

# **FCC Radio Test Report**

FCC ID: Q78-ZXHNF680V9

This report concerns: Original Grant

Project No. : 2001H021 Equipment : GPON ONT

Brand Name : ZTE

Test Model : ZXHN F680
Series Model : ZXHN F689
Applicant : ZTE Corporation

Address : ZTE Plaza, Hi-Tech Park, Nanshan District, Shenzhen, Guangdong,

P.R.China

Manufacturer : ZTE Corporation

Address : ZTE Plaza, Hi-Tech Park, Nanshan District, Shenzhen, Guangdong,

P.R.China

Date of Receipt : Jan. 17, 2020

**Date of Test** : Apr. 23, 2020 ~ Apr. 27, 2020

Issued Date : Jun. 05, 2020

Report Version : R00

Test Sample : Engineering Sample No.: SH2020030642, SH2020030642-1

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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ACCREDITED

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### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective. 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.	Jun. 05, 2020



### 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. AC Power Line Conducted Emissions test:

Test Site	Method	Measurement Frequency Range	U, (dB)
SH-C01	CISPR	9 kHz ~ 150 MHz	2.92

### B. 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	<b>V</b>	4.04
		30 MHz~200 MHz	Τ	3.76
SH-CB01	CISPR	200 MHz~1,000 MHz	<b>V</b>	4.24
SI I-CBU I		200 MHz~1,000 MHz	Τ	3.84
		1 GHz~18 GHz	<b>V</b>	4.46
		1 GHz~18 GHz	Τ	4.40
		18 GHz~40 GHz	<b>V</b>	3.95
		18 GHz~40 GHz	Н	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	22°C	51%	AC 120V	Bill Dong
Radiated Emissions-9K-30MHz	22°C	51%	AC 120V	Bill Dong
Radiated Emissions-30 MHz to 1GHz	20°C	45%	AC 120V	Forest Li
Radiated Emissions-Above 1000 MHz	20°C	45%	AC 120V	Forest Li
Bandwidth	22°C	51%	AC 120V	Bill Dong
Maximum output power & e.i.r.p.	22°C	51%	AC 120V	Bill Dong
Conducted Spurious Emissions	22°C	51%	AC 120V	Bill Dong
Power Spectral Density	22°C	51%	AC 120V	Bill Dong



### 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	GPON ONT
Brand Name	ZTE
Test Model	ZXHN F680
Series Model	ZXHN F689
Model Difference(s)	Only different in outer covering color.
Software Version	N/A
Hardware Version	N/A
Power Source	DC voltage supplied from AC/DC adapter.
Power Rating	I/P: 100-240V ~ 50/60Hz 1.5A MAX O/P: 12V 2.5A
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 300 Mbps
	IEEE 802.11b: 28.44 dBm (0.6982 W) IEEE 802.11g: 29.95 dBm (0.9886 W) IEEE 802.11n (HT20): 29.63 dBm (0.9183 W) IEEE 802.11n (HT40): 29.76 dBm (0.9462 W)
Maximum Avg Output Power Non-Beamforming	IEEE 802.11b: 25.45 dBm (0.3508 W) IEEE 802.11g: 19.80 dBm (0.0955 W) IEEE 802.11n (HT20): 19.46 dBm (0.0883 W) IEEE 802.11n (HT40): 20.26 dBm (0.1061 W)
Maximum Peak Output Power Beamforming	IEEE 802.11n (HT20): 26.93 dBm (0.4932 W) IEEE 802.11n (HT40): 26.92 dBm (0.4920 W)
Maximum Avg Output Power Beamforming	IEEE 802.11n (HT20): 16.86 dBm (0.0485 W) IEEE 802.11n (HT40): 16.33 dBm (0.0430 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	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	PCB	N/A	3
2	N/A	N/A	РСВ	N/A	3
3	N/A	N/A	РСВ	N/A	3
4	N/A	N/A	PCB	N/A	3

### Note:

### For Beamforming:

(1) Antenna Gain=3 dBi. This EUT supports MIMO 4X4, any transmit signals are correlated with each other, so Directional gain = G<sub>ANT</sub>+10log(N)dBi, that is Directional gain=3+10log(4)dBi=9.02; So, the output power limit is 30-9.02+6=26.98, the power spectral density limit is 8-9.02+6=4.98.

### For Non-Beamforming:

(2) This EUT supports CDD, and all antennas have the same gain, Directional gain= GANT+Array Gain, where Array Gain is as follows:

For power spectral density measurements, NANT = 4, NSS = 1. So Directional gain = GANT+ Array Gain =10log (NANT/ NSS) dB =3+10log(4/1)dBi=9.02. Then, the power density limit is 8-(9.02-6)=4.98.

For power measurements, Array Gain = 0 dB (NANT  $\leq$  4), so the Directional gain=3.

4. Table for Antenna Configuration:

Table for Afficilia Configurati	011.			
Operating Mode TX Mode	1TX	2TX	3TX	4TX
IEEE 802.11a	V (Ant. 1)	V (Ant. 1 + Ant. 2)	V (Ant. 1 + Ant. 2 + Ant. 3)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n (HT20)	V (Ant. 1)	V (Ant. 1 + Ant. 2)	V (Ant. 1 + Ant. 2 + Ant. 3)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n (HT40)	V (Ant. 1)	V (Ant. 1 + Ant. 2)	V (Ant. 1 + Ant. 2 + Ant. 3)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac (VHT20)	V (Ant. 1)	V (Ant. 1 + Ant. 2)	V (Ant. 1 + Ant. 2 + Ant. 3)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac (VHT40)	V (Ant. 1)	V (Ant. 1 + Ant. 2)	V (Ant. 1 + Ant. 2 + Ant. 3)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac (VHT80)	V (Ant. 1)	V (Ant. 1 + Ant. 2)	V (Ant. 1 + Ant. 2 + Ant. 3)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)



### 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-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX G Mode Channel 01

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 G Mode Channel 01	

Radiated emissions test - Below 1GHz		
Final Test Mode:	Description	
Mode 5	TX G Mode Channel 01	

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 (13 Mbps) 802.11n HT40 mode : BPSK (27 Mbps)

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

(3) For radiated emission below 1 GHz test, the IEEE 802.11g Channel 01 is found to be the worst case and

recorded.

### 2.3 PARAMETERS OF TEST SOFTWARE

### **Non-Beamforming**

Test Software	QATool		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	20	1F	1E
IEEE 802.11g	16	17	17
IEEE 802.11n (HT20)	17	17	17
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	1A	1A	1A

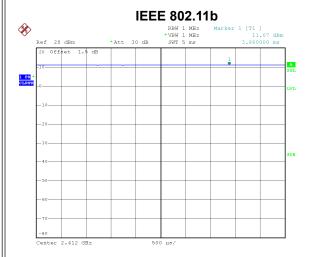
### Beamforming

Test Software	QATool			
Frequency (MHz)	2412 2437 2462			
IEEE 802.11n (HT20)	0C	0E	0C	
Frequency (MHz)	2422	2437	2452	
IEEE 802.11n (HT40)	0D	0D	0D	



### 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.



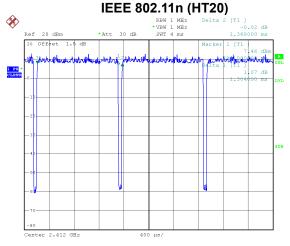
Ref 20 dBm \*Att 30 dB SWT 2.5 ms 1.465000 ms

Ref 20 offset 1.4 dB Ware 1 (T1 4.07 dBm 2.1 dbm

**IEEE 802.11g** 

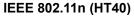
Date: 13.FEB.2020 09:17:29

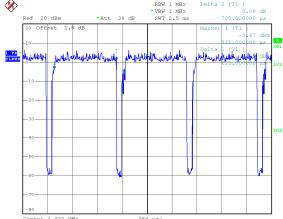
Duty cycle = 8.410 ms / 8.468 ms = 99.32% Duty Factor = 10 log(1/Duty cycle) = 0.03



Duty cycle = 1.400 ms / 1.465 ms = 95.56% Duty Factor = 10 log(1/Duty cycle) = 0.20

Date: 13.FEB.2020 09:18:07





Date: 13.FEB.2020 09:18:26

Duty cycle = 1.304 ms / 1.368 ms = 95.32% Duty Factor = 10 log(1/Duty cycle) = 0.21 Duty cycle = 0.625 ms / 0.705

Duty cycle = 0.625 ms / 0.705 ms = 88.65% Duty Factor = 10 log(1/Duty cycle) = 0.52

### NOTE:

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

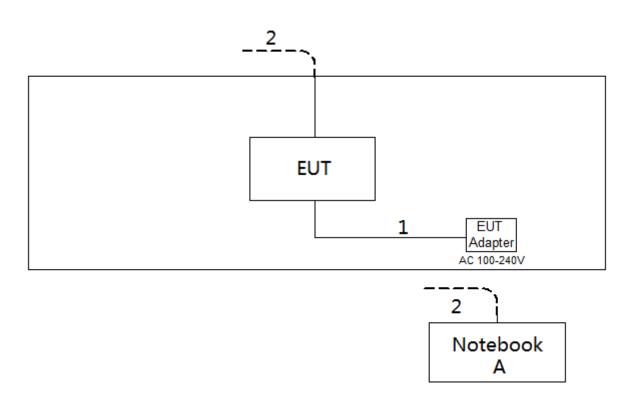
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 0.77 kHz (Duty cycle < 98%).

### 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 1.6 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.
Α	Notebook	Lenovo	#P152014	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	RJ45 Cable	NO	NO	10m



### 3. AC POWER LINE CONDUCTED EMISSIONS TEST

### **3.1 LIMIT**

Fraguency of Emission (MHz)	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

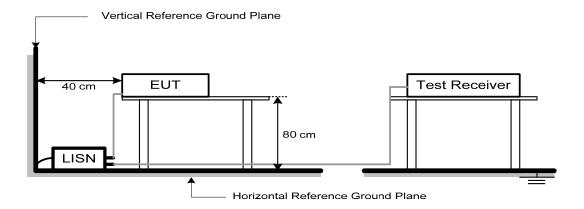
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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

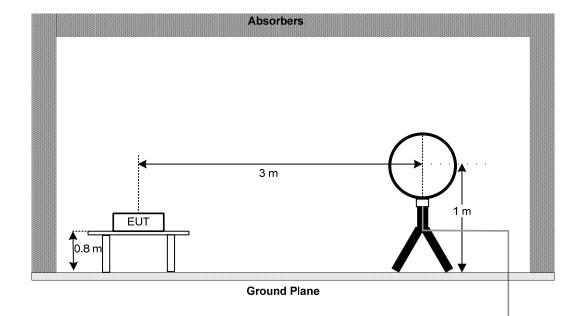
### 4.3 DEVIATION FROM TEST STANDARD

No deviation



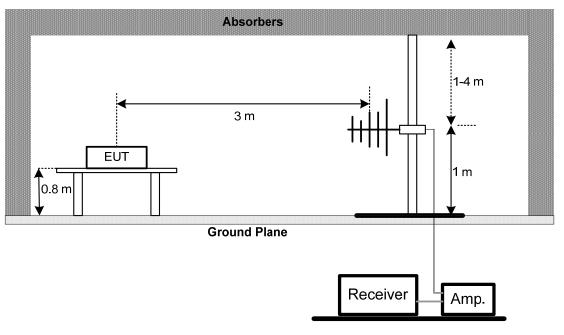
### 4.4 TEST SETUP

### 9 kHz-30 MHz



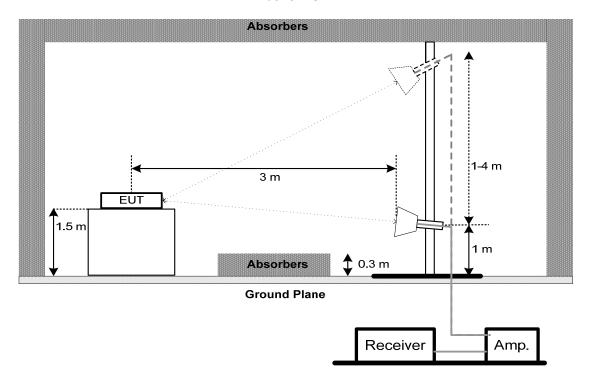
### 30 MHz to 1 GHz

Receiver





### **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			
15.247(a)(2)	6 dB Bandwidth	Minimum 500 kHz	
13.247 (d)(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)	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 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

### **6.3 DEVIATION FROM STANDARD**

No deviation.

### **6.4 TEST SETUP**

EUT	Power Meter
	1 Ower weter

### **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**

For FCC

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	Sep. 01, 2020	
3	Test Cable	emci	EMCRG400-BM-N M-10000	170628	Jul. 15, 2020	
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 28, 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	Mar. 28, 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. 16, 2021	
5	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 16, 2021	
6	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 16, 2021	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	



		Radiated E	missions - Above 1	GHz	
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	9120D	00206960	Mar. 28, 2021
2	Pre-Amplifier	emci	EMC012645SE	980421	Mar. 28, 2021
3	EXA Spectrum Analyzer	Keysight	N9010A	MY56480545	Mar. 21, 2021
4	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 16, 2021
5	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 16, 2021
6	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 16, 2021
7	Measurement Software	Farad		N/A	N/A
8	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 28, 2021

			Bandwidth		
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 21, 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	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 21, 2021			

	Power Spectral Density							
Item	Item Kind of Equipment Manufacturer Type No. Serial No. Calibrated u							
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 21, 2021			

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

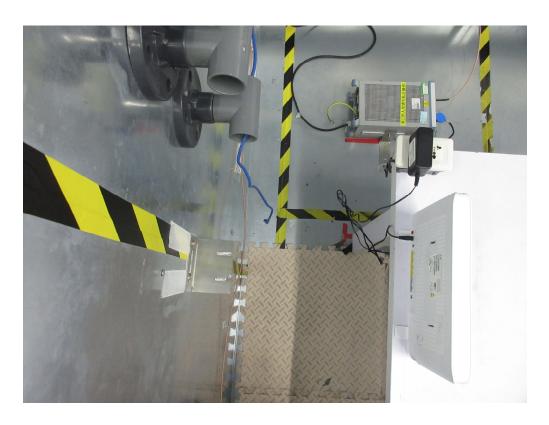
All calibration period of equipment list is one year.



