

# FCC Radio Test Report

# FCC ID: 2AXJ4KL420

# This report concerns: Original Grant

Project No.	:	2109C206
Equipment	:	1) Kasa Smart Light Strip, Multicolor
		2) Tapo Smart Light Strip, Multicolor
Brand Name	:	1) tp-link
		2) tp-link, tapo
Test Model	:	1) KL420L5
Series Model	:	2) Tapo L920-10
Applicant	:	TP-Link Corporation Limited
Address	:	Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road,
		Tsim Sha Tsui, Kowloon, Hong Kong
Manufacturer	:	TP-Link Corporation Limited
Address	:	Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road,
		Tsim Sha Tsui, Kowloon, Hong Kong
Date of Receipt	:	Sep. 28, 2021
Date of Test	:	Oct. 11, 2021 ~ Oct. 18, 2021
Issued Date	:	Nov. 10, 2021
Report Version	:	R01
Test Sample	:	Engineering Sample No.: DG2021092859 for conducted,
		DG2021092860 for radiated.
Standard(s)	:	FCC CFR Title 47, Part 15, Subpart C
		FCC KDB 558074 D01 15.247 Meas Guidance v05r02
		ANSI C63.10-2013

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

Theno chella

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

#### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective. Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



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# **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	Nov. 03, 2021
R01	Updated the test procedure of PSD.	Nov. 10, 2021

# **1. SUMMARY OF TEST RESULTS**

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart C								
Standard(s) Section	Test Item	Test Result	Judgment	Remark				
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS					
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS					
15.247(a)(2)	Bandwidth	APPENDIX E	PASS					
15.247(b)(3)	Maximum Average Output Power	APPENDIX F	PASS					
15.247(d)	Conducted Spurious Emissions	APPENDIX G	PASS					
15.247(e)	Power Spectral Density	APPENDIX H	PASS					
15.203	Antenna Requirement		PASS	Note(2)				

Note:

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



# 1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong, People's Republic of China. BTL's Test Firm Registration Number for FCC: 357015 BTL's Designation Number for FCC: CN1240

# **1.2 MEASUREMENT UNCERTAINTY**

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

A. AC power line conducted emissions test:

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

#### B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
	CISPR	9kHz ~ 30MHz	-	3.02
		30MHz ~ 200MHz	V	4.36
DG-CB03		30MHz ~ 200MHz	Н	3.32
		200MHz ~ 1,000MHz	V	4.08
		200MHz ~ 1,000MHz	Н	3.96
		1GHz ~ 6GHz	I	3.80
		6GHz ~ 18GHz	I	4.82
		18GHz ~ 26.5GHz	I	3.62
		26.5GHz ~ 40GHz	-	4.00

#### C. Other Measurement:

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

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

# **1.3 TEST ENVIRONMENT CONDITIONS**

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	25°C	53%	AC 120V/60Hz	Laughing Zhang
Radiated Emissions-9kHz to 30 MHz	25°C	60%	AC 120V/60Hz	Jakyri Wen
Radiated Emissions-30MHz to 1000MHz	26°C	52%	AC 120V/60Hz	Jakyri Wen
Radiated Emissions-Above 1000MHz	26°C	52%	AC 120V/60Hz	Laughing Zhang
Bandwidth	22°C	51%	AC 120V/60Hz	Grani Zhou
Maximum Average Output Power	22°C	51%	AC 120V/60Hz	Silly Zheng
Conducted Spurious Emissions	22°C	51%	AC 120V/60Hz	Grani Zhou
Power Spectral Density	22°C	51%	AC 120V/60Hz	Grani Zhou

# 2. GENERAL INFORMATION

# 2.1 GENERAL DESCRIPTION OF EUT

Equipment	<ol> <li>Kasa Smart Light Strip, Multicolor</li> <li>Tapo Smart Light Strip, Multicolor</li> </ol>				
Brand Name	1) tp-link 2) tp-link, tapo				
Test Model	1) KL420L5				
Series Model	2) Tapo L920-10				
Model Difference(s)	Please refer to note 4.				
Power Source	DC voltage supplied from AC adapter. 1) Model: T120150-2B1 2) Model: S042-1A120330VU				
Power Rating	1)       I/P: 100-240V~ 50/60Hz 0.6A       O/P: 12V === 1.5A         2)       I/P: 100-240V~ 50/60Hz, 1.0A       O/P: 12.0V === 3.3A				
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 72.2 Mbps				
Maximum Average Output Power	IEEE 802.11g: 18.49 dBm (0.0706 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)								
Channel         Frequency (MHz)         Channel         Frequency (MHz)         Frequency (MHz)         Frequency (MHz)         Frequency (MHz)         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	tp-link	N/A	Internal	N/A	2.5

Note: The antenna gain is provided by the manufacturer.

# 4. Model Difference(s):

Model Name	Equipment	Brand	Power Rating	Length
KL420L5	Kasa Smart Light Strip, Multicolor	tp-link	I/P: 100-240V~ 50/60Hz 0.6A O/P: 12V === 1.5A	5m
Таро L920-10	Tapo Smart Light Strip, Multicolor	tp-link, tapo	I/P: 100-240V~ 50/60Hz, 1.0A O/P: 12.0V === 3.3A	10m

# 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 G Mode Channel 11
Mode 5	TX B Mode Channel 01/02/06/10/11
Mode 6	TX G Mode Channel 01/02/06/10/11
Mode 7	TX N(HT20) Mode Channel 01/02/06/10/11

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

AC power line conducted emissions test		
Final Test Mode Description		
Mode 4	TX G Mode Channel 11	

Radiated emissions test - Below 1GHz			
Final Test Mode	Description		
Mode 4	TX G Mode Channel 11		

Radiated emissions test- Above 1GHz		
Final Test Mode	Description	
Mode 5	TX B Mode Channel 01/02/06/10/11	
Mode 6	TX G Mode Channel 01/02/06/10/11	
Mode 7	TX N(HT20) Mode Channel 01/02/06/10/11	

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		





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 G Mode Channel 11 is found to be the worst case and recorded.
- (3) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (4) For AC power line conducted emissions and radiated emissions test, model KL420L5 and Tapo L920-10 are tested, the worst case is model KL420L5 and recorded. Other test items are tested with model KL420L5.

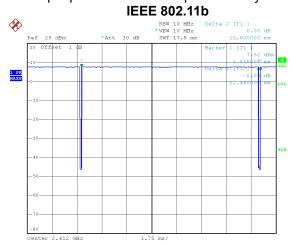
# 2.3 PARAMETERS OF TEST SOFTWARE

Test Software Version	UI mptool



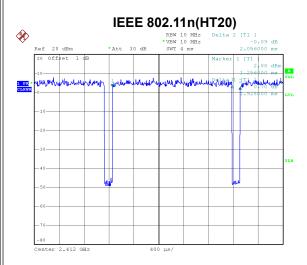
# 2.4 DUTY CYCLE

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: 13.0CT.2021 05:10:28

Duty cycle = 12.460 ms / 12.600 ms = 98.89% Duty Factor = 10 log(1/Duty cycle) = 0.00



Date: 13.0CT.2021 05:11:04

Duty cycle = 1.928 ms / 2.056 ms = 93.77% Duty Factor = 10 log(1/Duty cycle) = 0.28

# NOTE:

For IEEE 802.11b:

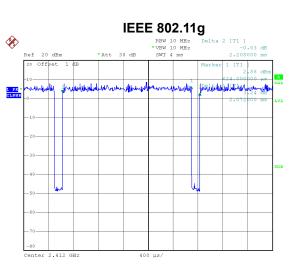
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz.

## For IEEE 802.11g:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 483 Hz.

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

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 519 Hz.

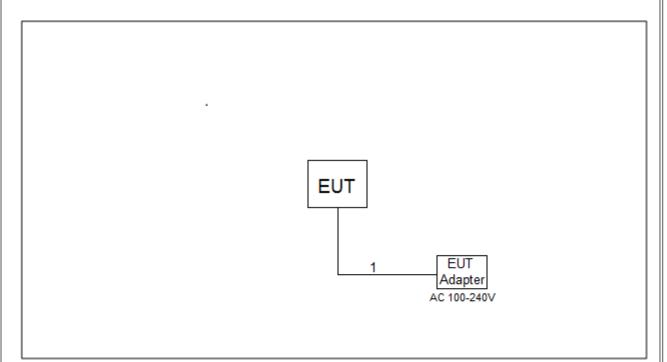


Date: 13.0CT.2021 05:10:44

Duty cycle = 2.072 ms / 2.208 ms = 93.84% Duty Factor = 10 log(1/Duty cycle) = 0.28



# 2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



# 2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
-	-	-	-	-
Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.2m



# 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:

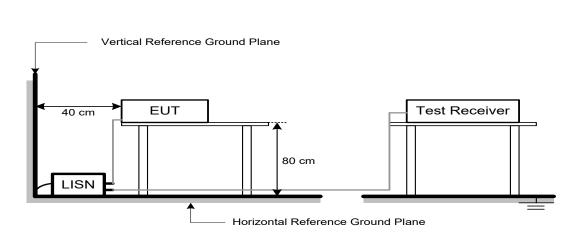
Receiver Parameters	Setting	
Start Frequency	0.15 MHz	
Stop Frequency	30 MHz	
IF Bandwidth	9 kHz	

# 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	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)

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

NOTE:

(1) The limit for radiated test was performed according to FCC CFR Title 47, Part 15, Subpart C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).



# 4.2 TEST PROCEDURE

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

The following table is the setting of the receiver:

Spectrum Parameters	Setting		
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz		
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz		
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz		
Spectrum Parameters	Setting		
Start Frequency	1000 MHz		
Stop Frequency	10th carrier harmonic		
RBW / VBW	1 MHz / 3 MHz for PK value		
(Emission in restricted band)	1 MHz / 1/T Hz for AVG value		
Receiver Parameters	Setting		
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector		
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector		
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector		
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector		
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector		
Start ~ Stop Frequency	1 GHz~26.5 GHz for PK/AVG detector		

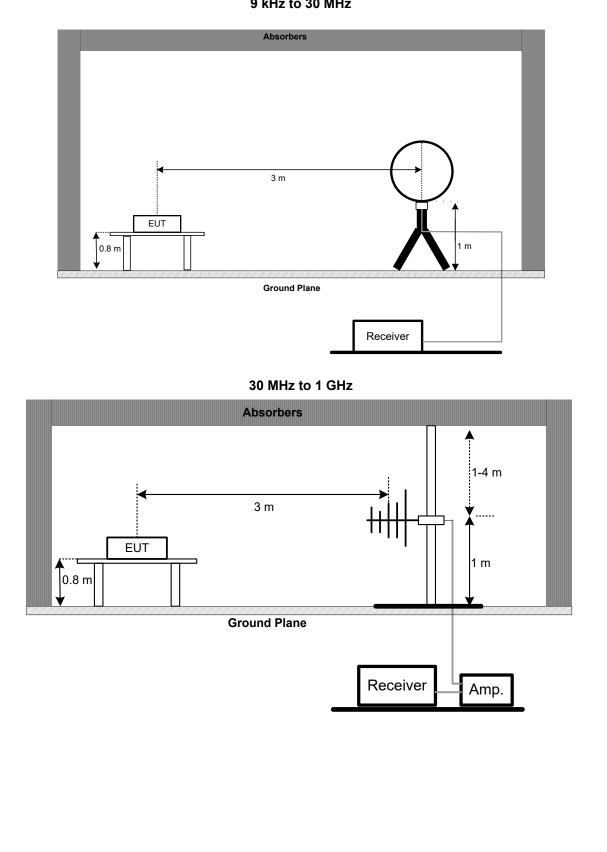


# 4.3 DEVIATION FROM TEST STANDARD

No deviation.

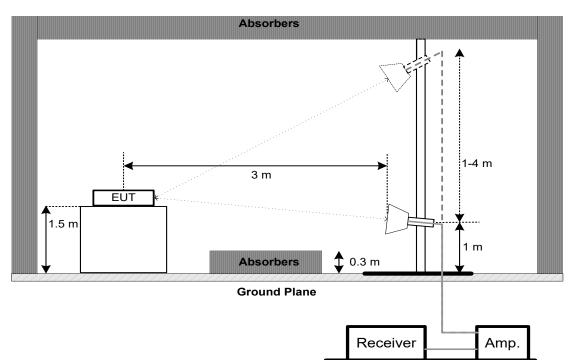
# 4.4 TEST SETUP

9 kHz to 30 MHz



# <u>31L</u>

# 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

# 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		
VBW	1 MHz		
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 AVERAGE OUTPUT POWER

# 6.1 LIMIT

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

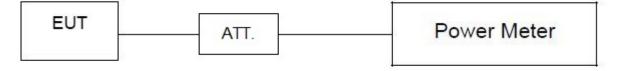
# 6.2 TEST PROCEDURE

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

# 6.3 DEVIATION FROM STANDARD

No deviation.

# 6.4 TEST SETUP



# 6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

# 6.6 TEST RESULTS

Please refer to the APPENDIX F.



# 7. CONDUCTED SPURIOUS EMISSIONS

# 7.1 LIMIT

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

# 7.2 TEST PROCEDURE

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

Enr	Reference	
FUL	Nelelelice	

Spectrum Parameters	Setting			
Span Frequency	$\geq$ 1.5 times the bandwidth.			
RBW	100 kHz			
VBW	300 kHz			
Detector	Peak			
Trace	Max Hold			
Sweep Time	Auto			

#### For Emission Level:

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

# 7.3 DEVIATION FROM STANDARD

No deviation.

# 7.4 TEST SETUP



# 7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 7.6 TEST RESULTS

Please refer to the APPENDIX G.



# 8. POWER SPECTRAL DENSITY

# 8.1 LIMIT

Section	Test Item	Limit
FCC 15.247(e)	Power Spectral Density	8 dBm
	Fower Spectral Density	(in any 3 kHz)

# 8.2 TEST PROCEDURE

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

b. The following table is the setting of the spectrum analyzer:

Spectrum Parameters	Setting		
Span Frequency	1.5 times the DTS bandwidth		
RBW	3 kHz		
VBW	10 kHz		
Detector	Peak		
Trace	Max Hold		
Sweep Time	Auto		

# 8.3 DEVIATION FROM STANDARD

No deviation.

# 8.4 TEST SETUP



# 8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 8.6 TEST RESULTS

Please refer to the APPENDIX H.

# 9. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	EMI Test Receiver	R&S	ESCI	100382	Feb. 28, 2022	
2	LISN	EMCO	3816/2	52765	Feb. 27, 2022	
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	Feb. 27, 2022	
4	50Ω Terminator	SHX	TF5-3	15041305	Feb. 27, 2022	
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
6	Cable	N/A	RG223	12m	Mar. 09, 2022	
7	643 Shield Room	ETS	6*4*3m	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	EM	EM-6876-1	230	Apr. 28, 2022	
2	Cable	N/A	RG 213/U	N/A	May 27, 2022	
3	EMI Test Receiver	R&S	ESCI	100895	Feb. 27, 2022	
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
5	966 Chambe Room	RM	9*6*6m	N/A	Jul. 24, 2022	

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

Radiated Emissions - Above 1 GHz								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until			
1	Double Ridged Guide Antenna	ETS	3115	75789	May 10, 2022			
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2022			
3	Amplifier	Agilent	8449B	3008A02584	Jul. 10, 2022			
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Feb. 28, 2022			
5	Receiver	Agilent	N9038A	MY52130039	Mar. 19, 2022			
6	Controller	СТ	SC100	N/A	N/A			
7	Controller	MF	MF-7802	MF780208416	N/A			
8	Cable	N/A	EMC104-SM-SM-6 000	N/A	Oct. 15, 2022			
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
10	Filter	STI	STI15-9912	N/A	Jul. 10, 2022			
11	966 Chambe Room	RM	9*6*6m	N/A	Jul. 24, 2022			



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

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

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

All calibration period of equipment list is one year.



