

# FCC Radio Test Report

# FCC ID: FCC ID:KA2IRX3260A1

#### This report concerns: Original Grant

Project No.	:	2102H003
Equipment	:	AX3200 Mesh Wi-Fi 6 Router
Brand Name	:	D-Link
Test Model	:	DIR-X3260
Series Model	:	N/A
Applicant	:	D-Link Corporation
Address	:	14420 Myford Road Suite 100 Irvine California United States 92606
Manufacturer	:	D-Link Corporation
Address	:	14420 Myford Road Suite 100 Irvine California United States 92606
Date of Receipt	:	Mar. 10, 2021
Date of Test	:	Mar. 10, 2021~Apr. 14, 2021
Issued Date	:	May. 19, 2021
<b>Report Version</b>	:	R00
Test Sample	:	Engineering Sample No.: SH2021020931 for radiation;
		SH2021020932 for conducted; SH2021020930-3 for adapter.
Standard(s)	:	FCC CFR Title 47, Part 15, Subpart C FCC KDB 558074 D01 15.247 Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 ANSI C63.10-2013

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

Maker Qi

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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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# **APPENDIX H - POWER SPECTRAL DENSITY**

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## **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	May. 19, 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 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	150 kHz ~ 30 MHz	2.70

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	Н	3.57
		30 MHz~200 MHz	V	4.04
	CISPR	30 MHz~200 MHz	Н	3.76
SH-CB01		200 MHz~1,000 MHz	V	4.24
SH-CBU1		200 MHz~1,000 MHz	Н	3.84
		1 GHz~18 GHz	V	4.46
		1 GHz~18 GHz	Н	4.40
		18 GHz~40 GHz	V	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	21°C	43%	AC 120V/60Hz	Joven Xiong
Radiated Emissions-30MHz to 1000MHz	24°C	58%	AC 120V/60Hz	Forest Li
Radiated Emissions-Above 1000MHz	24°C	58%	AC 120V/60Hz	Forest Li
Bandwidth	22°C	46%	AC 120V/60Hz	Danny Dang
Maximum Output Power	22°C	46%	AC 120V/60Hz	Danny Dang
Conducted Spurious Emissions	22°C	46%	AC 120V/60Hz	Danny Dang
Power Spectral Density	22°C	46%	AC 120V/60Hz	Danny Dang

# 2. GENERAL INFORMATION

#### 2.1 GENERAL DESCRIPTION OF EUT

Equipment	AX3200 Mesh Wi-Fi 6 Router
Brand Name	D-Link
Test Model	DIR-X3260
Series Model	N/A
Model Difference(s)	N/A
Software Version	1
Hardware Version	A1 and R1
Power Source	DC voltage supplied from AC/DC adapter. #1: MAUS-1202002400 #2: S24B72-120A200-0K
Power Rating	#1: 100-240V ~ 50/60Hz 0.8A O/P: 12V2.0A #2: 100-240V ~ 50/60Hz Max. 0.8A O/P: 12V2A
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 800 Mbps
Maximum AVG Output Power _CDD	IEEE 802.11b: 25.20 dBm IEEE 802.11g: 21.78 dBm IEEE 802.11n20: 27.83 dBm IEEE 802.11n40: 26.71 dBm
Maximum AVG Output Power _Beamforming	IEEE 802.11n20: 24.55 dBm IEEE 802.11n40: 24.86 dBm

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								
01	2412	04	2427	07	2442	10	2457	
02	02 2417 05 2432 08 2447 11 2462							
03	2422	06	2437	09	2452			

#### 4. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	4.75
2	N/A	N/A	Dipole	N/A	4.75
3	N/A	N/A	Dipole	N/A	4.75
4	N/A	N/A	Dipole	N/A	4.67

Note:

This EUT supports Beamforming and CDD, all antennas have the same gain, any transmit signals are correlated with each other, so

1) Beamforming:

Directional gain =  $10\log[(10^{G1/20}+10^{G2/20+...+}10^{GN/20})^2/N_{ANT}]dBi$ ,

that is Directional gain=10log[ $(10^{G1/20}+10^{G2/20+...+}10^{GN/20})^2/N_{ANT}]dBi$  =10.75;

So output power limit is 30-10.75+6=25.25, the power spectral density limit is 8-10.75+6=3.25. 2) CDD:

For power spectral density measurements,

Directional gain =  $10\log[(10^{G1/20}+10^{G2/20+...+}10^{GN/20})^2/N_{ANT}]dBi$ ,

that is Directional gain= $10\log[(10^{G1/20}+10^{G2/20+...+}10^{GN/20})^2/N_{ANT}]dBi = 10.75;$ 

So power spectral density limit is 8-10.75+6=3.25.

For power meansurements, Directional gain =G<sub>ANT MAX</sub>.+Array Gain, Array Gain=0dB(N<sub>ANT</sub>≤4), so the Directional gain=4.75.

5. Table for Antenna Configuration:

Operating Mode TX Mode	Ant. 1	Ant. 2	Ant. 3	Ant. 4	Ant. 1+2+3+4
IEEE 802.11b	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	×
IEEE 802.11g	✓	$\checkmark$	$\checkmark$	~	×
IEEE 802.11n (HT20)	✓	$\checkmark$	$\checkmark$	$\checkmark$	~
IEEE 802.11n (HT40)	$\checkmark$	~	~	~	$\checkmark$



### 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 7	TX N(HT20) Mode Channel 06
Mode 8	TX B Mode Channel 01/02/06/10/11
Mode 9	TX G Mode Channel 01/02/06/10/11
Mode 10	TX N(HT20) Mode Channel 01/02/06/10/11
Mode 11	TX N(HT40) Mode Channel 03/04/06/08/09

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 7	TX N(HT20) Mode Channel 06	

Radiated emissions test - Below 1GHz		
Final Test Mode Description		
Mode 7	TX N(HT20) Mode Channel 06	

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 N(HT20) Mode Channel 06 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.
- (4) The measurements for Output Power are tested, the Non Beamforming and Beamforming are recorded in the report. The worst case is Non Beamforming and only the worst case is documented for other test items.
- (5) For radiated emission below 1 GHz and AC Power Line Conducted Emissions test, all adapters had been pre-tested and in this report only recorded the worst case.

# 2.3 PARAMETERS OF TEST SOFTWARE

CDD			
Test Software Version	QA tool v0.0.2.24		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	22.00	22.00	21.00
IEEE 802.11g	19.00	19.00	19.00
IEEE 802.11n(HT20)	12.00	20.00	12.50
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(HT40)	14.50	19.00	18.50

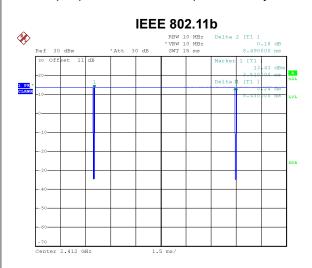
Beamforming				
Test Software Version	QA tool v0.0.2.24			
Frequency (MHz)	2412 2437 2462			
IEEE 802.11n(HT20)	12.00	17.00	12.50	
Frequency (MHz)	2422	2437	2452	
IEEE 802.11n(HT40)	14.50	17.00	17.00	





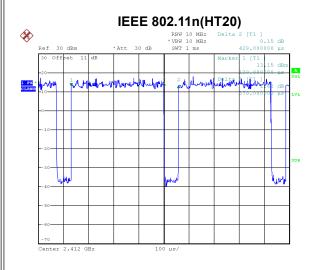
# 2.4 DUTY CYCLE

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: 22.FEB.2021 16:48:33

Duty cycle = 8.430 ms / 8.490 ms = 99.29% Duty Factor = 10 log(1/Duty cycle) = 0.03



Date: 22.FEB.2021 17:19:20

Duty cycle = 0.370 ms / 0.428 ms = 86.45% Duty Factor = 10 log(1/Duty cycle) = 0.63

#### NOTE:

For IEEE 802.11b/g:

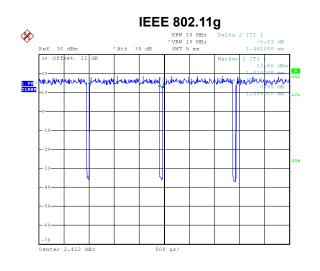
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz.

For IEEE 802.11n(HT20):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 kHz.

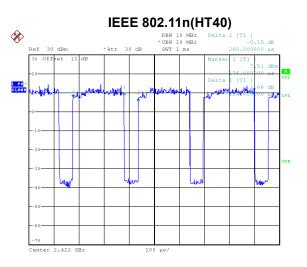
#### For IEEE 802.11n(HT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 5 kHz.



Date: 22.FEB.2021 17:18:15

Duty cycle = 1.399 ms / 1.461 ms = 95.76% Duty Factor = 10 log(1/Duty cycle) = 0.19

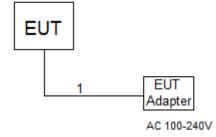


Date: 22.FEB.2021 17:20:12

Duty cycle = 0.204 ms / 0.260 ms = 78.46% Duty Factor = 10 log(1/Duty cycle) = 1.05



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



#### 2.6 SUPPORT UNITS

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	N/A	N/A	1m



# 3. AC POWER LINE CONDUCTED EMISSIONS

#### 3.1 LIMIT

Frequency of Emission (MHz)	Limit (dBµV)		
Frequency of Emission (MHZ)	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.

#### 3.2 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:

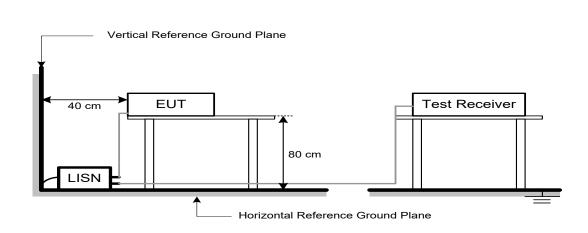
Receiver Parameters	Setting	
Start Frequency	0.15 MHz	
Stop Frequency	30 MHz	
IF Bandwidth	9 kHz	

#### 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 (Miriz)	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) 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



#### 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

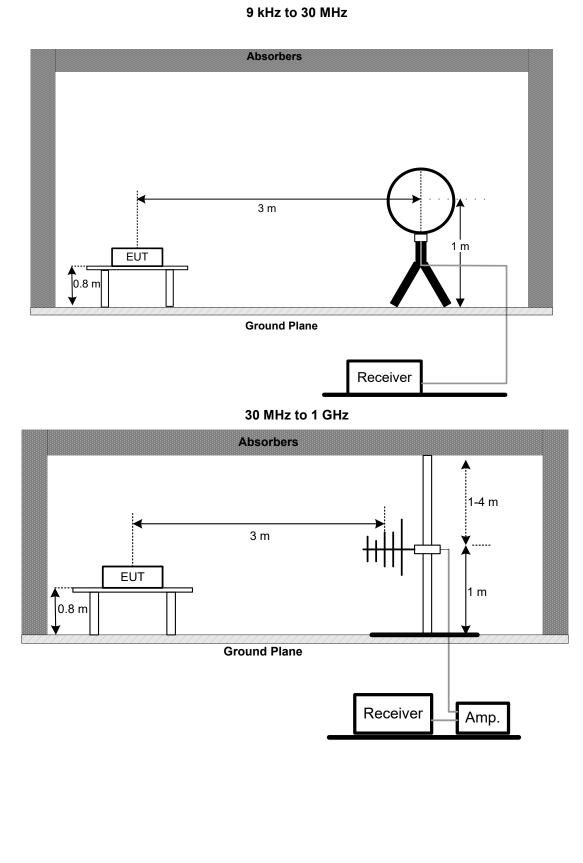
Receiver Parameters	Setting
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector



# 4.3 DEVIATION FROM TEST STANDARD

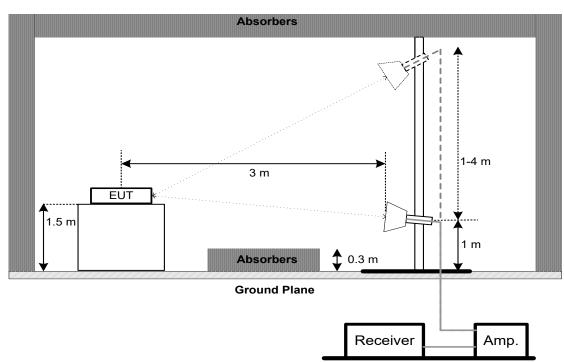
No deviation.

#### 4.4 TEST SETUP









#### 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

#### 5.1 LIMIT

Section	Test Item	Limit	
FCC 15.247(a)(2)	6 dB Bandwidth	Minimum 500 kHz	
	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:

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 1 MHz For 40MHz			
VBW	1 MHz For 20MHz 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	

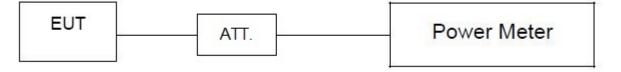
#### 6.2 TEST PROCEDURE

- 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 (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



#### 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

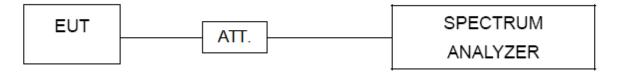
- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting
Start Frequency	30 MHz
Stop Frequency	26.5 GHz
RBW	100 kHz
VBW	100 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 (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	Line Impedance Stabilisation Network	Schwarzbeck	NNLK 8121	8121-822	Mar. 21, 2021 Mar. 20, 2022	
2	TWO-LINE V-NETWORK	R&S	ENV216	101340	Aug. 23, 2021	
3	Test Cable	emci	EMCRG400-BM-N M-10000	170628	Apr. 12, 2021 Apr. 11, 2022	
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 22, 2021 Mar. 21, 2022	
5	50Ω Terminator	SHX	TF2-1G-A	17051602	Mar. 19, 2021 Mar. 20, 2022	
6	$50\Omega$ coaxial switch	Anritsu	MP59B	6201750902	Mar. 19, 2021 Mar. 20, 2022	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Loop Antenna	EMCI	EMCI LPA600	275	Apr. 15, 2021	
2	Cable	N/A	EMCRG400-BM-N M-10000	170628	Apr. 12, 2021 Apr. 11, 2022	
3	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 22, 2021 Mar. 21, 2022	
4	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A	

	Radiated Emissions - 30 MHz to 1 GHz							
Item	m Kind of Equipment Manufacturer		Type No.	Serial No.	Calibrated until			
1	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	719	Mar. 27, 2021 Mar. 26, 2022			
2	Pre-Amplifier	emci EMC9135 980400		Mar. 21, 2021 Mar. 20, 2022				
3	MXE EMI Receiver	Keysight N9038A MY57150106		Mar. 22, 2021 Mar. 21, 2022				
4	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 13, 2021 Apr. 11, 2022			
5	Test Cable	emci	emci EMC104-SM-SM-1 170331		Apr. 13, 2021 Apr. 11, 2022			
6	Test Cable	emci	emci EMC104-SM-NM-3 170621		Apr. 13, 2021 Apr. 11, 2022			
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			



	Radiated Emissions - Above 1 GHz								
Item	Kind of Equipment	of Equipment Manufacturer Type No. Serial No.		Calibrated until					
1	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	9120D	9120D-1786	Mar. 27, 2021 Mar. 26, 2022				
2	Pre-Amplifier	emci	EMC012645SE	980421	May. 11, 2021				
3	EXA Spectrum Analyzer	Keysight	N9010A	MY56480545	Mar. 21, 2022 Mar. 20, 2022				
4	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 13, 2021 Apr. 11, 2022				
5	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 13, 2021 Apr. 11, 2022				
6	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 13, 2021 Apr. 11, 2022				
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A				
8	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 22, 2021 Mar. 21, 2022				
9	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	3116C	00203919	Mar. 28, 2021 Mar. 27, 2022				
10	Pre-Amplifier	emci	EMC184045SE	980409	Mar. 21, 2021 Mar. 20, 2022				
11	EXA Spectrum Analyzer	Keysight	N9010A	MY56480579	Mar. 22, 2021 Mar. 21, 2022				
12	Test Cable	emci	EMC102-KM-KM-8 00	170654	Apr. 16, 2021				
13	Test Cable	emci	Super Reliable-40G-SS11- 7000	W0030860001	Apr. 16, 2021				
14	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A				

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

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

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

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

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

All calibration period of equipment list is one year.



