



# **FCC Radio Test Report**

FCC ID: ZMOSC138NA

This report concerns: Original Grant

Project No. : 2111C042
Equipment : LTE Module
Brand Name : Fibocom
Test Model : SC138-NA

Series Model : N/A

**Applicant**: Fibocom Wireless Inc.

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Valley, Dashi 1st Rd, Nanshan, Shenzhen, China

**Manufacturer**: Fibocom Wireless Inc.

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Zone, Huizhou

Date of Receipt : Nov. 03, 2021

**Date of Test** : Nov. 15, 2021 ~ Dec. 07, 2021

**Issued Date** : Dec. 23, 2021

Report Version : R01

Test Sample : Engineering Sample No.: DG20211115166 for conducted,

DG20211115165 for radiated

Standard(s) : FCC CFR Title 47, Part 15, Subpart C

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

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

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IAC-MRA



TESTING CERT #5123.02

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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.	Dec. 17, 2021
R01	Modify the comments.	Dec. 23, 2021



# 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C				
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. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of China.

BTL's Registration Number for FCC: 357015 BTL's Designation Number for FCC: CN1240

#### 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. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.60

#### B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)
		30MHz ~ 200MHz	V	4.36
DG-CB03	CISPR	30MHz ~ 200MHz	Н	3.32
(3m)	CIOPK	200MHz ~ 1,000MHz	V	4.08
		200MHz ~ 1,000MHz	Н	3.96

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03 CISPR		1GHz ~ 6GHz	3.80
(3m)	CISPR	6GHz ~ 18GHz	4.82

Test Site	Method	Measurement Frequency Range	U,(dB)
DG-CB03	CISPR	18 ~ 26.5 GHz	3.62
(1m)	CISPR	26.5 ~ 40 GHz	4.00

#### C. Other Measurement:

iododi omoni.	
Test Item	Uncertainty
Bandwidth	±3.8 %
Maximum Output Power	±0.95 dB
Conducted Spurious Emission	±2.71 dB
Power Spectral Density	±0.86 dB
Temperature	±0.08 °C
Humidity	±1.5%

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	65%	DC 3.8V	Aries Tang
Radiated Emissions-9kHz to 30 MHz	25°C	60%	DC 3.8V	Sparrow Liu
Radiated Emissions-30MHz to 1000MHz	20°C	50%	DC 3.8V	Kwok Guo
Radiated Emissions-Above 1000MHz	22°C	57%	DC 3.8V	Wade Liang
Bandwidth	23°C	40%	DC 3.8V	Longdage Feng
Maximum Output Power	23°C	40%	DC 3.8V	Ansel Yang
Conducted Spurious Emissions	23°C	40%	DC 3.8V	Longdage Feng
Power Spectral Density	23°C	40%	DC 3.8V	Longdage Feng



# 2. GENERAL INFORMATION

# 2.1 GENERAL DESCRIPTION OF EUT

Equipment	LTE Module
Brand Name	Fibocom
Test Model	SC138-NA
Series Model	N/A
Model Difference(s)	N/A
Hardware Version	SC138-NA
Software Version	SC138-NA-Q62.00.104
Power Source	DC Voltage supplied from external power supply.
Power Rating	DC 3.5V ~ 4.2V
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: 17.47 dBm (0.0558 W)

#### Note:

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

# 2. Channel List:

	CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20) CH03 - CH09 for IEEE 802.11n(HT40)						
Channel	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)
1	N/A	N/A	Dipole	SMA	1

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.

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(HT20) Mode Channel 01/06/11	
Mode 4	TX N(HT40) Mode Channel 03/06/09	
Mode 5	TX B Mode Channel 11	

Following mode(s) was (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 B Mode Channel 11	

Radiated emissions test - Below 1GHz		
Final Test Mode	Description	
Mode 5	TX B 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(HT20) Mode Channel 01/06/11	
Mode 4	TX N(HT40) 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(HT20) Mode Channel 01/06/11	
Mode 4	TX N(HT40) Mode Channel 03/06/09	

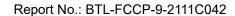


#### NOTE:

- (1) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (2) For AC power line conducted emissions and radiated emission below 1 GHz test, the TX B Mode Channel 11 is found to be the worst case and recorded.
- (3) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

# 2.3 PARAMETERS OF TEST SOFTWARE

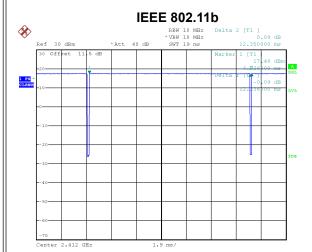
Test Software Version	Qualcomm Radio Control Toolkit v4.0		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	17.5	17	17
IEEE 802.11g	14.5	17	17
IEEE 802.11n(HT20)	15	16	16
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(HT40)	15.5	16	12.5





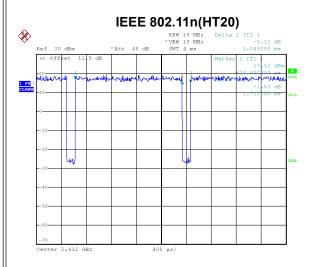
#### 2.4 DUTY CYCLE

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.



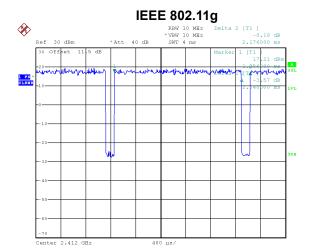
Date: 25.NOV.2021 18:30:03

Duty cycle = 12.236 ms / 12.350 ms = 99.08% Duty Factor = 10 log(1/Duty cycle) = 0.00



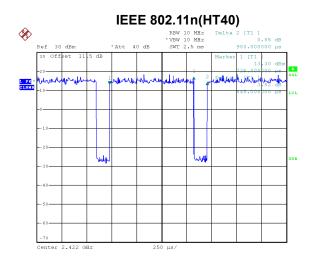
Date: 25.NOV.2021 18:30:36

Duty cycle = 1.712 ms / 1.848 ms = 92.64% Duty Factor = 10 log(1/Duty cycle) = 0.33



Date: 25.NOV.2021 18:30:18

Duty cycle = 2.040 ms / 2.176 ms = 93.75% Duty Factor = 10 log(1/Duty cycle) = 0.28



Date: 25.NOV.2021 18:30:54

Duty cycle = 0.845 ms / 0.980 ms = 86.22% Duty Factor = 10 log(1/Duty cycle) = 0.64





#### 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.

For IEEE 802.11g:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 490 Hz.

For IEEE 802.11n(HT20):

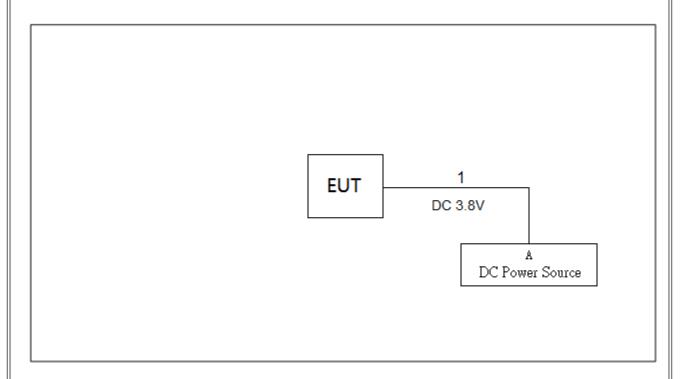
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 584 Hz.

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 1183 Hz.



# 2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



# 2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
Α	DC Power Source	TRUE-POWER	GPC30300N	N/A

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



#### 3. AC POWER LINE CONDUCTED EMISSIONS

#### **3.1 LIMIT**

Frequency of Emission (MHz)	Limit (dBµV)		
Frequency or Emission (WHZ)	Quasi-peak	Average	
0.15 - 0.5	66 to 56*	56 to 46*	
0.5 - 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.
- (3) 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

#### 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.

The following table is the setting of the receiver:

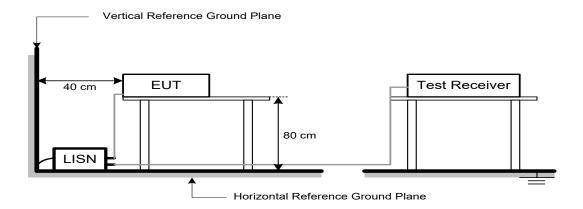
Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

# 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

#### **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 (MHz)	Field Strength (microvolts/meter)	Measurement Distance (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)

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

#### NOTE:

- (1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

## **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.



The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW	1 MHz / 3 MHz for PK value
(Emission in restricted band)	1 MHz / 1/T Hz for AVG value

Receiver Parameters	Setting
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
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector

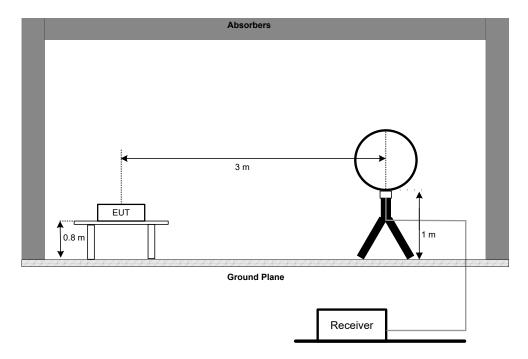
# **4.3 DEVIATION FROM TEST STANDARD**

No deviation.