# 10. EUT TEST PHOTO

ΓL

3

# AC Power Line Conducted Emissions Test Photos

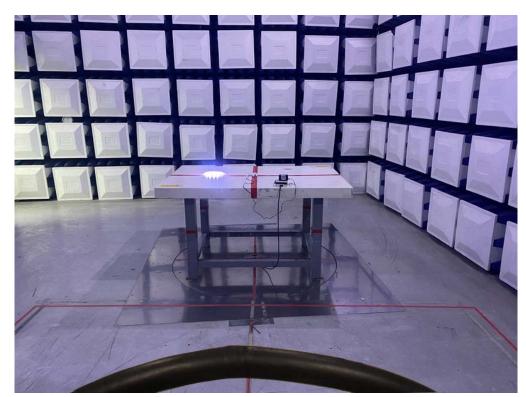






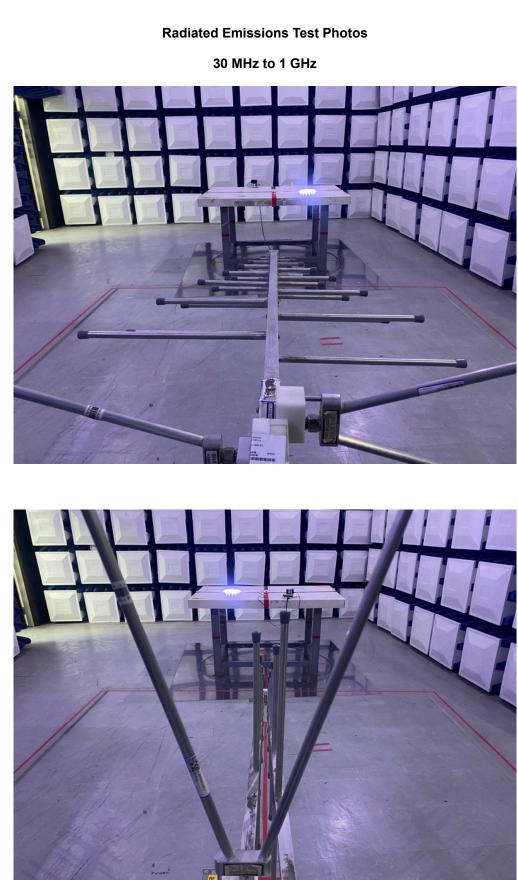
**Radiated Emissions Test Photos** 

9 kHz to 30 MHz





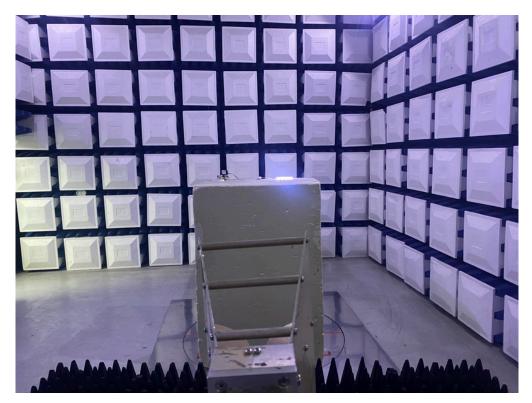






**Radiated Emissions Test Photos** 

Above 1 GHz

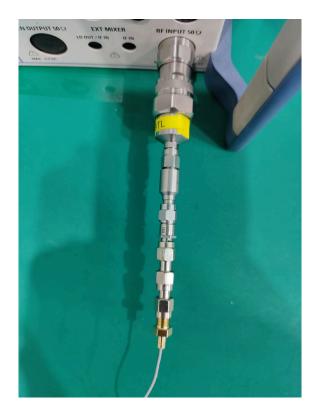






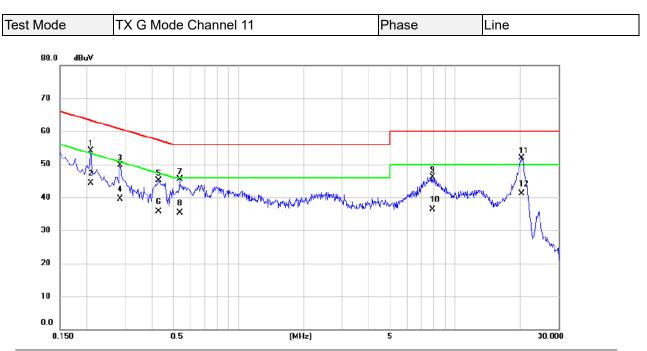
# **Conducted Test Photos**







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

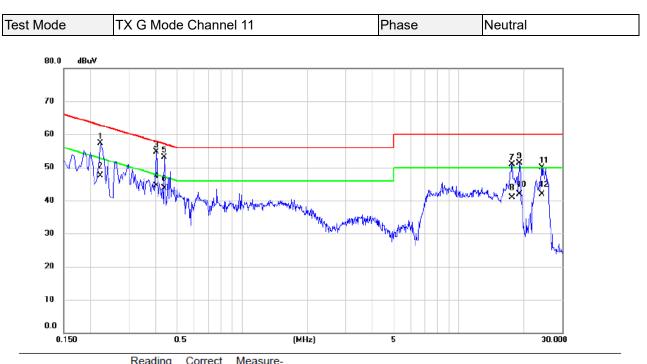


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.2085	44.15	9.90	54.05	63.26	-9.21	peak	
2	0.2085	34.50	9.90	44.40	53.26	-8.86	AVG	
3	0.2850	39.88	9.88	49.76	60.67	-10.91	peak	
4	0.2850	29.60	9.88	39.48	50.67	-11.19	AVG	
5	0.4290	35.21	9.91	45.12	57.27	-12.15	peak	
6	0.4290	25.70	9.91	35.61	47.27	-11.66	AVG	
7	0.5370	35.60	9.93	45.53	56.00	-10.47	peak	
8	0.5370	25.40	9.93	35.33	46.00	-10.67	AVG	
9	7.8630	35.69	10.50	46.19	60.00	-13.81	peak	
10	7.8630	25.80	10.50	36.30	50.00	-13.70	AVG	
11 *	20.3055	40.93	10.88	51.81	60.00	-8.19	peak	
12	20.3055	30.20	10.88	41.08	50.00	-8.92	AVG	

# **REMARKS**:

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





No. Mk.		Freq.	Level	Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2220	47.40	9.99	57.39	62.74	-5.35	peak	
2		0.2220	37.50	9.99	47.49	52.74	-5.25	AVG	
3	*	0.4020	44.72	10.07	54.79	57.81	-3.02	peak	
4		0.4020	34.50	10.07	44.57	47.81	-3.24	AVG	
5		0.4380	43.09	10.09	53.18	57.10	-3.92	peak	
6		0.4380	33.60	10.09	43.69	47.10	-3.41	AVG	
7		17.5694	39.87	11.12	50.99	60.00	-9.01	peak	
8		17.5694	29.80	11.12	40.92	50.00	-9.08	AVG	
9		19.0680	40.23	11.16	51.39	60.00	-8.61	peak	
10		19.0680	30.70	11.16	41.86	50.00	-8.14	AVG	
11		24.1080	38.54	11.32	49.86	60.00	-10.14	peak	
12		24.1080	30.50	11.32	41.82	50.00	-8.18	AVG	

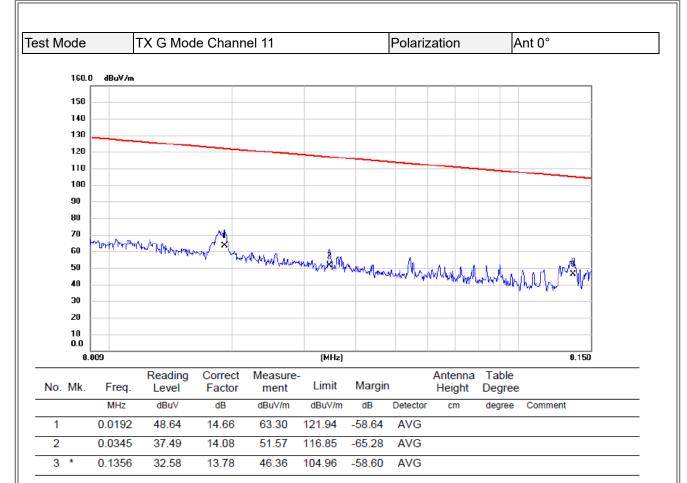
# **REMARKS**:

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.



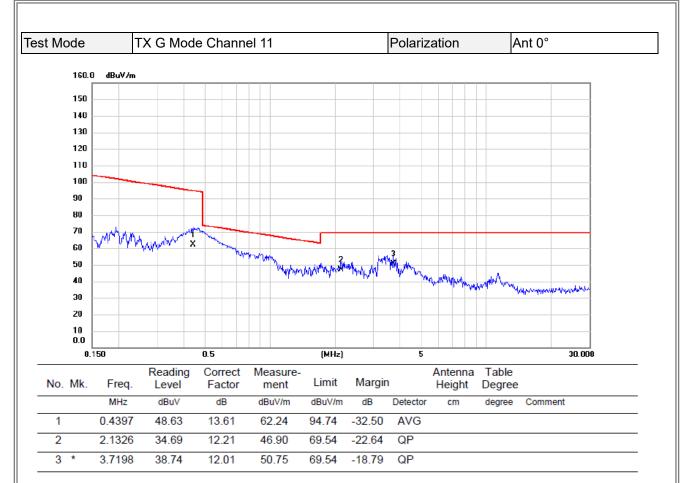
# **APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ**

# **BIL**

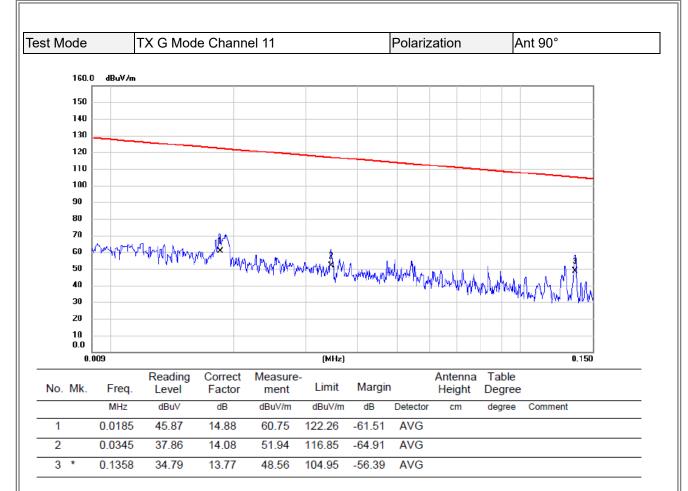


## **REMARKS**:

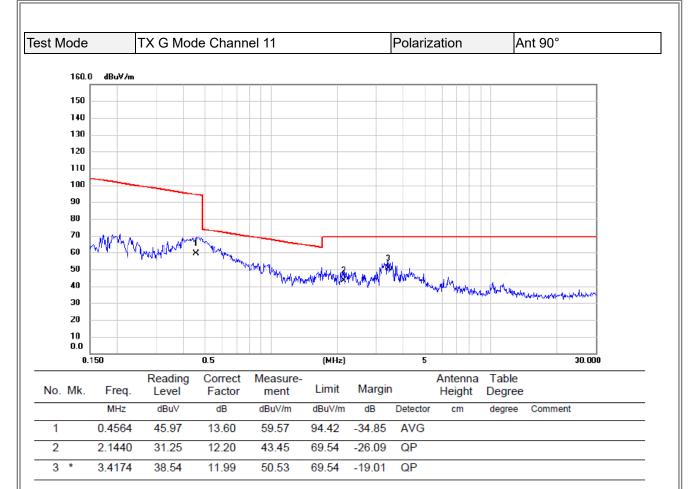
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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



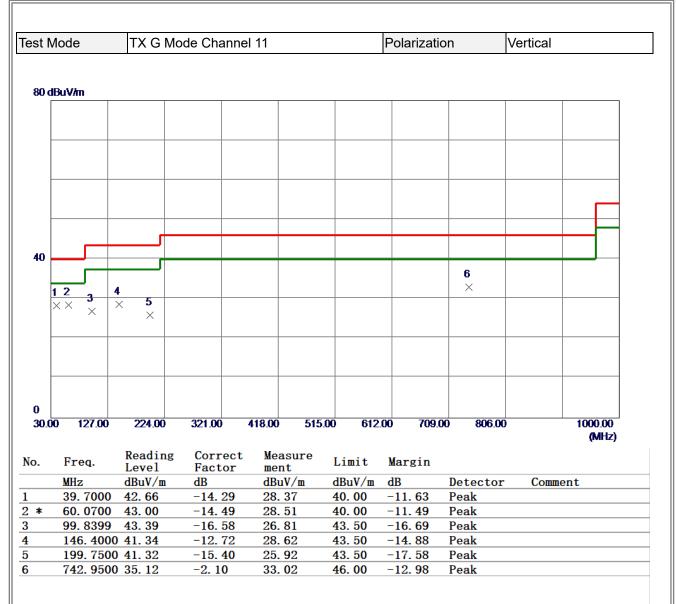
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



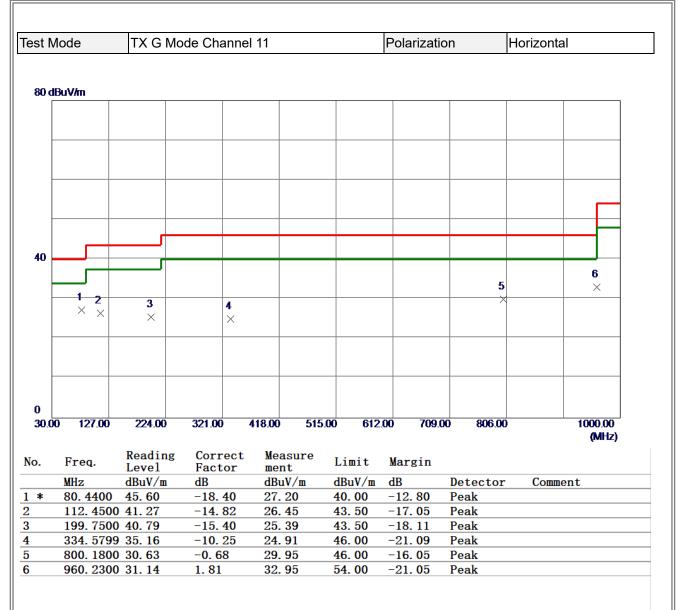
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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



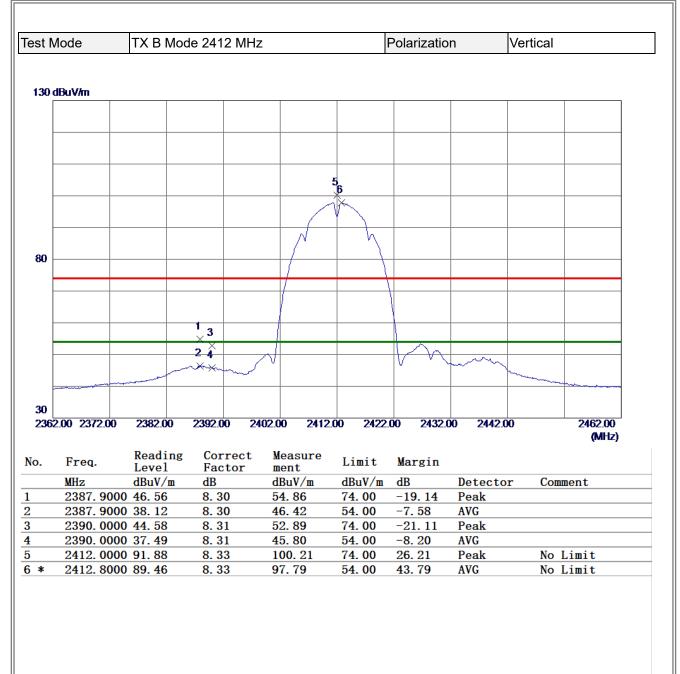
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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



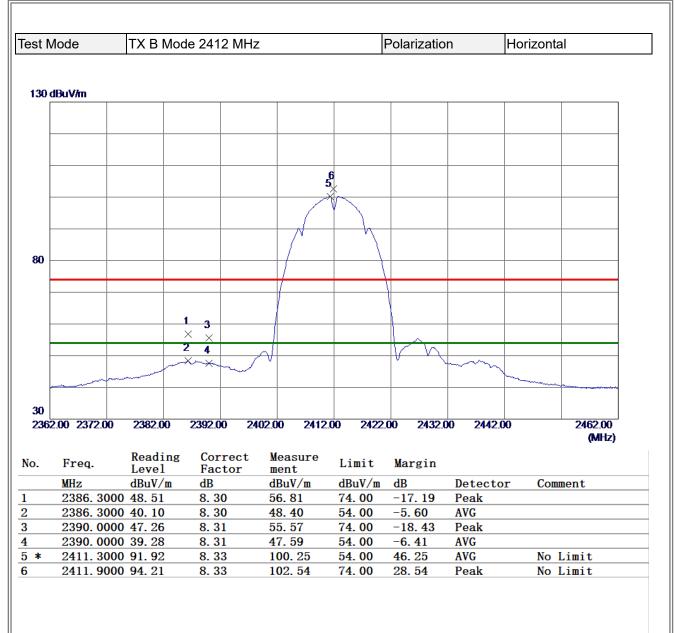
#### **APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ**



