1 TEST PROCEDURE 6.1.2 DEVIATION FROM STANDARD 6.1.3 TEST SETUP 6.1.4 EUT OPERATION CONDITIONS 6.1.5 EUT TEST CONDITIONS 6.1.6 TEST RESULTS	20 20 20 20 20 20 20 20
7 . ANTENNA CONDUCTED SPURIOUS EMISSION	21
7.1 APPLIED PROCEDURES / LIMIT 7.1.1 TEST PROCEDURE 7.1.2 DEVIATION FROM STANDARD 7.1.3 TEST SETUP 7.1.4 EUT OPERATION CONDITIONS 7.1.5 EUT OPERATION CONDITIONS 7.1.6 TEST RESULTS	21 21 21 21 21 21 21
8 . POWER SPECTRAL DENSITY TEST	22
8.1 APPLIED PROCEDURES / LIMIT 8.1.1 TEST PROCEDURE 8.1.2 DEVIATION FROM STANDARD 8.1.3 TEST SETUP 8.1.4 EUT OPERATION CONDITIONS 8.1.5 EUT TEST CONDITIONS 8.1.6 TEST RESULTS	22 22 22 22 22 22 22 22
9 . MEASUREMENT INSTRUMENTS LIST	23
10 . EUT TEST PHOTO	25
APPENDIX A - CONDUCTED EMISSION	29
APPENDIX B - RADIATED EMISSION (9KHZ TO 30MHZ)	34
APPENDIX C - RADIATED EMISSION (30MHZ TO 1000MHZ)	43
APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)	56
APPENDIX E - BANDWIDTH	69
APPENDIX F - MAXIMUM OUTPUT POWER TEST	72
APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION	74
APPENDIX H - POWER SPECTRAL DENSITY TEST	81

Report No.: BTL-FCCP-2-1709C130





## **REPORT ISSUED HISTORY**

Issued No.	Description	Issued Date
BTL-FCCP-2-1709C130	Original Issue.	Oct. 19, 2017

Report No.: BTL-FCCP-2-1709C130 Page 5 of 83





#### 1. CERTIFICATION

Equipment : Sound Bar

Brand Name: AMX

Test Model : ACV-5100BL

Series Model: ACV-5100GR, ACV-2100BL, ACV-2100GR

Applicant : AMX LLC Manufacturer : AMX LLC

Address : 3000 Research Dr Richardson TX USA 75082 Factory : Shenzhen 3Nod Digital Technology Co., Ltd.

Address : 4/F., and Section A, 1/F., Workshop 15, Zhongfu Road, Tangxiayong

Community, Songgang Neighbourhood, Bao' an, Shenzhen, Guangdong,

China

Date of Test : Sep. 15, 2017 ~ Oct. 17, 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-2-1709C130) 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).

Test results included in this report is only for the Bluetooth LE part.

Report No.: BTL-FCCP-2-1709C130 Page 6 of 83





## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

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

## NOTE:

(1)" N/A" denotes test is not applicable to this device.

Report No.: BTL-FCCP-2-1709C130 Page 7 of 83





#### 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 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<sub>cispr</sub> 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:

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

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

Report No.: BTL-FCCP-2-1709C130 Page 8 of 83





## 3. GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Sound Bar			
Brand Name	AMX			
Test Model	ACV-5100BL			
Series Model	ACV-5100GR, A	CV-2100BL, A	CV-2100GR	
The difference with camera and without camera is camera, the following functions are deleted:  1. Camera module  2. Motion sensor  3. HDMI function  4. Ring lamp for display			era is that without	
Model Difference	Model	Camera	Color	
	ACV-5100BL	√	Black	
	ACV-5100GR	√	Gray	
	ACV-2100BL		Black	
	ACV-2100GR		Gray	
	Operation Frequency 2402~2480 MHz		MHz	
Product Description	Modulation Technology		GFSK(1Mbps)	
	Bit Rate of Transmitter			
Output Power (N		lax.)	7.19 dBm (1Mbps)	
Power Source	DC voltage supplied from AC/DC adapter.  1# Brand/ Model: HONOR/ ADS-65HI-12N-2 15060E  2# Brand/ Model: DYS/ DYS602-150400W			
Power Rating	I/P: AC 100-240V 50/60Hz 1.5A MAX O/P: DC 15V 4.0A			

#### Note

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

Report No.: BTL-FCCP-2-1709C130 Page 9 of 83





## 2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

## 3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	AMX	N/A	PCB	N/A	-0.31

Report No.: BTL-FCCP-2-1709C130 Page 10 of 83





## 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 Mode <b>NOTE (1)</b>

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 1	TX Mode	

For Radiated Test		
Final Test Mode	Description	
Mode 1	TX Mode <b>NOTE (1)</b>	

Note:

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

## 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 BT LE

Test Software Version	BlueTest3		
Frequency (MHz)	2402	2440	2480
BT LE	7	7	7

Report No.: BTL-FCCP-2-1709C130 Page 11 of 83





## 3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



## 3.5 DESCRIPTION OF SUPPORT UNITS

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

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

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.8m	DC Cable

Report No.: BTL-FCCP-2-1709C130 Page 12 of 83





#### 4. EMC EMISSION TEST

#### 4.1 CONDUCTED EMISSION MEASUREMENT

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

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

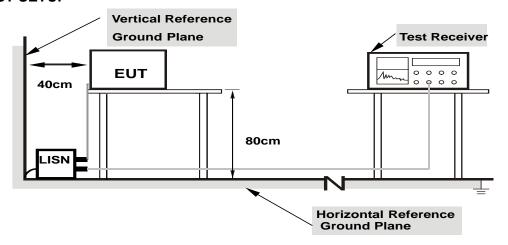
No deviation

Report No.: BTL-FCCP-2-1709C130 Page 13 of 83





#### 4.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

#### 4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

#### 4.1.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: AC 120V/60Hz

## 4.1.7 TEST RESULTS

Please refer to the Appendix A.

#### Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of Note . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " \* " marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.
- (3) " N/A" denotes test is not applicable to this device.

Report No.: BTL-FCCP-2-1709C130





#### 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

Report No.: BTL-FCCP-2-1709C130 Page 15 of 83





Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW	RBW 1MHz VBW 3MHz peak detector for Pk value
(Emission in restricted band)	RMS detector for AV value

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

#### **4.2.2 TEST PROCEDURE**

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

#### 4.2.3 DEVIATION FROM TEST STANDARD

No deviation

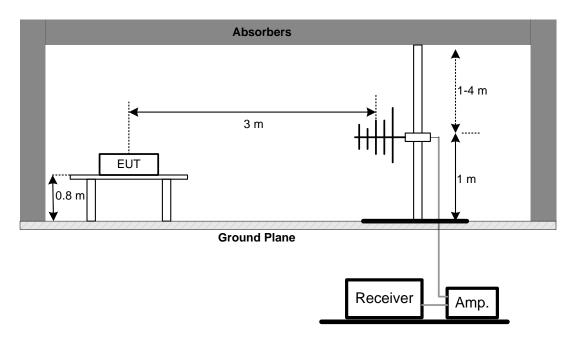
Report No.: BTL-FCCP-2-1709C130 Page 16 of 83



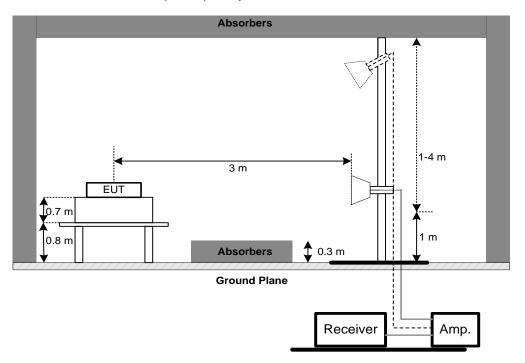


## 4.2.4 TEST SETUP

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



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

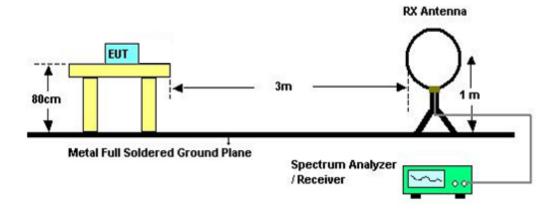


Report No.: BTL-FCCP-2-1709C130 Page 17 of 83





### (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: 22°C Relative Humidity: 56% Test Voltage: AC 120V/60Hz

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

Please refer to the Appendix B

#### Remark:

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

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

Please refer to the Appendix C.

## 4.2.9TEST RESULTS (ABOVE 1000MHZ)

Please refer to the Appendix D.