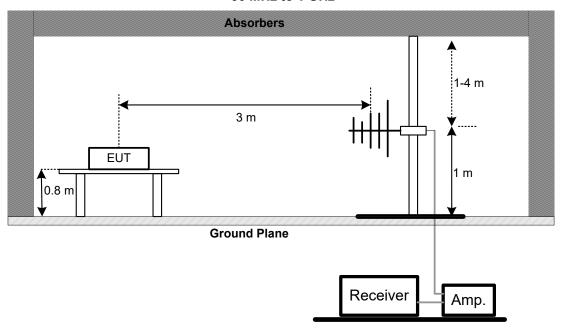


# 4.4 TEST SETUP

#### 9 kHz to 30 MHz

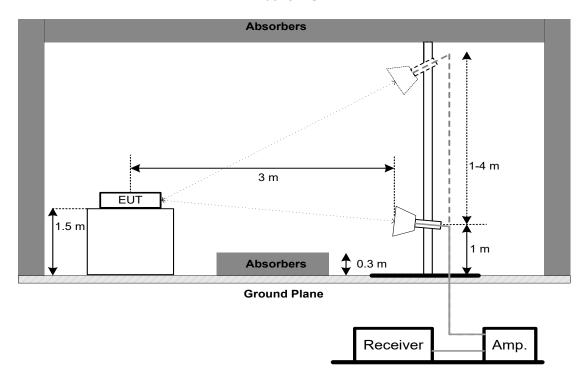


# 30 MHz to 1 GHz





#### **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 RESULT - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

# 4.8 TEST RESULT - 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

# **5.1 LIMIT**

Section	Test Item	Limit
ECC 15 247(a)(2)	6 dB Bandwidth	Minimum 500 kHz
FCC 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. The following table is the setting of the spectrum analyzer:

#### For 6 dB Bandwidth:

TOTO GB Barrawratin		
Spectrum Parameters	Setting	
Span Frequency	> Measurement Bandwidth	
RBW	100 kHz	
VBW	300 kHz	
Detector	Peak	
Trace	Max Hold	
Sweep Time	Auto	

#### For 99% Emission Bandwidth:

Spectrum Parameters	Setting	
Span Frequency	Between 1.5 times and 5.0 times the OBW	
RBW	300 kHz For 20MHz	
TABVV	1 MHz For 40MHz	
VBW	1 MHz For 20MHz	
VBVV	3 MHz For 40MHz	
Detector	Peak	
Trace	Max Hold	
Sweep Time	Auto	

# **5.3 DEVIATION FROM STANDARD**

No deviation.

# **5.4 TEST SETUP**



# 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**

# **6.1 LIMIT**

Section	Test Item	Limit
FCC 15.247(b)(3)	Maximum Output Power	1.0000 Watt or 30.00 dBm

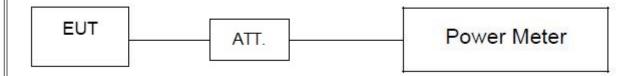
#### **6.2 TEST PROCEDURE**

- 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 11.9.2.3.1 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. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Start Frequency	30 MHz
Stop Frequency	26.5 GHz
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

#### 7.3 DEVIATION FROM STANDARD

No deviation.

## 7.4 TEST SETUP



# 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

# 8.1 LIMIT

Section	Test Item	Limit
FCC 15.247(e)	Power Spectral Density	8 dBm
FCC 13.247(e)	Power Spectral Density	(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. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Span Frequency	25 MHz (20 MHz) / 60 MHz (40 MHz)
RBW	3 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

# 8.3 DEVIATION FROM STANDARD

No deviation.

# 8.4 TEST SETUP



# **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	EMI Test Receiver	R&S	ESCI	100382	Feb. 28, 2022		
2	LISN	EMCO	3816/2	52765	Feb. 27, 2022		
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 27, 2022		
4	50Ω Terminator	SHX	TF5-3	15041305	Feb. 27, 2022		
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		
6	Cable	N/A	RG223	12m	Mar. 09, 2022		
7	643 Shield Room	ETS	6*4*3	N/A	N/A		

	Radiated Emissions - 9 kHz to 30 MHz						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	MXE EMI Receiver	Keysight	N9038A	MY56400091	Feb. 27, 2022		
2*	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Aug. 23, 2024		
3	Cable	N/A	RG 213/U(9kHz~1GHz)	N/A	May 27, 2022		
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		
5	966 Chamber Room	ETS	9*6*6	N/A	Jul. 17, 2022		

	Radiated Emissions - 30 MHz to 1 GHz						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 15, 2022		
2	Amplifier	HP	8447D	2944A08742	Feb. 28, 2022		
3	Cable	emci	LMR-400	N/A	May 20, 2022		
4	Controller	CT	SC100	N/A	N/A		
5	Controller	MF	MF-7802	MF780208416	N/A		
6	Receiver	Agilent	N9038A	MY52130039	Mar. 19, 2022		
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A		
8	966 Chamber Room	RM	9*6*6	N/A	Jul. 24, 2022		

Radiated Emissions - Above 1 GHz						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Double Ridged Horn Antenna	ARA	DRG-118A	16554	Apr. 21, 2022	
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2022	
3	Amplifier	Agilent	8449B	3008A02584	Jul. 10, 2022	
4	Controller	CT	SC100	N/A	N/A	
5	Controller	MF	MF-7802	MF780208416	N/A	
6	Receiver	Agilent	N9038A	MY52130039	Mar. 19, 2022	
7	EXA Spectrum Analyzer	Keysight	N9010A	MY56480488	Feb. 28, 2022	
8	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330 -K	619413	Jul. 16, 2022	
9	Cable	N/A	A81-SMAMSMAM- 12.5M	N/A	Oct. 15, 2022	
10	Cable	Talent microwave	A40-2.92M2.92M-2. 5M	N/A	Nov. 29, 2021 Nov. 30, 2022	
11	Filter	STI	STI15-9912	N/A	Jul. 10, 2022	
12	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
13	966 Chamber Room	RM	9*6*6	N/A	Jul. 24, 2022	



Bandwidth & Conducted Spurious Emissions & Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 10, 2022	
2 Attenuator WOKEN 6SM3502 VAS1214NL Feb. 07, 20						
3	RF Cable	Tongkaichuan	N/A	N/A	N/A	
4	DC Block	Mini	N/A	N/A	N/A	

	Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Jul. 10, 2022	
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 10, 2022	
3	Attenuator	WOKEN	6SM3502	VAS1214NL	Feb. 07, 2022	
4	RF Cable	Tongkaichuan	N/A	N/A	N/A	

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

"\*" calibration period of equipment list is three year.

Except \* item, all calibration period of equipment list is one year.