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

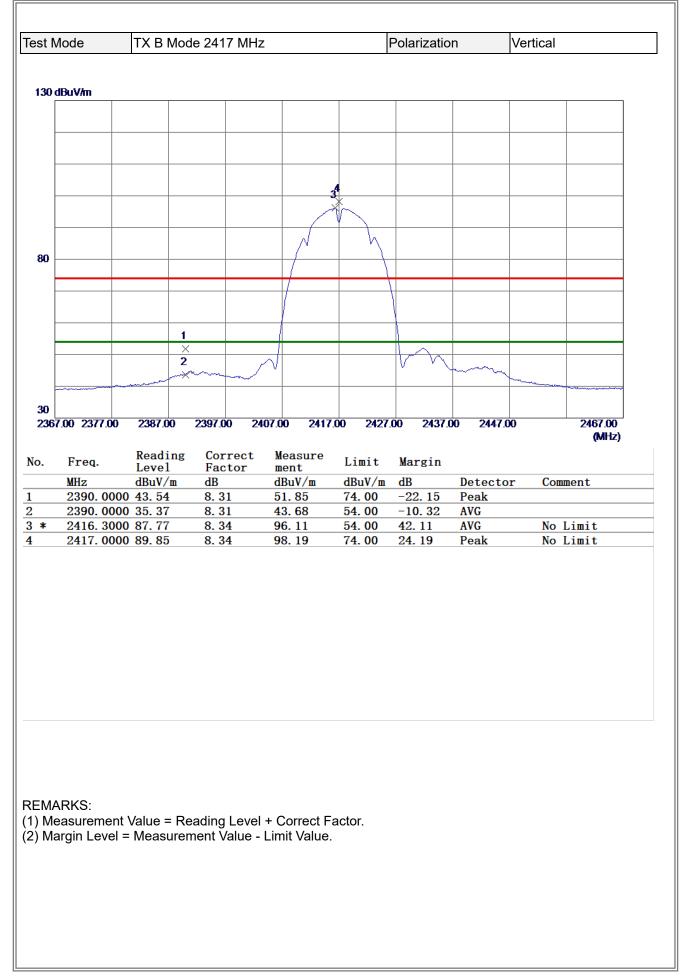
		le 2412 MHz	<u> </u>		Polarizatio	n	Vertical
∂uV/m							
	Z	v 3					
	- <b>N</b>	X					
		<b>X</b>					
.00 3550.00	6100.00	8650.00 11	200.00 13750	0.00 1630	0.00 18850	.00 21400.0	00 26500.0 (MHz
	Reading	Correct	Measure	<b>.</b>	<b>.</b> .		(iaii 12
	Level	Factor	ment				
							Comment
9646. 5279 9647. 7600		12.42	<u>52. 24</u> 41. 62	<u>74.00</u> 54.00	-12. 38	AVG	
	4824. 0219 7235. 8100 7236. 6500 9646. 5279	2	2         3         5           1         1         1         1           ×         ×         6         ×           0         1         1         1           ×         ×         6         ×           0         1         1         1           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         6         ×           ×         ×         ×         6           ×         ×         ×         ×         6           ×         ×         ×         ×         ×           ×	2         3         5           1         4         ×           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         ×           000 3550.00         6100.00         8650.00         11200.00         13750           Freq.         Reading Level         Correct Factor         Measure ment           MHz         dBuV/m         dB         dBuV/m           4823.9980         42.84	2         3         5           1         4         ×           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         1           000 3550.00         6100.00         8650.00         11200.00         13750.00         1630           Freq.         Reading Level         Correct Factor Measure ment         Limit           MHz         dBuV/m         dB         dBuV/m         dBuV/m <td>2         3         5           1         4         ×           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         1         1           000 3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850           000 3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850           Freq.         Reading Level         Correct Factor         Measure ment         Limit         Margin           MHz         dBuV/m         dB         dBuV/m         dB         2.00         -5.93           4823.9980         42.84         5.23         48.07         54.00</td> <td>2         3         5           K         ×         ×           ×         ×         6           ×         ×         6           ×         ×         1           000 3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850.00         21400.00           Freq.         Reading Level         Correct Factor         Measure ment         Limit         Margin           MHz         dBuV/m         dB         dBuV/m         dB         Detector           4823.9980 42.84         5.23         48.07         54.00         -5.93         AVG           4824.0219 46.80         5.23         52.03         74.00         -21.97         Peak           7236.6500 37.92         10.60         58.7         74.00         -20.13         Peak           7236.6500 37.92         10.60         48.52         54.00         -5.48         AVG           9646.5279         39.82         12.42         52.24         74.00         -21.76         Peak</br></td>	2         3         5           1         4         ×           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         6           ×         ×         1         1           000 3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850           000 3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850           Freq.         Reading Level         Correct Factor         Measure ment         Limit         Margin           MHz         dBuV/m         dB         dBuV/m         dB         2.00         -5.93           4823.9980         42.84         5.23         48.07         54.00	2         3         5           K         ×         ×           ×         ×         6           ×         ×         6           ×         ×         1           000 3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850.00         21400.00           Freq.         Reading Level         Correct Factor         Measure 

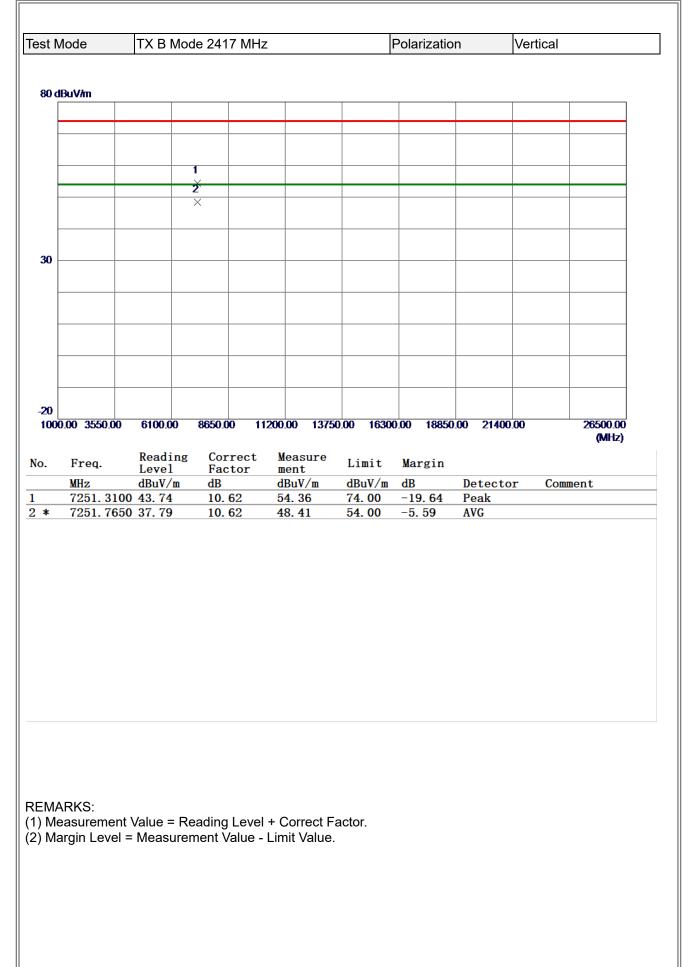
- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.

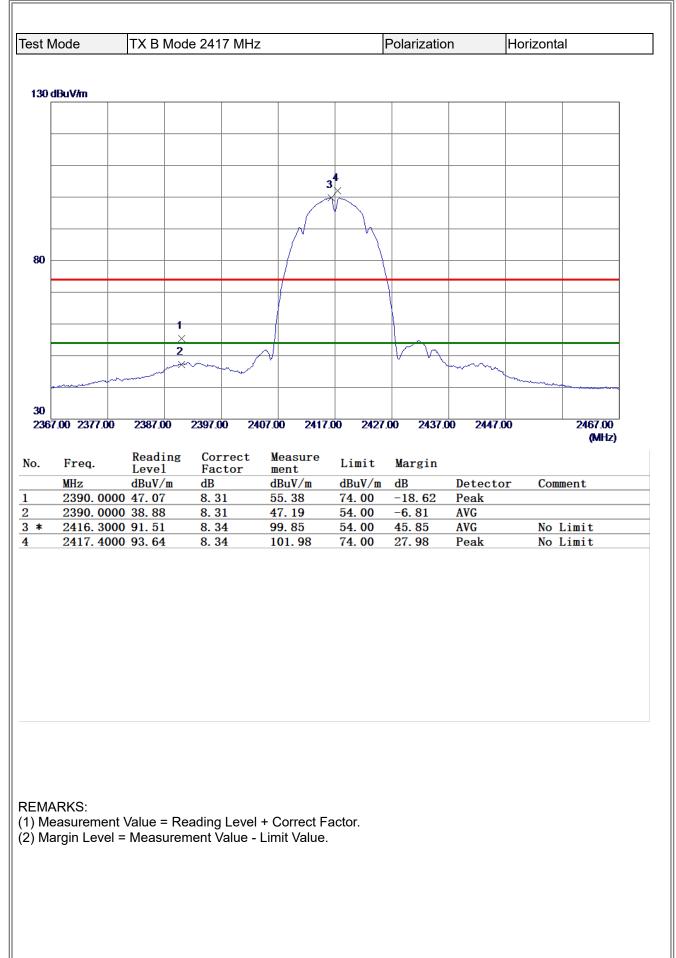


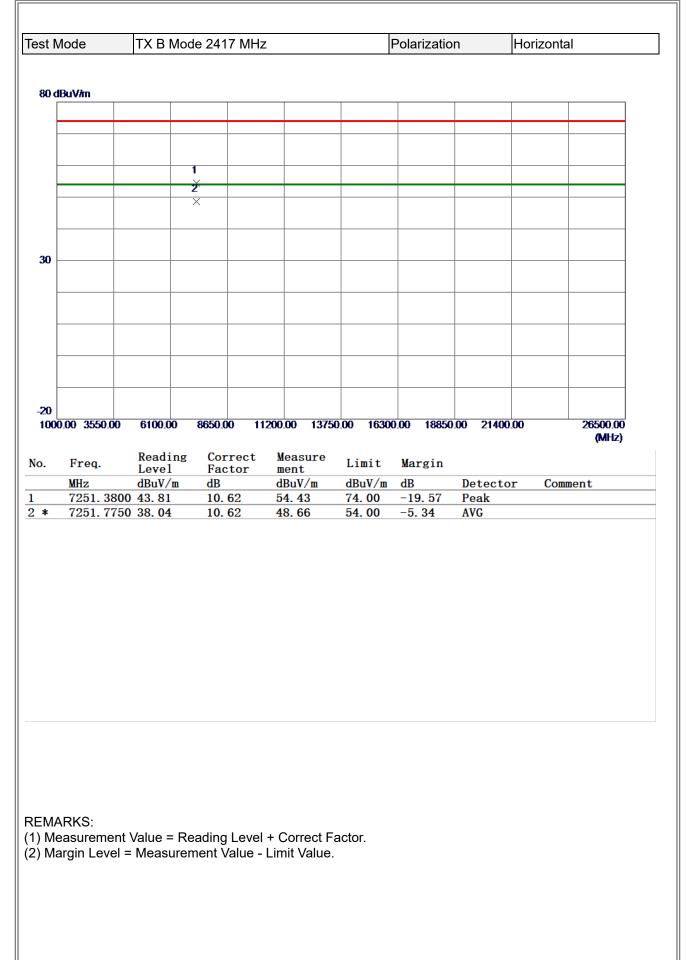
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

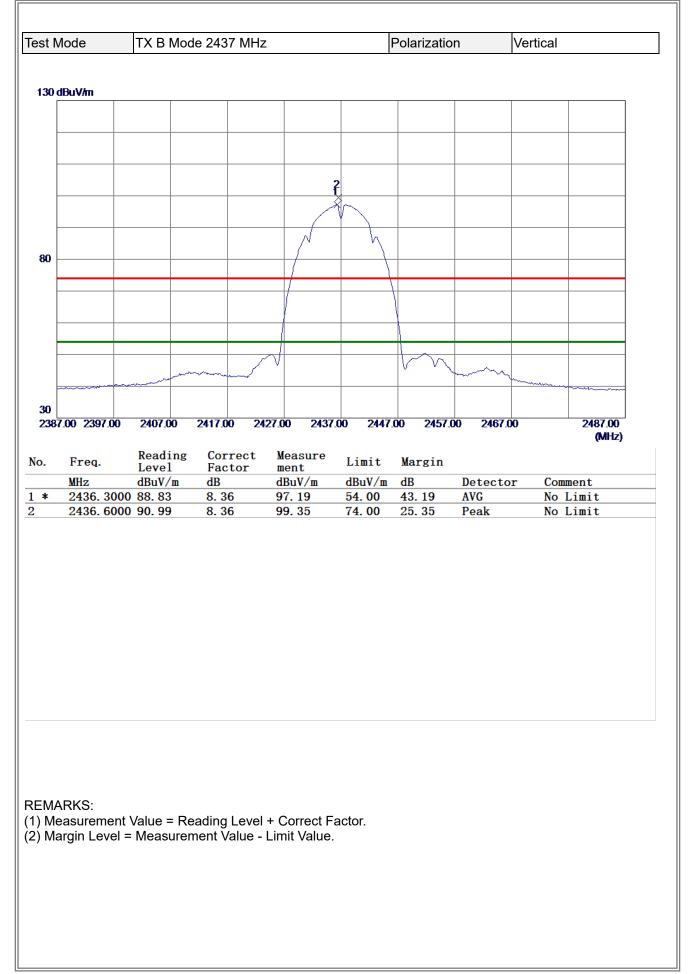
	/lode	TX B N	/lode 241	2 MHz			Polarizatio	n	Horizonta	al
30 d	lBuV/m									
[										
			1							
			2							
			×							
30										
-										
-20										
	0.00 3550.0	0 6100.00	) 8650.0	0 112	00.00 13750	).00 1630	0.00 18850	.00 21400	0.00	26500.00 (MHz)
<b>o</b> .	Freq.	Readi	ng Cor	rect	Measure					
••	LIGH.					Limit	Margin			
	MHz	Level		tor	ment	Limit dBuV/m	Margin dB	Detecto	or Com	nent
		dBuV/1 290 42.96	m dB 10.	tor 60	ment dBuV/m 53.56	dBuV/m 74.00	dB -20. 44	Detecto Peak	or Com	nent
*	7236. 32	dBuV/1	n dB	tor 60	ment dBuV/m	dBuV/m	dB		or Com	nent
*	7236. 32	dBuV/1 290 42.96	m dB 10.	tor 60	ment dBuV/m 53.56	dBuV/m 74.00	dB -20. 44	Peak	or Com	nent





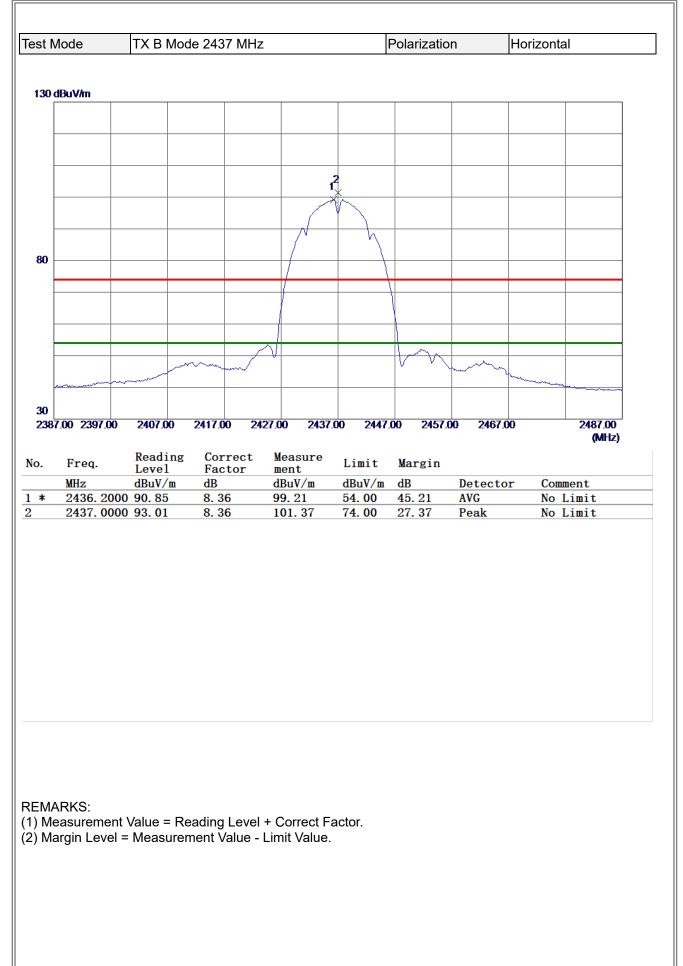


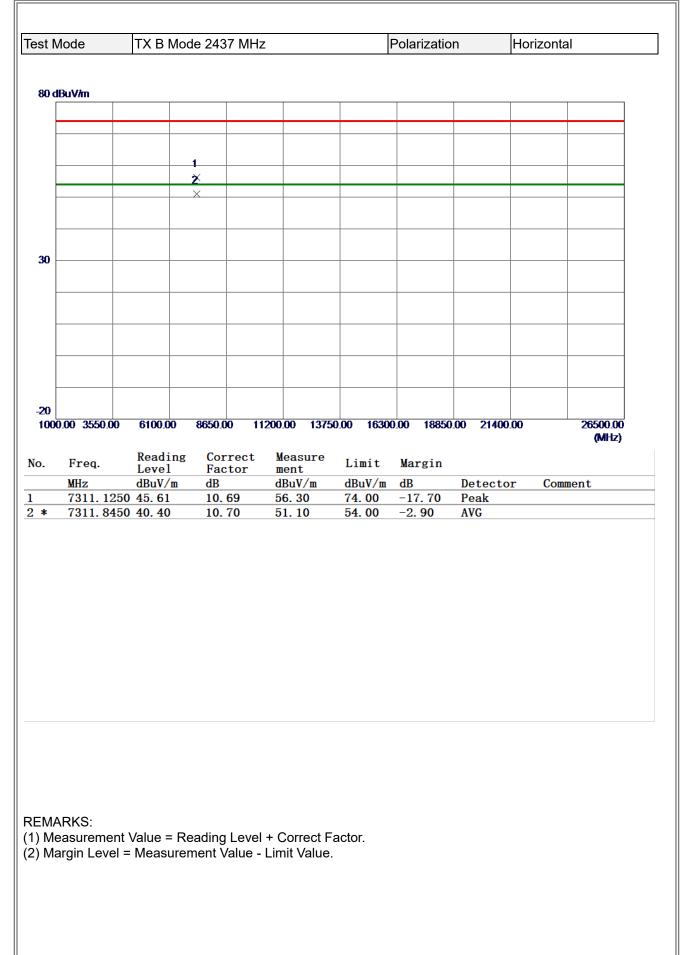


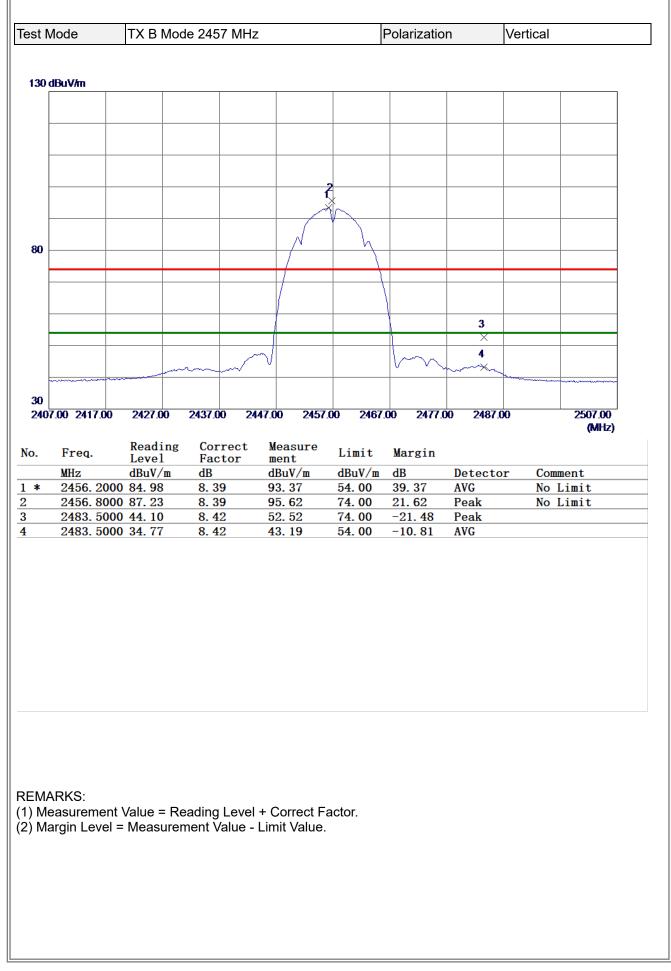


# **3**TL

	de	TX B Moo	de 2437 M	Hz		Polarizatio	n	Vertical	
) dBu'	.₩m								
			1 ×						
			× 2						
			×						
30 —									
-									
0	0 0550 00		0050.00	44000 00 4075		00 40050	000 0440		00500.00
000.00	0 3550.00	6100.00	8650.00	11200.00 1375	0.00 1630	0.00 18850	.00 21400	).00	26500.00 (MHz)
	_	Reading	Correc	t Measure					
	Freq.	Level	Factor	ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m		Detecto	or Com	nent
	7310. 450 7311. 855		10. 69 10. 70	52.74 45.63	74.00 54.00	-21.26	Peak AVG		
		0 54.55	10.10			-8.37	AVG		
						-8.31			

