

# **FCC Radio Test Report**

# FCC ID: TE7C80

This report concerns: Original Grant

Project No.	:	1907C038
Equipment	:	AC1900 MU-MIMO Wi-Fi Router
Brand Name	:	tp-link
Test Model	:	Archer C80
Series Model	:	N/A
Applicant	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Manufacturer	:	TP-Link Technologies Co., Ltd.
Address	:	Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Date of Receipt	:	
Date of Test	:	
Issued Date	:	Nov. 06, 2019
<b>Report Version</b>	:	R01
Test Sample	:	Engineering Sample No.: DG190703116 for conducted,
		DG190703117 for radiated.
Standard(s)	:	FCC Part15, Subpart C (15.247) ANSI C63.10-2013 FCC KDB 558074 D01 DTS Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01

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

 Kar
 Xu

 Prepared by : Kai Xu

Chan Ma

Approved by : Ethan Ma



Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China. Tel: +86-769-8318-3000 Web: www.newbtl.com



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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

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.	Oct. 29, 2019
R01	Updated the description in Section 2.1 note(4).	Nov. 06, 2019

# 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

	FCC Part15, Subpart C (15.247)						
Standard(s) Section	Test Item	Test Result	Judgment	Remark			
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS				
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS				
15.247(a)(2)	Bandwidth	APPENDIX E	PASS				
15.247(b)(3)	Maximum 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 Road, Shixia, Dalang Town, Dongguan, Guangdong, 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	150 kHz ~ 30 MHz	2.32

B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)								
		9kHz ~ 30MHz	V	3.79								
		9kHz ~ 30MHz	Н	3.57								
		30MHz ~ 200MHz	V	4.88								
		30MHz ~ 200MHz	Н	4.14								
DG-CB03	CISPR	CISPR								200MHz ~ 1,000MHz	V	4.62
DG-CB03			200MHz ~ 1,000MHz	Н	4.80							
		1GHz ~ 6GHz	-	4.58								
										6GHz ~ 18GHz	-	5.18
							18GHz ~ 26.5GHz	-	3.80			
		26.5GHz ~ 40GHz	-	4.30								

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	Robin Zhuang
Radiated Emissions-9K-30MHz	25°C	60%	AC 120V/60Hz	Robin Zhuang
Radiated Emissions-30 MHz to 1GHz	24°C	68%	AC 120V/60Hz	Laughing Zhang
Radiated Emissions-Above 1000 MHz	27°C	63%	AC 120V/60Hz	Laughing Zhang
Bandwidth	27°C	56%	AC 120V/60Hz	Jonas Chen
Maximum Average output power	27°C	56%	AC 120V/60Hz	Jonas Chen
Conducted Spurious Emissions	27°C	56%	AC 120V/60Hz	Jonas Chen
Power Spectral Density	27°C	56%	AC 120V/60Hz	Jonas Chen



# 2. GENERAL INFORMATION

# 2.1 GENERAL DESCRIPTION OF EUT

Equipment	AC1900 MU-MIMO Wi-Fi Router			
• •	tp-link			
Test Model	Archer C80			
Series Model	N/A			
Model Difference(s)	N/A			
Power Source	DC voltage supplied from AC/DC adapter. Model: T120150-2B1			
Power Rating	I/P: 100-240V~ 50/60Hz, 0.6A O/P: 12V === 1.5A			
Operation Frequency	2412 MHz ~ 2462 MHz			
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM IEEE vht: 256QAM			
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 450 Mbps IEEE vht: up to 600 Mbps			
Maximum Average Output Power for Non Beamforming	IEEE 802.11b: 26.59 dBm (0.4562 W) IEEE 802.11g: 27.56 dBm (0.5697 W) IEEE 802.11n (HT20): 27.57 dBm (0.5719 W) IEEE 802.11n (HT40): 24.74 dBm (0.2977 W) IEEE vht20: 27.99 dBm (0.5131 W) IEEE vht40: 25.30 dBm (0.2248 W)			
Maximum Average Output         IEEE Vnt40: 25:30 dBm (0.2248 W)           Power         IEEE 802.11n (HT20): 26.97 dBm (0.3992 W)           IEEE 802.11n (HT40): 23.52 dBm (0.2248 W)           IEEE vht20: 27.64 dBm (0.4728 W)           IEEE vht40: 23.30 dBm (0.1417 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	CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20), IEEE vht20						
	CH03 - CH09 for IEEE 802.11n (HT40), IEEE vht40						
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

#### 3. Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	<b>TP-LINK</b> °	3101502663	Dipole	Weld	3
2	<b>TP-LINK</b> <sup>®</sup>	3101502666	Dipole	Weld	3
3	<b>TP-LINK</b> °	3101502664	Dipole	Weld	3

Note:

This EUT supports CDD, and all antennas have the same gain, Directional gain =  $G_{ANT}$ +Array Gain, where Array Gain is as follows:

(1) Non Beamforming Function,

For power spectral density measurements,  $N_{ANT} = 3$ ,  $N_{SS} = 1$ . So Directional gain =  $G_{ANT}$  + Array Gain =10log ( $N_{ANT}$ /  $N_{SS}$ ) dB =3+10log(3/1)dBi=7.77. Then, the power density limit is 8-(7.77-6)=6.23.

For power measurements, Array Gain = 0 dB ( $N_{ANT} \le 4$ ), so the Directional gain=3.

(2) Beamforming Function, Beamforming Gain: 4.77 dB. So Directional gain = 4.77+3=7.77. Then, the average output power limit is 30-(7.77-6)=28.23. The power density limit is 8-(7.77-6)=6.23.

## 4. Table for Antenna Configuration:

For Non Beamforming Function:

Operating Mode TX Mode	3TX
IEEE 802.11b	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11g	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11n (HT20)	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11n (HT40)	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE vht20	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE vht40	V (Ant. 1 + Ant. 2 + Ant. 3)

For With Beamforming Function:

Operating Mode TX Mode	ЗТХ
IEEE 802.11n (HT20)	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE 802.11n (HT40)	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE vht20	V (Ant. 1 + Ant. 2 + Ant. 3)
IEEE vht40	V (Ant. 1 + Ant. 2 + Ant. 3)



# 2.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX vht-20 MHz Mode Channel 01/06/11
Mode 6	TX vht-40 MHz Mode Channel 03/06/09
Mode 7	TX vht-20 MHz 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-20 MHz Mode Channel 01/02/06/10/11
Mode 11	TX N-40 MHz Mode Channel 03/04/06/08/09
Mode 12	TX vht-20 MHz Mode Channel 01/02/06/10/11
Mode 13	TX vht-40 MHz Mode Channel 03/04/06/08/09

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

	AC power line conducted emissions test
Final Test Mode	Description
Mode 7	TX vht-20 MHz Mode Channel 06

	Radiated emissions test - Below 1GHz
Final Test Mode	Description
Mode 7	TX vht-20 MHz Mode Channel 06



Radiated emissions test - Above 1GHz for Non Beamforming		
Final Test Mode	Description	
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-20 MHz Mode Channel 01/02/06/10/11	
Mode 11	TX N-40 MHz Mode Channel 03/04/06/08/09	
Mode 12	TX vht-20 MHz Mode Channel 01/02/06/10/11	
Mode 13	TX vht-40 MHz Mode Channel 03/04/06/08/09	

Radiated emissions test - Above 1GHz for With Beamforming		
Final Test Mode	Description	
Mode 10	TX N-20 MHz Mode Channel 01/02/06/10/11	
Mode 11	TX N-40 MHz Mode Channel 03/04/06/08/09	
Mode 12	TX vht-20 MHz Mode Channel 01/02/06/10/11	
Mode 13	TX vht-40 MHz Mode Channel 03/04/06/08/09	

Average output power test for Non Beamforming		
Final Test Mode	Description	
Mode 1	TX B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N-20 MHz Mode Channel 01/06/11	
Mode 4	TX N-40 MHz Mode Channel 03/06/09	
Mode 5	TX vht-20 MHz Mode Channel 01/06/11	
Mode 6	TX vht-40 MHz Mode Channel 03/06/09	

Average output power test for With Beamforming	
Final Test Mode	Description
Mode 3	TX N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX vht-20 MHz Mode Channel 01/06/11
Mode 6	TX vht-40 MHz Mode Channel 03/06/09

Other conducted tests		
Final Test Mode	Description	
Mode 1	TX B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N-20 MHz Mode Channel 01/06/11	
Mode 4	TX N-40 MHz Mode Channel 03/06/09	
Mode 5	TX vht-20 MHz Mode Channel 01/06/11	
Mode 6	TX vht-40 MHz Mode Channel 03/06/09	

NOTE:

- (1) The measurements are performed at the high, middle, low available channels.
- (2) For radiated emission below 1 GHz test, the IEEE vht20 channel 06 is found to be the worst case and recorded.
- (3) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (4) For radiated emission above 1 GHz test, 1GHz~26.5GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

# 2.3 PARAMETERS OF TEST SOFTWARE

	Non Beamfo	orming	
Test Software		ATool_V1.0.1	
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	36	35	40
IEEE 802.11g	32	42	31
IEEE 802.11n (HT20)	31	42	31
IEEE vht20	31	42	31
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	26	35	23
IEEE vht40	26	35	23

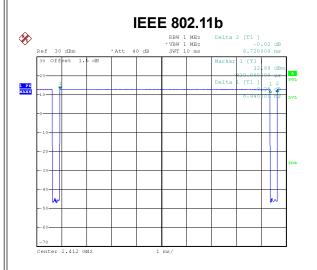
# With Beamforming

Test Software		ATool_V1.0.1	
Frequency (MHz)	2412	2437	2462
IEEE 802.11n (HT20)	30	42	29
IEEE vht20	29	42	27
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	25	32	20
IEEE vht40	25	31	21

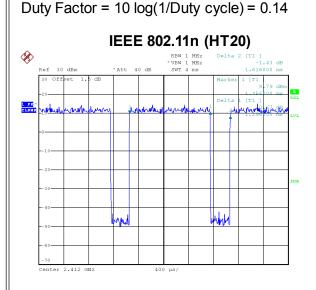


# 2.4 DUTY CYCLE

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.



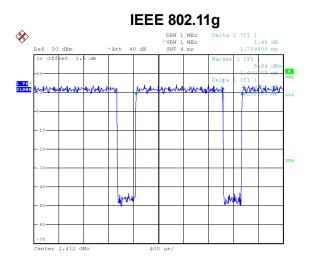
Date: 8.JUL.2019 21:36:52



Duty cycle = 8.440 ms/8.720 ms = 96.79%

Date: 8.JUL.2019 21:37:38

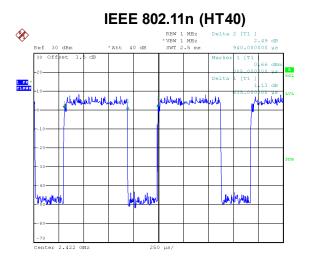
Duty cycle = 1.296 ms/1.616 ms = 80.20%
Duty Factor = 10 log(1/Duty cycle) = 0.96



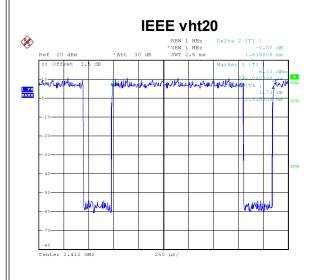
Date: 8.JUL.2019 21:37:16

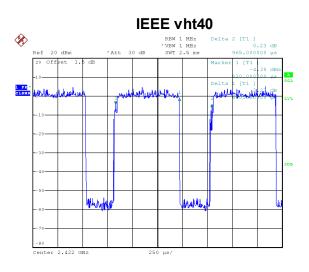
Date: 8.JUL.2019 21:38:09

Duty cycle = 1.392 ms/1.704 ms = 81.69% Duty Factor = 10 log(1/Duty cycle) = 0.88



Duty cycle = 0.635 ms/0.940 ms = 67.55%Duty Factor =  $10 \log(1/\text{Duty cycle}) = 1.70$ 





Date: 22.JUL.2019 16:21:28

Duty cycle = 1.315 ms/1.615 ms = 81.42% Duty Factor = 10 log(1/Duty cycle) = 0.89 Date: 22.JUL.2019 16:22:06

Duty cycle = 0.640 ms/0.965 ms = 66.32% Duty Factor = 10 log(1/Duty cycle) = 1.78

# NOTE:

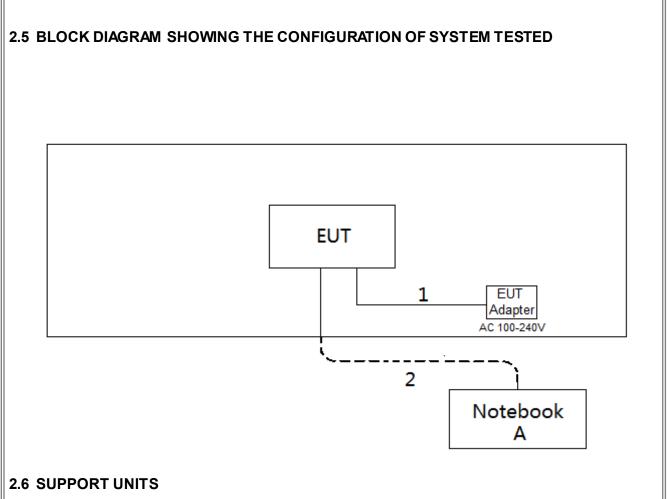
For IEEE 802.11g, IEEE 802.11n (HT20) and IEEE vht20:

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

# For IEEE 802.11n (HT40) and IEEE vht40:

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





# ItemEquipmentBrandModel No.Series No.ANotebookDellInspiron 15-7559N/A

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



# 3. AC POWER LINE CONDUCTED EMISSIONS TEST

# 3.1 LIMIT

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

NOTE:

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

#### The following table is the setting of the receiver

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

## 3.2 TEST PROCEDURE

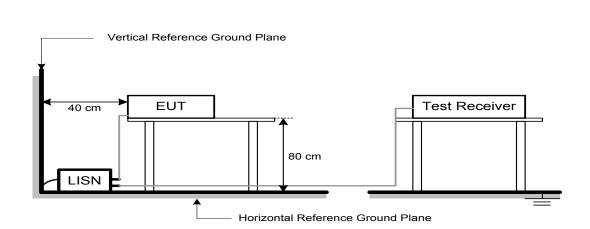
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

# 3.3 DEVIATION FROM TEST STANDARD

No deviation



# 3.4 TEST SETUP



# 3.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

# 3.6 TEST RESULTS

Please refer to the APPENDIX A.



# 4. RADIATED EMISSIONS TEST

# 4.1 LIMIT

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

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

Frequency	Field Strength	Measurement Distance (meters)	
(MHz)	(microvolts/meter)		
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)

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

NOTE:

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

Report No.: BIL-FCCP-1-19		
Spectrum Parameter	Setting	
Attenuation	Auto	
Start Frequency	1000 MHz	
Stop Frequency	10th carrier harmonic	
RBW / VBW	1 MHz / 3 MHz for Peak,	
(Emission in restricted band)	1 MHz / 1/T for Average	
Receiver Parameter	Setting	
Attenuation	Auto	
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector	
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector	

Start ~ Stop Frequency110 kHz~490 kHz for PK/AVG detectorStart ~ Stop Frequency490 kHz~30 MHz for QP detectorStart ~ Stop Frequency30 MHz~1000 MHz for QP detector

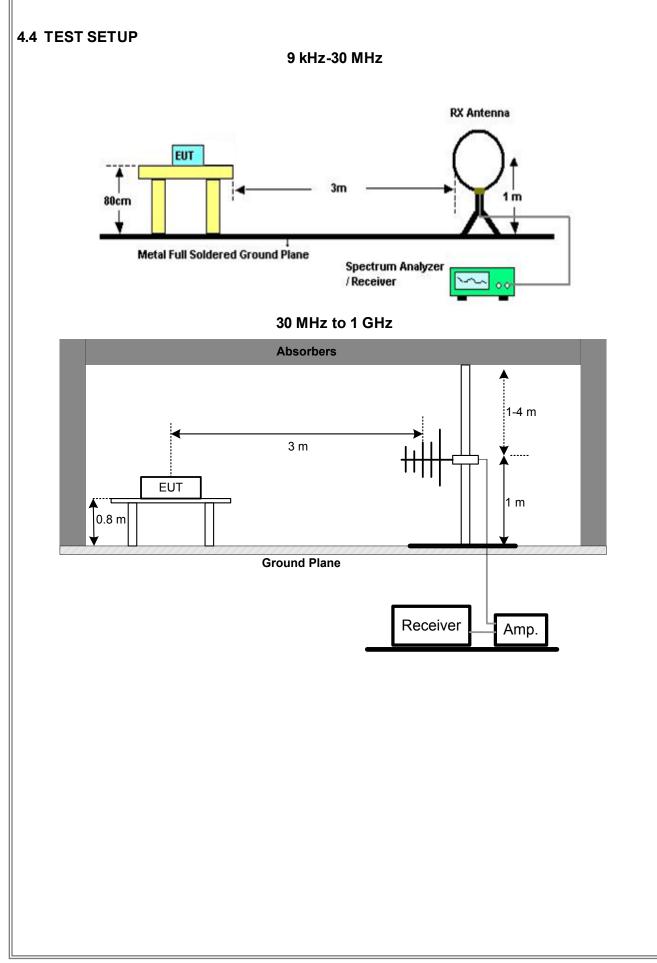
# 4.2 TEST PROCEDURE

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

# 4.3 DEVIATION FROM TEST STANDARD

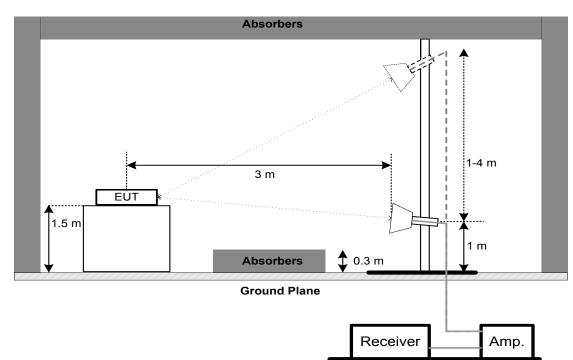
No deviation





# **3**โL

# Above 1 GHz



# 4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

# 4.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).

(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

# 4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

# 4.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

# Remark:

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



# 5. BANDWIDTH TEST

# 5.1 LIMIT

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

## 5.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. For 6dB Bandwidth Spectrum setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.
   For 99% OBW Spectrum Setting: For B,G,N20,vht20 mode: RBW= 300KHz, VBW=1MHz, For N40, vht40 mode: RBW= 1MHz, VBW=3MHz, Sweep time = 2.5 ms.
- c. The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

## 5.3 DEVIATION FROM STANDARD

No deviation.

# 5.4 TEST SETUP



## 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 TEST

## 6.1 LIMIT

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

#### 6.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum conducted output power was performed in accordance with method 11.9.2.3.1 of ANSI C63.10-2013 and FCC KDB 662911 D01 v02r01 Multiple Transmitter Output.

#### 6.3 DEVIATION FROM STANDARD

No deviation.

## 6.4 TEST SETUP

EUT	Power Meter

## 6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 6.6 TEST RESULTS

Please refer to the APPENDIX F.



# 7. CONDUCTED SPURIOUS EMISSIONS

# 7.1 LIMIT

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

## 7.2 TEST PROCEDURE

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

## 7.3 DEVIATION FROM STANDARD

No deviation.

# 7.4 TEST SETUP



SPECTRUM ANALYZER

## 7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 7.6 TEST RESULTS

Please refer to the APPENDIX G.



# 8. POWER SPECTRAL DENSITY TEST

# 8.1 LIMIT

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

#### 8.2 TEST PROCEDURE

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

# 8.3 DEVIATION FROM STANDARD

No deviation.

# 8.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

# 8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 8.6 TEST RESULTS

Please refer to the APPENDIX H.



# 9. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 10, 2020	
2	LISN	EMCO	3816/2	52765	Mar. 10, 2020	
3	TWO-LINE V-NETWORK	R&S	ENV216	101447	May. 19, 2020	
4	50Ω Terminator	SHX	TF5-3	15041305	Mar. 10, 2020	
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
6	Cable	N/A	RG223	12m	Mar. 12, 2020	

	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	Jan. 15, 2020	
2	Cable	N/A	RG 213/U	C-102	May 31, 2020	
3	EMI Test Receiver	R&S	ESCI	100895	Mar. 10, 2020	
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - 30 MHz to 1 GHz					
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2020	
2*	Amplifier	HP	8447D	2944A09673	Aug. 11, 2021	
3	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020	
4	Cable	emci	LMR-400(30MHz- 1GHz)(8m+5m)	N/A	May 24, 2020	
5	Controller	СТ	SC100	N/A	N/A	
6	Controller	MF	MF-7802	MF780208416	N/A	
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - Above 1 GHz				
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 09, 2020
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 23, 2020
3	Amplifier	Agilent	8449B	3008A02333	Mar. 10, 2020
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 10, 2020
5	Receiver	Agilent	N9038A	MY52130039	Aug. 03, 2020
6	Controller	СТ	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	mitron	B10-01-01-12M	18072744	Jun. 29, 2020
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A



	Bandwidth & Antenna Conducted Spurious Emissions & Power Spectral Density					
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1EXA Spectrum AnalyzerAgilentN9010AMY55150209Ma					Mar. 10, 2020	
Maximum Average Output Power						

	Maximum Average Output Power				
ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Aug. 03, 2020
2	Wideband power sensor	Keysight	N1923A	MY58310004	Aug. 03, 2020

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

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

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



# 10. EUT TEST PHOTO

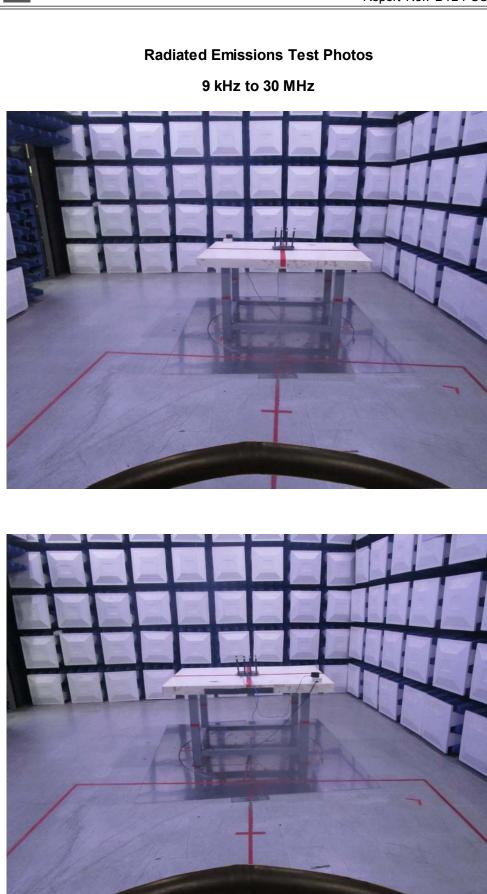


# AC Power Line Conducted Emissions Test Photos

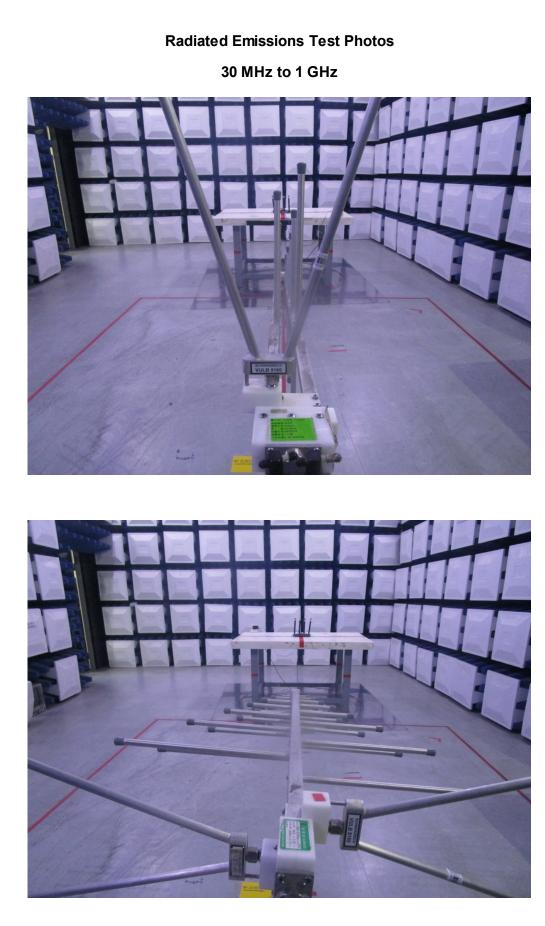










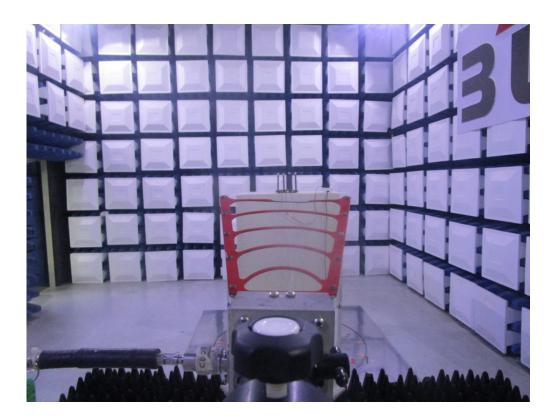




# **Radiated Emissions Test Photos**

Above 1 GHz

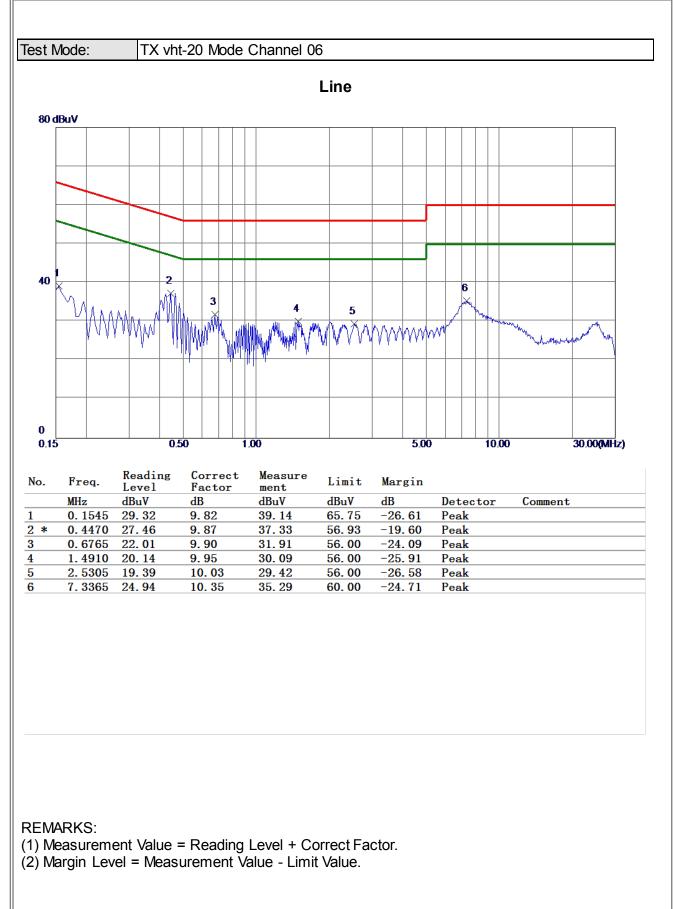




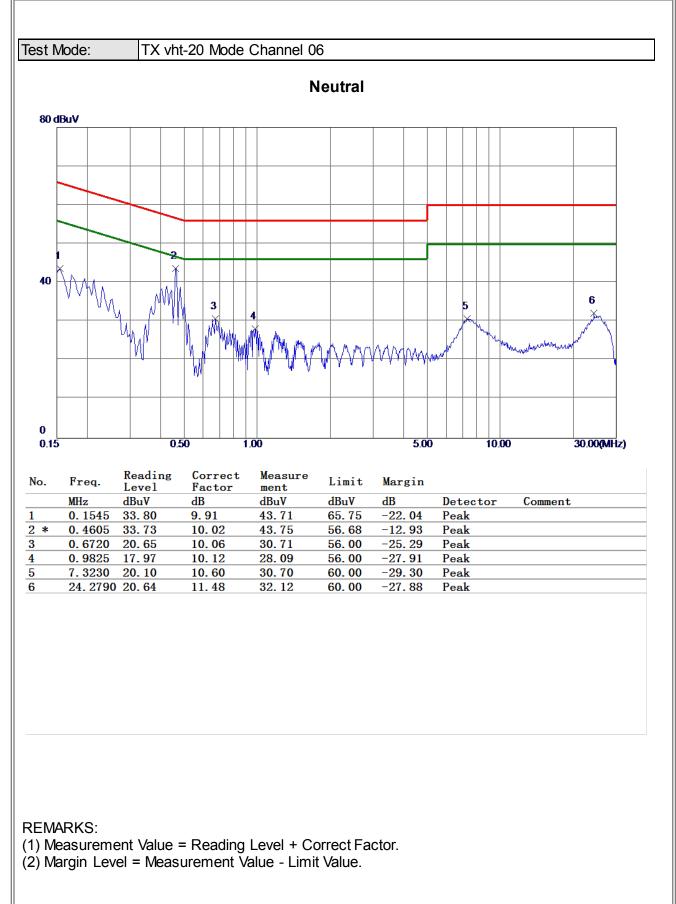


# APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS



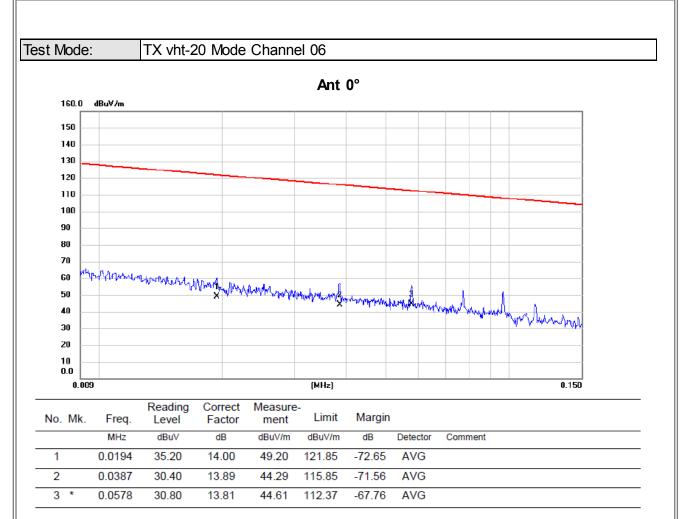






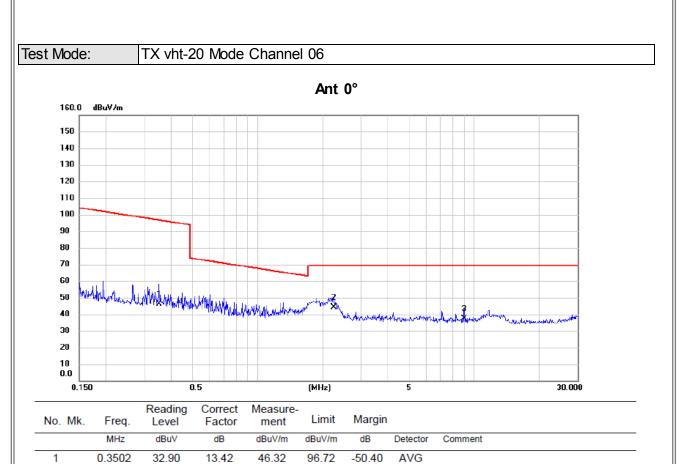
## APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ





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





2 \*

3

2.2486

8.9637

32.60

25.80

11.67

11.47

44.27

37.27

69.54

69.54

-25.27

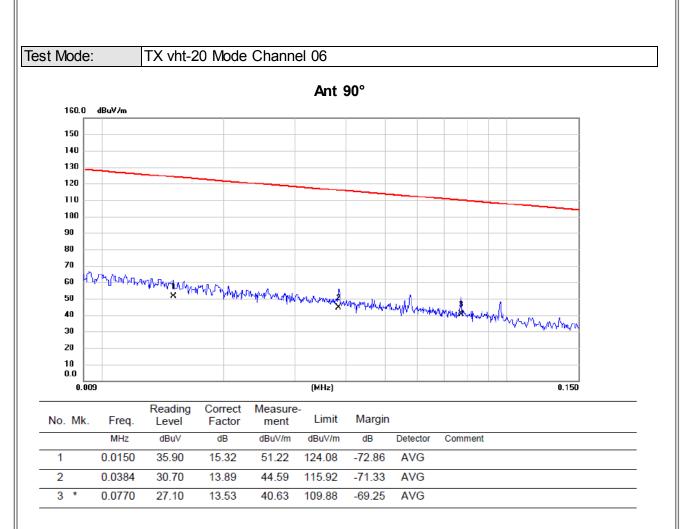
-32.27

QP

QP

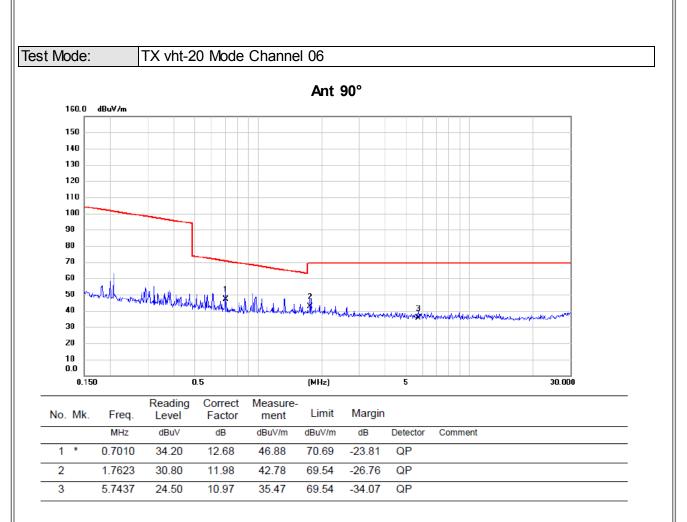
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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



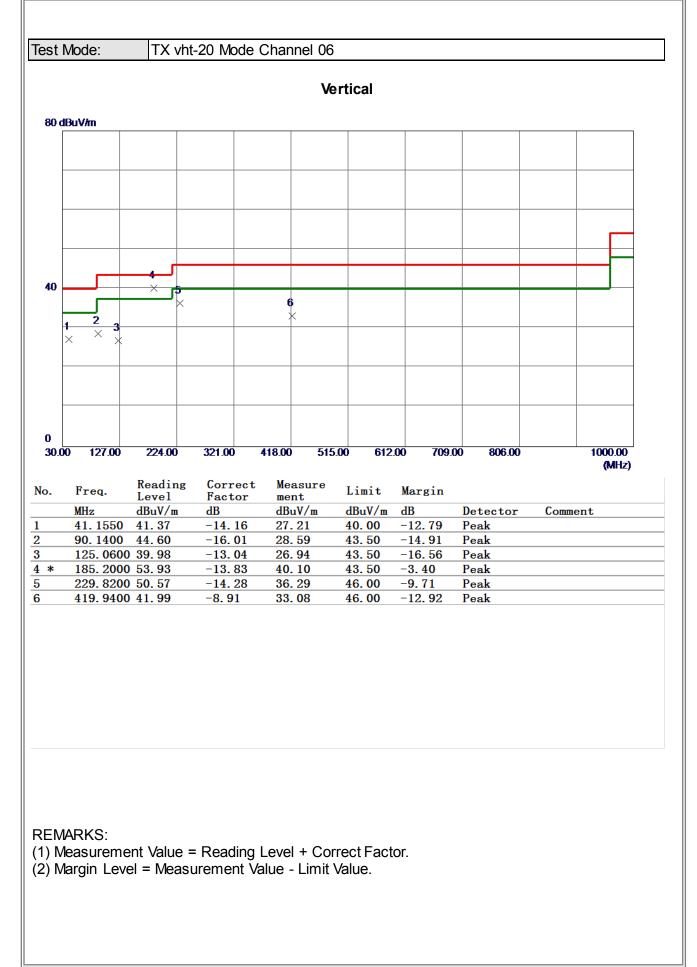


- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.