# 10. EUT TEST PHOTO



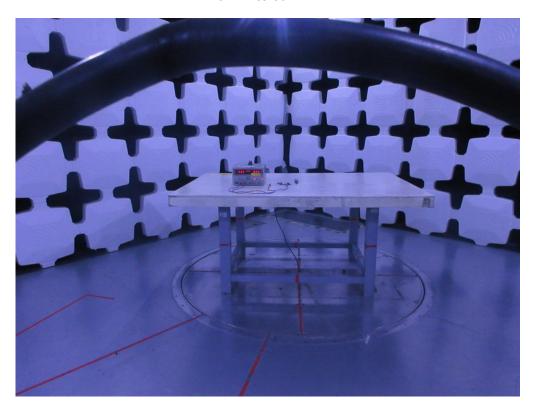


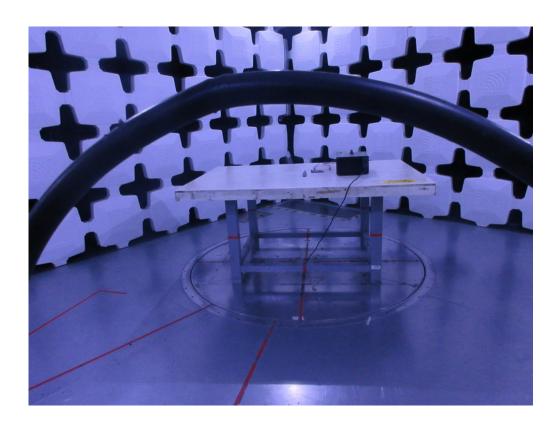




# **Radiated Emissions Test Photos**

9 kHz to 30 MHz



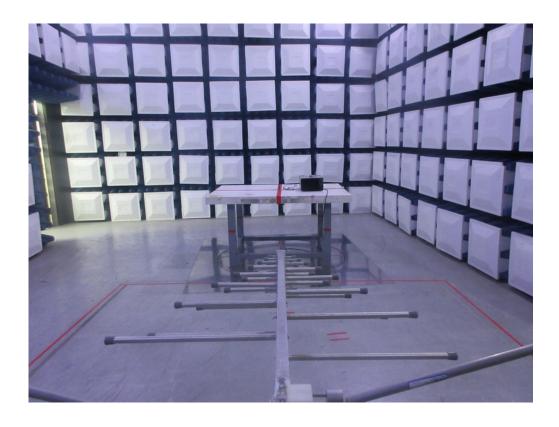




# **Radiated Emissions Test Photos**

# 30 MHz to 1000 MHz







# **Radiated Emissions Test Photos**

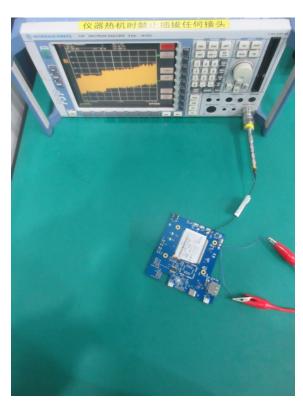
# Above 1 GHz





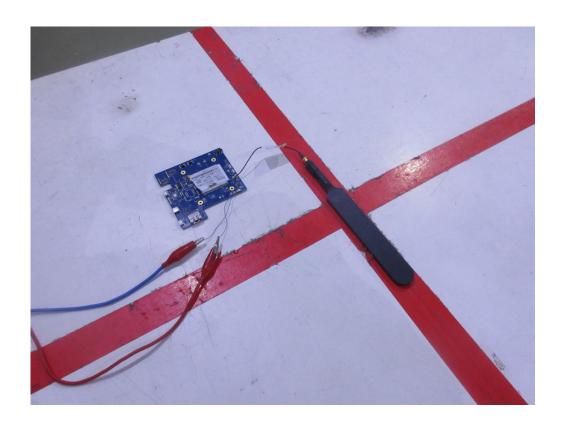


# **Conducted Test Photos**





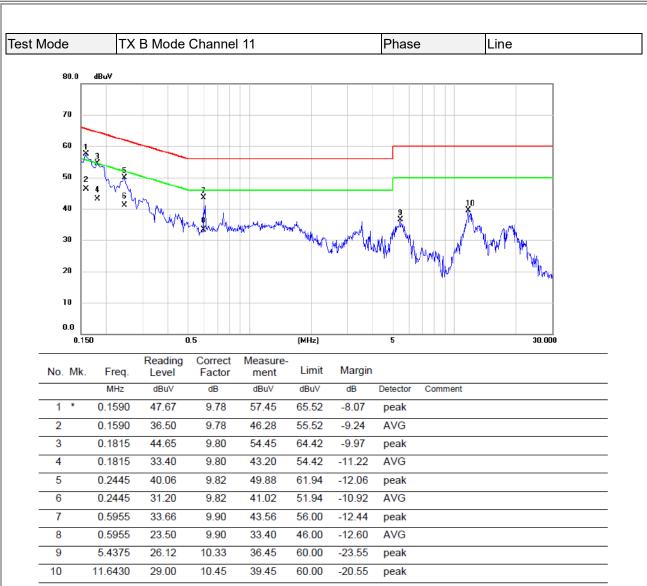






# **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**

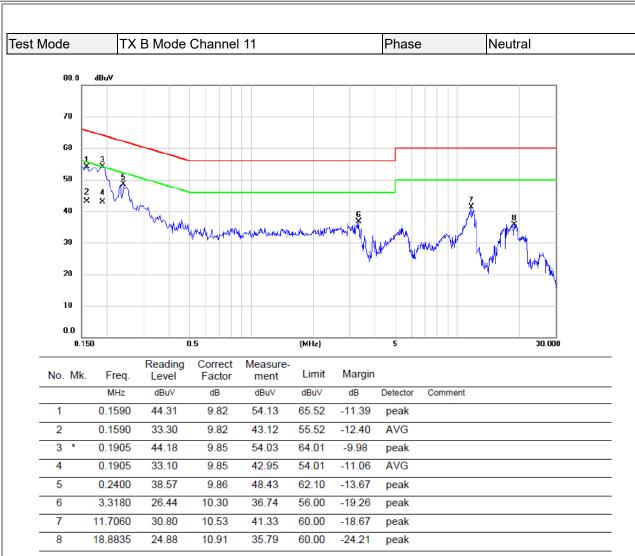




## **REMARKS:**

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





### **REMARKS:**

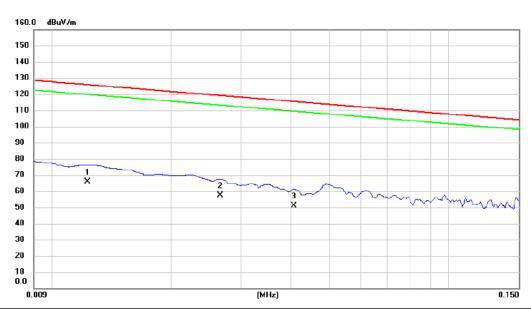
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



# **APPENDIX A - RADIATED EMISSION - 9 KHZ TO 30 MHZ**



Test Mode	TX B Mode Channel 11	Polarization	Ant 0°

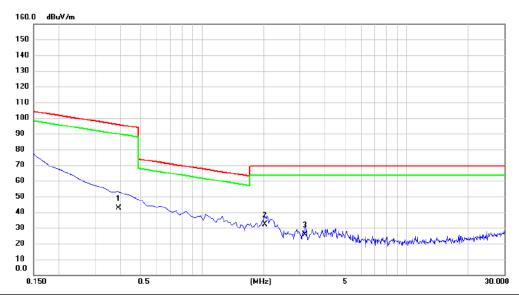


No. Mk.	Freq.	Reading Level		Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.012	49.23	16.71	65.94	125.81	-59.87	AVG	
2	0.027	43.25	14.14	57.39	119.11	-61.72	AVG	
3	0.041	37.12	13.81	50.93	115.41	-64.48	AVG	

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



Test Mode	TX B Mode Channel 11	Polarization	Ant 0°

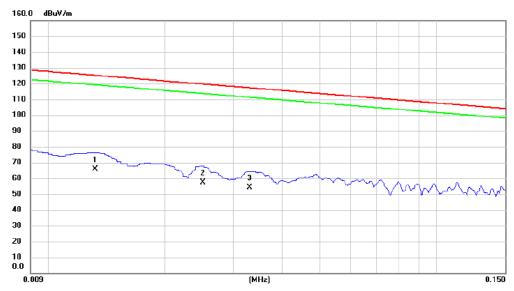


No. Mk.	Freq.		Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.391	29.15	13.46	42.61	95.75	-53.14	AVG	
2 *	2.030	20.16	12.08	32.24	69.54	-37.30	QP	
3	3.195	14.26	11.72	25.98	69.54	-43.56	QP	

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





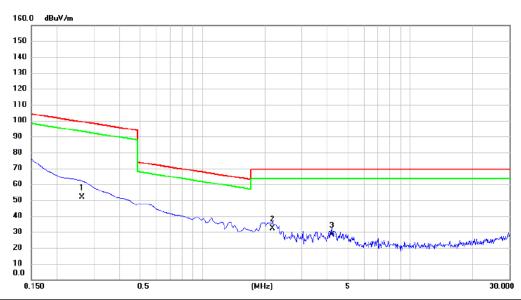


No. Mk.	Freq.			Measure- ment		Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	0.013	49.26	16.43	65.69	125.19	-59.50	AVG	
2	0.025	43.22	14.17	57.39	119.65	-62.26	AVG	
3	0.033	40.16	13.99	54.15	117.23	-63.08	AVG	

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



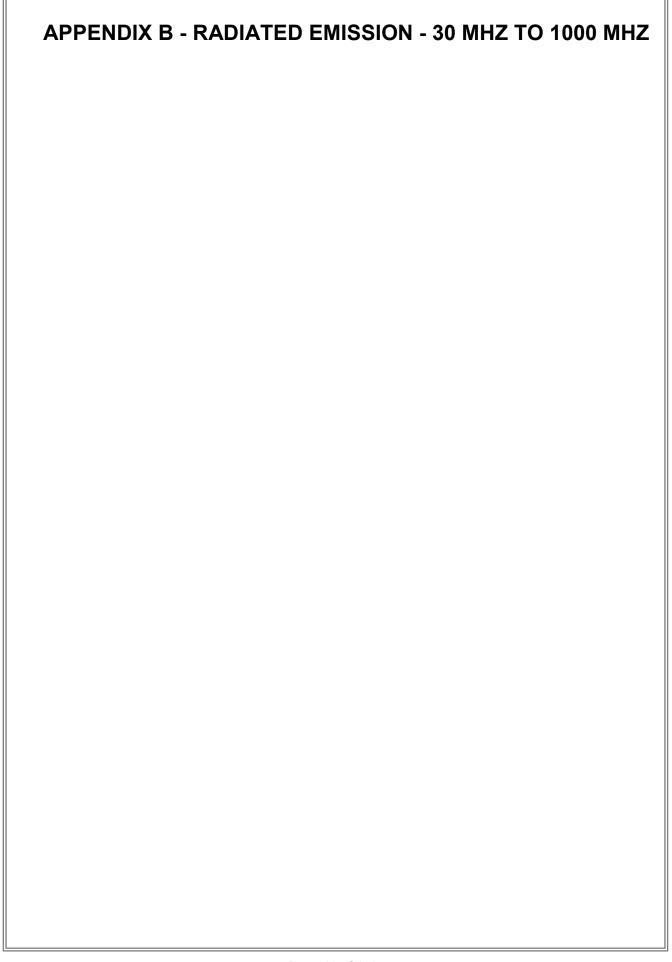
Test Mode TX B Mode Channel 11 Polarization Ant 90°



No. Mk.	Freq.		Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.262	38.16	13.59	51.75	99.24	-47.49	AVG	
2 *	2.180	20.14	12.02	32.16	69.54	-37.38	QP	
3	4.180	16.54	11.72	28.26	69.54	-41.28	QP	

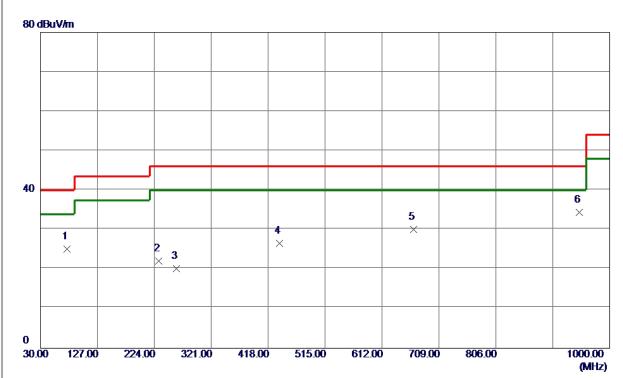
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.









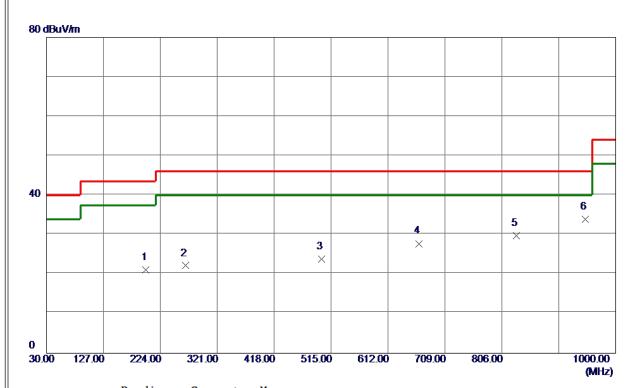


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	75. 5899	42. 55	<b>−17. 46</b>	25. 09	40.00	-14. 91	Peak	
2	231. 2750	36. 00	-13. 95	22. 05	46.00	-23.95	Peak	
3	261. 3450	32. 80	-12. 61	20. 19	46.00	-25. 81	Peak	
4	436. 9150	34. 53	-7. 96	26. 57	46.00	-19. 43	Peak	
5	666. 3200	33. 92	-3. 77	30. 15	46.00	-15. 85	Peak	
6 *	948. 1050	32. 76	1. 65	34. 41	46. 00	-11. 59	Peak	

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







No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	199. 7500	36. 55	-15. 48	21. 07	43. 50	-22. 43	Peak	
2	266. 6800	34. 56	-12. 40	22. 16	46.00	-23.84	Peak	
3	498. 5100	30. 63	-6. 80	23. 83	46.00	-22. 17	Peak	
4	664. 8650	31. 55	-3. 79	27. 76	46.00	-18. 24	Peak	
5	831. 2199	30. 62	-0.80	29.82	46.00	-16. 18	Peak	
6 *	948. 1050	32. 32	1. 65	33. 97	46.00	-12. 03	Peak	

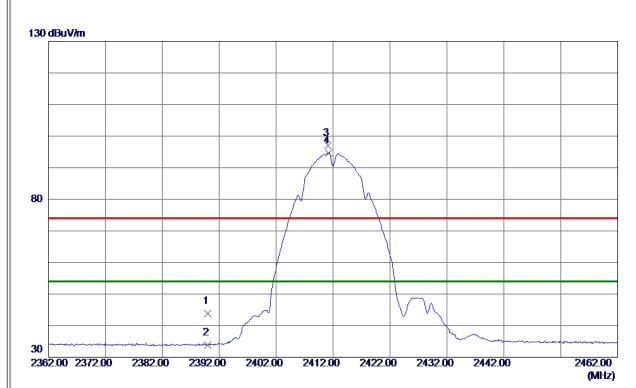
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