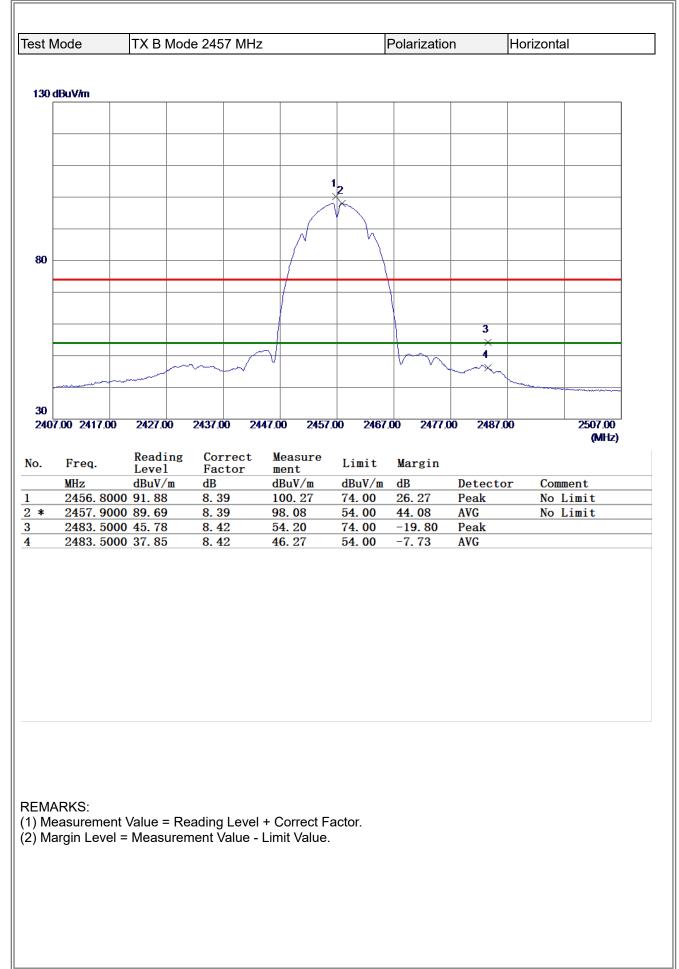


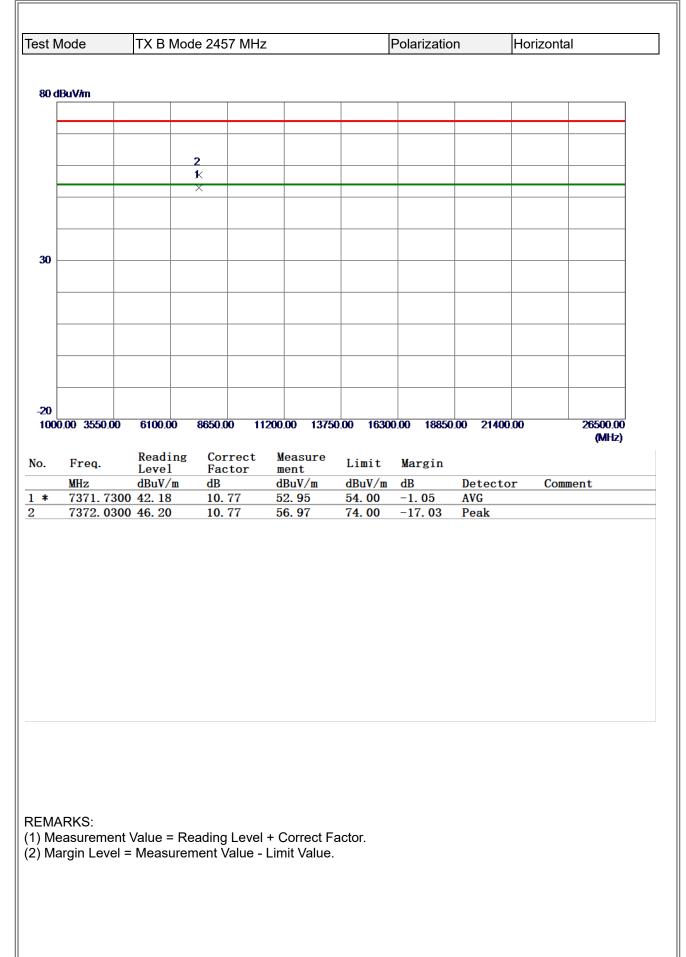


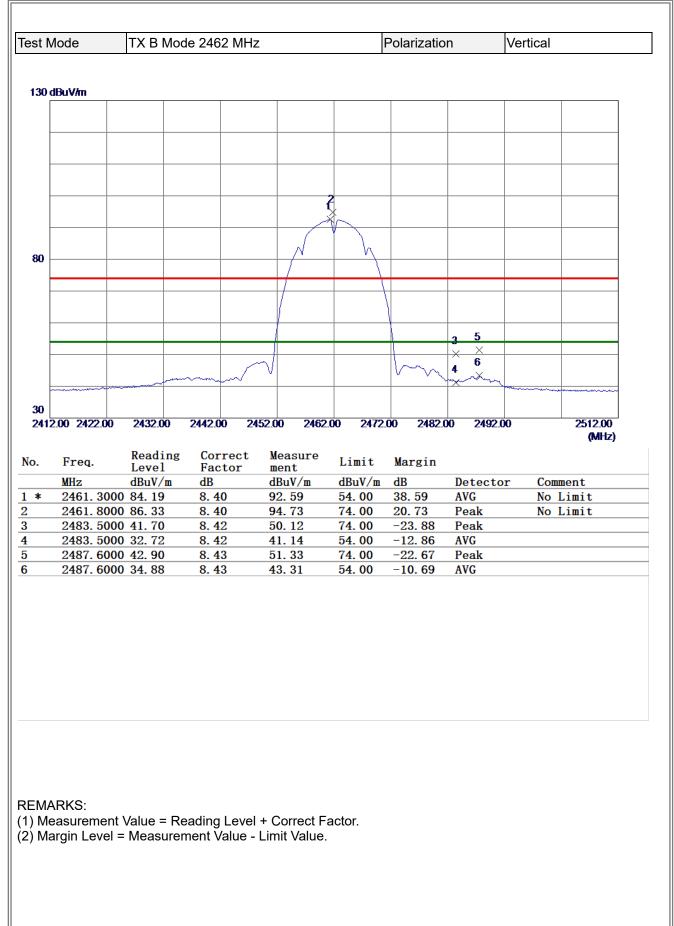


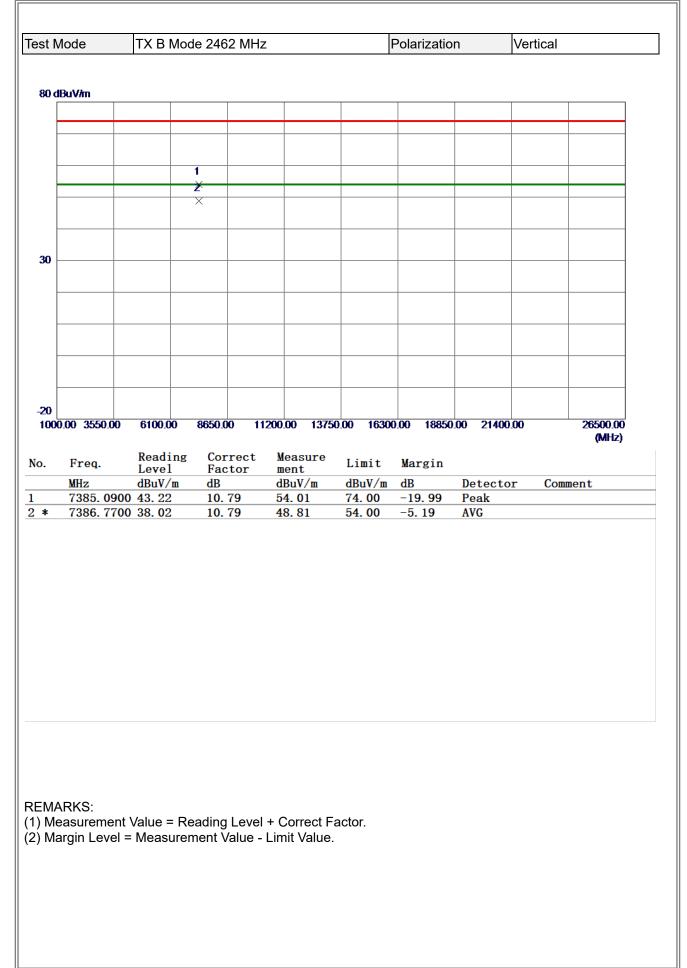
# **3**TL

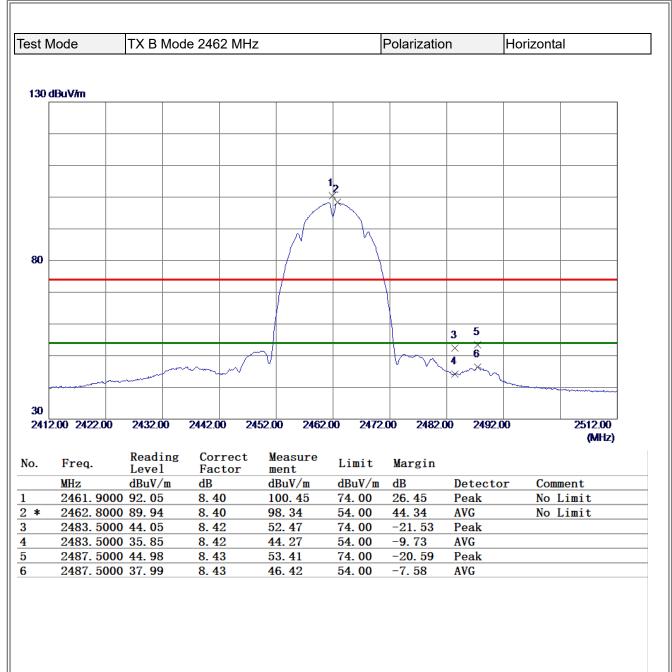
	9	TX B Mo	ode 2457	7 MHz		I	Polarizatio	n	Vertical	
0 dBuV/	m									
			2							
			X							
			×							
30										
20										
	3550.00	6100.00	8650.00	) 1120	0.00 13750	.00 16300	0.00 18850	0.00 21400	0.00	26500.00
										(MHz)
. Fr	eq.	Reading Level	g Corr Fact	rect	Measure ment	Limit	Margin			
MH		dBuV/m	dB		dBuV/m	dBuV/m		Detecto	or Com	nent
	71. 7500	34.85	10.7		45. 62	54.00	-8.38	AVG		
	71. 7500 72. 5300	34.85	10. 7 10. 7		45. 62 52. 38	54.00 74.00	-8.38 -21.62	AVG Peak		
		34.85								



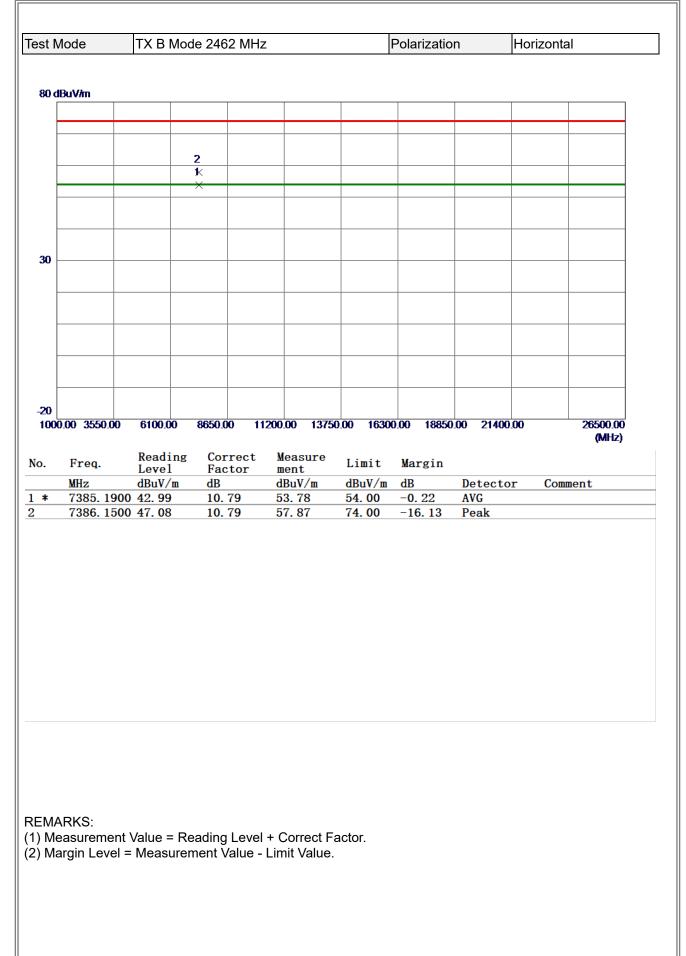


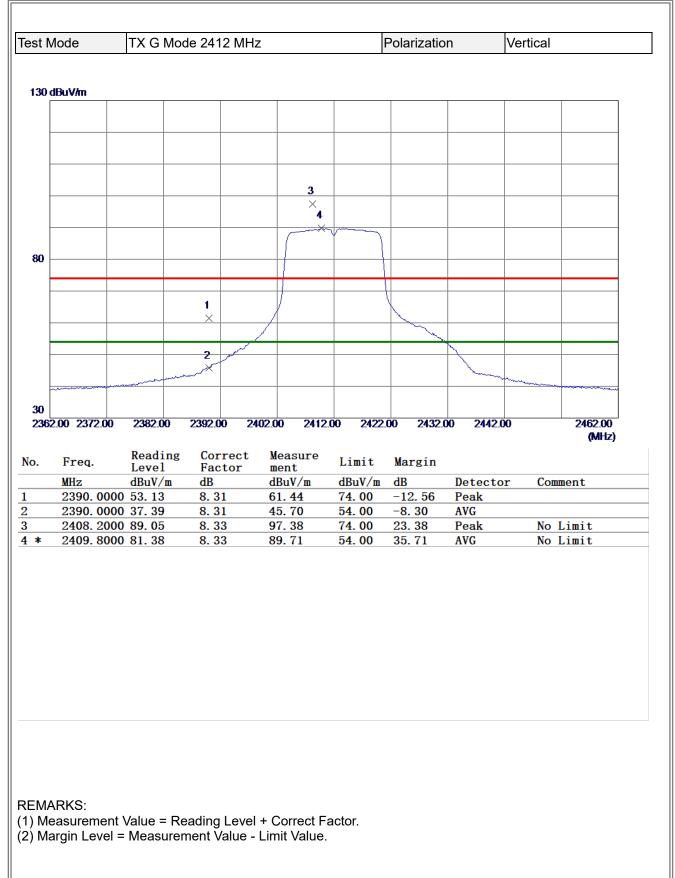






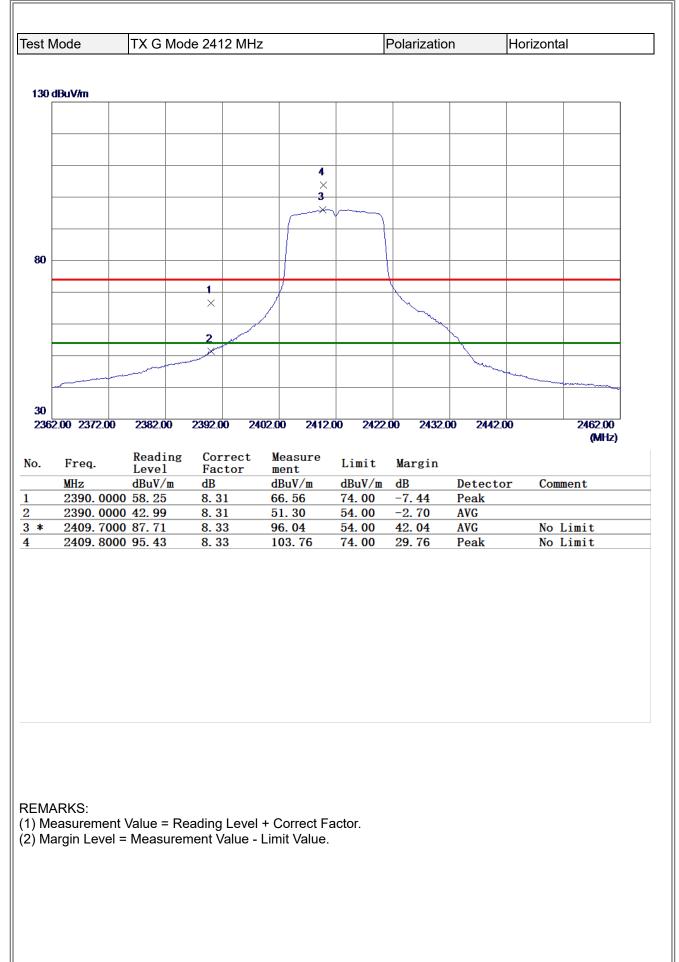
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