#### Remark:

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

Report No.: BTL-FCCP-2-1709C130 Page 18 of 83





## 5. BANDWIDTH TEST

#### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB 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 tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### **5.1.5 EUT TEST CONDITIONS**

Temperature: 24°C Relative Humidity: 60% Test Voltage: AC 120V/60Hz

#### **5.1.6 TEST RESULTS**

Please refer to the Appendix E.

Report No.: BTL-FCCP-2-1709C130 Page 19 of 83





## 6. MAXIMUM 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

EUT	Power Meter
	, 5,,5, 1,10001

### **6.1.4 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

## **6.1.5 EUT TEST CONDITIONS**

Temperature: 24°C Relative Humidity: 60% Test Voltage: AC 120V/60Hz

### 6.1.6 TEST RESULTS

Please refer to the Appendix F.

Report No.: BTL-FCCP-2-1709C130 Page 20 of 83





### 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 = 10 ms.
- 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 tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### 7.1.5 EUT OPERATION CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: AC 120V/60Hz

### 7.1.6 TEST RESULTS

Please refer to the Appendix G.

Report No.: BTL-FCCP-2-1709C130 Page 21 of 83





## 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=10 KHz, 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 tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

#### **8.1.5 EUT TEST CONDITIONS**

Temperature: 24°C Relative Humidity: 60% Test Voltage: AC 120V/60Hz

#### 8.1.6 TEST RESULTS

Please refer to the Appendix H.

Report No.: BTL-FCCP-2-1709C130 Page 22 of 83





## 9. MEASUREMENT INSTRUMENTS LIST

	Conducted Emission Measurement							
Item	em Kind of Equipment Manufacturer		Type No.	Serial No.	Calibrated until			
1	EMI Test Receiver	R&S	R&S ESCI		Mar. 26, 2018			
2	LISN	ISN 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	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
6	Cable	N/A	RG223	12m	Oct. 19, 2018			

	Radiated Emission Measurement - Below 1GHz							
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 26, 2018			
2	2 Amplifier HP 8447D		2944A09673	Oct. 19, 2018				
3	Receiver Agilent N9038A		MY52130039	Aug. 20, 2018				
4	Cable emci		LMR-400(30MHz-1 GHz)(8m+5m)	N/A	Jun. 26, 2018			
5	Controller	CT	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	Active Loop		HFH2-Z2	830749/020	Sep. 05, 2018			

Report No.: BTL-FCCP-2-1709C130 Page 23 of 83





	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	FMC-2654045		Mar. 26, 2018			
5	Receiver	Agilent	N9038A	MY52130039	Aug. 20, 2018			
6	Antenna	EM	EM-6876-1	230	Jul. 07, 2018			
7	Controller	СТ	SC100	N/A	N/A			
8	Controller	MF	MF-7802	MF780208416	N/A			
9	Cable	emci	EMC104-SM-SM-1 2000(12m)	N/A	Jun. 26, 2018			
10	Measurement Farad V		EZ-EMC Ver.NB-03A1-01	N/A	N/A			

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

	Peak Output Power Measurement						
Item	Item Kind of Equipment Manufacturer Type No. Serial No. Calibrated until						
1	Power Meter	ANRITSU	ML2495A	1128009	Mar. 26, 2018		
2	Pulse Power Sensor	ANRITSU	MA 2411B	1027500	Mar. 26, 2018		

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

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

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

All calibration period of equipment list is one year.

Report No.: BTL-FCCP-2-1709C130 Page 24 of 83





## **10. EUT TEST PHOTO**







Report No.: BTL-FCCP-2-1709C130 Page 25 of 83

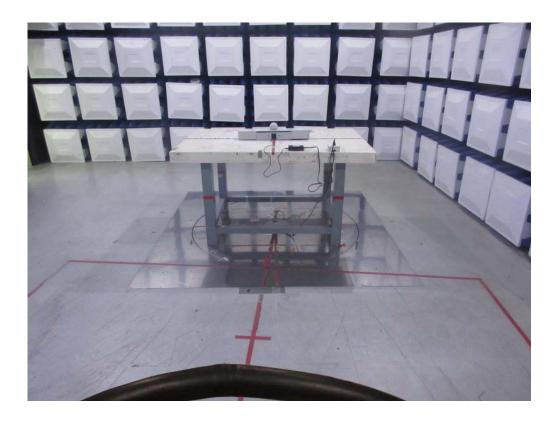




## **Radiated Measurement Photos**

## 9KHz to 30MHz





Report No.: BTL-FCCP-2-1709C130 Page 26 of 83





## **Radiated Measurement Photos**

## 30MHz to 1000MHz





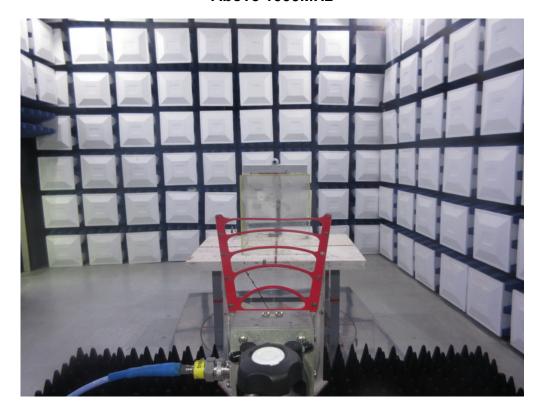
Report No.: BTL-FCCP-2-1709C130 Page 27 of 83





## **Radiated Measurement Photos**

## Above 1000MHz





Report No.: BTL-FCCP-2-1709C130 Page 28 of 83





APPENDIX A - CONDUCTED EMISSION

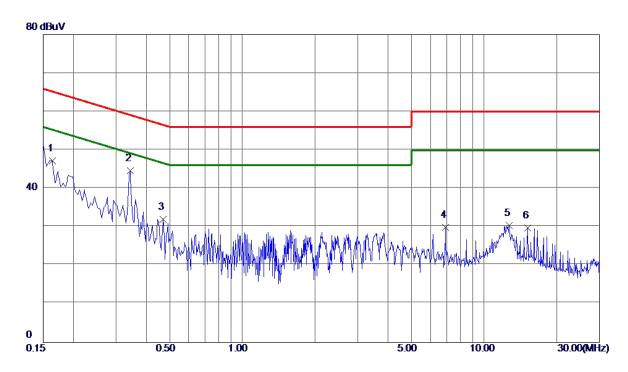
Report No.: BTL-FCCP-2-1709C130 Page 29 of 83





Test Mode: TX Mode(Adapter: DYS)

## Line



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0. 1635	37.42	9.74	47. 16	65. 28	-18. 12	Peak	
2 *	0.3435	34.95	9. 75	44.70	59. 12	-14.42	Peak	
3	0.4695	22. 32	9. 75	32.07	<b>56.</b> 52	-24.45	Peak	
4	6. 9135	19.88	9. 98	29.86	60.00	-30. 14	Peak	
5	12.6870	20. 21	10. 20	30.41	60.00	-29.59	Peak	
6	15. 1215	19. 40	10. 31	29.71	60.00	-30. 29	Peak	

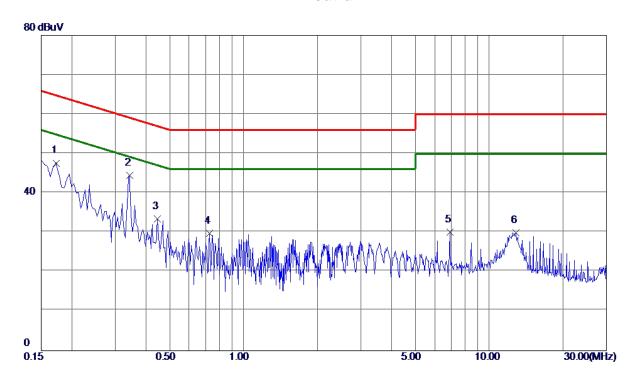
Report No.: BTL-FCCP-2-1709C130 Page 30 of 83





Test Mode: TX Mode(Adapter: DYS)

## Neutral



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1725	37.96	9.64	47.60	64.84	-17.24	Peak	
2 *	0.3435	34.86	9. 66	44. 52	59. 12	-14.60	Peak	
3	0.4470	23.83	9. 65	33. 48	56. 93	-23. 45	Peak	
4	0.7260	20.05	9. 66	29.71	<b>56. 00</b>	-26. 29	Peak	
5	6. 9135	20. 22	9. 90	30. 12	60.00	-29.88	Peak	
6	12. 8580	19. 77	10. 21	29. 98	60.00	-30. 02	Peak	