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





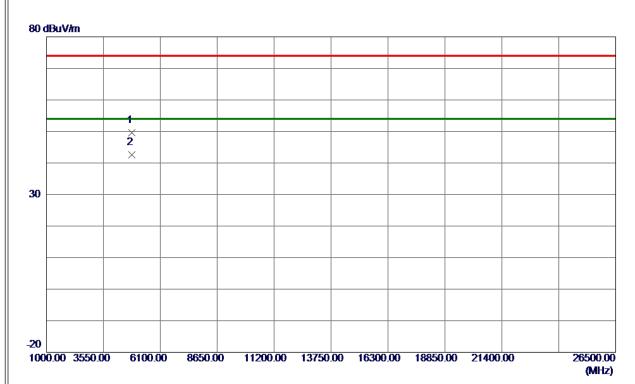


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	38. 38	5. 44	43.82	74.00	-30. 18	Peak	
2	2390. 0000	28. 29	5. 44	33. 73	54.00	-20. 27	AVG	
3	2411. 1500	91. 46	5. 49	96. 95	74.00	22. 95	Peak	No Limit
4 *	2411. 2500	89. 19	5. 49	94. 68	54.00	40.68	AVG	No Limit

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





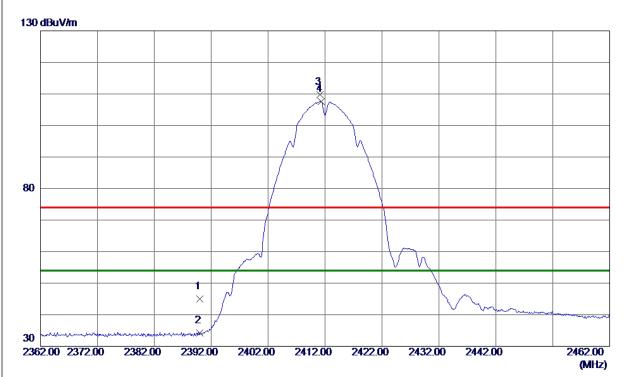


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823. 9500	47. 50	2. 07	49. 57	74.00	-24. 43	Peak	
2 *	4824. 0750	40. 54	2. 07	42.61	54.00	-11. 39	AVG	

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





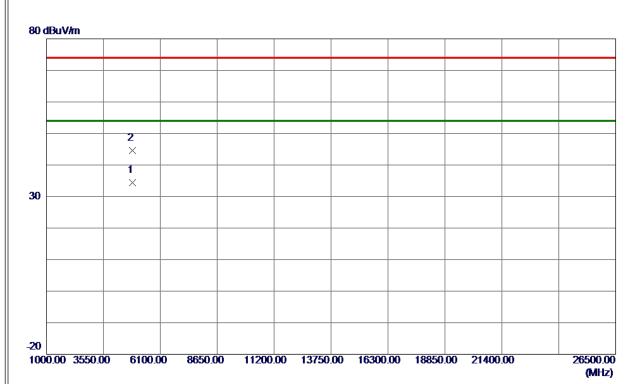


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	39. 62	5. 44	45. 06	74.00	-28.94	Peak	
2	2390. 0000	28. 80	5. 44	34. 24	54.00	-19. 76	AVG	
3	2411. 1000	104. 38	5. 49	109.87	74.00	35. 87	Peak	No Limit
4 *	2411. 3500	102. 13	5. 49	107. 62	54. 00	53. 62	AVG	No Limit

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





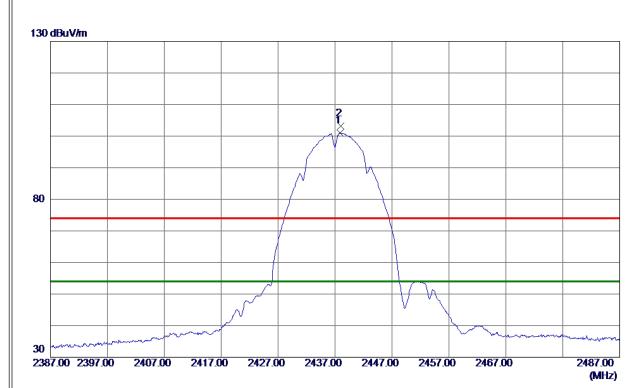


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4845. 0000	32. 25	2. 13	34. 38	54.00	-19.62	AVG	
2	4848, 0750	42, 53	2. 14	44. 67	74. 00	-29. 33	Peak	

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





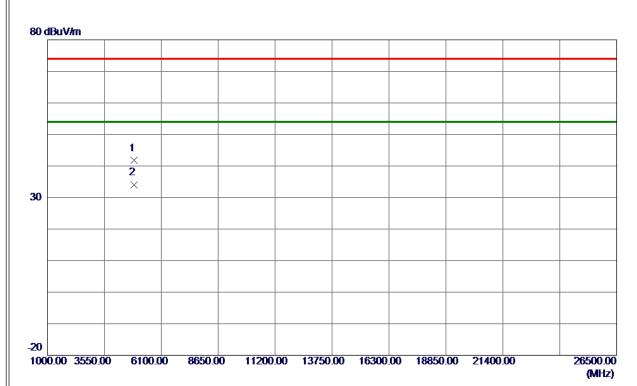


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2437. 8500	95. 53	5. 56	101. 09	54.00	47. 09	AVG	No Limit
2	2437. 9500	97. 63	5. 56	103. 19	74.00	29. 19	Peak	No Limit

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





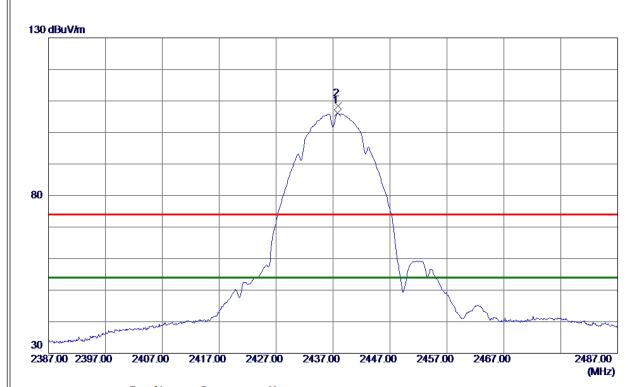


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.6700	39. 48	2. 22	41.70	74.00	-32. 30	Peak	
2 *	4874, 0900	31, 75	2, 22	33. 97	54, 00	-20, 03	AVG	

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





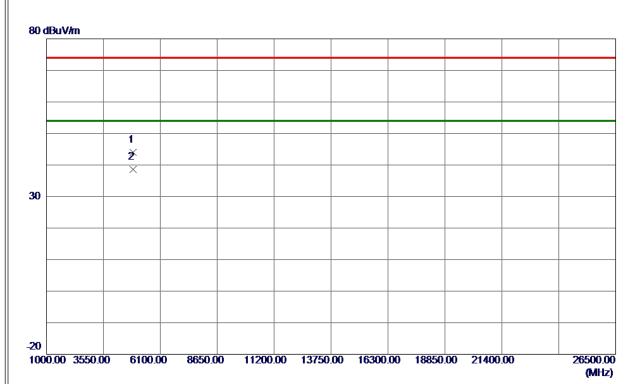


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2437. 8000	100. 58	5. 56	106. 14	54.00	52. 14	AVG	No Limit
2	2437. 8500	102. 78	5. 56	108. 34	74.00	34. 34	Peak	No Limit

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





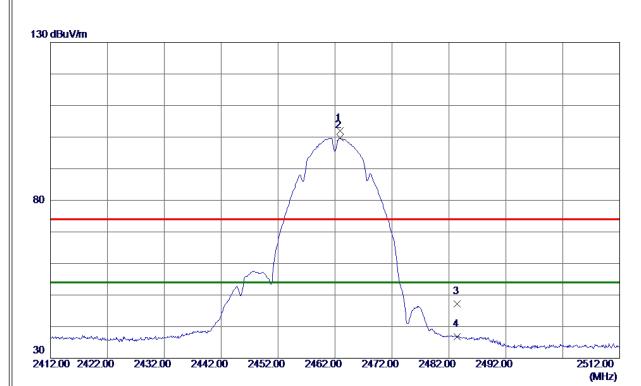


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873. 9700	41. 72	2. 22	43. 94	74.00	-30.06	Peak	
2 *	4873, 9700	36. 43	2, 22	38. 65	54. 00	-15. 35	AVG	

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





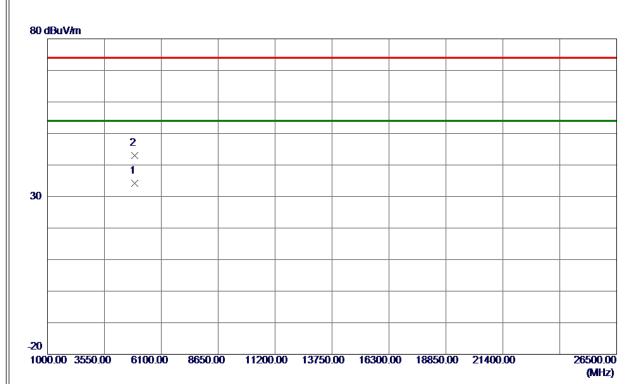


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2462. 8500	96. 38	5. 62	102. 00	74.00	28. 00	Peak	No Limit
2 *	2462. 9000	94. 11	5. 62	99. 73	<b>54.00</b>	45. 73	AVG	No Limit
3	2483. 5000	41. 53	5. 68	47. 21	74.00	-26. 79	Peak	
4	2483. 5000	31. 10	5. 68	36. 78	<b>54.00</b>	-17. 22	AVG	

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





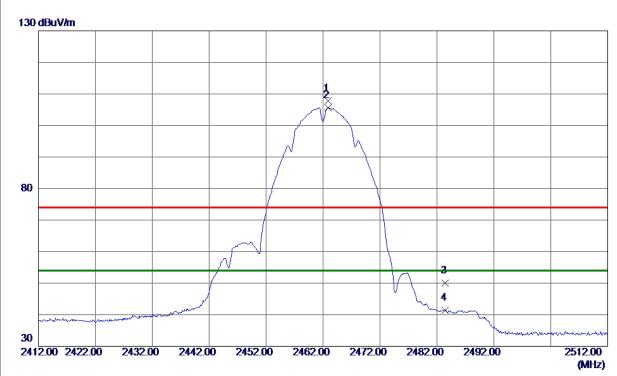


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924. 0299	31. 91	2. 37	34. 28	54.00	-19. 72	AVG	
2	4924, 1500	40. 72	2. 37	43. 09	74. 00	-30. 91	Peak	