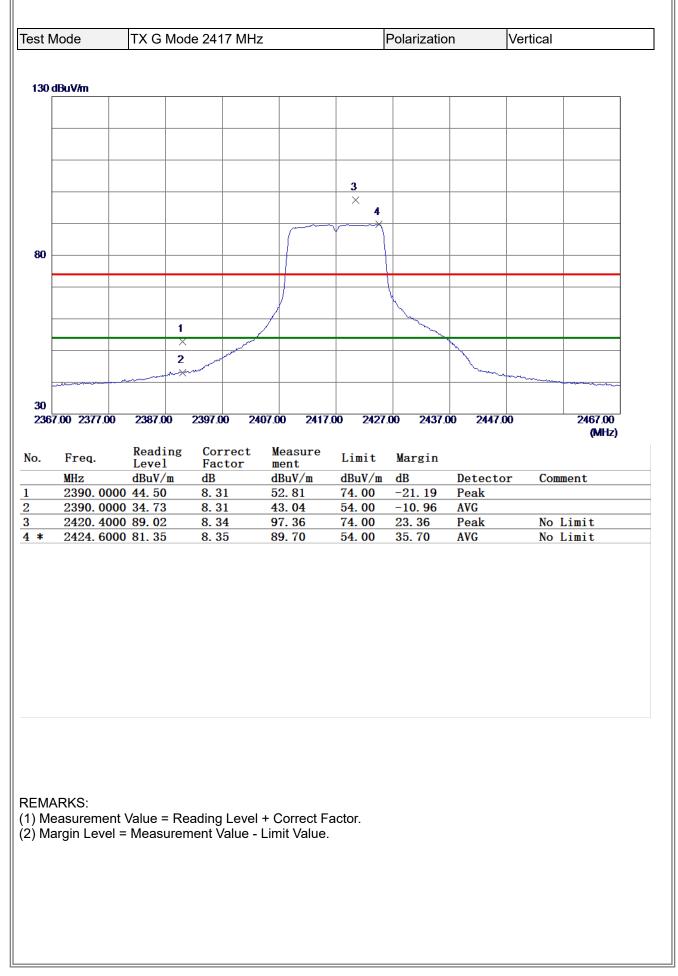


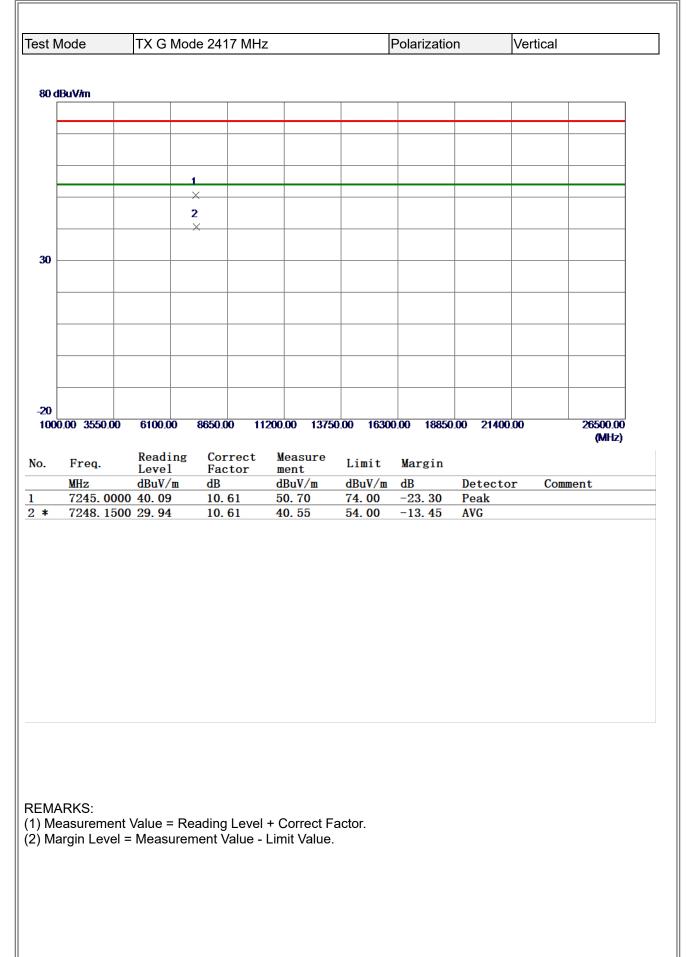
# **B**TL

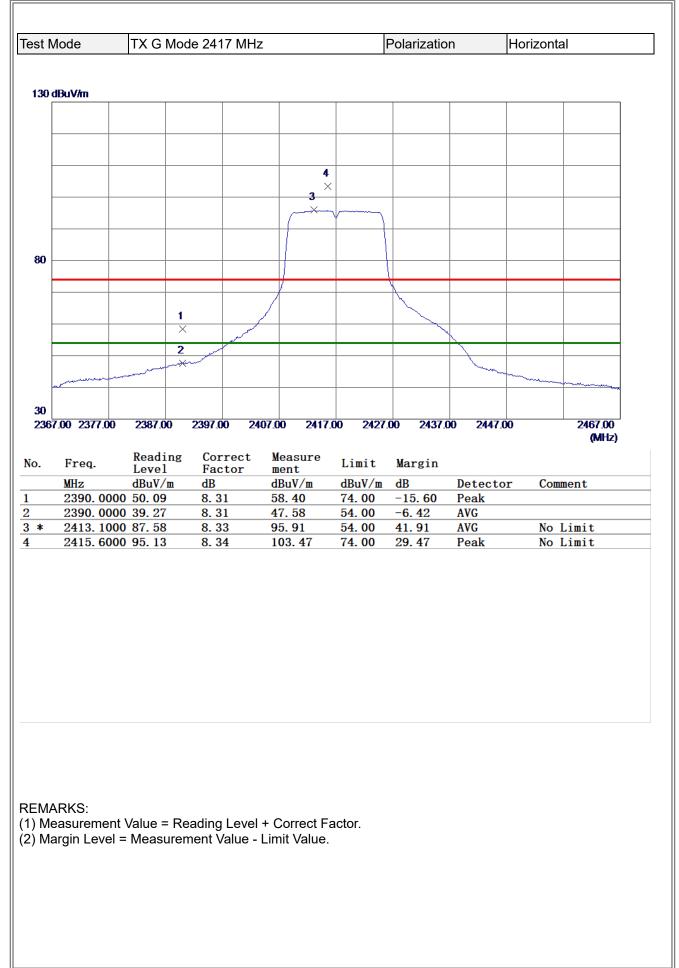
		Mode 24	12 MHz		I	Polarizatio	n	Vertical	
dBuV/m									
		1 ×							
		2							
		×							
00.00 355	0.00 6100	.00 8650.	00 1120	0.00 13750	0.00 16300	0.00 18850	0.00 21400	0.00	26500.00 (MHz)
Enco	Read	ing Co	rrect	Measure	Limit	Margin			
Freq. MHz	Leve dBuV			ment dBuV/m	dBuV/m		Detecto	or Com	ment
		/ш ш		ави / ш	адах∕ш	UD	Detecto		шепс
	6400 41.0	8 10.	<b>59</b>	51.67					
	6400 41.0 4000 30.9			51.67 41.59	74. 00 54. 00	-22. 33 -12. 41	Peak AVG		
					74.00	-22. 33	Peak		



Mode	TX G	Mode 24	12 MHz		I	Polarizatio	n	Horizon	al
dBuV/m									
		2							
		×							
		1							
		×							
1									
00.00 3550.0	0 6100.0	0 8650.0	00 112	00.00 13750	0.00 16300	0.00 18850	00 21400	0.00	26500.00 (MHz)
									(
Freq.	Readi	ng Con	rrect	Measure	Limit	Margin			
Freq. MHz	Level	. Fac	rrect ctor	ment	Limit dBuV/m	Margin dB	Detecto	or Con	ment
MHz 7234.7	Level dBuV/ 600 32.69	Fac m dB 10.	etor 60	ment dBuV/m 43.29	dBuV/m 54.00	dB -10.71	Detecto AVG	or Con	nment
MHz 7234.7	Level dBuV/	Fac m dB 10.	etor 60	ment dBuV/m	dBuV/m	dB		or Con	ment
MHz 7234.7	Level dBuV/ 600 32.69	Fac m dB 10.	etor 60	ment dBuV/m 43.29	dBuV/m 54.00	dB -10.71	AVG	or Con	ment

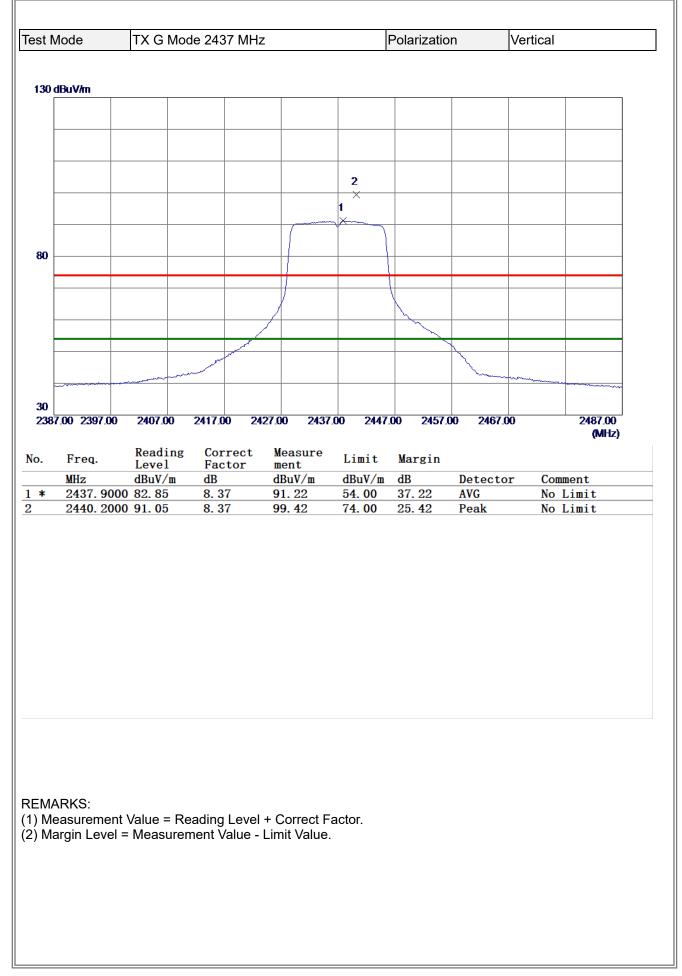


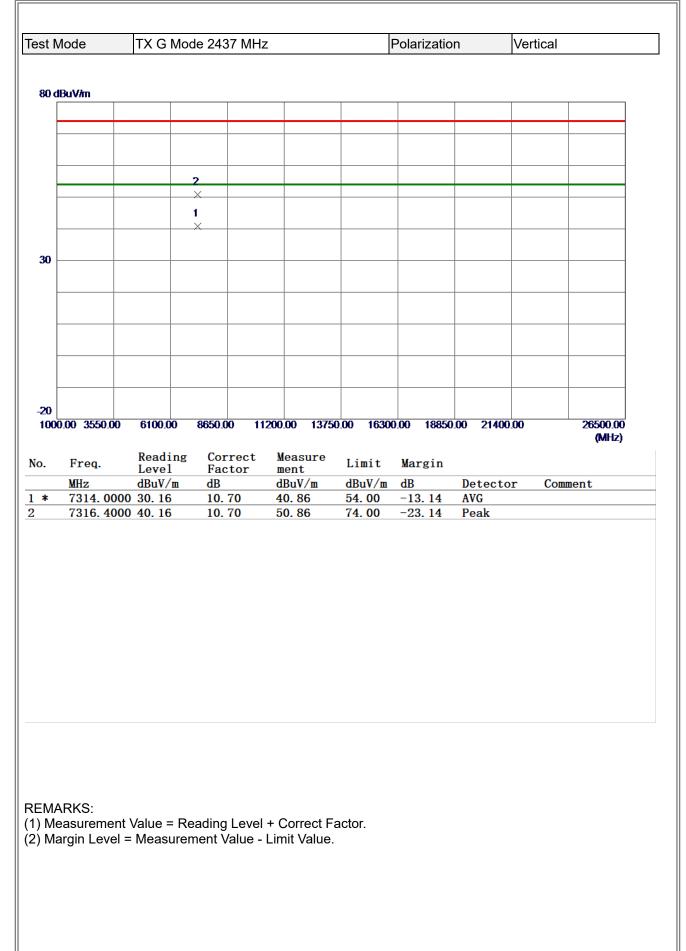


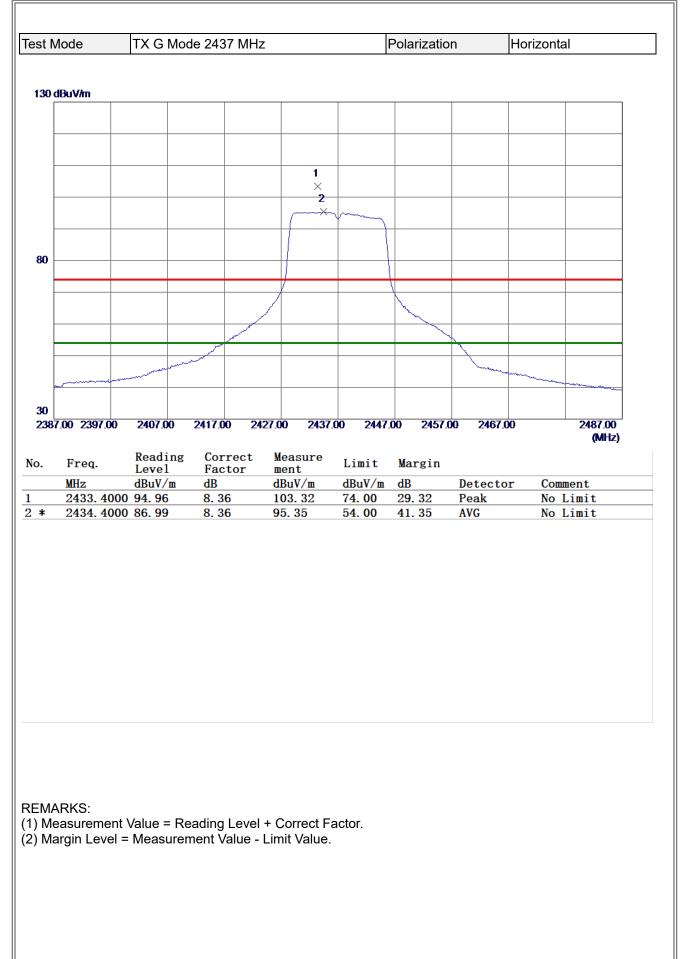


# **3**TL

	TX G Mo	ode 2417 MH	z		Polarizatio	'n	Horizon	tal
) dBuV/m								
		2						
		1						
		×						
)								
00.00 3550.0	0 6100.00	8650.00 1	1200.00 1375	0.00 1630	0.00 18850	00 2140	0.00	26500.00 (MHz)
Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
MHz	Level dBuV/m	Factor dB	ment dBuV/m	dBuV/m	dB	Detecto	or Co	mment
MHz 7247.30	Level	Factor	ment dBuV/m 43.66		dB -10. 34	Detecto AVG Peak	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m	dBuV/m 54.00	dB	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247.30 7251.90	Level dBuV/m 000 33.05	Factor dB 10.61	ment dBuV/m 43.66	dBuV/m 54.00	dB -10. 34	AVG	or Co	mment
MHz 7247. 30 7251. 90	Level dBuV/m 000 33.05 000 43.72	Factor dB 10.61 10.62	ment dBuV/m 43.66 54.34	dBuV/m 54.00 74.00	dB -10. 34	AVG	or Co	mment
MHz 7247. 30 7251. 90	Leve1 dBuV/m 000 33. 05 000 43. 72	Factor dB 10. 61 10. 62	ment dBuV/m 43.66	dBuV/m 54.00 74.00	dB -10. 34	AVG	or Co	mment
<u>М</u> Hz 7247. 30 7251. 90	Leve1 dBuV/m 000 33. 05 000 43. 72	Factor dB 10. 61 10. 62	ment dBuV/m 43.66 54.34	dBuV/m 54.00 74.00	dB -10. 34	AVG	or Co	mment
MHz 7247. 30 7251. 90	Leve1 dBuV/m 000 33. 05 000 43. 72	Factor dB 10. 61 10. 62	ment dBuV/m 43.66 54.34	dBuV/m 54.00 74.00	dB -10. 34	AVG	or Co	mment