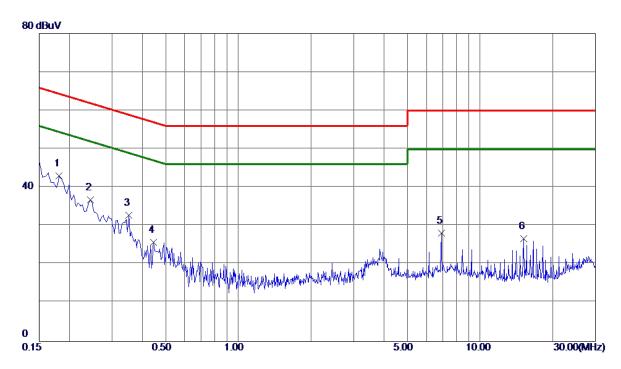
Report No.: BTL-FCCP-2-1709C130 Page 31 of 83





Test Mode: TX Mode (Adapter: HONOR)

## Line



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0. 1815	33. 27	9. 73	43.00	64.42	-21.42	Peak	
2	0. 2445	27. 14	9.72	36.86	61.94	-25 <b>. 0</b> 8	Peak	
3	0.3525	23. 05	9. 75	32.80	58. 90	-26. 10	Peak	
4	0.4470	16.02	9. 75	25. 77	56. 93	-31. 16	Peak	
5	6.9135	18. 23	9. 98	28. 21	60.00	-31.79	Peak	
6	15. 1170	16. 42	10. 31	26. 73	60.00	-33. 27	Peak	

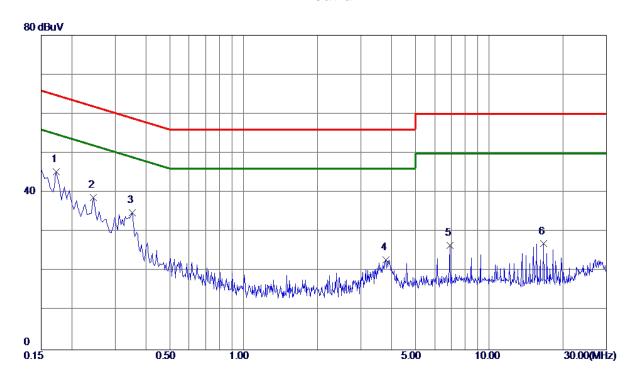
Report No.: BTL-FCCP-2-1709C130 Page 32 of 83





Test Mode: TX Mode (Adapter: HONOR)

## Neutral



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1725	35. 67	9.64	45. 31	64.84	-19. 53	Peak	
2	0. 2445	29. 03	9.64	38. 67	61.94	-23. 27	Peak	
3	0.3525	25. 18	9. 66	34.84	58. <b>90</b>	-24.06	Peak	
4	3.7950	13. 13	9.80	22. 93	56.00	-33.07	Peak	
5	6.9135	16. 70	9. 90	26. 60	60.00	-33.40	Peak	
6	16. 6290	16. 60	10. 36	26. 96	60.00	-33.04	Peak	

Report No.: BTL-FCCP-2-1709C130 Page 33 of 83





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

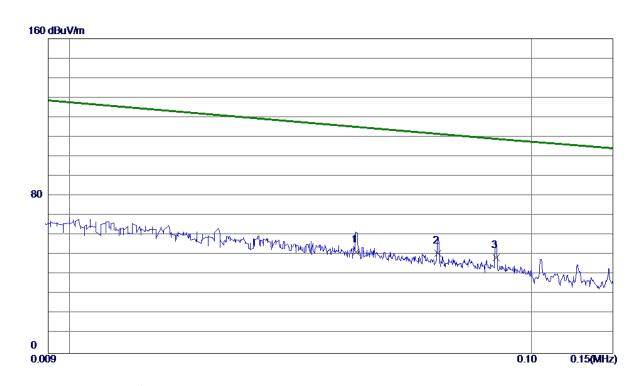
Report No.: BTL-FCCP-2-1709C130 Page 34 of 83





Test Mode: TX Mode(Adapter: DYS)

Ant 0°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0418	32.69	18. 97	51.66	120.40	-68.74	AVG	
2	0.0627	32. 55	18. 47	51.02	115. 24	-64.22	AVG	
3 *	0.0838	30. 75	18. 02	48.77	110.03	-61. 26	AVG	

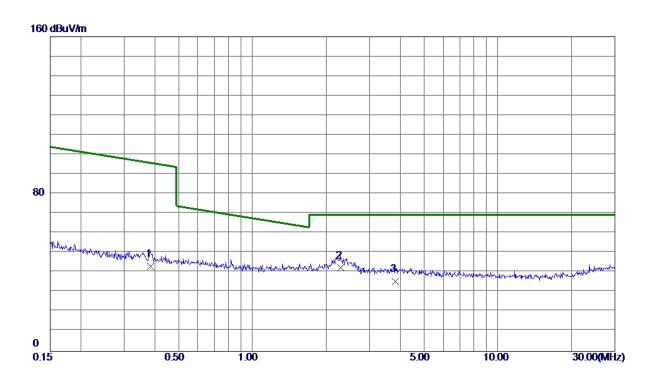
Report No.: BTL-FCCP-2-1709C130 Page 35 of 83





Test Mode: TX Mode(Adapter: DYS)

## Ant 0°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.3852	26. 53	16. 56	43.09	97.38	-54.29	AVG	
2 *	2. 2847	26.97	15. 43	42.40	69. 54	-27.14	QP	
3	3.8196	20.64	15. 00	35. 64	69. 54	-33. 90	QP	

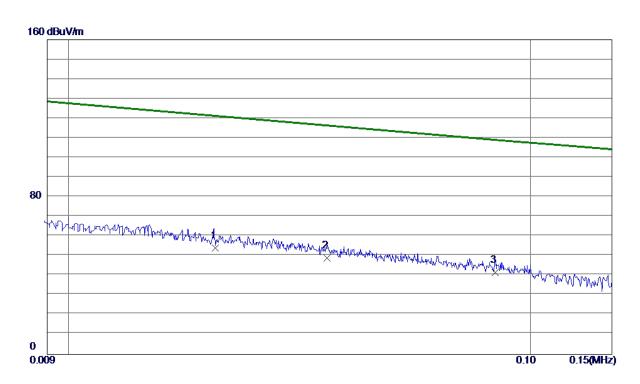
Report No.: BTL-FCCP-2-1709C130 Page 36 of 83





Test Mode: TX Mode(Adapter: DYS)

### Ant 90°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0208	34. 59	19.60	54. 19	125. 58	-71.39	AVG	
2	0.0363	29.74	19. 13	48. 87	121.75	-72.88	AVG	
3 *	0.0838	23. 67	18. 02	41.69	110. 03	-68. 34	AVG	

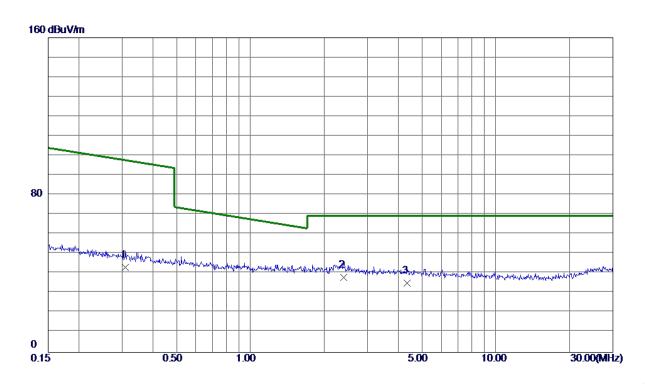
Report No.: BTL-FCCP-2-1709C130 Page 37 of 83





Test Mode: TX Mode(Adapter: DYS)

### Ant 90°



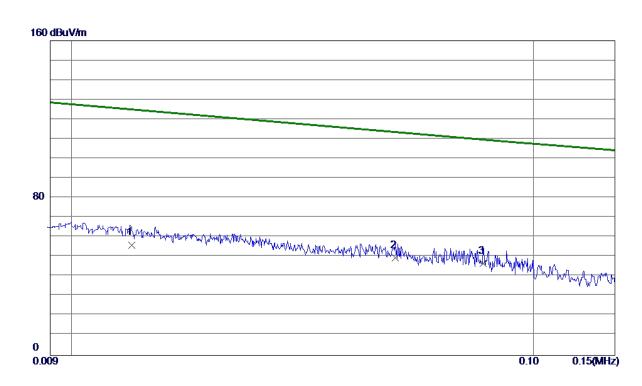
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.3100	26. 49	16.61	43. 10	99. 95	-56.85	AVG	
2 *	2. 3962	22.69	15. 40	38. 09	69. 54	-31.45	QP	
3	4. 3606	20. 47	14.74	35. 21	69. 54	-34. 33	QP	