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





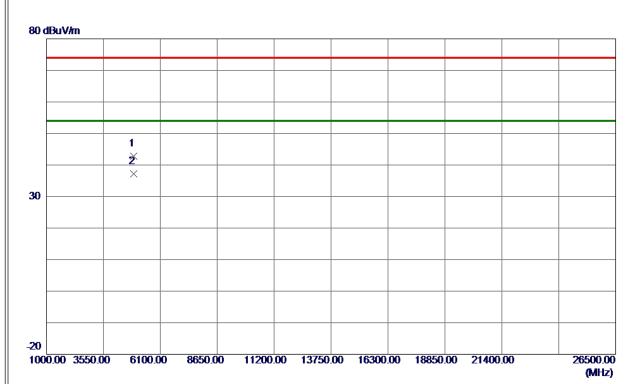


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2462. 8500	102. 27	5. 62	107. 89	74.00	33. 89	Peak	No Limit
2 *	2462. 9000	100.07	5. 62	105. 69	54.00	51. 69	AVG	No Limit
3	2483. 5000	44. 27	5. 68	49. 95	74.00	-24. 05	Peak	
4	2483. 5000	35. 75	5. 68	41. 43	54.00	-12. 57	AVG	

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





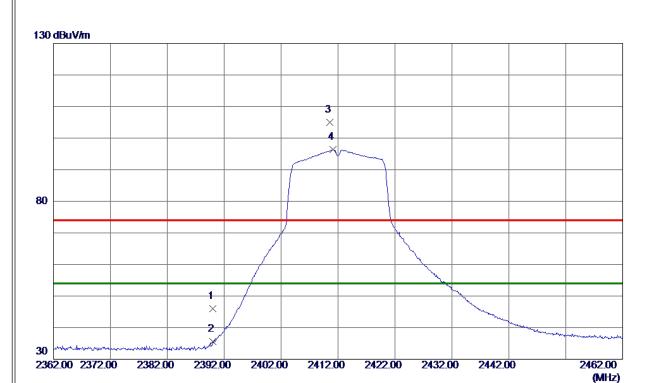


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923. 8650	40. 48	2. 37	42.85	74.00	-31. 15	Peak	
2 *	4924. 0600	34. 85	2. 37	37. 22	54. 00	-16. 78	AVG	

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



Test Mode	TX G Mode 2412 MHz	Polarization	Vertical

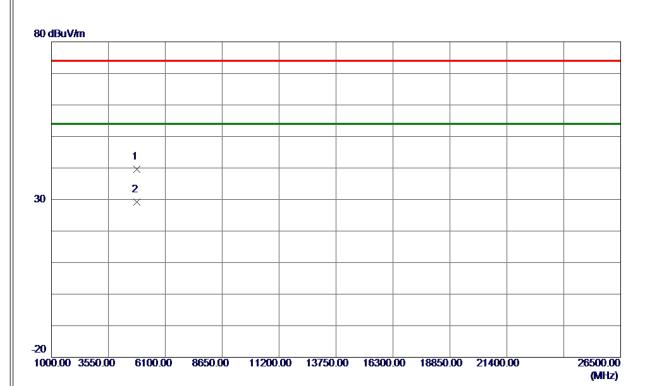


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	40. 59	5. 44	46. 03	74.00	-27. 97	Peak	
2	2390. 0000	30. 12	5. 44	35. 56	54.00	-18. 44	AVG	
3	2410.6000	99. 51	5. 49	105. 00	74.00	31. 00	Peak	No Limit
4 *	2411. 1500	90. 91	5. 49	96. 40	54.00	42. 40	AVG	No Limit

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





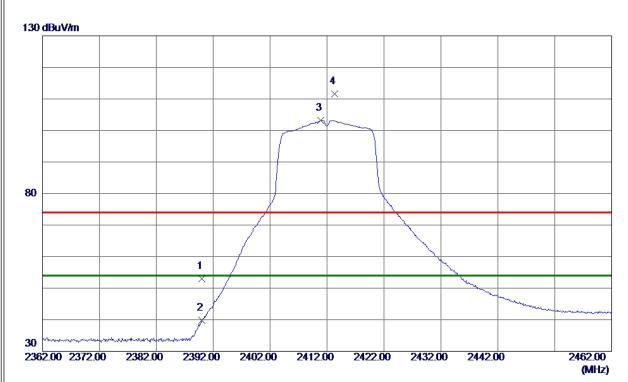


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4827. 2550	37. 46	2. 08	39. 54	74.00	<b>−34. 46</b>	Peak	
2 *	4836. 4800	27. 12	2. 11	29. 23	54.00	-24. 77	AVG	

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





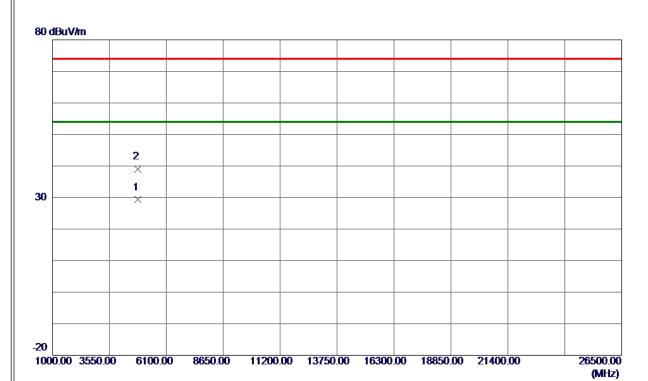


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	47. 56	5. 44	53. 00	74.00	-21.00	Peak	
2	2390. 0000	34. 28	5. 44	39. 72	54.00	-14. 28	AVG	
3 *	2410. 9000	97. 77	5. 49	103. 26	54.00	49. 26	AVG	No Limit
4	2413. 3000	106. 10	5. 50	111. 60	74. 00	37. 60	Peak	No Limit

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





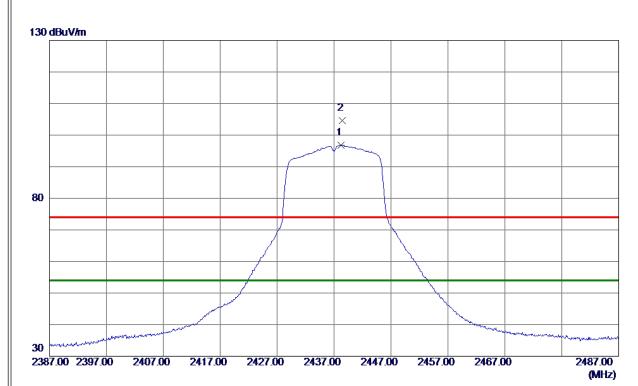


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4826. 5400	27. 22	2. 08	29. 30	<b>54.00</b>	-24.70	AVG	
2	4829.8800	36. 97	2. 09	39. 06	74.00	-34. 94	Peak	

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





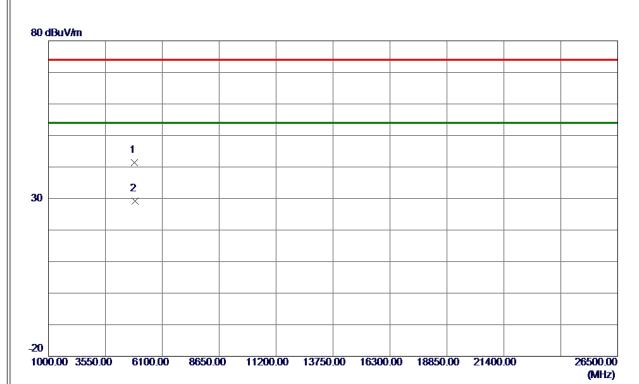


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438. 2500	91. 33	5. 56	96. 89	54.00	42.89	AVG	No Limit
2	2438. 4000	99. 01	5. 56	104. 57	74. 00	30. 57	Peak	No Limit

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





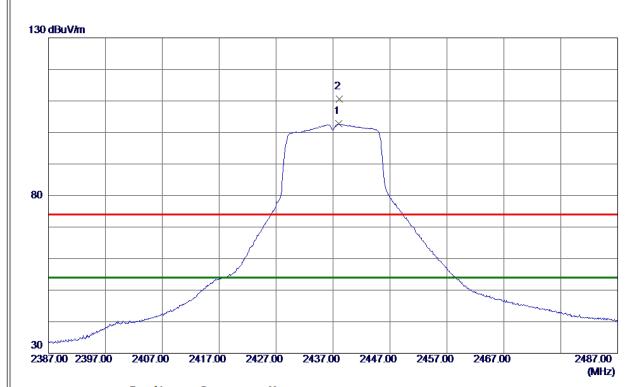


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4866. 7900	39. 19	2. 20	41. 39	74.00	-32. 61	Peak	
2 *	4868, 4100	27. 03	2, 20	29, 23	54. 00	-24. 77	AVG	

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





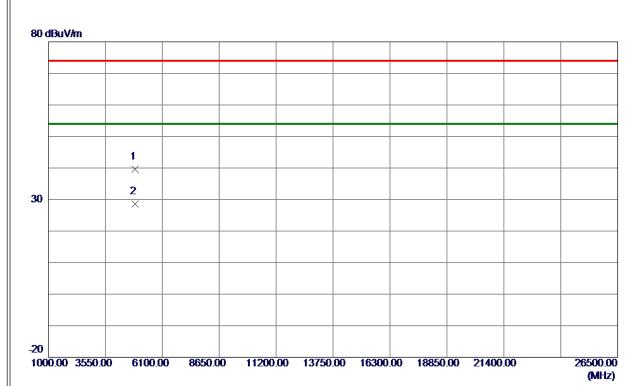


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438. 0000	97. 15	5. 56	102. 71	54.00	48. 71	AVG	No Limit
2	2438. 1500	105. 03	5. 56	110. 59	74. 00	36. 59	Peak	No Limit

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





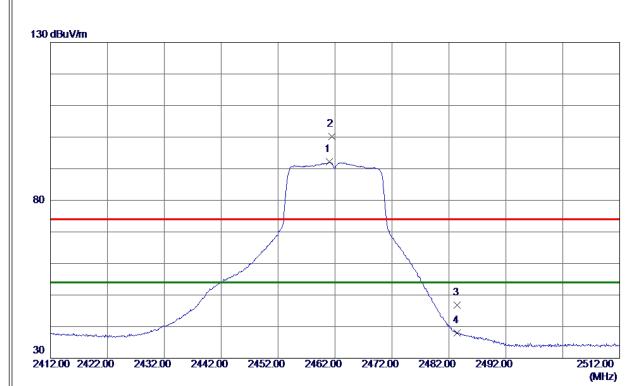


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873. 9600	37. 30	2. 22	39. 52	74.00	-34. 48	Peak	
2 *	4875, 5500	26, 42	2, 22	28. 64	54. 00	-25, 36	AVG	