# 10. EUT TEST PHOTO

### **Conducted Emissions Test Photos**

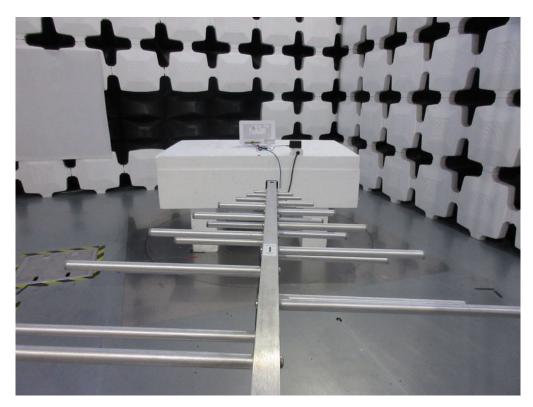


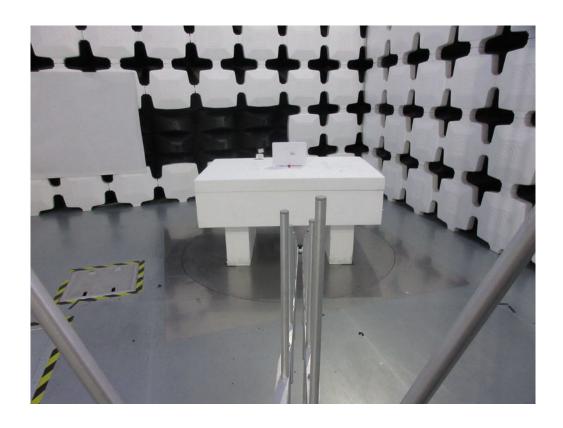




### **Radiated Emissions Test Photos**

30 MHz to 1 GHz

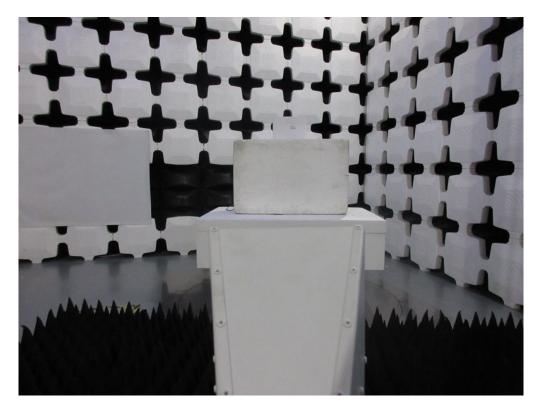


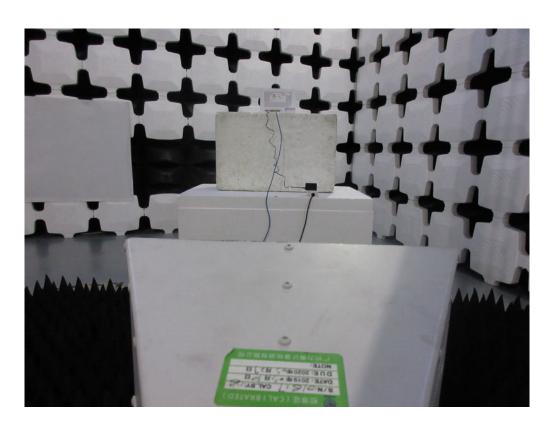




### **Radiated Emissions Test Photos**

### Above 1 GHz

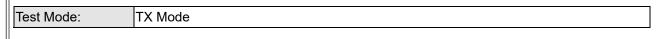


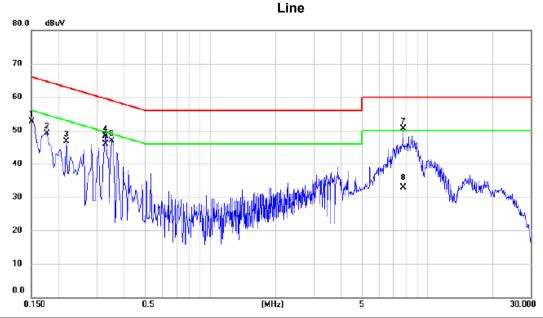




# **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**







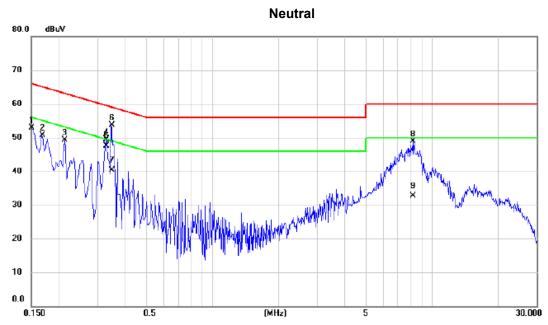
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1500	42.93	9.73	52.66	66.00	-13.34	peak	
2	0.1770	39.26	9.76	49.02	64.63	-15.61	peak	
3	0.2175	37.00	9.79	46.79	62.91	-16.12	peak	
4	0.3300	38.42	9.83	48.25	59.45	-11.20	peak	
5 *	0.3300	36.08	9.83	45.91	49.45	-3.54	AVG	
6	0.3525	37.04	9.85	46.89	58.90	-12.01	peak	
7	7.7280	40.30	10.11	50.41	60.00	-9.59	peak	
8	7.7280	22.85	10.11	32.96	50.00	-17.04	AVG	

### **REMARKS**:

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







No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1500	43.24	9.73	52.97	66.00	-13.03	peak	
2	0.1680	41.05	9.74	50.79	65.06	-14.27	peak	
3	0.2130	39.45	9.78	49.23	63.09	-13.86	peak	
4	0.3300	39.73	9.83	49.56	59.45	-9.89	peak	
5 *	0.3300	37.61	9.83	47.44	49.45	-2.01	AVG	
6	0.3480	43.79	9.83	53.62	59.01	-5.39	peak	
7	0.3480	30.52	9.83	40.35	49.01	-8.66	AVG	
8	8.2320	38.75	10.13	48.88	60.00	-11.12	peak	
9	8.2320	22.61	10.13	32.74	50.00	-17.26	AVG	

### REMARKS:

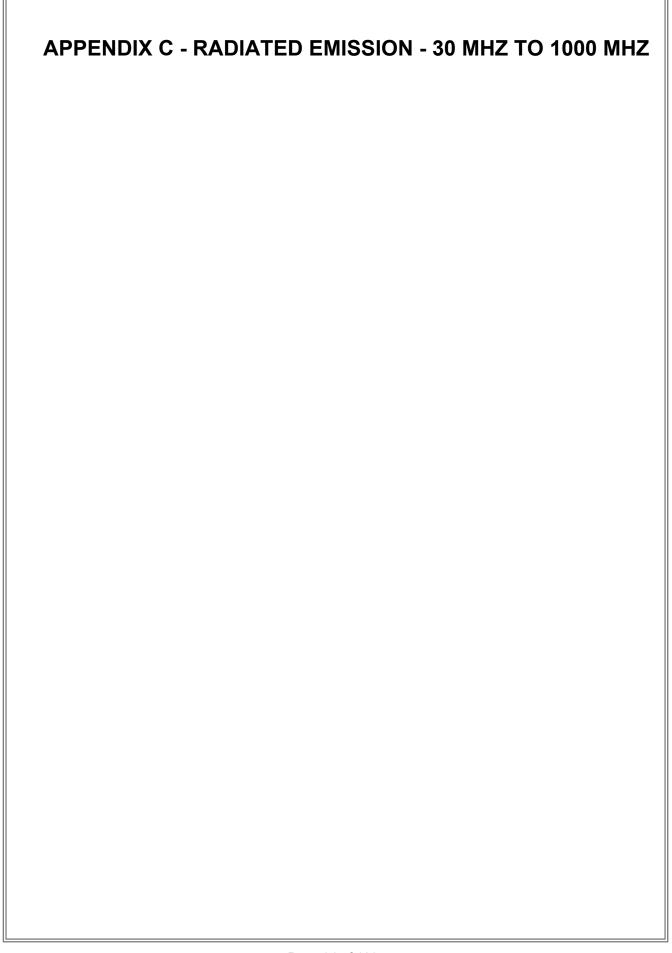
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



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

Note: Below 30MHz, The measured value have enough margin over 20dB than the limit, therefore they are not reported

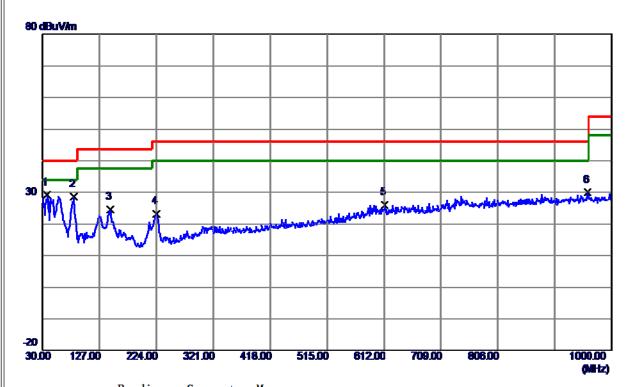






Test Mode: TX G Mode Channel 01

### Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	37.7599	<b>45.90</b>	-16. 66	29. 24	40.00	-10.76	Peak	
2	82.3800	48.85	-20. 33	28. 52	40.00	-11.48	Peak	
3	145. 4299	39. 83	-15. 21	24.62	43. 50	-18.88	Peak	
4	224.0000	40.91	-17.72	23. 19	46.00	-22.81	Peak	
5	612. 9699	34. 69	-8. 61	26. 08	46.00	-19. 92	Peak	
6	959. 2600	35. 03	-5. 10	29. 93	46.00	-16. 07	Peak	

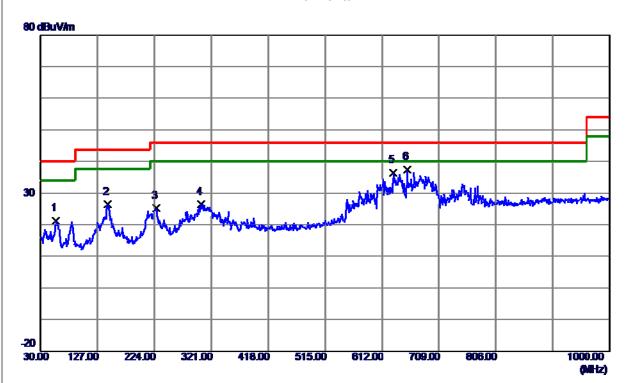
### **REMARKS**:

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



Test Mode: TX G Mode Channel 01

### Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	56. 1900	38. 51	-17. 36	21. 15	40.00	-18.85	Peak	
2	144.4600	41.65	-15. 29	26. 36	43.50	-17. 14	Peak	
3	226. 9100	42.73	-17.54	25. 19	46.00	-20.81	Peak	
4	303. 5400	40.72	-14. 26	26. 46	46.00	-19. 54	Peak	
5	631.4000	44. 92	-8. 56	36. 36	46.00	-9.64	Peak	
6 *	654. 6800	45. 88	-8. 52	37. 36	46. 00	-8. 64	Peak	

### **REMARKS**:

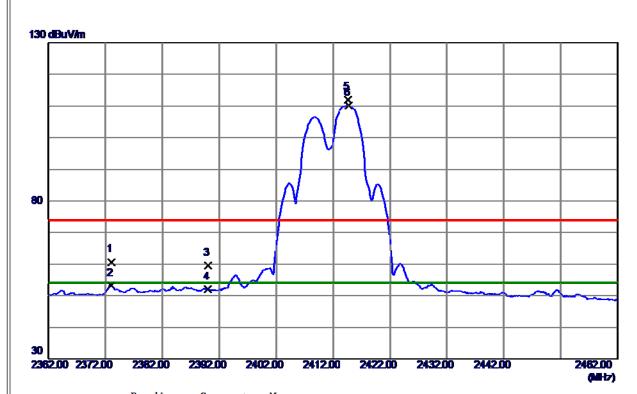
- (1) Measurement Value = Reading Level + Correct Factor.
  (2) Margin Level = Measurement Value Limit Value.



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



# Vertical

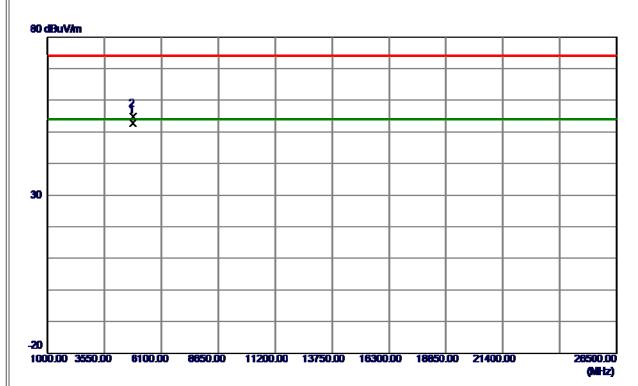


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2373. 0000	28. 36	32. 34	60.70	74.00	-13. 30	Peak	
2	2373. 0000	20.89	32. 34	53. 23	<b>54.00</b>	-0.77	AVG	
3	2390.0000	27. 23	32. 39	59.62	74.00	-14.38	Peak	
4	2390. 0000	19. 56	32. 39	51.95	<b>54.00</b>	<b>-2.05</b>	AVG	
5	2414.7000	79. 52	32.46	111. 98	74.00	37. 98	Peak	No Limit
6 *	2414. 8000	77. 69	32. 46	110. 15	<b>54.00</b>	56. 15	AVG	No Limit

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



#### Vertical

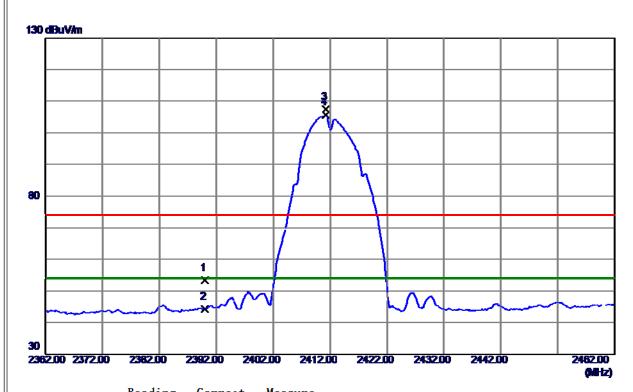


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4823.9400	66. 29	-13. 55	52.74	<b>54.00</b>	-1. 26	AVC	
2	4823. 9800	68. 26	-13.55	54.71	74.00	-19.29	Peak	

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



#### Horizontal

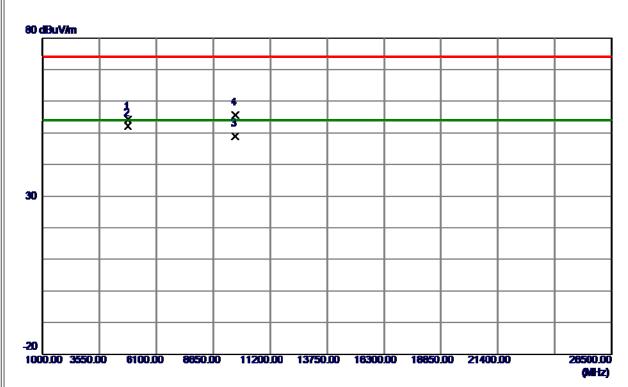


No.	Freq.	Keading Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	20. 91	32. 39	53. 30	74.00	-20.70	Peak	
2	2390.0000	11.87	32. 39	44.26	54.00	-9.74	AVG	
3	2411. 2000	74.86	32. 45	107. 31	74.00	33. 31	Peak	No Limit
4 *	2411. 2000	73. 06	32. 45	105. 51	54.00	51. 51	AVG	No Limit

