

## **FCC** Radio Test Report

**FCC ID: 2AG7CBELL5** 

This report concerns: Original Grant

**Project No.** : 2010H035

**Equipment**: Wireless DoorBell

Brand Name : N/A
Test Model : BELL 5S

Series Model : BELL 5X, BELL 8S, EOD1-1003-SIL, EOD1-2003-SIL, WIFICDP10GY

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Date of Receipt : Nov. 03, 2020

**Date of Test** : Nov. 03, 2020~Dec. 28, 2020

**Issued Date** : Jan. 04, 2021

Report Version : R00

**Test Sample** : Engineering Sample No.: SH2020110266, SH2020110266-4,

SH2020110266-6

Standard(s) : FCC Part15, Subpart C (15.247)

ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05r02

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

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IIIC MRA

ACCREDITED

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

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

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

### Limitation

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

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



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### **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	Jan. 04, 2021



### 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)					
Standard(s) Section	Test Item	Test Result	Judgment	Remark	
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS		
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS		
15.247(a)(2)	Bandwidth	APPENDIX E	PASS		
15.247(b)(3)	Maximum Output Power	APPENDIX F	PASS		
15.247(d)	Conducted Spurious Emissions	APPENDIX G	PASS		
15.247(e)	Power Spectral Density	APPENDIX H	PASS		
15.203	Antenna Requirement		PASS	Note(2)	

### Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

### 1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area, Shanghai 201210, China

BTL's Test Firm Registration Number for FCC: 476765

BTL's Designation Number for FCC: CN1241



### 1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

### A. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)	
		9 KHz~30 MHz	V	3.79	
		9 KHz~30 MHz	Τ	3.57	
		30 MHz~200 MHz	V	4.04	
		30 MHz~200 MHz	Τ	3.76	
SH-CB01	CB01 CISPR	200 MHz~1,000 MHz	V	4.24	
311-0601		200 MHz~1,000 MHz	Τ	3.84	
			1 GHz~18 GHz	V	4.46
		1 GHz~18 GHz	Ι	4.40	
		18 GHz~40 GHz	V	3.95	
		18 GHz~40 GHz	Ι	3.95	

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

### 1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	23°C	55%	AC 120V/60Hz	Joven Xiong
Radiated Emissions-30 MHz to 1GHz	24°C	58%	AC 120V/60Hz	Forest Li
Radiated Emissions-Above 1000 MHz	24°C	58%	AC 120V/60Hz	Forest Li
Bandwidth	22°C	48%	AC 120V/60Hz	Vince Zong
Maximum output power & e.i.r.p.	22°C	48%	AC 120V/60Hz	Vince Zong
Conducted Spurious Emissions	22°C	48%	AC 120V/60Hz	Vince Zong
Power Spectral Density	22°C	48%	AC 120V/60Hz	Vince Zong



### 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless DoorBell
Brand Name	N/A
Test Model	BELL 5S
Series Model	BELL 5X, BELL 8S, EOD1-1003-SIL, EOD1-2003-SIL, WIFICDP10GY
Model Difference(s)	The series models BELL 5 and BELL 8 are just slightly different in appearance; Other models are identical except for model name.
Software Version	Smart life
Hardware Version	PCB-BELL5S-S1MB_GC2063 REV1_0
Power Source	DC voltage supplied from AC/DC adapter. #1 Brand/Mode:STZY/ TPA-46B050100UU #2 Brand/Mode:GPO/ GTA92-0501000US AC/DC voltage supplied from AC/DC source. #3 AC voltage supplied from AC/AC source #4 DC voltage supplied from AC/DC source
Power Rating	#1 I/P: 100V-240V ~ 50Hz/60Hz 0.2A O/P:5.0V——1000mA. #2 I/P: 100V-240V ~ 50Hz/60Hz 0.3A O/P:USB-A 5.0V——1.0A, 5.0W #3 I/P: 100V-240V ~ 50Hz/60Hz O/P: AC 12-24V #4 I/P: 100V-240V ~ 50Hz/60Hz O/P: DC 12-24V
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 150 Mbps
Maximum Output Power	IEEE 802.11b: 21.76 dBm (0.1500 W) IEEE 802.11g: 24.86 dBm (0.3062 W) IEEE 802.11n (HT20): 24.95 dBm (0.3126 W) IEEE 802.11n (HT40): 24.42 dBm (0.2767 W)

### Note:

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



### 2. Channel List:

	CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20) CH03 - CH09 for IEEE 802.11n (HT40)						
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. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	FPC	N/A	3	N/A

Note:

The antenna gain is provided by the manufacturer



### 2.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

mode.	
Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX N20 Mode Channel 11

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test		
Final Test Mode:	Description	
Mode 5	TX N20 Mode Channel 11	

Radiated emissions test - Below 1GHz	
Final Test Mode:	Description
Mode 5	TX N20 Mode Channel 11

Radiated emissions test- Above 1GHz		
Final Test Mode:	Description	
Mode 1	TX B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N-20 MHz Mode Channel 01/06/11	
Mode 4	TX N-40 MHz Mode Channel 03/06/09	

Conducted test		
Final Test Mode:	Description	
Mode 1	TX B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N-20 MHz Mode Channel 01/06/11	
Mode 4	TX N-40 MHz Mode Channel 03/06/09	



### NOTE:

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

(2) 802.11b mode: CCK (1 Mbps) 802.11g mode: OFDM (6 Mbps)

802.11n HT20 mode : BPSK (6.5 Mbps) 802.11n HT40 mode : BPSK (13.5 Mbps)

For radiated emission tests, the highest output powers were set for final test.

(3) For radiated emission below 1 GHz test, the IEEE 802.11n20 Channel 11 is found to be the worst case and recorded.

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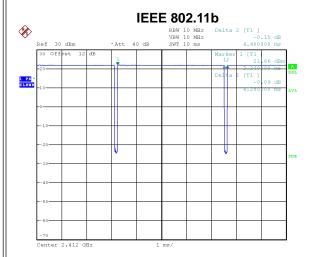
### 2.3 PARAMETERS OF TEST SOFTWARE

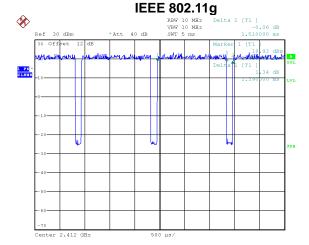
Test Software		IPOP V4.0	
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	default	default	default
IEEE 802.11g	default	default	default
IEEE 802.11n (HT20)	default	default	default
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	default	default	default



### 2.4 DUTY CYCLE

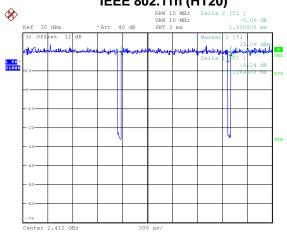
If duty cycle is  $\geq$  98 %, duty factor is not required. If duty cycle is < 98 %, duty factor shall be considered. The output power = measured power + duty factor.





Date: 6.NOV.2020 15:46:11

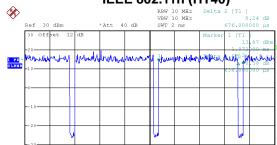
Duty cycle = 4.280 ms / 4.400 ms = 97.27% Duty Factor = 10 log(1/Duty cycle) = 0.12 IEEE 802.11n (HT20)



Duty cycle = 1.390 ms / 1.510 ms = 92.05% Duty Factor = 10 log(1/Duty cycle) = 0.36 IEEE 802.11n (HT40)

Date: 6.NOV.2020 15:49:07

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Date: 6.NOV.2020 15:50:26

Duty cycle = 1.284 ms / 1.320 ms = 97.27% Duty Factor = 10 log(1/Duty cycle) = 0.12 Duty cycle = 0.636 ms / 0.676ms = 94.08% Duty Factor = 10 log(1/Duty cycle) = 0.27

### NOTE:

For IEEE 802.11b:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

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

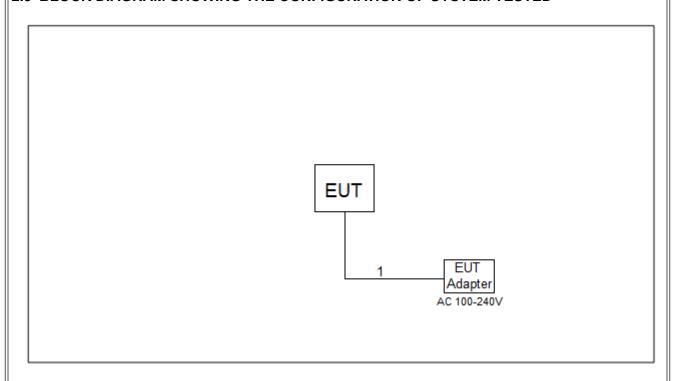
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

### For IEEE 802.11n (HT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle < 98%).



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



### 2.6 SUPPORT UNITS

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

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



### 3. AC POWER LINE CONDUCTED EMISSIONS TEST

### **3.1 LIMIT**

Fraguesia of Emission (MIII-)	Limit (dBμV)		
Frequency of Emission (MHz)	Quasi-peak	Average	
0.15 - 0.50	66 to 56*	56 to 46*	
0.50 - 5.0	56	46	
5.0 - 30.0	60	50	

### NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

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

### 3.2 TEST PROCEDURE

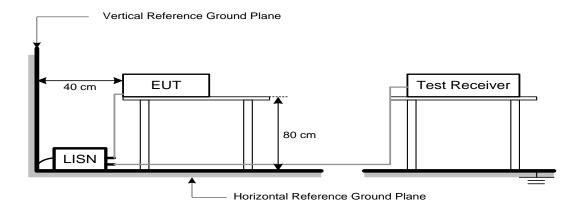
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.

### 3.3 DEVIATION FROM TEST STANDARD

No deviation



### 3.4 TEST SETUP



### 3.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

### 3.6 TEST RESULTS

Please refer to the APPENDIX A.



### 4. RADIATED EMISSIONS TEST

### **4.1 LIMIT**

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

### LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

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

Fraguency (MHz)	(dBuV/m at 3 m)	
Frequency (MHz)	Peak	Average
Above 1000	74	54

### NOTE:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (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	1 MHz / 3 MHz for Peak,	
(Emission in restricted band) 1 MHz / 1/T for Average		

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

### **4.2 TEST PROCEDURE**

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

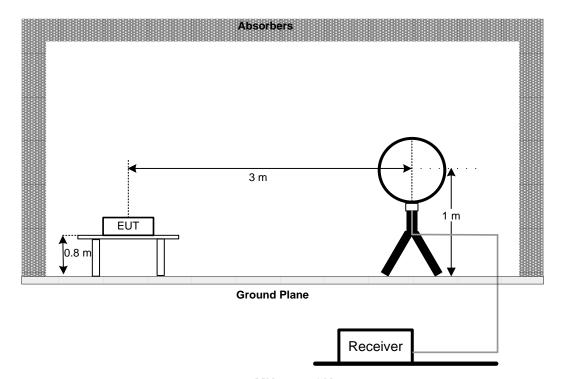
### 4.3 DEVIATION FROM TEST STANDARD

No deviation

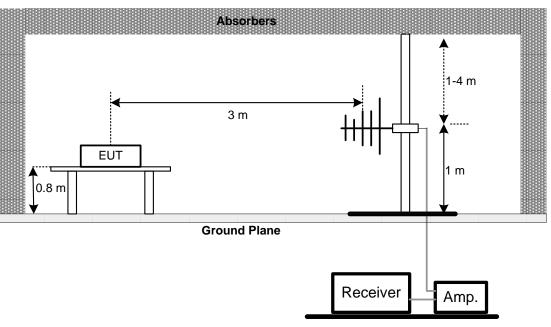


### 4.4 TEST SETUP

### 9 kHz-30 MHz

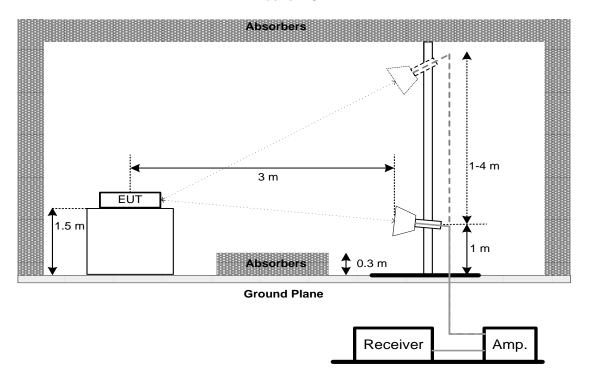


### 30 MHz to 1 GHz





### **Above 1 GHz**



### 4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 4.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B

### Remark:

- (1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

### 4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

### 4.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

### Remark:

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



### 5. BANDWIDTH TEST

### **5.1 LIMIT**

FCC Part15, Subpart C (15.247)				
Section Test Item Limit				
45.047(a)(0)	6 dB Bandwidth	Minimum 500 kHz		
15.247(a)(2)	99% Emission Bandwidth	-		

### **5.2 TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:

For 6 dB Bandwidth: RBW= 100 kHz, VBW=300 kHz, Sweep time = auto.