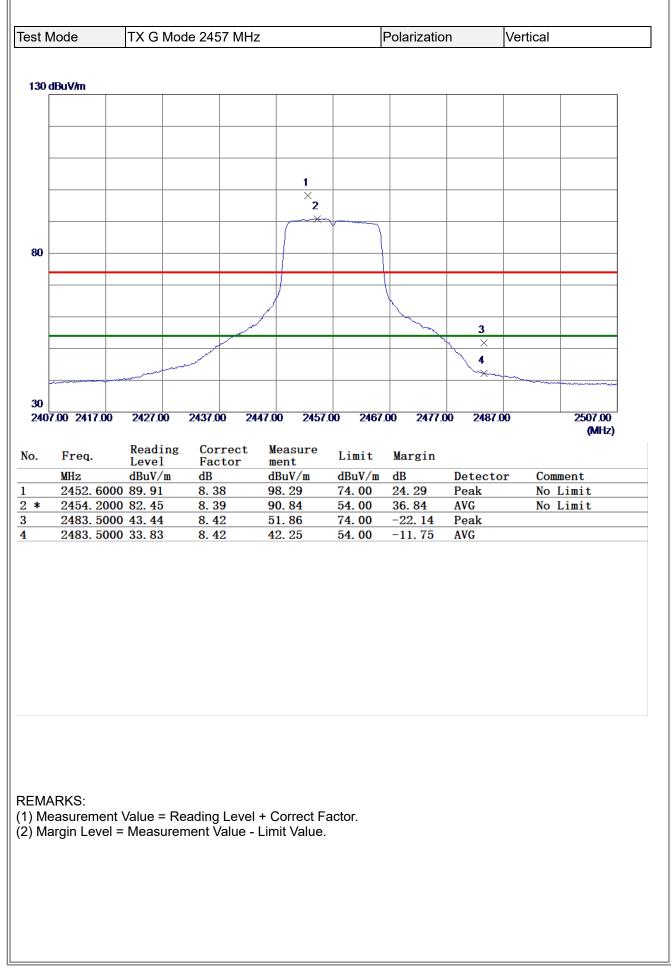


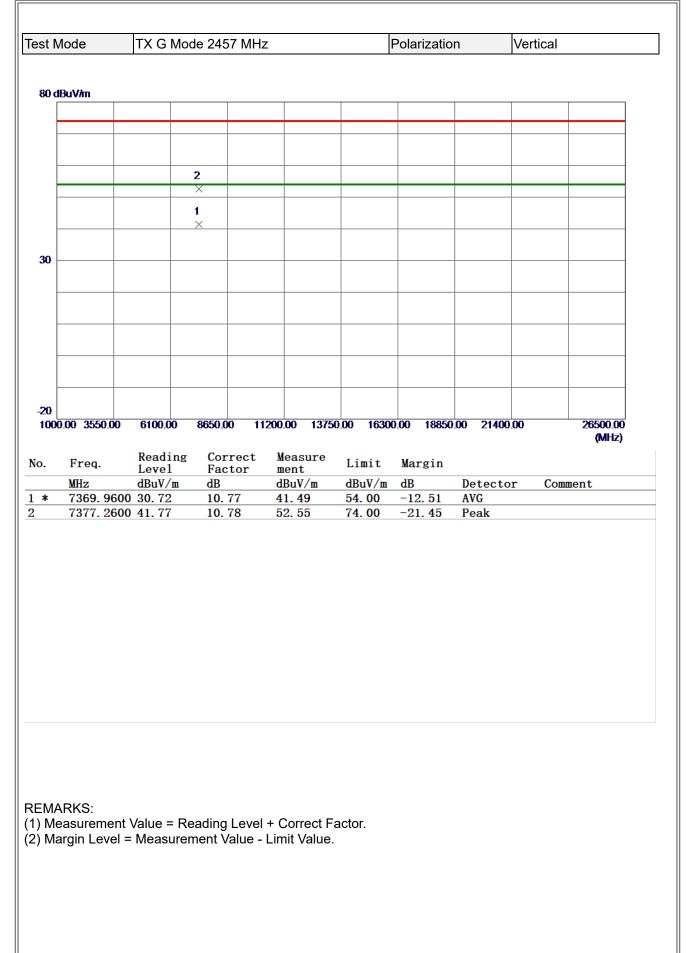


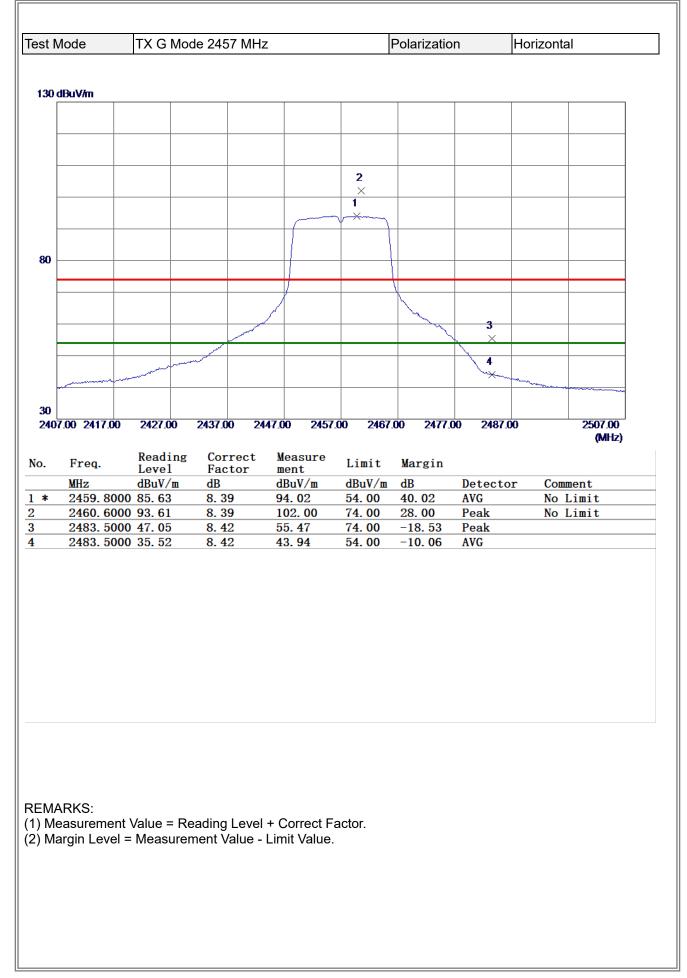


# **3**TL

est N	/lode	TX G I	Node 243	7 MHz			Polarizatio	n	Horizont	al
00.4	Datter									
000	BuV/m									
			1							
			×							
			2							
			×							
-										
30										
-20										
100	0.00 3550.0	0 6100.0	) 8650.0	0 112	00.00 13750	0.00 1630	0.00 18850	00 2140	0.00	26500.00 (MHz)
										(ivii iz.)
		Roadi	ng Cor	rect	Maggiro					
No.	Freq.	Readi Level	Fac	rect	Measure ment	Limit	Margin			
No.	MHz	Level dBuV/1	Fac n dB	tor	ment dBuV/m	dBuV/m	dB	Detect	or Con	ment
L	MHz 7313.10	Level	Fac	tor 70	ment			Detecto Peak AVG	or Com	ment
No. 1 2 *	MHz 7313.10	Level dBuV/1 000 46.01	Fac n dB 10.	tor 70	ment dBuV/m 56.71	dBuV/m 74. 00	dB −17. 29	Peak	or Con	ment

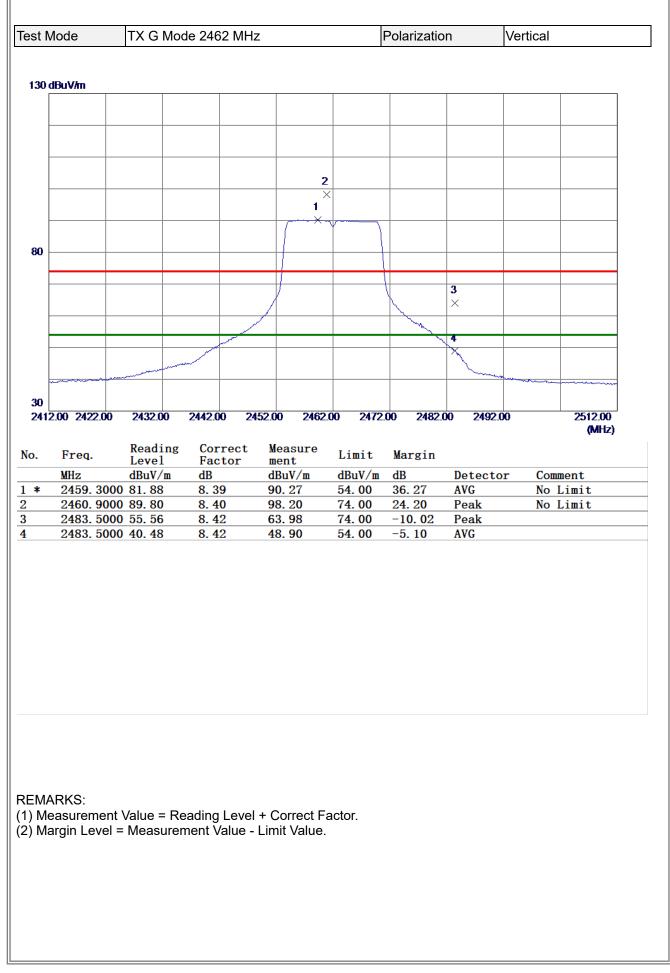


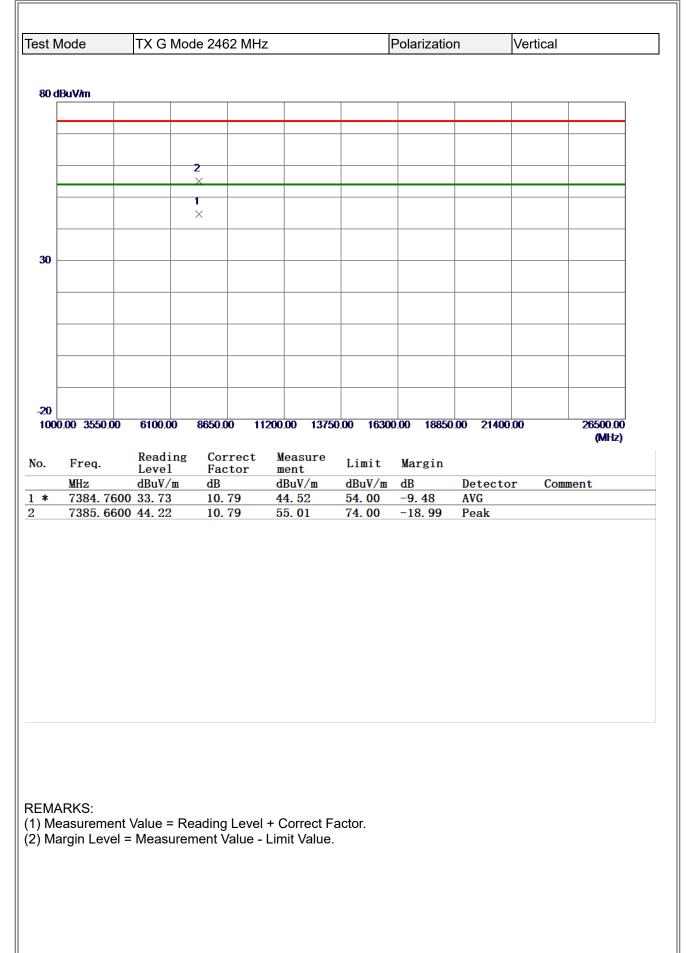


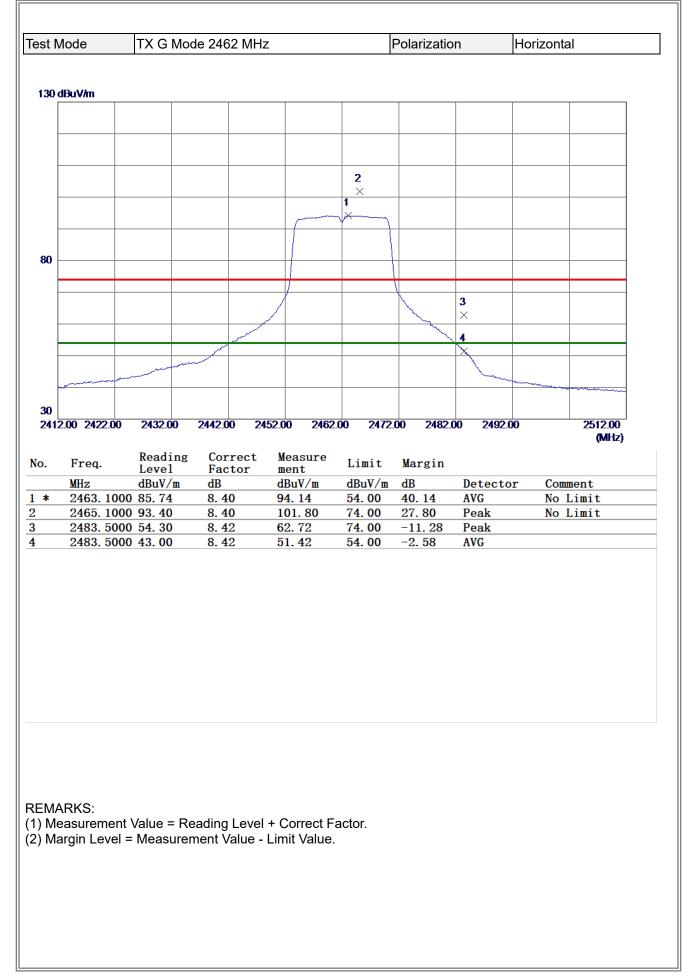


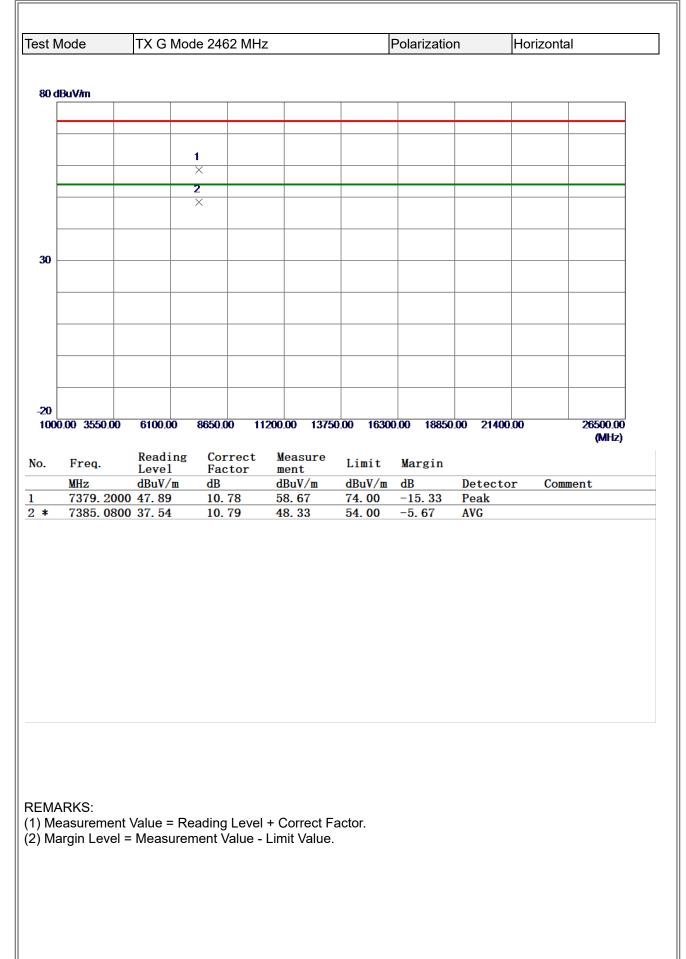


55L I	Node	TX G Mo	de 2457 MH	z		Polarizatio	n	Horizont	al
_									
30 c	lBuV/m								
			2						
			X						
			1						
			×						
30									
-20	0.00 3550.00	6100.00	8650.00 1	1200.00 13750	0.00 1630	0.00 18850	00 2440	0.00	26500.00
100	0.00 3000.00	0100.00	1 00:000	1200.00 13750	0.00 1030	0.00 16650	0.00 2140	0.00	20300.00 (MHz)
о.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detecto	or Com	ment
*	7372. 600 7374. 040	00 36. 57	10. 77 10. 78	47. 34 58. 90	54.00 74.00	-6. 66 -15. 10	AVG Peak		
*		00 36. 57	10.77	47.34	54.00	-6.66	AVG		