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



#### Horizontal

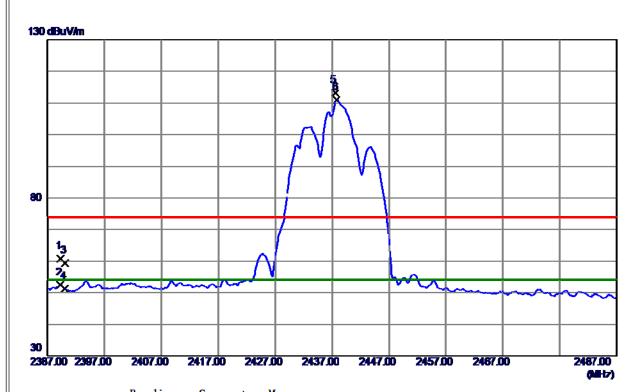


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4823. 9800	67.66	-13. 55	54.11	74.00	-19.89	Peak	
2 *	4823. 9800	65.75	-13.55	<b>52.20</b>	54.00	-1.80	AVG	
3	9647.8800	51.85	-2. 78	49.07	54.00	-4.93	AVG	
4	9647. 9800	58. <b>40</b>	-2. 78	55.62	74.00	-18.38	Peak	

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



# Vertical

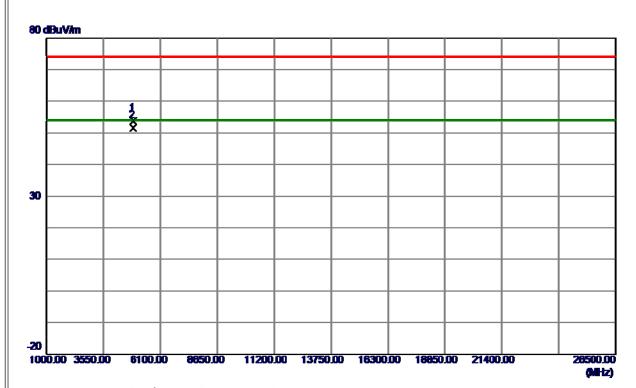


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2389. 2000	28. 34	32. 39	60.73	74.00	-13. 27	Peak	
2	2389. 2000	20. 03	32. 39	52.42	54.00	-1.58	AVG	
3	2390.0000	27.03	32. 39	59.42	74.00	-14.58	Peak	
4	2390. 0000	18. 72	32. 39	51.11	54.00	-2.89	AVG	
5	2437. 5000	80.66	32. 53	113. 19	74.00	39. 19	Peak	No Limit
6 *	2437.8000	78. 47	32. 53	111. 00	54.00	57.00	AVG	No Limit

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



#### Vertical

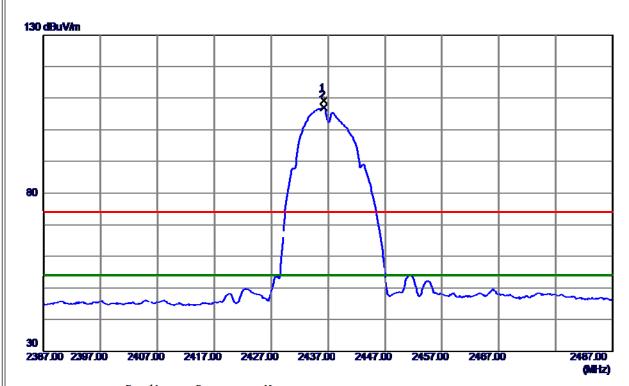


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873.9000	67. 11	-13.36	53.75	74.00	-20. 25	Peak	
2 *	4873.9700	64.96	-13.36	51.60	54.00	-2.40	AVG	

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



#### Horizontal

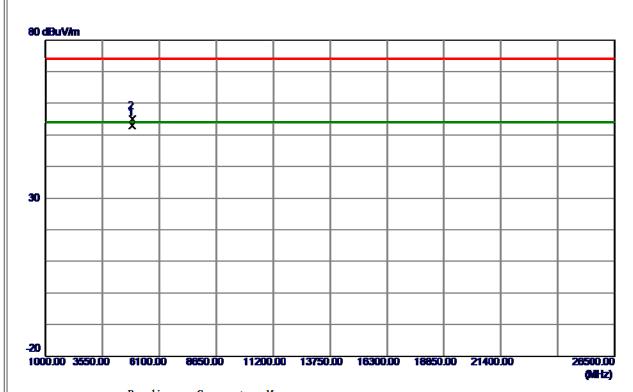


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2436. 2000	76. 63	32. 53	109. 16	74.00	35. 16	Peak	No Limit
2 *	2436. 2000	74.44	32. 53	106. 97	<b>54.00</b>	52.97	AVG	No Limit

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



#### Horizontal

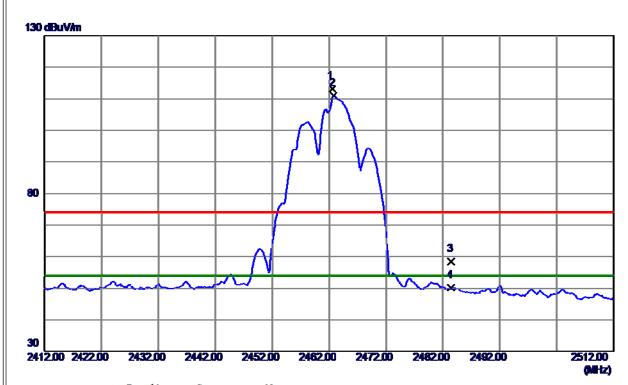


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873.9900	66. 37	-13. 36	53.01	54.00	-0.99	AVC	
2	4874. 0900	68. 42	-13. 36	<b>55.06</b>	74.00	-18.94	Peak	

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



# Vertical

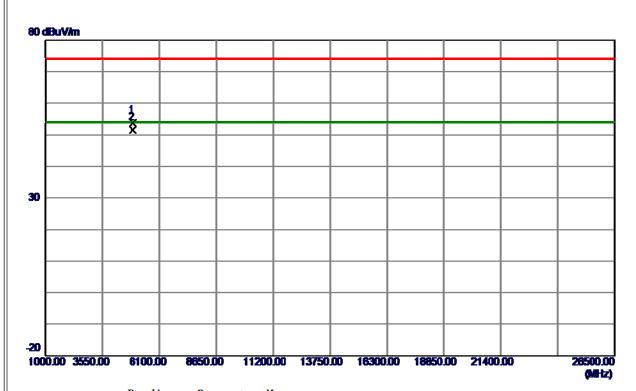


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2462. 5000	80.68	32.60	113. 28	74.00	39. 28	Peak	No Limit
2 *	2462. 8000	78. 37	32.60	110. 97	<b>54.00</b>	56. 97	AVG	No Limit
3	2483. 5000	25.81	32.66	58.47	74.00	-15. 53	Peak	
4	2483. 5000	17. 60	32. 66	50. 26	54.00	-3.74	AVG	

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



#### Vertical

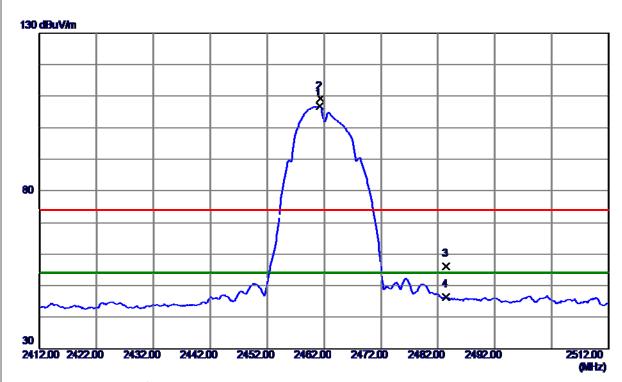


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4923. 8900	66. 95	-13. 18	53.77	74.00	-20. 23	Peak	
2 *	4923. 9700	64.74	-13. 18	51.56	54.00	-2.44	AVG	

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



#### Horizontal

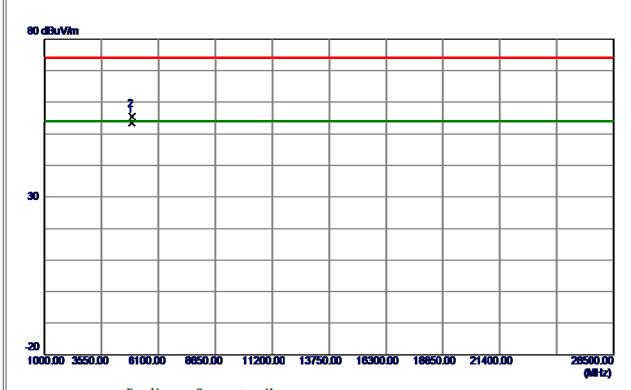


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2461. 2000	74. 15	32.60	106. 75	<b>54.00</b>	52.75	AVG	No Limit
2	2461.3000	76. 69	32.60	109. 29	74.00	35. 29	Peak	No Limit
3	2483. 5000	23. 62	32.66	56.28	74.00	-17.72	Peak	
4	2483. 5000	13. 66	32.66	46.32	54.00	-7. 68	AVG	

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



#### Horizontal

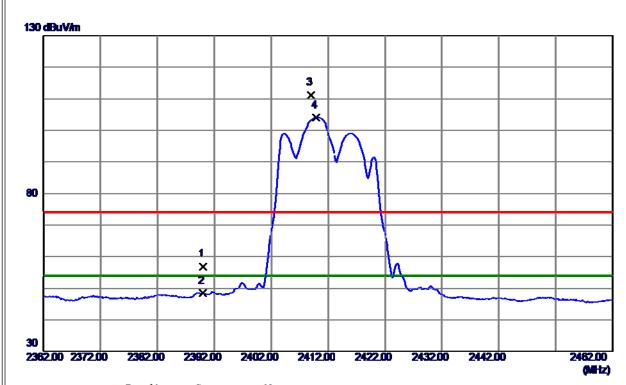


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4923. 9900	66.81	-13. 18	53.63	54.00	-0.37	AVG	
2	4924. 0099	68. 55	-13. 18	55. 37	74.00	-18.63	Peak	

- (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	2390.0000	24.45	32. 39	56.84	74.00	-17. 16	Peak	
2	2390.0000	15. 97	32. 39	48.36	<b>54.00</b>	-5. 64	AVG	
3	2409.0000	78. 76	32. 45	111. 21	74.00	37. 21	Peak	No Limit
4 *	2409. 9000	71.65	32. 45	104. 10	<b>54.00</b>	50. 10	AVG	No Limit

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



#### Vertical

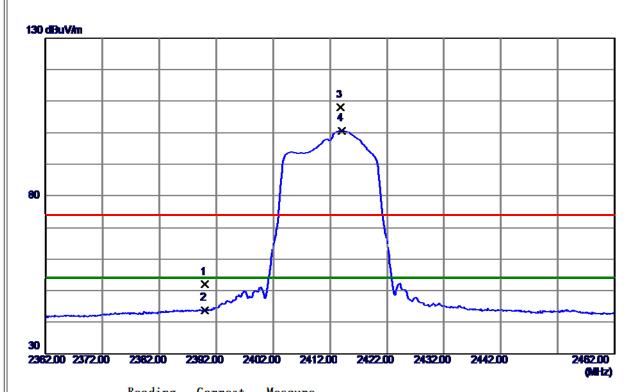


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4826. 0800	61. 29	-13. 54	47.75	74.00	-26. 25	Peak	
2 *	4827.6400	51. 03	-13. 53	37.50	54. 00	-16. 50	AVG	

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



#### Horizontal

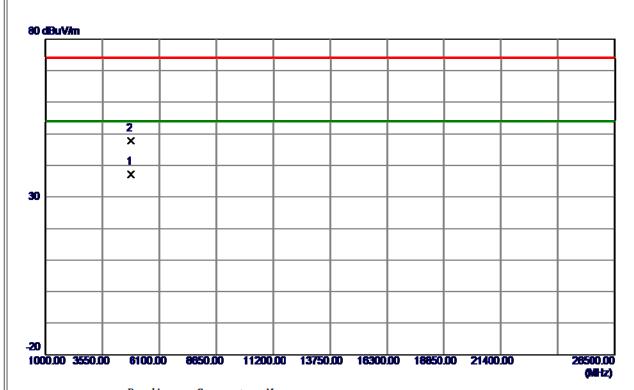


No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	19. 69	32. 39	52. <b>0</b> 8	74.00	-21. 92	Peak	
2	2390.0000	11. 32	32. 39	43.71	54.00	-10.29	AVG	
3	2413.9000	<b>75. 64</b>	32.46	108. 10	74.00	34. 10	Peak	No Limit
4 *	2414. 1000	68. 15	32.46	100.61	54.00	46.61	AVG	No Limit

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



#### Horizontal

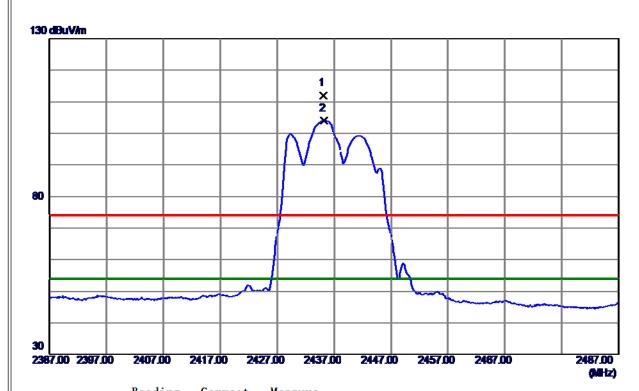


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4821.8700	50.84	-13. 56	37.28	54.00	-16.72	AVG	
2	4824.0200	61.44	-13. 55	47.89	74.00	-26. 11	Peak	

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



# Vertical

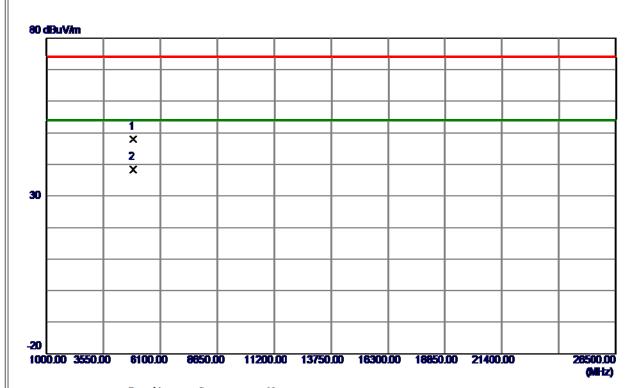


No.	Freq.	keading Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2435. 1000	79. 49	32. 52	112.01	74.00	38.01	Peak	No Limit
2 *	2435. 2000	71. 54	32. 52	104.06	54.00	50.06	AVG	No Limit