For 99% Emission Bandwidth B/G/N-20 Mode: RBW= 300 KHz, VBW=1 MHz, Sweep time = 2.5 ms.

For 99% Emission Bandwidth N-40 Mode: RBW= 1 MHz, VBW=3 MHz, Sweep time = 2.5 ms.

c. The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

### 5.3 DEVIATION FROM STANDARD

No deviation.

### **5.4 TEST SETUP**

EUT	SPECTRUM	
	ANALYZER	

### 5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### **5.6 TEST RESULTS**

Please refer to the APPENDIX E.



### 6. MAXIMUM OUTPUT POWER TEST

### **6.1 LIMIT**

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

### **6.2 TEST PROCEDURE**

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum conducted output power was performed in accordance with method 11.9.1.3 (for peak power) or 11.9.2.3.1 (for AVG power) of ANSI C63.10-2013.

### **6.3 DEVIATION FROM STANDARD**

No deviation.

### **6.4 TEST SETUP**



### 6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### **6.6 TEST RESULTS**

Please refer to the APPENDIX F.



### 7. CONDUCTED SPURIOUS EMISSIONS

### **7.1 LIMIT**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

### 7.2 TEST PROCEDURE

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

### 7.3 DEVIATION FROM STANDARD

No deviation.

### 7.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

### 7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 7.6 TEST RESULTS

Please refer to the APPENDIX G.



### 8. POWER SPECTRAL DENSITY TEST

### 8.1 LIMIT

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

### **8.2 TEST PROCEDURE**

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW=3 kHz, VBW=10 kHz, Sweep time = Auto.
- c. The Power Spectral Density was performed in accordance with method 11.10.2 of ANSI C63.10-2013.

### 8.3 DEVIATION FROM STANDARD

No deviation.

### **8.4 TEST SETUP**

EUT	SPECTRUM	
	ANALYZER	

### 8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### **8.6 TEST RESULTS**

Please refer to the APPENDIX H.



### 9. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Line Impedance Stabilisation Network	Schwarzbeck	NNLK 8121	8121-822	Mar. 21, 2021	
2	TWO-LINE V-NETWORK	R&S	ENV216	101340	Aug. 23, 2021	
3	Test Cable	emci	EMCRG400-BM-N M-10000	170628	Jul. 15, 2021	
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 21, 2021	
5	50Ω Terminator	SHX	TF2-1G-A	17051602	Mar. 21, 2021	
6	50Ω coaxial switch	Anritsu	MP59B	6201750902	Mar. 21, 2021	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	719	Apr. 02, 2021	
2	Pre-Amplifier	emci	EMC9135	980400	Mar. 21, 2021	
3	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 21, 2021	
4	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 13, 2021	
5	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 13, 2021	
6	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 13, 2021	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	



	Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	9120D	00206960	Apr. 02, 2021	
2	Pre-Amplifier	emci	EMC012645SE	980421	May. 11, 2021	
3	EXA Spectrum Analyzer	Keysight	N9010A	MY56480545	Mar. 21, 2021	
4	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 13, 2021	
5	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 13, 2021	
6	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 13, 2021	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
8	MXE EMI Receiver	Keysight	N9038A	MY57150106	May. 06, 2021	
9	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	3116C	00203919	Jul. 20, 2021	
10	Pre-Amplifier	emci	EMC184045SE	980409	Mar. 21, 2021	
11	EXA Spectrum Analyzer	Keysight	N9010A	MY56480579	Mar. 21, 2021	
12	Test Cable	emci	EMC102-KM-KM-8 00	170654	Apr. 13, 2021	
13	Test Cable	emci	Super Reliable-40G-SS11- 7000	W0030860001	Apr. 13, 2021	
14	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Bandwidth				
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100626	May. 06, 2021

	Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Peak Power Analyze	Keysight	8990B	MY51000507	Mar. 21, 2021	
2	Wideband Power Sensor	Keysight	N9123A	MY58310003	Mar. 21, 2021	

	Antenna Conducted Spurious Emissions						
Item	Item Kind of Equipment Manufacturer Type No. Serial No. Calibrated until						
1	Spectrum Analyzer	R&S	FSP40	100626	May. 06, 2021		

Power Spectral Density								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Spectrum Analyzer	R&S	FSP40	100626	May. 06, 2021			

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

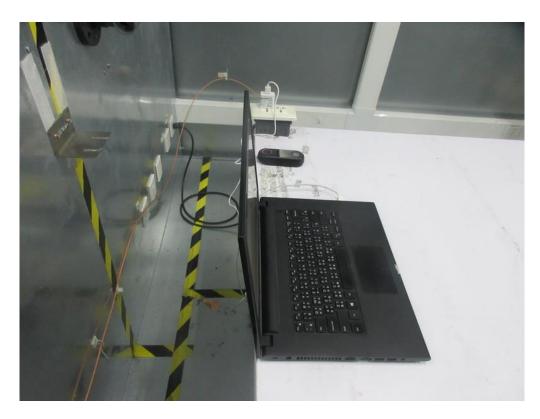
All calibration period of equipment list is one year.



### 10. EUT TEST PHOTO

### **Conducted Emissions Test Photos**

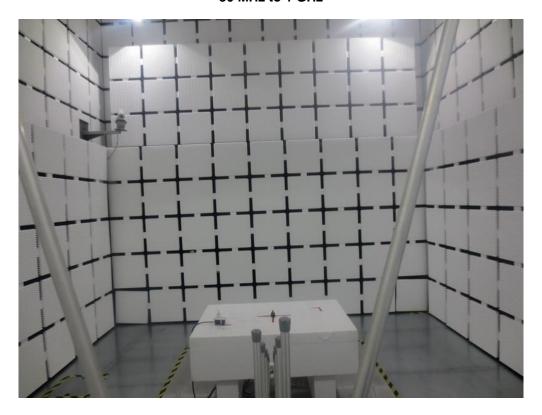


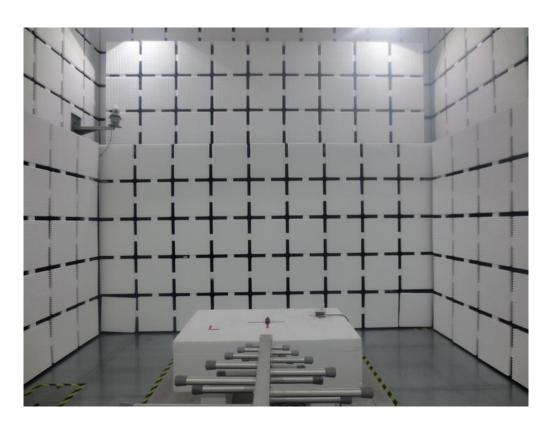




### **Radiated Emissions Test Photos**

### 30 MHz to 1 GHz

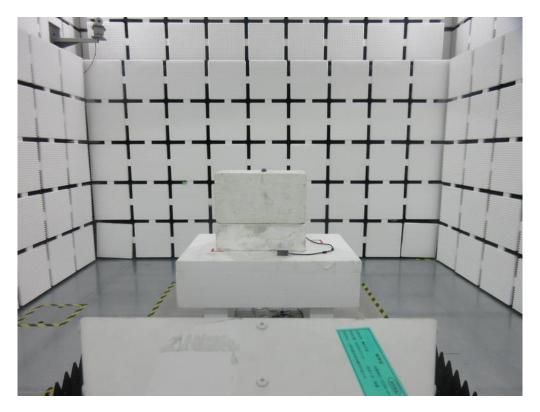


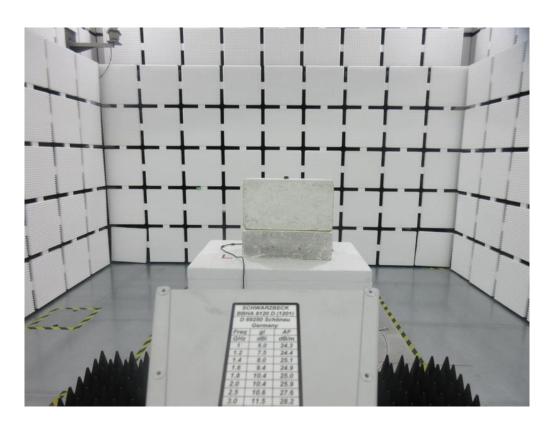




### **Radiated Emissions Test Photos**

### Above 1 GHz



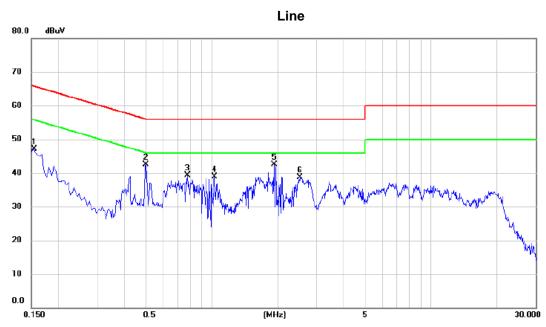




# **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**







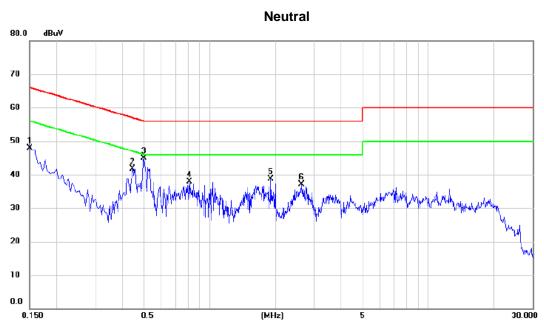
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBu∀	dB	dBuV	dBu∀	dB	Detector	Comment
1	0.1545	37.41	9.72	47.13	65.75	-18.62	peak	
2	0.5010	32.75	9.79	42.54	56.00	-13.46	peak	
3	0.7755	29.54	9.82	39.36	56.00	-16.64	peak	
4	1.0275	29.13	9.84	38.97	56.00	-17.03	peak	
5 *	1.9230	32.65	9.90	42.55	56.00	-13.45	peak	
6	2.5215	28.82	9.93	38.75	56.00	-17.25	peak	

### REMARKS:

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



Test Mode: TX N20 Mode Channel 11



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBu∀	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1500	38.25	9.68	47.93	66.00	-18.07	peak	
2	0.4444	32.03	9.76	41.79	56.98	-15.19	peak	
3 *	0.5020	35.22	9.77	44.99	56.00	-11.01	peak	
4	0.8070	28.07	9.81	37.88	56.00	-18.12	peak	
5	1.9050	28.75	9.87	38.62	56.00	-17.38	peak	
6	2.6250	27.13	9.91	37.04	56.00	-18.96	peak	

### **REMARKS**:

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



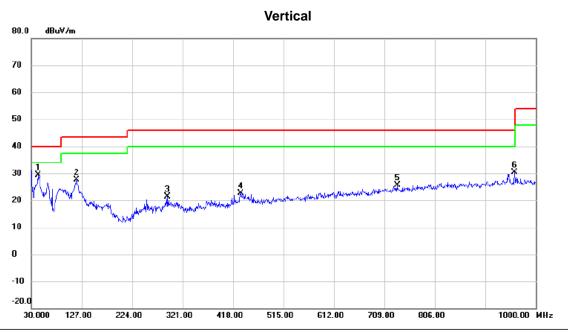
## **APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ** Note: The measured value have enough margin over 20dB than the limit, therefore they are not reported.



APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ







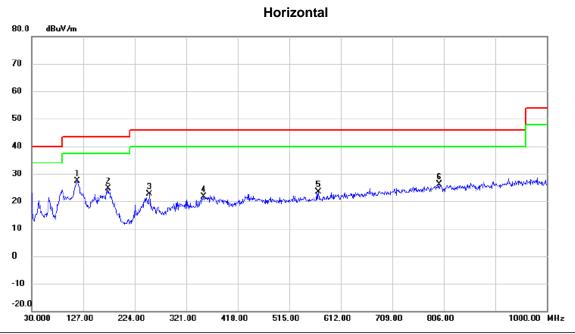
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	43.0950	46.53	-17.06	29.47	40.00	-10.53	peak	
2	,	117.3000	46.64	-18.96	27.68	43.50	-15.82	peak	
3	2	291.4150	37.23	-15.84	21.39	46.00	-24.61	peak	
4	4	432.5500	35.21	-12.48	22.73	46.00	-23.27	peak	
5	-	733.7350	33.12	-7.42	25.70	46.00	-20.30	peak	
6	(	959.7450	35.33	-5.06	30.27	46.00	-15.73	peak	

### **REMARKS**:

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



Test Mode: TX N20 Mode Channel 11



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	115.3600	46.60	-19.17	27.43	43.50	-16.07	peak	
2		174.5300	41.46	-16.78	24.68	43.50	-18.82	peak	
3		251.1600	39.85	-17.33	22.52	46.00	-23.48	peak	
4		353.4950	36.18	-14.46	21.72	46.00	-24.28	peak	
5		569.3200	33.32	-9.98	23.34	46.00	-22.66	peak	
6		797.2700	32.58	-6.56	26.02	46.00	-19.98	peak	

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

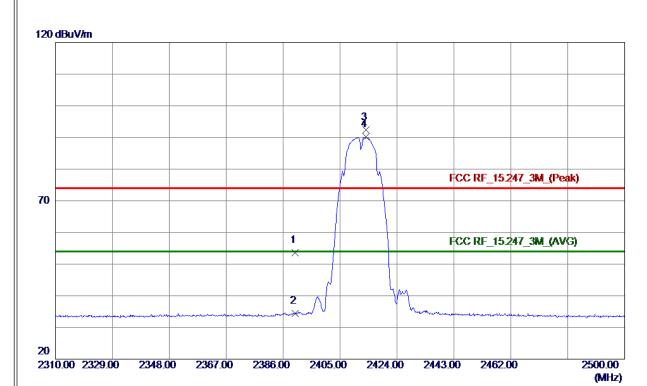


# **APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ**



Test Mode: TX B Mode 2412 MHz

# Vertical



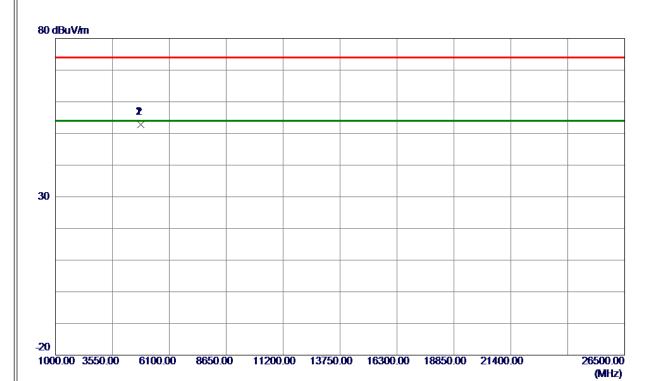
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	21.92	31.74	53.66	74.00	-20.34	Peak	
2	2390. 0000	2. 70	31.74	34.44	54.00	-19. 56	AVG	
3	2413.7589	60. 59	31.72	92. 31	74.00	18. 31	Peak	
4 *	2413.7589	58. 43	31.72	90. 15	54.00	36. 15	AVG	

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



Test Mode: TX B Mode 2412 MHz

### **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4824.0419	63.72	-10. 91	52.81	54.00	-1. 19	AVG	
2	4825.0000	63.66	-10. 90	52.76	74.00	-21.24	Peak	

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



Test Mode: TX B Mode 2412 MHz

### Horizontal

# 120 dBuV/m FCC RF\_15.247\_3M\_(Peak) **70** FCC RF\_15.247\_3M\_(AVG) 2310.00 2329.00 2500.00 2348.00 2367.00 2386.00 2405.00 2424.00 2443.00 2462.00 (MHz)

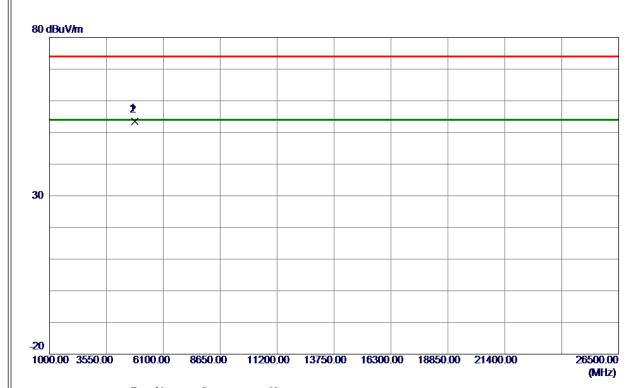
No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2387. 0830	22.66	31. 75	54.41	74.00	-19. 59	Peak	
2	2387.0830	9. 72	31. 75	41.47	54.00	-12.53	AVG	
3	2411. 1660	68. 58	31. 72	100. 30	74.00	26. 30	Peak	
4 *	2411. 1660	66. 47	31. 72	98. 19	54.00	44. 19	AVG	

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



Test Mode: TX B Mode 2412 MHz

### Horizontal



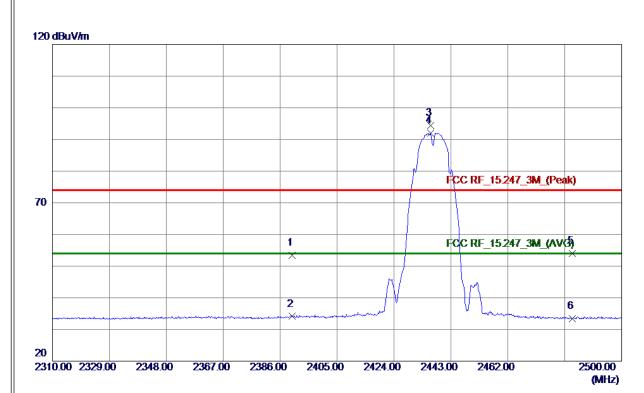
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823.7250	64.44	-10.91	53. 53	74.00	-20.47	Peak	
2 *	4824.0490	64. 21	-10.91	53. 30	54.00	-0.70	AVG	

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



Test Mode: TX B Mode 2437 MHz

### Vertical



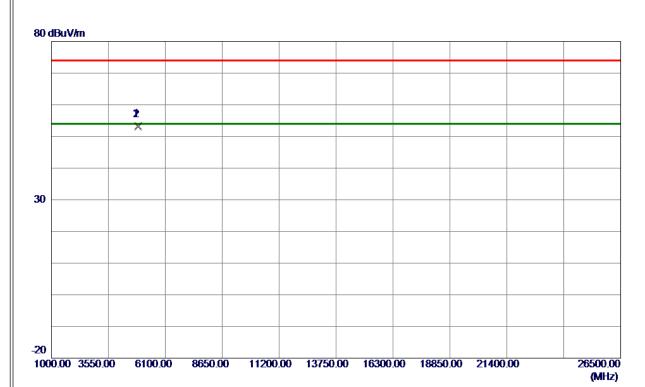
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	21.71	31.74	53. 45	74.00	<b>-20.</b> 55	Peak	
2	2390.0000	2. 36	31.74	34. 10	54.00	-19.90	AVG	
3	2436. 2170	62. 68	31.72	94.40	74.00	20.40	Peak	
4 *	2436. 2170	60. 34	31.72	92.06	54.00	38. 06	AVG	
5	2483. 5000	22. 26	31.71	53.97	74.00	-20.03	Peak	
6	2483. 5000	1.65	31.71	33. 36	54.00	-20.64	AVG	

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



Test Mode: TX B Mode 2437 MHz

### **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.4500	64.09	-10.79	53. 30	74.00	-20.70	Peak	
2 *	4874.0520	63. 87	-10.79	53.08	54.00	-0.92	AVG	

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



Test Mode: TX B Mode 2437 MHz

### Horizontal



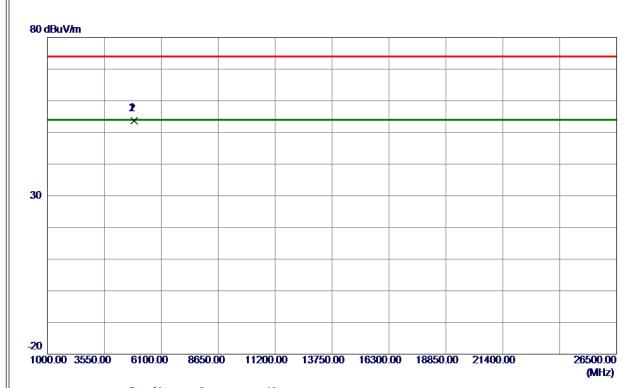
N	No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
		MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	L	2390.0000	20.72	31.74	52.46	74.00	-21.54	Peak	
2	2	2390.0000	3. 07	31.74	34.81	54.00	-19. 19	AVG	
3	}	2437.8420	69. 47	31.72	101. 19	74.00	27. 19	Peak	
4	*	2437.8420	67. 21	31.72	98. 93	54.00	44.93	AVG	
5	5	2483. 5000	21. 47	31.71	53. 18	74.00	-20.82	Peak	
6	3	2483. 5000	2. 31	31.71	34. 02	54.00	-19. 98	AVG	

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



Test Mode: TX B Mode 2437 MHz

### Horizontal



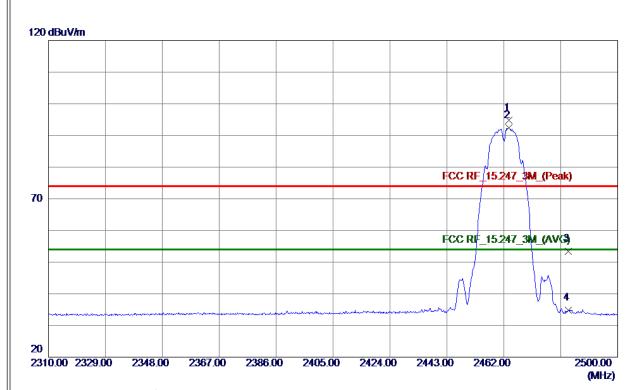
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4874.0480	64.62	-10.79	53.83	54.00	-0. 17	AVG	
2	4874.7250	64. 47	-10. 79	53.68	74.00	-20. 32	Peak	