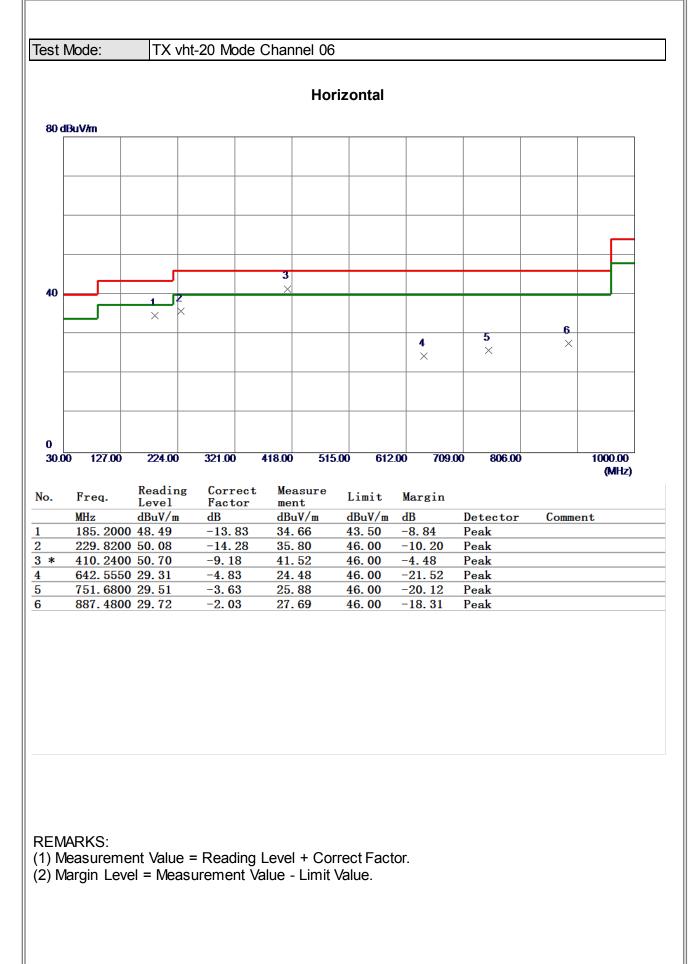


## APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ



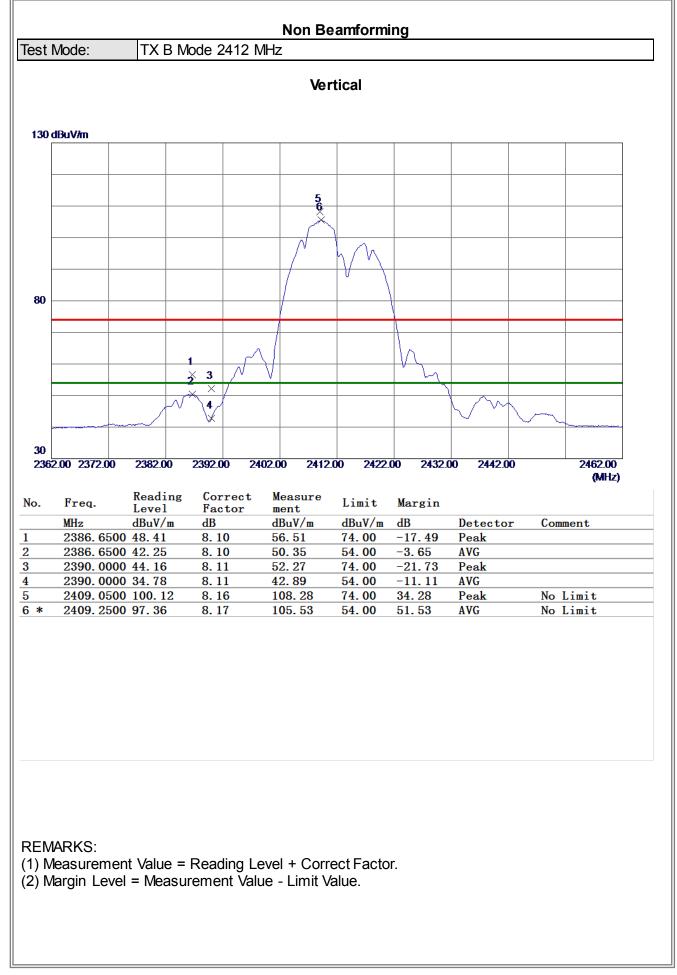




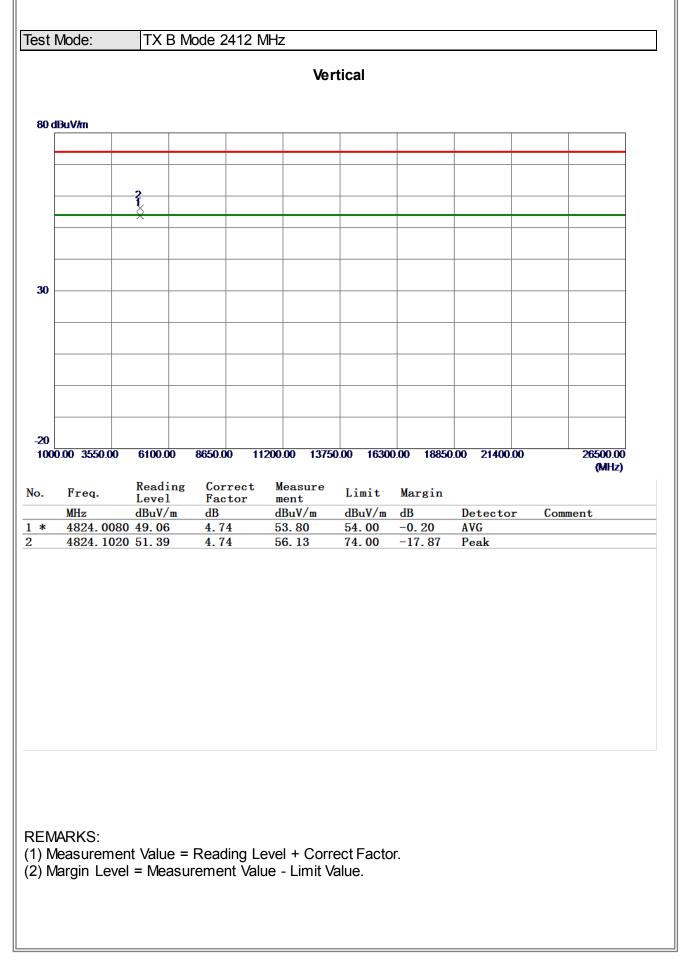


## APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ

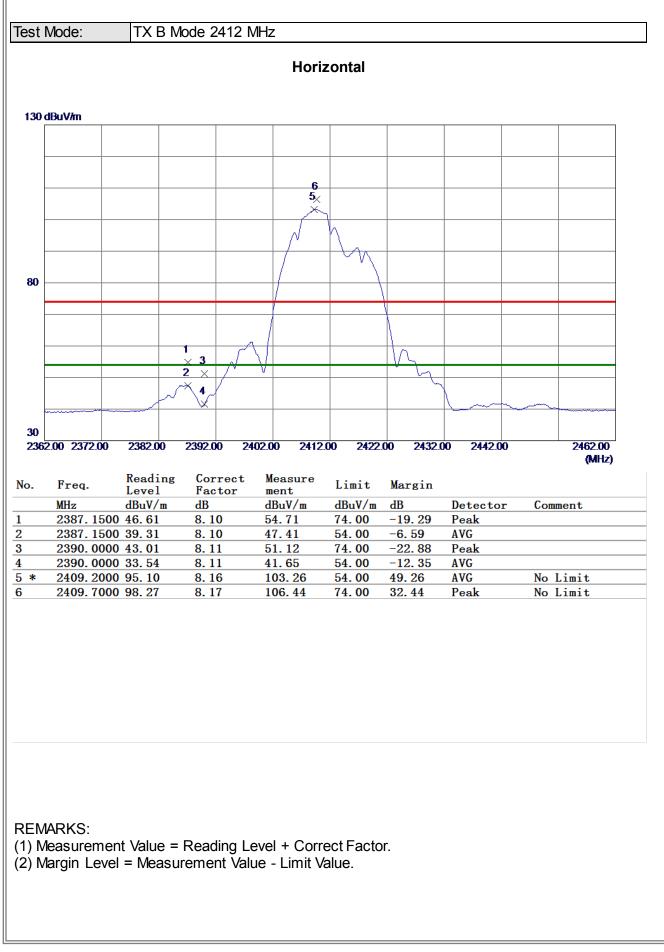




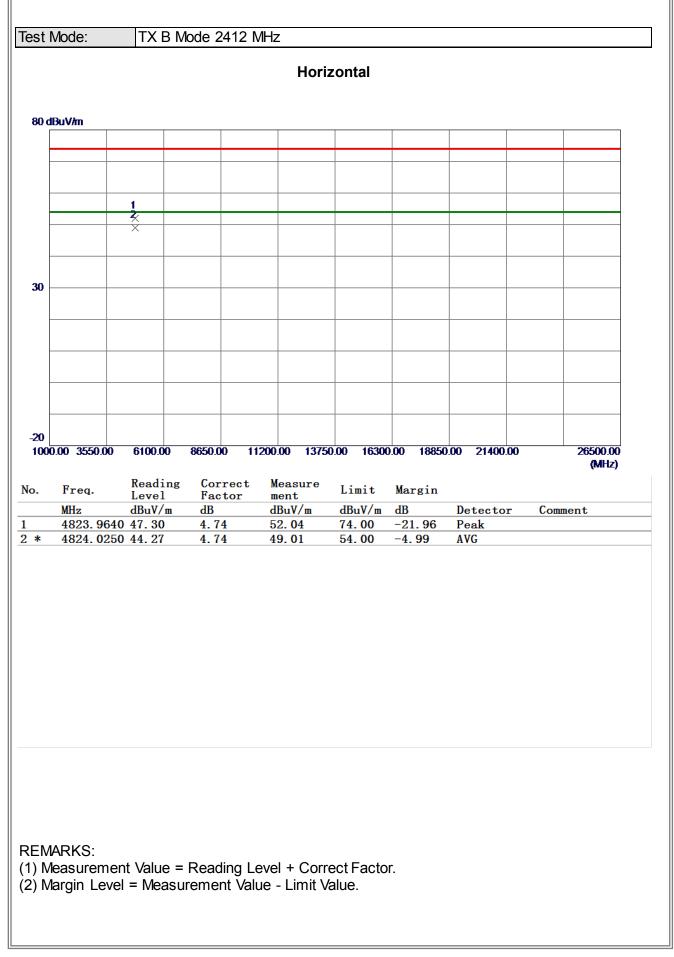




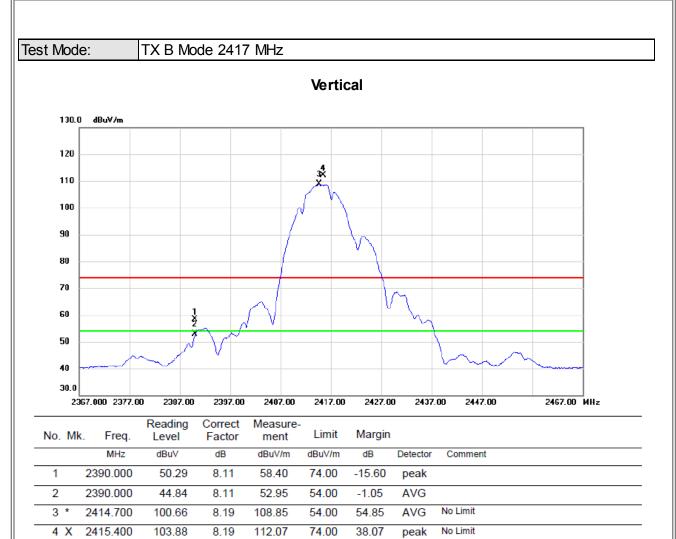






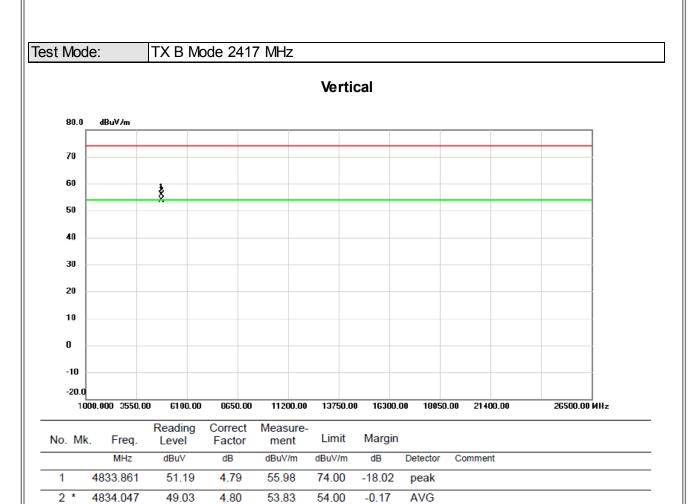






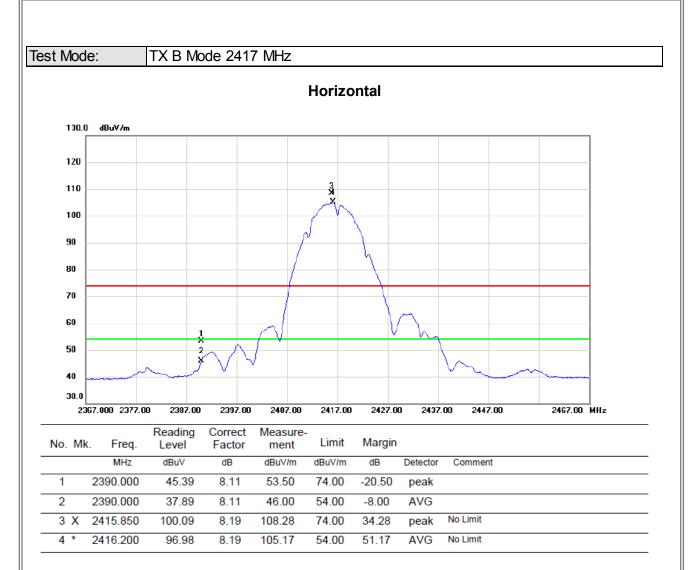
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





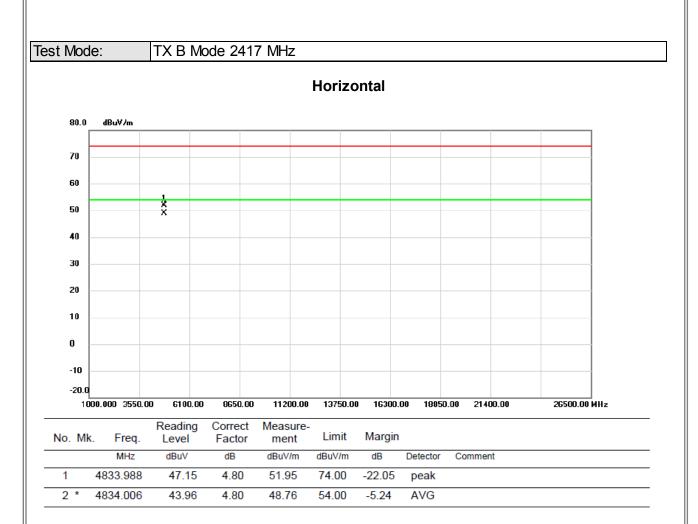
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





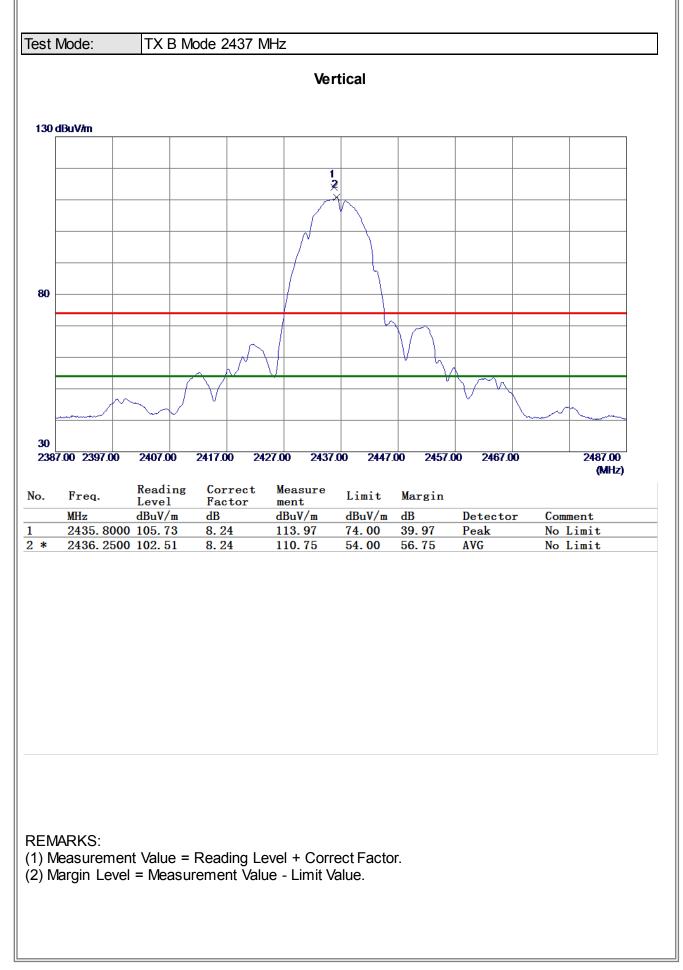
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



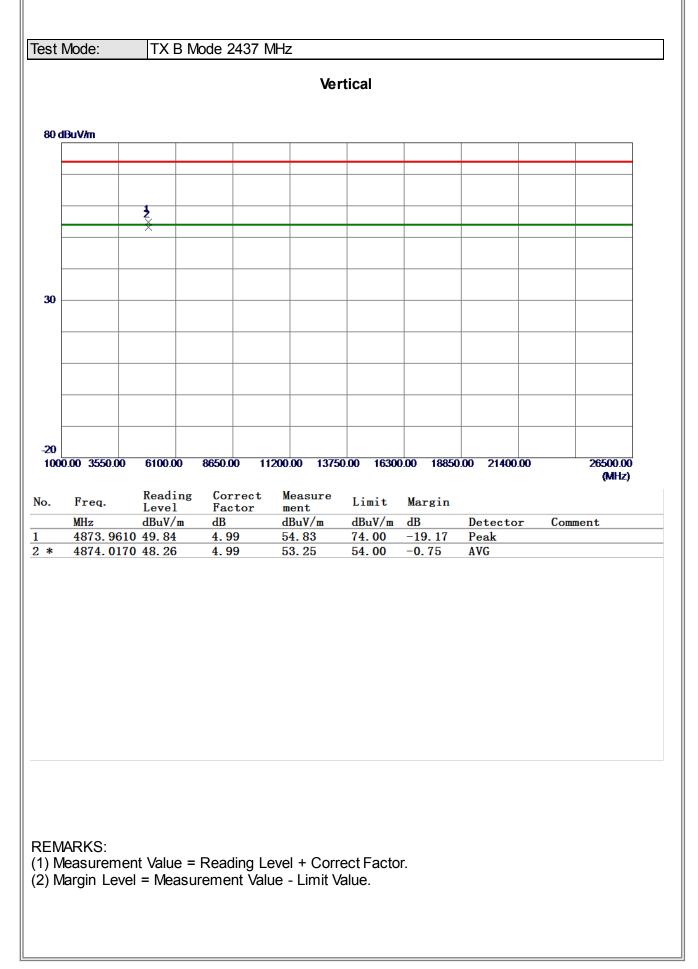


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

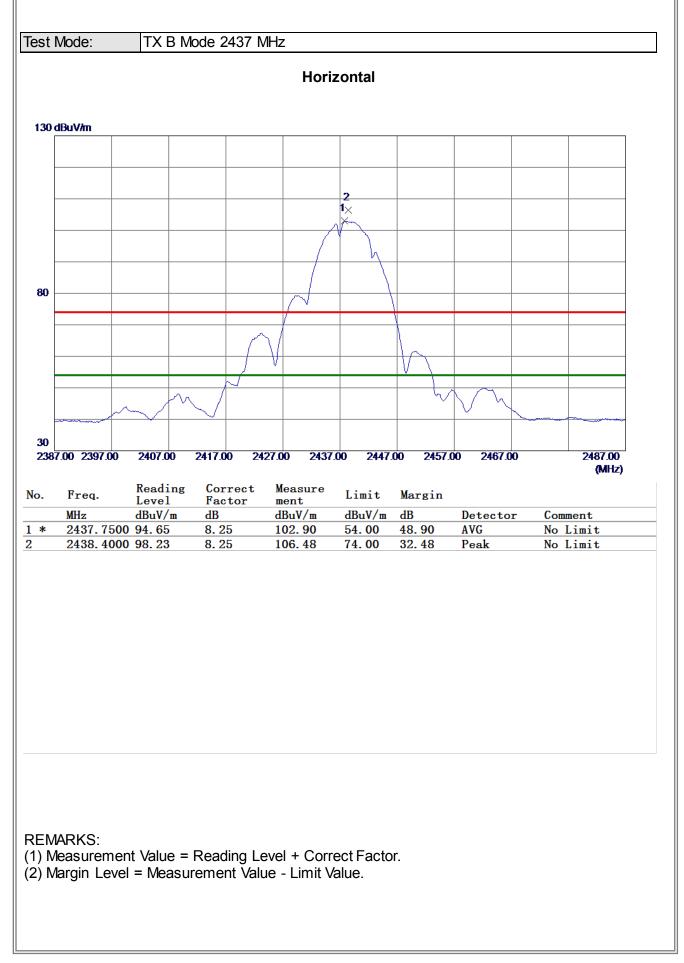




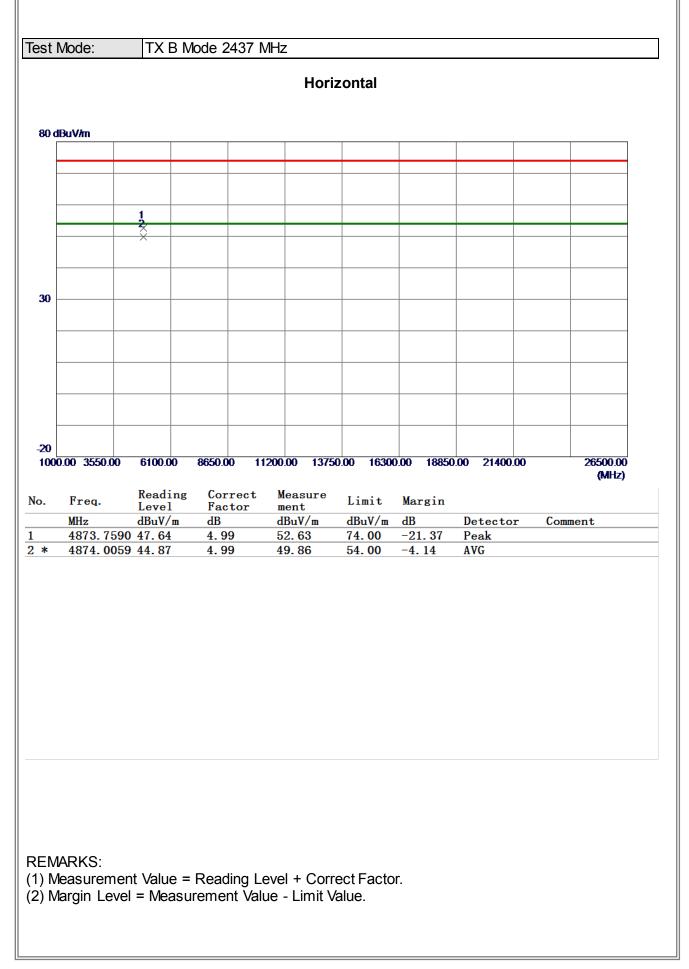




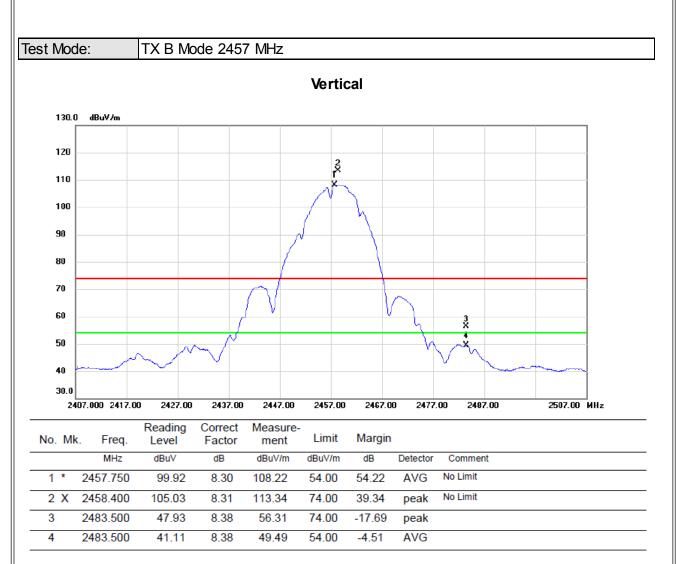






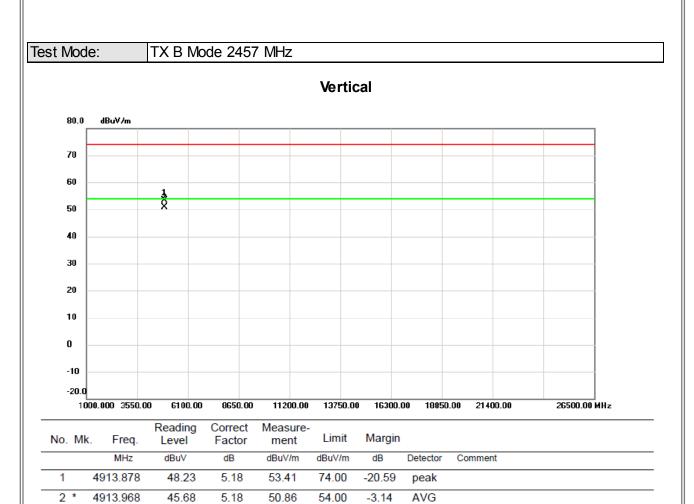






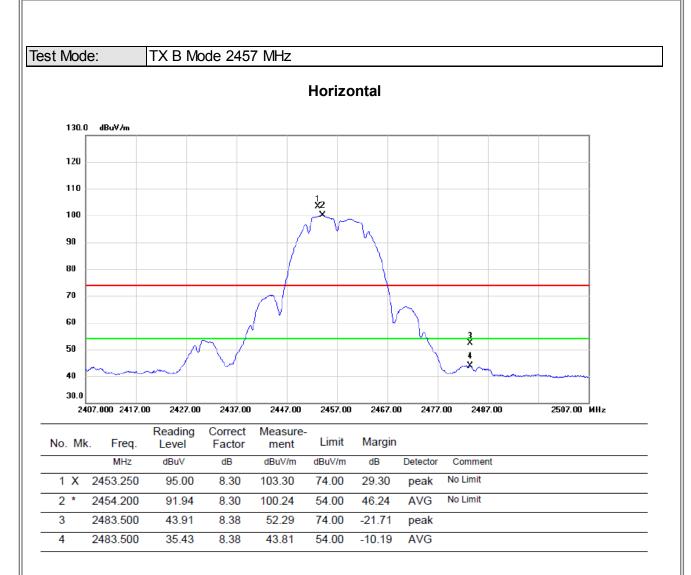
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





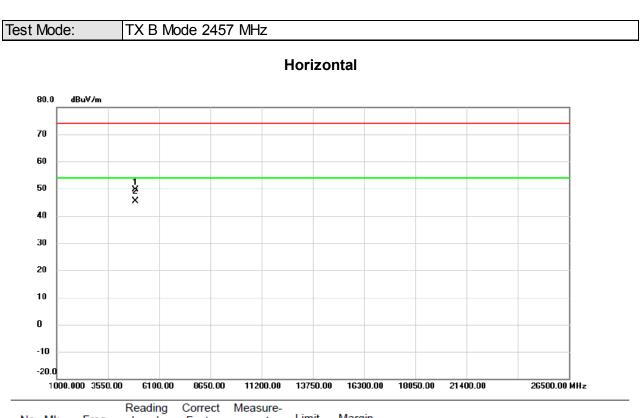
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