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



#### Vertical

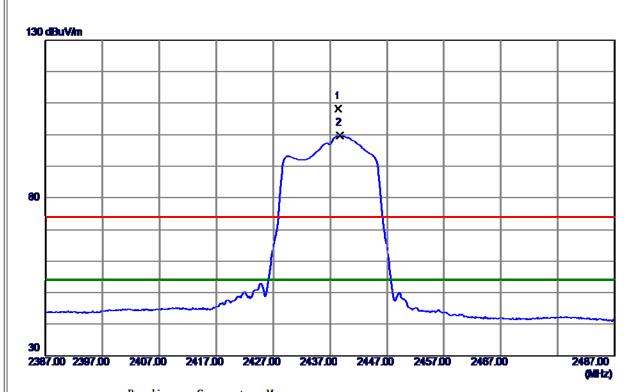


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4874. 9800	61. 27	-13. 36	47.91	74.00	-26.09	Peak	
2 *	4875. 6000	51.72	-13. 36	38. 36	54. 00	-15. 64	AVG	

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



#### Horizontal

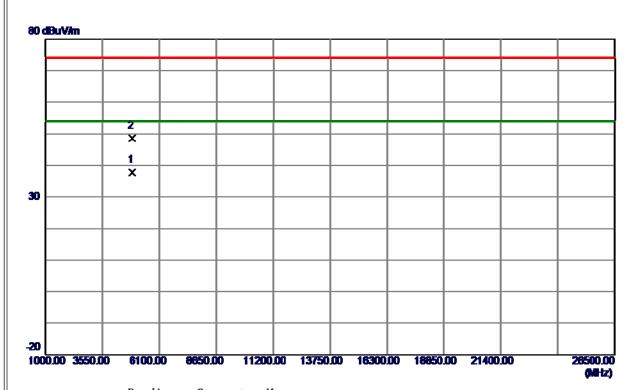


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2438. 5000	75. 61	32. 53	108. 14	74.00	34. 14	Peak	No Limit
2 *	2438.8000	67. 18	32. 53	99.71	54.00	45.71	AVG	No Limit

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



#### Horizontal

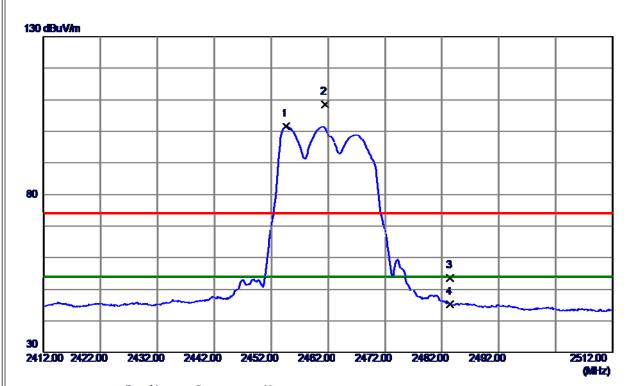


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4872. 1000	51. 10	-13. 37	37.73	54.00	-16. 27	AVG	
2	4872.4100	62. 03	-13. 37	48.66	74.00	-25.34	Peak	

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



# Vertical

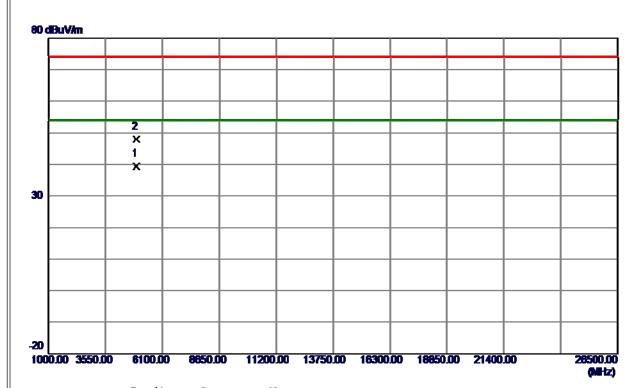


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2454.7000	68. 99	32. 58	101. 57	54.00	47.57	AVG	No Limit
2	2461. 4000	76.06	32. 60	108.66	74.00	34.66	Peak	No Limit
3	2483. 5000	20.94	32.66	53.60	74.00	-20.40	Peak	
4	2483. 5000	12. 48	32.66	45. 14	54.00	-8.86	AVG	

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



#### Vertical

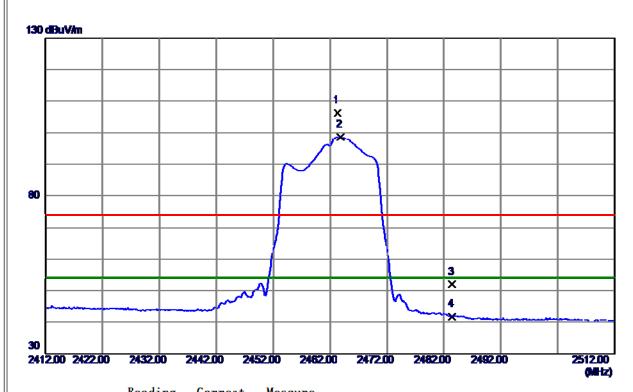


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4925. 3800	52. 55	-13. 17	39.38	54.00	-14.62	AVG	
2	4925.7100	61. 13	-13. 17	47.96	74.00	-26.04	Peak	

- (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	2463. 3000	73. 58	32.60	106. 18	74.00	32. 18	Peak	No Limit
2 *	2463.9000	65. 97	32.61	98.58	54.00	44.58	AVG	No Limit
3	2483. 5000	19. 36	32.66	<b>52.02</b>	74.00	-21. 98	Peak	
4	2483. 5000	9. 05	32.66	41.71	54.00	-12. 29	AVG	

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



#### Horizontal

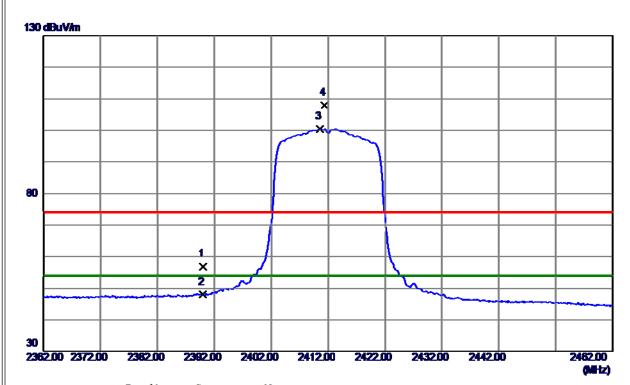


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924. 9500	61. 69	-13. 18	48.51	74.00	-25.49	Peak	
2 *	4924. 9700	52. 16	-13. 18	38. 98	54. 00	-15. 02	AVG	

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



# Vertical

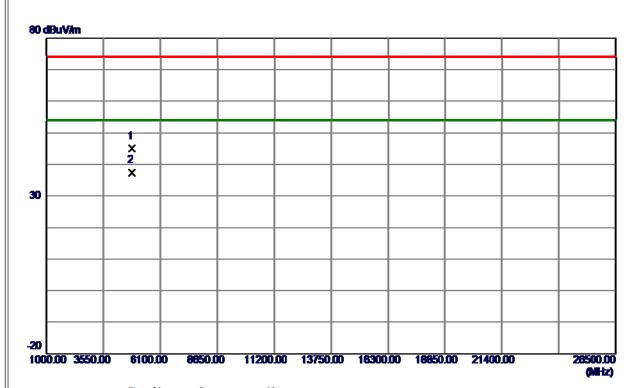


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	24. 33	32. 39	56.72	74.00	-17. 28	Peak	
2	2390.0000	15.63	32. 39	48.02	<b>54.00</b>	-5. 98	AVG	
3 *	2410.6000	68. 03	32. 45	100.48	<b>54.00</b>	46.48	AVG	No Limit
4	2411. 3000	75. 52	32. 45	107. 97	74.00	33. 97	Peak	No Limit

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



#### Vertical

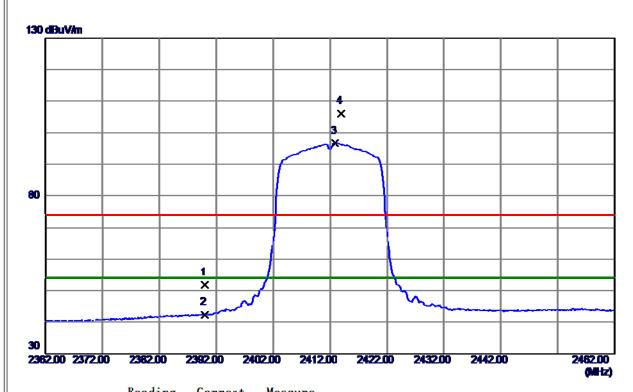


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4821.0600	58. 47	-13. 56	44.91	74.00	-29.09	Peak	
2 *	4826.7500	50.93	<b>-13.</b> 54	37.39	54.00	-16.61	AVG	

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



#### Horizontal

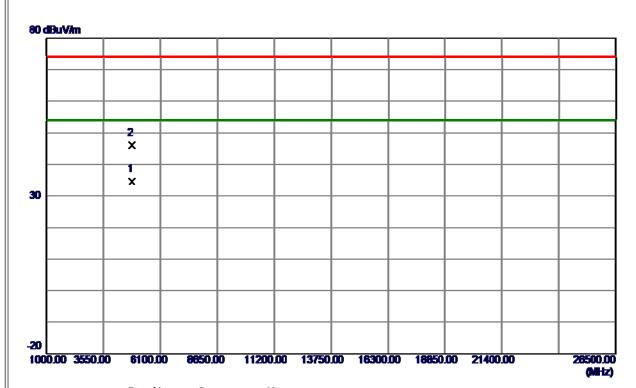


No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	19. 35	32. 39	51.74	74.00	-22. 26	Peak	
2	2390.0000	10.05	32. 39	42.44	<b>54.00</b>	-11.56	AVG	
3 *	2412. 9000	64. 20	32.46	96.66	54.00	42.66	AVG	No Limit
4	2414.0000	73. 49	32.46	105. 95	74.00	31. 95	Peak	No Limit

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



#### Horizontal

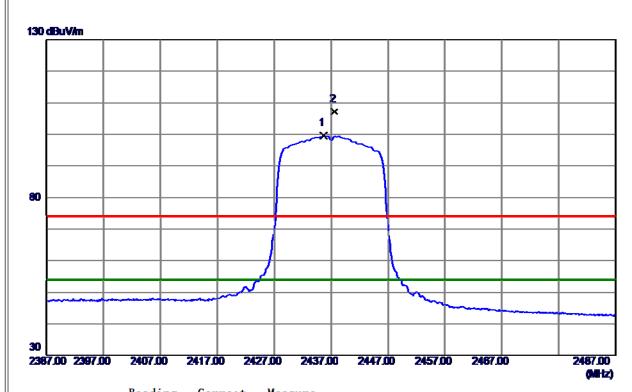


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4821.6600	48. 16	-13. 56	34.60	<b>54.00</b>	-19.40	AVG	
2	4823.6800	59.49	-13.55	45.94	74.00	-28.06	Peak	

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



# Vertical

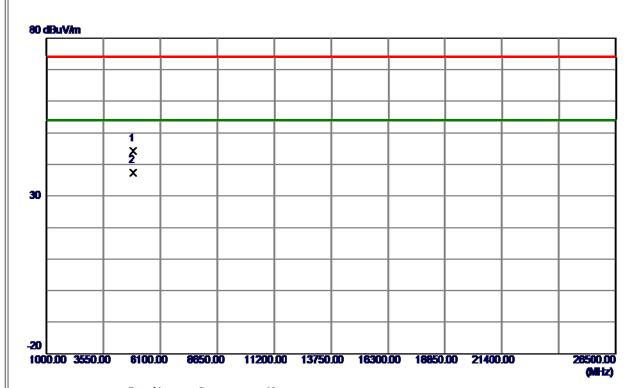


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2435. 7000	67.05	32. 52	99.57	54.00	45. 57	AVG	No Limit
2	2437.6000	74.64	32. 53	107. 17	74.00	33. 17	Peak	No Limit

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



#### Vertical

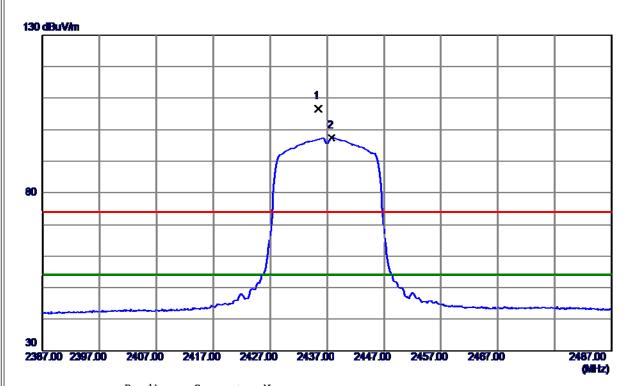


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4874.8200	57. <b>56</b>	-13. 36	44.20	74.00	-29.80	Peak	
2 *	4875.0700	50.83	-13. 36	37.47	54.00	-16. 53	AVG	

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



#### Horizontal

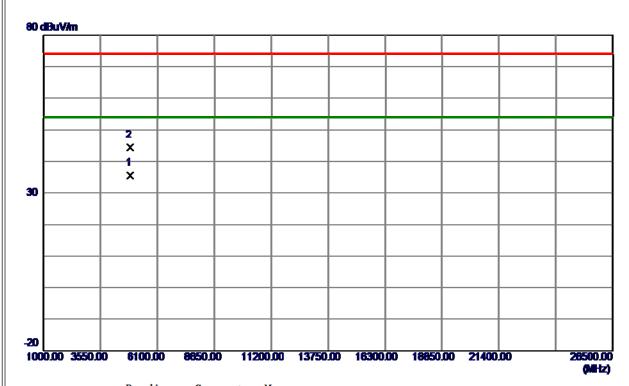


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2435. 4000	73. 99	32. 52	106. 51	74.00	32. 51	Peak	No Limit
2 *	2437.8000	64.88	32. 53	97.41	54.00	43.41	AVG	No Limit

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



#### Horizontal

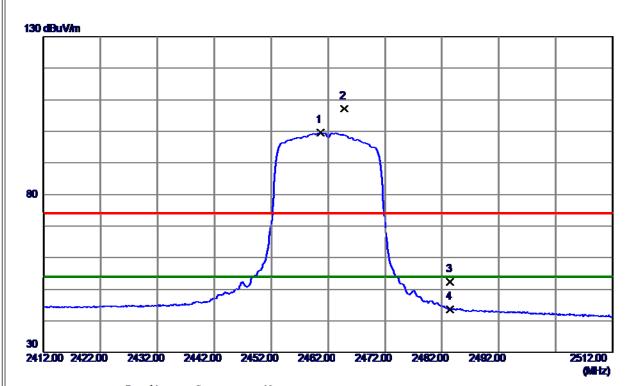


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4870.8100	48. 94	-13. 38	35. 56	<b>54.00</b>	-18.44	AVG	
2	4871.6200	57.82	-13. 37	44.45	74.00	-29. 55	Peak	