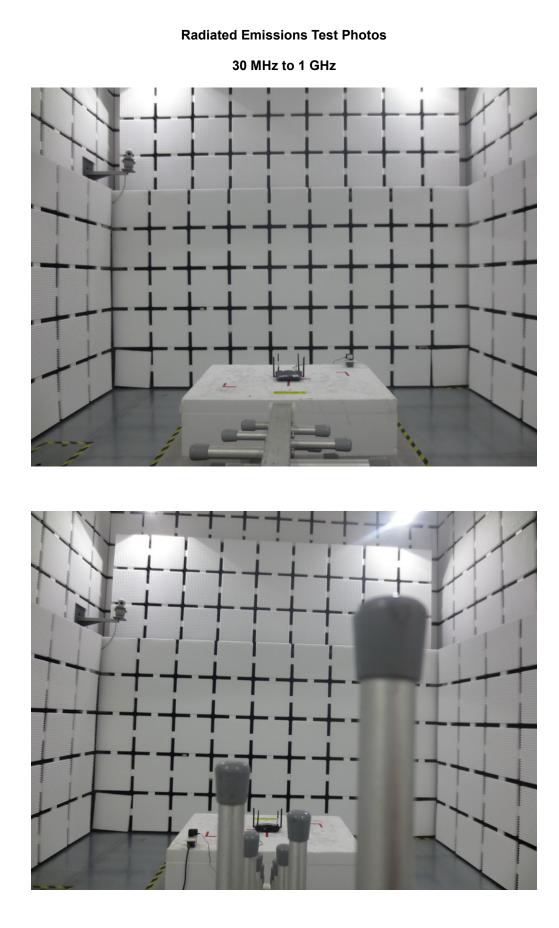
# **10. EUT TEST PHOTO**

#### Conducted Emissions Test Photos

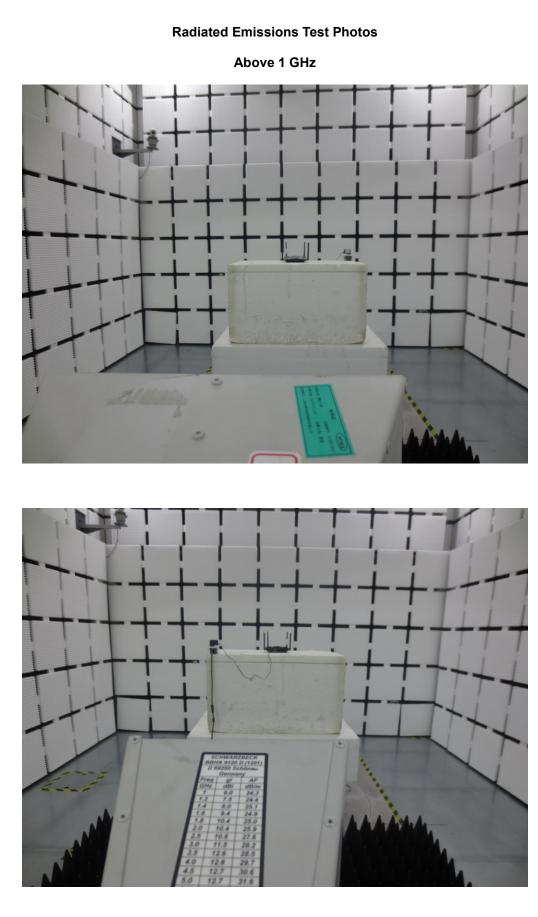




# **BIL**

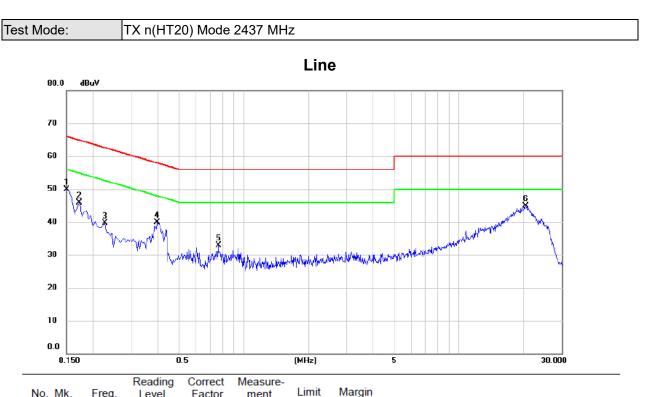






# **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**



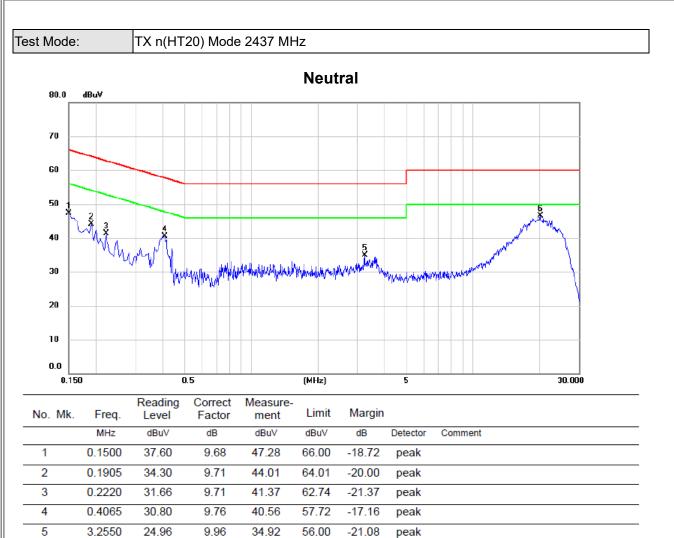


No. Mk.	Freq.	Level	Factor	ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1500	40.18	9.71	49.89	66.00	-16.11	peak	
2	0.1725	36.09	9.73	45.82	64.84	-19.02	peak	
3	0.2265	30.06	9.74	39.80	62.58	-22.78	peak	
4	0.3975	30.11	9.78	39.89	57.91	-18.02	peak	
5	0.7620	23.06	9.82	32.88	56.00	-23.12	peak	
6 *	20.4045	34.42	10.52	44.94	60.00	-15.06	peak	

#### **REMARKS**:

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





**REMARKS**:

6 \*

20.1165

(1) Measurement Value = Reading Level + Correct Factor.

10.57

46.42

60.00

-13.58

peak

(2) Margin Level = Measurement Value - Limit Value.

35.85



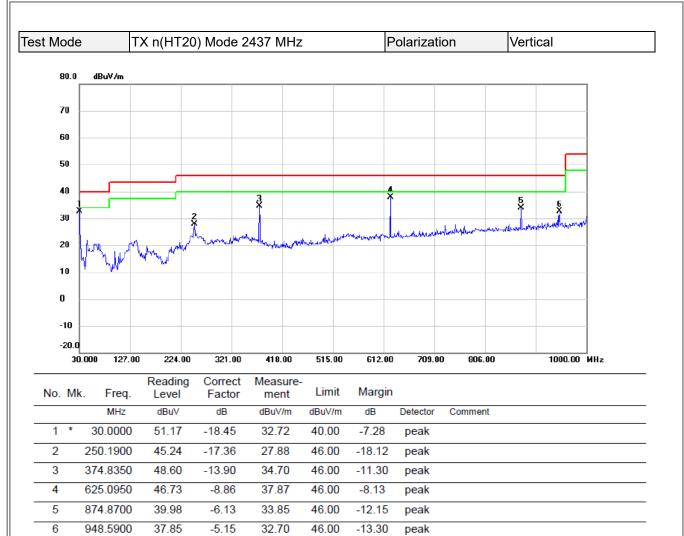
# **APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ**

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



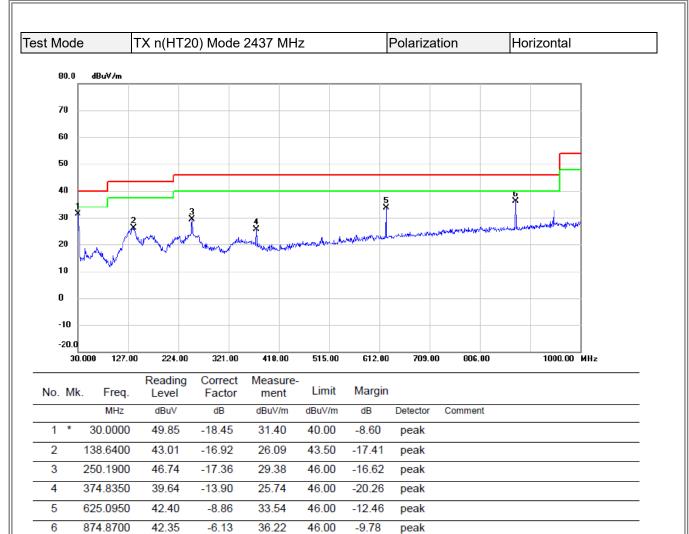
# APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

# **BIL**



#### **REMARKS**:

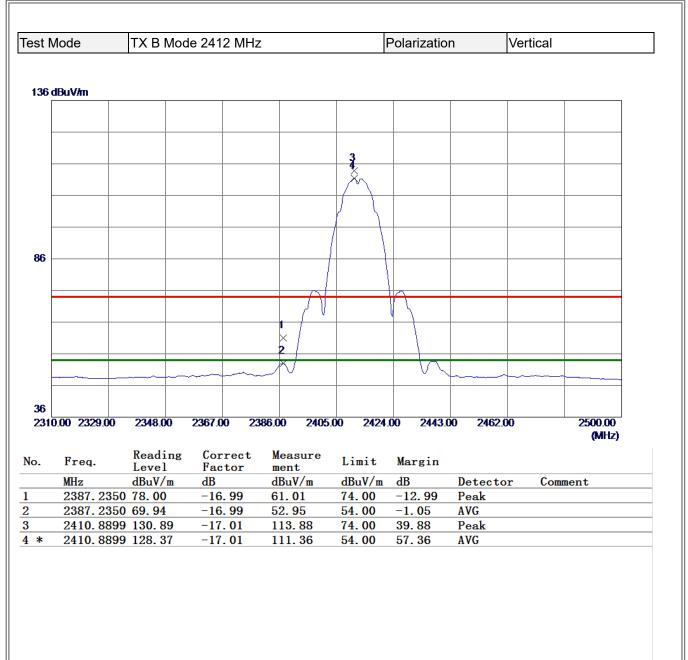
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



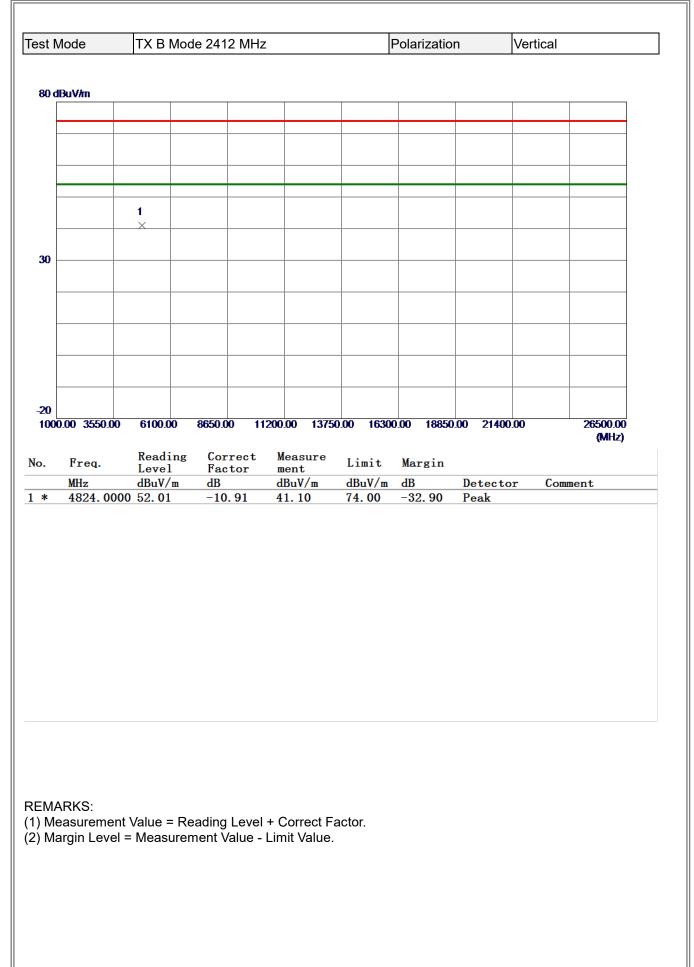
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