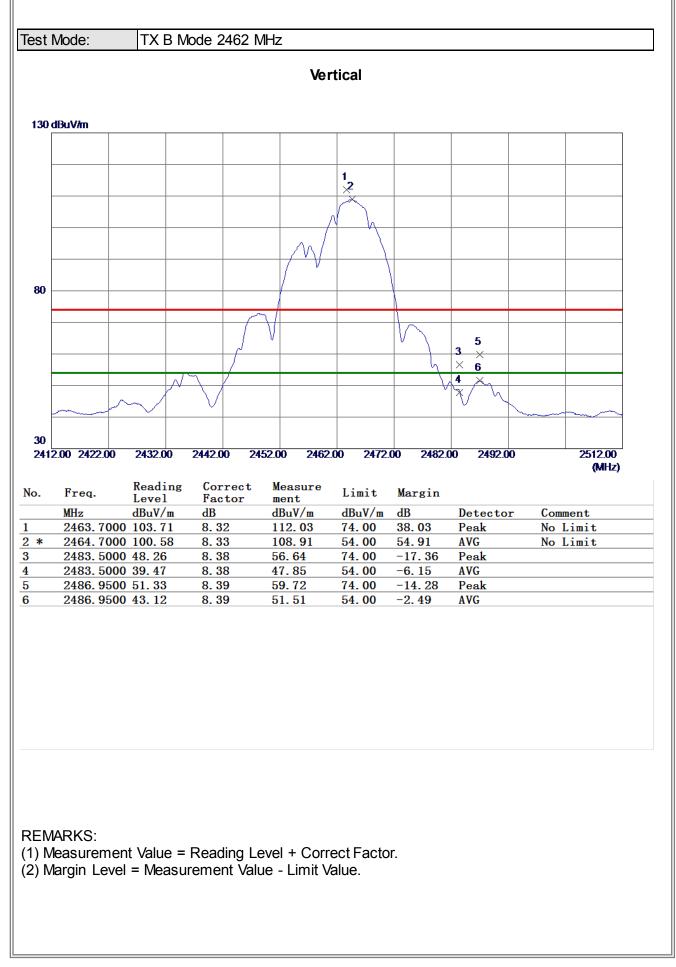




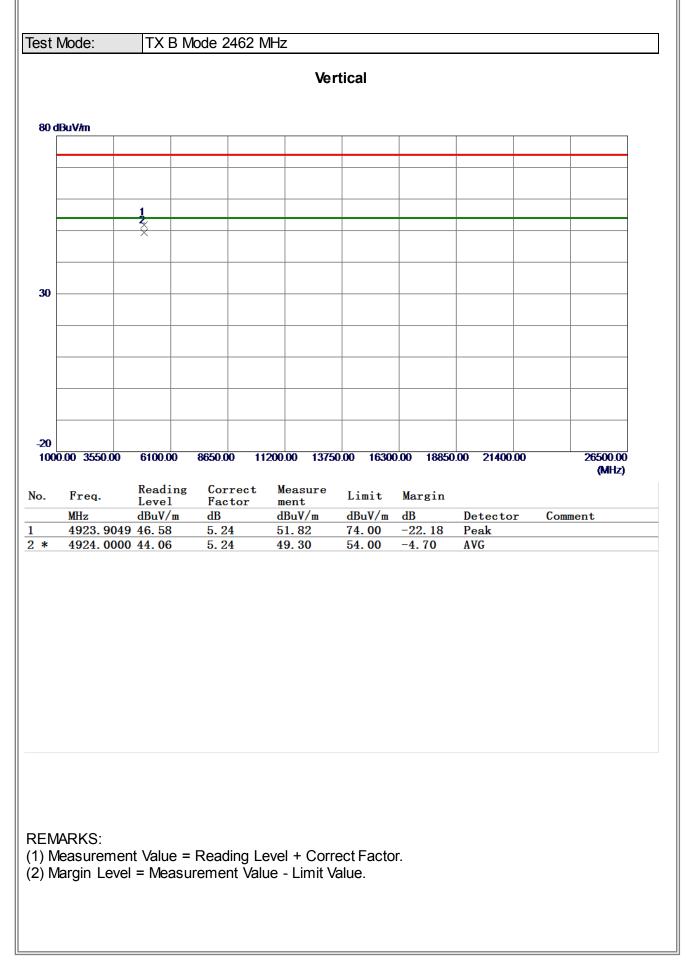
	No.	Mk.	Freq.	Level			Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	49	913.994	44.54	5.18	49.72	74.00	-24.28	peak	
	2	* 49	914.048	40.30	5.18	45.48	54.00	-8.52	AVG	

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

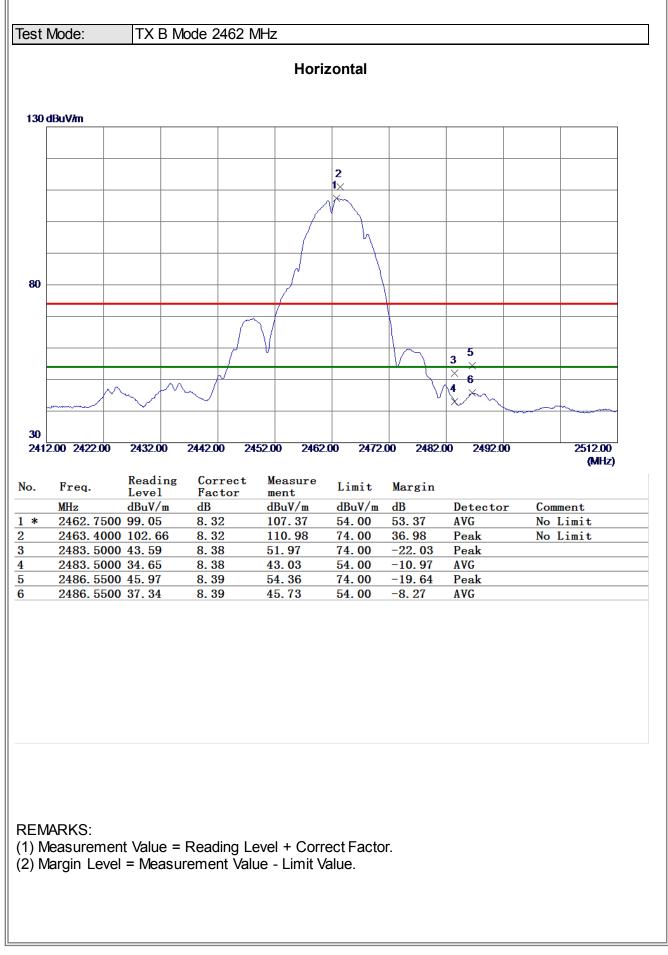




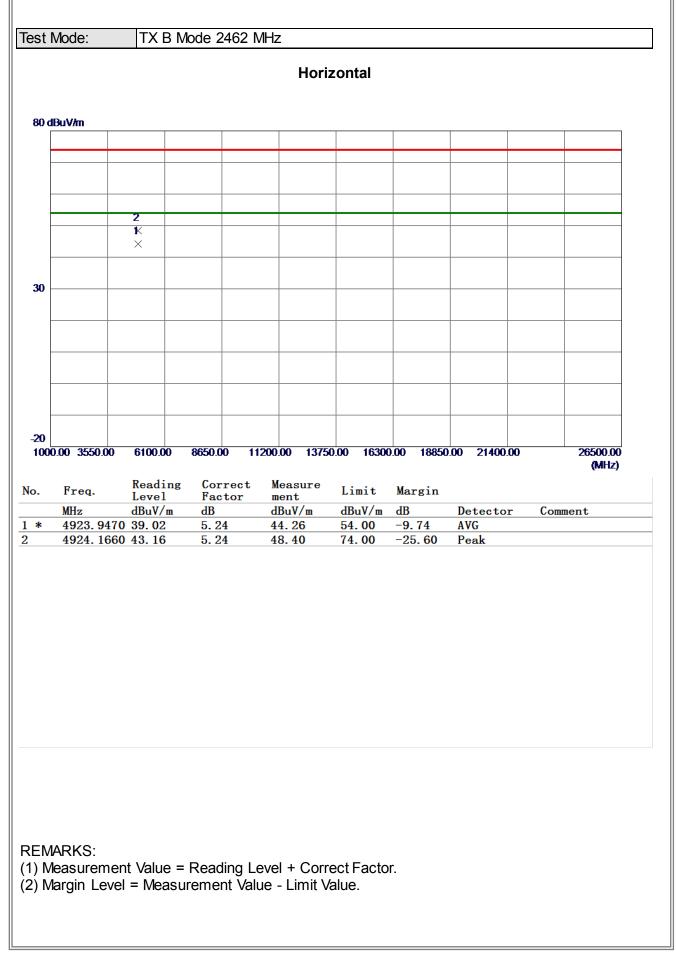




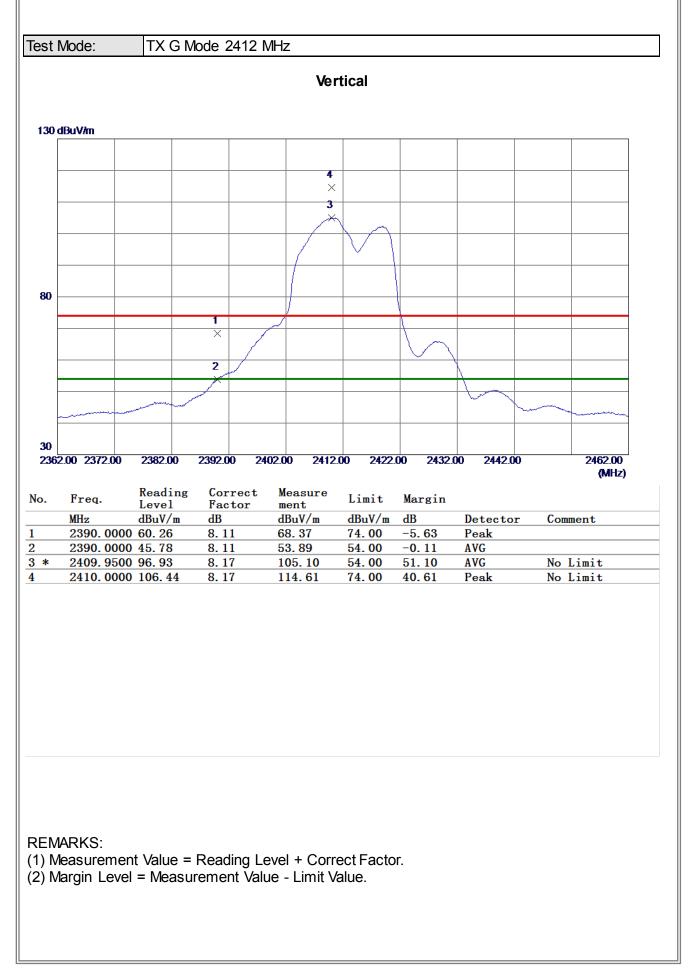




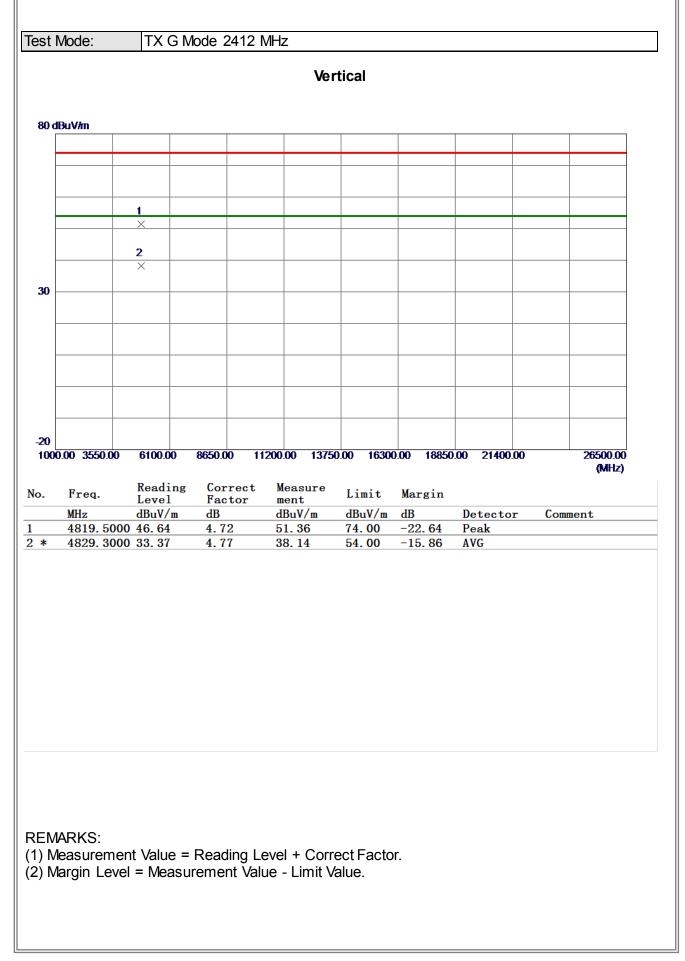




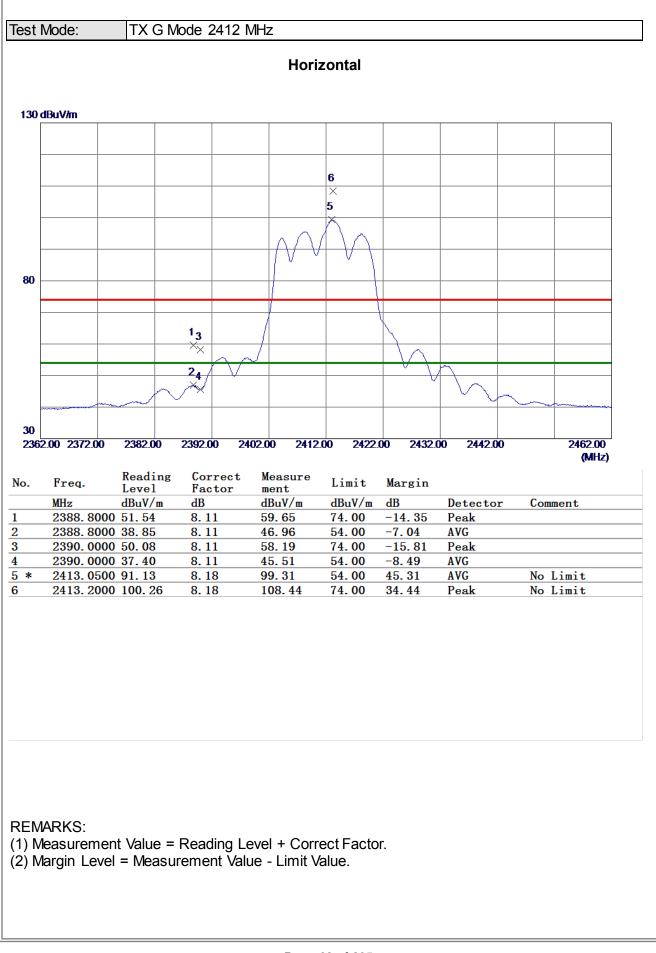




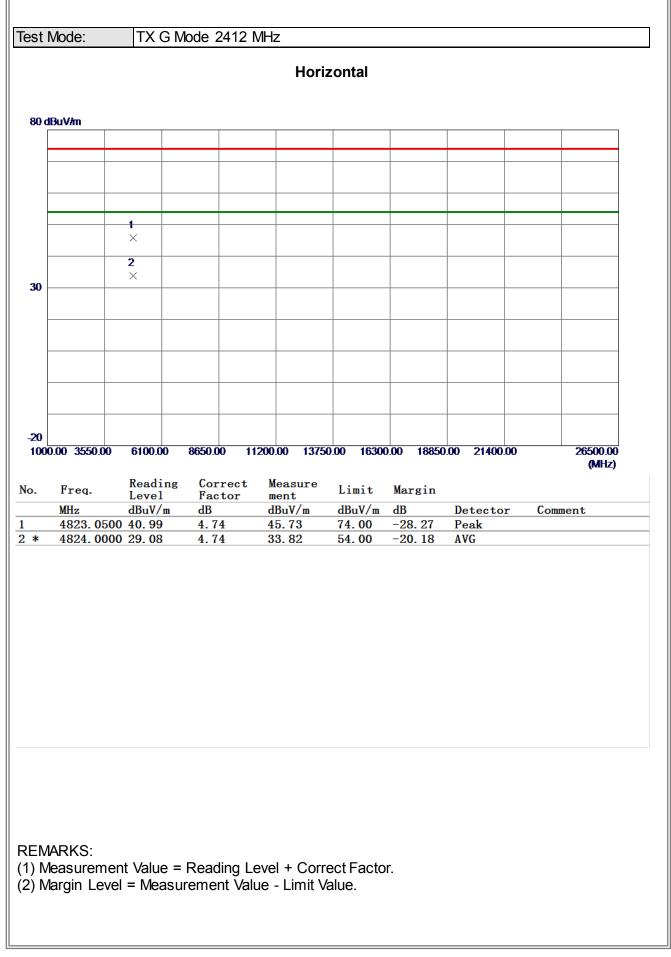




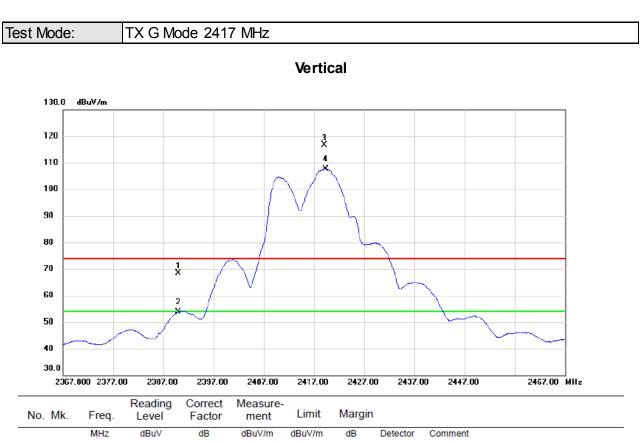








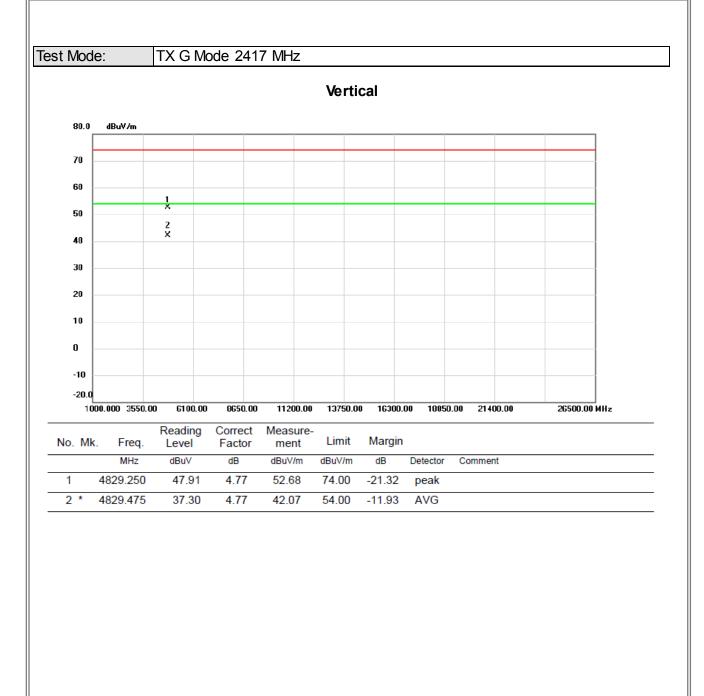




	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.000	60.27	8.11	68.38	74.00	-5.62	peak	
2	2390.000	45.73	8.11	53.84	54.00	-0.16	AVG	
3 X	2419.050	108.45	8.19	116.64	74.00	42.64	peak	No Limit
4 *	2419.350	99.51	8.19	107.70	54.00	53.70	AVG	No Limit

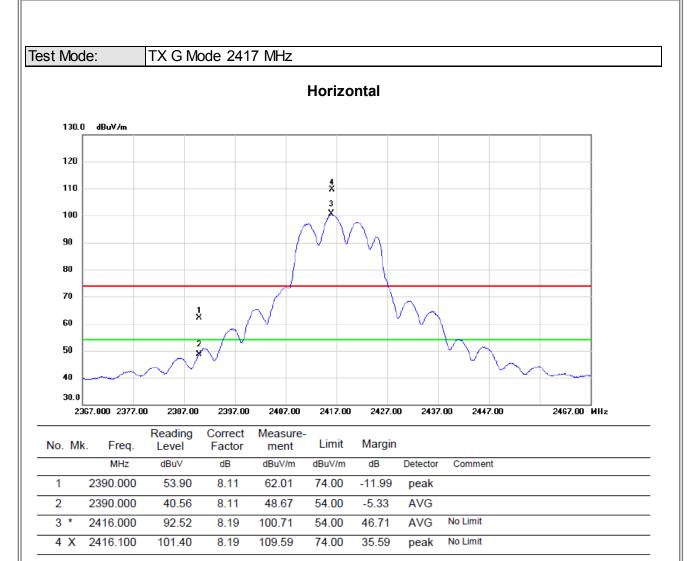
- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.





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





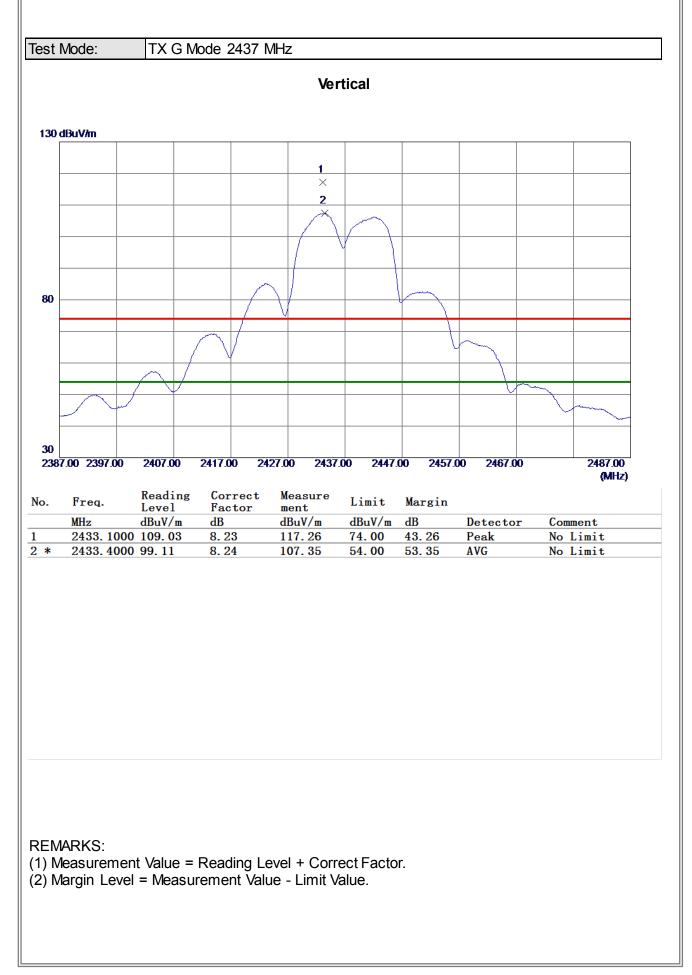
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



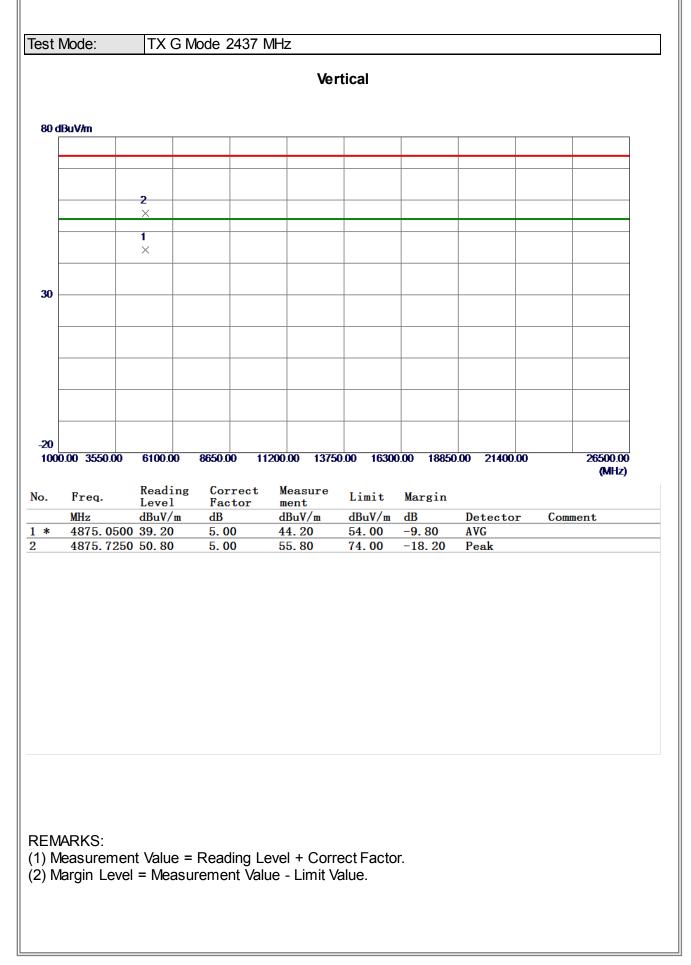


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

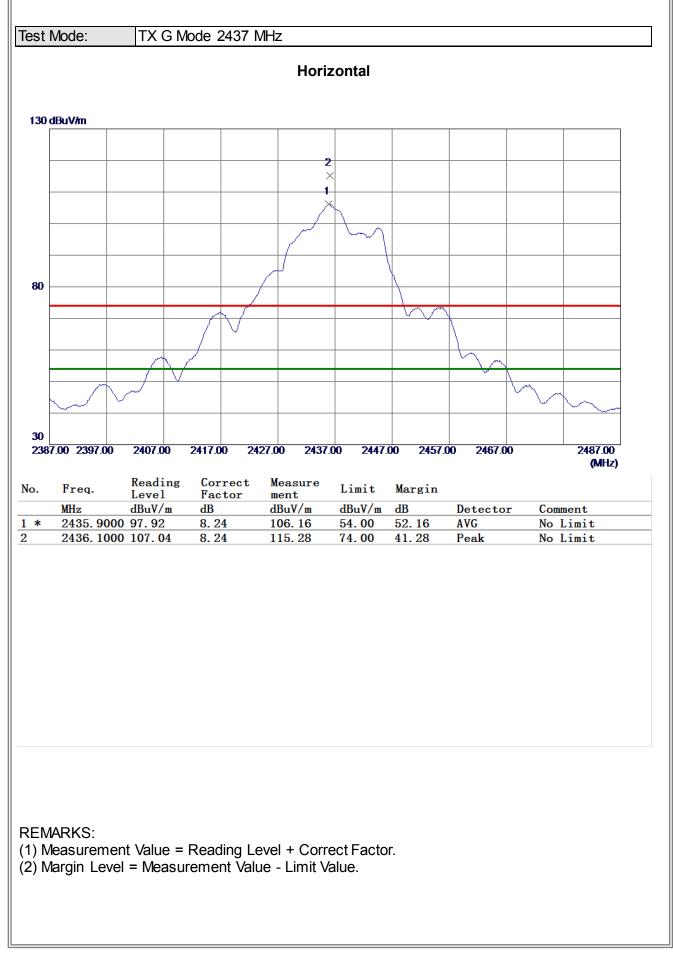




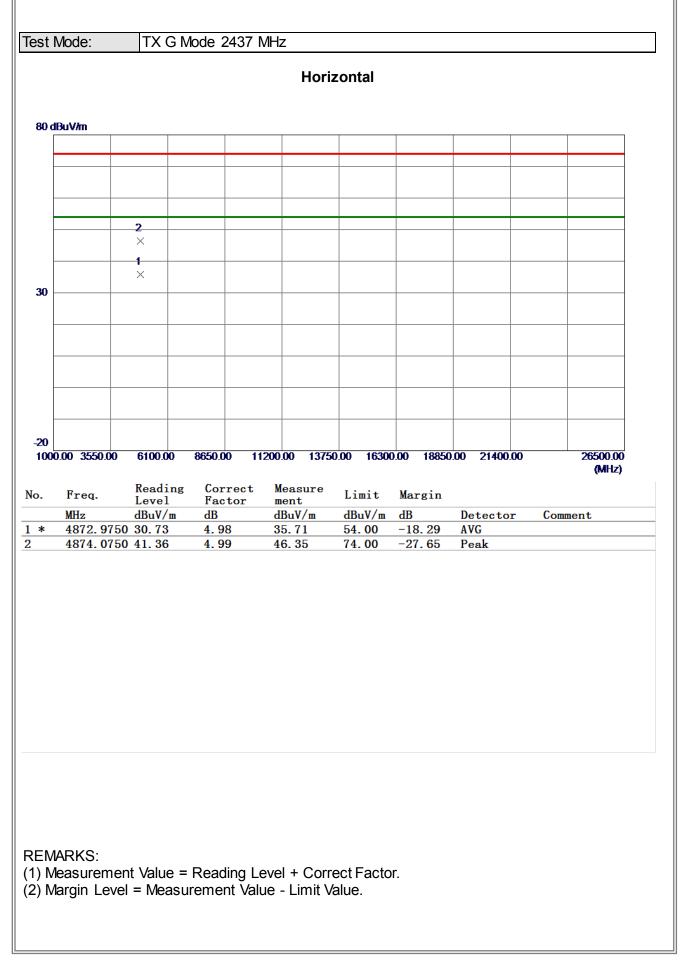




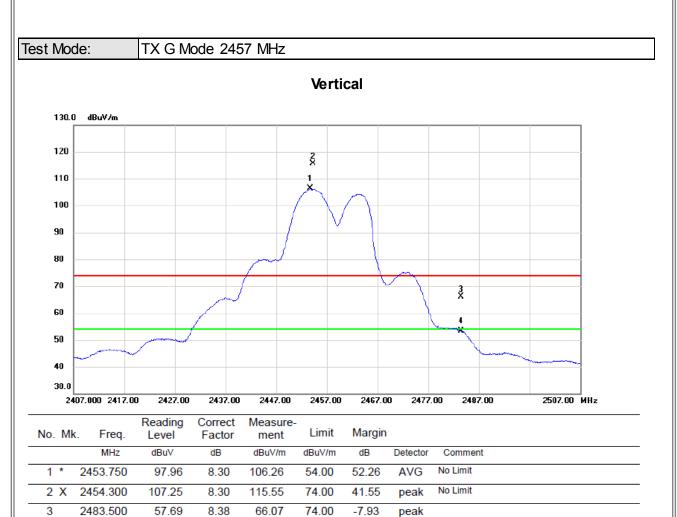












peak

AVG

-0.63

**REMARKS**:

3

4

2483.500

2483.500

44.99

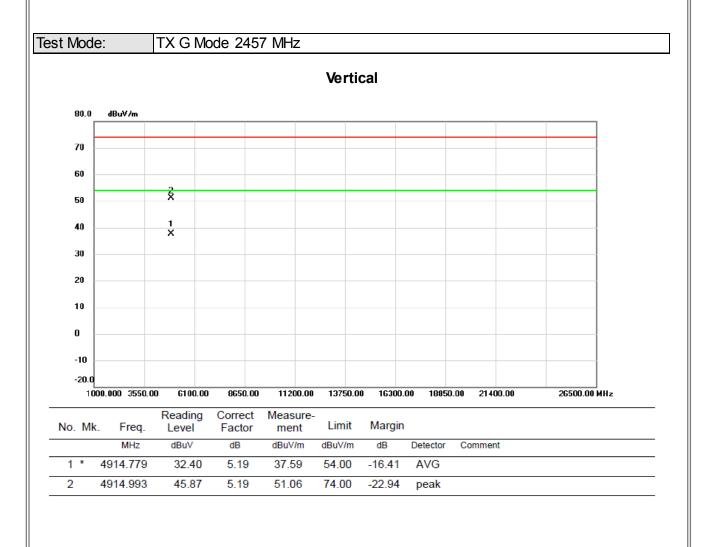
8.38

53.37

54.00

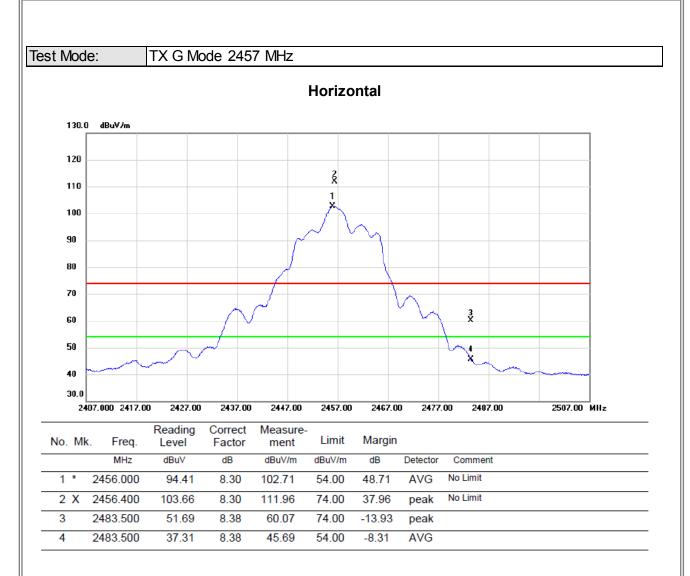
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





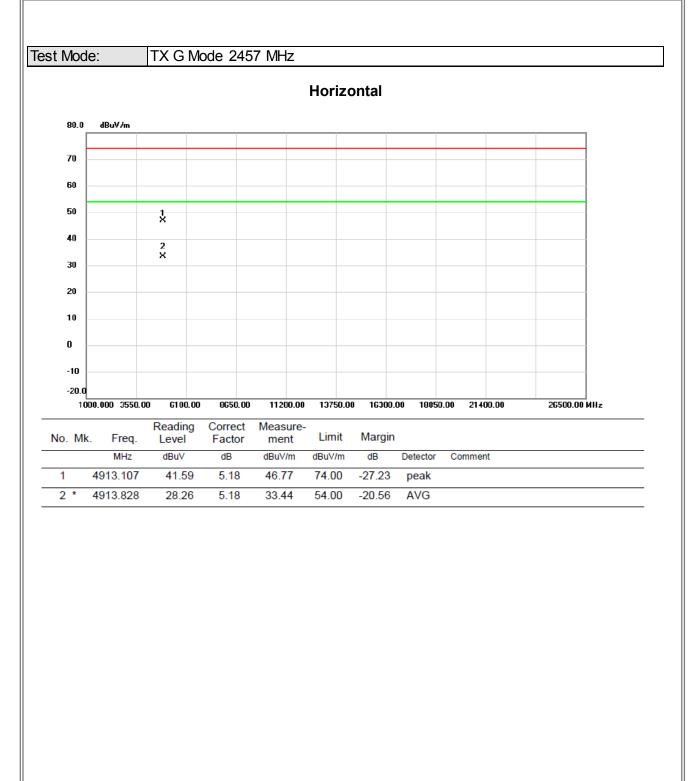
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





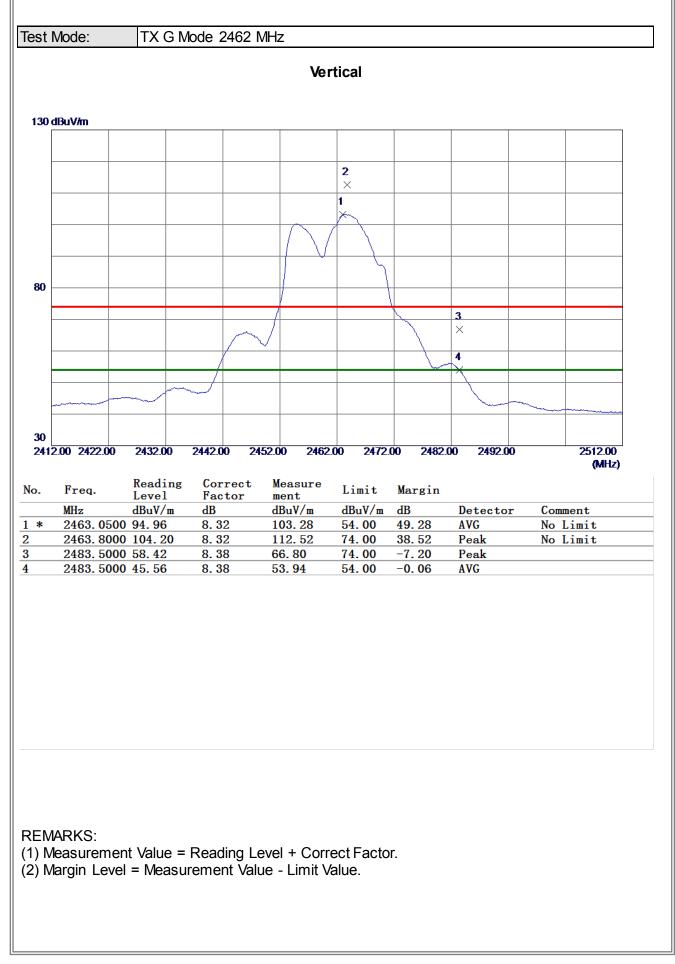
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



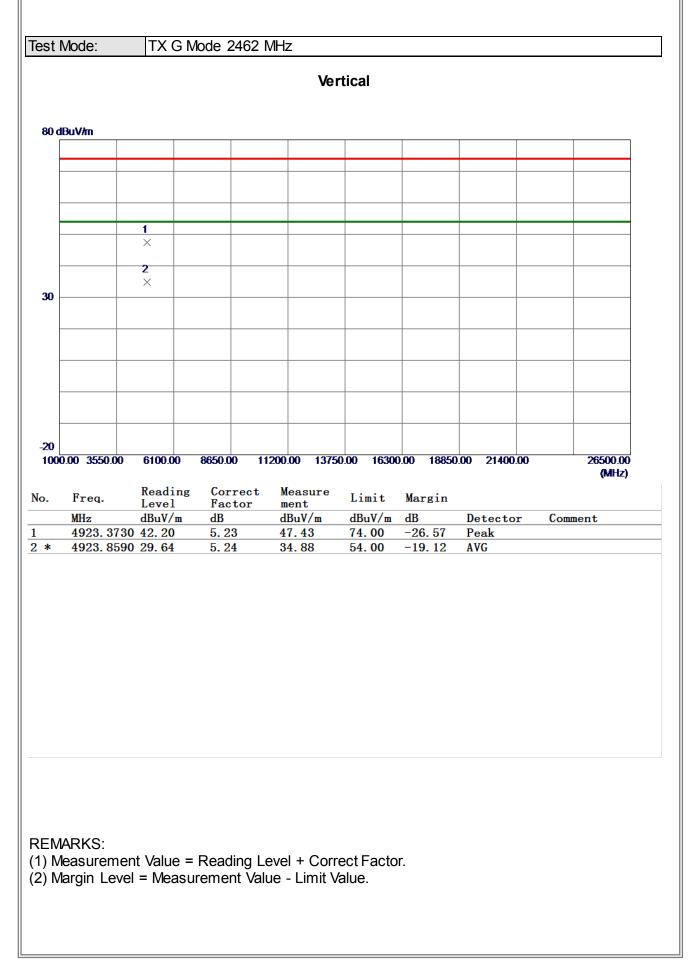


- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.