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



Test Mode: TX B Mode 2462 MHz

### **Vertical**



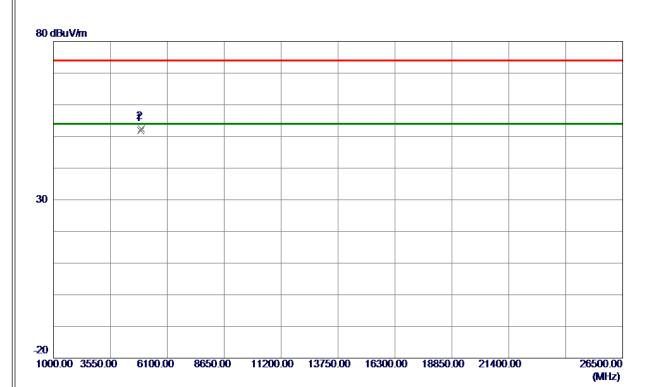
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2463.7760	63. 14	31.71	94.85	74.00	20.85	Peak	
2 *	2463.7760	60.65	31.71	92. 36	54.00	38. 36	AVG	
3	2483. 5000	21.75	31.71	53.46	74.00	-20. 54	Peak	
4	2483. 5000	3. 10	31.71	34.81	54.00	-19. 19	AVG	

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



Test Mode: TX B Mode 2462 MHz

### **Vertical**



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0640	62. 34	-10.63	51.71	54.00	-2.29	AVG	
2	4924. 4500	63. 02	-10.62	52.40	74.00	-21.60	Peak	

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



Test Mode: TX B Mode 2462 MHz

### Horizontal



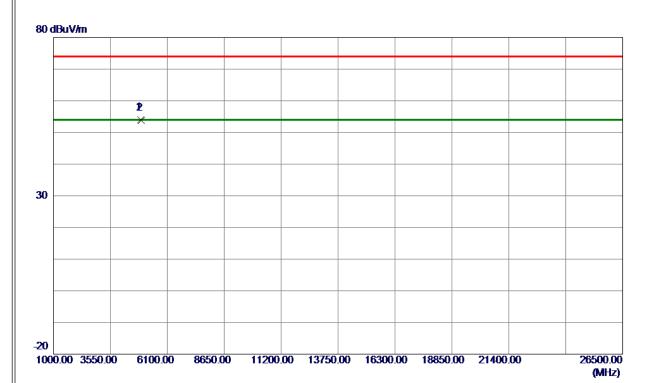
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2461. 2110	68. 93	31.71	100.64	74.00	26.64	Peak	
2 *	2461. 2110	66.85	31.71	98. 56	54.00	44. 56	AVG	
3	2483.6510	22. 36	31.71	54.07	74.00	-19.93	Peak	
4	2483.6510	9. 16	31.71	40.87	54.00	-13. 13	AVG	

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



Test Mode: TX B Mode 2462 MHz

### Horizontal



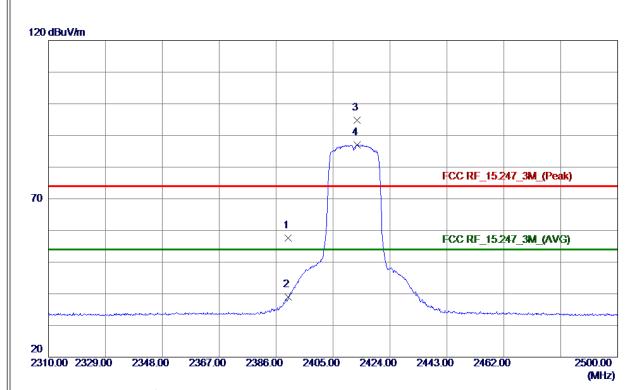
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924.0660	64. 57	-10.63	53.94	54.00	-0.06	AVG	
2	4924. 4500	64. 42	-10.62	53.80	74.00	-20. 20	Peak	

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



Test Mode: TX G Mode 2412 MHz

### Vertical



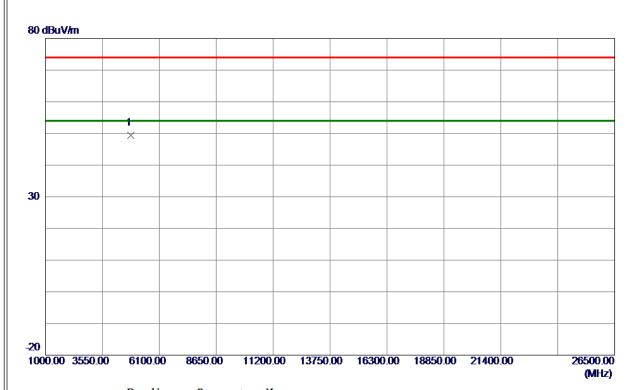
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	25. 92	31.74	57.66	74.00	-16. 34	Peak	
2	2390.0000	7. 28	31.74	39. 02	54.00	-14.98	AVG	
3	2413. 0840	63.06	31.72	94. 78	74.00	20.78	Peak	
4 *	2413. 0840	55. 26	31. 72	86. 98	54.00	32. 98	AVG	

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



Test Mode: TX G Mode 2412 MHz

### **Vertical**



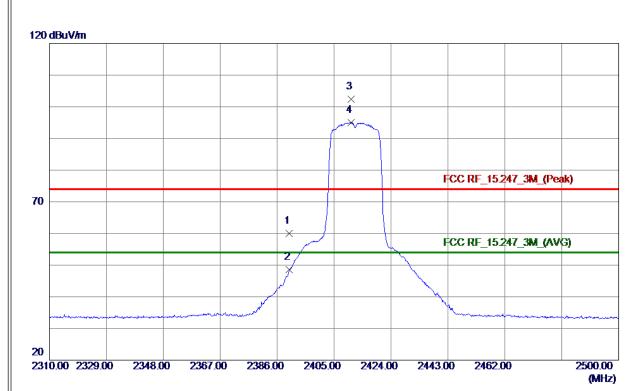
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4826. 2750	0 60. 33	-10. 90	49. 43	74.00	-24.57	Peak		

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



Test Mode: TX G Mode 2412 MHz

### Horizontal



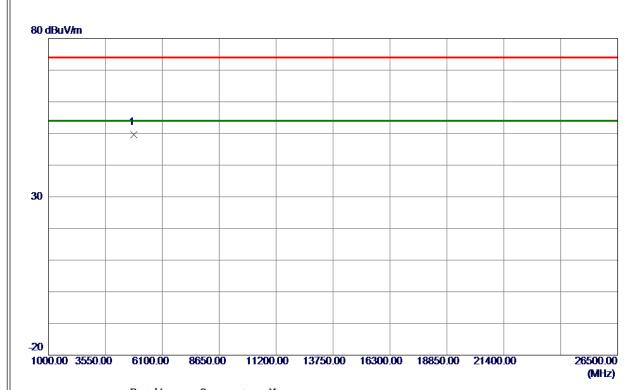
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	28. 26	31.74	60.00	74.00	-14.00	Peak	
2	2390.0000	16.77	31.74	48. 51	54.00	-5. 49	AVG	
3	2410. 7850	70.73	31.72	102. 45	74.00	28. 45	Peak	
4 *	2410.7850	63. 29	31.72	95. 01	54.00	41.01	AVG	

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



Test Mode: TX G Mode 2412 MHz

### Horizontal



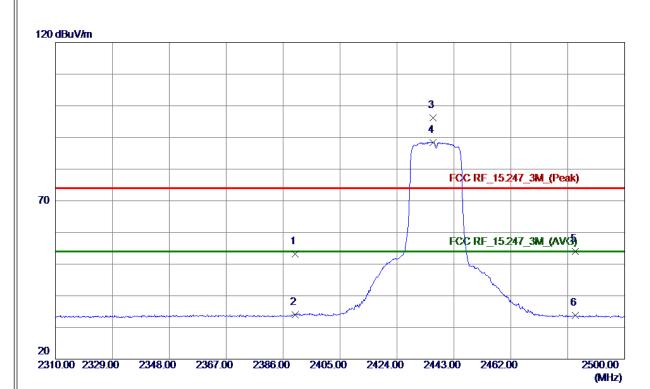
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4818. 6250	60.49	-10. 92	49. 57	74. 00	-24. 43	Peak		

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



Test Mode: TX G Mode 2437 MHz

### Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	21. 51	31.74	53. 25	74.00	-20.75	Peak	
2	2390.0000	2. 17	31.74	33. 91	54.00	-20.09	AVG	
3	2436. 0270	64. 39	31.72	96. 11	74.00	22. 11	Peak	
4 *	2436. 0270	56. 72	31. 72	88.44	54.00	34.44	AVG	
5	2483. 5000	22. 33	31.71	54.04	74.00	-19. 96	Peak	
6	2483. 5000	2. 08	31.71	33. 79	54.00	-20. 21	AVG	
ı								

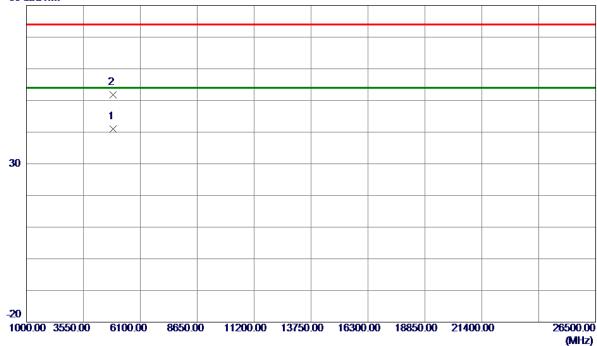
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



Test Mode: TX G Mode 2437 MHz

### **Vertical**

# 80 dBuV/m



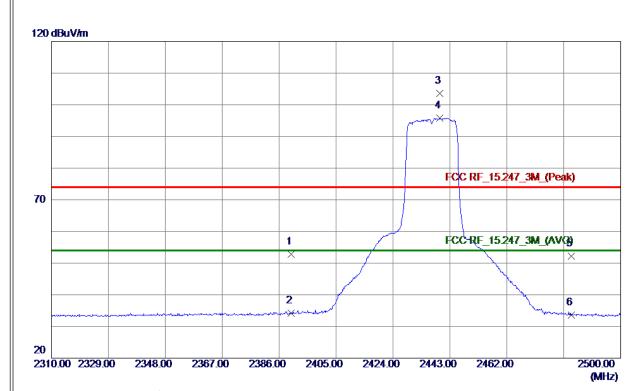
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4871.7220	51.77	-10.80	40. 97	54.00	-13.03	AVG	
2	4873. 4500	62. 51	-10. 79	51.72	74.00	-22. 28	Peak	

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



Test Mode: TX G Mode 2437 MHz

### Horizontal



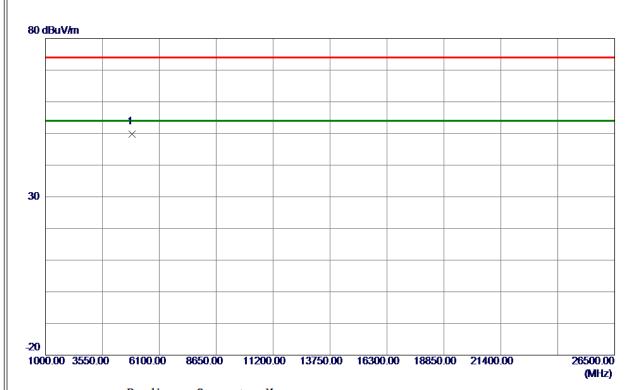
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	21. 04	31.74	52. 78	74.00	-21. 22	Peak	
2	2390.0000	2.48	31.74	34. 22	54.00	-19.78	AVG	
3	2439. 6940	71. 79	31.72	103. 51	74.00	29. 51	Peak	
4 *	2439.6940	64.01	31.72	95. 73	54.00	41.73	AVG	
5	2483. 5000	20. 47	31.71	52. 18	74.00	-21.82	Peak	
6	2483. 5000	1. 92	31.71	33. 63	54.00	-20. 37	AVG	