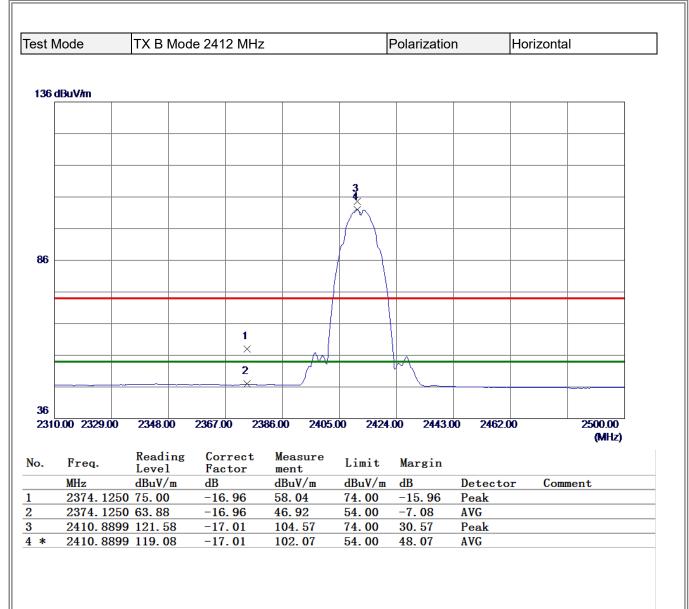


#### **APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ**



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

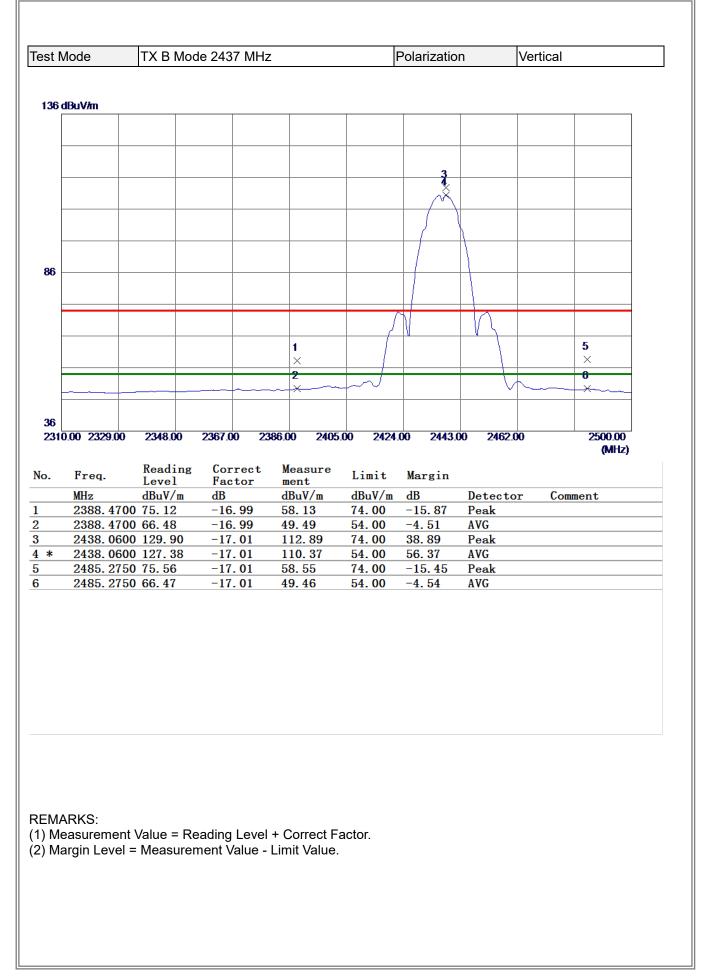




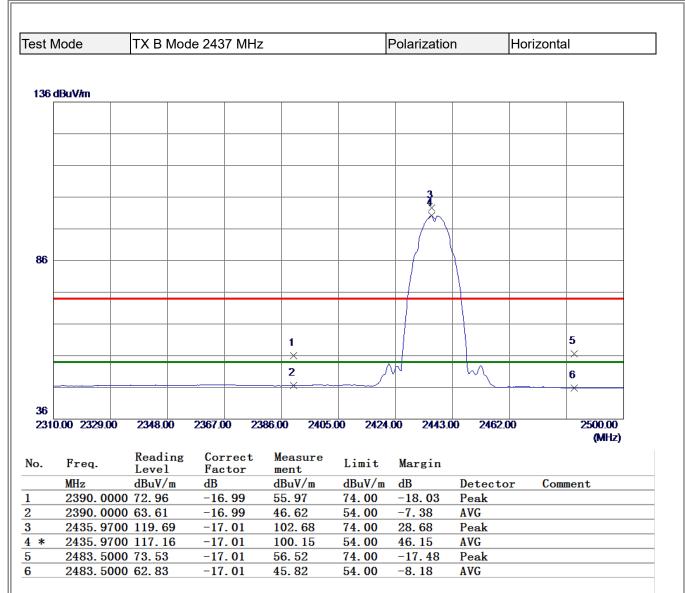
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

st Mode	TX E	3 Mode	2412 N	1Hz		F	Polari	ization		Horizo	ontal
0 dBuV/m										1	
		_									
	1 ×										
30		_									
20											
1000.00 35	50.00 610	3 00.0	650.00	11200.00	13750.00	) 16300	0.00	18850.0	0 21400	00.00	26500.00 (MHz)
. Free	Rea	ding	Correc	et Mea	sure I	.imit	Mar	gin			
	4. Lev	el	Factor	men	t <sup>1</sup>	.imit BuV/m		gin	Detecto	or (	
MHz	Rea Lev dBu 1.0000 50.5	el V/m	Correc Factor dB -10.91	men dBu	t <sup>1</sup> V/m d	.imit BuV/m 4.00			Detecto Peak	or (	Comment
MHz	4- Lev dBu	el V/m	Factor dB	men dBu	t <sup>1</sup> V/m d	BuV/m	dB			pr (	





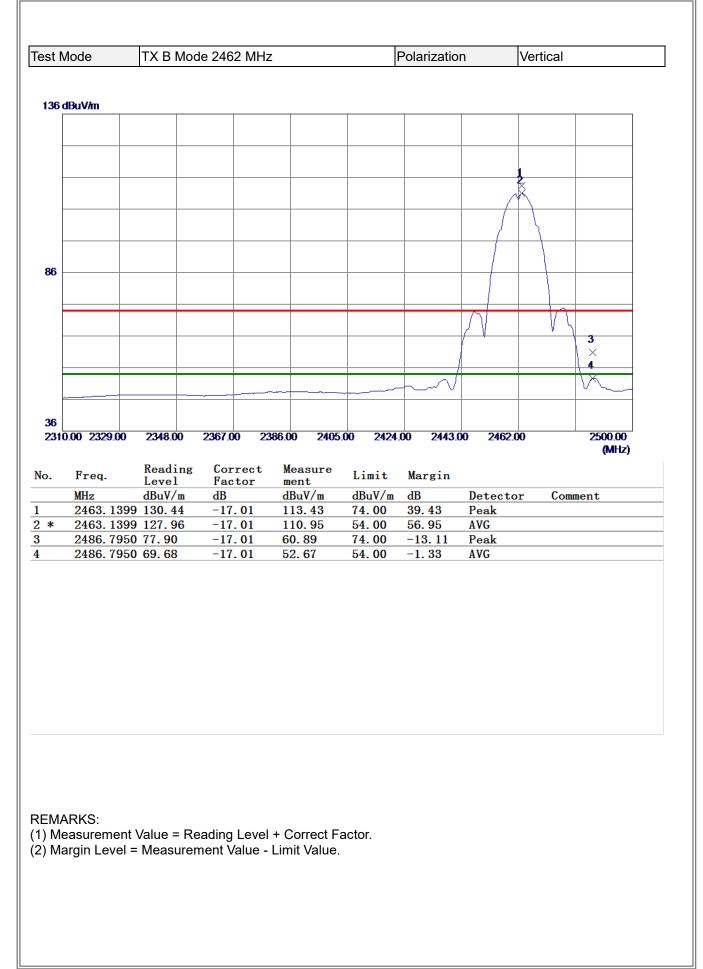
80 dBuV	(h_		Jue 243	7 MHz		I	Polariza	ation		Vertical	
0 dBuV	(h										
	///10										
		1 ×									
<b>30</b>											
-20											
	3550.00	6100.00	8650.00	) 11200	0.00 13750	0.00 1630	0.00 11	8850.00	21400	.00	26500.00
		Reading	- C	rect l	Measure						(MHz)
	req.	Level	Fact	tor i	ment	Limit	Margi				
	Hz 874.0000	dBuV/m 48 53	<u>dB</u> -10.		dBuV/m 37.74	dBuV/m 74.00	<u>dB</u> −36. 2		etecto eak	r Co	mment

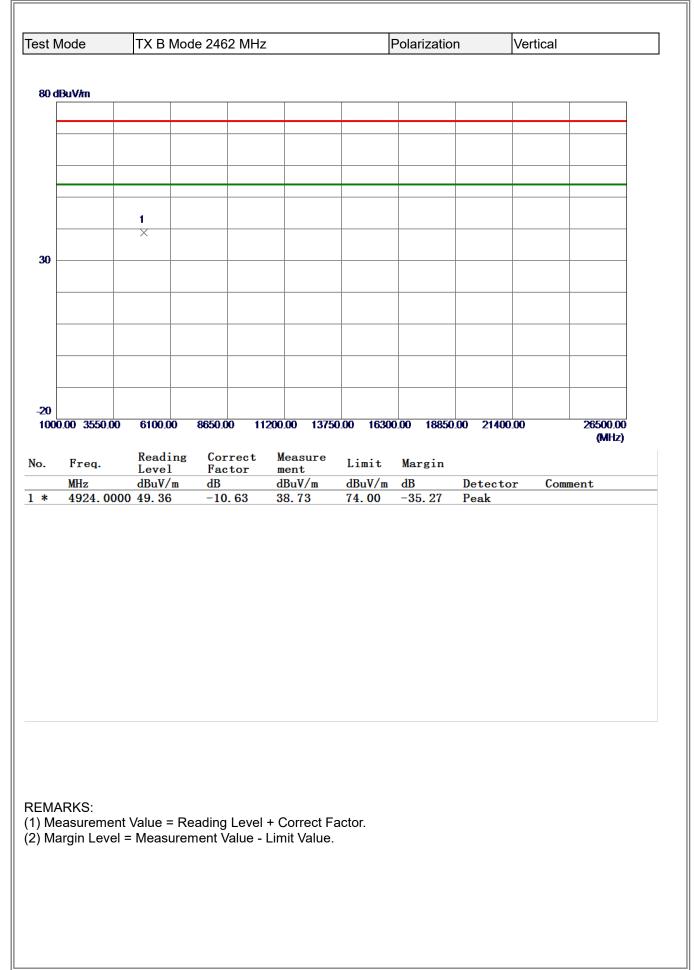


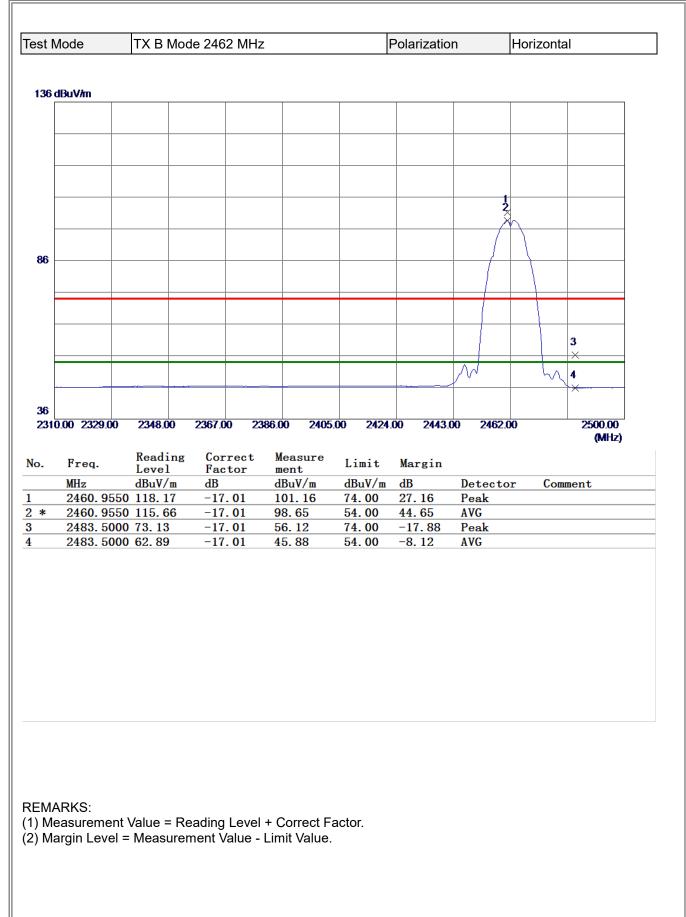
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

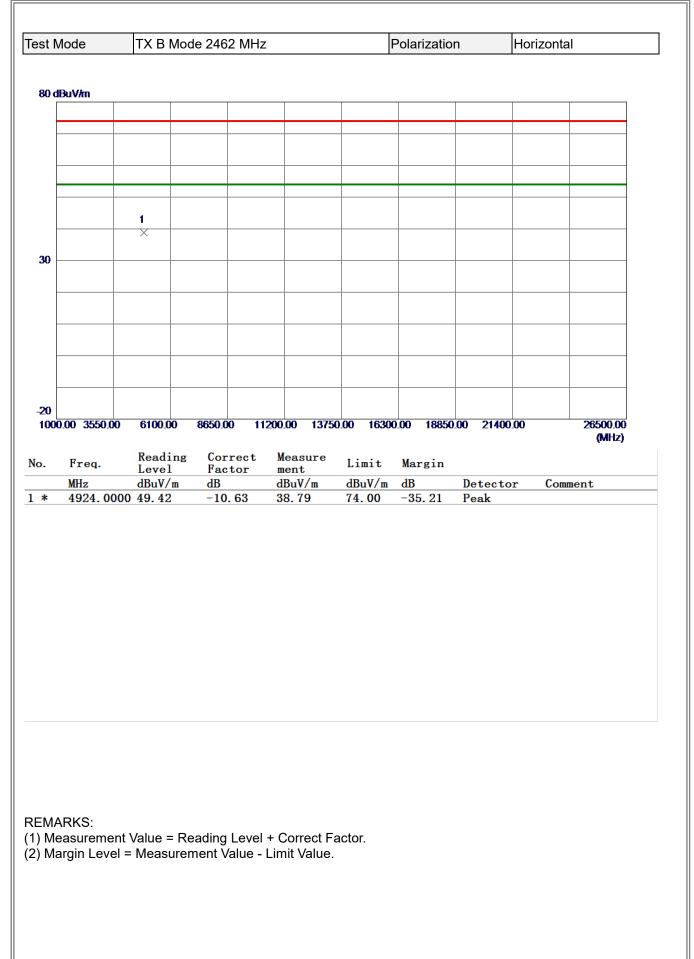
st Mode		TX B N	Node 24	437 N	lHz			F	Polai	rizatio	n		Hor	izonta	al
0 dBuV/m	n														1
				_											
		1		_											
		×													
ю ——															
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				_											
20															
1000.00 3	\$550.00	6100.0	0 865	0.00	11200.0	)0 1	3750.00	1630	0.00	18850	.00	21400	.00		26500.00 (MHz)
		Readi	ng C	orrec	t Me	easu		16300		18850 rgin	.00	21400	.00		26500.00 (MHz)
. Fre	eq.	Readi Level dBuV/1	ng C F m dl	orrec actor 3	t Me me dB	easuu ent BuV/m	re Li n dF	imit BuV/m	Man dB	rgin	De	tecto		Сот	
. Fre MHz	eq.	Readi Level dBuV/1	ng C F m dl	orrec actor	t Me me dB	easu ent	re Li n dF	imit	Man dB		De			Сот	(MHz)
MHz	eq.	Readi Level dBuV/1	ng C F m dl	orrec actor 3	t Me me dB	easuu ent BuV/m	re Li n dF	imit BuV/m	Man dB	rgin	De	tecto		Сот	(MHz)