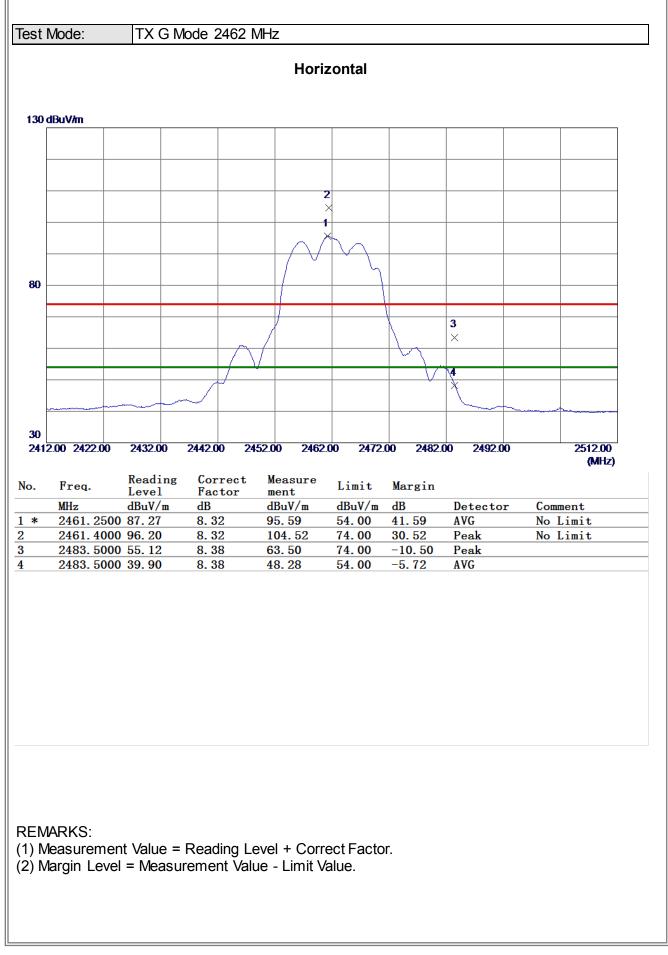




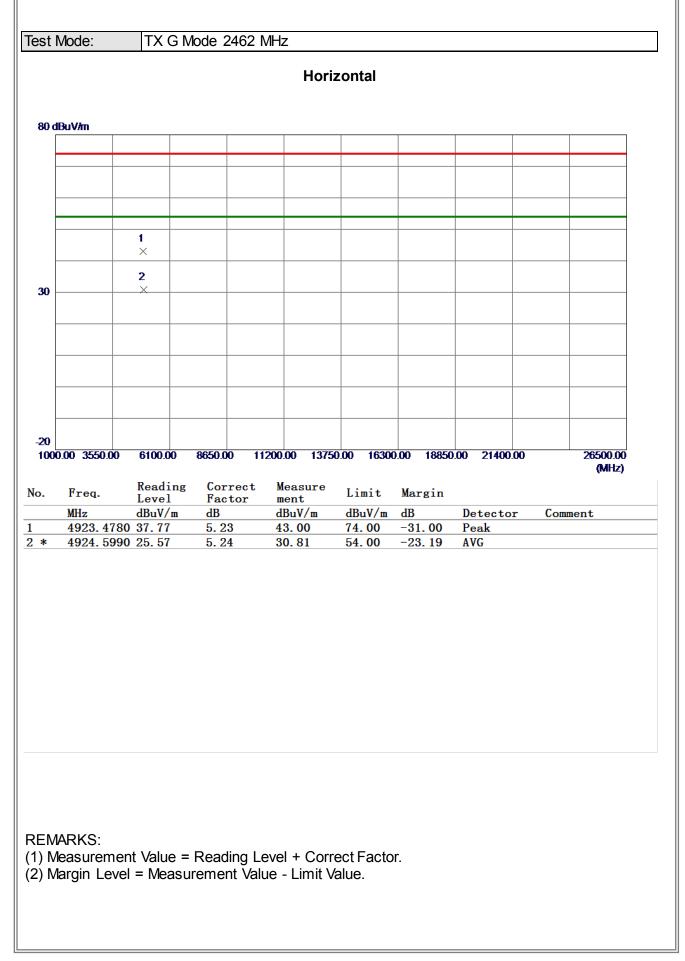




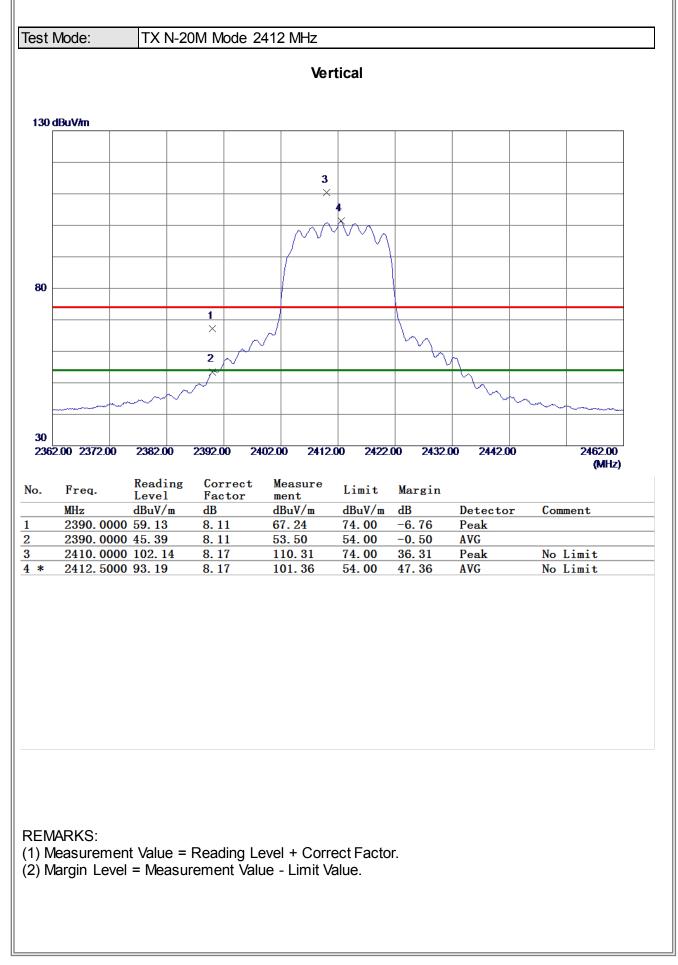




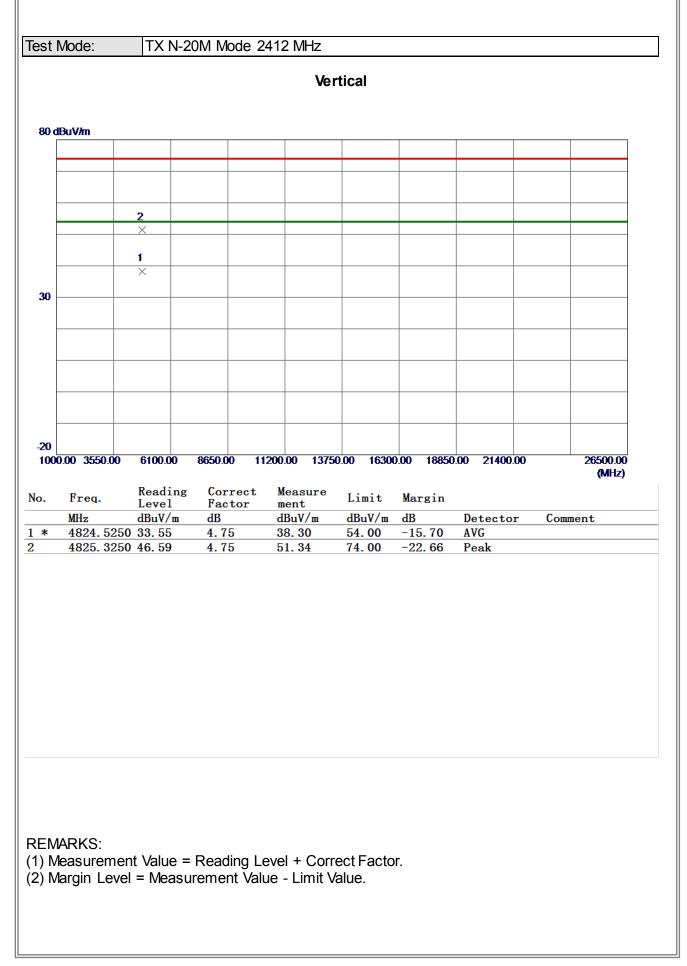




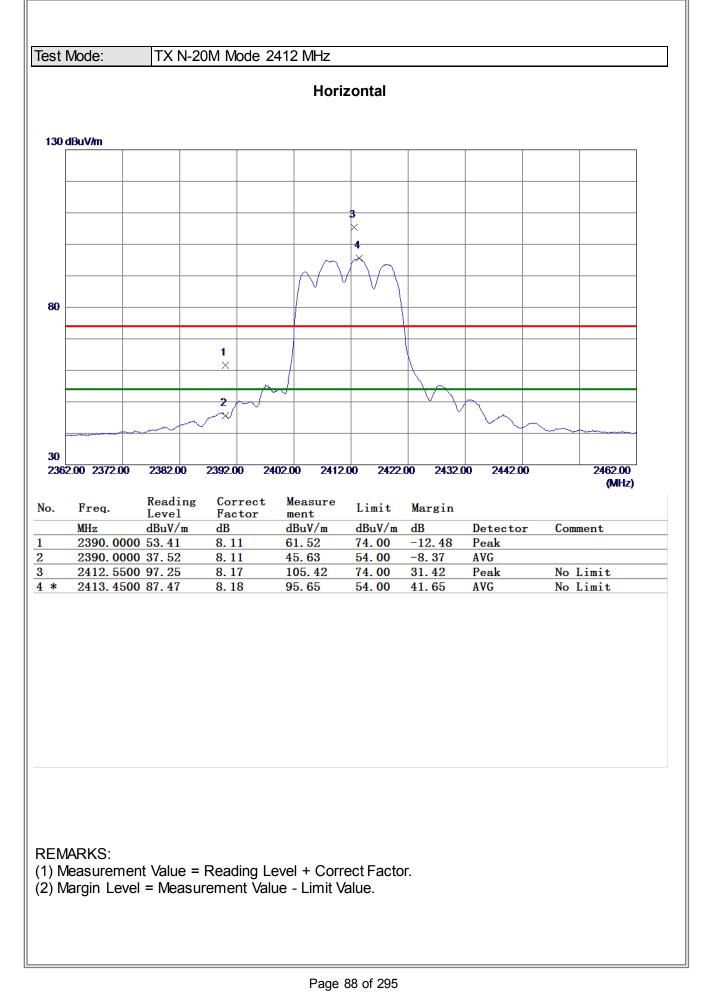




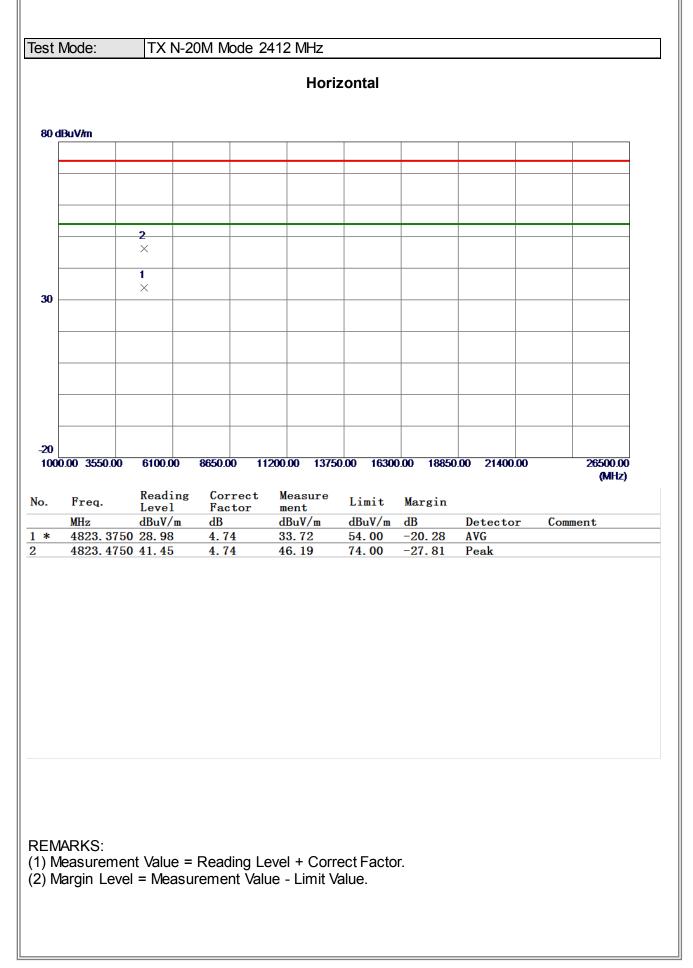




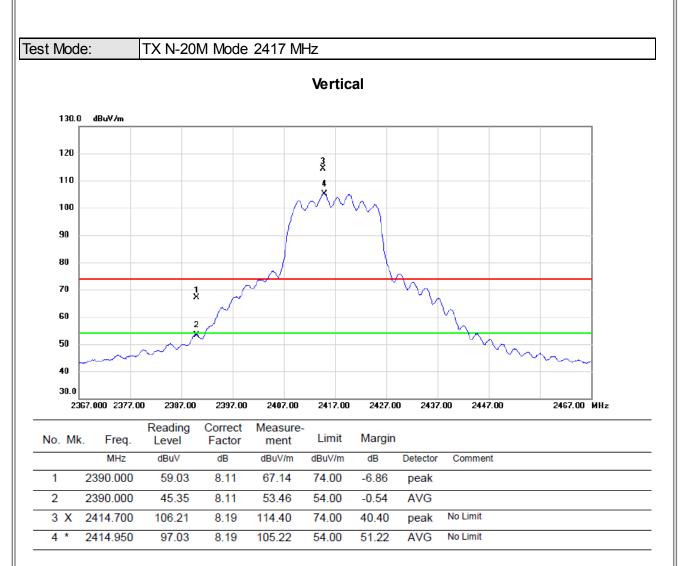






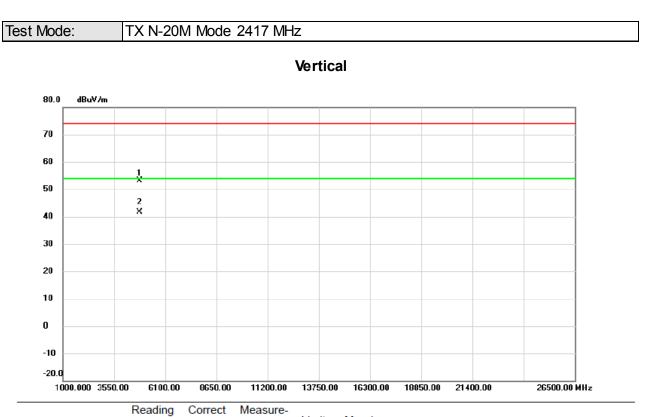






- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

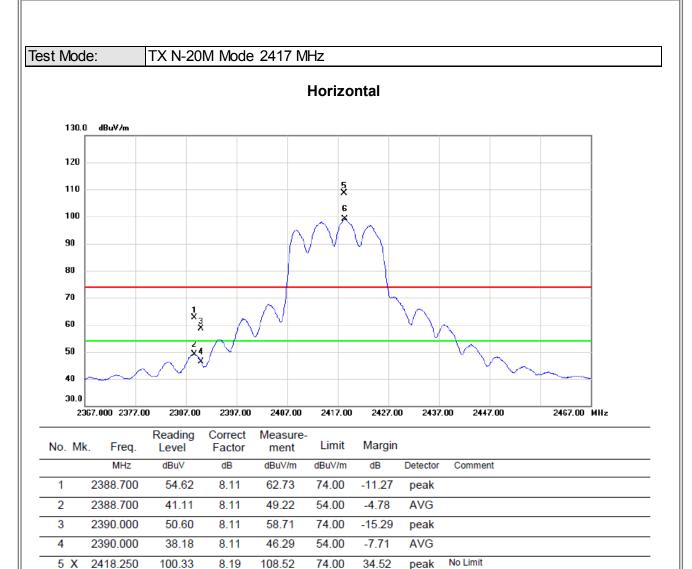




	No. N	/k.	Freq.	Level	Factor	ment	Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1	48	30.300	48.30	4.77	53.07	74.00	-20.93	peak	
-	2 *	48	34.575	36.95	4.80	41.75	54.00	-12.25	AVG	

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





6 \*

2418.400

90.87

8.19

99.06

54.00

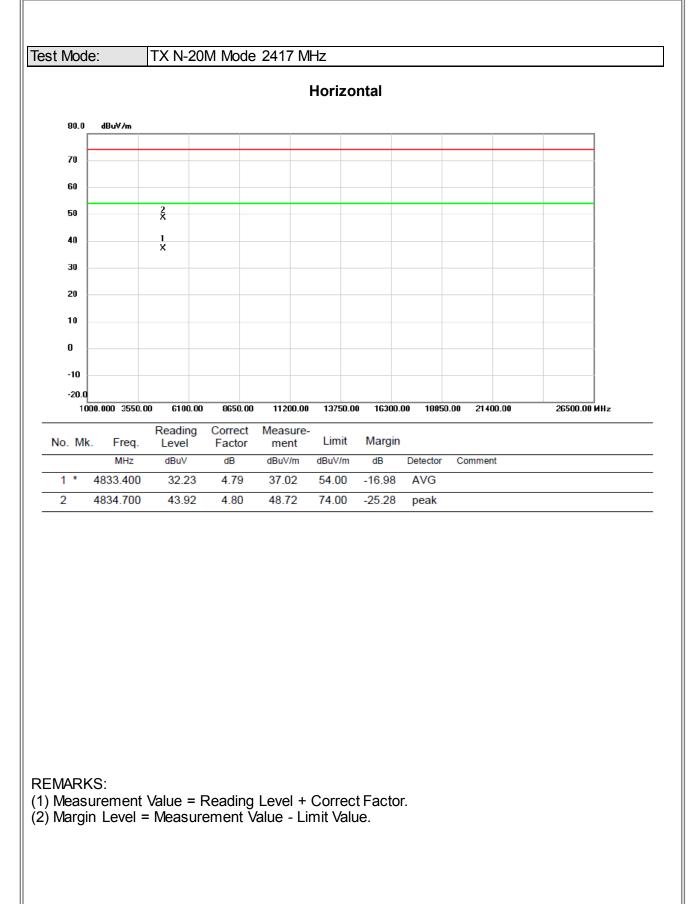
45.06

AVG

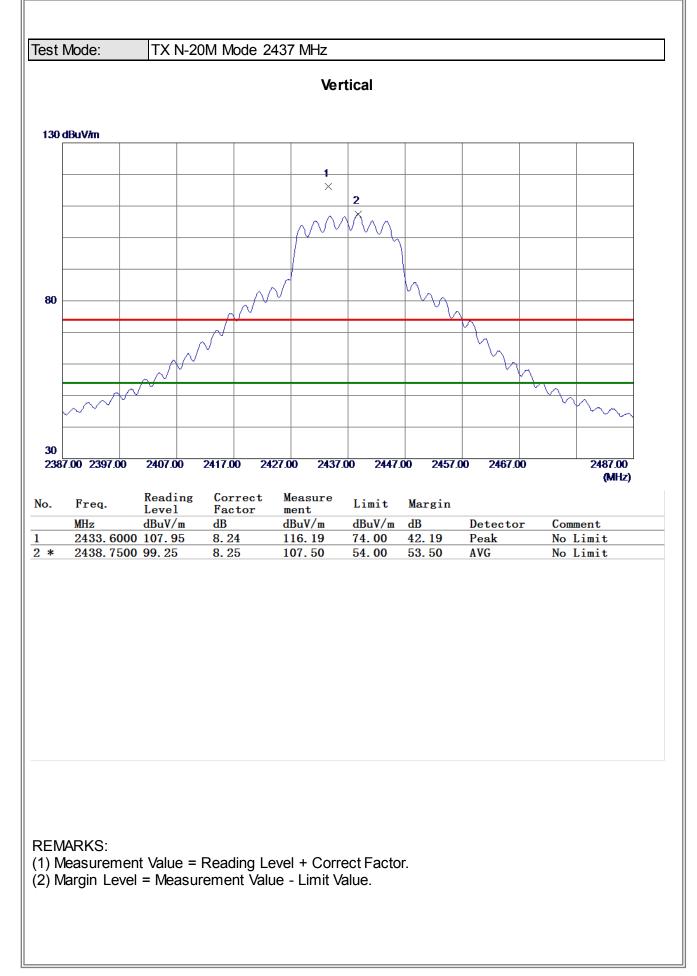
No Limit

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

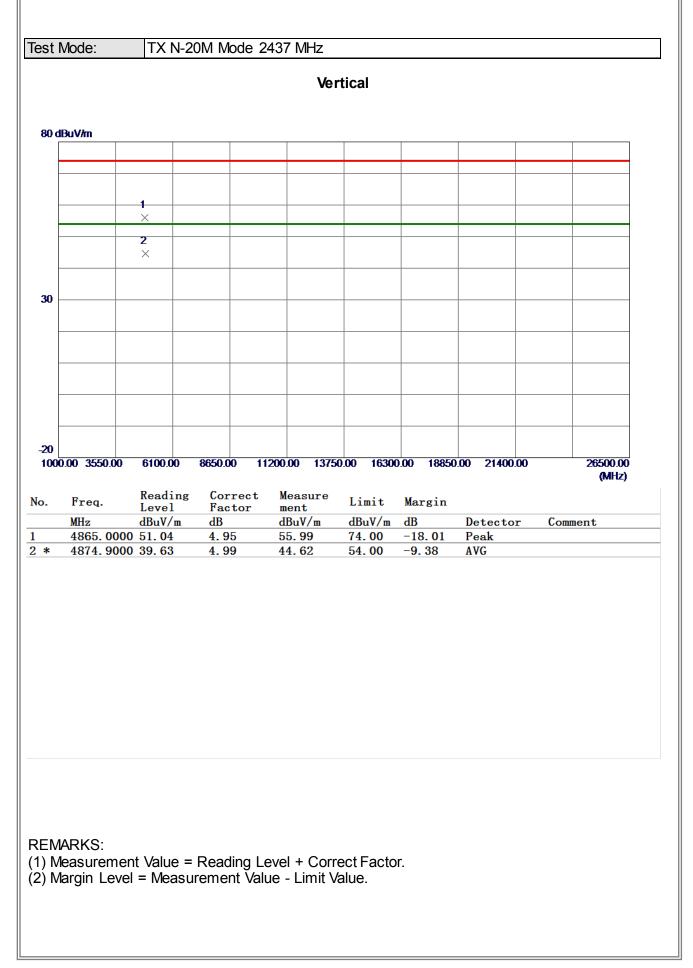




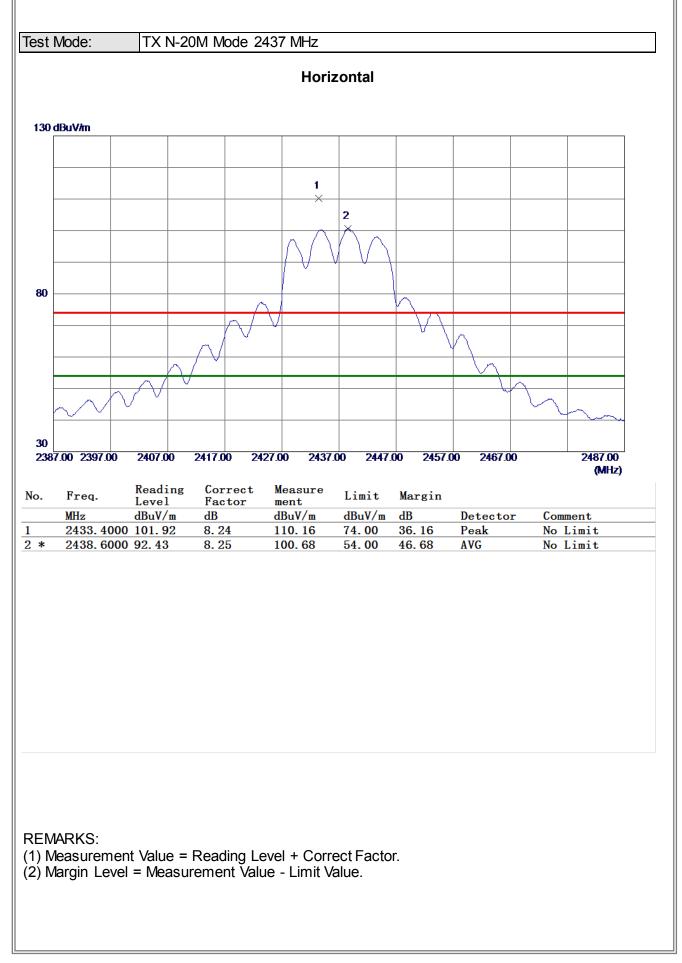




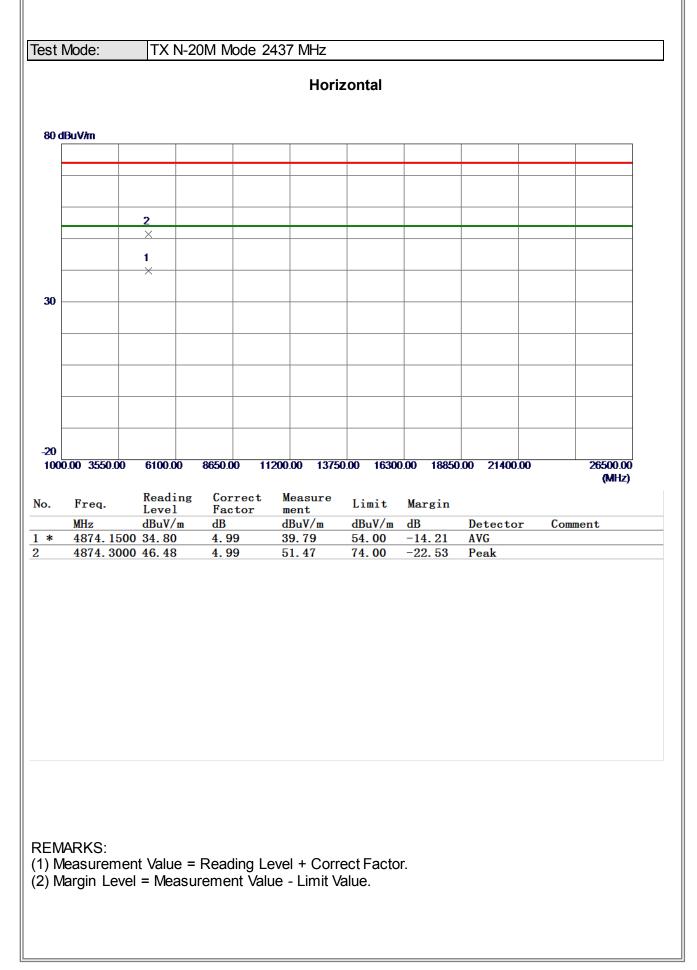




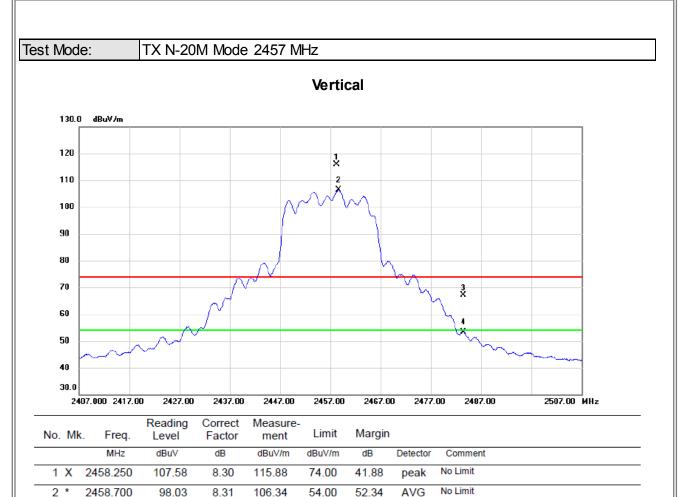












3

4

2483.500

2483.500

58.70

44.89

8.38

8.38

67.08

53.27

74.00

54.00

-6.92

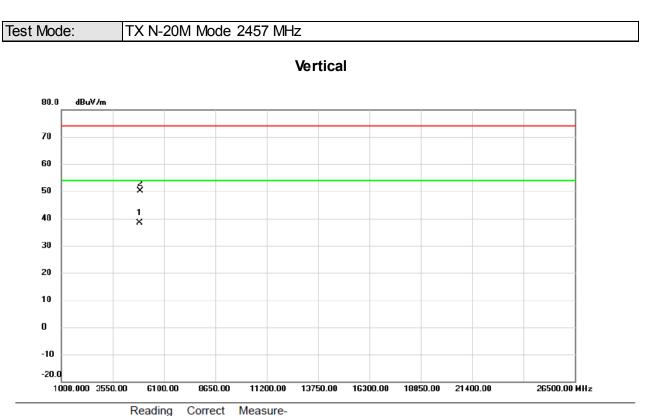
-0.73

peak

AVG

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

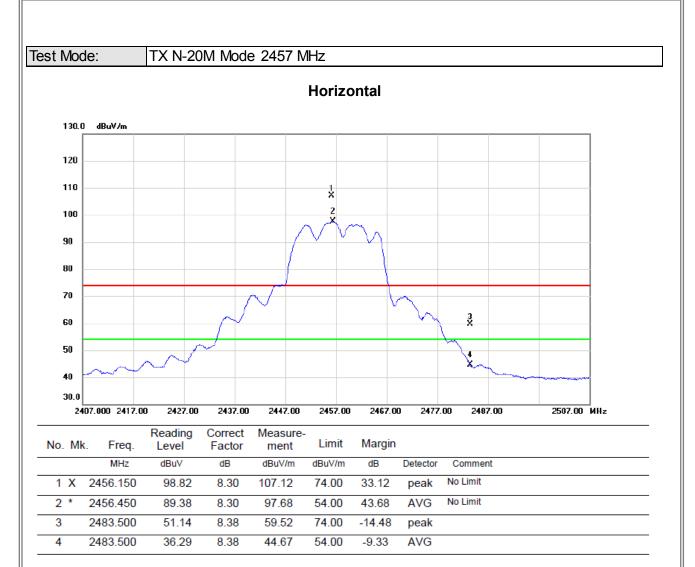




	No. M	k. Freq.		Factor	ment	Limit	Margin		
-		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1 *	4909.925	33.30	5.17	38.47	54.00	-15.53	AVG	
-	2	4910.175	44.88	5.17	50.05	74.00	-23.95	peak	