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



Test Mode: TX G Mode 2437 MHz

### Horizontal



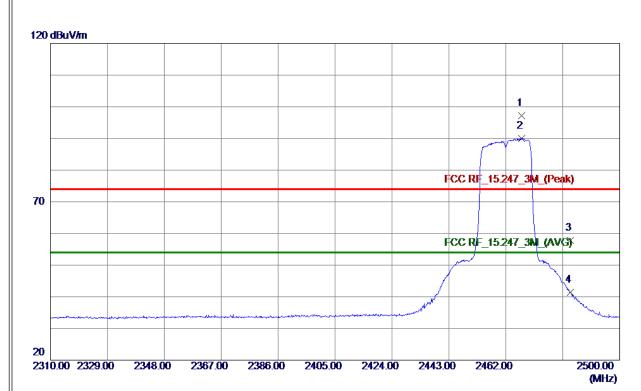
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4874. 7250	60.60	-10.79	49.81	74.00	-24. 19	Peak		

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



Test Mode: TX G Mode 2462 MHz

### **Vertical**



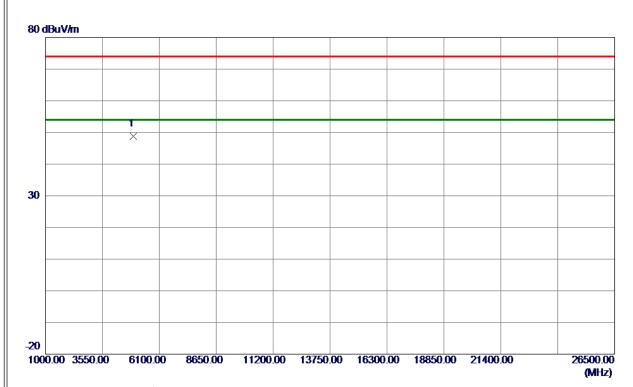
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2467.3110	65. 50	31.71	97. 21	74.00	23. 21	Peak	
2 *	2467.3110	58. 27	31.71	89. 98	54.00	35. 98	AVG	
3	2483. 5000	26.05	31.71	57.76	74.00	-16. 24	Peak	
4	2483. 5000	9. 60	31.71	41. 31	54.00	-12.69	AVG	

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



Test Mode: TX G Mode 2462 MHz

### **Vertical**



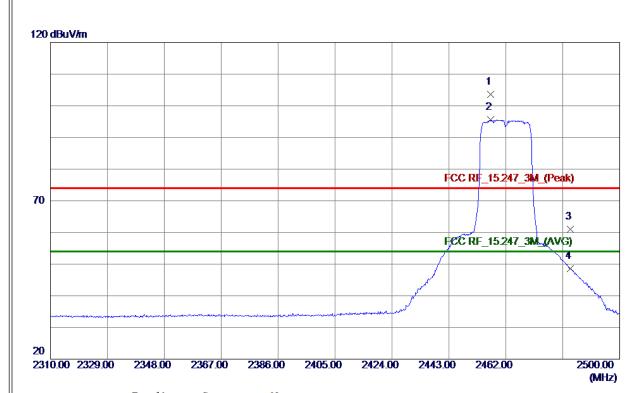
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4927. 0000	59. 35	-10.61	48.74	74.00	-25. 26	Peak	

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



Test Mode: TX G Mode 2462 MHz

### Horizontal



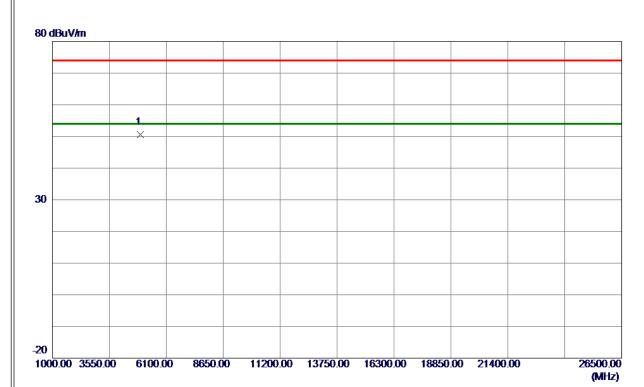
No.	Freq.	Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2456. 9940	71.81	31.71	103. 52	74.00	29. 52	Peak	
2 *	2456. 9940	63.88	31.71	95. 59	54.00	41.59	AVG	
3	2483. 5000	29. 23	31.71	60. 94	74.00	-13.06	Peak	
4	2483. 5000	16.83	31.71	48. 54	54.00	-5.46	AVG	

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



Test Mode: TX G Mode 2462 MHz

### Horizontal



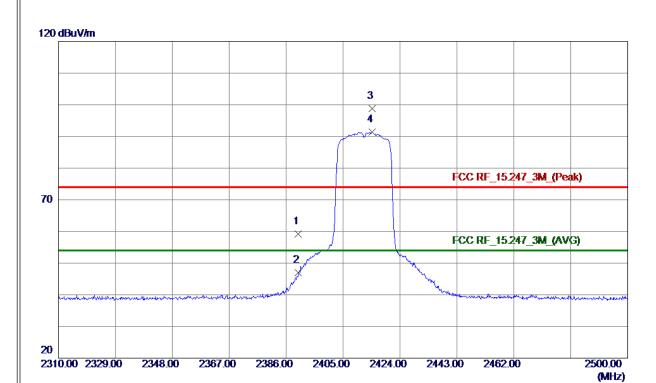
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4930. 8250	61. 16	-10. 59	50. 57	74.00	-23. 43	Peak	

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



Test Mode: TX N-20M Mode 2412 MHz

### Vertical



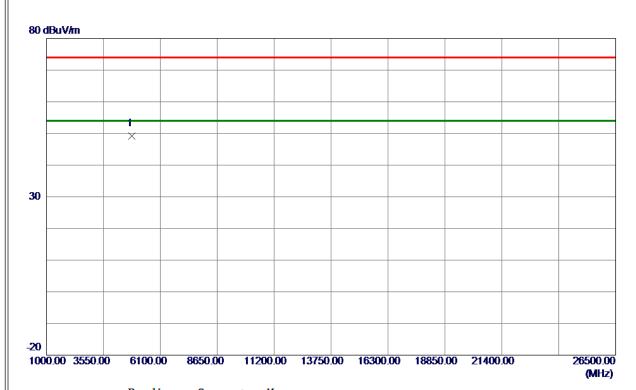
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	27. 53	31.74	59. 27	74.00	-14.73	Peak	
2	2390.0000	15. 26	31.74	47.00	54.00	-7.00	AVG	
3	2414.6900	67. 09	31.72	98. 81	74.00	24.81	Peak	
4 *	2414.6900	59. 59	31.72	91. 31	54.00	37. 31	AVG	

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



Test Mode: TX N-20M Mode 2412 MHz

### **Vertical**



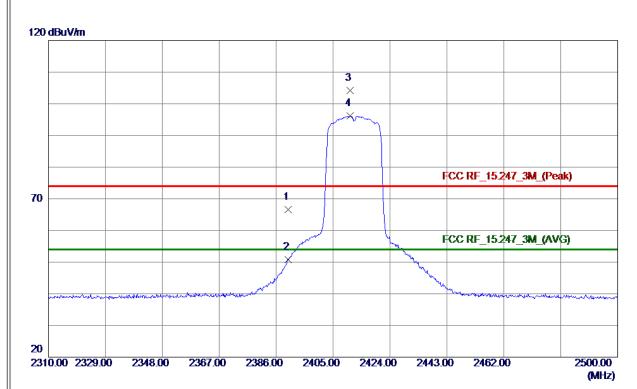
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4828. 8250	0 60. 16	-10. 90	49. 26	74. 00	-24.74	Peak		

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



Test Mode: TX N-20M Mode 2412 MHz

### Horizontal



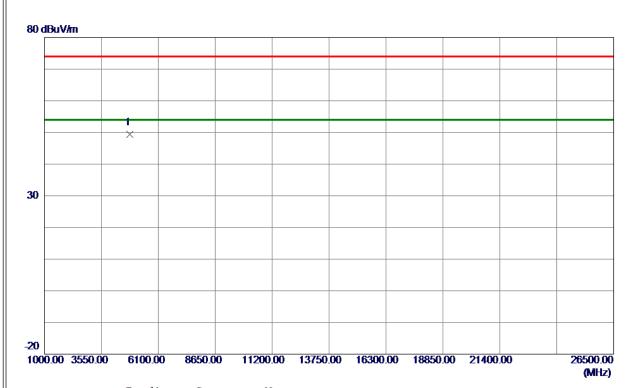
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	34.88	31.74	66. 62	74.00	-7.38	Peak	
2	2390.0000	19.04	31.74	50.78	54.00	-3. 22	AVG	
3	2410.7950	72. 50	31.72	104. 22	74.00	30. 22	Peak	
4 *	2410.7950	64.42	31.72	96. 14	54.00	42.14	AVG	

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



Test Mode: TX N-20M Mode 2412 MHz

### Horizontal



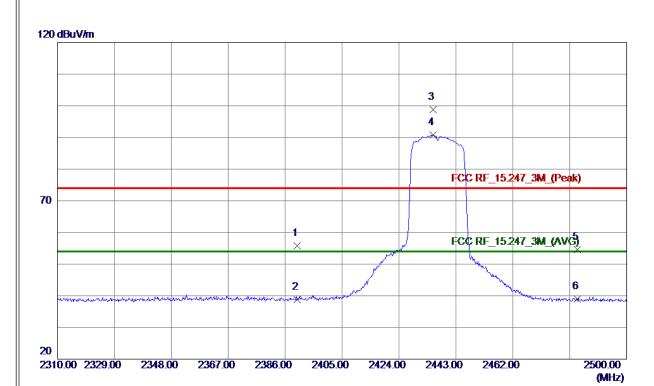
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4825. 0000	60. 20	-10. 90	49. 30	74. 00	-24.70	Peak		

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



Test Mode: TX N-20M Mode 2437 MHz

### Vertical



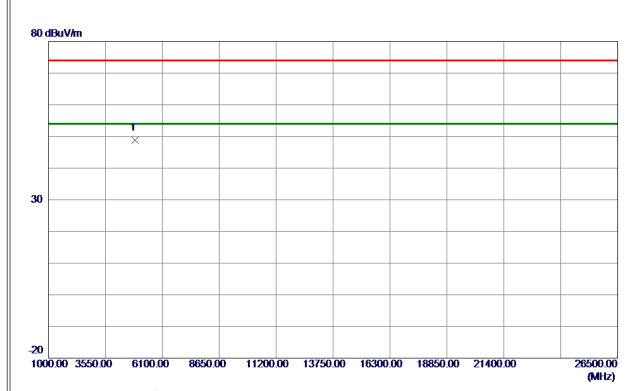
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.02	31.74	55. 76	74.00	-18. 24	Peak	
2	2390.0000	7.04	31.74	38. 78	54.00	-15. 22	AVG	
3	2435. 4000	67. 14	31.72	98. 86	74.00	24.86	Peak	
4 *	2435. 4000	59. 05	31.72	90.77	54.00	36. 77	AVG	
5	2483. 5000	22. 91	31.71	54.62	74.00	-19. 38	Peak	
6	2483. 5000	7. 23	31.71	38. 94	54.00	-15.06	AVG	