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



# Vertical

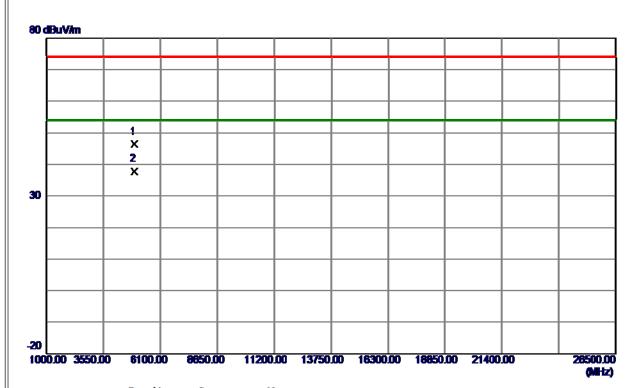


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	2460.7000	67.01	32.60	99.61	54.00	45.61	AVG	No Limit
2	2464.9000	74. 56	32.61	107. 17	74.00	33. 17	Peak	No Limit
3	2483. 5000	19. 78	32.66	52.44	74.00	-21. 56	Peak	
4	2483. 5000	10. 88	32.66	43.54	54.00	-10.46	AVG	

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



#### Vertical

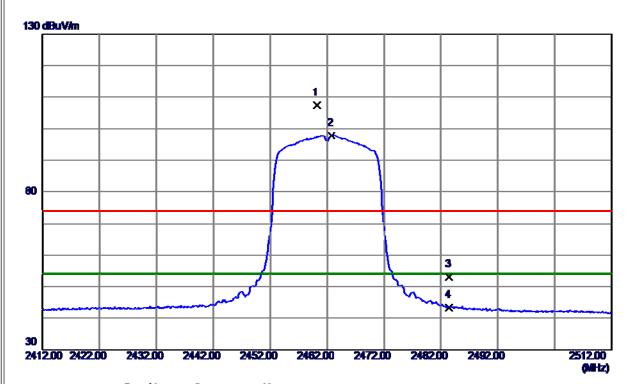


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924. 4700	59. 59	-13. 18	46.41	74.00	-27.59	Peak	
2 *	4924. 6000	50. 95	-13. 18	37.77	54.00	-16. 23	AVG	

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



#### Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2460. 2000	74.71	32.60	107. 31	74.00	33. 31	Peak	No Limit
2 *	2462. 8000	65. 25	32.60	97.85	54.00	43.85	AVG	No Limit
3	2483. 5000	20.44	32.66	53. 10	74.00	-20.90	Peak	
4	2483. 5000	10.73	32.66	43.39	54.00	-10.61	AVG	

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



### Horizontal

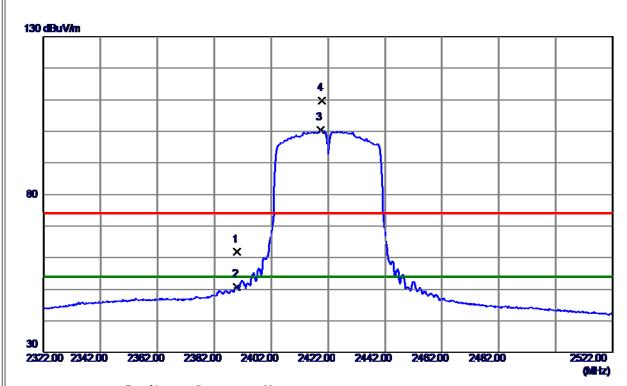


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4919. 5500	49. 44	-13. 20	36. 24	<b>54.00</b>	-17.76	AVG	
2	4921. 4500	57.89	-13. 19	44.70	74.00	-29.30	Peak	

- (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	2390.0000	29. 34	32. 39	61.73	74.00	-12.27	Peak	
2	2390. 0000	18. 35	32. 39	50.74	54.00	-3. 26	AVG	
3 *	2419. 4000	67.90	32.48	100. 38	54.00	46. 38	AVG	No Limit
4	2419.8000	77. 25	32.48	109.73	74.00	35. 73	Peak	No Limit

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



### Vertical

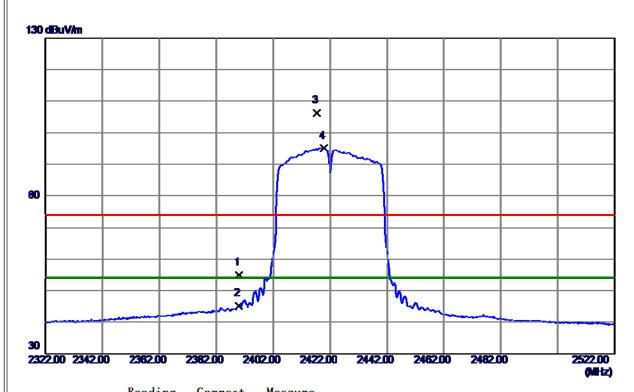


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4839. 7900	50. 59	-13.49	37.10	54.00	-16. 90	AVG	
2	4843. 5500	58. 52	-13.48	45.04	74.00	-28. 96	Peak	

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



### Horizontal



No.	Freq.	Level	Factor	measure	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390. 0000	22. 55	32. 39	54.94	74.00	-19.06	Peak	
2	2390.0000	12. 78	32. 39	45. 17	54.00	-8.83	AVG	
3	2417.4000	73. 73	32.47	106. 20	74.00	32. 20	Peak	No Limit
4 *	2419.8000	62. 57	32. 48	95.05	54.00	41.05	AVG	No Limit

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



### Horizontal

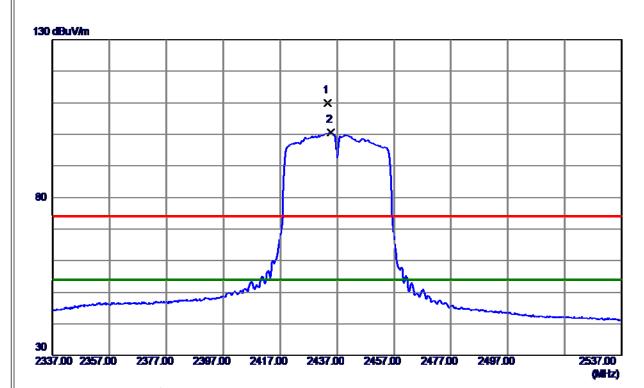


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4841. 1500	<b>57.40</b>	-13.48	43.92	74.00	-30.08	Peak	
2 *	4844. 4400	48. 43	-13. 47	34.96	54.00	-19.04	AVG	

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



### Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2433.6000	77. 58	32. 52	110. 10	74.00	36. 10	Peak	No Limit
2 *	2434.8000	68. 17	32. 52	100.69	54.00	46. 69	AVG	No Limit

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



### Vertical

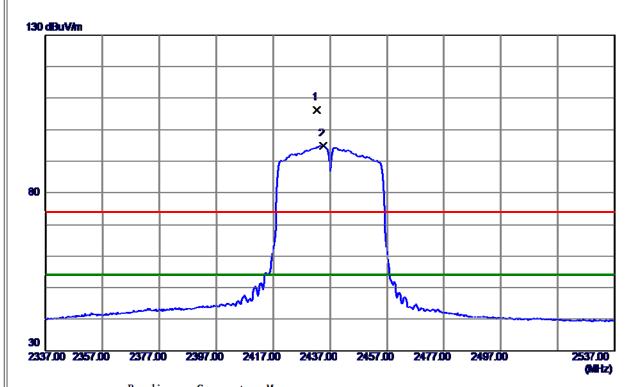


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4871.0500	50. 64	-13. 37	37.27	<b>54.00</b>	-16.73	AVG	
2	4877.9000	59.85	-13. 35	46.50	74.00	-27.50	Peak	

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



### Horizontal



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2432. 4000	73. 70	32. 52	106. 22	74.00	32. 22	Peak	No Limit
2 *	2434.6000	62. 26	32. 52	94.78	54.00	40.78	AVG	No Limit

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



### Horizontal

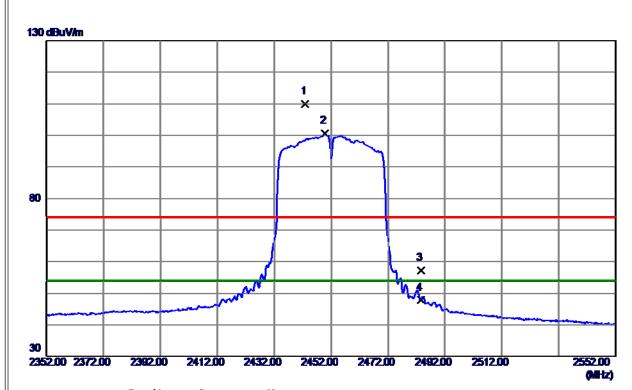


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873. 1100	48. 56	-13. 37	35. 19	<b>54.00</b>	-18.81	AVG	
2	4877.4600	58. 32	-13. 35	44.97	74.00	-29. 03	Peak	

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



### Vertical

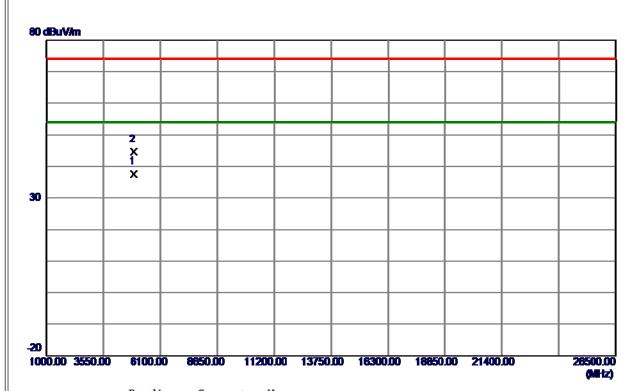


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2443. 0000	77.49	32. 55	110.04	74.00	36. 04	Peak	No Limit
2 *	2449. 8000	67.97	32. 57	100. 54	54.00	46. 54	AVG	No Limit
3	2483. 5000	24.54	32.66	57.20	74.00	-16.80	Peak	
4	2483. 5000	15. 22	32. 66	47.88	54.00	-6. 12	AVG	

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



### Vertical

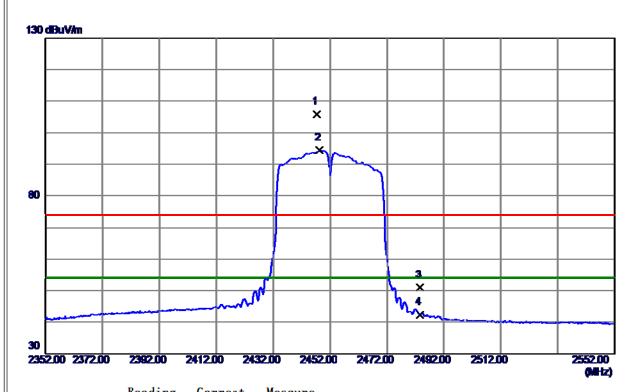


No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4901. 2700	50.85	-13. 26	37.59	<b>54.00</b>	-16.41	AVG	
2	4908.9300	57.88	<b>-13.24</b>	44.64	74.00	-29.36	Peak	

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



### Horizontal

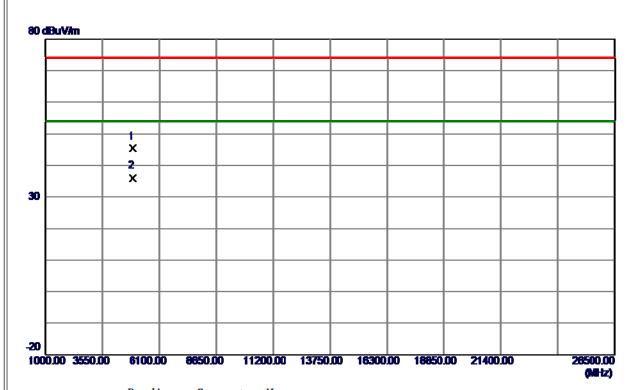


No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2447. 4000	73. 15	32. 56	105. 71	74.00	31.71	Peak	No Limit
2 *	2448. 2000	61.75	32. 56	94.31	54.00	40.31	AVG	No Limit
3	2483. 5000	18. 43	32.66	51.09	74.00	-22. 91	Peak	
4	2483. 5000	9. 67	32.66	42.33	54.00	-11.67	AVG	

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



### Horizontal



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4904.0000	58. 55	-13. 25	45.30	74.00	-28.70	Peak	
2 *	4904. 0900	49. 28	-13. 25	36. 03	54. 00	-17. 97	AVG	

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



APPENDIX E - BANDWIDTH	



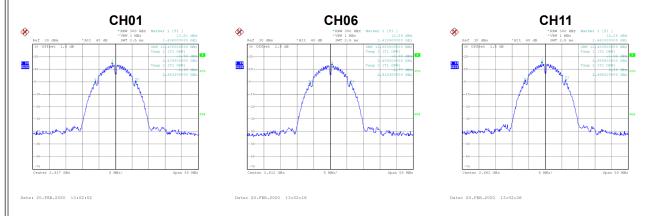
# Non-Beamforming

ı		Test Mode	TX B Mode
н	1	TEST MORE	I A B Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	8.10	500	Complies
06	2437	8.10	500	Complies
11	2462	8.06	500	Complies



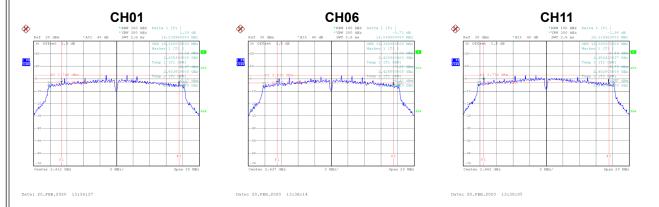
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	12.40	Complies
06	2437	12.50	Complies
11	2462	12.40	Complies



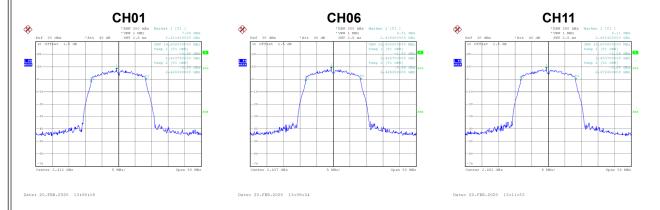


Test Mode	TX G Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	14.24	500	Complies
06	2437	14.05	500	Complies
11	2462	15.14	500	Complies



Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	16.60	Complies
06	2437	16.60	Complies
11	2462	16.60	Complies



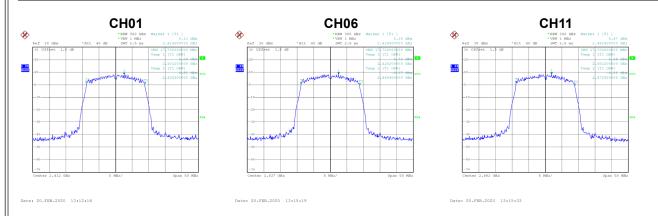


Test Mode	ITX N-20M Mode
LEST MORE	I I A IN-ZUIVI IVIUUE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	15.11	500	Complies
06	2437	15.10	500	Complies
11	2462	15.10	500	Complies