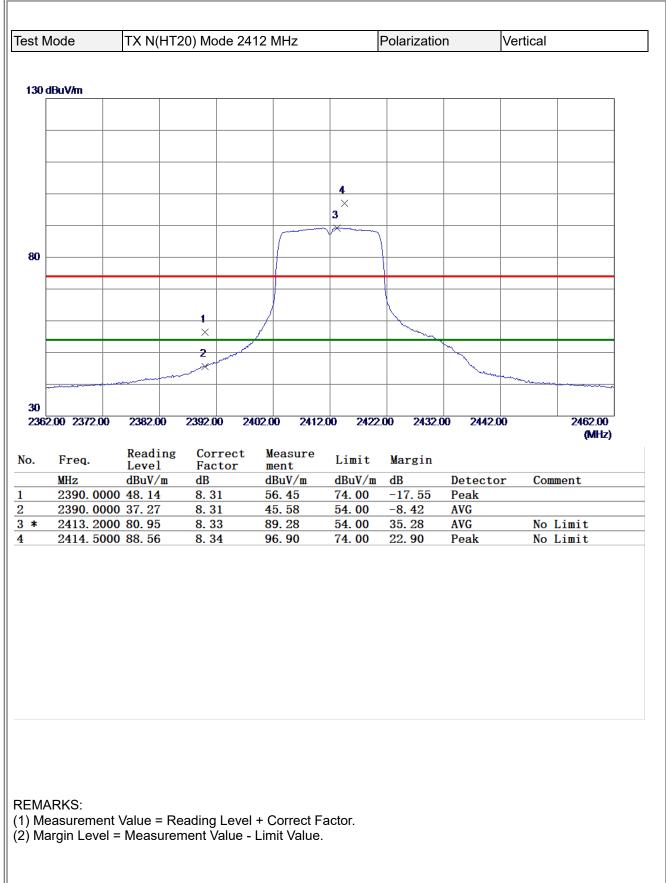














	de	TX N(I	HT20) N	/lode :	2412	MHz			Po	olarizatio	on		Vertic	cal	
0 dBu	ıV/m														
			<b>2</b> ×												
			1 ×												
)											1				
-									_						
) )00.01	0 3550.00	6100.0	) 865(	00	11200		13750	00 16	300.0	0 18850	) 00	21400	00		26500.
	0 000000	010010													(MH
1	Frea.	Readi	ng Co	orrec	t M	leasu	ire	Limit	: 1	Margin					
	Freq. MHz	Level	Fa	actor	П	ient		Limit dBuV/		Margin	Det	ecto	r	Сотт	ent.
N	Freq. MHz 7228.780	Level dBuV/	Fa n dł	actor	d n		'n	Limit dBuV/ 54.00	m o	Margin dB -15.10	Det AVC	tecto }	r	Comm	ient
1 : 7	MHz	Level dBuV/1 0 28.31	Fa n dI 1(	actor 3	d 3	ient  BuV/	́ш )	dBuV/	<u>m</u> (	dB		}	r	Comm	lent
N * 7	MHz 7228.780	Level dBuV/1 0 28.31	Fa n dI 1(	actor 3 ). 59	d 3	ient  BuV/  8.90	́ш )	dBuV/ 54.00	<u>m</u> (	dB -15. 10	AVC	}	r	Comm	lent



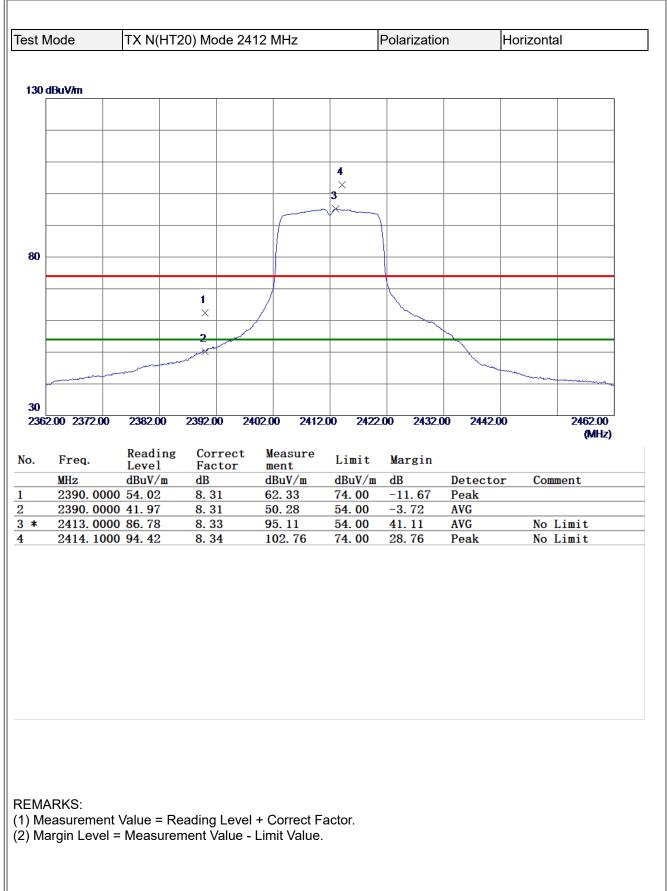
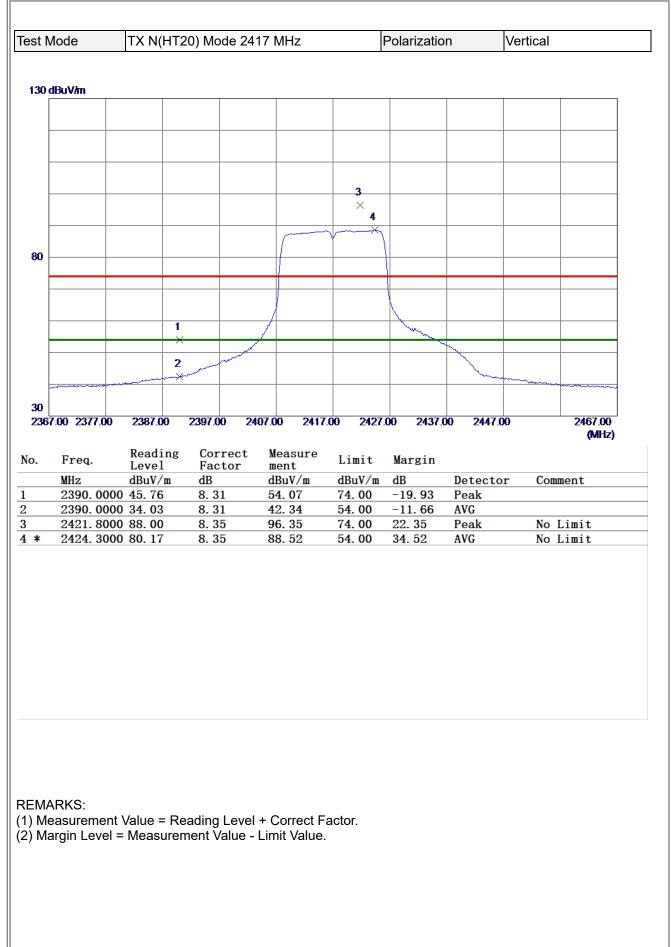




Image: Constraint of the second se	
30	
-20	
1000.00 3550.00 6100.00 8650.00 11200.00 13750.00 16300.00 18850.00 21400.00	26500.00
	(MHz)
o. Freq. Reading Correct Measure Limit Margin Level Factor ment	
MHz         dBuV/m         dB         dBuV/m         dBuV/m         dB         Detector         Com           *         7236.8800 31.52         10.60         42.12         54.00         -11.88         AVG	ment
7243. 6200 41. 57 10. 61 52. 18 74. 00 -21. 82 Peak	

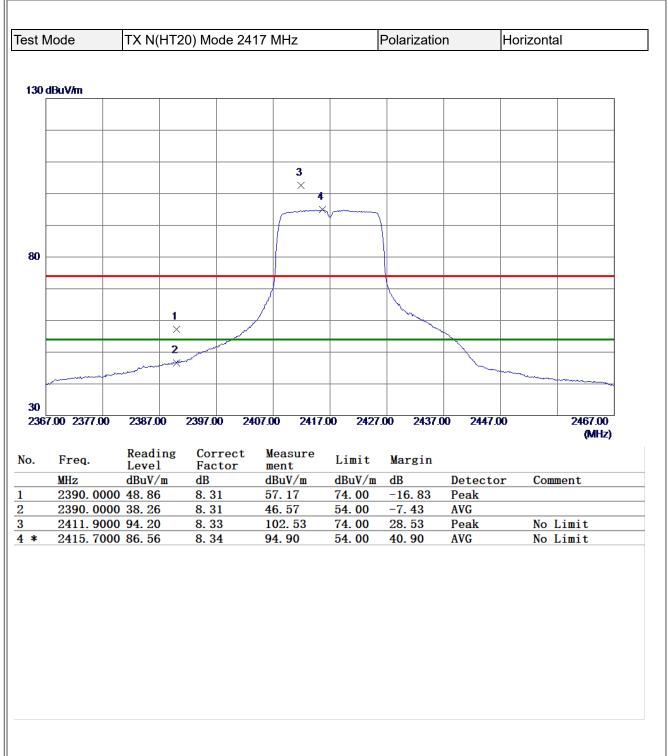






t Mode	TX N(F	IT20) Mode 2	2417 MHz	I	Polarizatio	n	Vertical	
) dBuV/m								
		2						
		X						
		1 ×						
_								
D								
0								
00.00 355	0.00 6100.00	8650.00	11200.00 13750	00 1630	0.00 18850	00 21400	0.00	26500.00 (MHz)
	Readii	ng Correct	t Measure					(mi iz)
Freq.	Level	Factor	ment	Limit	Margin	_		
MHz 7247.	dBuV/1 8500 28. 23	1 dB 10.61	dBuV/m 38.84	dBuV/m 54.00	dB -15.16	Detecto AVG	or Com	ment
	0500 37.91	10. 62	48. 53	74.00	-25.47	Peak		





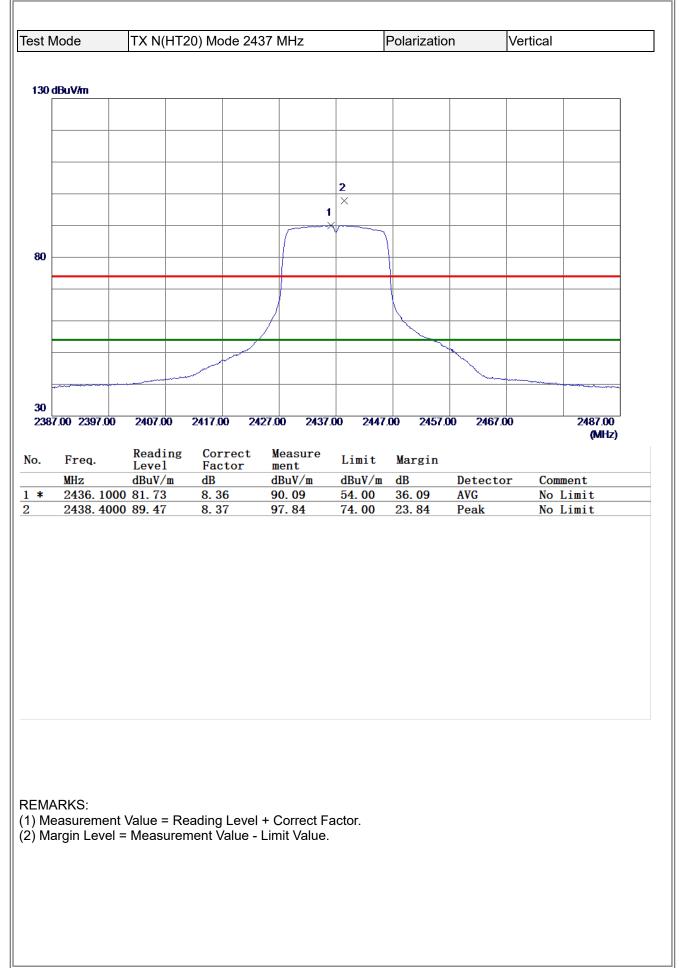
REMARKS:

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



St IN	Node	TX N(HT	20) Mode 24	17 MHz	ł	Polarizatio	n	Horizon	tal
80 d	lBuV/m						1		
			2						
			×						
			1						
			×						
30									
-20		0100.00	0050.00	000 00 4075	0.00 4000		00.01100		00500.00
100	0.00 3550.00	) 6100.00	8650.00 11	1200.00 1375	0.00 16300	0.00 18850	00 21400	.00	26500.00 (MHz)
).	Freq.	Reading	Correct	Measure	Limit	Margin			
	MHz	Level dBuV/m	Factor dB	ment dBuV/m	dBuV/m		Detecto	r Cor	ment
*		00 32.66	10.62	43.28	54.00		AVG		
	1204.10	00 43. 56	10. 62	54.18	74.00	-19.82	Peak		

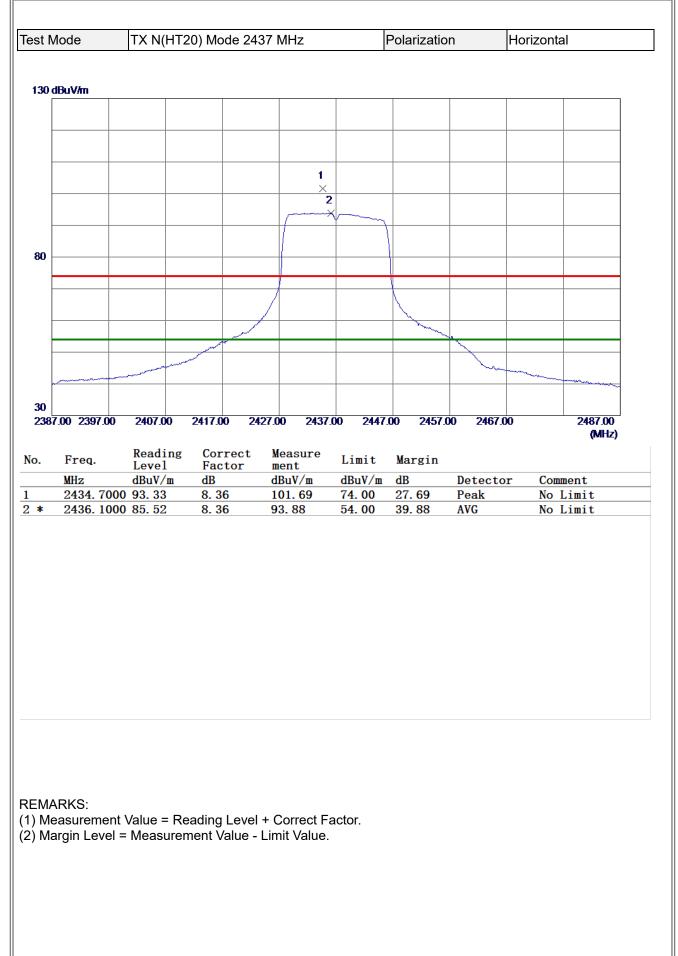






80 dBuV/m		20) 10000 24	37 MHz	F	Polarizatio	n	Vertical	
80 dBuV/m								
		<b>2</b> ×						
		1						
		×						
30								
	<u> </u>							
-20								
1000.00 3550.0	00 6100.00	8650.00 11	1200.00 13750	0.00 16300	0.00 18850	.00 21400	.00	26500.00 (MHz)
P	Reading	Correct	Measure	Linit				ç
o. Freq.	Level	Factor	ment	Limit	Margin	Detecto	0	
MHz * 7315.4	dBuV/m 000 28.49	dB 10. 70	dBuV/m 39.19	dBuV/m 54.00	dB -14.81	Detecto AVG	or com	nent
	500 38.41	10.70	49.11	74.00	-24.89	Peak		

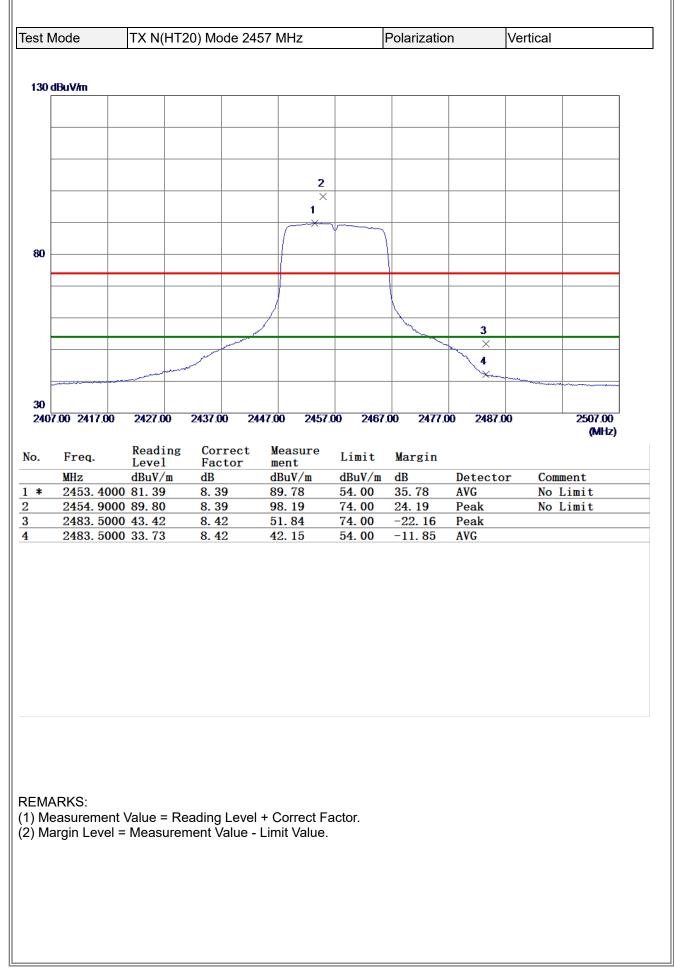






x     x     x       2     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x       x     x     x	
30     2	
30     2	
30     2	
30     2	
30       2	
30 30 	
30 30 	
-20	
20	
20	
1000.00 3550.00 6100.00 8650.00 11200.00 13750.00 16300.00 18850.00 21400.00	
	26500.00
Proding Connect Macauna	(MHz)
o. Freq. Reading Correct Measure Limit Margin Level Factor ment	
MHz dBuV/m dB dBuV/m dBuV/m dB Detector Commer	ıt
7307.400044.63       10.69       55.32       74.00       -18.68       Peak         *       7315.000033.59       10.70       44.29       54.00       -9.71       AVG	