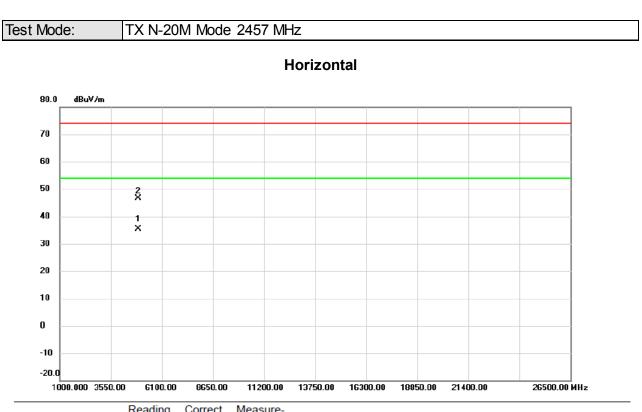
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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

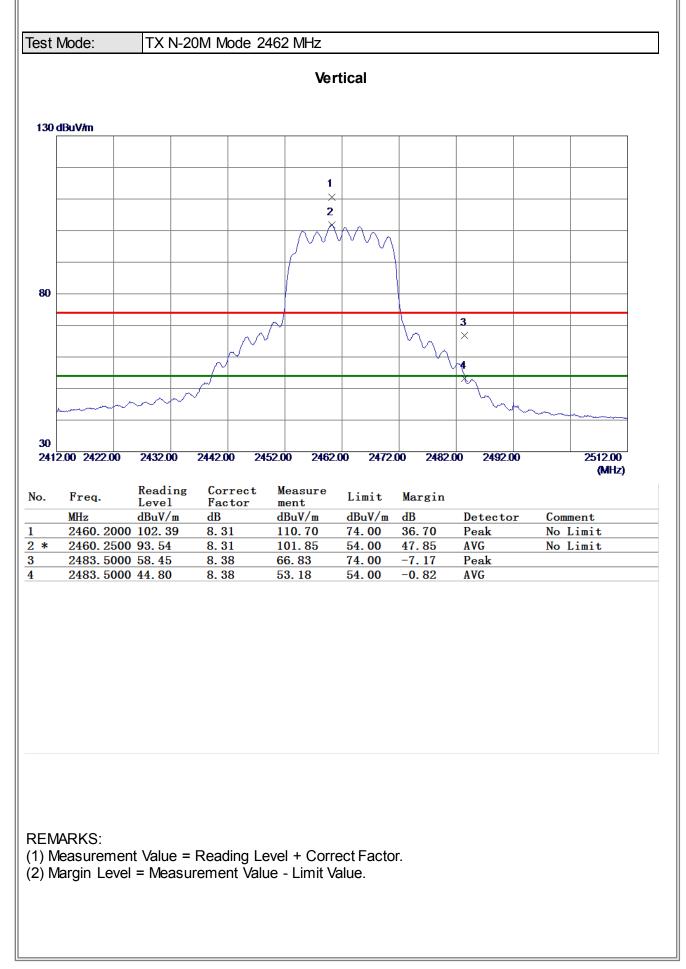




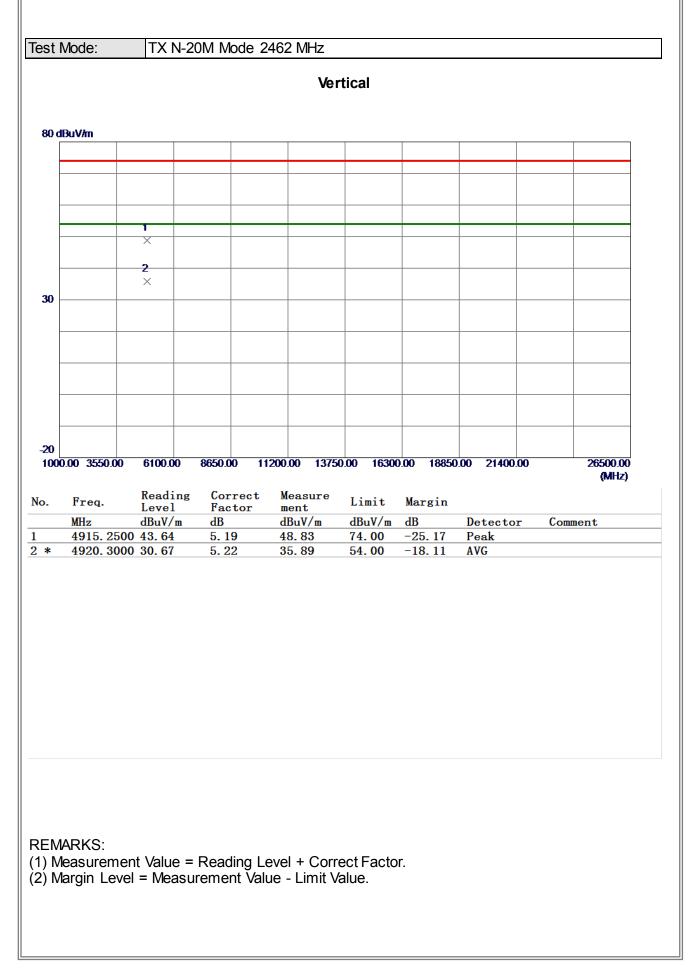
	No. M	k. Freq.	Level	Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1 *	4913.625	30.18	5.18	35.36	54.00	-18.64	AVG	
-	2	4913.725	41.53	5.18	46.71	74.00	-27.29	peak	

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

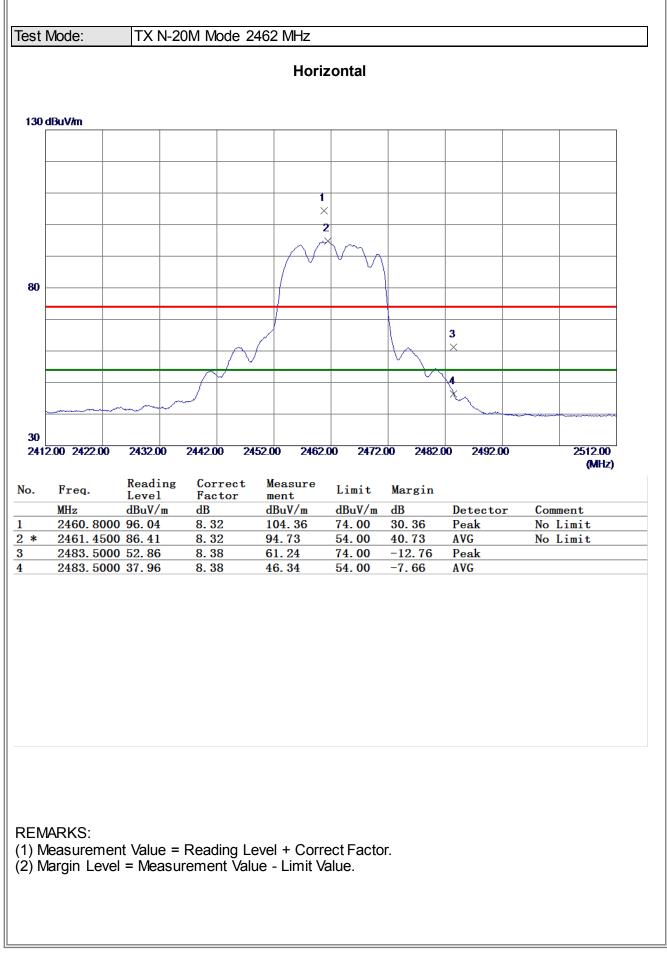




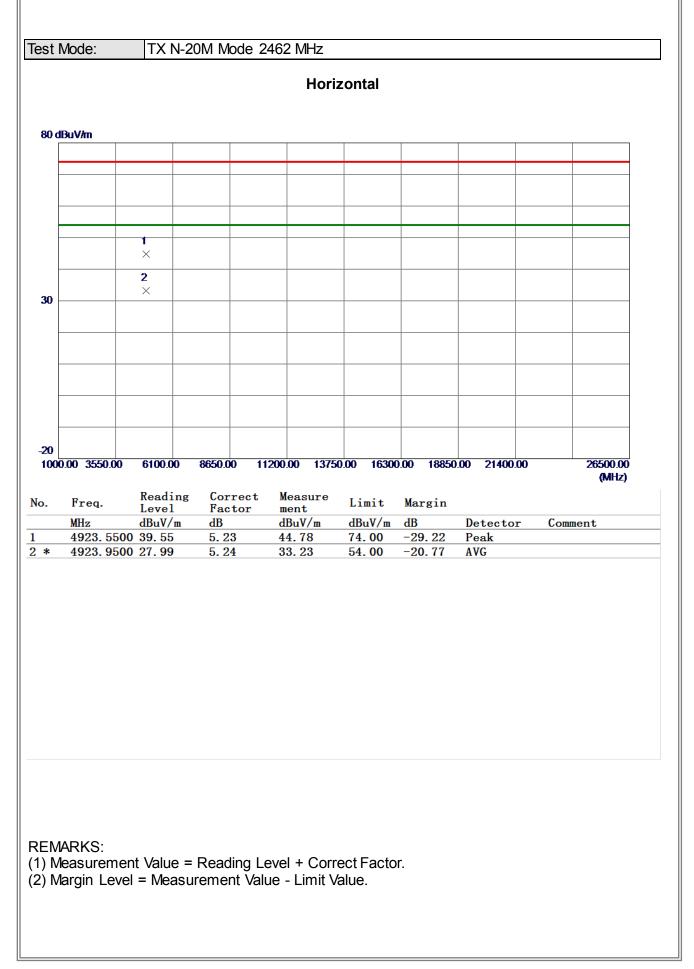




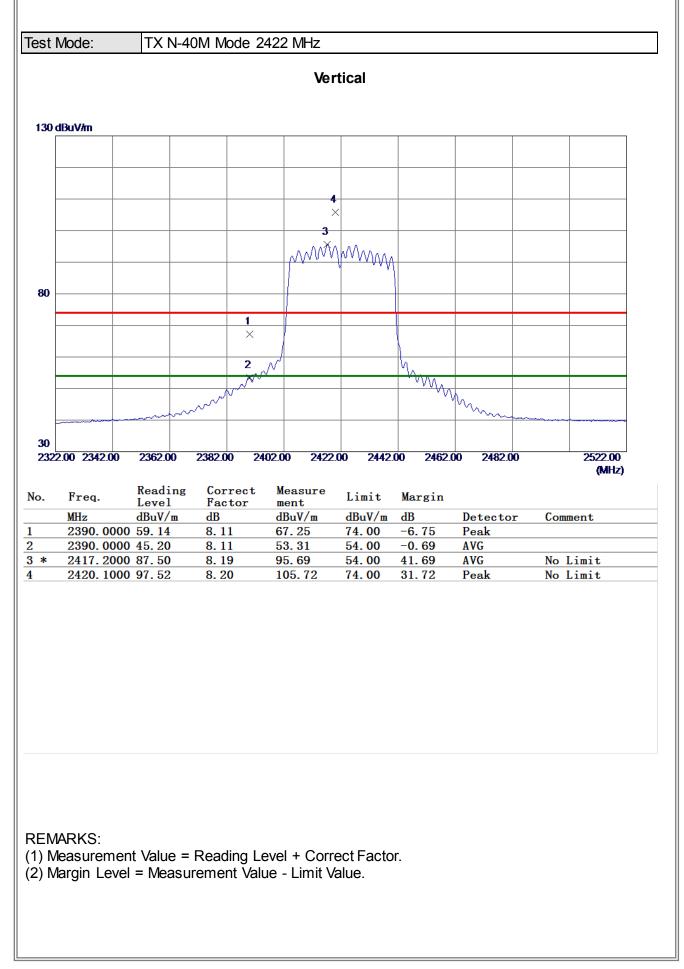




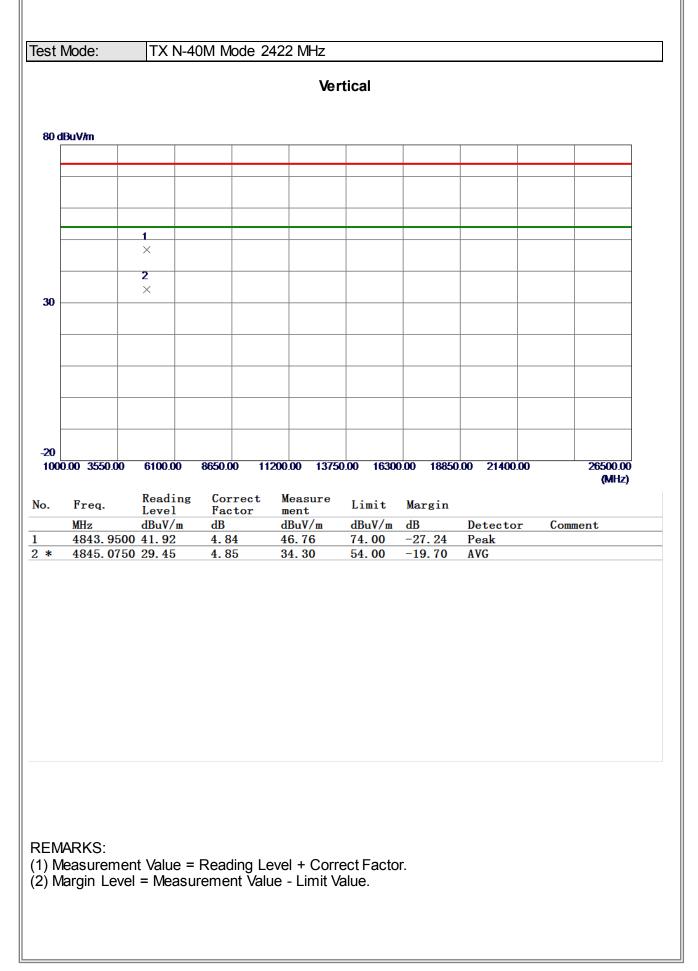




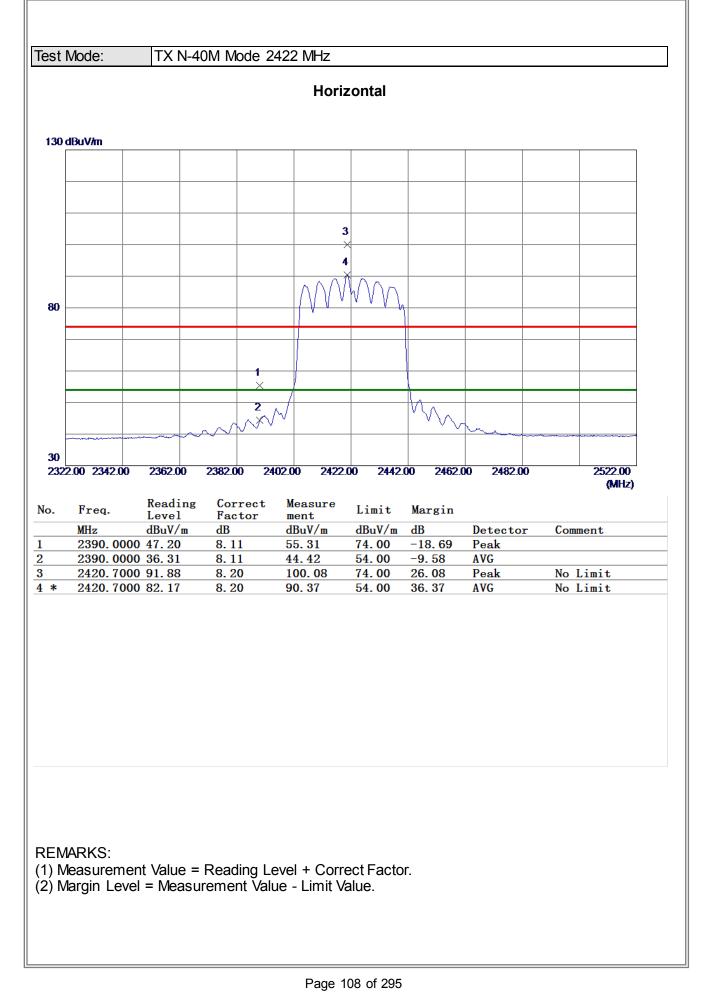




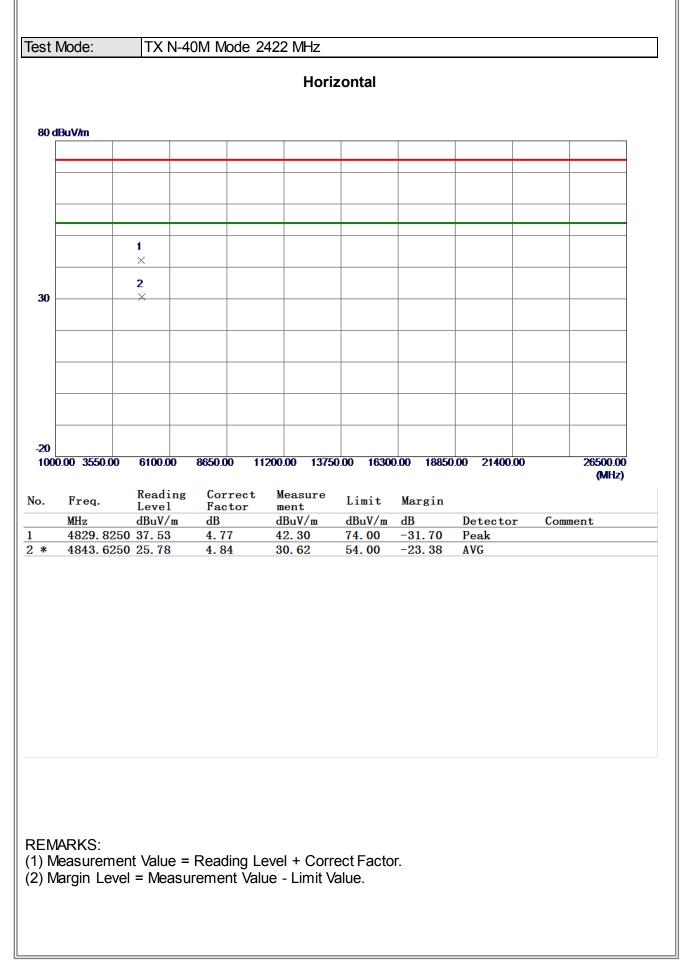




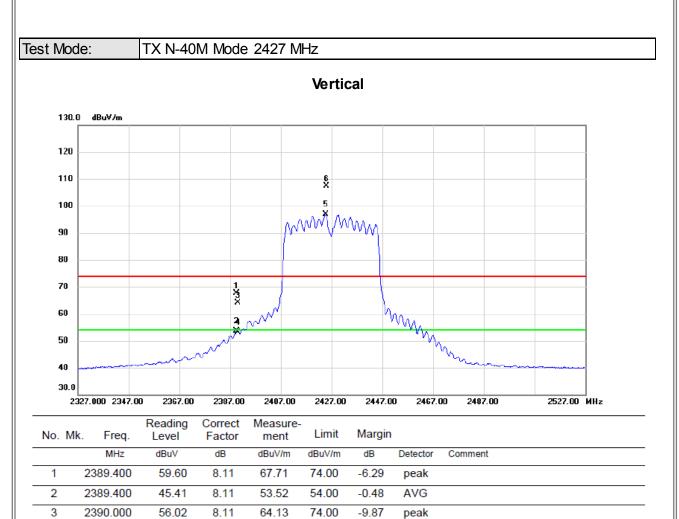












4

5 \*

6 X

2390.000

2424.700

2425.000

45.09

88.57

99.19

8.11

8.21

8.21

53.20

96.78

107.40

54.00

54.00

74.00

-0.80

42.78

33.40

AVG

AVG

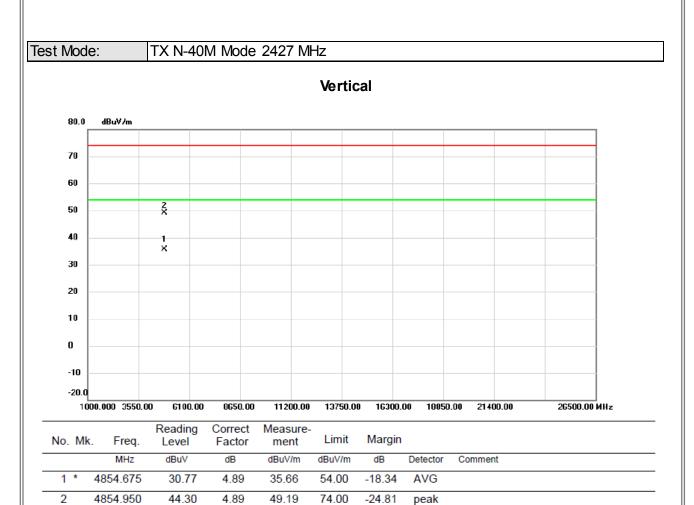
peak

No Limit

No Limit

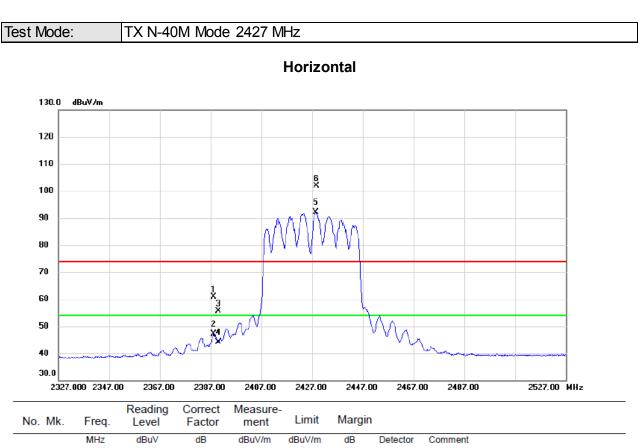
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

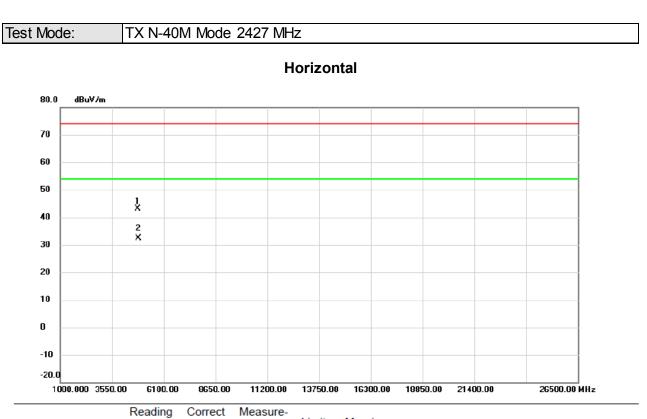




NO. MIN.	ricq.	Level	racior	ment				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 2	2388.300	52.80	8.11	60.91	74.00	-13.09	peak	
2 2	2388.300	38.96	8.11	47.07	54.00	-6.93	AVG	
3 2	2390.000	47.46	8.11	55.57	74.00	-18.43	peak	
4 2	2390.000	35.90	8.11	44.01	54.00	-9.99	AVG	
5* 2	2428.500	83.85	8.22	92.07	54.00	38.07	AVG	No Limit
6 X 2	2428.700	93.74	8.22	101.96	74.00	27.96	peak	No Limit

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

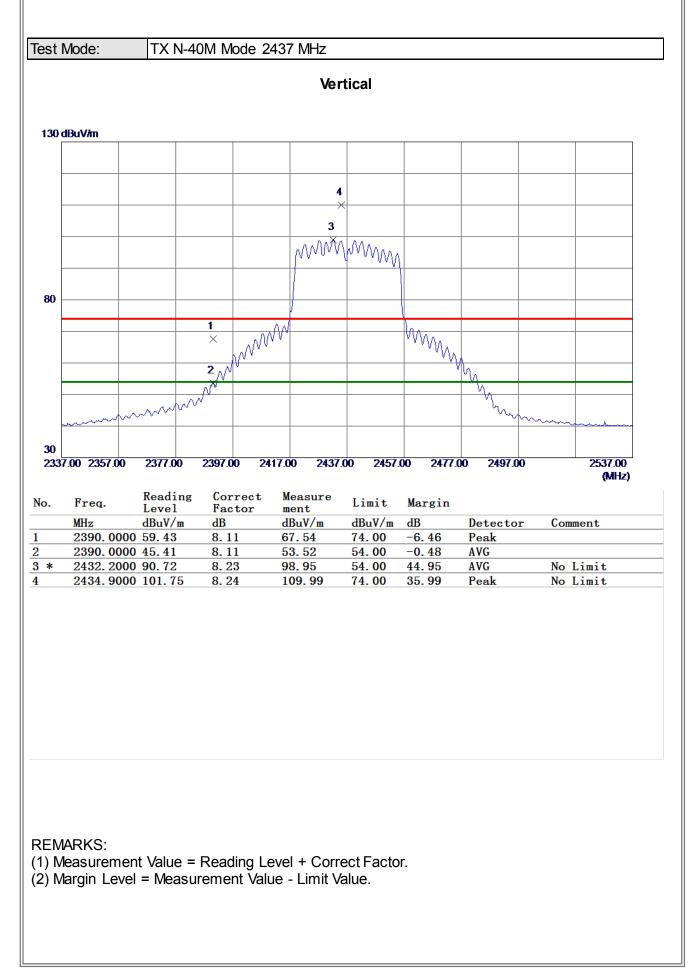




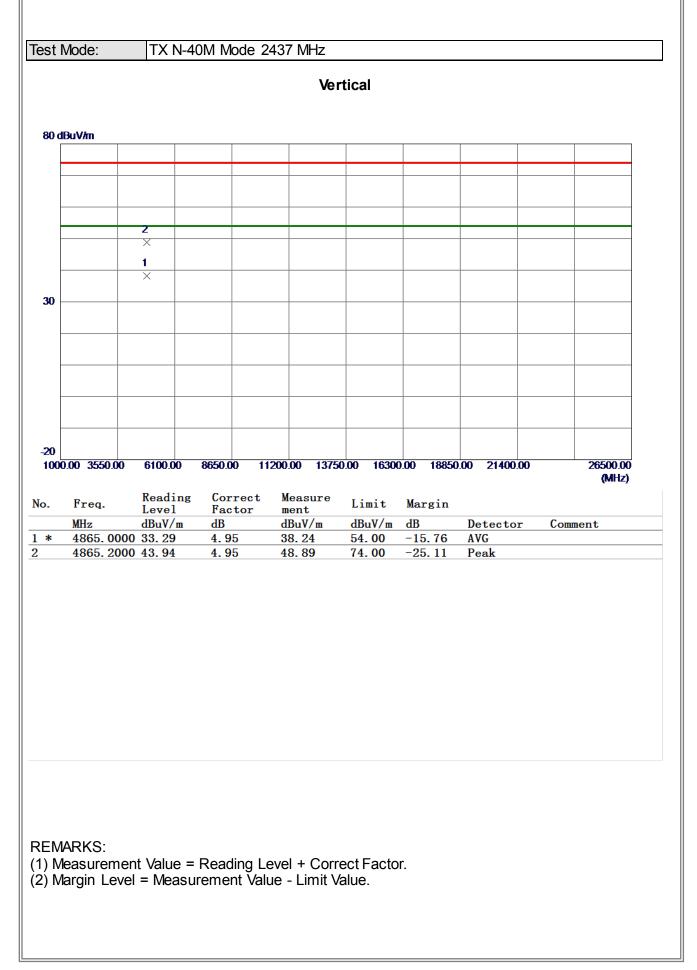
No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	48	333.875	38.32	4.79	43.11	74.00	-30.89	peak	
2 '	' 48	353.475	27.43	4.89	32.32	54.00	-21.68	AVG	