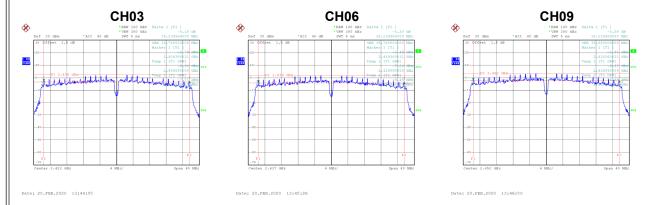
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.70	Complies
06	2437	17.70	Complies
11	2462	17.70	Complies



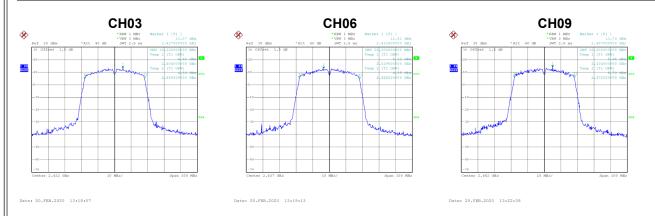


Test Mode	TX N-40M Mode
TOSE IVIOUS	I / I I TOIVI IVIOUC

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
03	2422	35.24	500	Complies
06	2437	35.24	500	Complies
09	2452	35.24	500	Complies



Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
03	2422	36.20	Complies
06	2437	36.20	Complies
09	2452	36.20	Complies





# **APPENDIX F - MAXIMUM OUTPUT POWER**



# Non-Beamforming

Test Mode	TX B Mode	Ant.	1

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.71	18.71	30.00	1.0000	Complies
06	2437	19.91	16.93	30.00	1.0000	Complies
11	2462	20.58	17.52	30.00	1.0000	Complies

# Test Mode TX B Mode\_Ant. 2

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.22	20.34	30.00	1.0000	Complies
06	2437	22.71	19.67	30.00	1.0000	Complies
11	2462	22.03	18.97	30.00	1.0000	Complies

# Test Mode TX B Mode\_Ant. 3

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.70	18.74	30.00	1.0000	Complies
06	2437	22.53	17.33	30.00	1.0000	Complies
11	2462	23.12	17.02	30.00	1.0000	Complies

# Test Mode TX B Mode\_Ant. 4

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.78	19.72	30.00	1.0000	Complies
06	2437	20.40	18.96	30.00	1.0000	Complies
11	2462	20.21	18.11	30.00	1.0000	Complies

# Test Mode TX B Mode\_Total

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	28.44	25.45	30.00	1.0000	Complies
06	2437	27.40	24.39	30.00	1.0000	Complies
11	2462	27.06	23.99	30.00	1.0000	Complies



# Test Mode TX G Mode\_Ant. 1

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.42	13.09	30.00	1.0000	Complies
06	2437	22.83	12.43	30.00	1.0000	Complies
11	2462	23.41	13.28	30.00	1.0000	Complies

# Test Mode TX G Mode\_Ant. 2

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	24.02	13.65	30.00	1.0000	Complies
06	2437	23.71	13.46	30.00	1.0000	Complies
11	2462	24.10	13.83	30.00	1.0000	Complies

# Test Mode TX G Mode\_Ant. 3

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	22.85	12.49	30.00	1.0000	Complies
06	2437	22.95	12.09	30.00	1.0000	Complies
11	2462	23.46	13.45	30.00	1.0000	Complies

# Test Mode TX G Mode\_Ant. 4

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.53	13.25	30.00	1.0000	Complies
06	2437	23.41	13.09	30.00	1.0000	Complies
11	2462	24.63	14.47	30.00	1.0000	Complies

# Test Mode TX G Mode\_Total

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	29.50	19.16	30.00	1.0000	Complies
06	2437	29.26	18.82	30.00	1.0000	Complies
11	2462	29.95	19.80	30.00	1.0000	Complies



### Test Mode TX N-20M Mode\_Ant. 1

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.70	13.38	30.00	1.0000	Complies
06	2437	22.53	12.07	30.00	1.0000	Complies
11	2462	23.12	12.71	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Ant. 2

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.66	13.99	30.00	1.0000	Complies
06	2437	23.75	13.24	30.00	1.0000	Complies
11	2462	23.21	12.98	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Ant. 3

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	22.48	12.79	30.00	1.0000	Complies
06	2437	22.29	12.04	30.00	1.0000	Complies
11	2462	22.46	12.42	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Ant. 4

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	24.40	13.51	30.00	1.0000	Complies
06	2437	24.11	13.23	30.00	1.0000	Complies
11	2462	23.99	13.13	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Total

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	29.63	19.46	30.00	1.0000	Complies
06	2437	29.26	18.71	30.00	1.0000	Complies
11	2462	29.25	18.84	30.00	1.0000	Complies



### Test Mode TX N-40M Mode\_Ant. 1

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	23.16	13.46	30.00	1.0000	Complies
06	2437	23.21	13.06	30.00	1.0000	Complies
09	2452	23.66	14.01	30.00	1.0000	Complies

# Test Mode TX N-40M Mode\_Ant. 2

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	24.03	14.22	30.00	1.0000	Complies
06	2437	23.72	14.06	30.00	1.0000	Complies
09	2452	23.49	14.27	30.00	1.0000	Complies

# Test Mode TX N-40M Mode\_Ant. 3

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	22.95	13.25	30.00	1.0000	Complies
06	2437	23.11	12.84	30.00	1.0000	Complies
09	2452	23.85	13.99	30.00	1.0000	Complies

# Test Mode TX N-40M Mode\_Ant. 4

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	23.54	14.14	30.00	1.0000	Complies
06	2437	23.39	13.82	30.00	1.0000	Complies
09	2452	23.95	14.65	30.00	1.0000	Complies

# Test Mode TX N-40M Mode\_Total

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	29.46	19.81	30.00	1.0000	Complies
06	2437	29.38	19.50	30.00	1.0000	Complies
09	2452	29.76	20.26	30.00	1.0000	Complies



# Beamforming

Test Mode TX N-20M Mode_
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Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	19.89	9.06	30.00	1.0000	Complies
06	2437	19.83	9.38	30.00	1.0000	Complies
11	2462	19.79	9.4	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Ant. 2

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.80	11.07	30.00	1.0000	Complies
06	2437	22.07	12.39	30.00	1.0000	Complies
11	2462	22.19	11.26	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Ant. 3

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	19.34	9.01	30.00	1.0000	Complies
06	2437	19.65	9.72	30.00	1.0000	Complies
11	2462	19.56	9.38	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Ant. 4

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.32	10.37	30.00	1.0000	Complies
06	2437	21.52	11.2	30.00	1.0000	Complies
11	2462	21.52	10.48	30.00	1.0000	Complies

# Test Mode TX N-20M Mode\_Total

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	26.72	15.99	26.98	0.4989	Complies
06	2437	26.91	16.86	26.98	0.4989	Complies
11	2462	26.93	16.22	26.98	0.4989	Complies



# Test Mode TX N-40M Mode\_Ant. 1

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	20.11	9.22	30.00	1.0000	Complies
06	2437	19.00	7.73	30.00	1.0000	Complies
09	2452	19.68	9.17	30.00	1.0000	Complies

# Test Mode TX N-40M Mode\_Ant. 2

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	22.12	11.6	30.00	1.0000	Complies
06	2437	22.36	10.78	30.00	1.0000	Complies
09	2452	22.35	11.18	30.00	1.0000	Complies

### Test Mode TX N-40M Mode\_Ant. 3

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	20.04	9.29	30.00	1.0000	Complies
06	2437	19.32	8.39	30.00	1.0000	Complies
09	2452	19.29	8.77	30.00	1.0000	Complies

# Test Mode TX N-40M Mode\_Ant. 4

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	21.00	10.66	30.00	1.0000	Complies
06	2437	21.26	10.26	30.00	1.0000	Complies
09	2452	20.60	9.75	30.00	1.0000	Complies

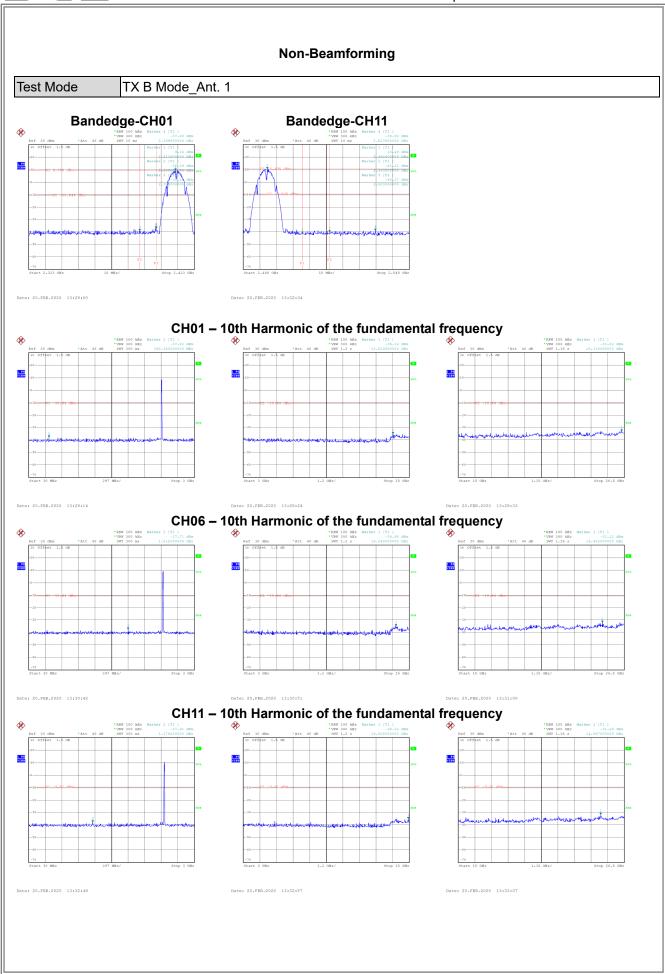
### Test Mode TX N-40M Mode\_Total

Channel	Frequency (MHz)	Peak Output Power (dBm)	Average Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	26.92	16.33	26.98	0.4989	Complies
06	2437	26.73	15.49	26.98	0.4989	Complies
09	2452	26.67	15.84	26.98	0.4989	Complies