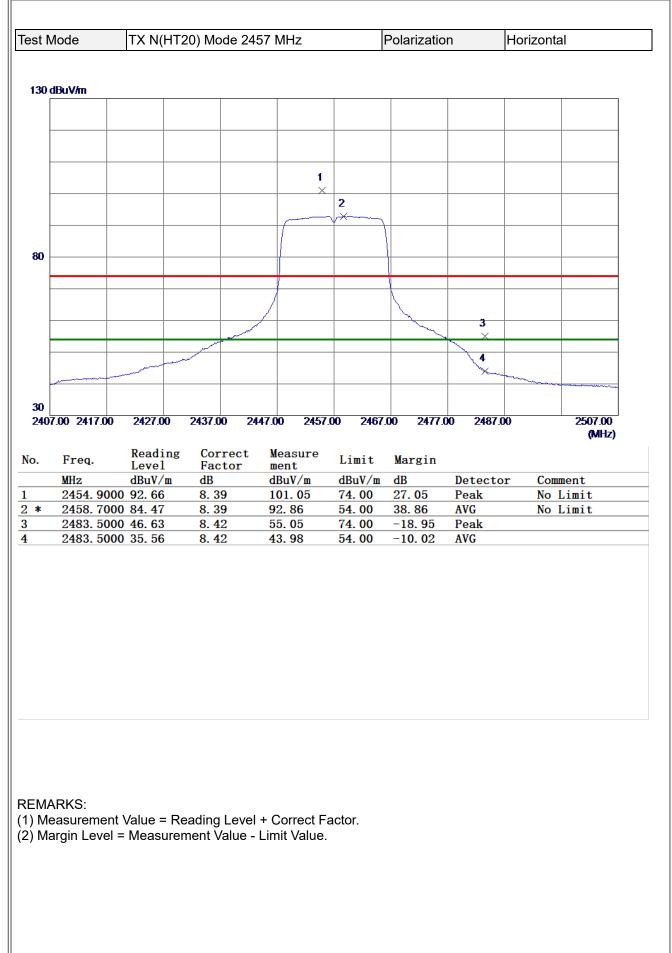






80 dBuV/m	
$\begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c } \hline \end{tabular} \\ \hline \e$	
×         ×         ×           2         ×            ×	
2	
30	
30	
-20	26500.00
	(MHz)
o. Freq. Reading Correct Measure Limit Margin Level Factor ment	
MHz dBuV/m dB dBuV/m dBuV/m dB Detector	Comment
7371.6500         42.73         10.77         53.50         74.00         -20.50         Peak           *         7371.6500         32.19         10.77         42.96         54.00         -11.04         AVG	

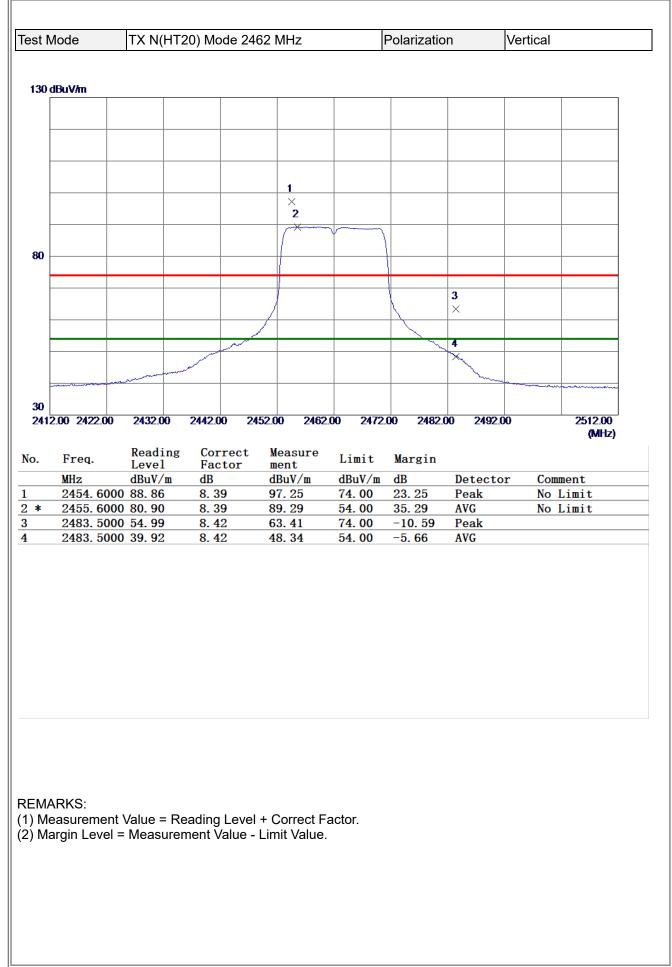






SUP	Node	TX N(H1	20) Mode 2	2457 MHz		Polarizatio	n	Horizontal
80 c	1BuV/m				1		1	
			2					
			×					
			1					
			×					
30								
-20								
100	0.00 3550.00	) 6100.00	8650.00	11200.00 13750	0.00 1630	0.00 18850	.00 21400.	00 26500.00 (MHz)
0.	Freq.	Reading	correc	t Measure	Limit	Margin		
0.	MHz	Level dBuV/m	Factor dB	ment dBuV/m	dBuV/m	dB	Detector	r Comment
*		00 35.35	10.77	46. 12	54.00	-7.88	AVG	
	7377.85	00 45.48	10.78	56.26	74.00	-17.74	Peak	
	ARKS:			el + Correct Fa				

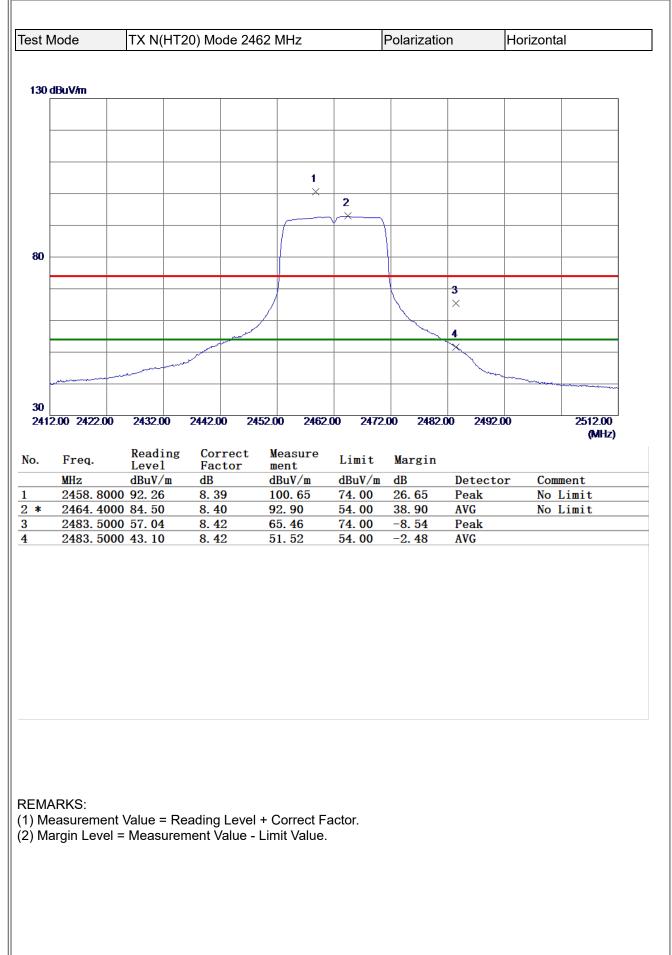






	е	TX N(H	T20) Mo	ode 246	2 MHz		Polarizatio	n	Vertical	
80 dBuV	/m									
			1 ×							
			2							
			×							
30										
20										
00.00	3550.00	6100.00	8650.0	00 112	00.00 1375	0.00 1630	0.00 18850	00 21400	.00	26500.00 (MHz)
-		Reading	z Coi	rrect	Measure					(1411 12)
o. Fi MH	req.	Level dBuV/m	Fac dB	ctor	ment	Limit dBuV/m	Margin dB	Detecto	or Comm	ant
	12 384. 6000		<u>10.</u>	79	dBuV/m 53.98	74.00	-20. 02	Detecto Peak		lent
* 73										
	386. <b>0000</b>	32.76	10.	79	43. 55	54.00	-10. 45	AVG		
MARK	( <b>S</b> :				43. 55 + Correct F					







0 dBuV/m			462 MHz		Polarizatio	n	Horizonta	al
0 dBuV/m								
1								
		2						
		X						
		1						
		×						
0								
0 000.00 3550.00	0 6100.00	8650.00 1	1200.00 137	50.00 1630	0.00 18850	.00 21400.	00	26500.00
00.00 3.50.0	0100.00	0000.00	1200.00 131	30.00 1030	0.00 100.00	.00 21400.	.00	(MHz)
Freq.	Reading	Correct	Measure	Limit	Margin			
MHz	Level dBuV/m	Factor dB	dBuV/m			Detecto	r Com	nent
	<u>авиу/ш</u> 500 36.40	10. 79	dBuV/m 47.19	dBuV/m 54.00	-6. 81	Detecto: AVG	r com	lient
	600 46.84	10.80	57.64	74.00	-16.36	Peak		



#### **APPENDIX E - BANDWIDTH**

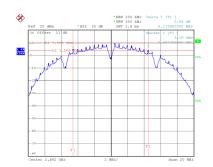


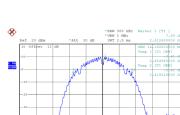
Test Mode TX B Mode								
Channel	nnel Frequency 6 dB Bandwidth (MHz) (MHz)		99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result			
01	2412	9.55	14.16	0.50	Complies			
06	2437	10.10	14.16	0.50	Complies			
11	2462	9.12	14.16	0.50	Complies			





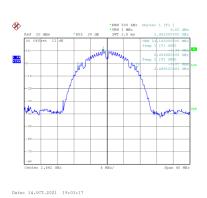
CH11











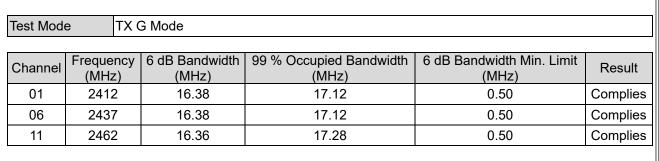
Date: 14.0CT.2021 18:58:39

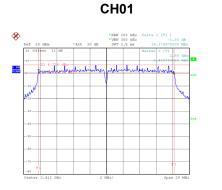
Date: 14.0CT.2021 18:58:30

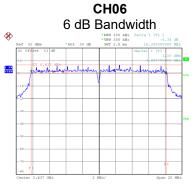
Date: 14.0CT.2021 19:00:46

Date: 14.0CT.2021 19:00:38

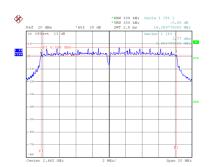


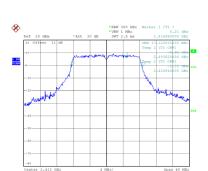


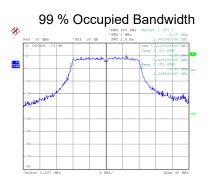




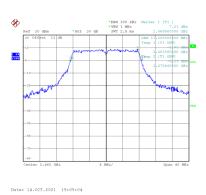
CH11







Date: 14.0CT.2021 19:08:55



Date: 14.0CT.2021 19:05:27

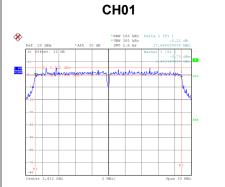
Date: 14.0CT.2021 19:05:18

Date: 14.0CT.2021 19:07:24

Date: 14.0CT.2021 19:07:15



Test Mode	Test Mode TX N(HT20) Mode								
ChannelFrequency (MHz)6 dB Bandwidth (MHz)99 % Occupied Bandwidth (MHz)6 dB Bandwidth Min. Limit (MHz)Result									
01	2412	17.66	18.16	0.50	Complies				
06	2437	17.66	18.08	0.50	Complies				
11	2462	17.62	18.08	0.50	Complies				
	CH01		CH06	CH11					

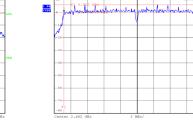




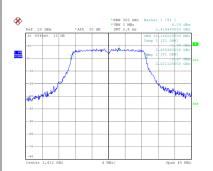
Date: 14.0CT.2021 19:12:32

Date: 14.0CT.2021 19:12:41

• RBW 100 kH: • VBW 300 kH: SWT 2.5 mm



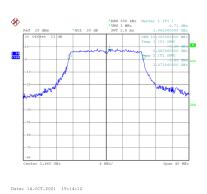
Date: 14.0CT.2021 19:10:28



99 % Occupied Bandwidth Ø 1 PK VIEW .hu

Date: 14.0CT.2021 19:14:03

8



Date: 14.0CT.2021 19:10:36

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



Test Mode TX B Mode									
Channel	Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Average Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result		
01	2412	18.13	0.00	18.13	30.00	1.0000	Complies		
06	2437	18.17	0.00	18.17	30.00	1.0000	Complies		
11	2462	18.28	0.00	18.28	30.00	1.0000	Complies		
Test Mode TX G Mode									
Channel	Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Average Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result		
	1			· · · · ·		1			

		()		(dBm)			
01	2412	18.09	0.28	18.37	30.00	1.0000	Complies
06	2437	18.17	0.28	18.45	30.00	1.0000	Complies
11	2462	18.21	0.28	18.49	30.00	1.0000	Complies

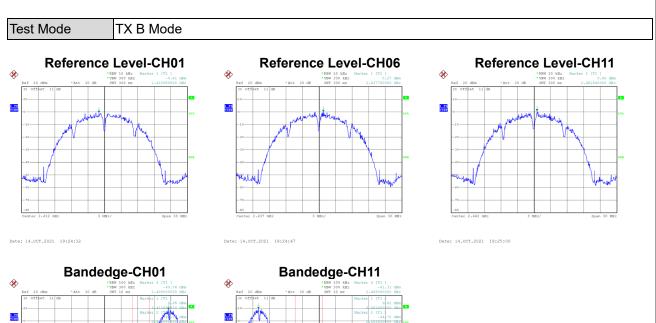
Test Mode T	X N(HT20) Mode
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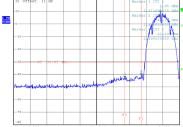
Channel	Frequency (MHz)	Average Output Power (dBm)	Duty Factor	Average Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	17.08	0.28	17.36	30.00	1.0000	Complies
06	2437	17.13	0.28	17.41	30.00	1.0000	Complies
11	2462	17.26	0.28	17.54	30.00	1.0000	Complies

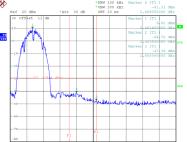


#### **APPENDIX G - CONDUCTED SPURIOUS EMISSIONS**





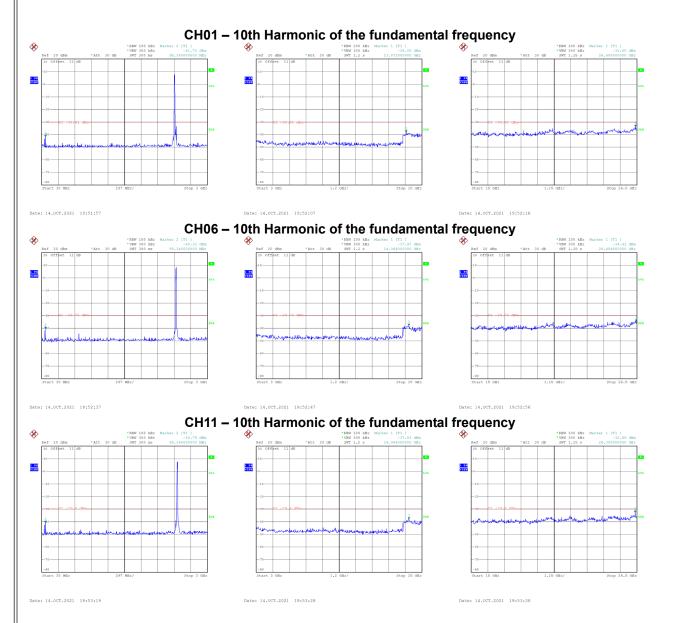




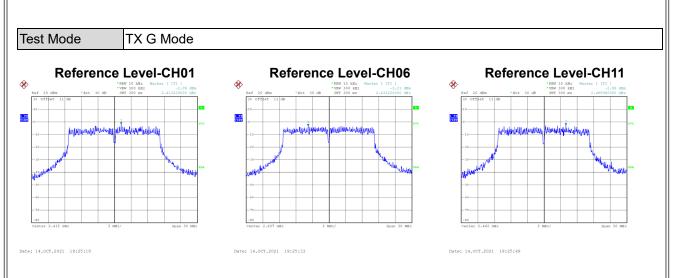
Date: 14.0CT.2021 19:31:01

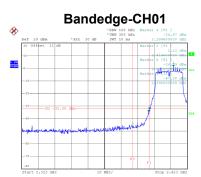
Date: 14.0CT.2021 19:32:38



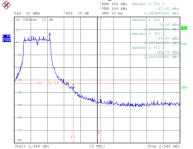








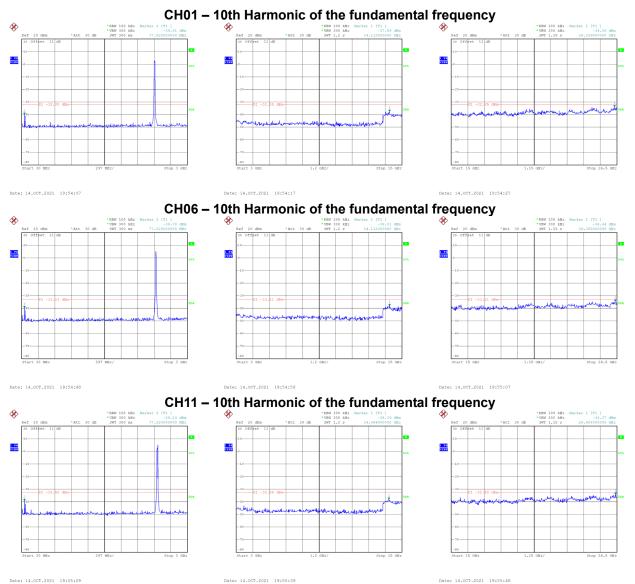
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 So bit So



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Date: 14.0CT.2021 19:55:39