Report No.: BTL-FCCP-2-1709C130 Page 38 of 83





Ant 0°



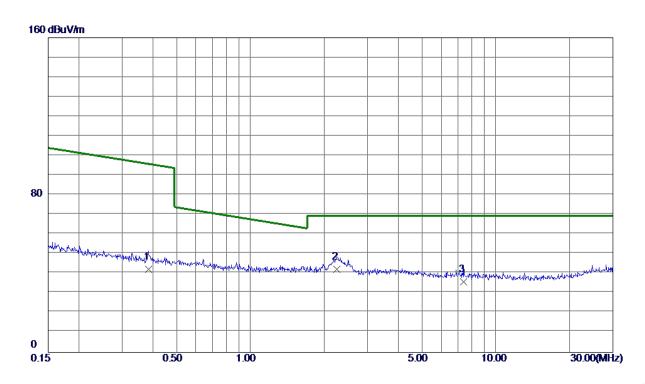
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0135	35. 69	20.47	56. 16	127.38	-71. 22	AVG	
2	0.0502	30.74	18. 72	49.46	118.32	-68.86	AVG	
3 *	0.0779	28. 68	18. 16	46. 84	111.48	-64.64	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 39 of 83





### Ant 0°



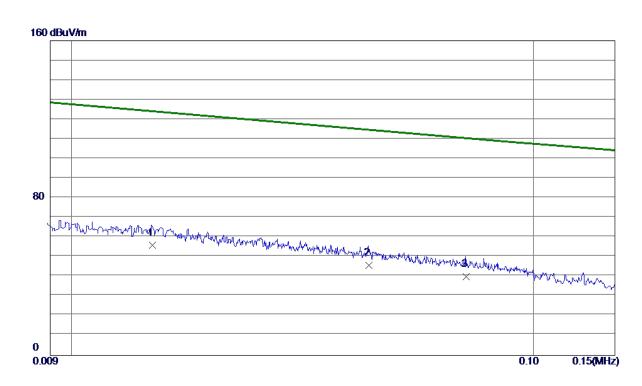
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.3852	25.77	16. 56	42. 33	97.38	<b>-55.05</b>	AVG	
2 *	2. 2486	26.85	15. 44	42. 29	69. 54	-27.25	QP	
3	7.4071	21.76	14.07	35. 83	69. 54	-33.71	QP	

Report No.: BTL-FCCP-2-1709C130 Page 40 of 83





Ant 90°



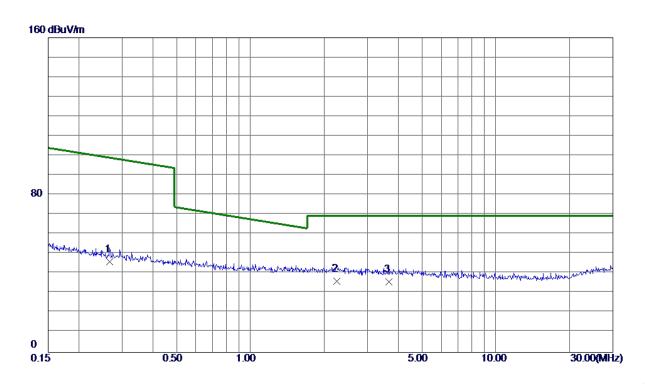
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.0150	35. 62	20. 27	55. 89	127.01	-71. 12	AVG	
2	0.0440	26. 97	18. 90	45.87	119.85	-73. 98	AVG	
3	0.0714	21.65	18. 30	39. 95	113.09	-73. 14	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 41 of 83





### Ant 90°



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.2672	29.48	16.64	46. 12	101.41	-55. 29	AVG	
2 *	2. 2486	20.68	15. 44	36. 12	69. 54	-33.42	QP	
3	3.6611	20.76	15.04	35.80	69. 54	-33.74	QP	

Report No.: BTL-FCCP-2-1709C130 Page 42 of 83





AI	PPENDIX C - RADIATED EMISSION (30MHZ TO 1000MHZ)

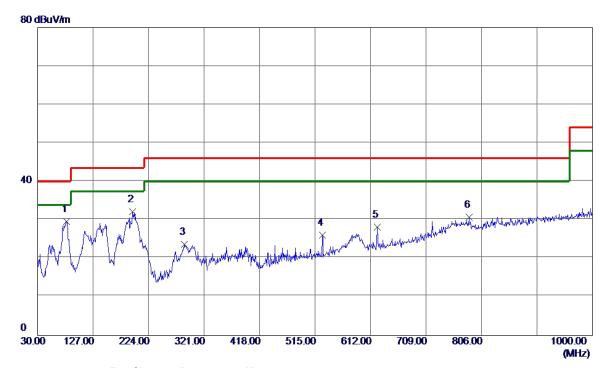
Report No.: BTL-FCCP-2-1709C130 Page 43 of 83





Test Mode: TX 2402MHz \_CH00\_1Mbps(Adapter: DYS)

# **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	80.4400	47.88	-18. 25	29.63	40.00	-10.37	Peak	
2	195.8700	45. 52	-13. 38	32. 14	43.50	-11. 36	Peak	
3	286. 0799	38. 11	-14.42	23. 69	46.00	-22. 31	Peak	
4	527.6100	34. 25	-8. 17	26. 08	46.00	-19.92	Peak	
5	623. 6400	34. 19	-5. 97	28. 22	46.00	-17. 78	Peak	
6	784. 6599	32. 40	-1. 69	30.71	46.00	-15. 29	Peak	

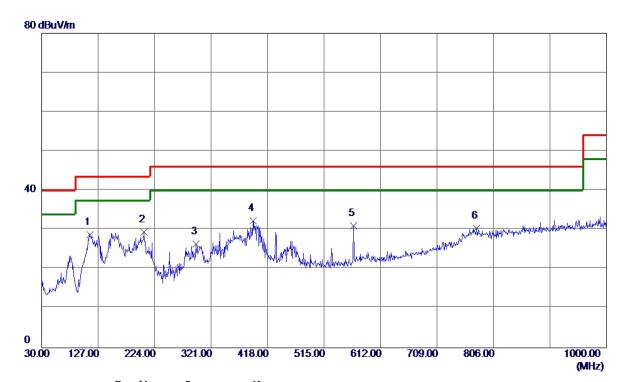
Report No.: BTL-FCCP-2-1709C130 Page 44 of 83





Test Mode: TX 2402MHz \_CH00\_1Mbps(Adapter: DYS)

### **Horizontal**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	112.4500	44.81	-16.00	28.81	43.50	-14.69	Peak	
2	205. 5700	43. 34	-13.88	29.46	43.50	-14.04	Peak	
3	294.8100	39. 96	<b>-13.54</b>	26. 42	46.00	-19. 58	Peak	
4 *	392. 7800	43.76	-11.45	32. 31	46.00	-13.69	Peak	
5	565. 4400	38. 36	-7. 32	31.04	46.00	-14.96	Peak	
6	776. 9000	32. 24	-1.86	30. 38	46.00	-15. 62	Peak	

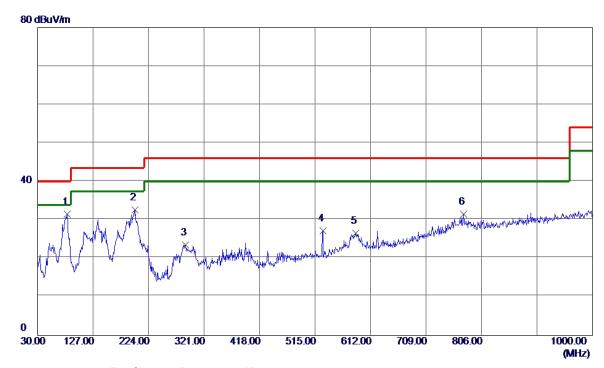
Report No.: BTL-FCCP-2-1709C130 Page 45 of 83





Test Mode: TX 2440MHz \_CH19\_1Mbps(Adapter: DYS)

# **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	81.4100	49.77	-18. 28	31. 49	40.00	-8. 51	Peak	
2	200.7200	46. 42	-13. 77	32.65	43.50	-10.85	Peak	
3	288. 9900	37.77	-14. 26	23. 51	46.00	-22.49	Peak	
4	528. 5800	35. 31	-8. 15	27. 16	46.00	-18.84	Peak	
5	585.8100	33. 33	-6. 79	26. 54	46.00	-19.46	Peak	
6	774. 9600	33. 35	-1. 90	31.45	46.00	-14.55	Peak	

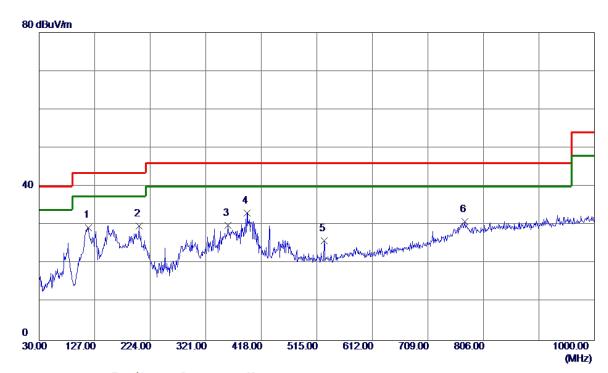
Report No.: BTL-FCCP-2-1709C130 Page 46 of 83