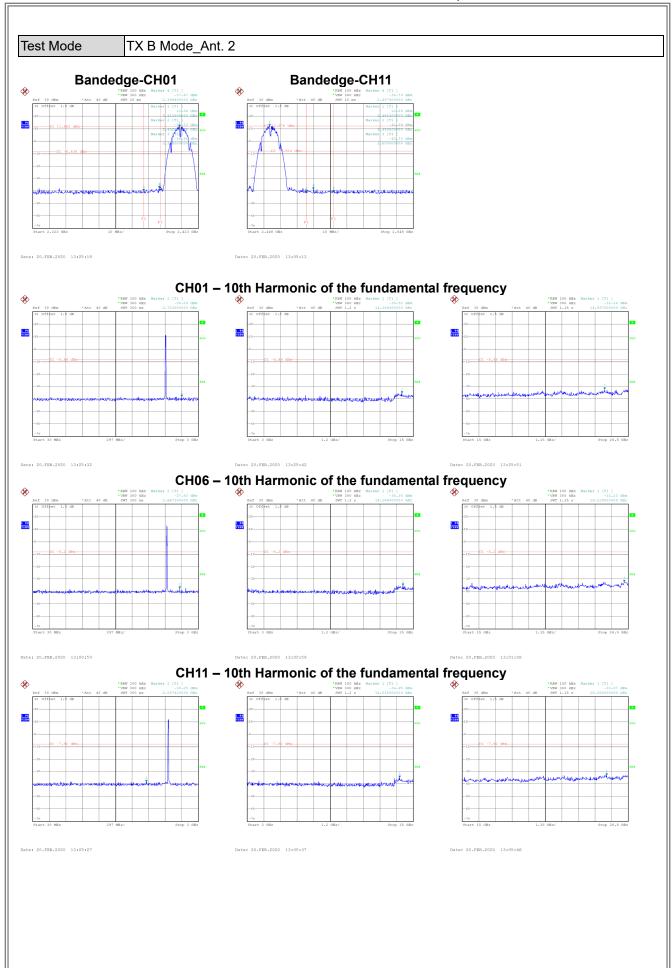


# **APPENDIX G - CONDUCTED SPURIOUS EMISSIONS**

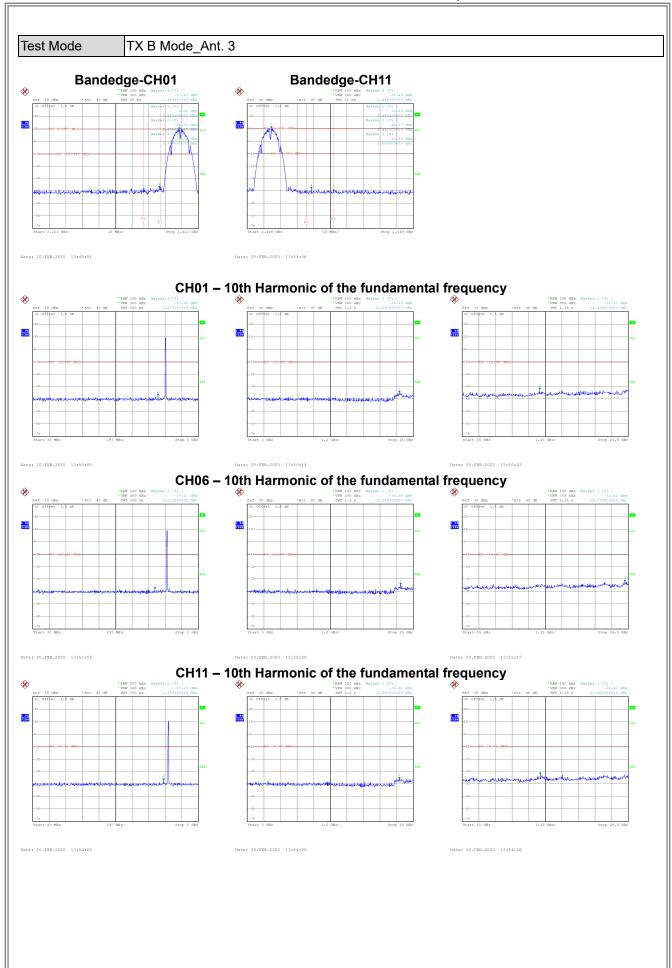








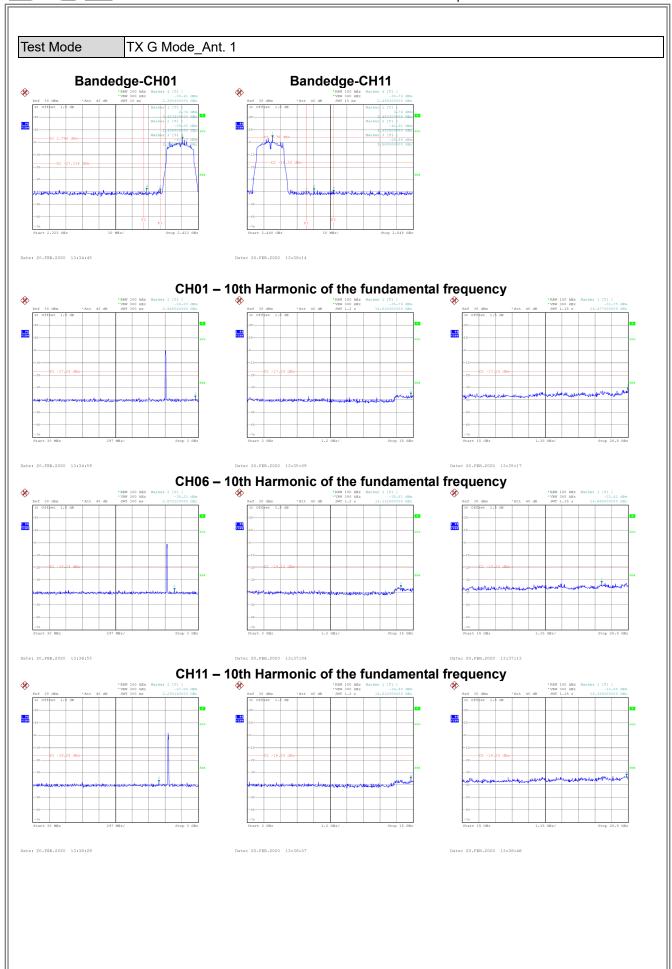




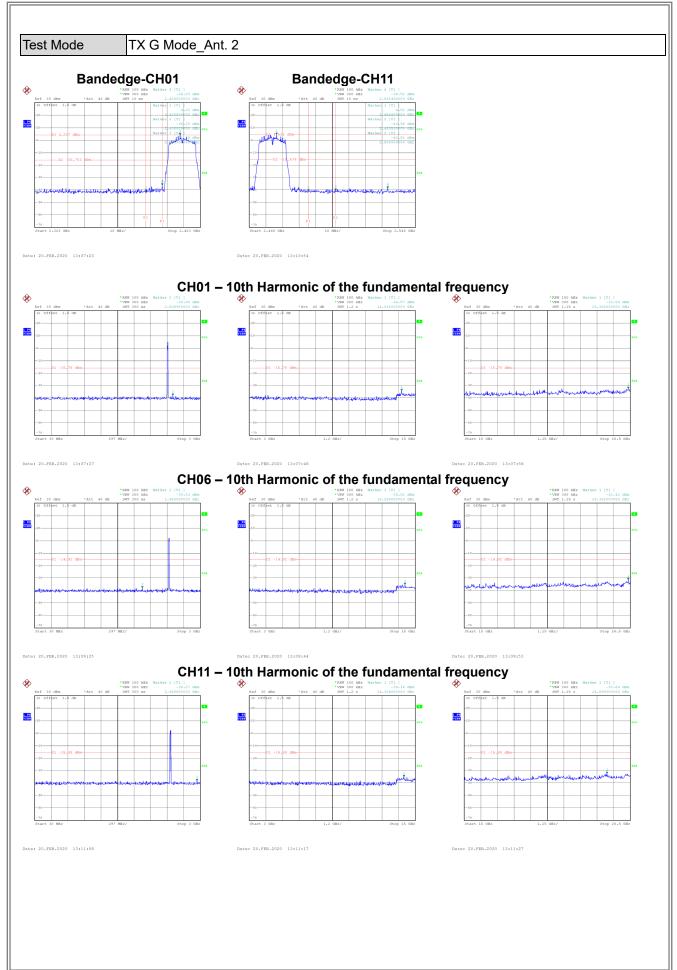








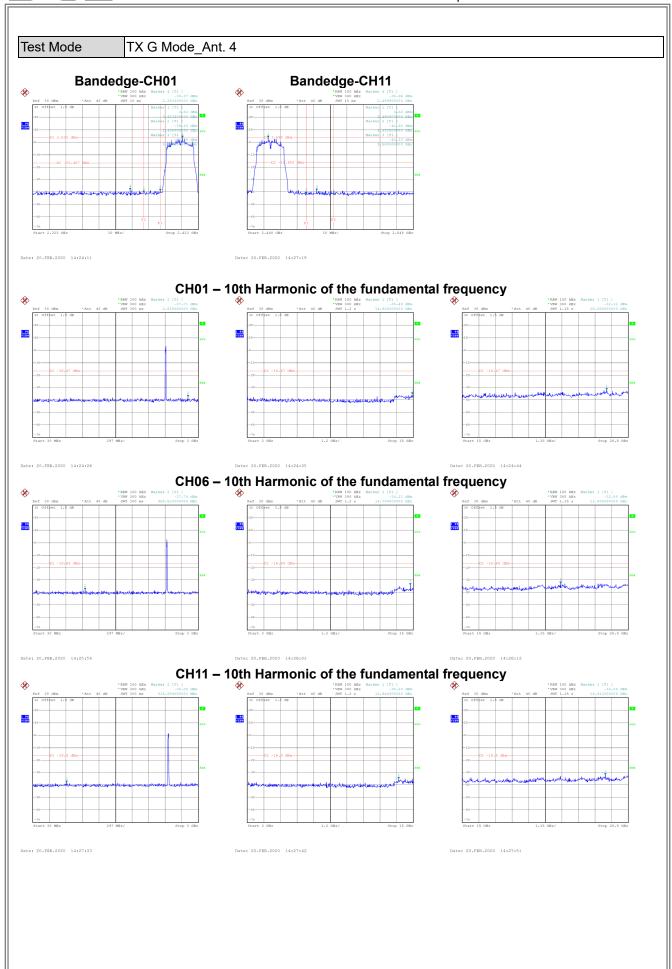




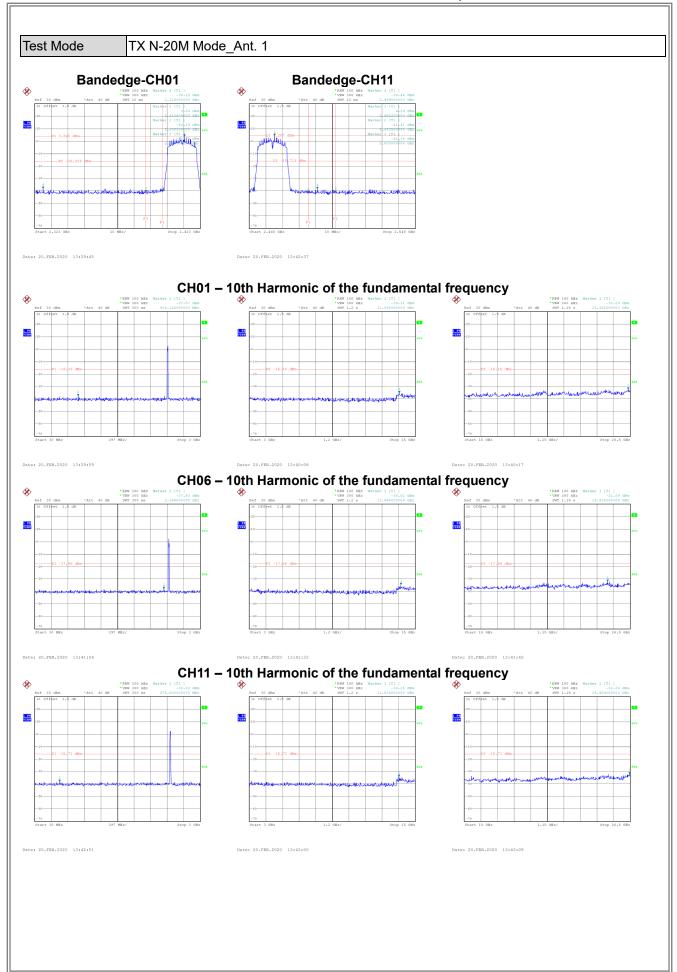




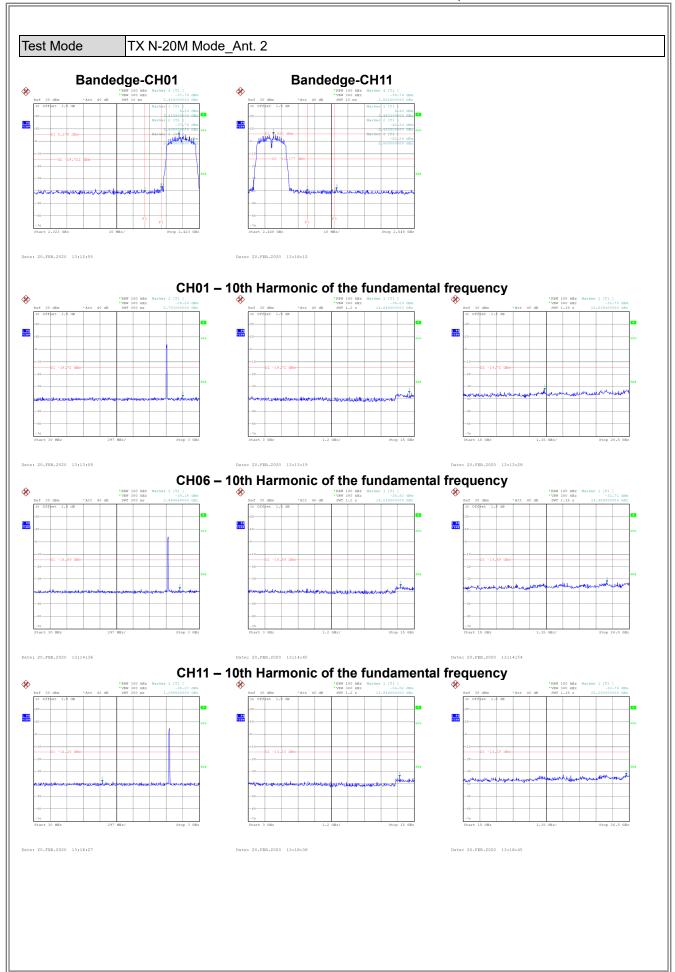




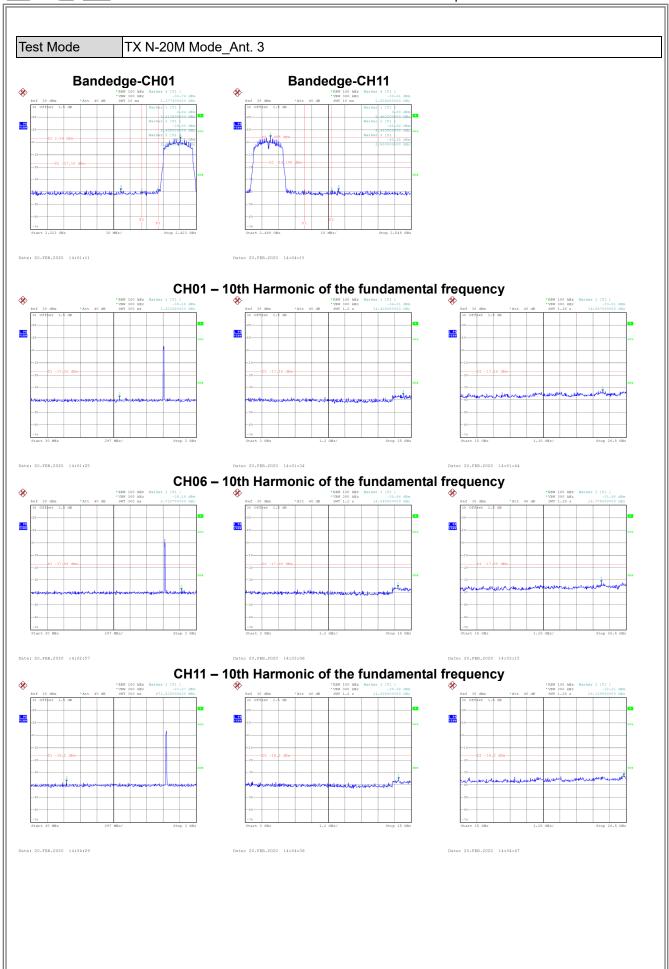




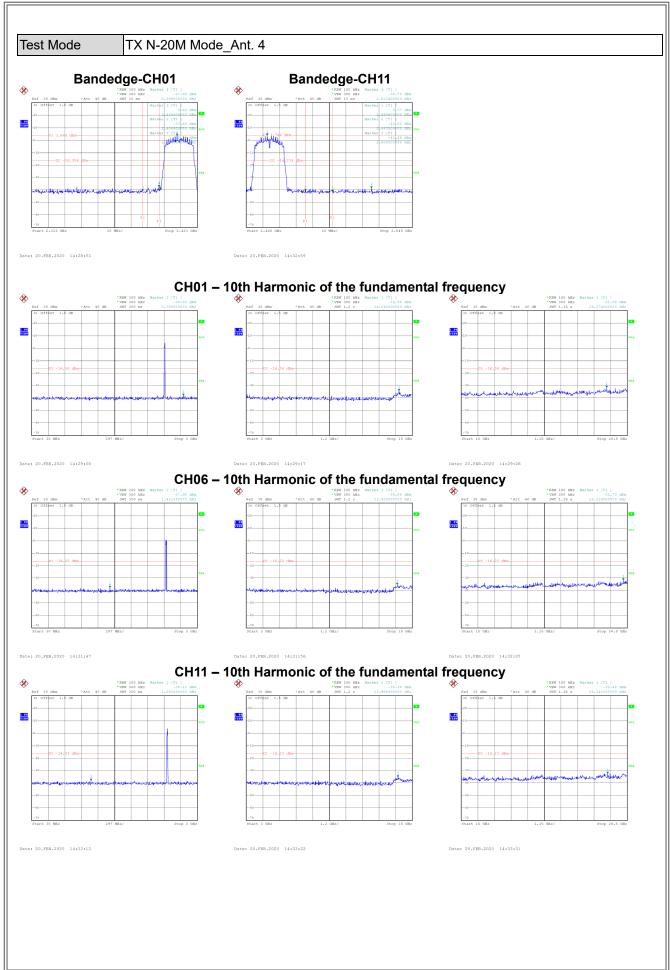




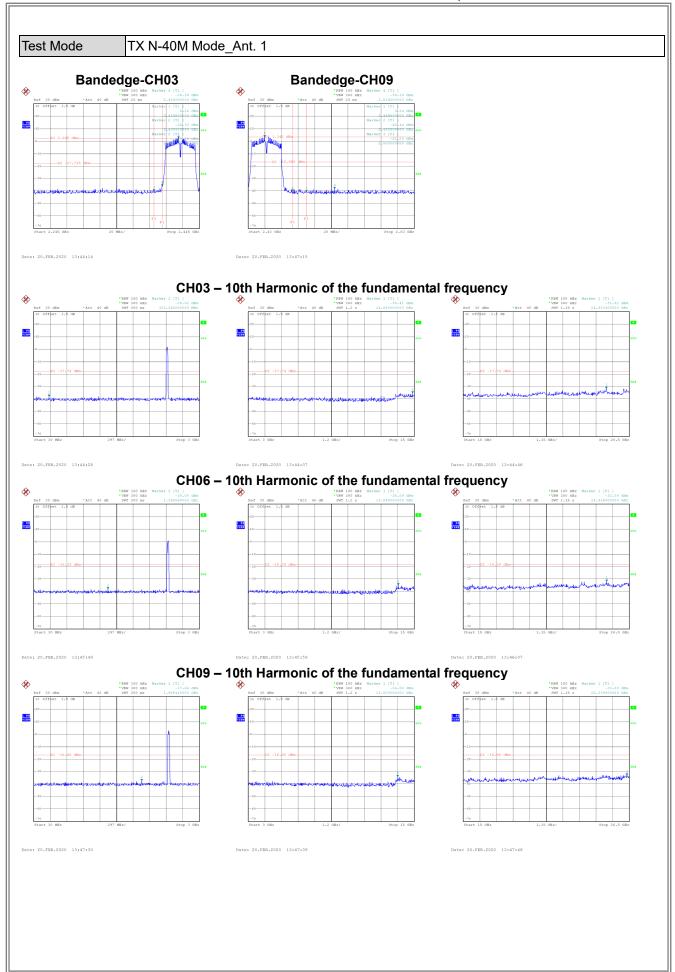




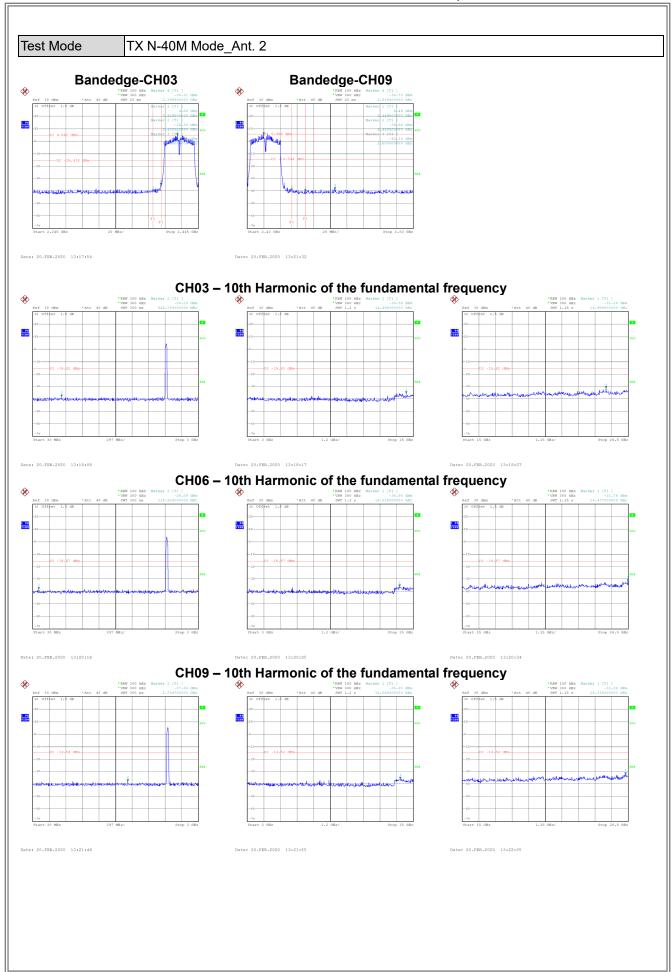








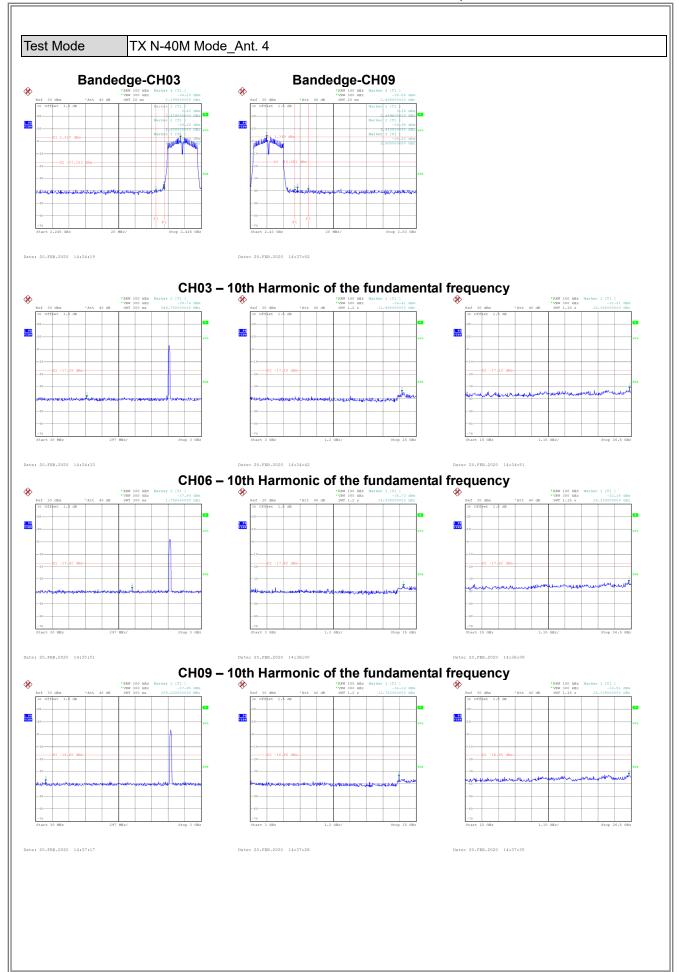














## **APPENDIX H - POWER SPECTRAL DENSITY**



## Non-Beamforming

	T) ( D & 4	
Test Mode	ITX B Mode	Ant. 1

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-8.12	8	Complies
06	2437	-7.76	8	Complies
11	2462	-5.26	8	Complies



Test Mode TX B Mode Ant. 2
----------------------------

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-4.50	8	Complies
06	2437	-5.64	8	Complies
11	2462	-4.40	8	Complies





Test Mode	TX B Mode Ant.	3
100t Woodo	I I I D IVIOGO / VIII.	•

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-6.26	8	Complies
06	2437	-7.00	8	Complies
11	2462	-6.10	8	Complies



	Test Mode	TX B Mode	Δnt Δ
ı	rest ivioue	I A D IVIOUE	AIII. 4

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-4.72	8	Complies
06	2437	-3.78	8	Complies
11	2462	-5.21	8	Complies



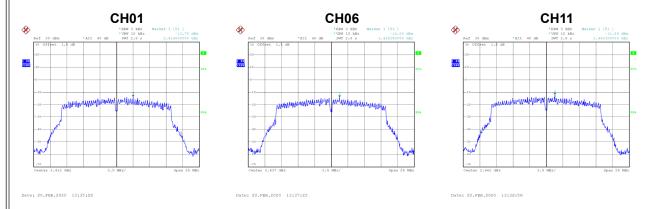
Test Mode	TX B Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	0.35	4.98	Complies
06	2437	0.25	4.98	Complies
11	2462	0.82	4.98	Complies



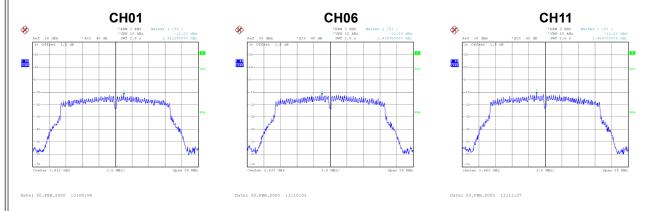
Test Mode	TX G Mode	Ant.	1
103t Wood	I A G IVIOGC	/ \I I I L.	

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-13.70	8	Complies
06	2437	-14.00	8	Complies
11	2462	-11.80	8	Complies



Test Mode	TX G Mode	Ant	2
103L WOOL	I A O MOGC	/ \lit.	_

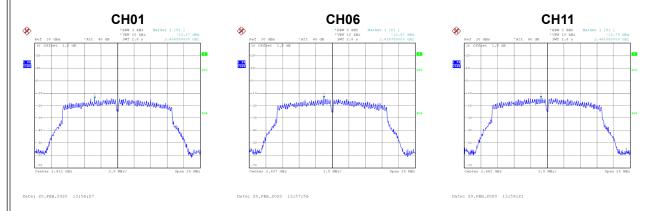
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-12.23	8	Complies
06	2437	-12.04	8	Complies
11	2462	-11.42	8	Complies





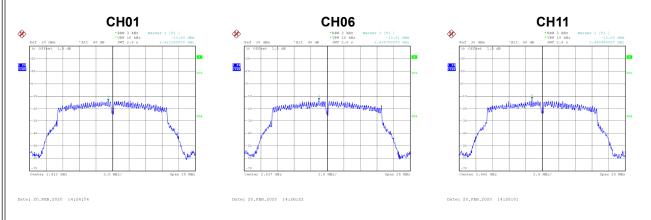
	Test Mode	TX G Mode	Ant. 3
ı	103t Wood	I A G IVIOGC	Air. O

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-14.17	8	Complies
06	2437	-13.67	8	Complies
11	2462	-13.70	8	Complies



	Test Mode	TX G Mode	Δnt 1
ı	rest iviode	I X G Mode	Ant. 4

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-13.64	8	Complies
06	2437	-13.01	8	Complies
11	2462	-12.03	8	Complies