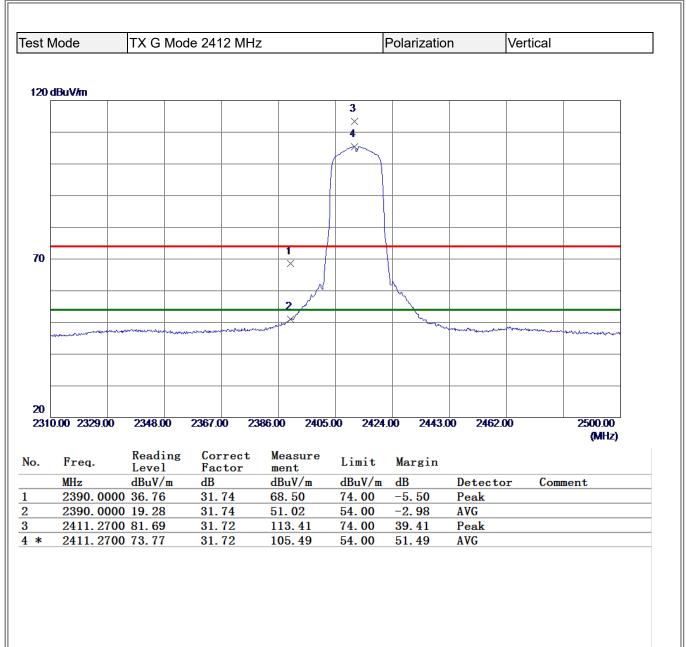




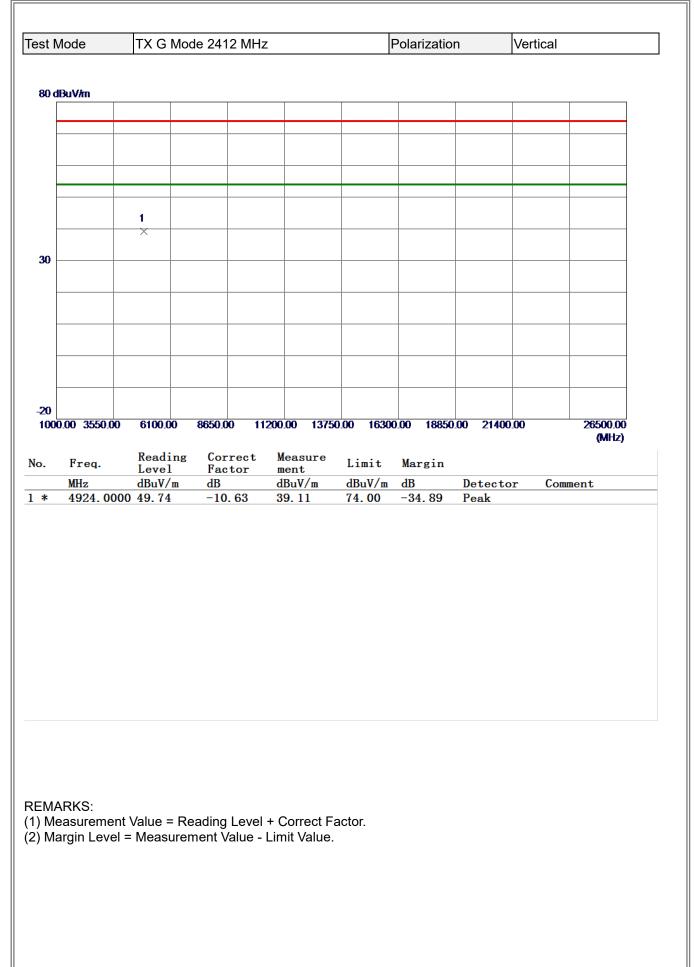


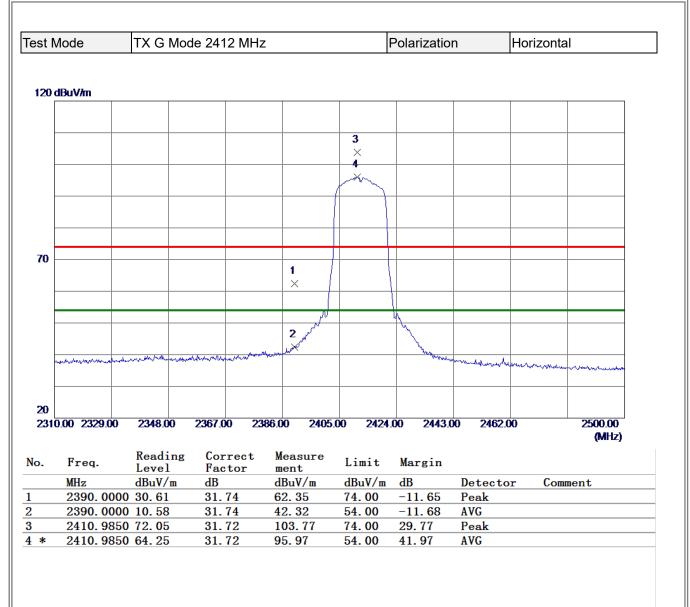




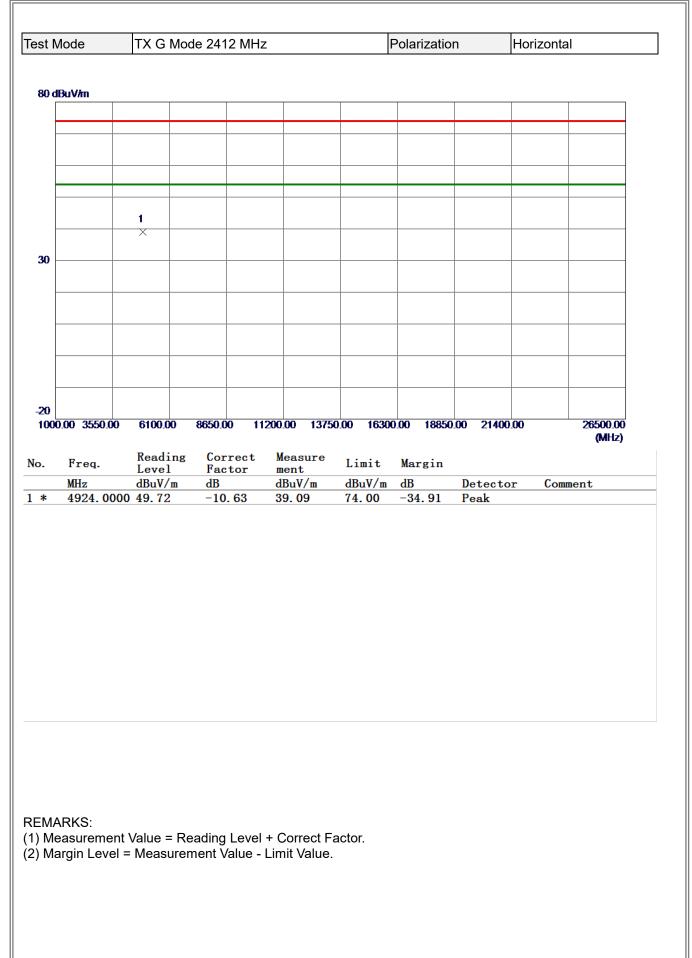


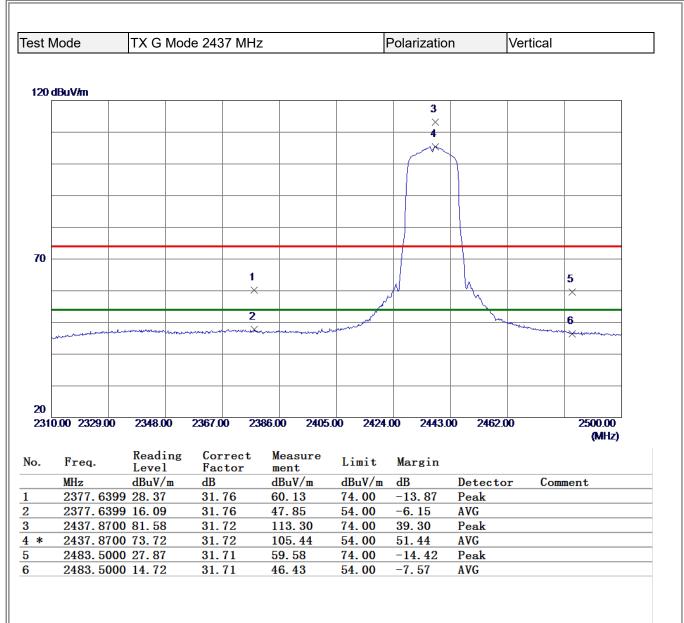
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

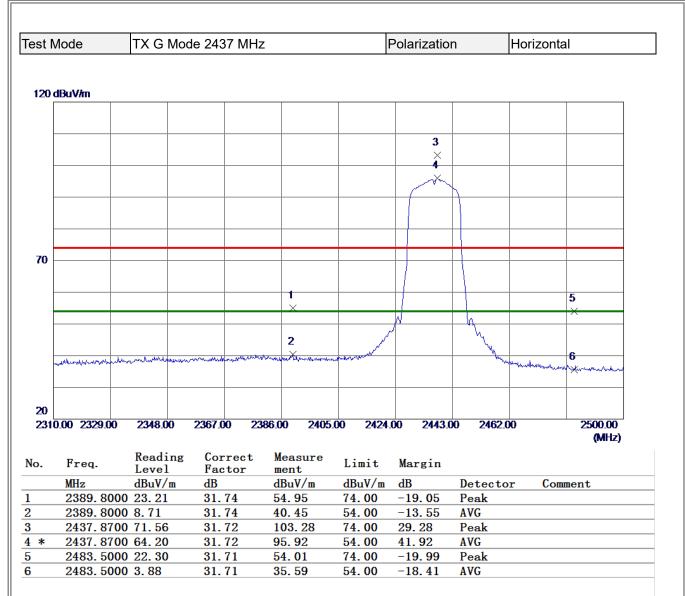




- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

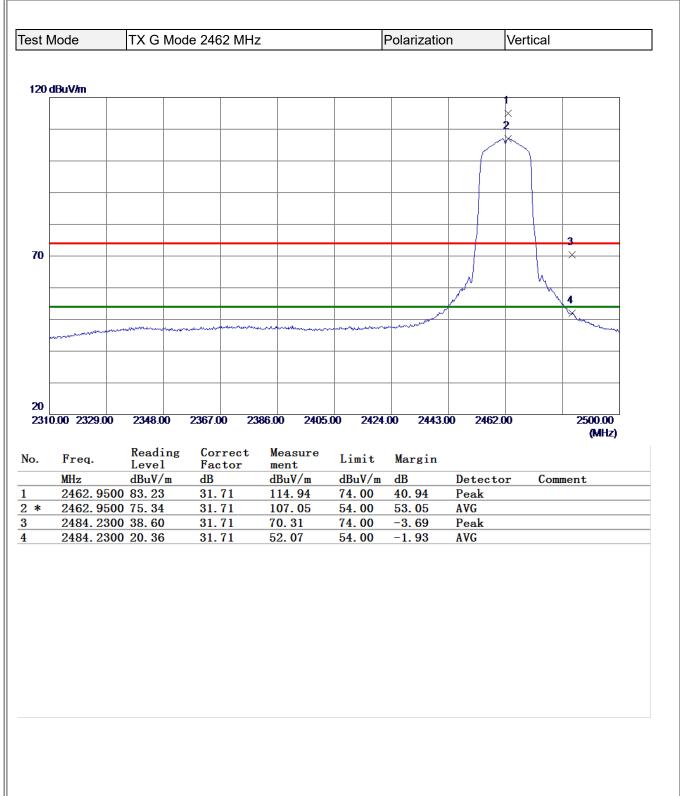
# **3**โL

est N	/lode	TX G I	Mode 2	437 MH	Z		Polarizatio	n	Vertical	
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		×								
Ø										
20										
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										(unite)
	P	Readi	ng (	orrect	Measure		. ·			
•-	Freq.	Readi Level	F	orrect actor	Measure ment	Limit	Margin	Detect	C	
	Freq. MHz 4874.000	Level dBuV/	F m d	orrect actor B 10.79		Limit dBuV/m 74.00		Detect Peak	or Co	omment
*	MHz	Level dBuV/	F m d	actor B	ment dBuV/m	dBuV/m	dB		or Co	omment