Test Mode: TX 2440MHz \_CH19\_1Mbps(Adapter: DYS)

# **Horizontal**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	116. 3300	45.05	-15. 69	29. 36	43.50	-14.14	Peak	
2	204.6000	43.63	-13.85	29. 78	43.50	-13.72	Peak	
3	359.8000	41.75	-11.84	29. 91	46.00	-16.09	Peak	
4 *	392. 7800	44.57	-11.45	33. 12	46.00	-12.88	Peak	
5	527.6100	34. 14	-8. 17	25. 97	46.00	-20.03	Peak	
6	773. 9900	32.84	-1. 92	30. 92	46.00	-15 <b>. 0</b> 8	Peak	

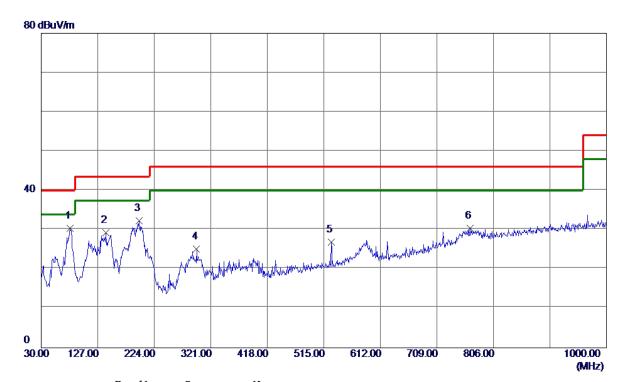
Report No.: BTL-FCCP-2-1709C130 Page 47 of 83





Test Mode: TX 2480MHz \_CH39\_1Mbps (Adapter: DYS)

# **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	79.4700	48. 47	-18. 12	30. 35	40.00	-9.65	Peak	
2	140. 5800	43.44	-14. 18	29. 26	43.50	-14.24	Peak	
3	197.8100	45.88	-13. 55	32. 33	43.50	-11. 17	Peak	
4	296. 7500	38. 36	-13. 28	25.08	46.00	-20.92	Peak	
5	527.6100	34. 98	-8. 17	26. 81	46.00	-19. 19	Peak	
6	766. 2300	32. 49	-2. 09	30. 40	46.00	-15. 60	Peak	

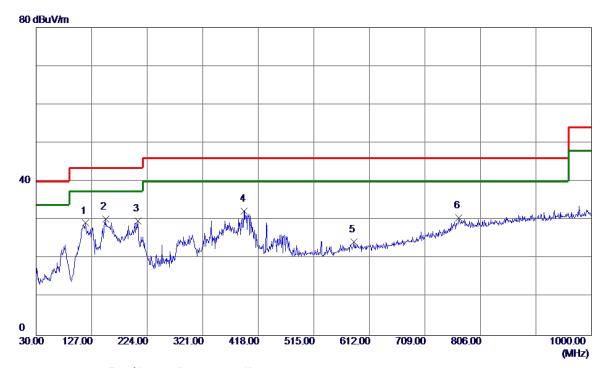
Report No.: BTL-FCCP-2-1709C130 Page 48 of 83





Test Mode: TX 2480MHz \_CH39\_1Mbps (Adapter: DYS)

# **Horizontal**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	116. 3300	44.89	-15. 69	29. 20	43.50	-14.30	Peak	
2 *	151. 2500	43.72	-13.45	30. 27	43.50	-13.23	Peak	
3	207. 5100	43.70	-13.92	29. 78	43.50	-13.72	Peak	
4	393.7500	43.81	-11.43	32. 38	46.00	-13.62	Peak	
5	584.8400	31. 20	-6.81	24. 39	46.00	-21.61	Peak	
6	768. 1700	32. 54	-2. 05	30. 49	46.00	-15. 51	Peak	

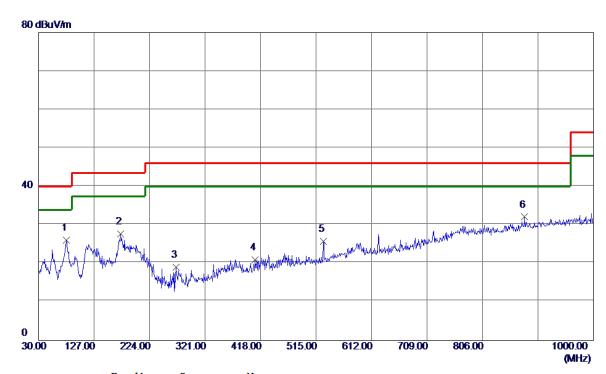
Report No.: BTL-FCCP-2-1709C130 Page 49 of 83





Test Mode: TX 2402MHz\_CH00\_1Mbps (HONOR)

# **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	78. 5000	43.90	-17.89	26. 01	40.00	-13.99	Peak	
2	173. 5600	39. 97	-12. 23	27.74	43.50	-15. 76	Peak	
3	270. 5600	34.81	-15. 78	19. 03	46.00	-26. 97	Peak	
4	408.3000	32. 15	-11. 12	21. 03	46.00	-24.97	Peak	
5	527.6100	33. 97	-8. 17	25. 80	46.00	-20. 20	Peak	
6 *	879. 7200	31. 47	0. 61	32. 08	46.00	-13. 92	Peak	

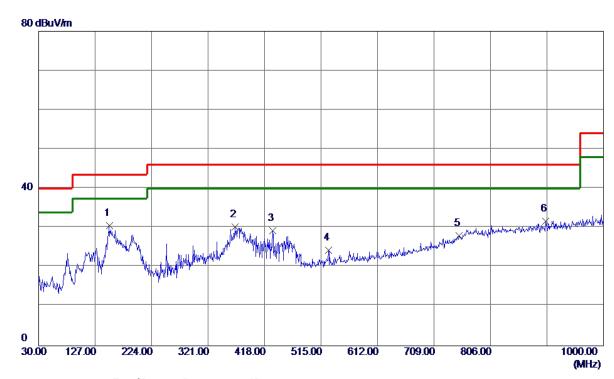
Report No.: BTL-FCCP-2-1709C130 Page 50 of 83





Test Mode: TX 2402MHz\_CH00\_1Mbps (HONOR)

# **Horizontal**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	151. 2500	43.99	-13.45	30. 54	43.50	-12.96	Peak	
2	367. 5600	42.05	-11.75	30. 30	46.00	-15. 70	Peak	
3	431. 5800	39.71	-10.46	29. 25	46.00	-16. 75	Peak	
4	527.6100	32.42	-8. 17	24. 25	46.00	-21.75	Peak	
5	751. 6800	30. 37	-2.41	27. 96	46.00	-18. 04	Peak	
6	901.0600	30. 60	1. 05	31. 65	46. 00	-14. 35	Peak	

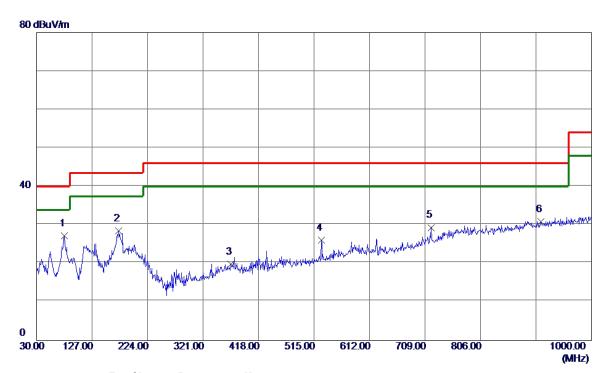
Report No.: BTL-FCCP-2-1709C130 Page 51 of 83





Test Mode: TX 2440MHz\_CH19\_1Mbps (HONOR)

# **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	78. 5000	45. 12	-17.89	27. 23	40.00	-12.77	Peak	
2	173. 5600	40.73	-12. 23	28. 50	43.50	-15.00	Peak	
3	369. 5000	31.61	-11.72	19.89	46.00	-26. 11	Peak	
4	527.6100	34. 28	-8. 17	26. 11	46.00	-19.89	Peak	
5	719.6700	32.71	-3. 35	29. 36	46.00	-16.64	Peak	
6	911. 7300	29. 69	1. 26	30. 95	46.00	-15. <b>0</b> 5	Peak	