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

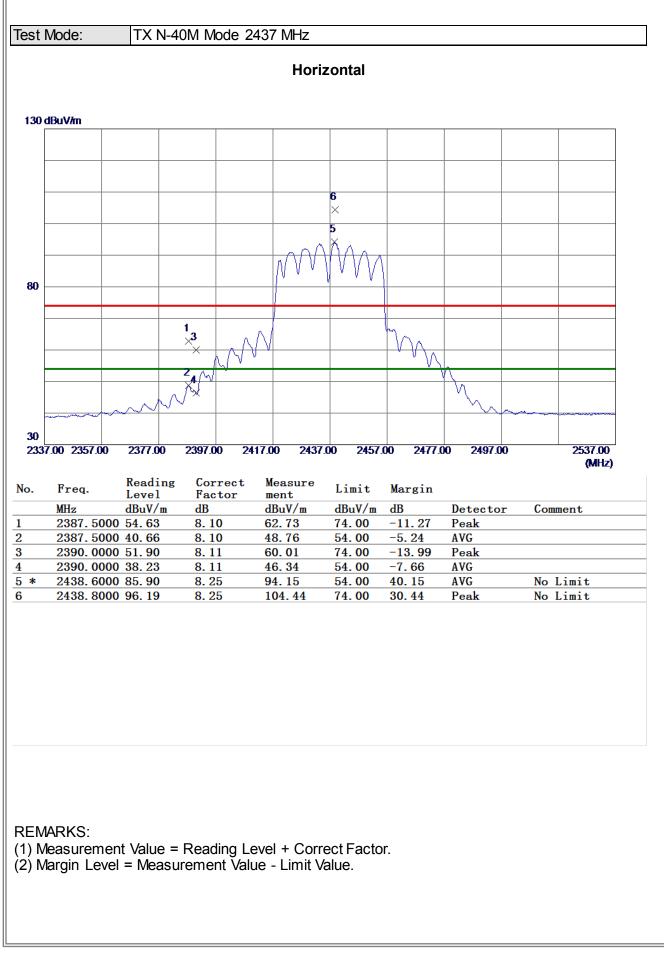




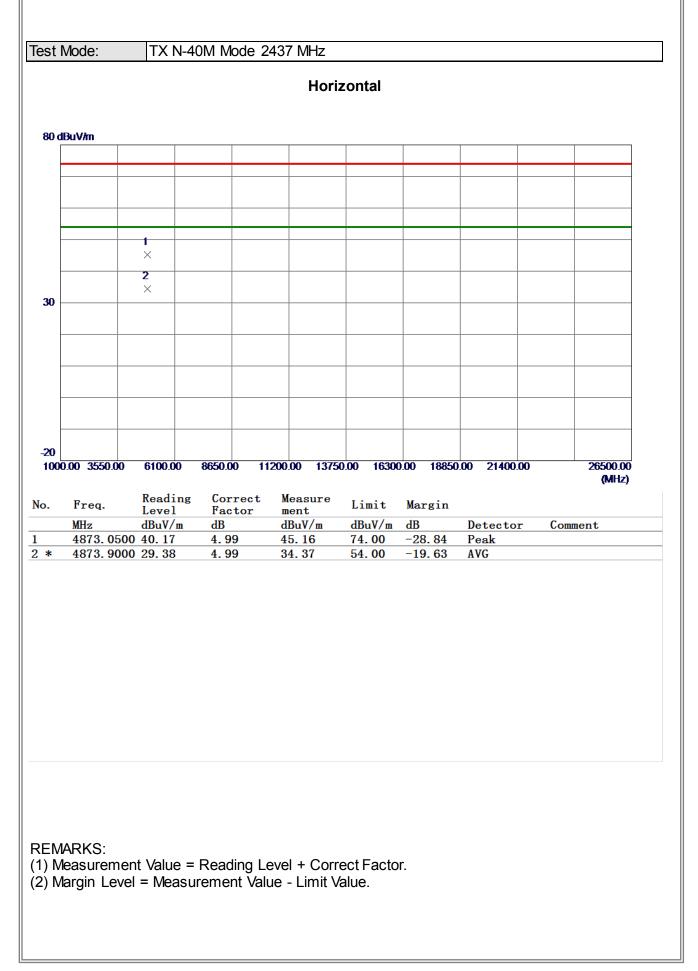




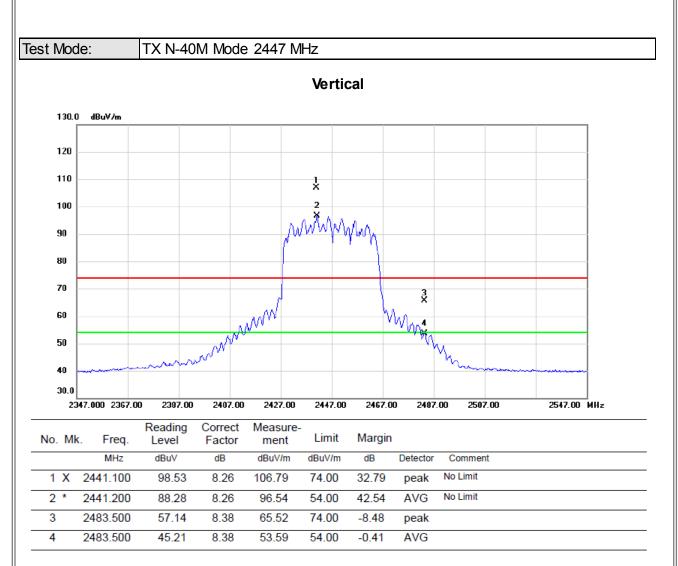






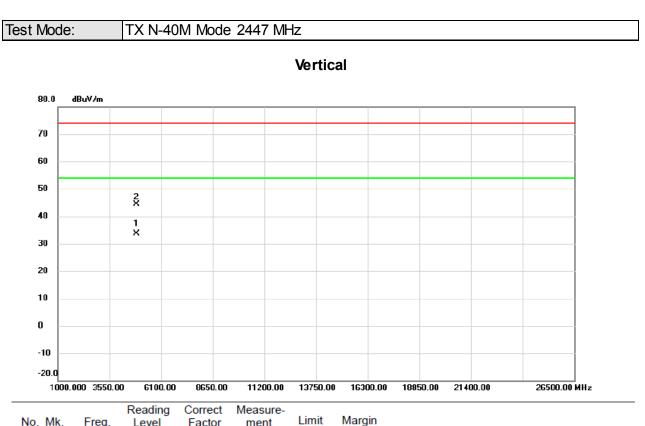






- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

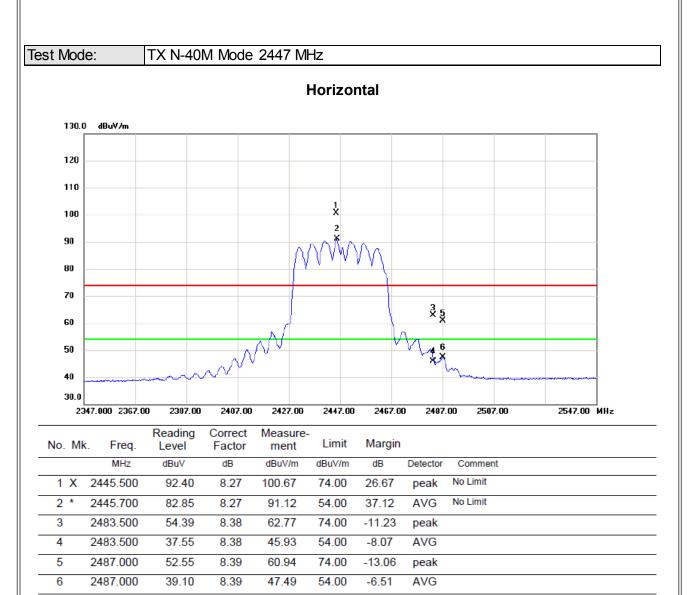




	No. M	<li>K. Freq.</li>	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1 *	4884.850	28.48	5.04	33.52	54.00	-20.48	AVG	
	2	4895.100	39.37	5.10	44.47	74.00	-29.53	peak	

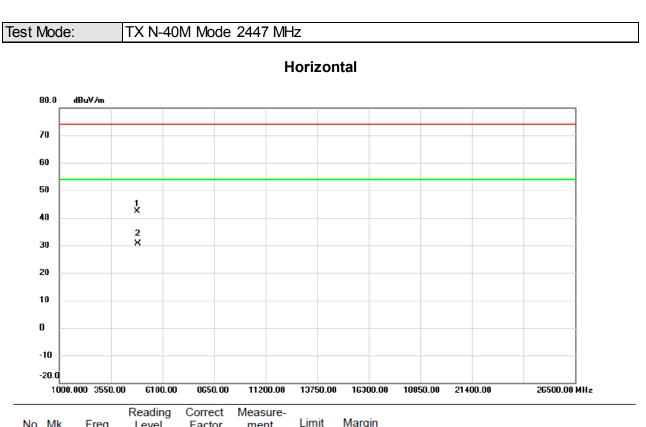
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

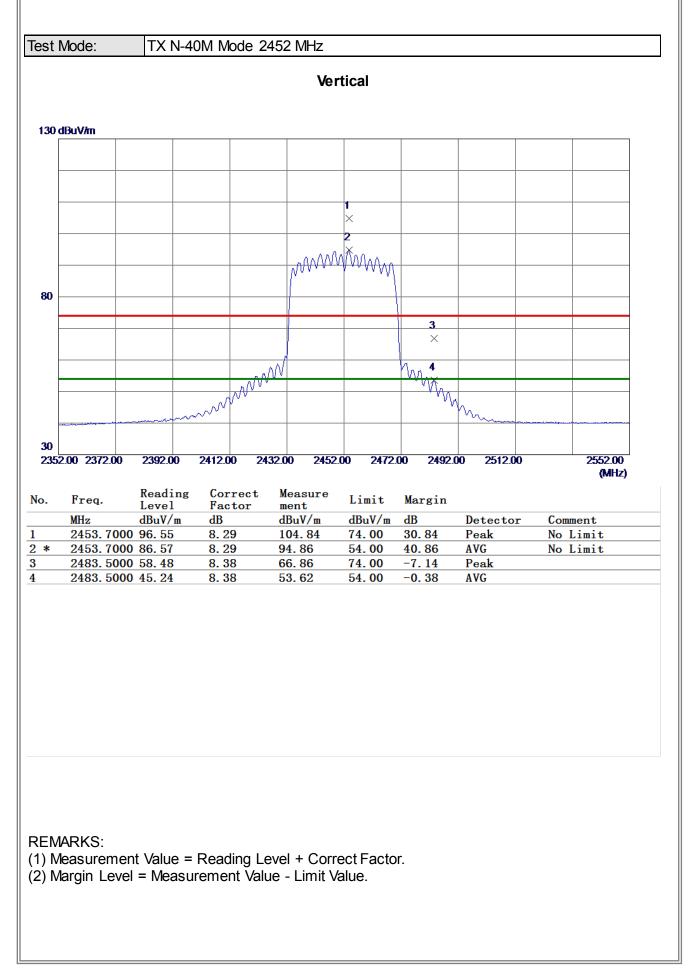




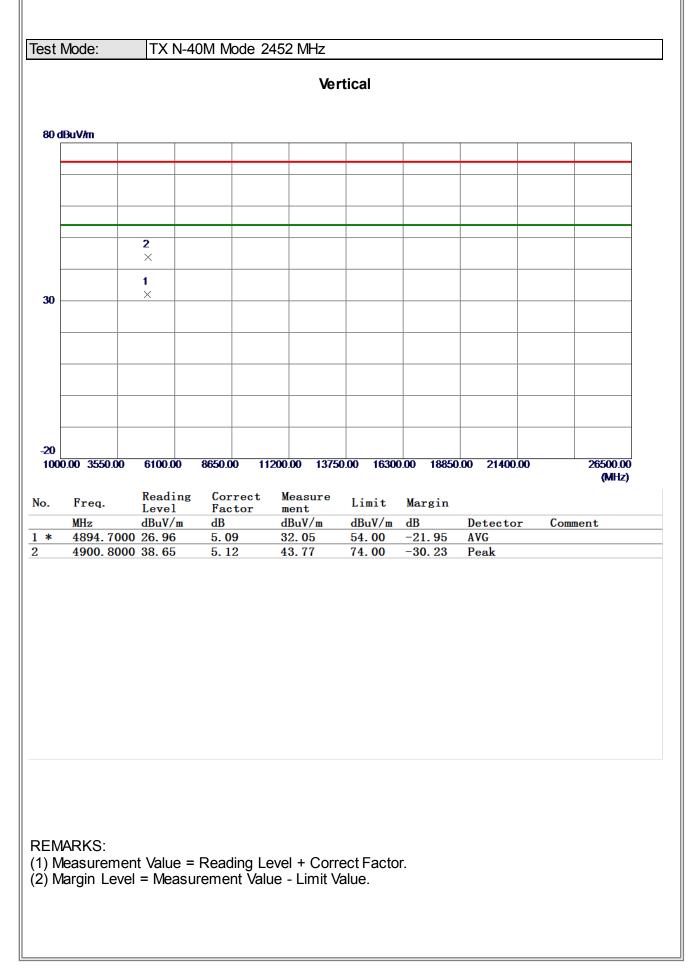
No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4861.800	37.50	4.93	42.43	74.00	-31.57	peak	
2 *	4883.000	25.72	5.03	30.75	54.00	-23.25	AVG	

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

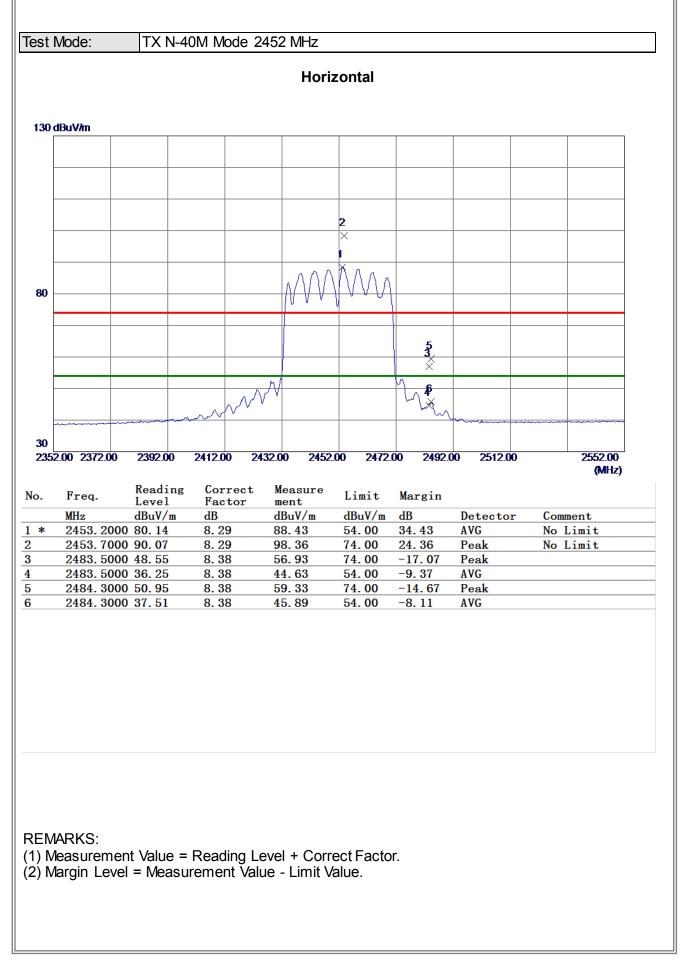




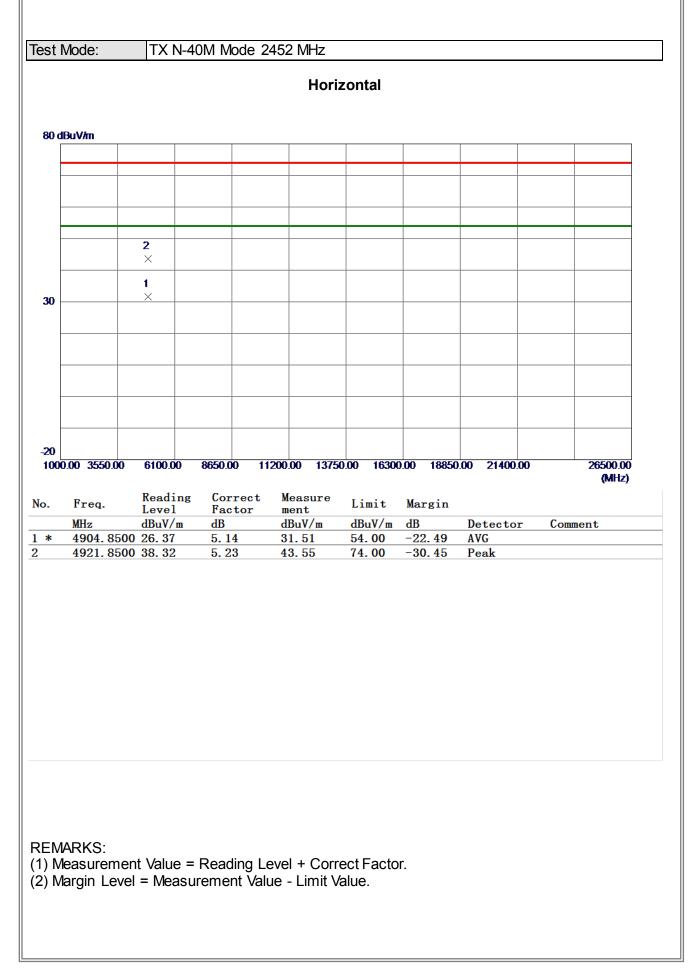




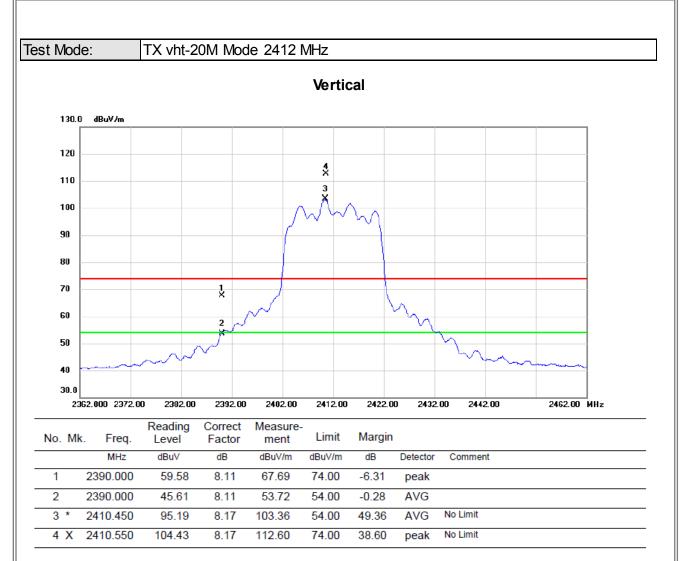






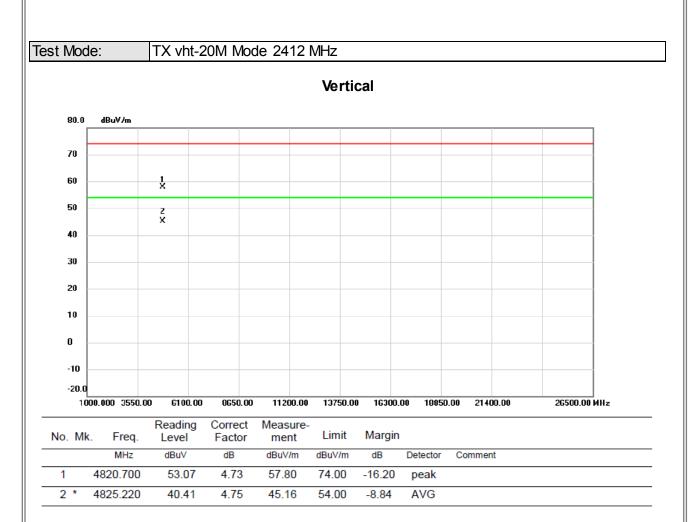






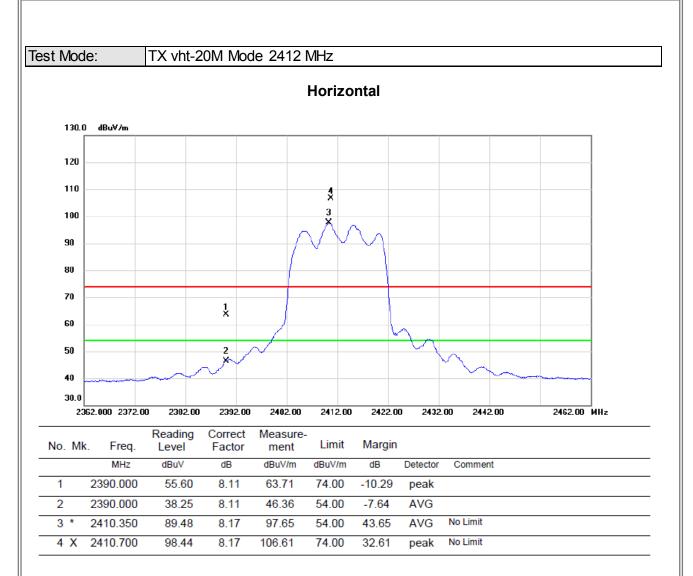
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





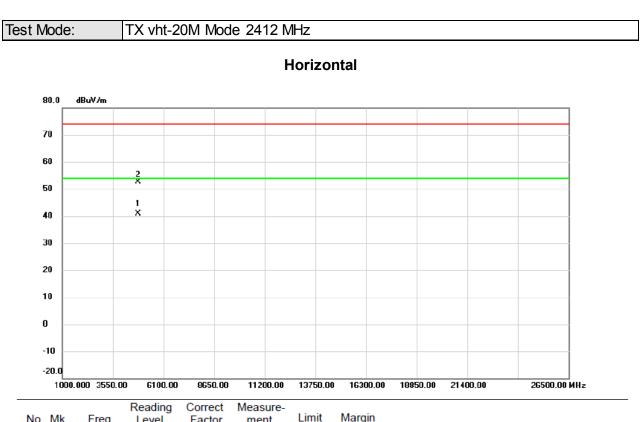
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

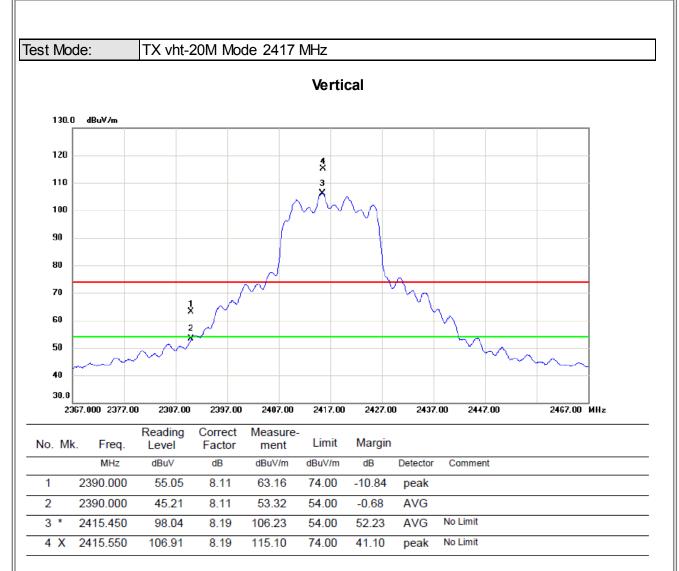




	No.	M	. Freq.	Level	Factor	ment	Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	*	4824.110	36.09	4.75	40.84	54.00	-13.16	AVG	
-	2		4826.620	47.93	4.76	52.69	74.00	-21.31	peak	

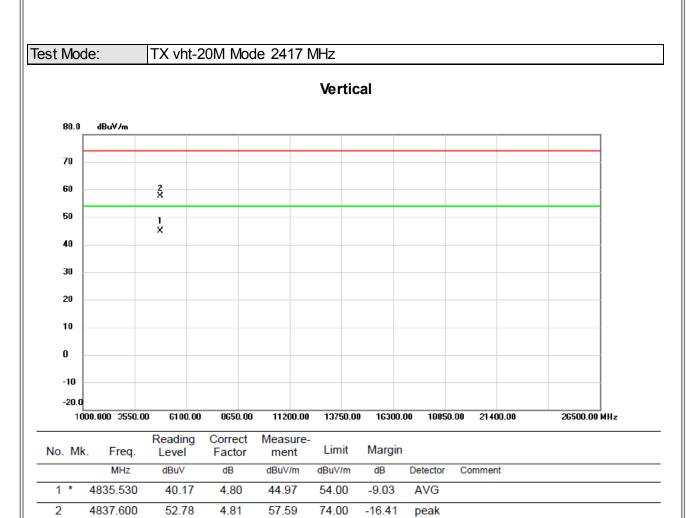
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





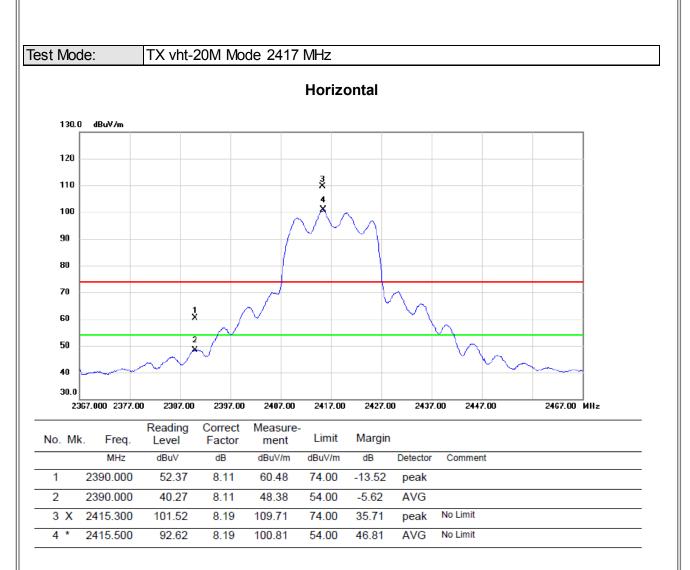
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





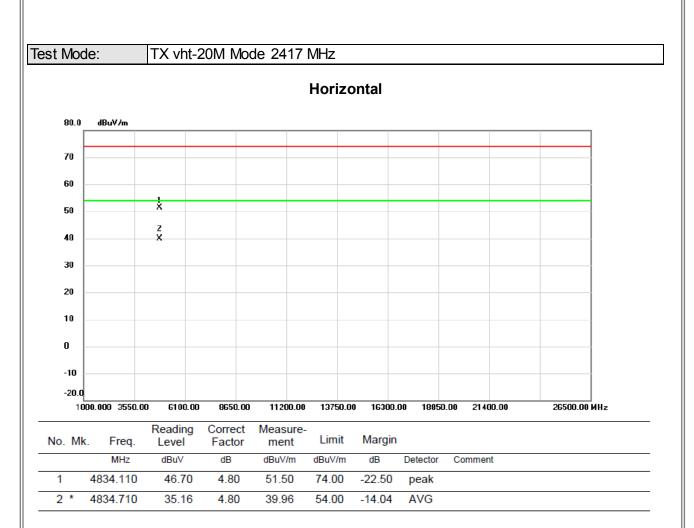
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





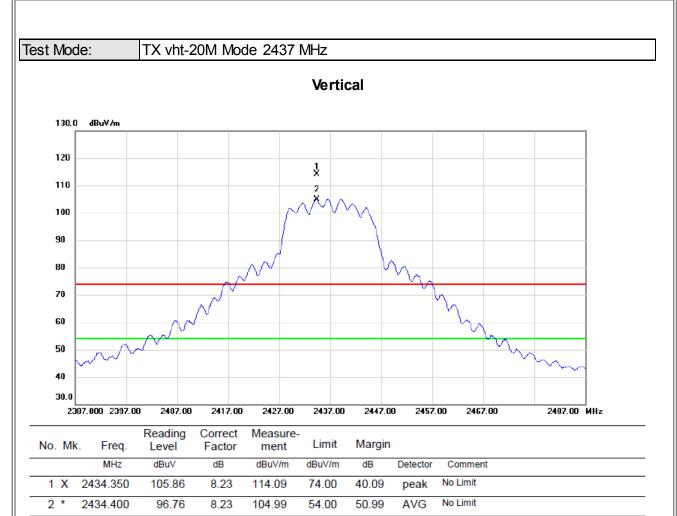
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





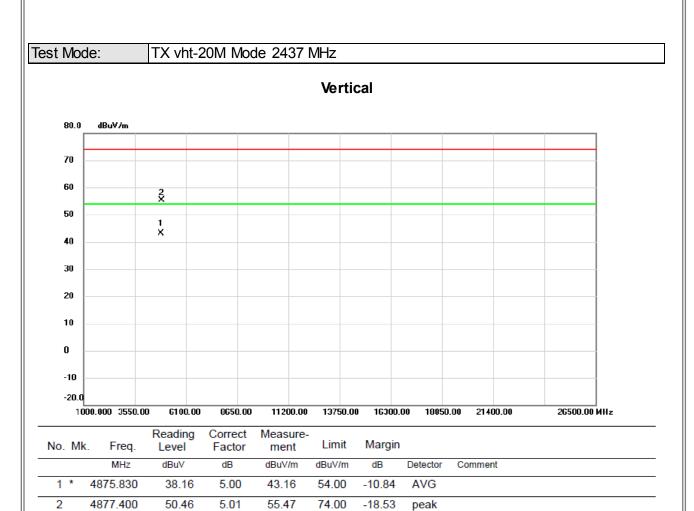
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





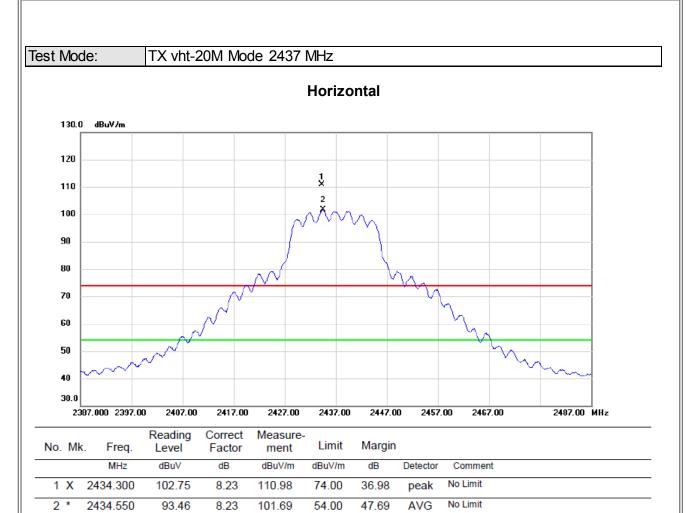
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





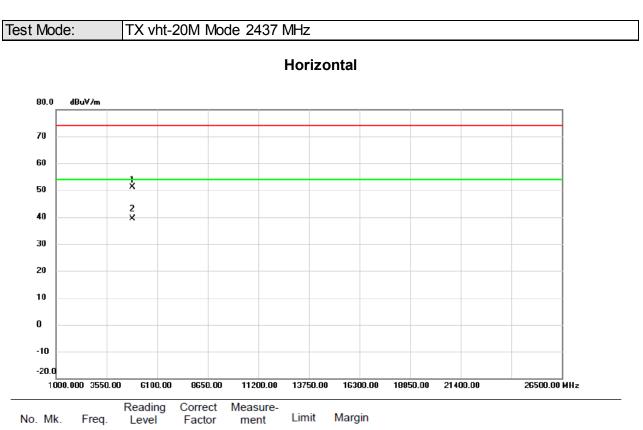
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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

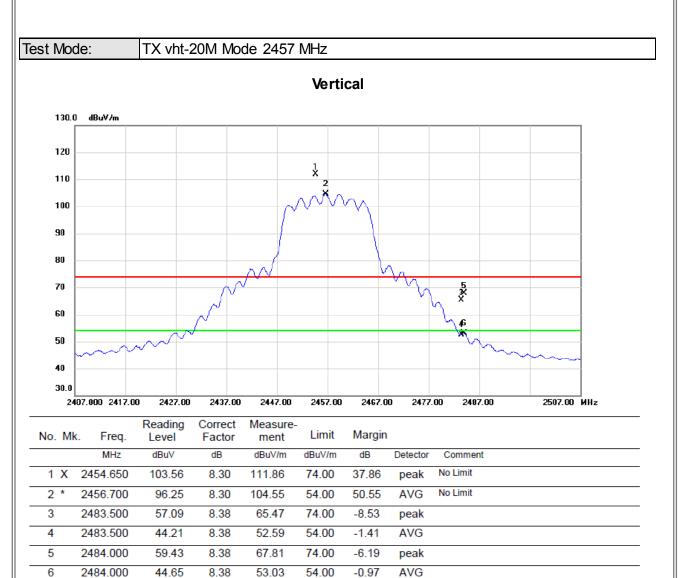




No. I	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	48	74.610	46.18	5.00	51.18	74.00	-22.82	peak	
2 *	48	74.630	34.39	5.00	39.39	54.00	-14.61	AVG	

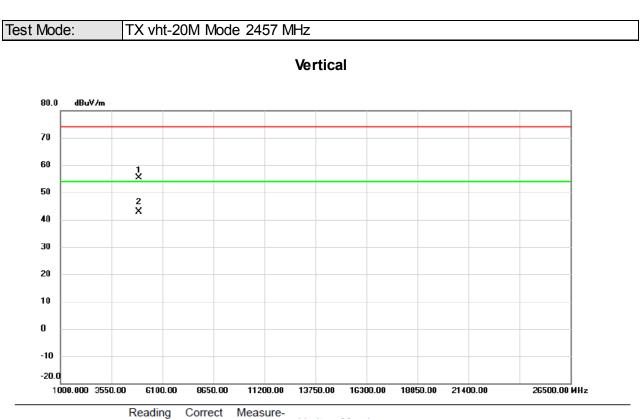
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

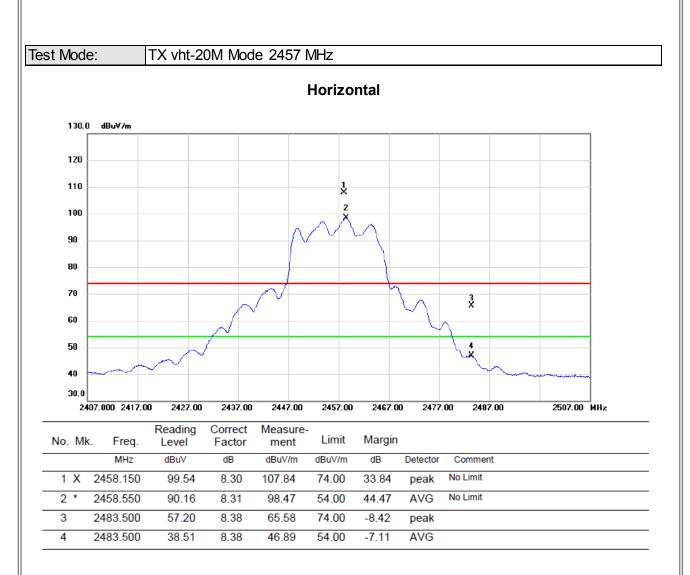




	No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	4911.080	50.13	5.17	55.30	74.00	-18.70	peak	
-	2 *	4912.140	37.79	5.17	42.96	54.00	-11.04	AVG	

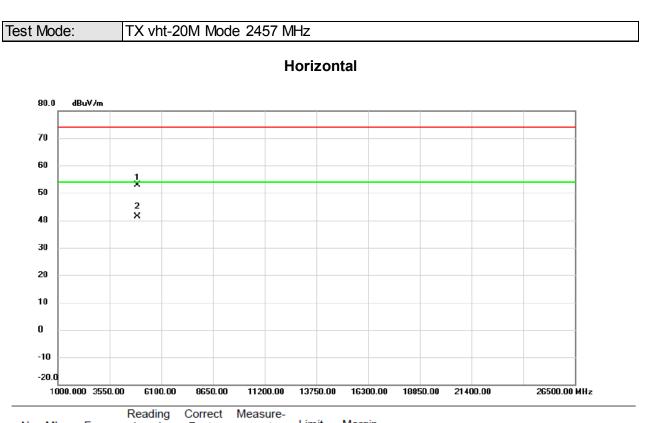
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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