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





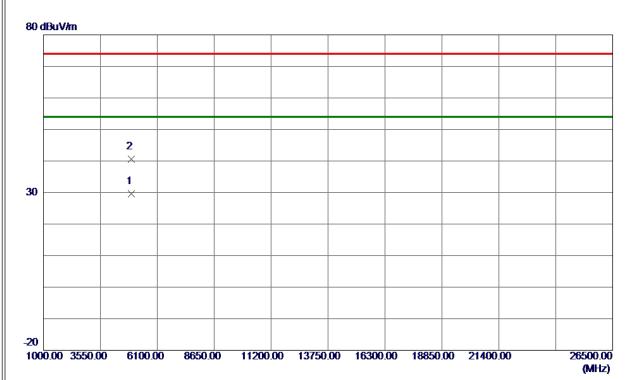


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2461. 0000	86. 56	5. 62	92. 18	54.00	38. 18	AVG	No Limit
2	2461. 4000	94. 56	5. 62	100. 18	74.00	26. 18	Peak	No Limit
3	2483. 5000	41. 20	5. 68	46.88	74.00	-27. 12	Peak	
4	2483. 5000	32. 25	5. 68	37. 93	54.00	-16. 07	AVG	

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





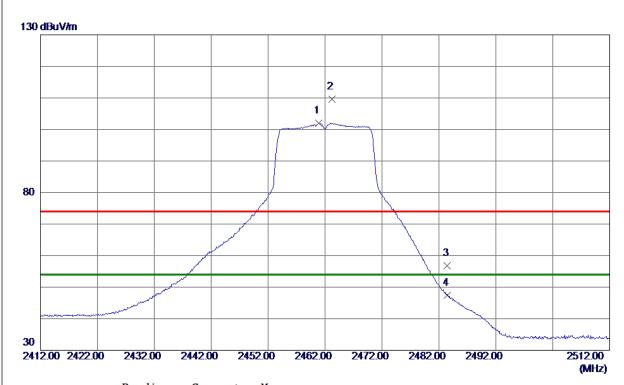


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4933. 2799	27. 25	2. 39	29.64	54.00	-24. 36	AVG	
2	4933. 5700	38. 29	2. 39	40. 68	74. 00	-33. 32	Peak	

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





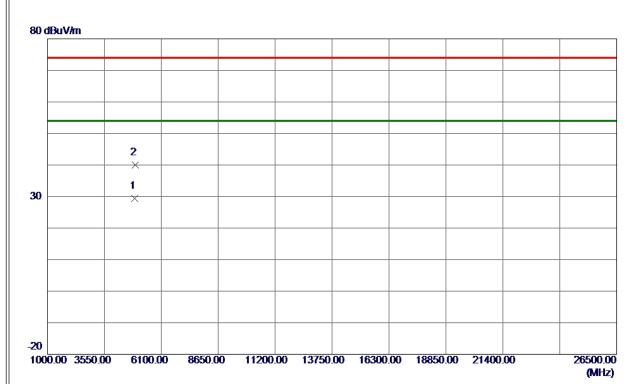


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460. 9000	96. 45	5. 62	102. 07	54.00	48. 07	AVG	No Limit
2	2463. 2000	104. 00	5. 62	109.62	74.00	35. 62	Peak	No Limit
3	2483. 5000	51. 20	5. 68	56. 88	74.00	-17. 12	Peak	
4	2483. 5000	41.71	5. 68	47. 39	54.00	-6. 61	AVG	
1								

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





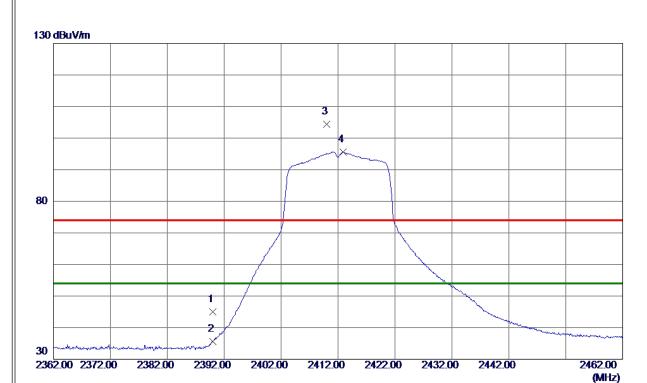


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4914. 9700	27. 02	2. 34	29. 36	54.00	-24. 64	AVG	
2	4932, 4300	37. 68	2, 39	40. 07	74. 00	-33, 93	Peak	

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



Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	Vertical

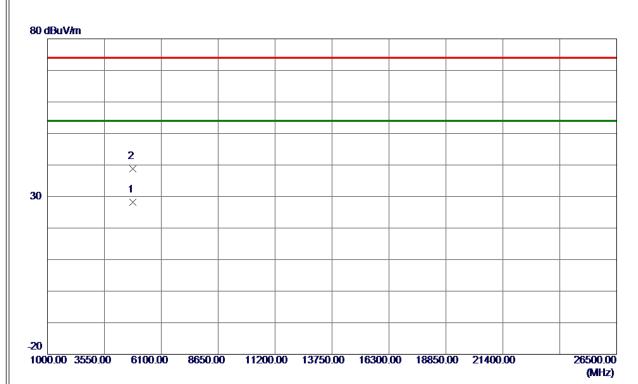


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	39. 52	5. 44	44. 96	74.00	-29. 04	Peak	
2	2390. 0000	30. 24	5. 44	35. 68	54.00	-18. 32	AVG	
3	2410.0000	98. 90	5. 49	104. 39	74.00	30. 39	Peak	No Limit
4 *	2412. 9000	90. 14	5. 50	95. 64	54.00	41.64	AVG	No Limit

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





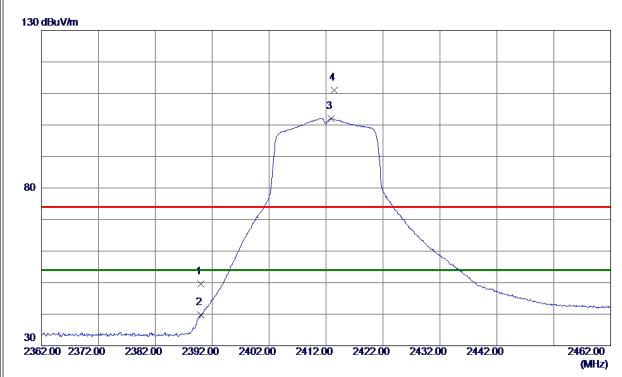


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4819. 8300	26. 10	2.06	28. 16	54.00	-25.84	AVG	
2	4826, 4800	36. 77	2. 08	38, 85	74. 00	-35, 15	Peak	

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



ı				
	Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	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	44. 25	5. 44	49. 69	74.00	-24. 31	Peak	
2	2390. 0000	34. 38	5. 44	39. 82	<b>54.00</b>	-14. 18	AVG	
3 *	2412. 9000	96. 56	5. 50	102.06	<b>54.00</b>	48. 06	AVG	No Limit
4	2413. 4000	105. 53	5. 50	111. 03	74.00	37. 03	Peak	No Limit

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



Test Mode	TX N(HT20) Mode 2412 MHz	Polarization	Horizontal

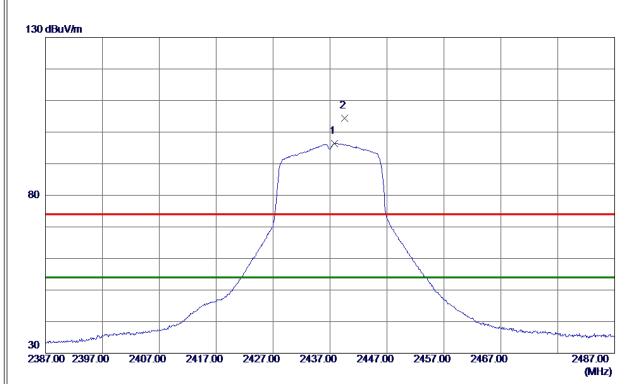


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4819. 6200	28. 25	2. 06	30. 31	54.00	-23. 69	AVG	
2	4826. 9500	39. 53	2. 08	41.61	74. 00	-32. 39	Peak	

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





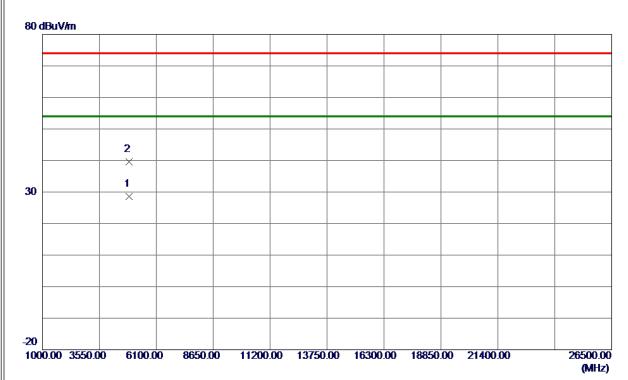


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2437. 7500	90. 86	5. 56	96. 42	54.00	42. 42	AVG	No Limit
2	2439. 5500	98. 85	5. 56	104. 41	74. 00	30. 41	Peak	No Limit

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



Test Mode	TX N(HT20) Mode	2437 MHz	Polarization	Vertical

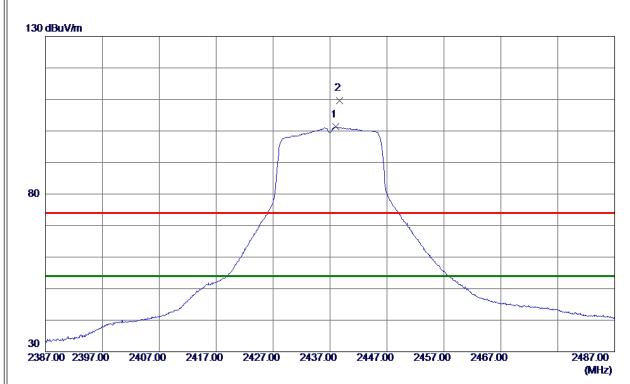


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4867. 9500	26. 36	2. 20	28. 56	<b>54.00</b>	-25.44	AVG	
2	4868. 8100	37. 31	2. 20	39. 51	74. 00	-34. 49	Peak	