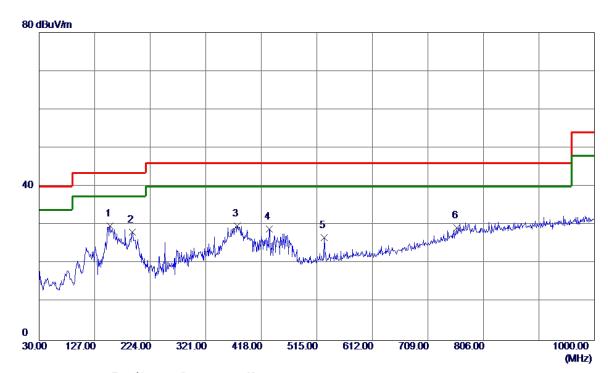
Report No.: BTL-FCCP-2-1709C130 Page 52 of 83





Test Mode: TX 2440MHz\_CH19\_1Mbps (HONOR)

# **Horizontal**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	154. 1600	43.06	-13. 28	29. 78	43.50	-13.72	Peak	
2	192.9600	41.30	-13. 11	28. 19	43.50	-15.31	Peak	
3	376. 2900	41. 37	-11.64	29.73	46.00	-16. 27	Peak	
4	431. 5800	39. 42	-10.46	28. 96	46.00	-17.04	Peak	
5	527.6100	34.94	-8. 17	26. 77	46.00	-19. 23	Peak	
6	759. 4400	31. 53	-2. 24	29. 29	46.00	-16.71	Peak	

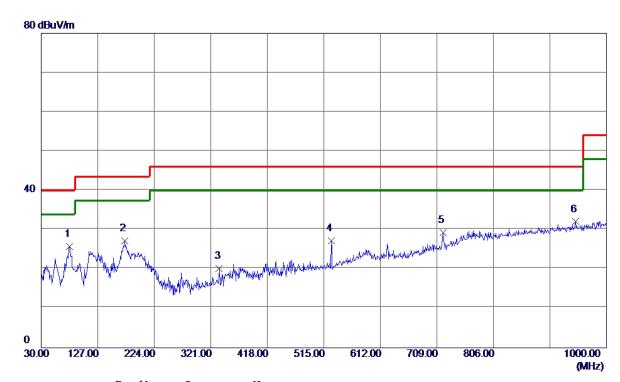
Report No.: BTL-FCCP-2-1709C130 Page 53 of 83





Test Mode: TX 2480MHz\_CH39\_1Mbps (HONOR)

# **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	78. 5000	43.71	-17.89	25. 82	40.00	-14. 18	Peak	
2	173. 5600	39. 47	-12. 23	27. 24	43.50	-16. 26	Peak	
3	335. 5500	32. 38	-12. 21	20. 17	46.00	-25.83	Peak	
4	527.6100	35. 31	-8. 17	27. 14	46.00	-18.86	Peak	
5	719.6700	32.69	-3. 35	29. 34	46.00	-16.66	Peak	
6 *	947.6200	30. 13	1. 95	32.08	46.00	-13.92	Peak	

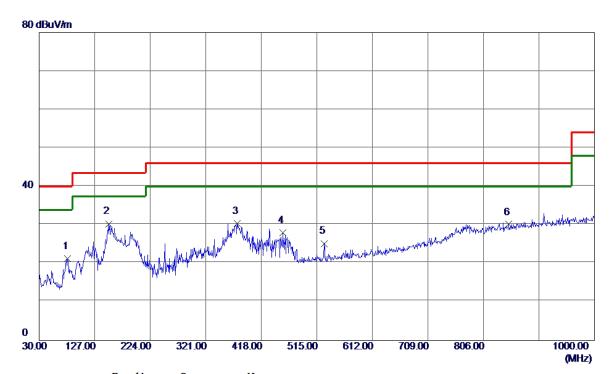
Report No.: BTL-FCCP-2-1709C130 Page 54 of 83





Test Mode: TX 2480MHz\_CH39\_1Mbps (HONOR)

# **Horizontal**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	79.4700	39. 36	-18. 12	21. 24	40.00	-18.76	Peak	
2 *	151. 2500	43.77	-13. 45	30. 32	43.50	-13. 18	Peak	
3	376. 2900	42.00	-11.64	30. 36	46.00	-15.64	Peak	
4	455.8300	37.85	-9.80	28. 05	46.00	-17.95	Peak	
5	527.6100	33. 37	-8. 17	25. 20	46.00	-20.80	Peak	
6	850. 6200	30. 15	0. 01	30. 16	46.00	-15.84	Peak	

Report No.: BTL-FCCP-2-1709C130 Page 55 of 83





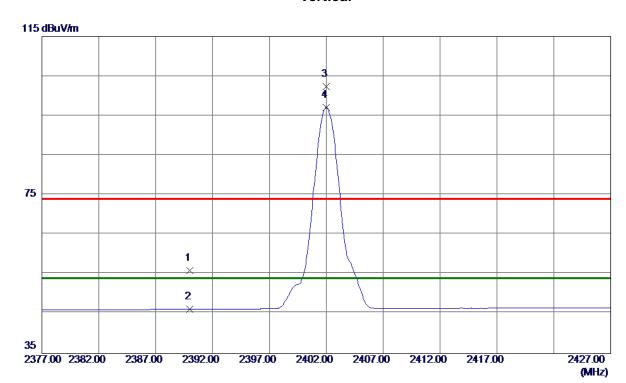
APPENDIX D - RADIATED EMISSION (ABOVE 1000MHZ)

Report No.: BTL-FCCP-2-1709C130 Page 56 of 83





### Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	22. 93	33.06	55. 99	74.00	-18.01	Peak	
2	2390.0000	13.09	33.06	46. 15	54.00	-7.85	AVG	
3	2402.0000	69. 25	33. 10	102.35	74.00	28. 35	Peak	No Limit
4 *	2402.0000	64.00	33. 10	97. 10	54.00	43. 10	AVG	No Limit

Report No.: BTL-FCCP-2-1709C130 Page 57 of 83





#### Vertical



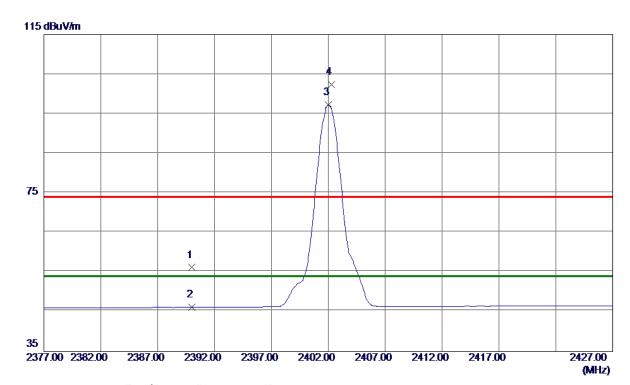
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.9000	48.75	6. 27	<b>55. 02</b>	74.00	-18.98	Peak	
2 *	4803. 9680	43.06	6. 27	49. 33	54.00	-4. 67	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 58 of 83





#### Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23. 14	33. 06	56. 20	74.00	-17.80	Peak	
2	2390.0000	13.09	33. 06	46. 15	54.00	-7.85	AVG	
3 *	2402.0000	64. 10	33. 10	97. 20	54.00	43. 20	AVG	No Limit
4	2402. 2500	69. 33	33. 10	102. 43	74.00	28. 43	Peak	No Limit

Report No.: BTL-FCCP-2-1709C130 Page 59 of 83





#### Horizontal



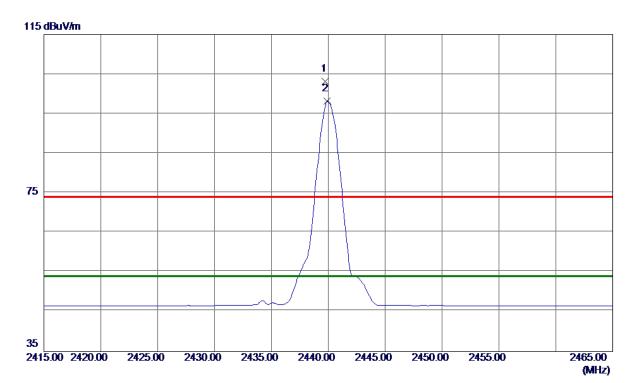
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4803.9700	40.31	6. 27	46. 58	54.00	-7.42	AVG	
2	4804. 4480	47. 28	6. 27	53. 55	74.00	-20. 45	Peak	