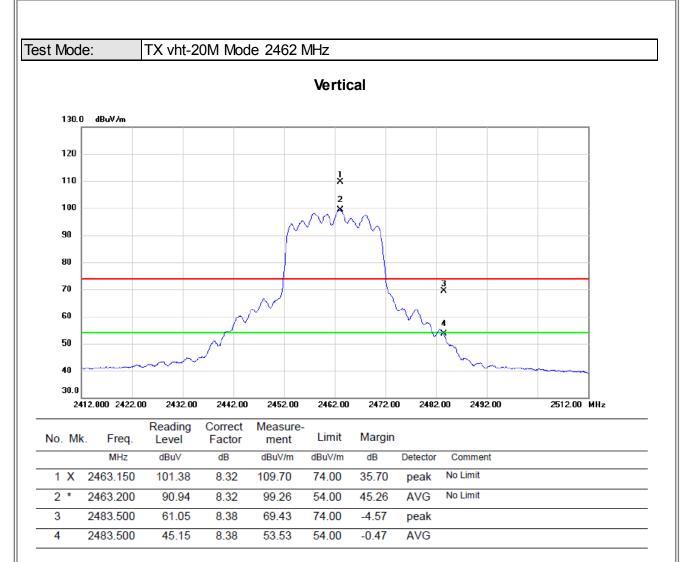




No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4911.690	47.83	5.17	53.00	74.00	-21.00	peak	
2 *	4914.530	36.14	5.18	41.32	54.00	-12.68	AVG	

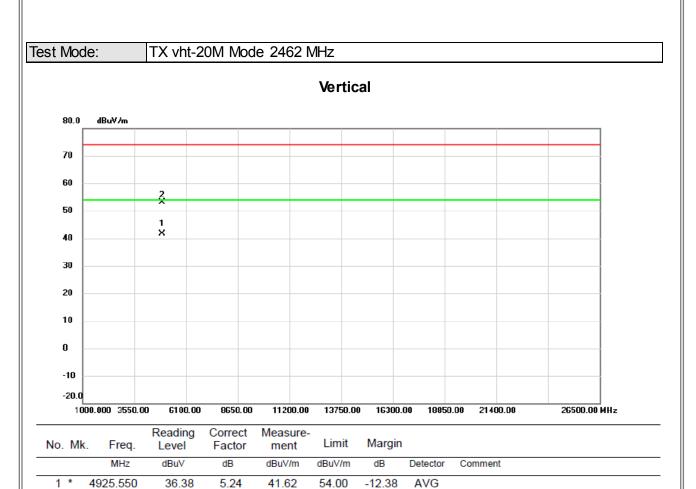
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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





2

4926.920

47.91

5.26

53.17

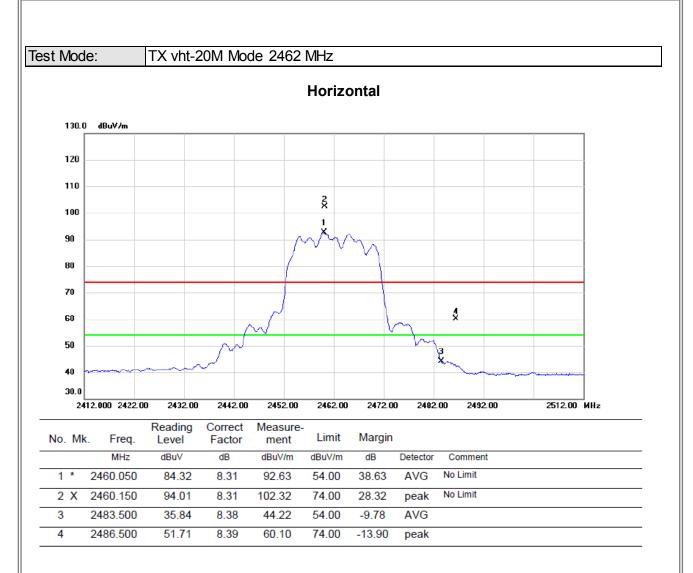
74.00

-20.83

peak

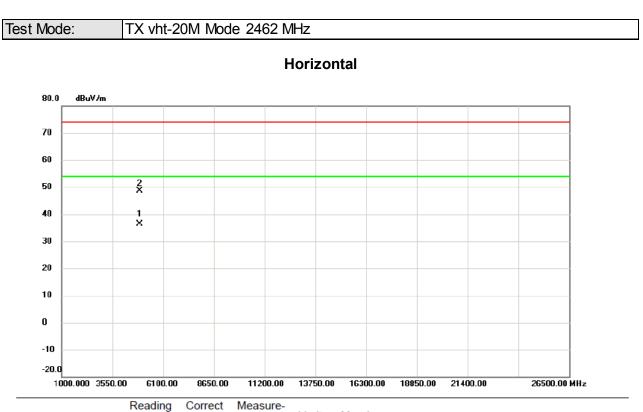
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

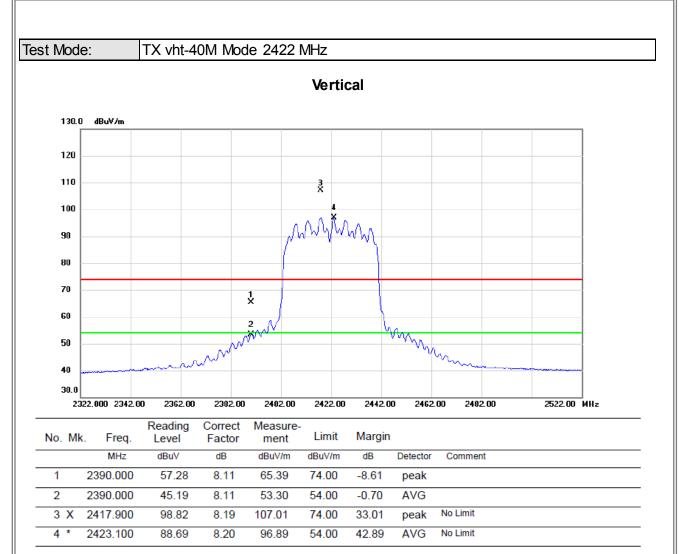




	No. M	k. Freq.	Level	Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1 *	4920.470	31.28	5.22	36.50	54.00	-17.50	AVG	
-	2	4923.920	43.38	5.24	48.62	74.00	-25.38	peak	

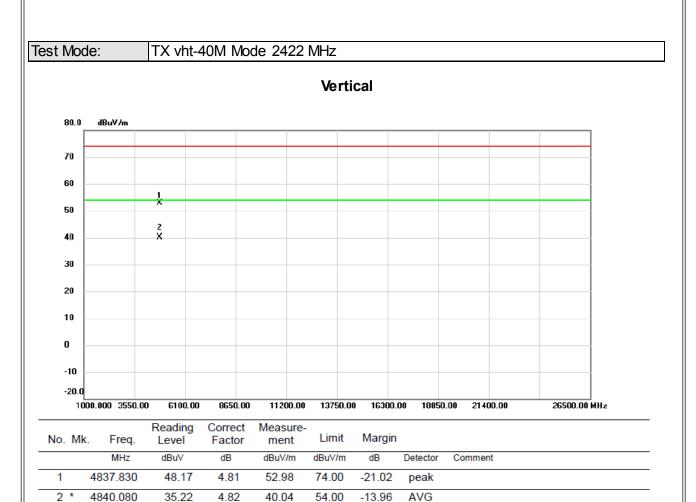
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





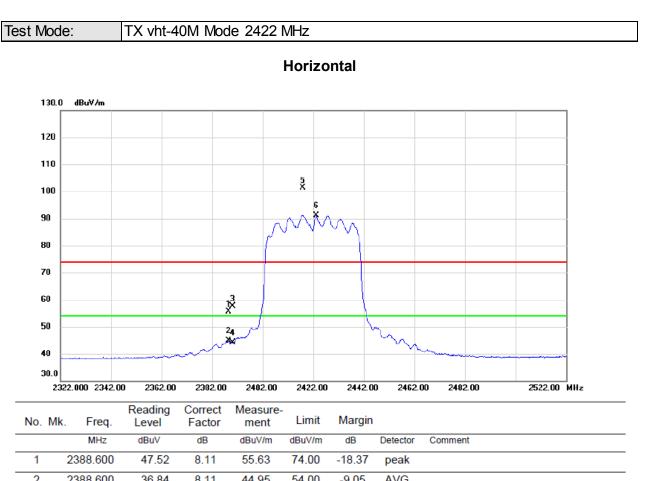
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

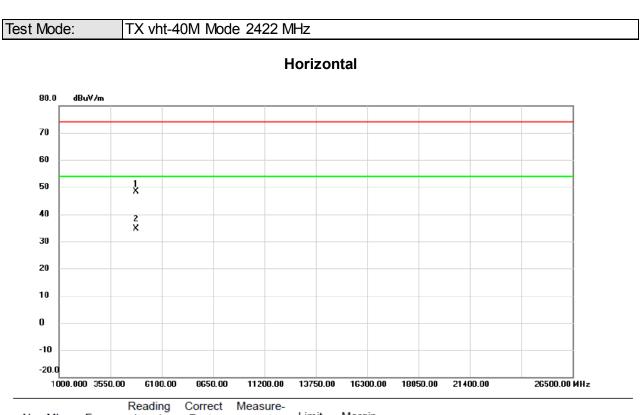




2	2388.600	36.84	8.11	44.95	54.00	-9.05	AVG	
3	2390.000	49.53	8.11	57.64	74.00	-16.36	peak	
4	2390.000	35.91	8.11	44.02	54.00	-9.98	AVG	
5 X	2417.800	93.13	8.19	101.32	74.00	27.32	peak	No Limit
6 *	2423.300	82.94	8.20	91.14	54.00	37.14	AVG	No Limit
-								

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

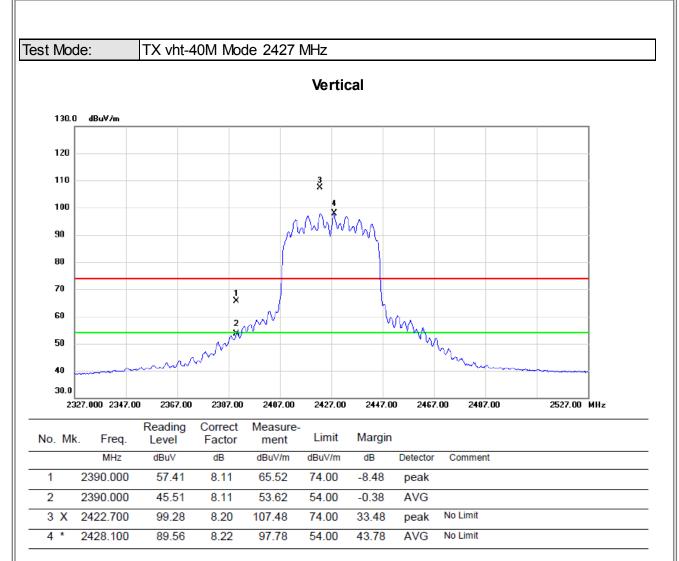




	No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	4	837.830	43.64	4.81	48.45	74.00	-25.55	peak	
-	2	* 4	838.240	29.92	4.82	34.74	54.00	-19.26	AVG	

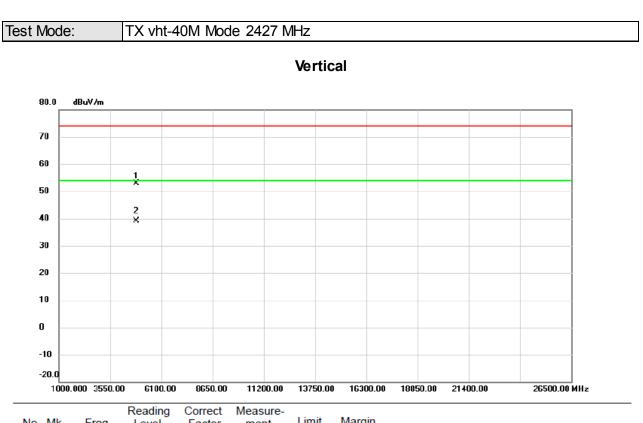
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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

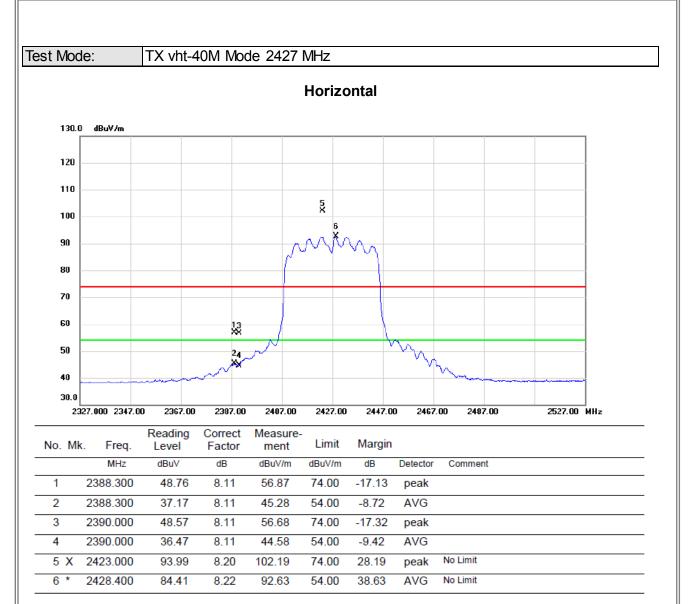




	No. M	k. Freq.			ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	4848.540	48.12	4.87	52.99	74.00	-21.01	peak	
-	2 *	4848.560	34.30	4.87	39.17	54.00	-14.83	AVG	

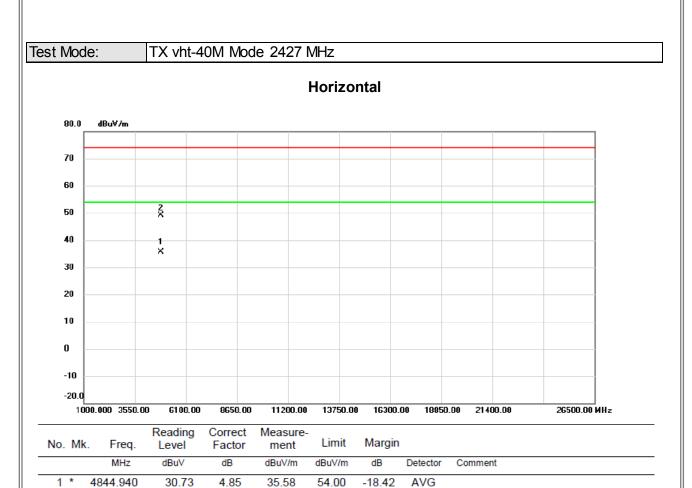
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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





74.00

49.02

-24.98

peak

REMARKS:

2

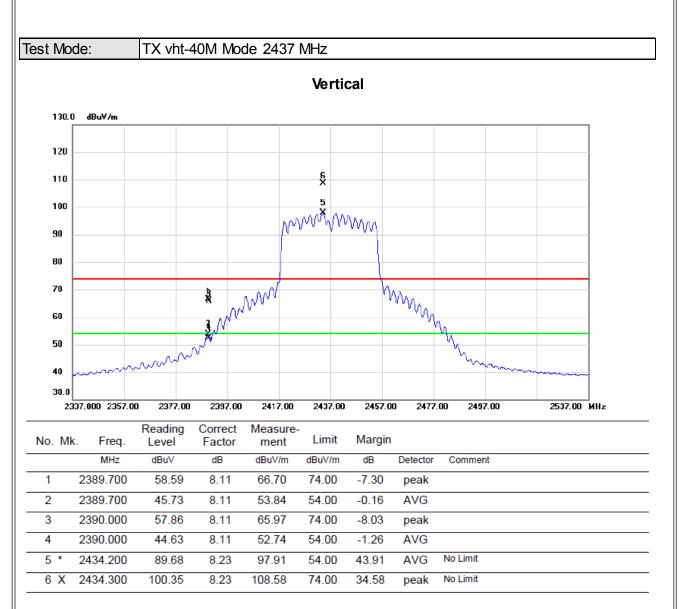
4847.880

44.16

4.86

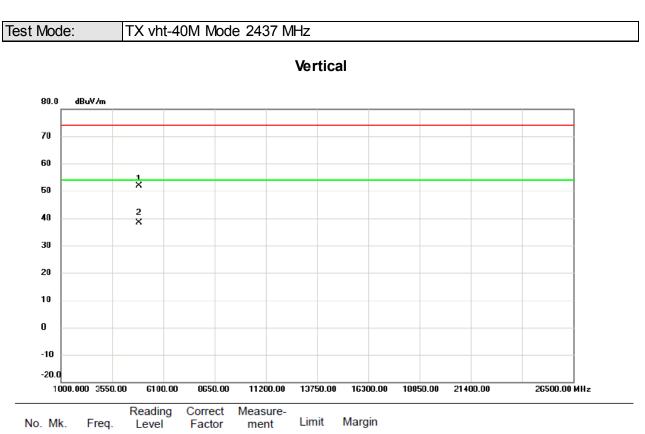
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

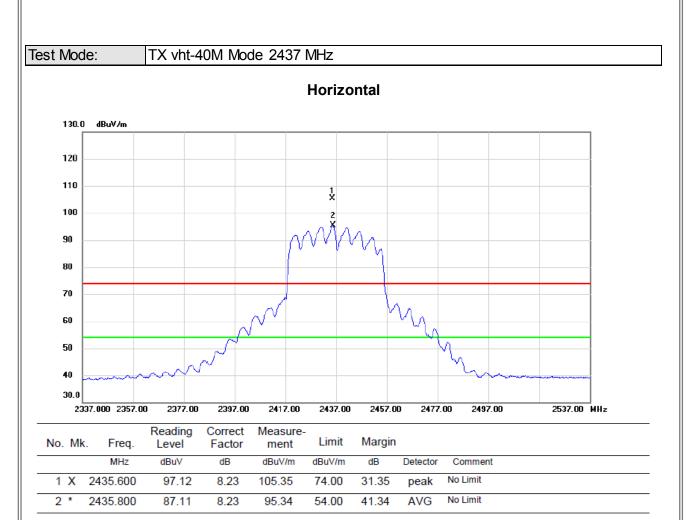




	No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
-		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	4877.390	46.94	5.01	51.95	74.00	-22.05	peak	
-	2 *	4881.300	33.23	5.03	38.26	54.00	-15.74	AVG	

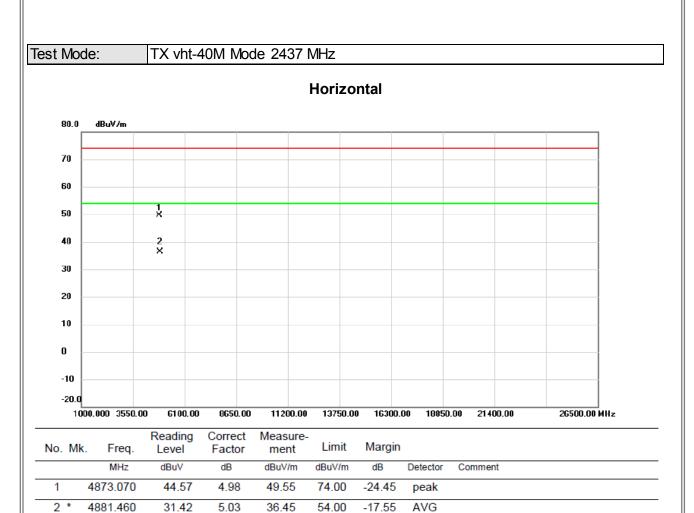
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





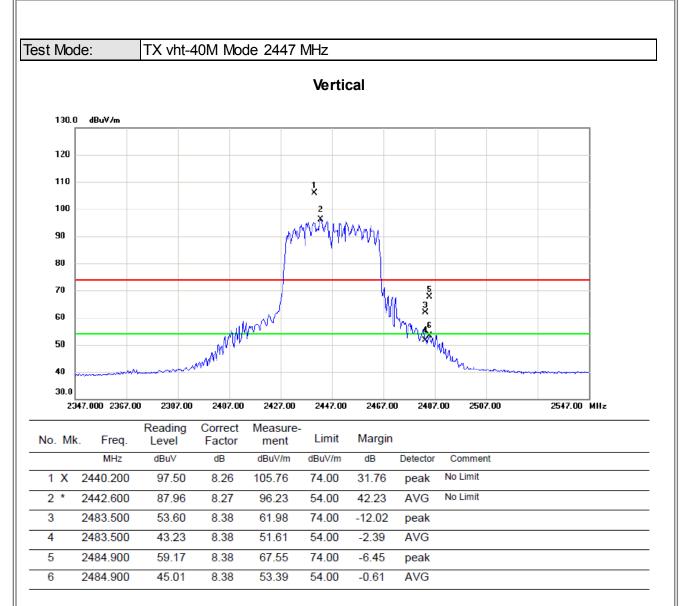
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





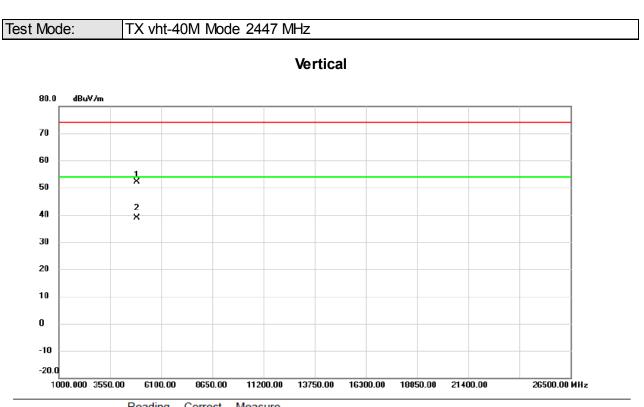
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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

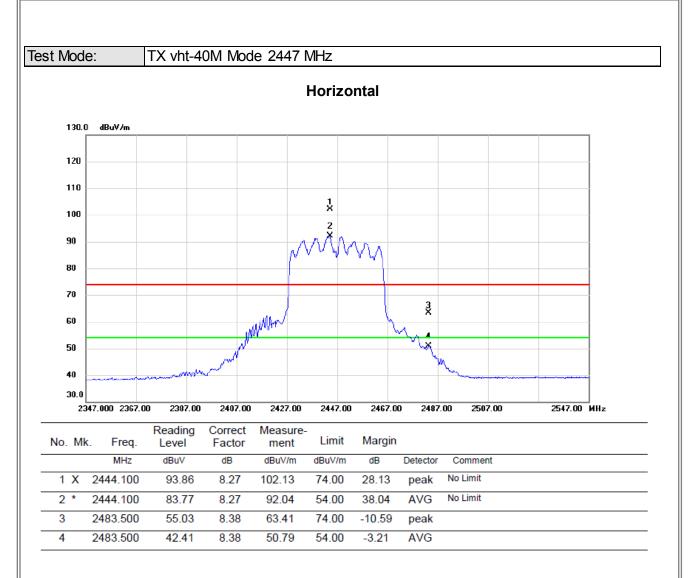




	No. N	٨k.	Freq.		Factor	measure-	Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1	48	85.400	47.17	5.05	52.22	74.00	-21.78	peak	
-	2 *	48	888.100	33.80	5.06	38.86	54.00	-15.14	AVG	

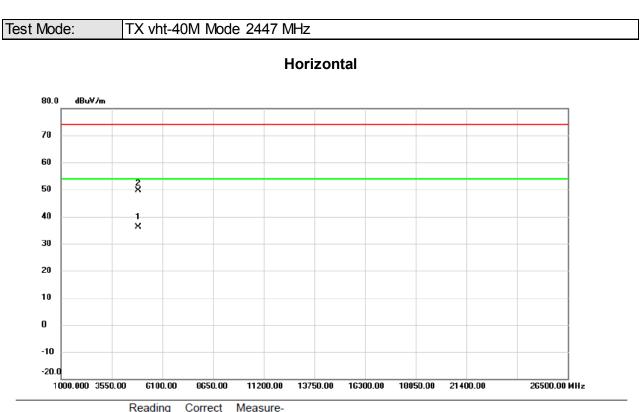
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

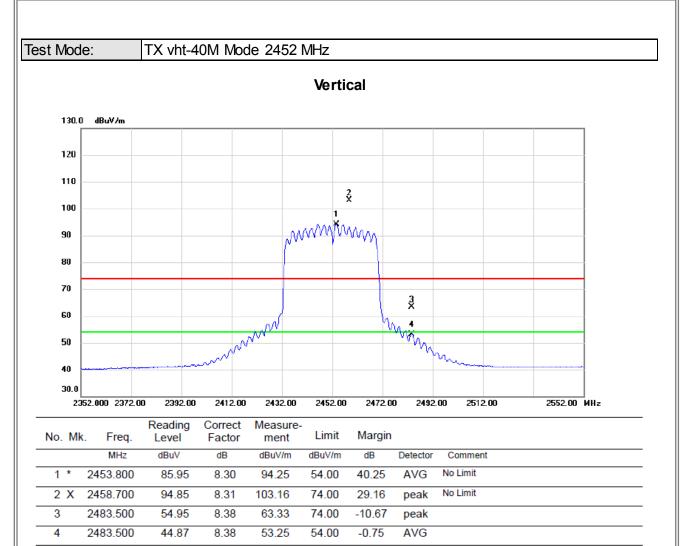




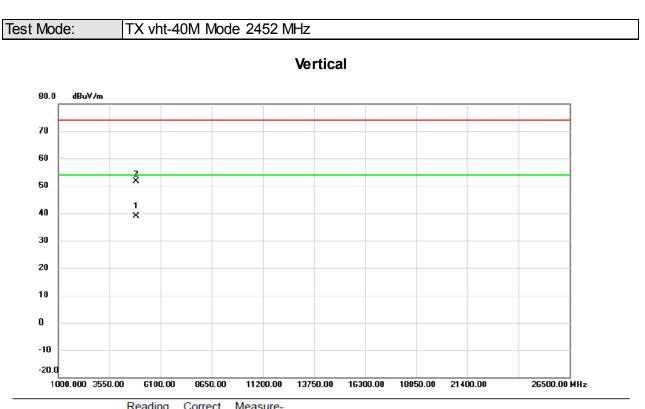
	No. Mk	. Freq.		Correct Factor	Measure- ment		Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1 *	4893.000	31.01	5.09	36.10	54.00	-17.90	AVG	
-	2	4894.650	44.61	5.10	49.71	74.00	-24.29	peak	

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





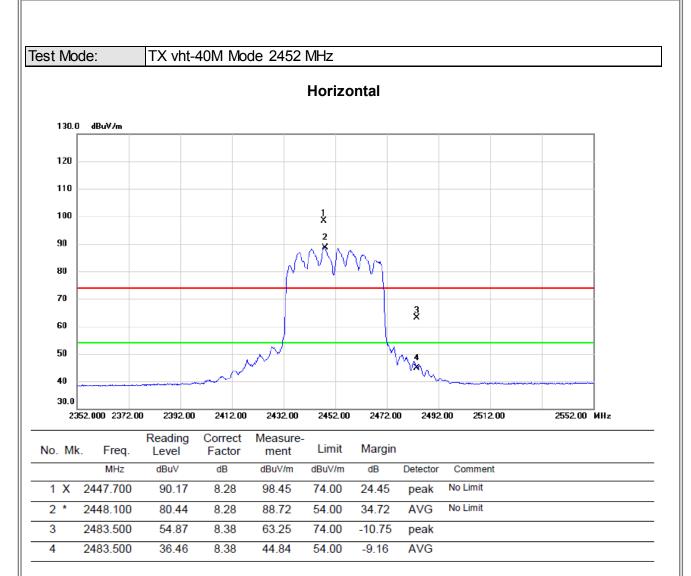
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



	No. M	k. Freq.		Factor	measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1 *	4897.960	33.78	5.11	38.89	54.00	-15.11	AVG	
-	2	4900.370	46.41	5.12	51.53	74.00	-22.47	peak	

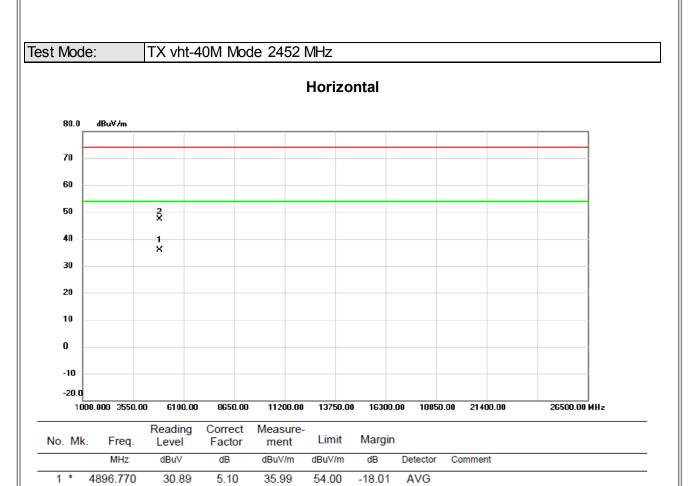
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





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





4907.090

2

42.32

47.47

74.00

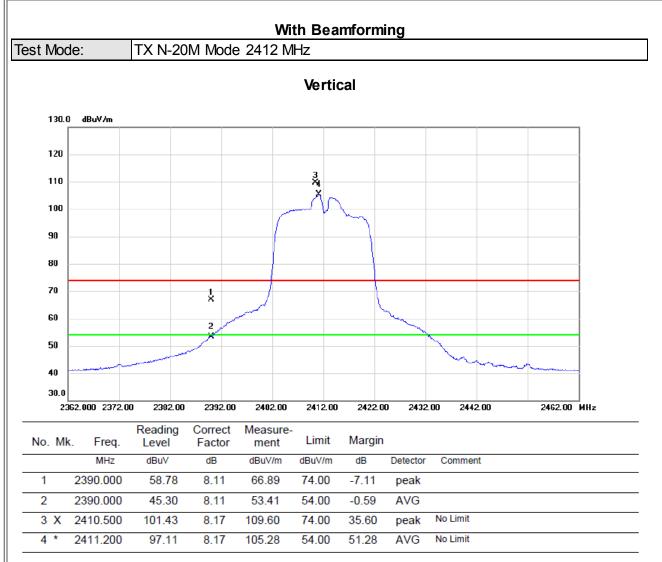
-26.53

peak

5.15

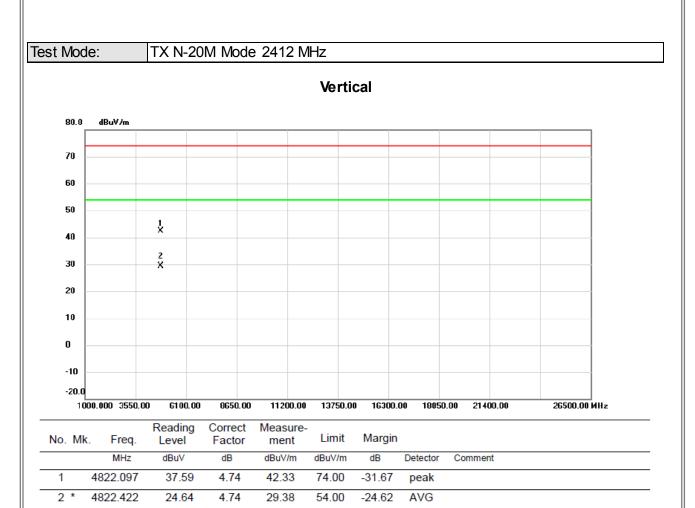
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





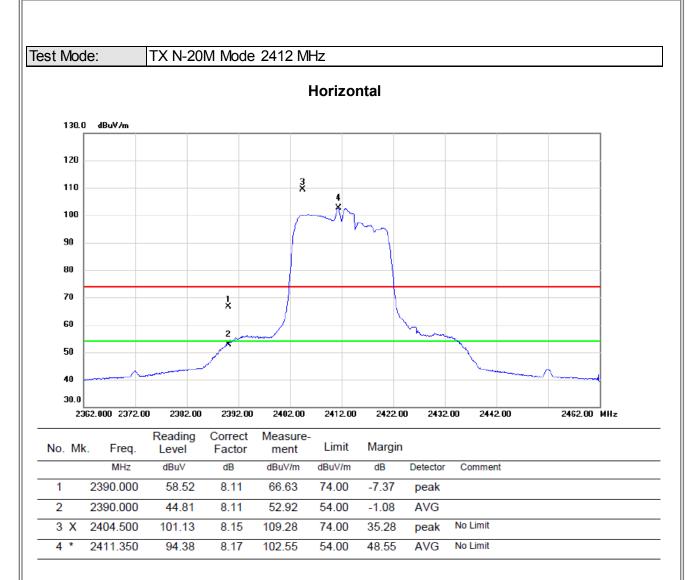
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





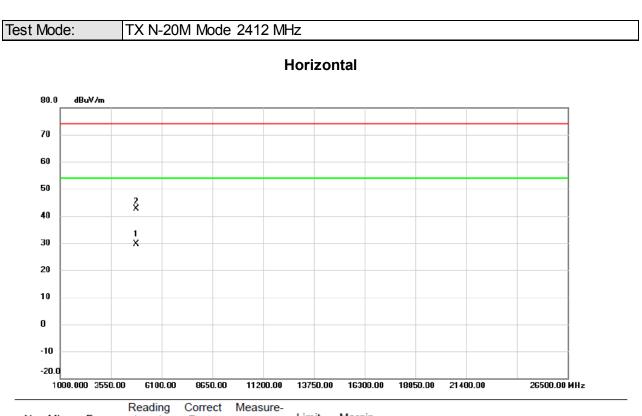
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