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

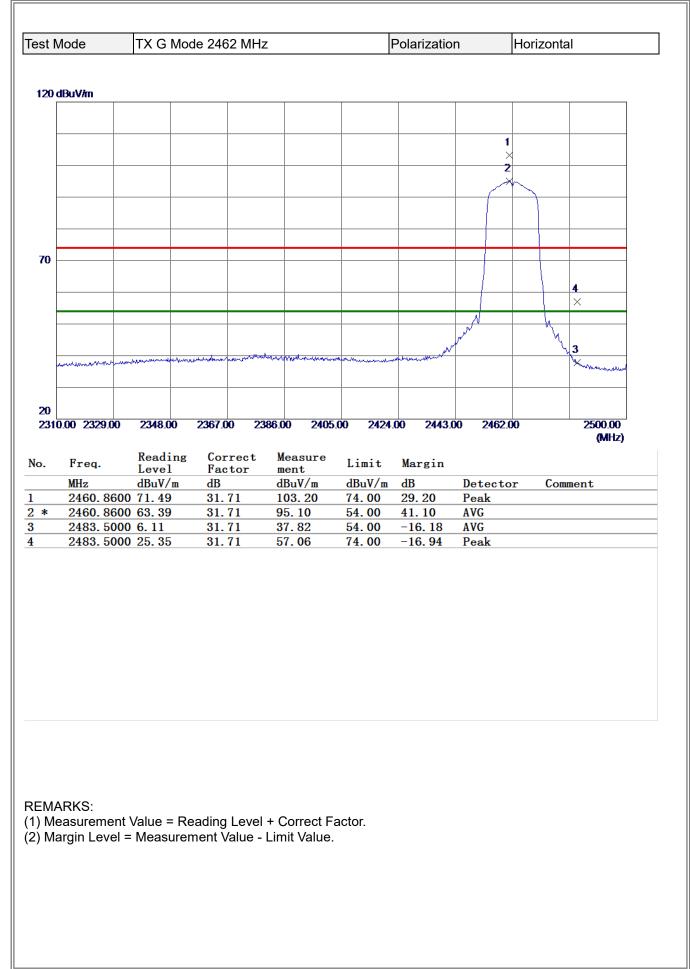
estr	Node	TX G	Mode 24	437 M	Hz				Pola	rizatio	n		Horiz	zonta	al
80 c	lBuV/m										1		1		
		1 ×													
20															
30															
				_											
				_											
20															
-20 100	0.00 3550.00	6100.0	0 8650	0.00	11200.0	00 1	13750.0	0 163	00.00	18850	.00	21400	.00		26500.00 (MHz)
<b>D.</b>	Freq.	Readi	ng Co	orrec		asu	re	Limit	Ma	rgin					
). 	Freq. MHz	Level dBuV/	Fa m dH	actor 3	ше	easu ent BuV/1	m (	Limit 1BuV/m	ı dB	rgin	De	tecto	r	Сош	ment
		Level dBuV/	Fa m dH	actor	me dB	ent	m (		ı dB	rgin 5.58	De Pe		r	Com	
o. *	MHz	Level dBuV/	Fa m dH	actor 3	me dB	ent BuV/r	m (	lBuV/n	ı dB				r	Com	



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

# **3ĩL**

0   0	st N	Node	TX G	Mode 24	62 MHz	2	l	Polarizatio	'n	Vertical	
I   I   I     1   I											
X   Image: Contract Measure Factor.   Limit Margin     MHz   dBuV/m   dBuV/m   dBuV/m   dB   Detector   Comment	80 d	IBuV/m							1		
X   Image: Contract Measure Factor.   Limit Margin     MHz   dBuV/m   dBuV/m   dBuV/m   dB   Detector   Comment											
X   Image: Contract Measure Factor.   Limit Margin     MHz   dBuV/m   dBuV/m   dBuV/m   dB   Detector   Comment											
X   Image: Contract Measure Factor.   Limit Margin     MHz   dBuV/m   dBuV/m   dBuV/m   dB   Detector   Comment											
X   Image: Contract Measure Factor.   Limit Margin     MHz   dBuV/m   dBuV/m   dBuV/m   dB   Detector   Comment											
X   Image: Contract Measure Factor.   Limit Margin     MHz   dBuV/m   dBuV/m   dBuV/m   dB   Detector   Comment											
0   0											
WARKS:     WARKS:       WARKS:       WARKS:       WARKS:       WARKS:       MARKS:			×								
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00	0										
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00											
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00											
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00											
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00											
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00											
Dob.00   3550.00   6100.00   8650.00   11200.00   13750.00   16300.00   26500.00											
MHz Freq. Reading Correct Measure Limit Margin MHz dBuV/m dB dBuV/m dB Detector Comment 4924.0000 50.01 -10.63 39.38 74.00 -34.62 Peak WARKS: MARKS: Measurement Value = Reading Level + Correct Factor.	20										
Freq. Reading Level Correct Factor Measure ment Limit Margin   MHz dBuV/m dB dBuV/m dB Detector Comment   4924.0000 50.01 -10.63 39.38 74.00 -34.62 Peak	000	0.00 3550.00	6100.0	0 8650.	00 11	200.00 13750	0.00 1630	0.00 18850	0.00 21400	0.00	
MHz dBuV/m dB dBuV/m dB Detector Comment 4924.0000 50.01 -10.63 39.38 74.00 -34.62 Peak	-	Frag	Readi								
# 4924. 0000 50. 01 -10. 63 39. 38 74. 00 -34. 62 Peak     MARKS:     Measurement Value = Reading Level + Correct Factor.				ing Co	rrect		Limit	Morgin			
MARKS: Measurement Value = Reading Level + Correct Factor.			Level	. Fa	ctor	ment			Detect		mmont
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Measurement Value = Reading Level + Correct Factor.		MHz	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
Margin Level = Measurement Value - Limit Value.	*	MHz 4924.000	Level dBuV/	Fa m dB	ctor	ment dBuV/m	dBuV/m	dB		or Co	mment
	* MA Me	MHz 4924.000	Level dBuV/ 00 50.01	E Reading	ctor 0.63	ment dBuV/m 39.38 + Correct Fa	dBuV/m 74.00	dB		or Co	mment
	* * Me	MHz 4924.000	Level dBuV/ 00 50.01	E Reading	ctor 0.63	ment dBuV/m 39.38 + Correct Fa	dBuV/m 74.00	dB		or Co	mment
	* * Me	MHz 4924.000	Level dBuV/ 00 50.01	E Reading	ctor 0.63	ment dBuV/m 39.38 + Correct Fa	dBuV/m 74.00	dB		or Co	mment
	⊧ Μ∕ Μ€	MHz 4924.000	Level dBuV/ 00 50.01	E Reading	ctor 0.63	ment dBuV/m 39.38 + Correct Fa	dBuV/m 74.00	dB		or Co	mment
	* MA Me	MHz 4924.000	Level dBuV/ 00 50.01	E Reading	ctor 0.63	ment dBuV/m 39.38 + Correct Fa	dBuV/m 74.00	dB		or Co	mment



# **3ĩL**

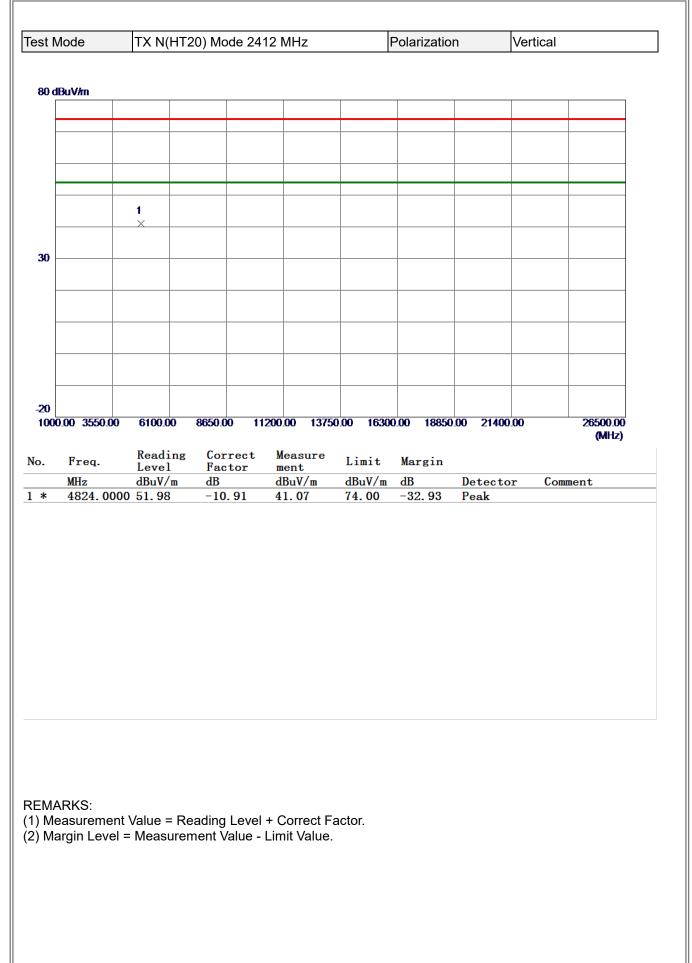
	Mode	TX G M	1ode 246	62 MHz	2		Polarizatio	n	Horizont	al
						1				
80 c	1BuV/m					1				
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30										
							_			
-20	0.00 3550.00	6100.00	8650.0	0 11	200.00 1375	).00 1630	0.00 18850	0.00 21400	100	26500.00
100	0.00 5550.00	0100.00	0000.0	U 11.	200.00 1373	.00 1030	0.00 100.00	.00 21400		(MHz)
lo.	Freq.	Readin Level	ig Cor Fac	rect tor	Measure ment	Limit	Margin			
*	MHz	dBuV/m	ı dB		dBuV/m	dBuV/m	dB	Detecto	or Cor	ment
-		n 10 an	_10	63						
	1021.000	0 48.90	-10	. 63	38. 27	74.00	-35.73	Peak		
	10211.000	0 48.90		. 63						



est I	Node	TX N(HT2	20) Mode 24	12 MHz		Polarizatio	n V	ertical
120	dBuV/m							
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						Minautur		and many many many many many
20	0.00 2329.00	2348.00	2367.00 23	86.00 2405.	00 2424	4.00 2443.0	0 2462.00	2500.00
Zət	0.00 2329.00	2348.00	2307.00 23	60.00 2403.	00 2424	4.00 2443.0	JU Z40Z.UU	2500.00 (MHz)
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m		Detector	Comment
L	2387.805		31.74	63.95	74.00	-10.05	Peak	
1 2 3	2387.805		31.74	53.48	54.00	-0. 52	AVG	
	2413.170		31.72	114.25	74.00	40.25	Peak	
4 *	2413.170	0 74.54	31.72	106.26	54. <b>00</b>	52.26	AVG	

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



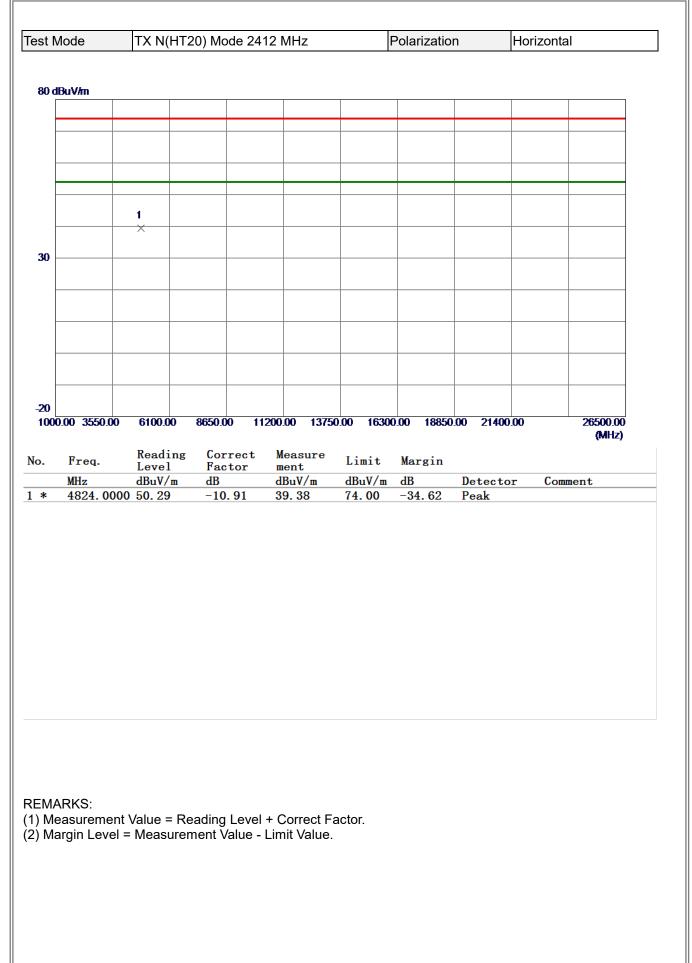




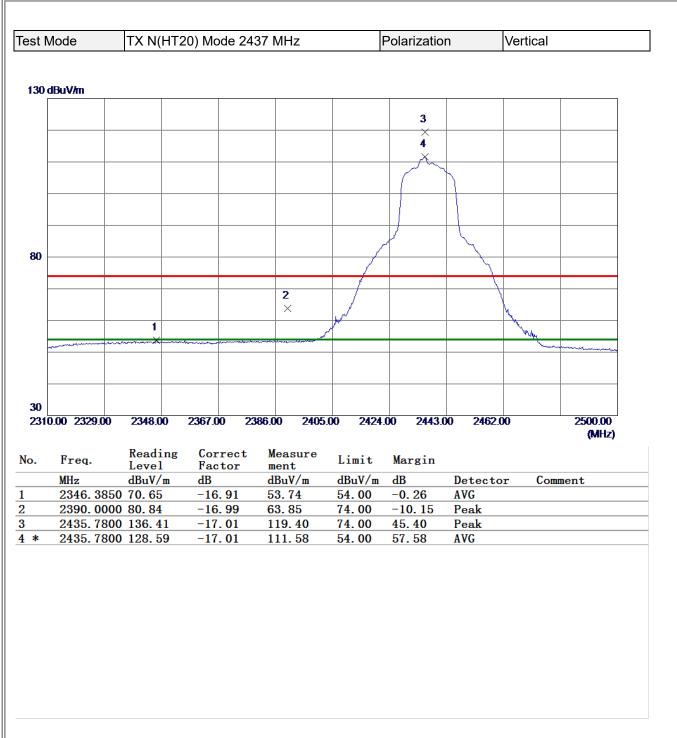
est I	Vode	TX N(HT2	20) Mode 24	12 MHz		Polarizatio	n Ho	orizontal
120	dBuV/m							
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20								
	0.00 2329.00	2348.00	2367.00 23	86.00 2405.	00 2424	.00 2443.0	0 2462.00	2500.00 (MHz)
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 2 3	2384.764		31.75	58.29	74.00	-15.71	Peak	
2	2384.764		31.75	44.52	54.00	-9.48	AVG	
5 1 *	2409.465	50 68.59 50 62.04	31.72 31.72	100. 31 93. 76	74.00 54.00	26.31 39.76	Peak AVG	