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



Test Mode: TX N-20M Mode 2437 MHz

### **Vertical**



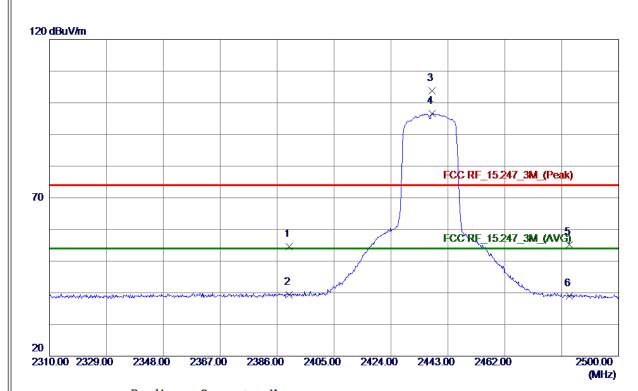
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4874. 7250	59. 59	-10. 79	48. 80	74. 00	-25. 20	Peak		

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



Test Mode: TX N-20M Mode 2437 MHz

### Horizontal



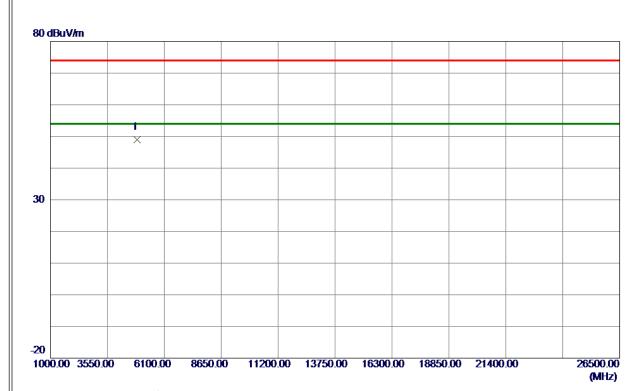
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	22.86	31.74	54.60	74.00	-19.40	Peak	
2	2390.0000	7. 69	31.74	39. 43	54.00	-14.57	AVG	
3	2437.7750	72. 14	31.72	103.86	74.00	29.86	Peak	
4 *	2437.7750	64.85	31. 72	96. 57	54.00	42.57	AVG	
5	2483. 5000	23. 44	31.71	55. 15	74.00	-18.85	Peak	
6	2483. 5000	7. 38	31.71	39. 09	54.00	-14.91	AVG	

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



Test Mode: TX N-20M Mode 2437 MHz

### Horizontal



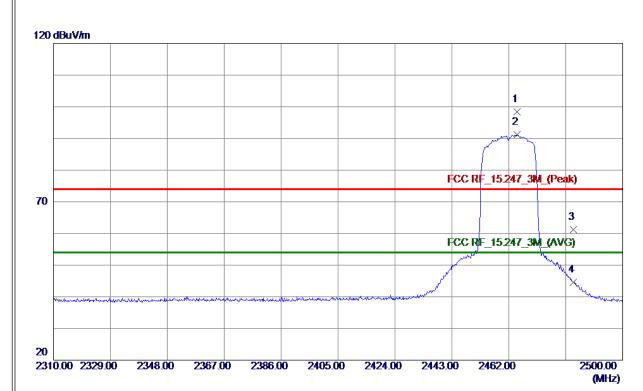
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4878. 5500	59. 73	-10. 78	48. 95	74. 00	-25. 05	Peak		

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



Test Mode: TX N-20M Mode 2462 MHz

### Vertical



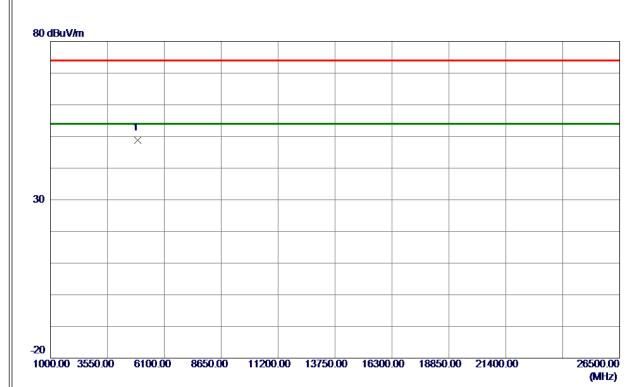
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2464.6600	66. 78	31.71	98. 49	74.00	24.49	Peak	
2 *	2464.6600	59.41	31.71	91. 12	54.00	37.12	AVG	
3	2483. 5000	29. 49	31.71	61. 20	74.00	-12.80	Peak	
4	2483. 5000	12.85	31.71	44. 56	54.00	-9.44	AVG	

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



Test Mode: TX N-20M Mode 2462 MHz

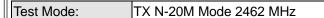
### **Vertical**



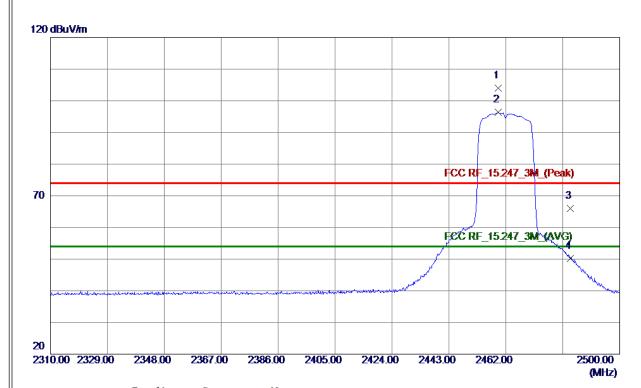
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4916. 8000	59. 55	-10.66	48. 89	74.00	-25. 11	Peak	

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





### Horizontal



No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2459. 4350	72. 32	31.71	104.03	74.00	30. 03	Peak	
2 *	2459. 4350	64.64	31.71	96. 35	54.00	42.35	AVG	
3	2483. 5000	34. 33	31.71	66. 04	74.00	-7. 96	Peak	
4	2483. 5000	18. 42	31.71	50. 13	54.00	-3.87	AVG	

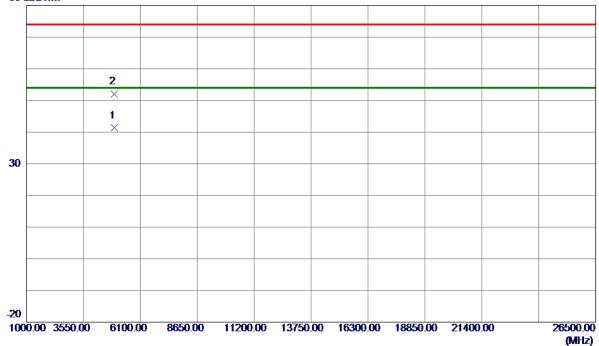
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



Test Mode: TX N-20M Mode 2462 MHz

### Horizontal

### 80 dBuV/m



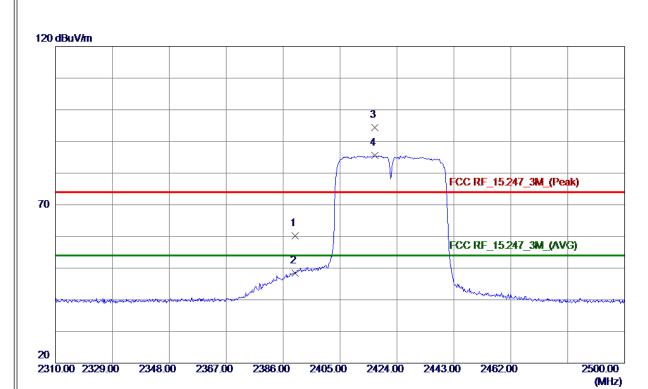
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925. 9049	51. 92	-10.62	41.30	54.00	-12.70	AVG	
2	4928. 2750	62. 66	-10.61	52. <b>0</b> 5	74.00	-21.95	Peak	

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



Test Mode: TX N-40M Mode 2422MHz

## **Vertical**



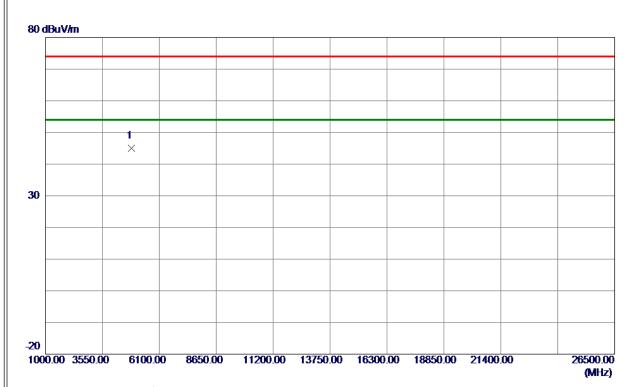
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	28. 51	31.74	60. 25	74.00	-13.75	Peak	
2	2390.0000	16. 59	31.74	48. 33	54.00	-5. 67	AVG	
3	2416. 6850	62.73	31.72	94. 45	74.00	20.45	Peak	
4 *	2416. 6850	53. 85	31.72	85. 57	54.00	31. 57	AVG	

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



Test Mode: TX N-40M Mode 2422MHz

### **Vertical**



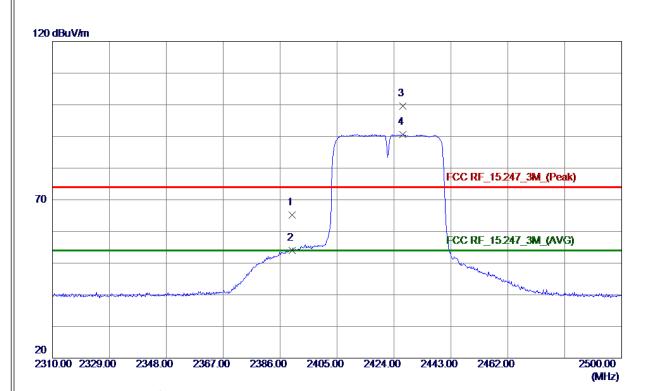
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4845. 4000	55. 77	-10.86	44.91	74.00	-29.09	Peak	

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



Test Mode: TX N-40M Mode 2422MHz

### Horizontal



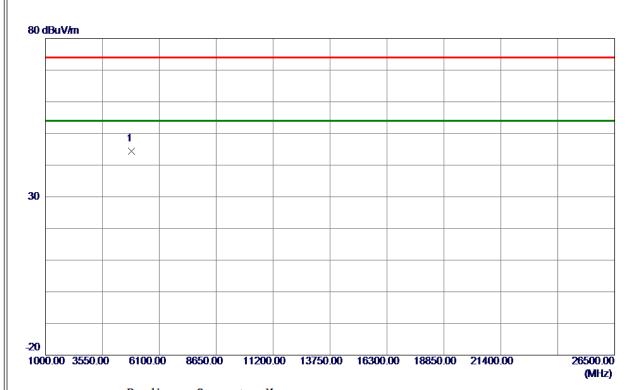
No.	Freq.	Level	Factor	measure	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	33. 50	31.74	65. 24	74.00	-8. 76	Peak	
2	2390.0000	22. 24	31.74	53. 98	54.00	-0.02	AVG	
3	2426. 9450	67. 91	31.72	99. 63	74.00	25.63	Peak	
4 *	2426. 9450	58. 95	31.72	90. 67	54.00	36. 67	AVG	

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



Test Mode: TX N-40M Mode 2422MHz

### Horizontal



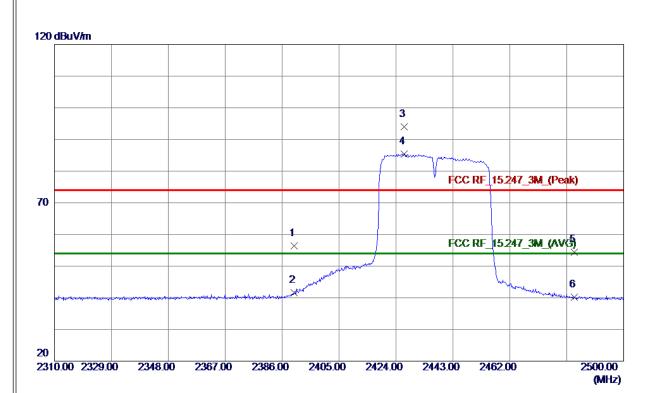
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4867.0750	55. 17	-10.81	44. 36	74. 00	-29. 64	Peak		