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



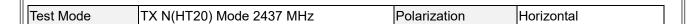




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2438. 0000	95. 74	5. 56	101. 30	54.00	47. 30	AVG	No Limit
2	2438, 7000	104, 13	5. 56	109, 69	74. 00	35, 69	Peak	No Limit

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



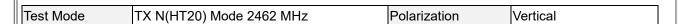


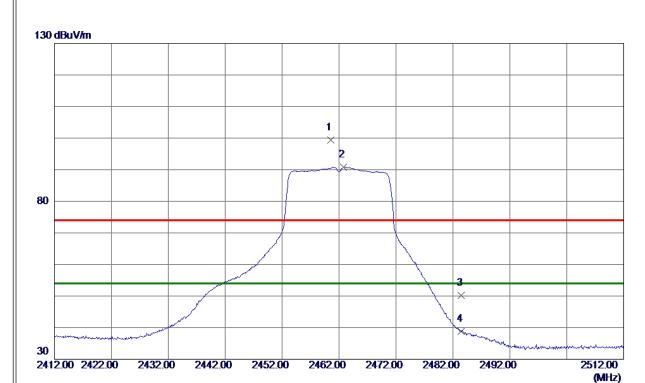


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4867. 0299	27. 43	2. 20	29. 63	54.00	-24. 37	AVG	
2	4881. 4200	38. 44	2. 24	40. 68	74. 00	-33. 32	Peak	

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





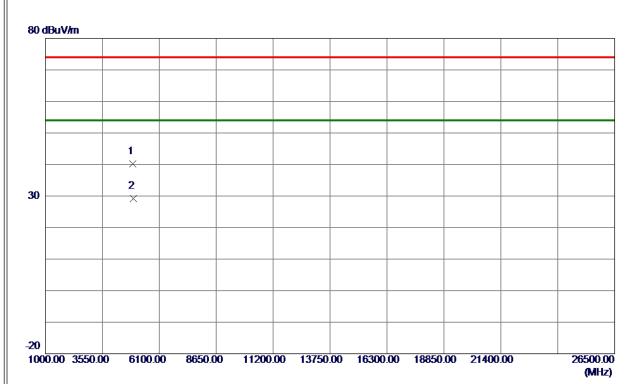


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2460. 5500	93. 85	5. 62	99. 47	74.00	25. 47	Peak	No Limit
2 *	2462. 7500	85. 24	5. 62	90. 86	54.00	36. 86	AVG	No Limit
3	2483. 5000	44. 49	5. 68	50. 17	74.00	-23.83	Peak	
4	2483. 5000	33. 18	5. 68	38. 86	54.00	-15. 14	AVG	

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



Test Mode	TX N(HT20) Mode 2462 MHz	Polarization	Vertical

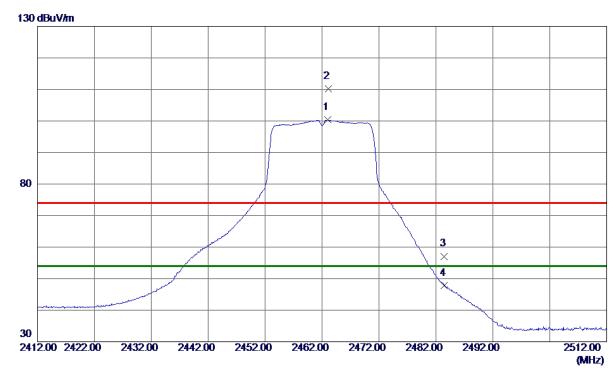


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4915. 2100	37. 77	2. 34	40. 11	74.00	-33. 89	Peak	
2 *	4932. 3600	26. 72	2. 39	29. 11	54. 00	-24. 89	AVG	

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



ı				
	Test Mode	TX N(HT20) Mode 2462 MHz	Polarization	Horizontal

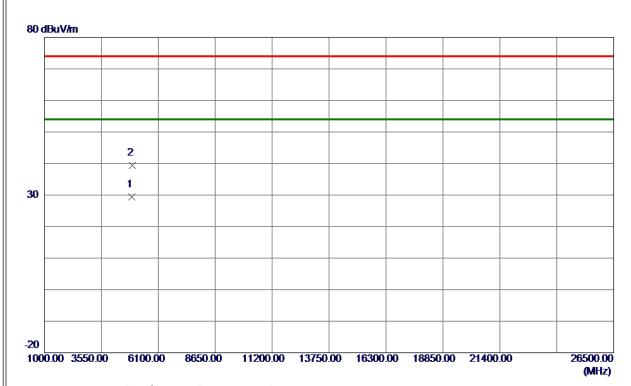


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2463. 0000	94. 74	5. 62	100. 36	54.00	46. 36	AVG	No Limit
2	2463. 1500	104. 56	5. 62	110. 18	74.00	36. 18	Peak	No Limit
3	2483. 5000	51. 42	5. 68	57. 10	74.00	-16. 90	Peak	
4	2483. 5000	42. 15	5. 68	47. 83	54.00	<b>-6.</b> 17	AVG	

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



Test Mode	TX N(HT20)	Mode 2462 MHz	Polarization	Horizontal

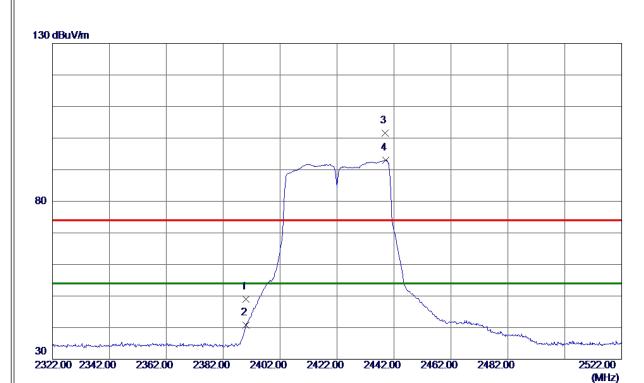


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4914. 3200	26. 98	2. 34	29. 32	54.00	-24. 68	AVG	
2	4931. 8800	37. 09	2. 39	39. <b>4</b> 8	74.00	-34. 52	Peak	

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



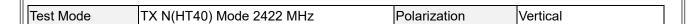




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	43. 52	5. 44	48. 96	74.00	<b>-25.04</b>	Peak	
2	2390. 0000	35. 35	5. 44	40. 79	54.00	-13. 21	AVG	
3	2438. 8000	96. 09	5. 56	101.65	74.00	27. 65	Peak	No Limit
4 *	2439. 1000	87. 53	5. 56	93. 09	54.00	39. 09	AVG	No Limit

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



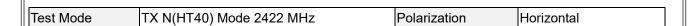


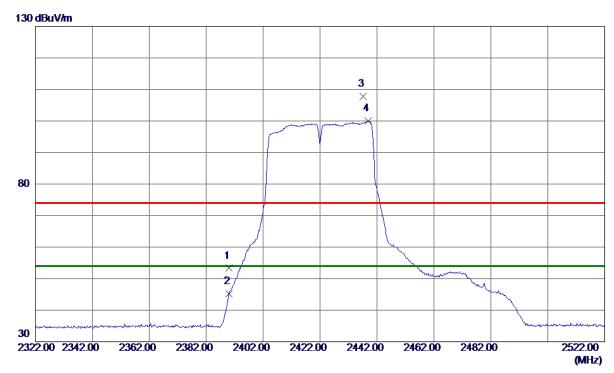


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4837. 4800	27. 11	2. 11	29. 22	54.00	-24. 78	AVG	
2	4843. 3100	36. 87	2. 13	39. 00	74.00	-35.00	Peak	

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



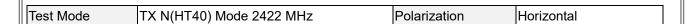




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	47.86	5. 44	53. 30	74.00	-20. 70	Peak	
2	2390. 0000	39. 67	5. 44	45. 11	54.00	-8. 89	AVG	
3	2437. 1000	102. 32	5. 56	107. 88	74.00	33. 88	Peak	No Limit
4 *	2438. 9000	94. 38	5. 56	99. 94	54.00	45. 94	AVG	No Limit

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





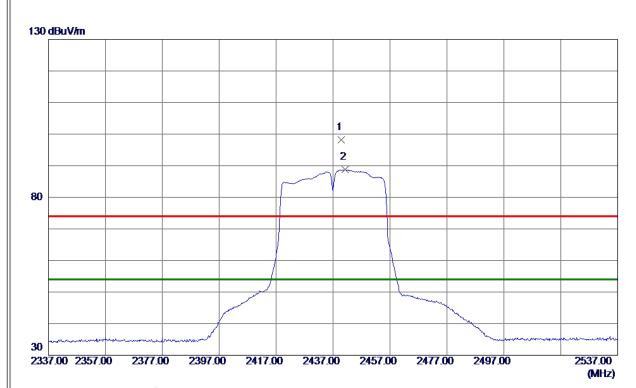


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4847. 2500	27. 08	2. 14	29. 22	54.00	-24. 78	AVG	
2	4851. 5700	37. 72	2. 15	39. 87	74. 00	-34. 13	Peak	

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



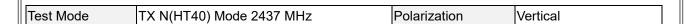




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2439. 9000	92. 73	5. 56	98. 29	74. 00	24. 29	Peak	No Limit
2 *	2441, 3000	83. 14	5. 57	88. 71	54. 00	34. 71	AVG	No Limit

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





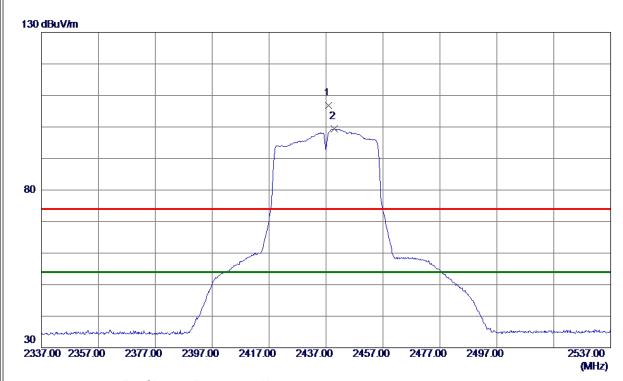


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4866. 9200	37. 01	2. 20	39. 21	74.00	-34. 79	Peak	
2 *	4869. 4000	26. 76	2. 20	28. 96	54.00	-25.04	AVG	