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



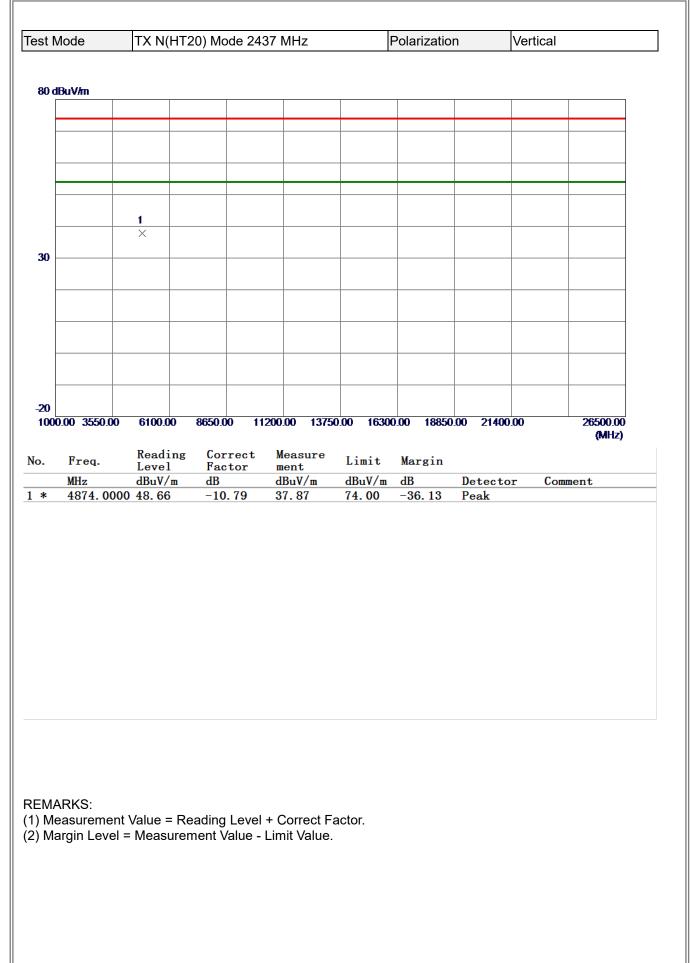






- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



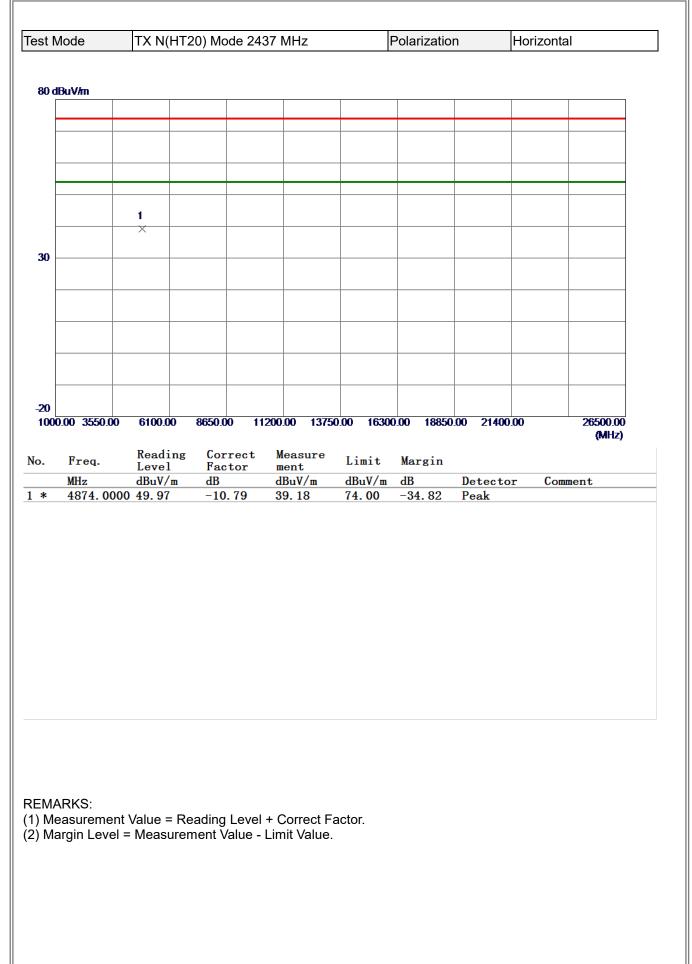




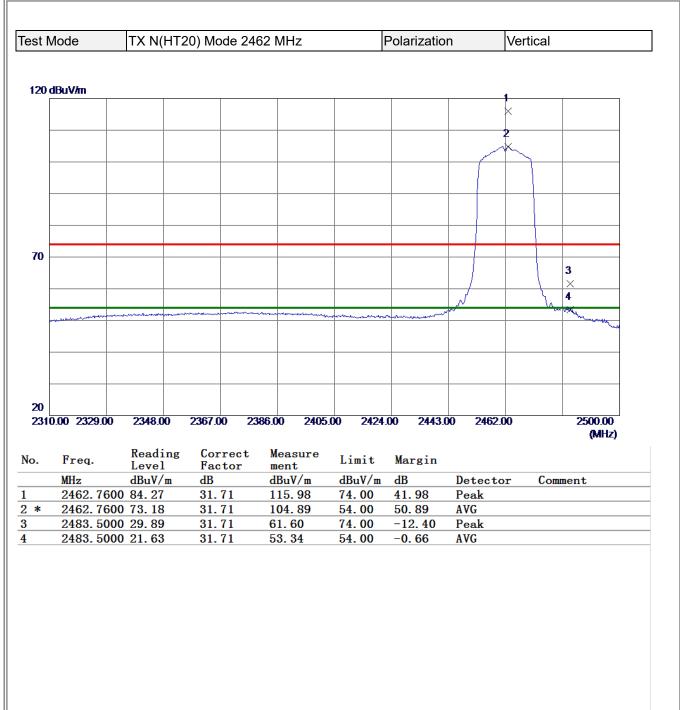
t IV	lode	TX N(HT2	0) Mode 243	37 MHz		Polarization	n	Horizontal	
0 <u>d</u>	1BuV/m								
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				2					
k	*********		Manan and Angen	an a	www.				
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10	).00 2329.00	2348.00	2367.00 23	86.00 2405.	.00 2424	1.00 2443.0	0 2462.	00 2	2500.00 (MHz)
	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m		Detecto	or Commen	ıt
	2388.470 2388.470		-16. 99 -16. 99	59.24 50.82	74.00 54.00	-14.76 -3.18	Peak AVG		
_	2388.4700		-17.01	112.68	74.00	38.68	Peak		
_	2438.0600		-17.01	106.33	54.00	52.33	AVG		

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



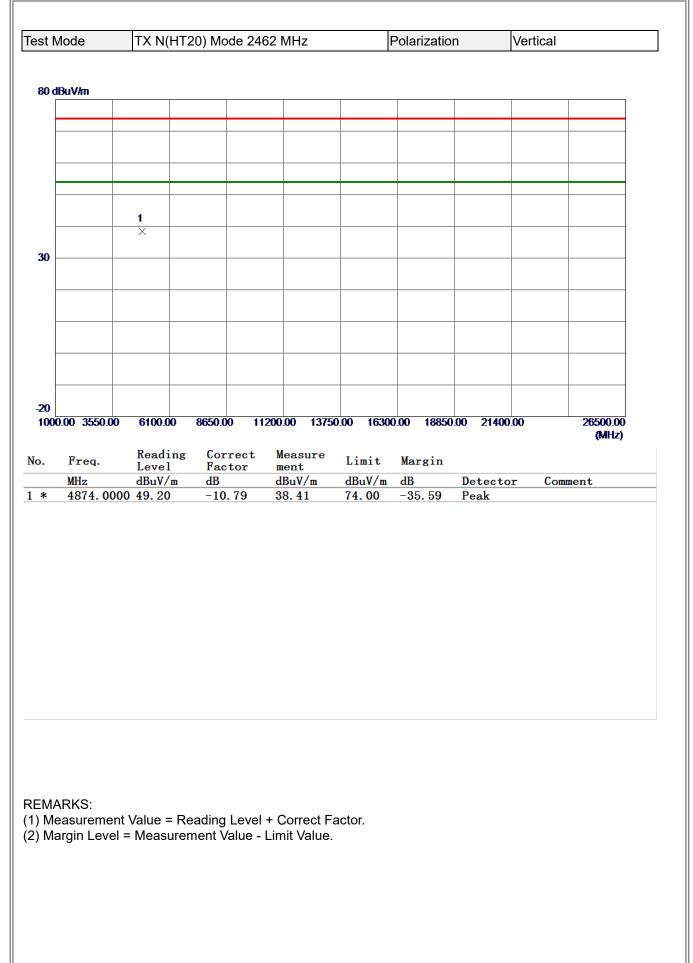




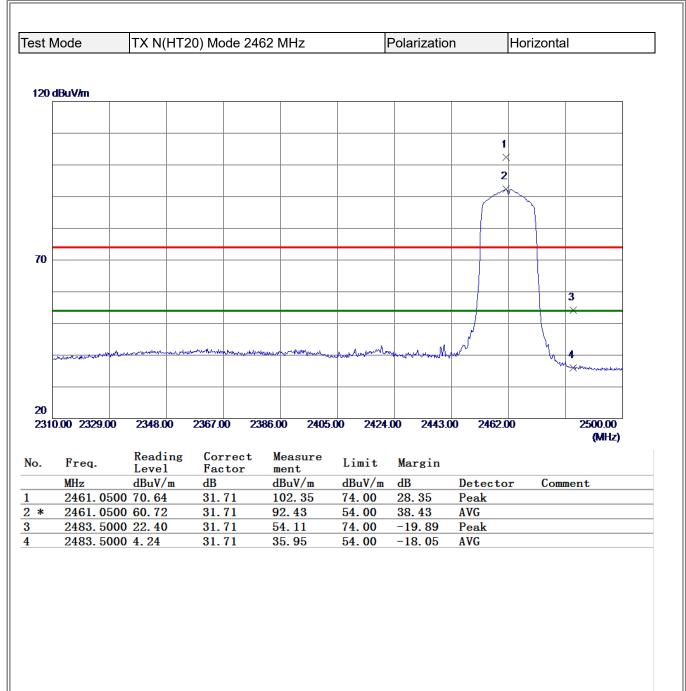


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





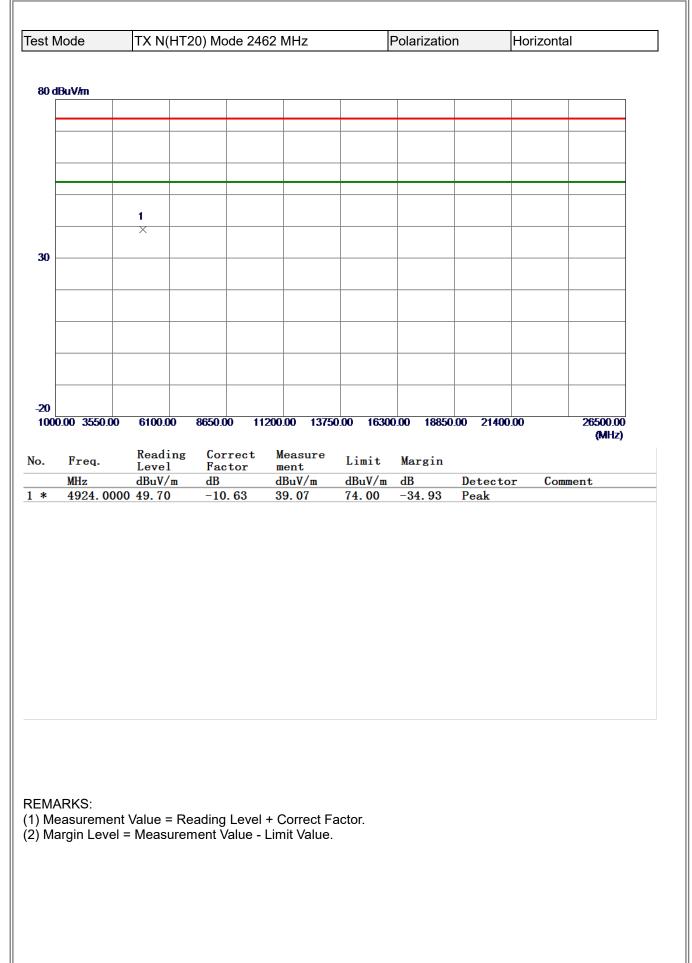
# **B**L



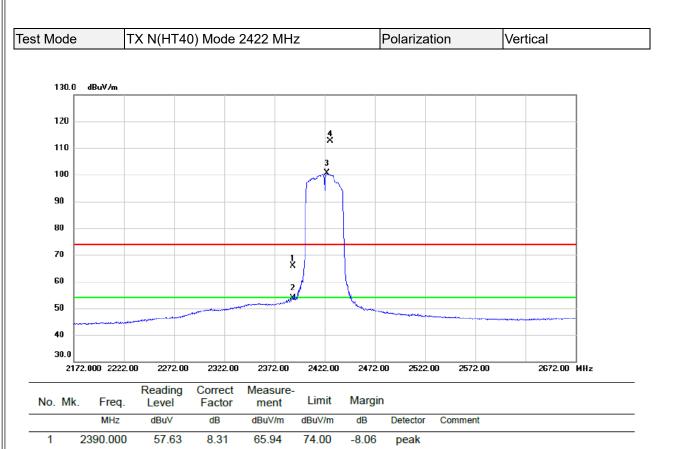
REMARKS:

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









54.00

54.00

74.00

53.99 100.59

112.68

-0.01

46.59

38.68

AVG

AVG

peak

No Limit

No Limit

#### **REMARKS**:

2

3\*

2390.000

2424.500

4 X 2427.500

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

45.68

92.24

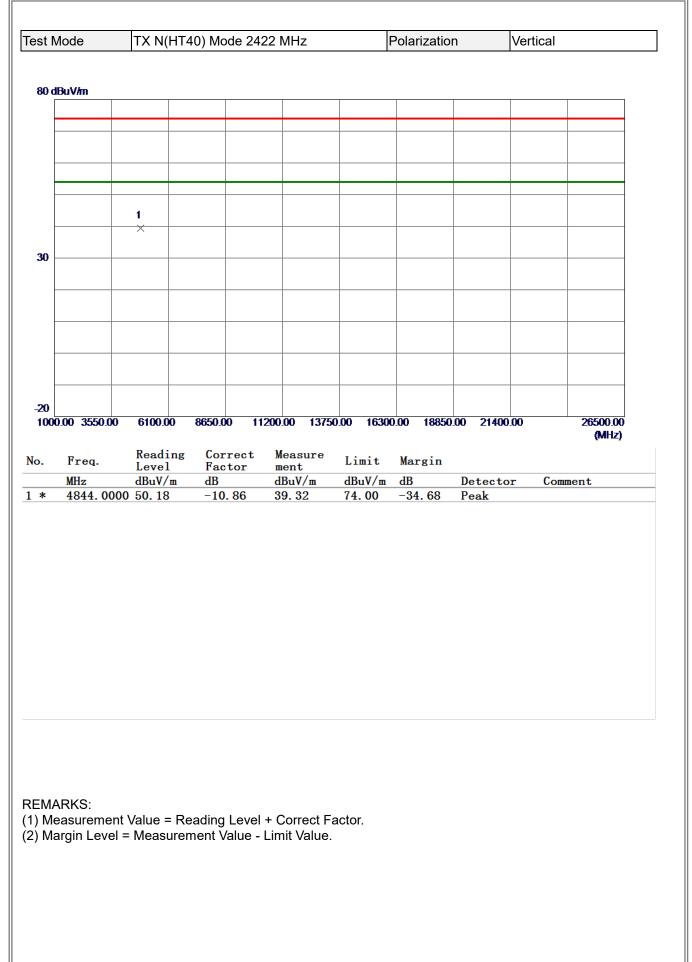
104.33

8.31

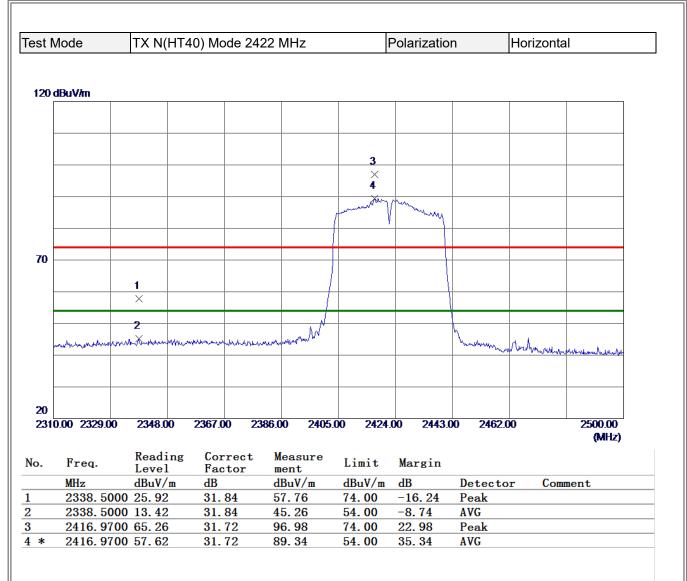
8.35

8.35





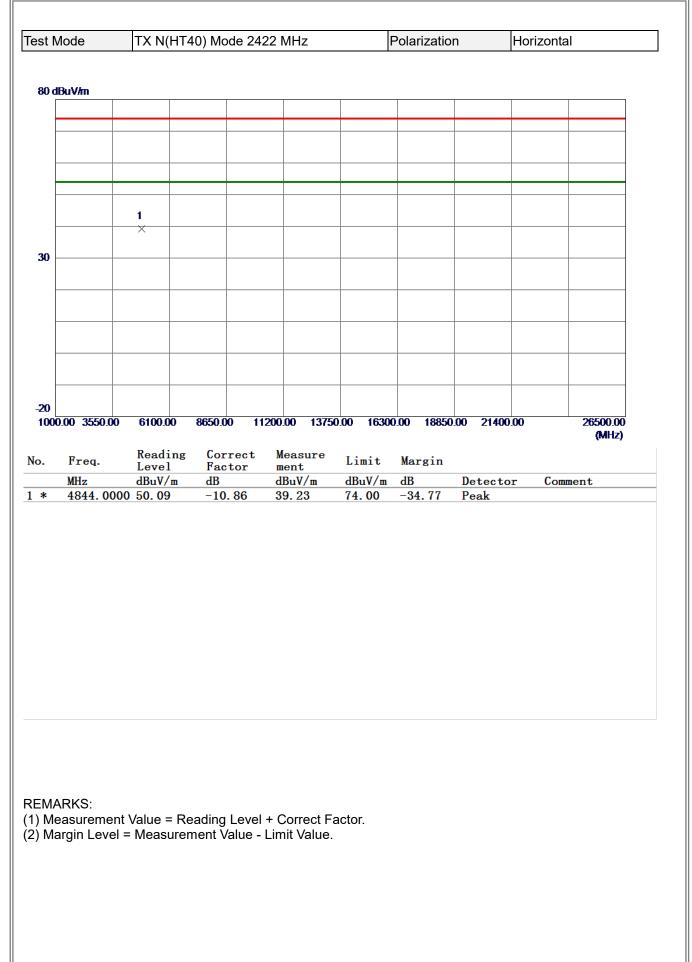
# **BIL**



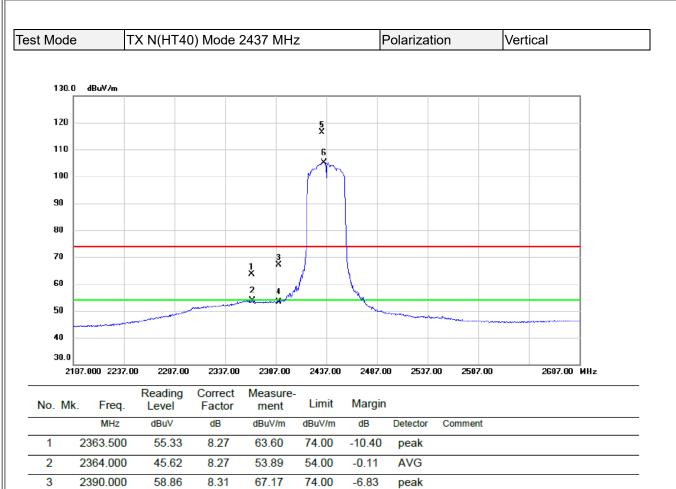
REMARKS:

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









#### REMARKS:

4

5 X

6 \*

2390.000

2432.500

2434.500

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

45.09

108.13

96.87

8.31

8.36

8.36

53.40

116.49

105.23

54.00

74.00

54.00

-0.60

42.49

51.23

AVG

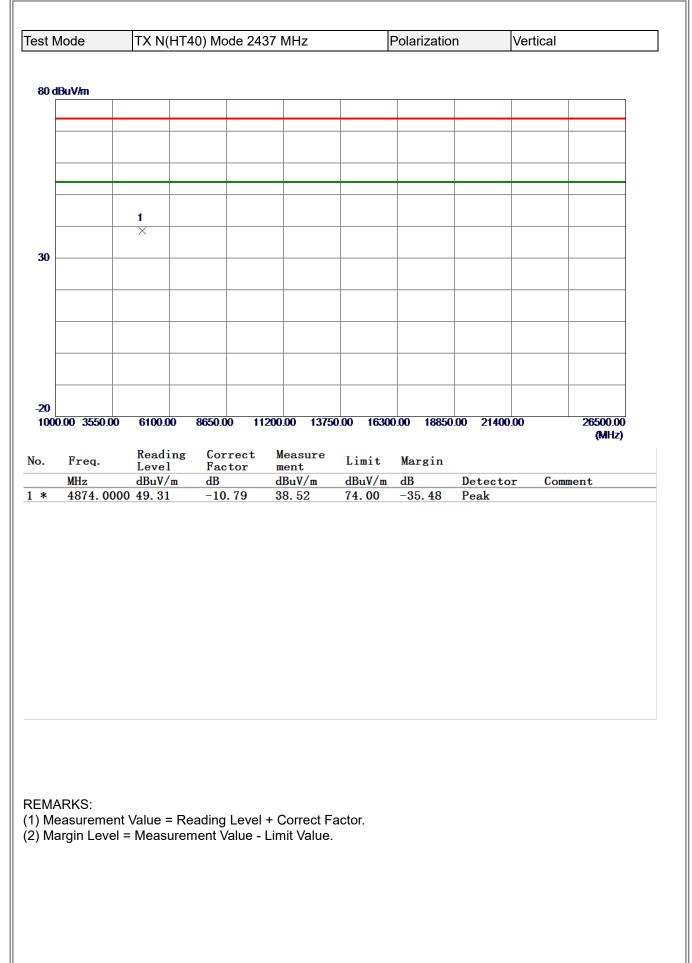
peak

AVG

No Limit

No Limit







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6
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2462.00 2500.00
(MHz)
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REMARKS:

6

2485.9400 13.13

(1) Measurement Value = Reading Level + Correct Factor.

31.71

44.84

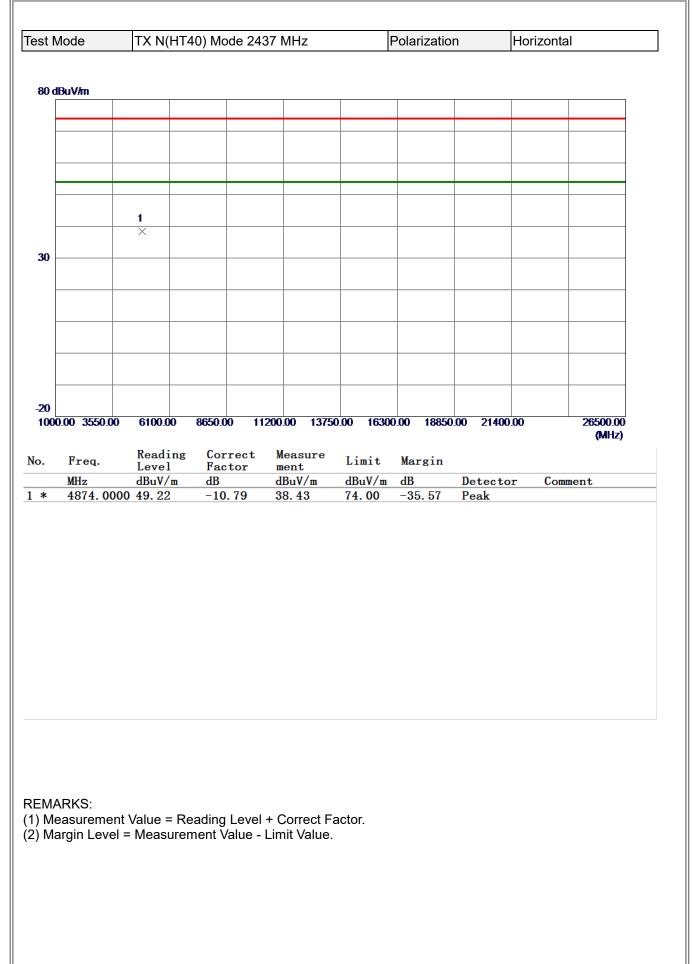
**54.00** 

-9.16

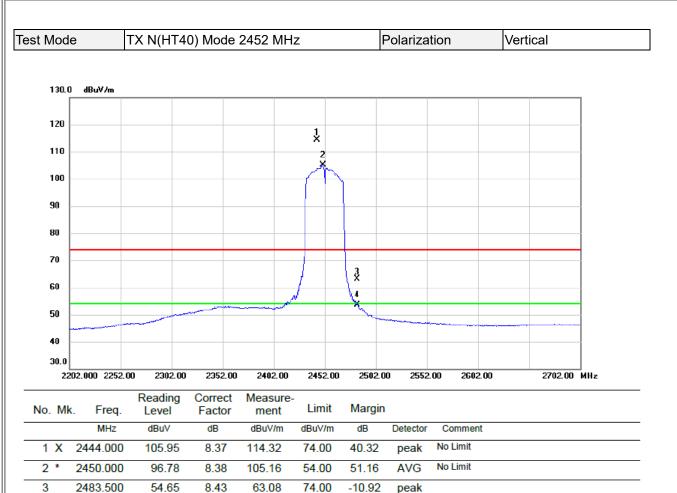
AVG

(2) Margin Level = Measurement Value - Limit Value.









54.00

53.72

AVG

-0.28

#### REMARKS:

4

2483.500

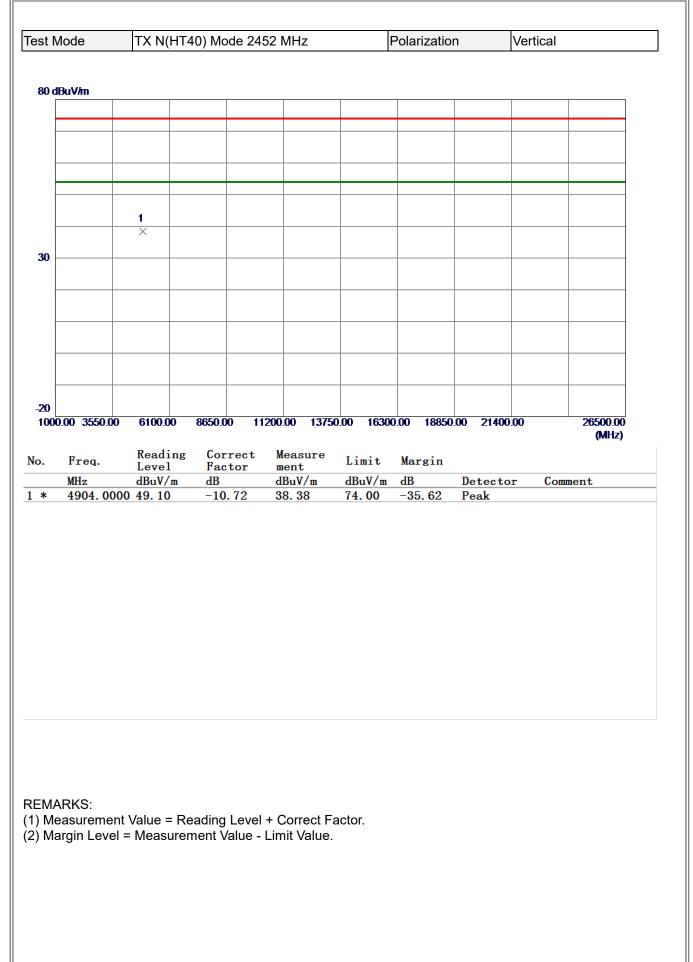
(1) Measurement Value = Reading Level + Correct Factor.