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



Test Mode: TX N-40M Mode 2437 MHz

## Vertical



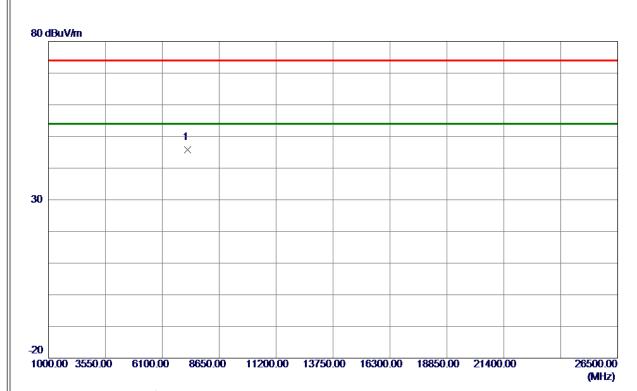
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.60	31.74	56. 34	74.00	-17.66	Peak	
2	2390.0000	9.77	31.74	41.51	54.00	-12.49	AVG	
3	2426.8500	62. 34	31.72	94.06	74.00	20.06	Peak	
4 *	2426.8500	53.72	31.72	85.44	54.00	31.44	AVG	
5	2483. 5000	22.76	31.71	54.47	74.00	-19.53	Peak	
6	2483. 5000	8.46	31.71	40. 17	54.00	-13.83	AVG	

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



Test Mode: TX N-40M Mode 2437 MHz

### **Vertical**



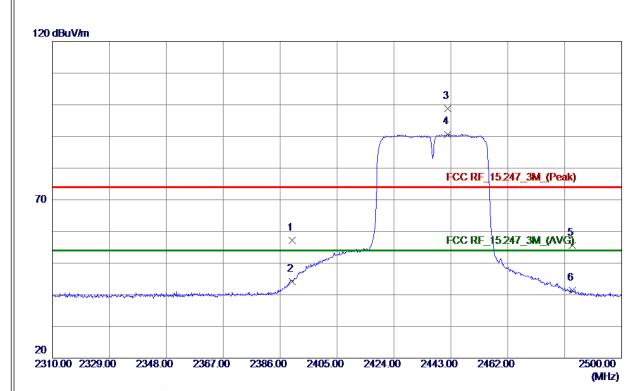
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	7244. 9500	49. 97	-4. 16	45. 81	74. 00	-28. 19	Peak		

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



Test Mode: TX N-40M Mode 2437 MHz

### Horizontal



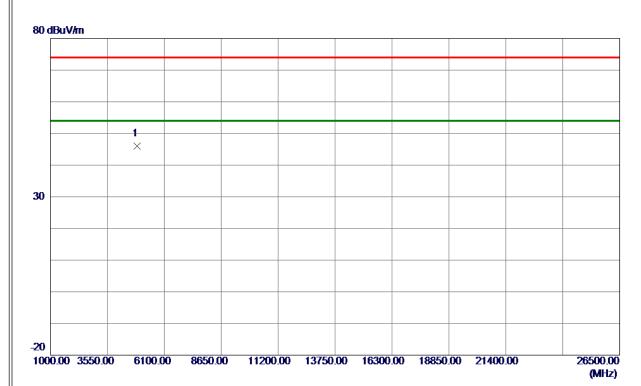
No.	Freq.	Keading Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	25. 38	31.74	57. 12	74.00	-16.88	Peak	
2	2390.0000	12. 55	31. 74	44. 29	54.00	-9.71	AVG	
3	2441.8600	66. 99	31. 72	98. 71	74.00	24.71	Peak	
4 *	2441.8600	58. 98	31.72	90.70	54.00	36. 70	AVG	
5	2483. 5000	23. 91	31.71	55.62	74.00	-18.38	Peak	
6	2483. 5000	9. 77	31.71	41.48	54.00	-12. 52	AVG	

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



Test Mode: TX N-40M Mode 2437 MHz

### Horizontal



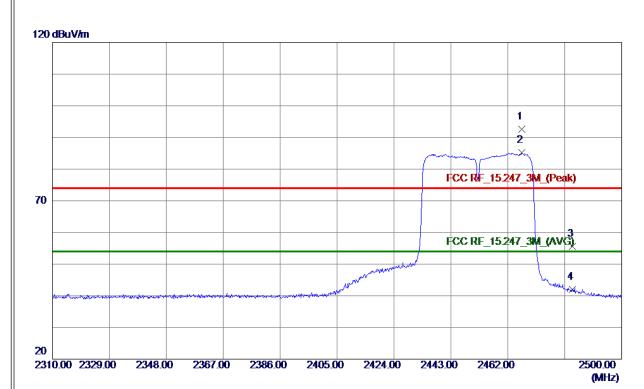
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4879. 8250	56. 69	-10. 78	45. 91	74. 00	-28. 09	Peak		

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



Test Mode: TX N-40M Mode 2452 MHz

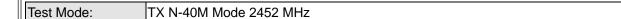
## **Vertical**



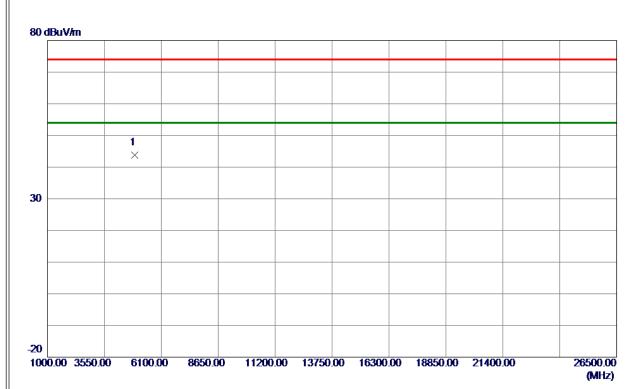
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2466.7500	60.90	31.71	92.61	74.00	18.61	Peak	
2 *	2466. 7500	53.41	31.71	85. 12	54.00	31. 12	AVG	
3	2483. 5000	23. 97	31.71	55. 68	74.00	-18. 32	Peak	
4	2483. 5000	10. 28	31.71	41.99	54.00	-12.01	AVG	

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





### **Vertical**



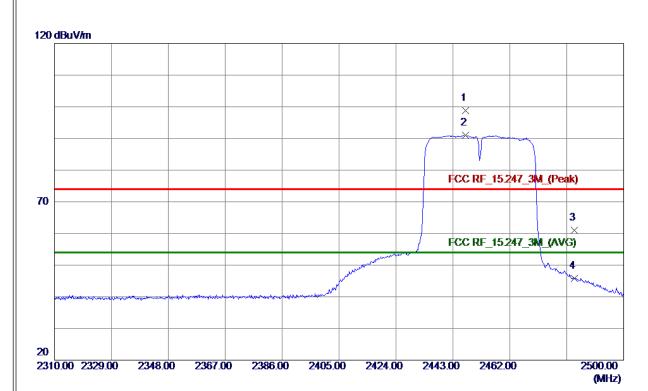
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4910. 4250	54. 56	-10. 69	43.87	74. 00	-30. 13	Peak		

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



Test Mode: TX N-40M Mode 2452 MHz

### Horizontal



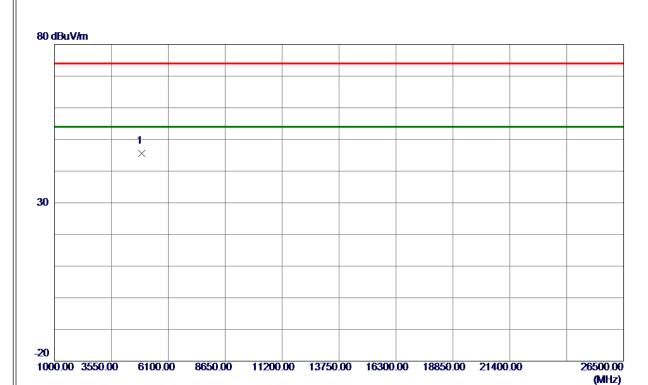
No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2447. 1800	67.05	31.72	98.77	74.00	24.77	Peak	
2 *	2447. 1800	59. 25	31.72	90. 97	54.00	36. 97	AVG	
3	2483. 5000	29. 31	31.71	61. 02	74.00	-12.98	Peak	
4	2483. 5000	14. 09	31.71	45. 80	54.00	-8. 2 <b>0</b>	AVG	

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



Test Mode: TX N-40M Mode 2452 MHz

### Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4902. 7750	56. 38	-10. 72	45. 66	74. 00	-28. 34	Peak		

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



APPENDIX E - BANDWIDTH	

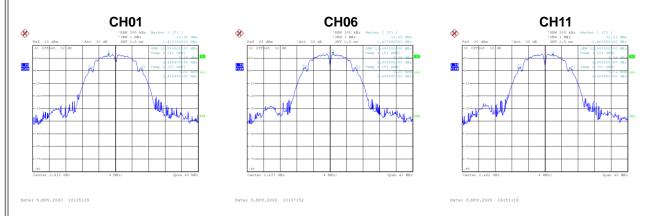


Test Mode	TX B Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	9.35	500	Complies
06	2437	9.63	500	Complies
11	2462	9.82	500	Complies



Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	12.88	Complies
06	2437	12.88	Complies
11	2462	12.88	Complies



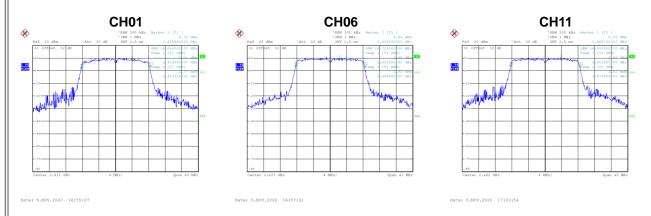


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П		
П	Toot Modo	
П	Test Mode	TX G Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	16.38	500	Complies
06	2437	16.41	500	Complies
11	2462	16.38	500	Complies



Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	16.64	Complies
06	2437	16.72	Complies
11	2462	16.88	Complies



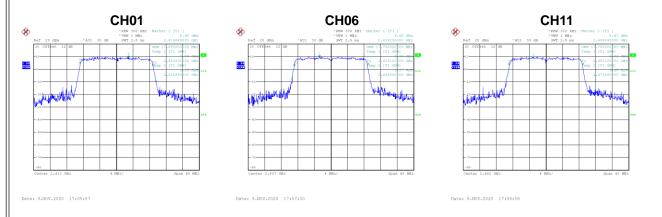


Toot Modo	
Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	17.36	500	Complies
06	2437	17.15	500	Complies
11	2462	17.10	500	Complies



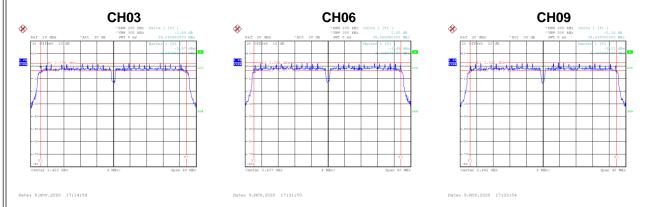
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.68	Complies
06	2437	17.76	Complies
11	2462	17.76	Complies



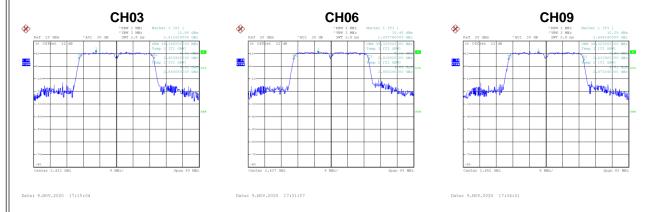


l	Test Mode	TX N-4	OM Mod	le
п	100t Wiodo		OIVI IVIOC	•

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
03	2422	35.27	500	Complies
06	2437	35.60	500	Complies
09	2452	35.43	500	Complies



Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
03	2422	36.16	Complies
06	2437	36.32	Complies
09	2452	36.32	Complies





# **APPENDIX F - MAXIMUM OUTPUT POWER**



# Test Mode TX B Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (W)	Result
01	2412	21.48	1.0000	Complies
06	2437	21.72	1.0000	Complies
11	2462	21.76	1.0000	Complies

# Test Mode TX G Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (W)	Result
01	2412	24.52	1.0000	Complies
06	2437	24.63	1.0000	Complies
11	2462	24.86	1.0000	Complies

# Test Mode TX N-20M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (W)	Result
01	2412	23.99	1.0000	Complies
06	2437	24.79	1.0000	Complies
11	2462	24.95	1.0000	Complies

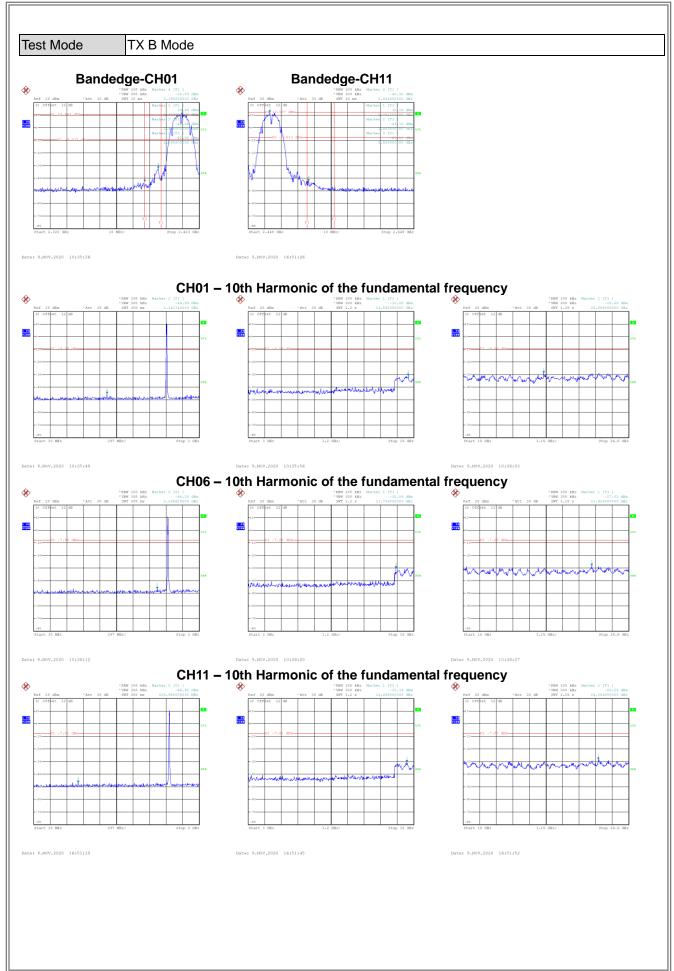
# Test Mode TX N-40M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (W)	Result
03	2422	23.60	1.0000	Complies
06	2437	24.42	1.0000	Complies
09	2452	24.35	1.0000	Complies

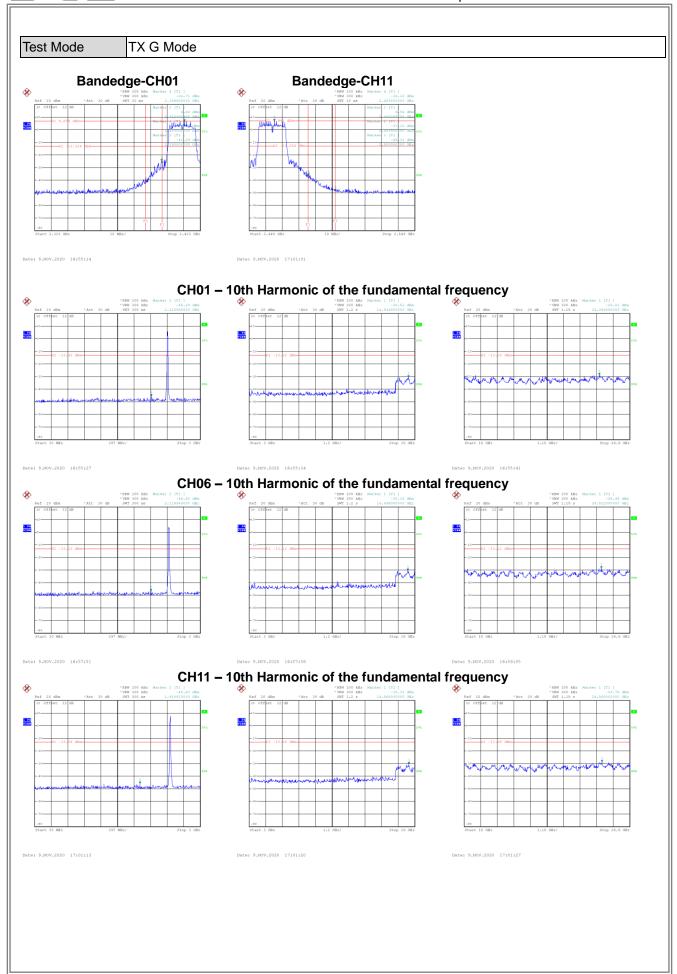


# **APPENDIX G - CONDUCTED SPURIOUS EMISSIONS**

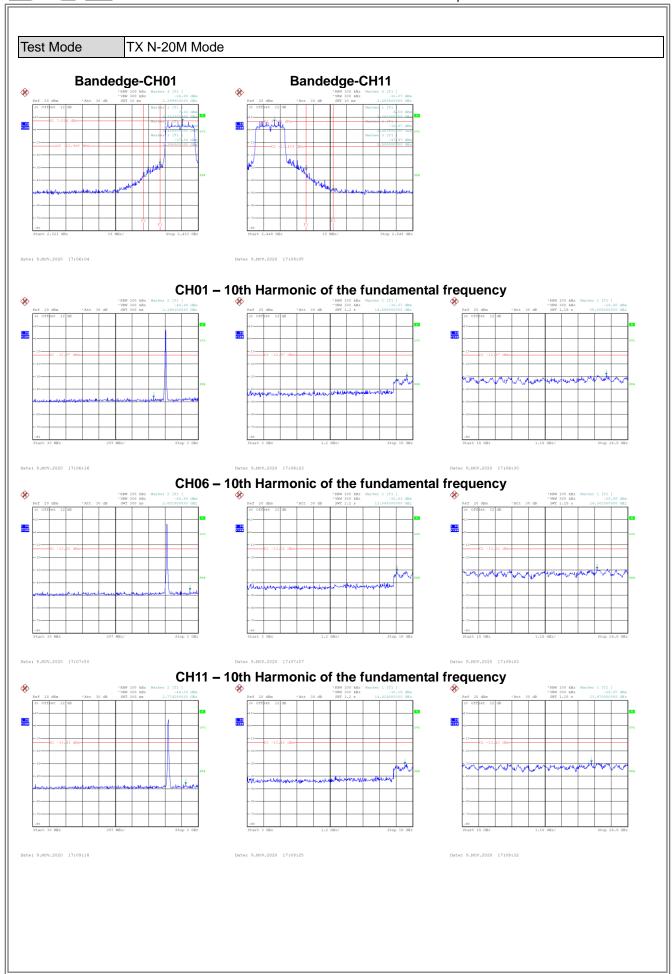




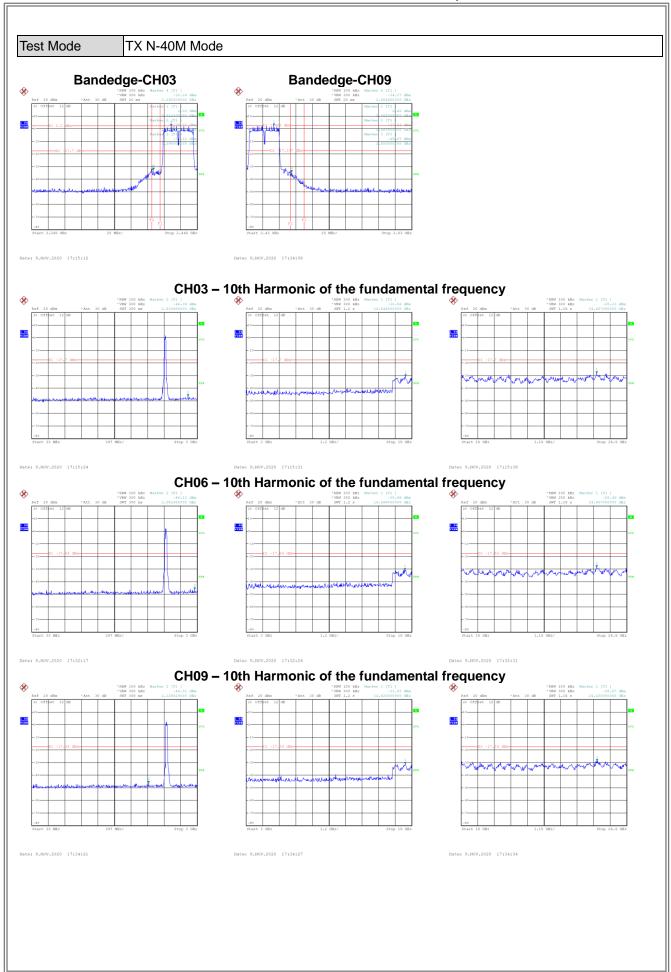














# **APPENDIX H - POWER SPECTRAL DENSITY**



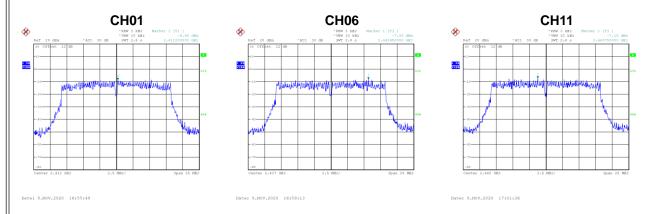
Test Mode	TX B Mode
100t Wiodo	I I I D IVIOGO

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-2.86	8	Complies
06	2437	-1.33	8	Complies
11	2462	-2.63	8	Complies



	Test Mode	TX G Mode

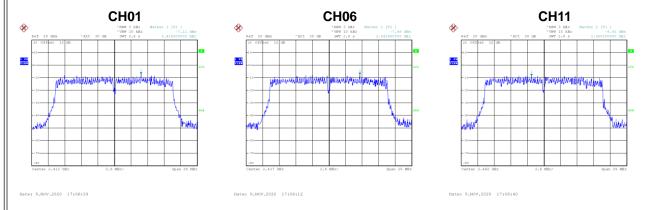
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-8.56	8	Complies
06	2437	-7.93	8	Complies
11	2462	-7.15	8	Complies



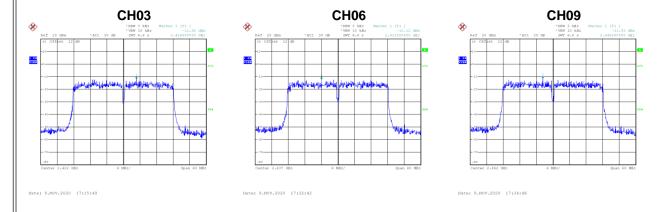


Test Mode	ITX N-20M Mode
LIEST IVIONE	LLX N-ZUM MODE

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-7.11	8	Complies
06	2437	-7.48	8	Complies
11	2462	-8.41	8	Complies



Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-11.92	8	Complies
06	2437	-12.12	8	Complies
09	2452	-11.43	8	Complies



**End of Test Report**