Report No.: BTL-FCCP-2-1709C130 Page 60 of 83





#### Vertical



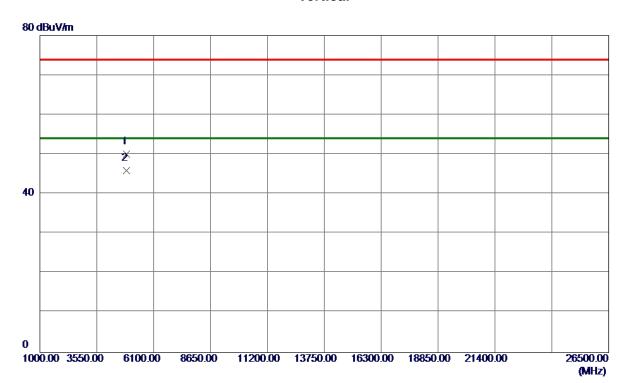
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2439.7500	69. 97	33. 24	103. 21	74.00	29. 21	Peak	No Limit
2 *	2439. 9000	64.99	33. 24	98. 23	54.00	44. 23	AVG	No Limit

Report No.: BTL-FCCP-2-1709C130 Page 61 of 83





#### Vertical



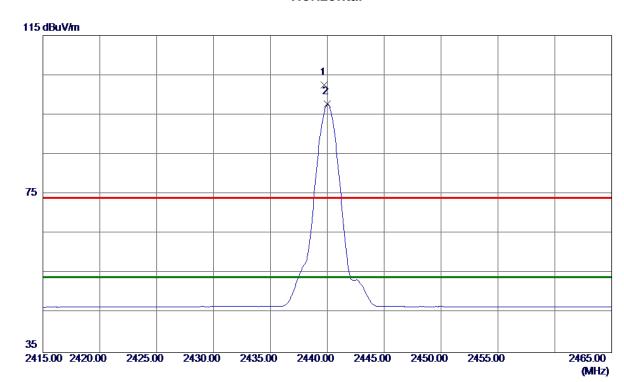
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4879.4680	43. 58	6.46	50.04	74.00	-23.96	Peak	
2 *	4879. 9820	39. 40	6. 46	45. 86	54.00	-8. 14	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 62 of 83





#### Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2439.7500	69. 21	33. 24	102. 45	74.00	28. 45	Peak	No Limit
2 *	2440. 0000	64. 45	33. 24	97.69	54.00	43. 69	AVG	No Limit

Report No.: BTL-FCCP-2-1709C130 Page 63 of 83





#### Horizontal



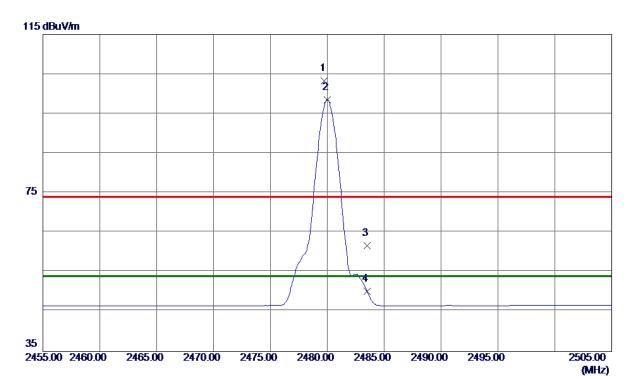
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4879.7060	42.80	6. 46	49. 26	74.00	-24.74	Peak	
2 *	4879. 9600	38. 10	6. 46	44. 56	54.00	-9.44	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 64 of 83





#### Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.7500	69. 97	33. 39	103. 36	74.00	29. 36	Peak	No Limit
2 *	2480.0000	65. 14	33. 39	98. 53	54.00	44.53	AVG	No Limit
3	2483. 5000	28. 32	33. 41	61.73	74.00	-12. 27	Peak	
4	2483. 5000	16.82	33.41	50. 23	54.00	-3.77	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 65 of 83





#### Vertical



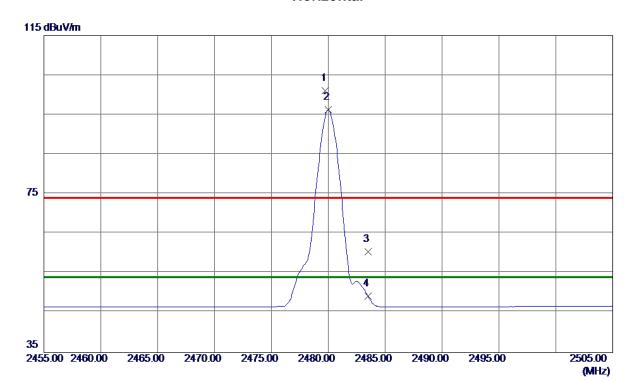
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4959. 9740	36. 15	6. 66	42.81	<b>54.00</b>	-11. 19	AVG	
2	4960. 1720	41.41	6. 66	48. 07	74.00	-25. 93	Peak	

Report No.: BTL-FCCP-2-1709C130 Page 66 of 83





#### Horizontal



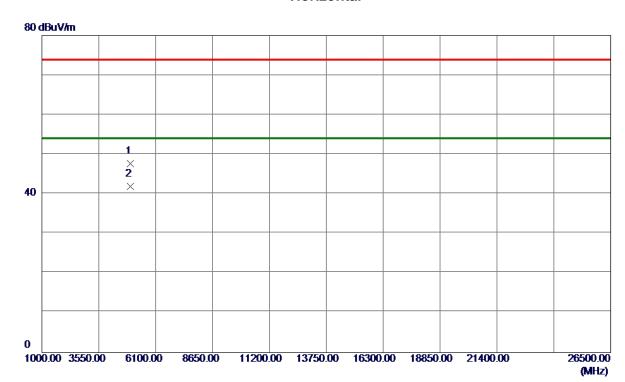
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.7500	67.63	33. 39	101.02	74.00	27.02	Peak	No Limit
2 *	2480.0000	62.84	33. 39	96. 23	54.00	42. 23	AVG	No Limit
3	2483. 5000	26. 97	33. 41	60. 38	74.00	-13.62	Peak	
4	2483. 5000	15. 81	33. 41	49. 22	54.00	-4.78	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 67 of 83





#### Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959. 4520	41.06	6. 66	47.72	74.00	-26. 28	Peak	
2 *	4959. 9360	35. 31	6. 66	41.97	54.00	-12. 03	AVG	

Report No.: BTL-FCCP-2-1709C130 Page 68 of 83





APPENDIX E - BANDWIDTH

Report No.: BTL-FCCP-2-1709C130 Page 69 of 83

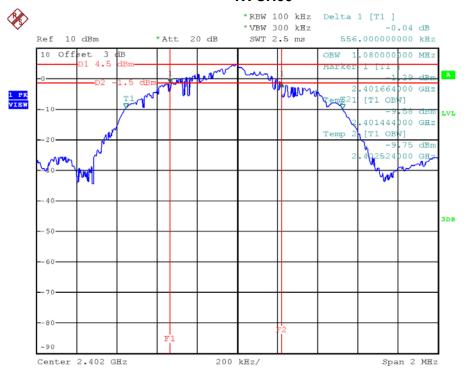




Test Mode: TX Mode

Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Min. Limit (kHz)	Test Result
2402	0.556	1.080	500	Pass
2440	0.548	1.076	500	Pass
2480	0.570	1.072	500	Pass

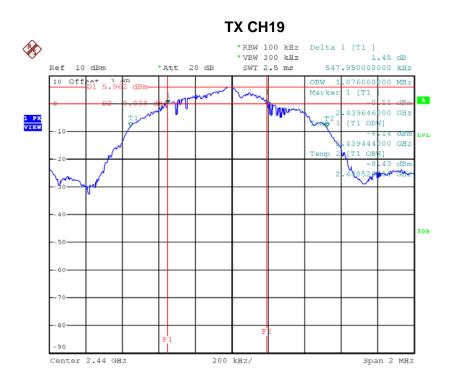
#### TX CH00



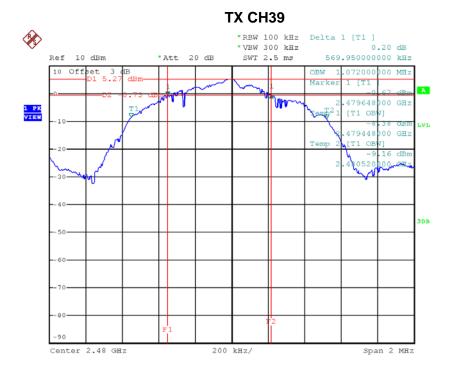
Date: 12.0CT.2017 10:41:46







Date: 12.0CT.2017 10:43:28



Date: 12.0CT.2017 10:45:26





APPENDIX F - MAXIMUM OUTPUT POWER TE	ST

Report No.: BTL-FCCP-2-1709C130 Page 72 of 83





Test Mode: CH00, CH19, CH39 - 1Mbps

Frequency	Conducted	Conducted	Max. Limit	Max. Limit	Took Dooult
(MHz)	Power (dBm)	Power (W)	(dBm)	(W)	Test Result
2402	6.04	0.0040	30.00	1.00	Pass
2440	7.19	0.0052	30.00	1.00	Pass
2480	6.78	0.0048	30.00	1.00	Pass