8.43

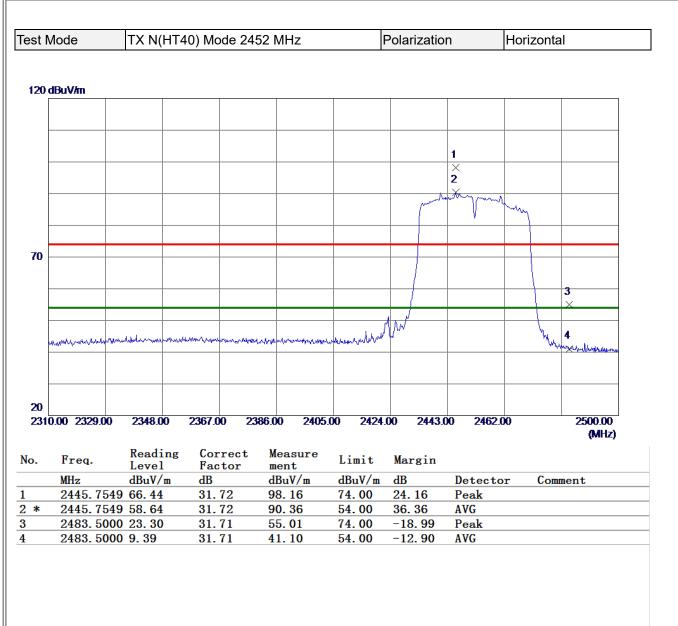
(2) Margin Level = Measurement Value - Limit Value.

45.29





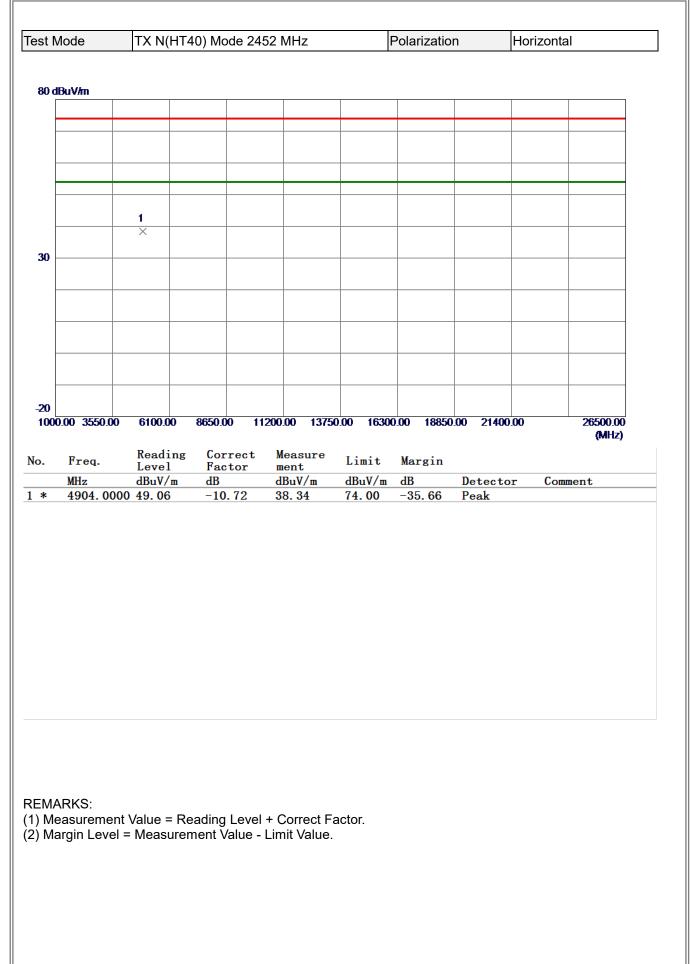




REMARKS:

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

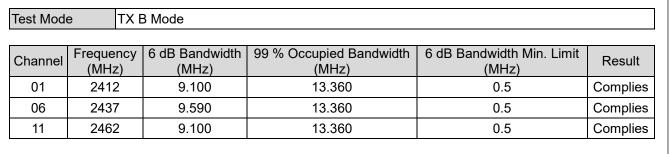


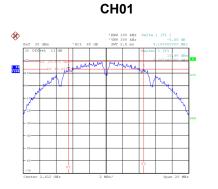




## **APPENDIX E - BANDWIDTH**





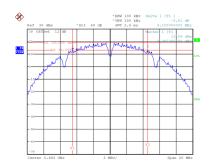




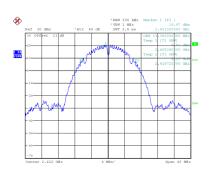
Date: 15.APR.2021 13:21:25

Date: 15.APR.2021 13:21:32

CH11

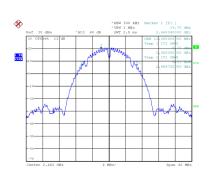


Date: 15.APR.2021 13:18:14



Date: 15.APR.2021 15:12:38

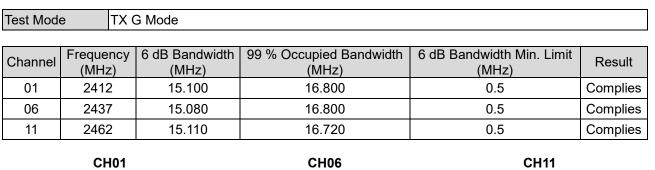
Date: 15.APR.2021 15:12:44

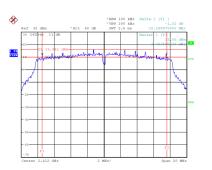


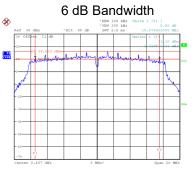
Date: 15.APR.2021 13:18:20

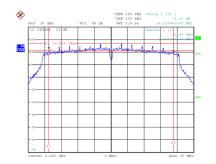
Page 88 of 114



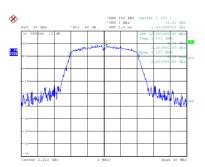






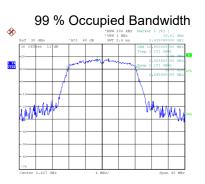


Date: 15.APR.2021 15:15:14



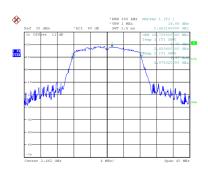
Date: 15.APR.2021 15:15:21

Date: 15.APR.2021 15:16:54



Date: 15.APR.2021 15:18:25

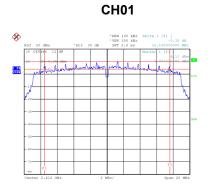
Date: 15.APR.2021 15:18:32

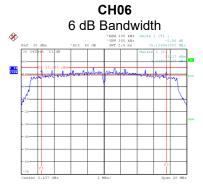


Date: 15.APR.2021 15:17:00

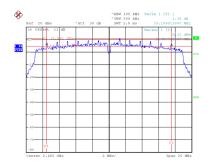


Test Mode TX N(HT20) Mode											
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result						
01	2412	15.180	17.680	0.5	Complies						
06	2437	15.140	17.600	0.5	Complies						
11	2462	15.160	17.680	0.5	Complies						

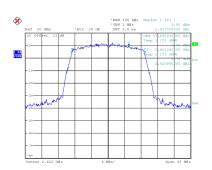




CH11



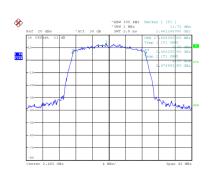
Date: 15.APR.2021 16:53:11



99 % Occupied Bandwidth

Date: 15.APR.2021 17:22:02

Date: 15.APR.2021 17:22:09



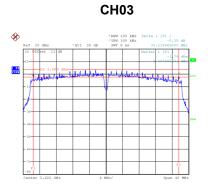
Date: 15.APR.2021 16:53:17

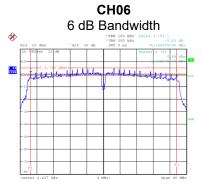
Date: 15.APR.2021 13:28:59

Date: 15.APR.2021 13:28:52

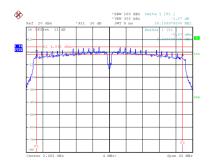


Test Mode TX N(HT40) Mode											
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result						
03	2422	35.240	36.160	0.5	Complies						
06	2437	35.160	36.320	0.5	Complies						
09	2452	35.160	36.320	0.5	Complies						

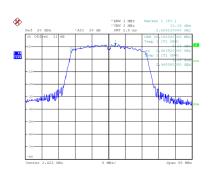




CH09

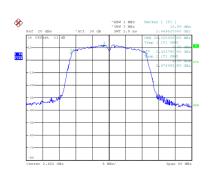


Date: 15.APR.2021 17:29:13



99 % Occupied Bandwidth

Date: 15.APR.2021 16:05:33



Date: 15.APR.2021 17:29:20

Date: 15.APR.2021 16:03:54

Date: 15.APR.2021 16:03:47

Date: 15.APR.2021 16:05:40



## **APPENDIX F - MAXIMUM OUTPUT POWER**



CDD
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٦	Fest Mode	TX B Mode_Ant. 1

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	25.17	0.03	25.20	30.00	1.0000	Complies
06	2437	24.50	0.03	24.53	30.00	1.0000	Complies
11	2462	24.37	0.03	24.40	30.00	1.0000	Complies

Test Mode TX G Mode\_Ant. 1

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.56	0.19	21.75	30.00	1.0000	Complies
06	2437	20.92	0.19	21.11	30.00	1.0000	Complies
11	2462	21.59	0.19	21.78	30.00	1.0000	Complies



Test Mode TX N(HT20) Mode\_Ant. 1

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.79	0.63	15.42	30.00	1.0000	Complies
06	2437	21.16	0.63	21.79	30.00	1.0000	Complies
11	2462	14.60	0.63	15.23	30.00	1.0000	Complies

Test Mode TX N(HT20) Mode\_Ant. 2

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.78	0.63	15.41	30.00	1.0000	Complies
06	2437	20.64	0.63	21.27	30.00	1.0000	Complies
11	2462	14.39	0.63	15.02	30.00	1.0000	Complies

Test Mode TX N(HT20) Mode\_Ant. 3

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.18	0.63	14.81	30.00	1.0000	Complies
06	2437	20.91	0.63	21.54	30.00	1.0000	Complies
11	2462	14.38	0.63	15.01	30.00	1.0000	Complies

Test Mode TX N(HT20) Mode\_Ant. 4

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.93	0.63	15.56	30.00	1.0000	Complies
06	2437	21.89	0.63	22.52	30.00	1.0000	Complies
11	2462	15.03	0.63	15.66	30.00	1.0000	Complies

Test Mode TX N(HT20) Mode\_Total

Frequency AVG Output Power Max. Limit Max. Limit Channel Result (dBm) (dBm) (MHz) (W) 21.33 30.00 1.0000 Complies 01 2412 27.83 30.00 1.0000 Complies 06 2437 30.00 11 2462 21.26 1.0000 Complies



Test Mode TX N(HT40) Mode\_Ant. 1

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.99	1.05	18.04	30.00	1.0000	Complies
06	2437	20.08	1.05	21.13	30.00	1.0000	Complies
09	2452	20.26	1.05	21.31	30.00	1.0000	Complies

Test Mode TX N(HT40) Mode\_Ant. 2

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.77	1.05	17.82	30.00	1.0000	Complies
06	2437	19.23	1.05	20.28	30.00	1.0000	Complies
09	2452	18.85	1.05	19.90	30.00	1.0000	Complies

Test Mode TX N(HT40) Mode\_Ant. 3

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.04	1.05	17.09	30.00	1.0000	Complies
06	2437	18.75	1.05	19.80	30.00	1.0000	Complies
09	2452	18.98	1.05	20.03	30.00	1.0000	Complies

Test Mode TX N(HT40) Mode\_Ant. 4

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.27	1.05	17.32	30.00	1.0000	Complies
06	2437	20.32	1.05	21.37	30.00	1.0000	Complies
09	2452	19.45	1.05	20.50	30.00	1.0000	Complies

Test Mode TX N(HT40) Mode\_Total

Channel	Frequency (MHz)	AVG Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	23.61	30.00	1.0000	Complies
06	2437	26.71	30.00	1.0000	Complies
09	2452	26.50	30.00	1.0000	Complies





### Beamforming

Test Mode	TX N(H	T20) Mode_Ant	. 1				
Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.33	0.63	14.96	25.25	0.3350	Complies
06	2437	18.62	0.63	19.25	25.25	0.3350	Complies
11	2462	14.51	0.63	15.14	25.25	0.3350	Complies
Test Mode	TX N(H	T20) Mode_Ant	. 2				
Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	13.65	0.63	14.28	25.25	0.3350	Complies
06	2437	17.37	0.63	18.00	25.25	0.3350	Complies
11	2462	13.32	0.63	13.95	25.25	0.3350	Complies
Test Mode	TX N(H	T20) Mode_Ant	. 3				
Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	13.32	0.63	13.95	25.25	0.3350	Complies
06	2437	17.05	0.63	17.68	25.25	0.3350	Complies
11	2462	13.47	0.63	14.10	25.25	0.3350	Complies
Test Mode	TX N(H	T20) Mode_Ant	. 4				
Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	14.02	0.63	14.65	25.25	0.3350	Complies
06	2437	18.35	0.63	18.98	25.25	0.3350	Complies
11	2462	14.38	0.63	15.01	25.25	0.3350	Complies
Test Mode	TX N(H	T20) Mode_Tota	al				
Channel	Frequency (MHz)	AV	G Output Pov (dBm)	wer	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412		20.50		25.25	0.3350	Complies
06	2437		24.55		25.25	0.3350	Complies
11	2462		20.60		25.25	0.3350	Complies



Test Mode	TX N(H	T40) Mode_Ant	. 1				
Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.82	1.05	17.87	25.25	0.3350	Complies
06	2437	17.94	1.05	18.99	25.25	0.3350	Complies
09	2452	18.75	1.05	19.80	25.25	0.3350	Complies

Test Mode TX N(HT40) Mode\_Ant. 2

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.67	1.05	17.72	25.25	0.3350	Complies
06	2437	17.09	1.05	18.14	25.25	0.3350	Complies
09	2452	17.22	1.05	18.27	25.25	0.3350	Complies

Test Mode TX N(HT40) Mode\_Ant. 3

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	15.89	1.05	16.94	25.25	0.3350	Complies
06	2437	16.53	1.05	17.58	25.25	0.3350	Complies
09	2452	17.12	1.05	18.17	25.25	0.3350	Complies

Test Mode TX N(HT40) Mode\_Ant. 4

Channel	Frequency (MHz)	AVG Output Power (dBm)	Duty Factor	AVG Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.10	1.05	17.15	25.25	0.3350	Complies
06	2437	18.12	1.05	19.17	25.25	0.3350	Complies
09	2452	17.86	1.05	18.91	25.25	0.3350	Complies

Test Mode TX

TX N(HT40) Mode\_Total

Channel	Frequency (MHz)	AVG Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	23.46	25.25	0.3350	Complies
06	2437	24.54	25.25	0.3350	Complies
09	2452	24.86	25.25	0.3350	Complies



## **APPENDIX G - CONDUCTED SPURIOUS EMISSIONS**