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



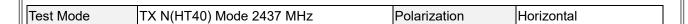




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2437. 9000	101. 25	5. 56	106. 81	74.00	32. 81	Peak	No Limit
2 *	2439. 8000	93. 87	5. 56	99. 43	54.00	45. 43	AVG	No Limit

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





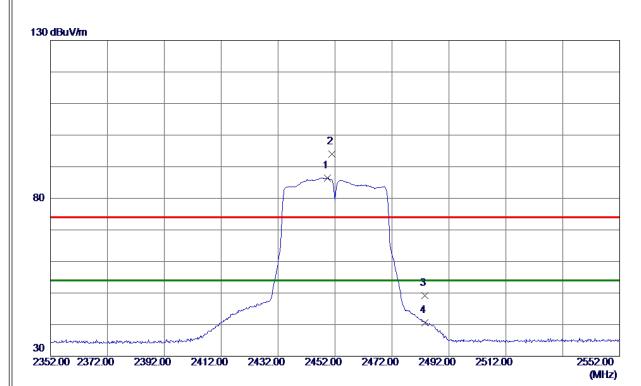


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4865. 3600	36. 82	2. 19	39. 01	74.00	-34. 99	Peak	
2 *	4867. 1000	26. 61	2. 20	28. 81	54. 00	-25. 19	AVG	

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





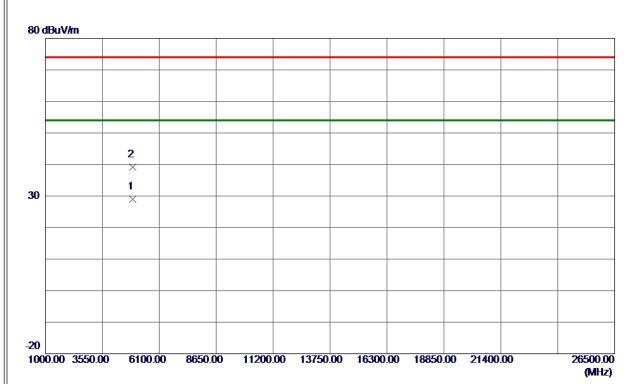


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2449. 4000	80. 87	5. 59	86. 46	54.00	32. 46	AVG	No Limit
2	2450. 8000	88. 45	5. 59	94. 04	74.00	20.04	Peak	No Limit
3	2483. 5000	43.60	5. 68	49. 28	74.00	-24. 72	Peak	
4	2483. 5000	34. 94	5. 68	40.62	54.00	-13. 38	AVG	

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



Test Mode	TX N(HT40) Mode 2452 MHz	Polarization	Vertical

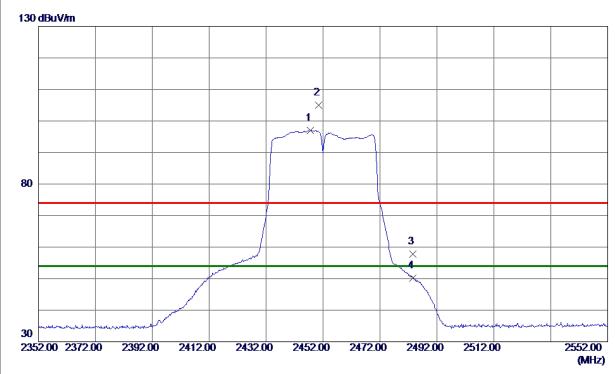


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4897. 5299	26. 65	2. 29	28. 94	54.00	-25.06	AVG	
2	4906. 1600	36. 95	2. 31	39. 26	74. 00	-34. 74	Peak	

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





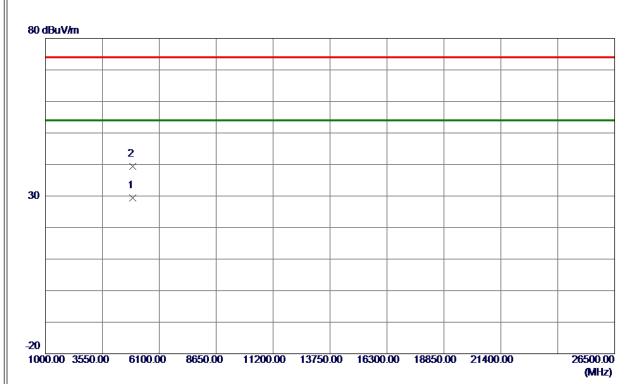


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2447. 6000	91. 44	5. 58	97. 02	<b>54.00</b>	43.02	AVG	No Limit
2	2450. 4000	99. 51	5. 59	105. 10	74.00	31. 10	Peak	No Limit
3	2483. 5000	52. 15	5. 68	57. 83	74.00	-16. 17	Peak	
4	2483. 5000	44. 56	5. 68	50. 24	54.00	-3. 76	AVG	

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







No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4906. 7799	27. 15	2. 31	29. 46	54.00	-24. 54	AVG	
2	4910. 4400	37. 06	2. 33	39. 39	74. 00	-34. 61	Peak	

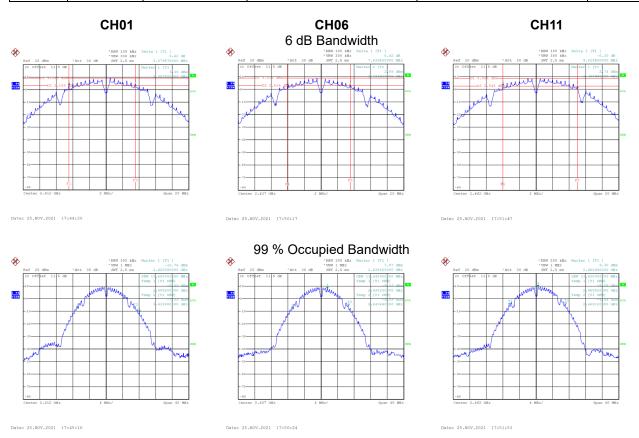
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

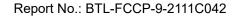


APPENDIX D - BANDWIDTH



Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	8.080	13.680	0.5	Complies
06	2437	7.640	13.440	0.5	Complies
11	2462	9.030	13.600	0.5	Complies

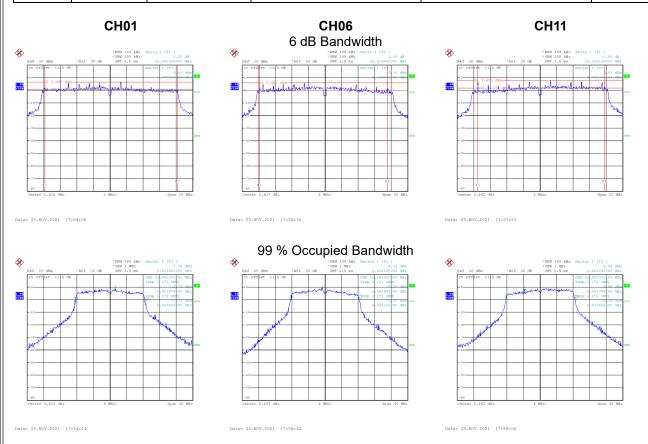






Test Mode TX G Mode

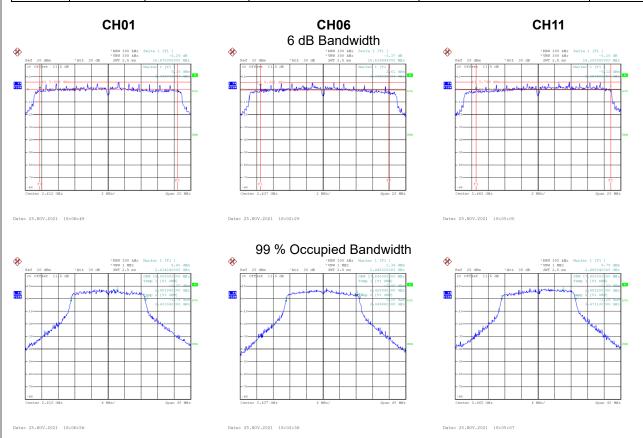
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	16.060	16.960	0.5	Complies
06	2437	15.520	16.640	0.5	Complies
11	2462	15.359	16.800	0.5	Complies





Test Mode	TX N(HT20) Mode

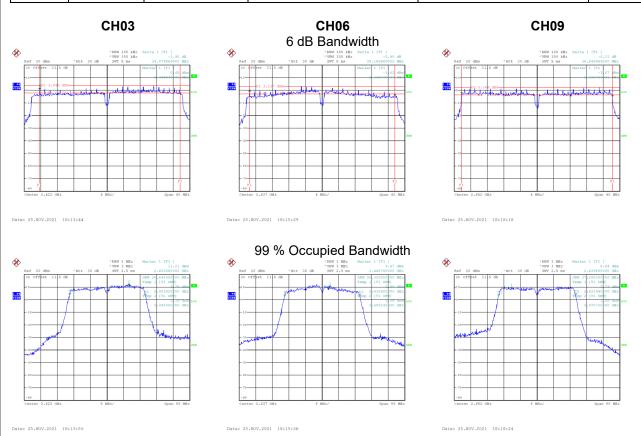
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	16.670	18.000	0.5	Complies
06	2437	15.540	17.840	0.5	Complies
11	2462	16.300	17.920	0.5	Complies





Test Mode	TX N(HT40	) Mode
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Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
03	2422	34.080	36.640	0.5	Complies
06	2437	35.160	36.320	0.5	Complies
09	2452	36.550	37.280	0.5	Complies





# **APPENDIX E - MAXIMUM OUTPUT POWER**



Test Mode	TX B Mode
100t Wood	I I N D IVIOGO

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	17.29	0.00	17.29	30.00	1.0000	Complies
06	2437	17.33	0.00	17.33	30.00	1.0000	Complies
11	2462	17.47	0.00	17.47	30.00	1.0000	Complies

## Test Mode TX G Mode

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	13.60	0.28	13.88	30.00	1.0000	Complies
06	2437	16.44	0.28	16.72	30.00	1.0000	Complies
11	2462	16.48	0.28	16.76	30.00	1.0000	Complies

## Test Mode TX N(HT20) Mode

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	13.84	0.33	14.17	30.00	1.0000	Complies
06	2437	15.33	0.33	15.66	30.00	1.0000	Complies
11	2462	15.45	0.33	15.78	30.00	1.0000	Complies

## Test Mode TX N(HT40) Mode

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	15.33	0.64	15.97	30.00	1.0000	Complies
06	2437	15.14	0.64	15.78	30.00	1.0000	Complies
09	2452	12.06	0.64	12.70	30.00	1.0000	Complies



# **APPENDIX F - CONDUCTED SPURIOUS EMISSIONS**