Report No.: BTL-FCCP-2-1709C130 Page 73 of 83



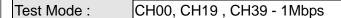


APPENDIX G - ANTENNA CONDUCTED SPURIOUS EMISSION

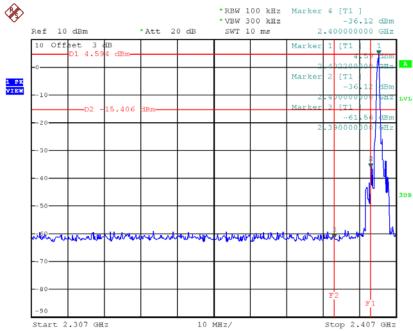
Report No.: BTL-FCCP-2-1709C130 Page 74 of 83





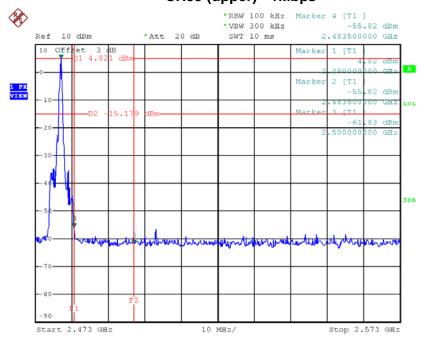


### CH00 (Lower) - 1Mbps



Date: 12.0CT.2017 10:41:55

### CH39 (upper) - 1Mbps

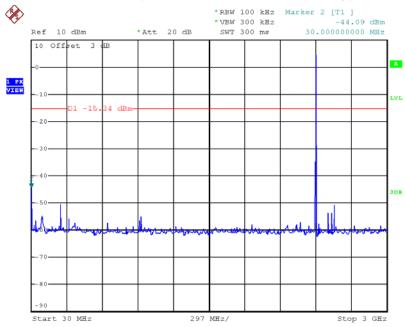


Date: 12.0CT.2017 10:45:34



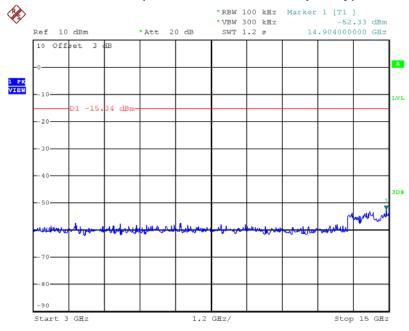






Date: 12.0CT.2017 10:42:08

#### CH00 (10 Harmonic of the frequency) 2

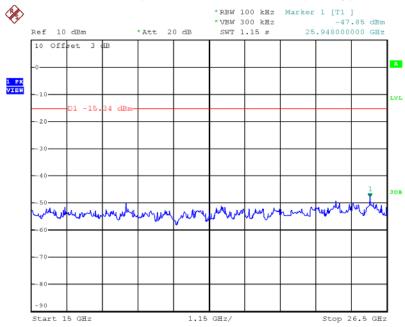


Date: 12.0CT.2017 10:42:17



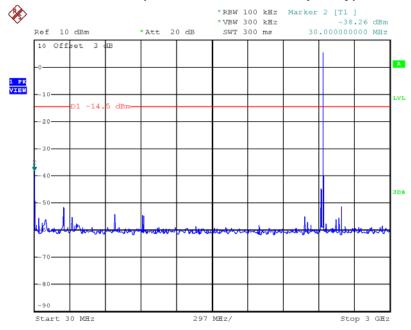






Date: 12.0CT.2017 10:42:25

#### CH19 (10 Harmonic of the frequency) 1

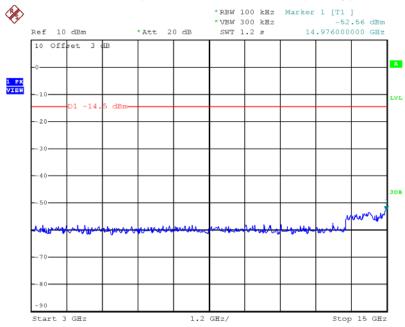


Date: 12.0CT.2017 10:43:42



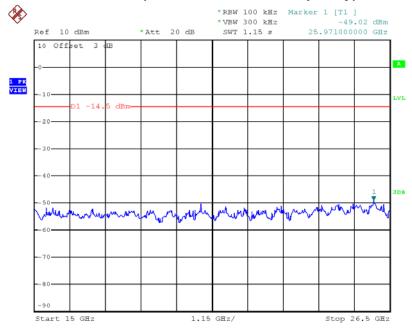






Date: 12.0CT.2017 10:43:50

#### CH19 (10 Harmonic of the frequency) 3

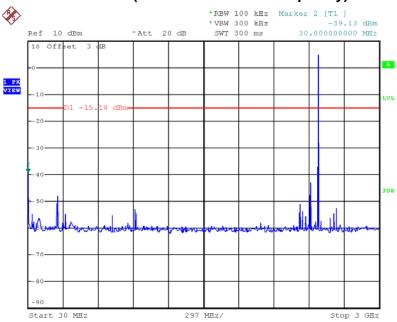


Date: 12.0CT.2017 10:43:59



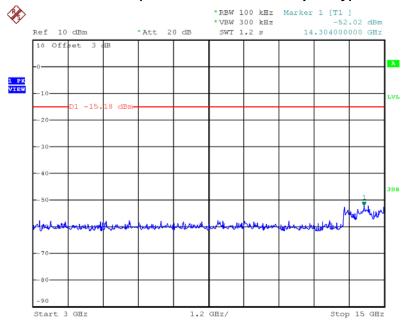






Date: 12.0CT.2017 10:45:48

### CH39 (10 Harmonic of the frequency) 2

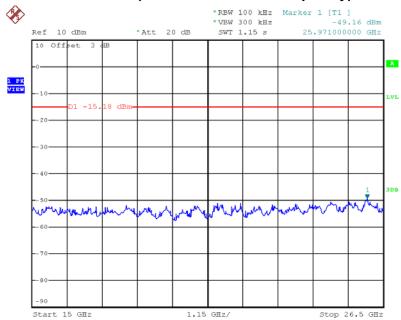


Date: 12.0CT.2017 10:45:56





### CH39 (10 Harmonic of the frequency) 3



Date: 12.0CT.2017 10:46:05





APPENDIX H - POWER SPECTRAL DENSITY TEST					

Report No.: BTL-FCCP-2-1709C130 Page 81 of 83

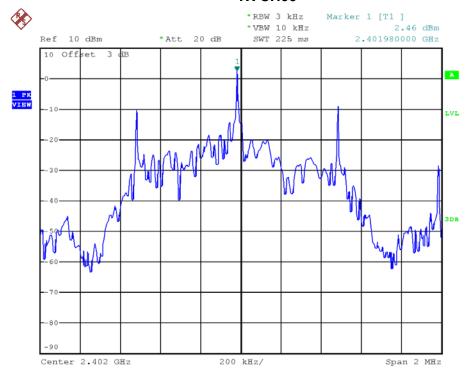




Test Mode: CH00, CH19, CH39 - 1Mbps

Frequency (MHz)	Power Density (dBm/3kHz)	Power Density (mW/3kHz)	Max. Limit (dBm/3kHz)	Test Result
2402	2.460	1.762	8.00	Pass
2440	4.680	2.938	8.00	Pass
2480	3.990	2.506	8.00	Pass

#### TX CH00

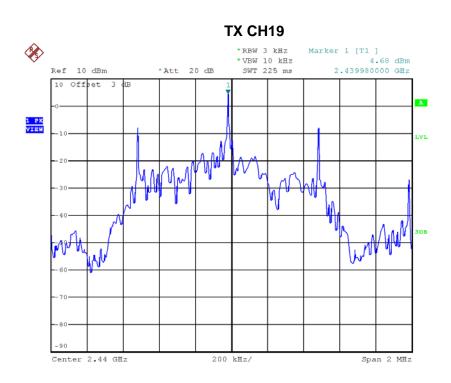


Date: 12.0CT.2017 10:42:32

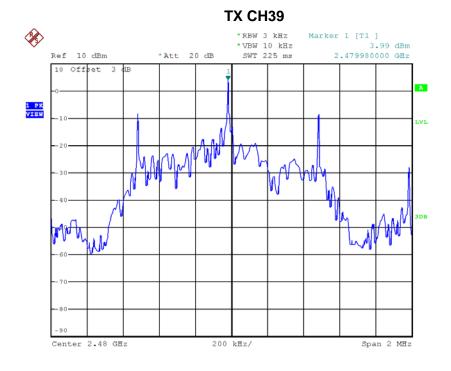
Report No.: BTL-FCCP-2-1709C130 Page 82 of 83







Date: 12.0CT.2017 10:44:05



Date: 12.0CT.2017 10:46:11