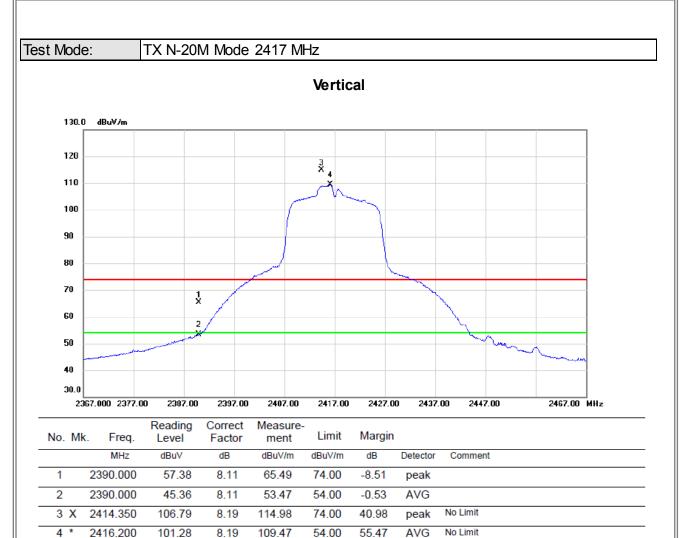




No. N	٨k.	Freq.	Level		ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	48	323.873	24.76	4.75	29.51	54.00	-24.49	AVG	
2	48	325.950	37.87	4.75	42.62	74.00	-31.38	peak	

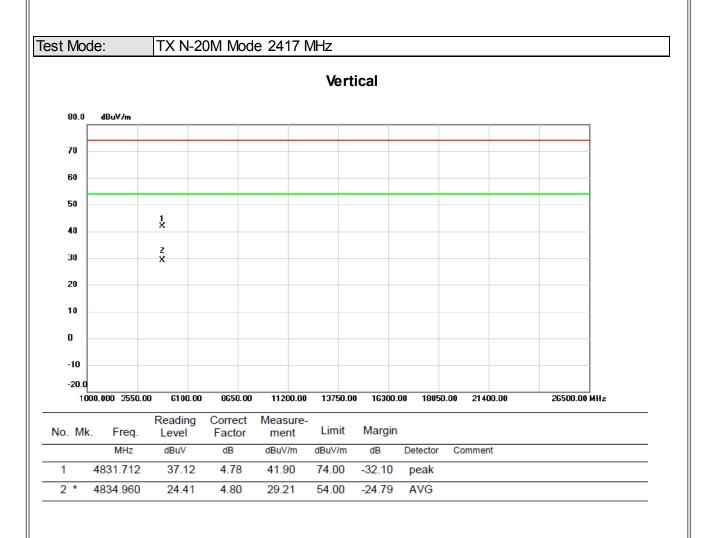
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





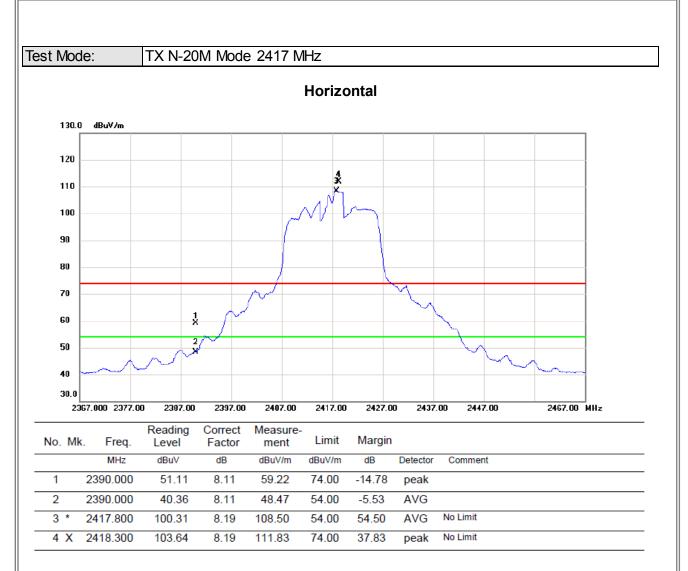
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





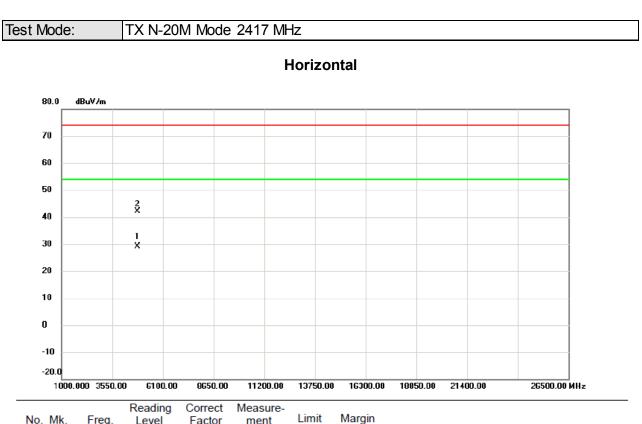
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

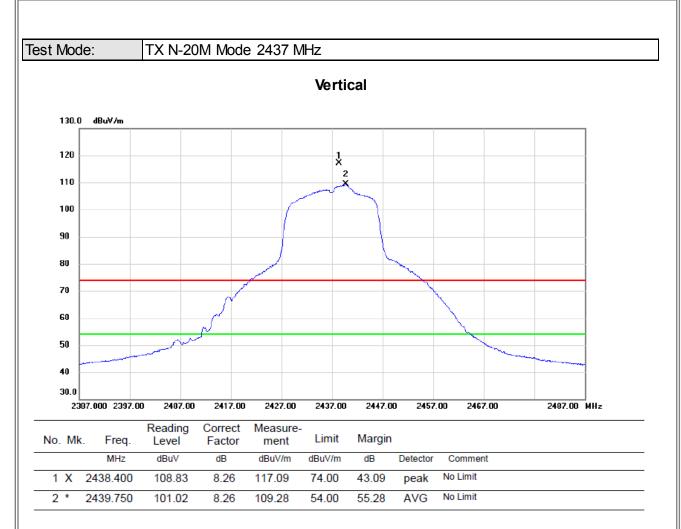




	No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1 *	4832.555	24.31	4.79	29.10	54.00	-24.90	AVG	
-	2	4835.635	37.34	4.80	42.14	74.00	-31.86	peak	

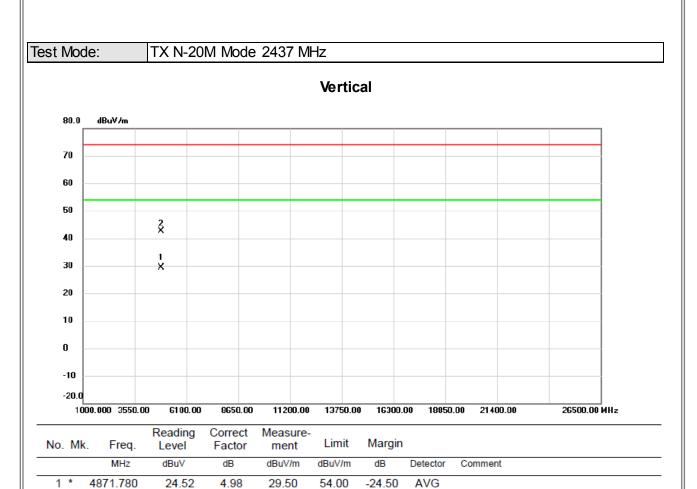
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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





peak

-31.37

**REMARKS**:

2

4874.200

37.63

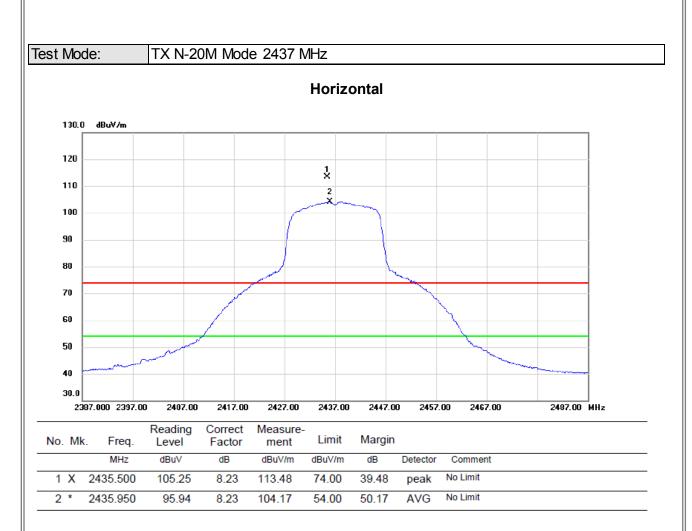
5.00

42.63

74.00

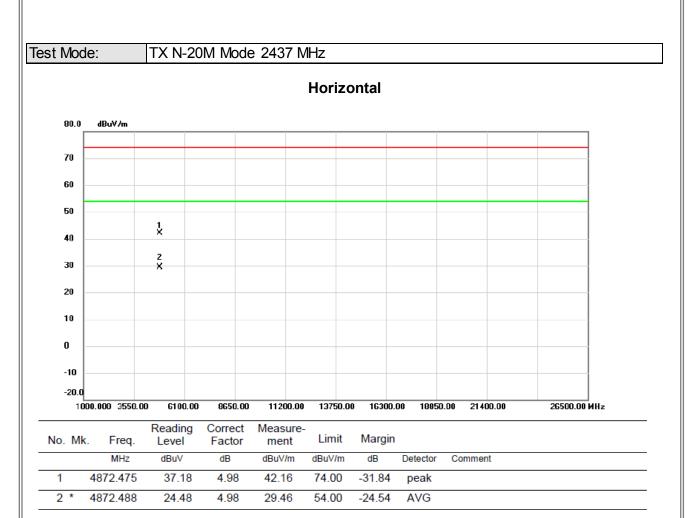
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- (2) Margin Level = Measurement Value Limit Value.





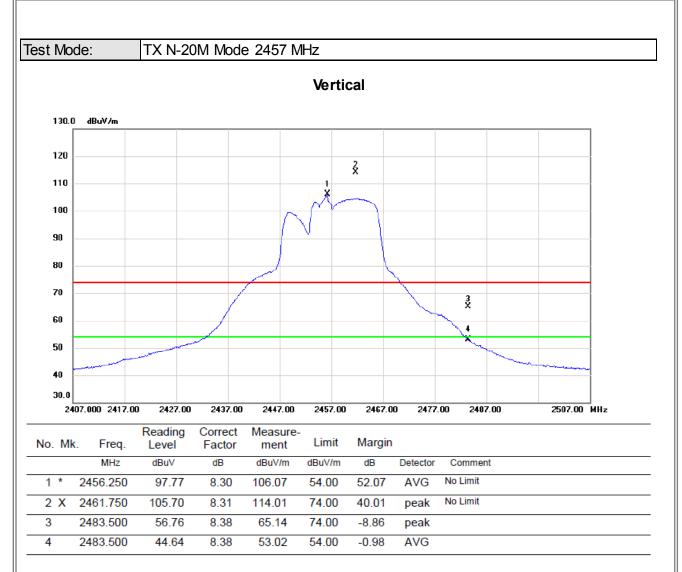
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





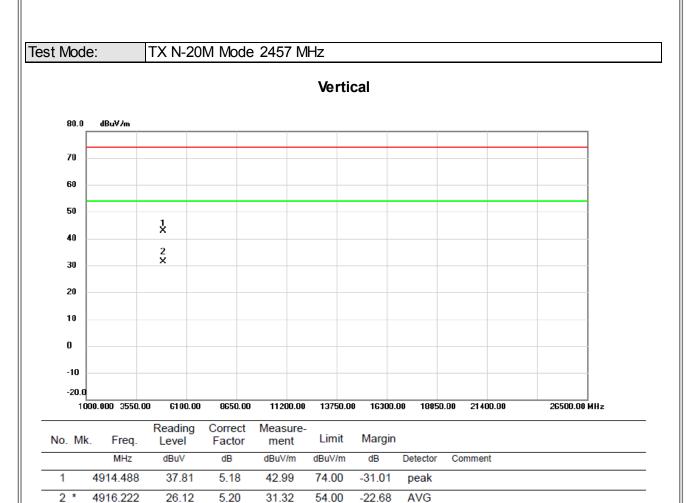
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





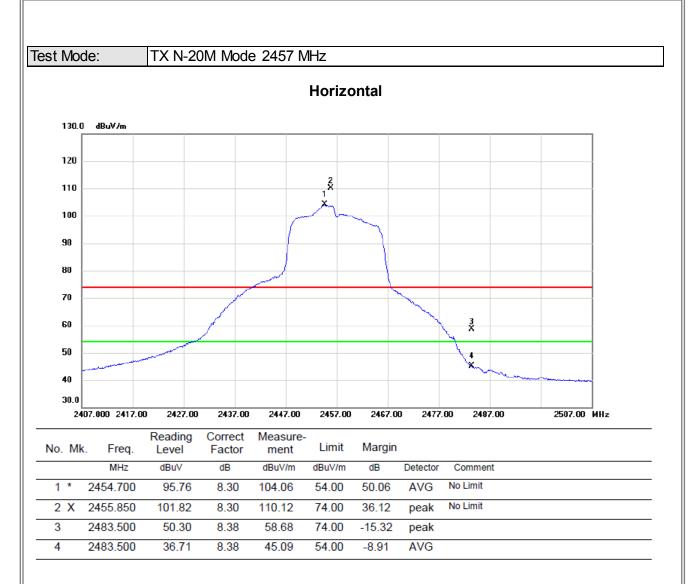
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





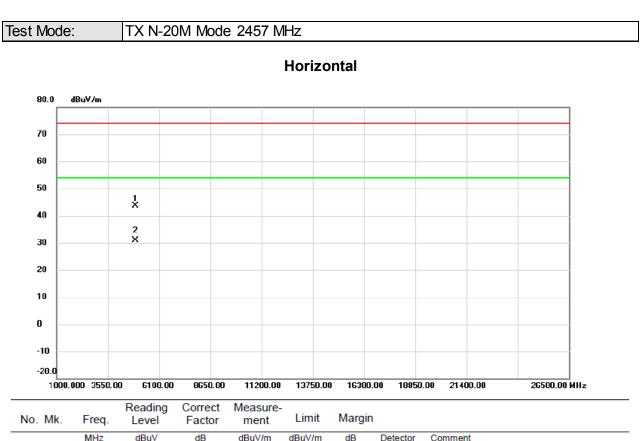
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

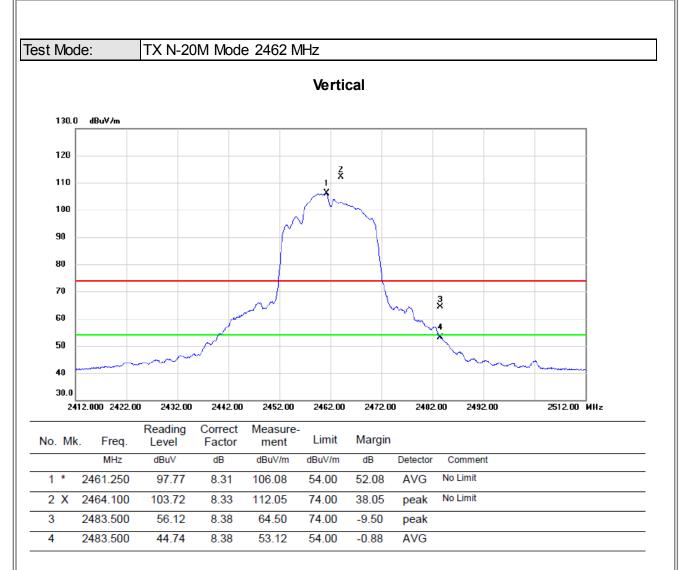




No. M	k. Freq.	Level	Factor	ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4911.595	38.43	5.17	43.60	74.00	-30.40	peak	
2 *	4915.950	25.68	5.19	30.87	54.00	-23.13	AVG	

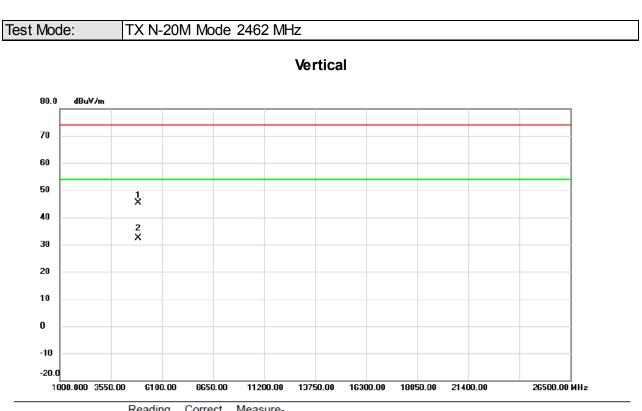
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





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

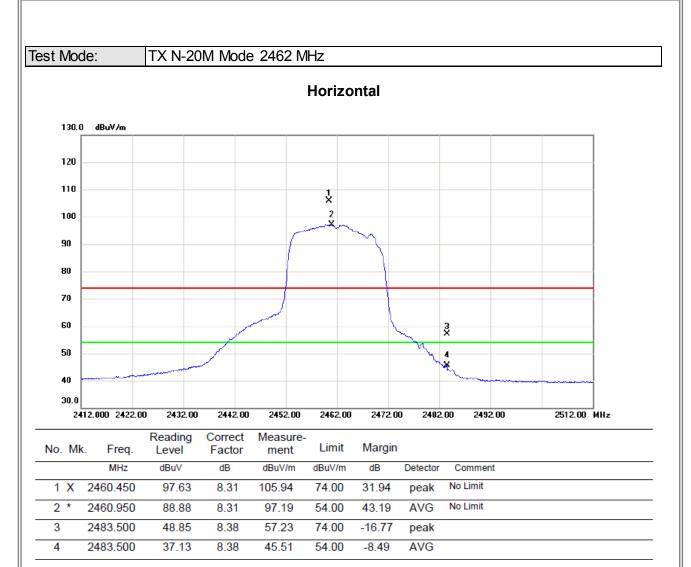




	No.	Mk.	Freq.	Level	Factor	measure-	Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	4	923.515	40.18	5.24	45.42	74.00	-28.58	peak	
-	2	* 4	923.583	27.12	5.24	32.36	54.00	-21.64	AVG	

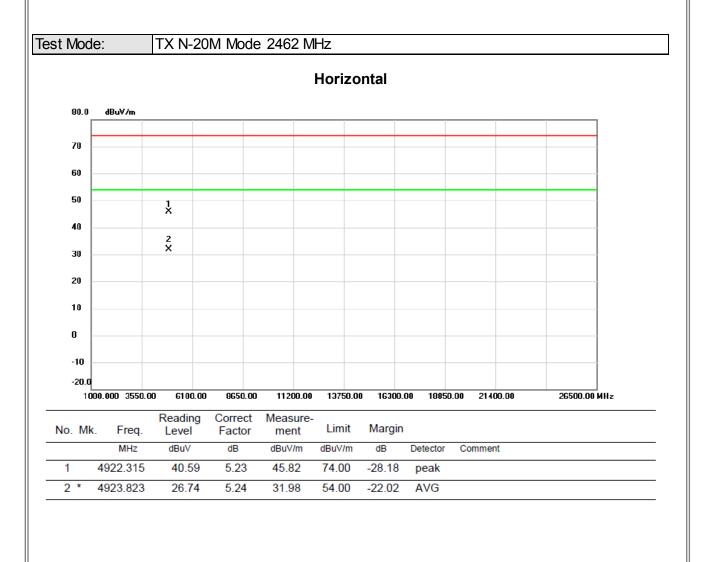
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





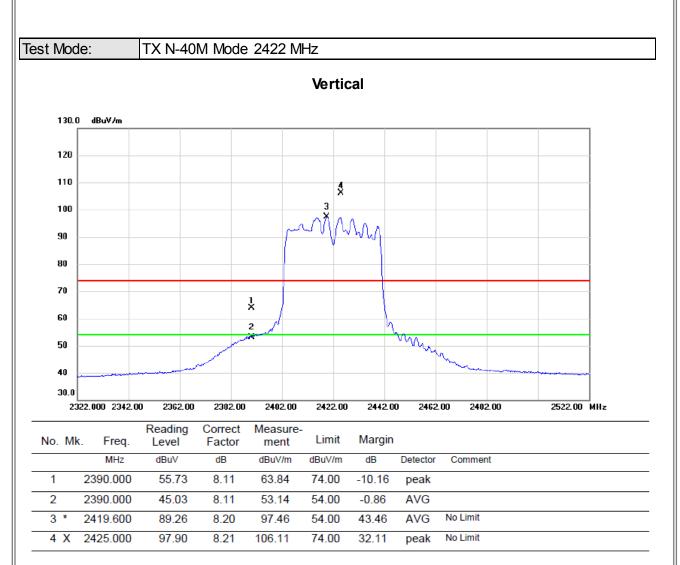
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





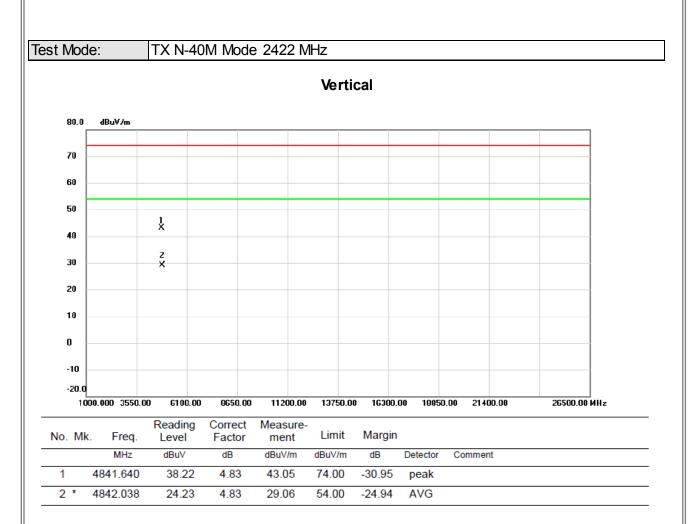
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





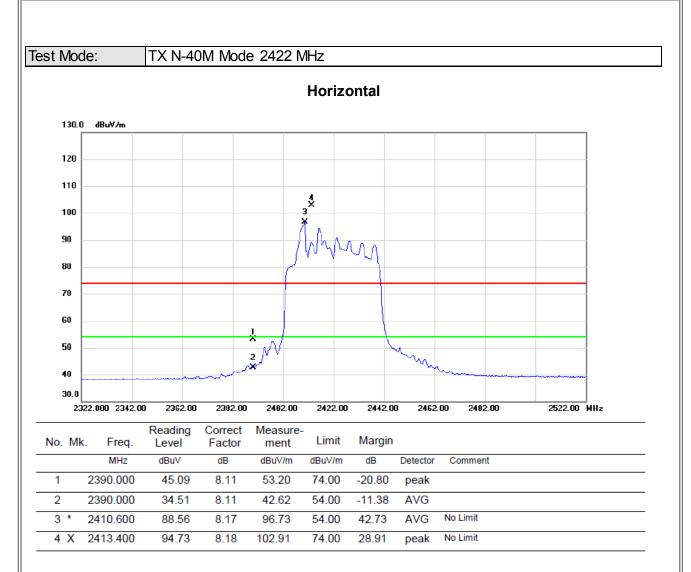
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





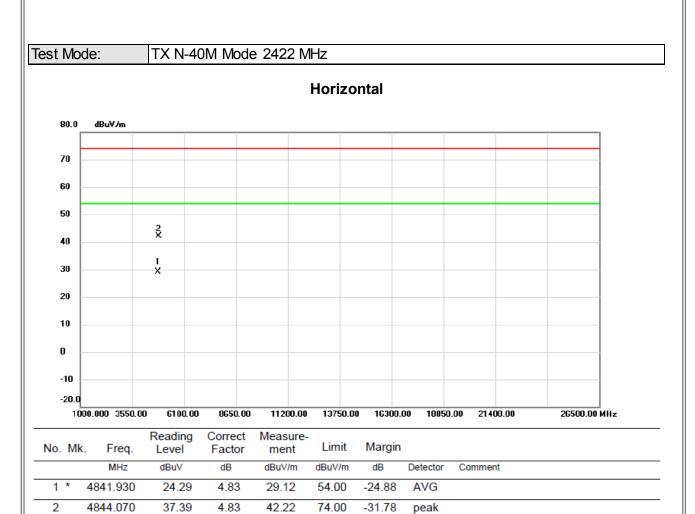
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





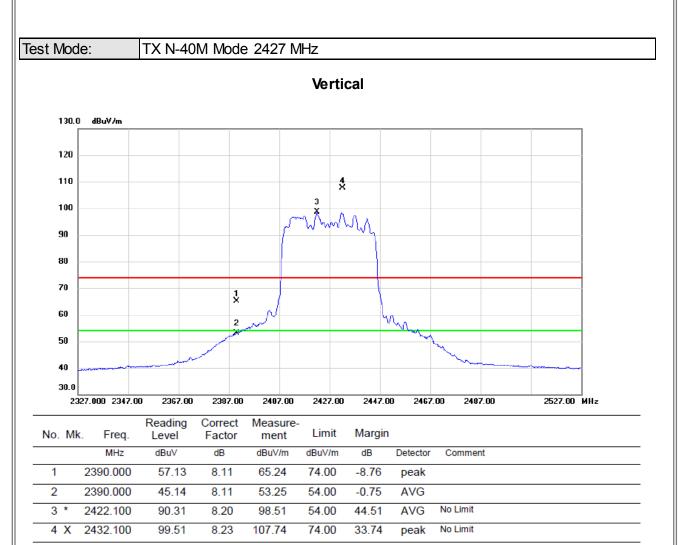
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





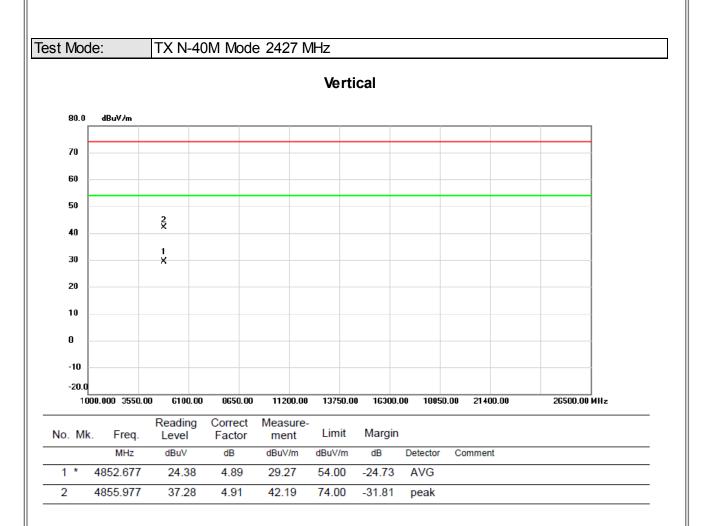
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





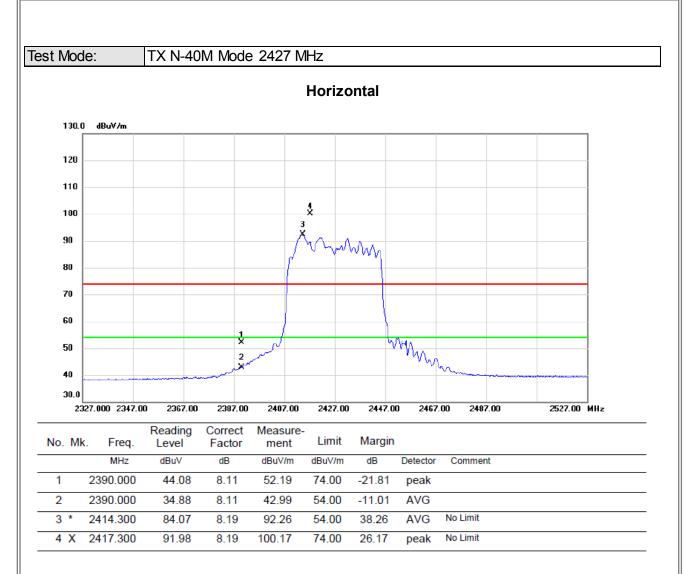
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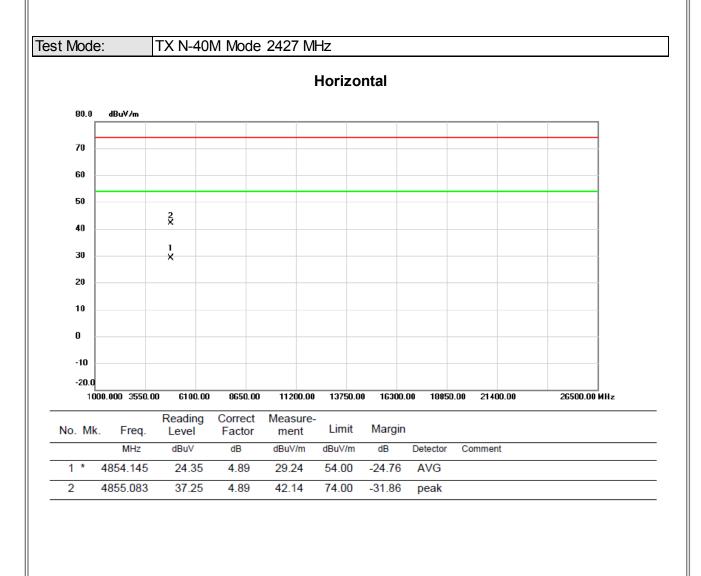
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





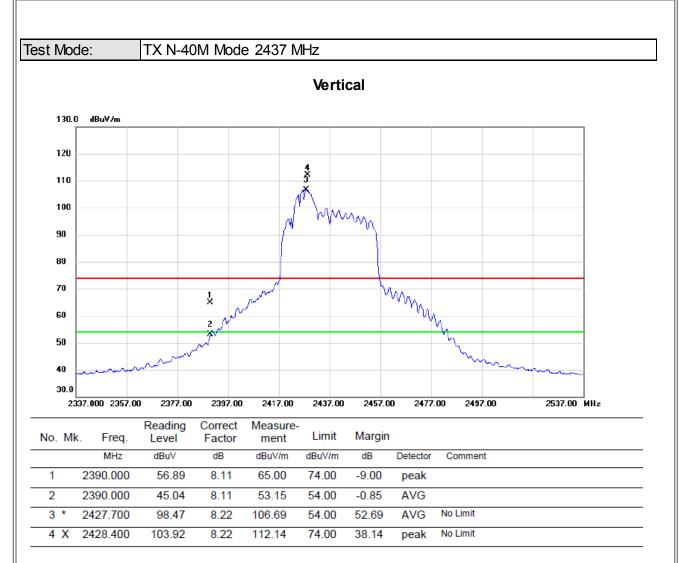
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





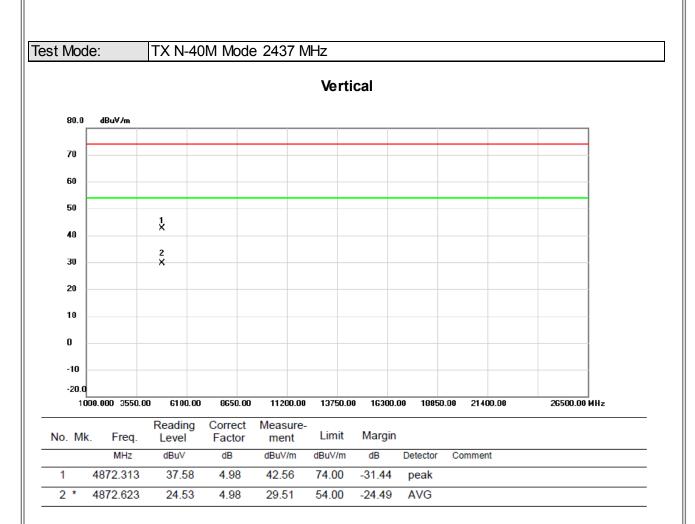
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- (2) Margin Level = Measurement Value Limit Value.





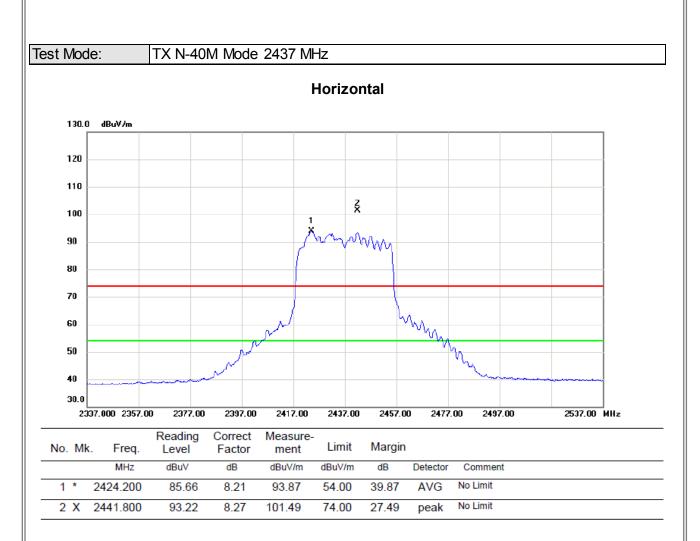
- (1) Measurement Value = Reading Level + Correct Factor.
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