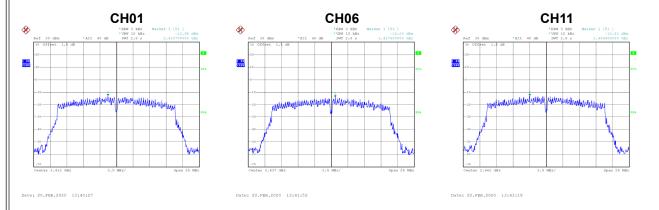
Test Mode	TX G Mode_Total
-----------	-----------------

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-7.35	4.98	Complies
06	2437	-7.09	4.98	Complies
11	2462	-6.14	4.98	Complies



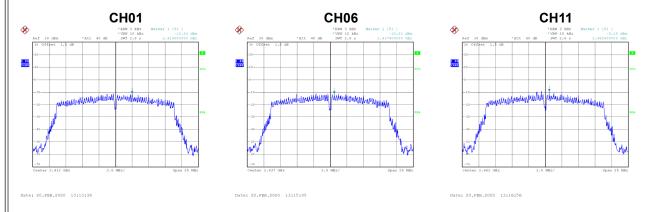
Test Mode	TX N-20M Mode Ant.	1
100t Wiodo	170 14 ZOWI WOOD 7 WILL	•

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-12.98	8	Complies
06	2437	-14.03	8	Complies
11	2462	-12.82	8	Complies



Test Mode	TX N-20M Mode	Ant. 2
100t Wodo	I I / C I Y ZOIVI IVIOGO	, wit. 2

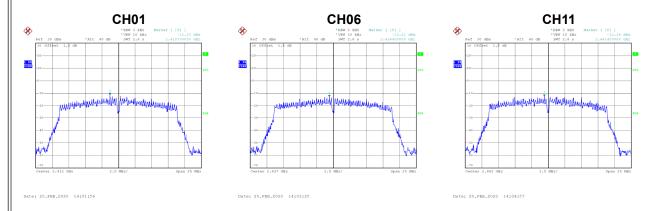
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-10.84	8	Complies
06	2437	-10.82	8	Complies
11	2462	-9.10	8	Complies





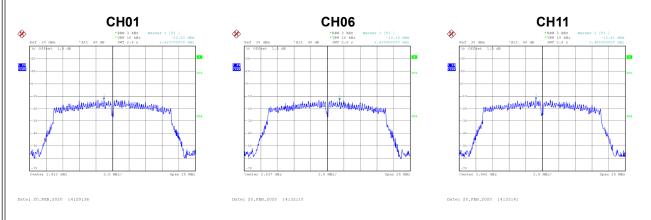
Test Mode	TX N-20M Mode	Ant. 3
100t Woodo	I TO THE ZOINT INIOGO	, uic. O

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-11.33	8	Complies
06	2437	-13.01	8	Complies
11	2462	-12.36	8	Complies



Test Mode	TX N-20M Mode	Ant. 4
100t Mode	IN IN ZOM MICAC	,

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-12.53	8	Complies
06	2437	-13.10	8	Complies
11	2462	-12.41	8	Complies



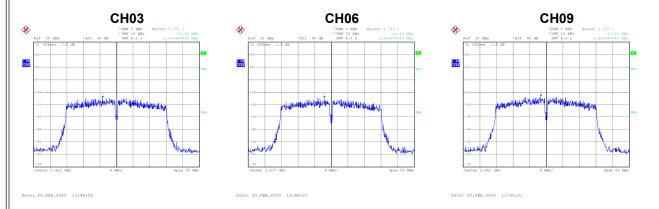
	Test Mode	TX N-20M Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-5.81	4.98	Complies
06	2437	-6.55	4.98	Complies
11	2462	-5.36	4.98	Complies



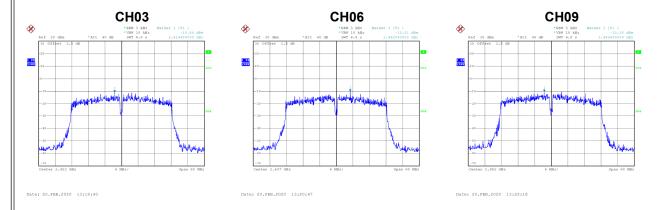
Test Mode	TX N-40M Mode	Ant.	1

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-14.46	8	Complies
06	2437	-14.40	8	Complies
09	2452	-13.50	8	Complies



Test Mode	TX N-40M Mode	Ant. 2
1001111040	I I I I I I I I I I I I I I I I I I I	, <del>-</del>

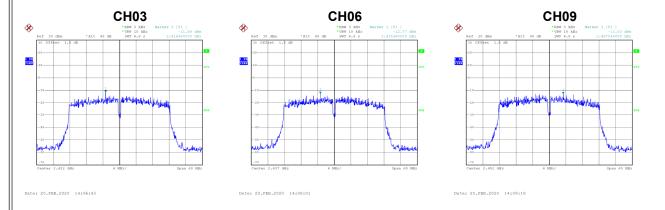
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-10.84	8	Complies
06	2437	-10.01	8	Complies
09	2452	-10.30	8	Complies





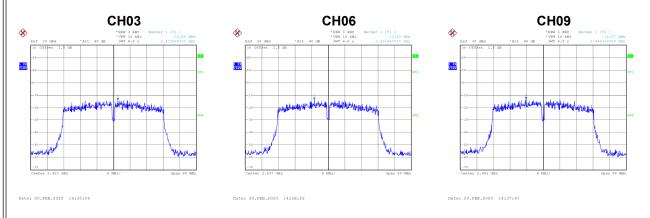
Test Mode	TX N-40M Mode Ant. 3	
1001111040	17111 10111 111040 7 1111. 0	

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-11.56	8	Complies
06	2437	-12.77	8	Complies
09	2452	-13.03	8	Complies



Test Mode	TX N-40M Mode Ant. 4	
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Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-13.58	8	Complies
06	2437	-13.49	8	Complies
09	2452	-12.87	8	Complies



Test Mode	TX N-40M Mode_Total
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Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-6.35	4.98	Complies
06	2437	-6.31	4.98	Complies
09	2452	-6.21	4.98	Complies

## **End of Test Report**