

FCC Radio Test Report

FCC ID: 2AXJ4EAP245V4

This report concerns: Original Grant

Project No.	:	2206C110A
Equipment	:	AC1750 Wireless MU-MIMO Gigabit Ceiling Mount Access Point
Brand Name	:	tp-link
Test Model	:	EAP245
Series Model	:	N/A
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	:	Jul. 07, 2022
Date of Test	:	Jul. 08, 2022 ~ Aug. 08, 2022
Issued Date	:	Sep. 05, 2022
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2022070778 for conducted,
		DG2022070779 for others.
Standard(s)	:	FCC CFR Title 47, Part 15, Subpart C FCC KDB 558074 D01 15.247 Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 ANSI C63.10-2013

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

Theng

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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 No.	Version	Description	Issued Date	Note
BTL-FCCP-1-2206C110A	R00	Original Report.	Sep. 05, 2022	Valid



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 523792 People's Republic of China. BTL's Registration Number for FCC: 357015 BTL's Designation Number for FCC: CN1240

1.2 MEASUREMENT UNCERTAINTY

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

A. AC power line conducted emissions test:

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

B. Radiated emissions test:

Test Site	Method	Method Measurement Frequency Range			
DG-CB01	CISPR	9kHz ~ 30MHz	2.36		

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

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

Test Site	Method	Measurement Frequency Range	
DG-CB03 (1m)		18 ~ 26.5 GHz	3.62
	CISPR	26.5 ~ 40 GHz	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	23°C	52%	AC 120V/60Hz	Jeter Wang
Radiated Emissions-9kHz to 30 MHz	26°C	56%	AC 120V/60Hz	Farun Liang
Radiated Emissions-30MHz to 1000MHz	26°C	55%	AC 120V/60Hz	Meers Zhang
Radiated Emissions-Above 1000MHz	25°C	55%	AC 120V/60Hz	Meers Zhang
Bandwidth	24-25°C	52-62%	AC 120V/60Hz	Silly Zheng Hayden Chen Ansel Yang
Maximum Average Output Power	24.1-25°C	65.8-66.8%	AC 120V/60Hz	Complex Qin
Conducted Spurious Emissions	24-25°C	52-62%	AC 120V/60Hz	Silly Zheng Hayden Chen Ansel Yang
Power Spectral Density	24-25°C	52-62%	AC 120V/60Hz	Silly Zheng Hayden Chen Ansel Yang

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	AC1750 Wireless MU-MIMO Gigabit Ceiling Mount Access Point			
Brand Name	tp-link			
Test Model	EAP245			
Series Model	N/A			
Model Difference(s)	N/A			
Power Source	1# Supplied from PoE Adapter. Model: TL-POE4818G 2# Supplied from 802.3at PoE Switch.			
Power Rating	1# I/P: 100-240V~ 50/60Hz 0.6A O/P: 48.0V === 0.375A 2# PoE 42.5-57V === 0.6A 802.3at			
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 450 Mbps			
Maximum Average Output Power	IEEE 802.11b: 26.75 dBm (0.4732 W)			

Note:

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

2. Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20) CH03 - CH09 for IEEE 802.11n(HT40)							
		CH03	- CHU9 for IE	EE 802.11	n(H140)		
Channel Frequency (MHz) Channel Frequency (MHz) Channel Frequency (MHz) F						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	tp-link	EAP245 4.0	PIFA	N/A	1.98
2	tp-link	EAP245 4.0	PIFA	N/A	2.00
3	tp-link	EAP245 4.0	PIFA	N/A	1.39

Note:

1) This EUT supports CDD, and all antenna gains are not equal, so Directional gain=10log[$(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N$]dBi, that is Directional gain=10log[$(10^{1.98/20}+10^{2.00/20}+10^{1.39/20})^2/3$]dBi =6.57. So, the output power limit is 30-(6.57-6)=29.43, the power spectral density limit is 8-(6.57-6)=7.43.

2) The antenna gain is provided by the manufacturer.



4. Table for Antenna Configuration:

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)

2.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N(HT20) Mode Channel 01/06/11
Mode 4	TX N(HT40) Mode Channel 03/06/09
Mode 5	TX B Mode Channel 01
Mode 6	TX B Mode Channel 01/02/06/10/11
Mode 7	TX G Mode Channel 01/02/06/10/11
Mode 8	TX N(HT20) Mode Channel 01/02/06/10/11
Mode 9	TX N(HT40) Mode Channel 03/04/06/08/09

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

AC power line conducted emissions test				
Final Test Mode	Description			
Mode 5	TX B Mode Channel 01			

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

Radiated emissions test- Above 1GHz				
Final Test Mode	Description			
Mode 6	TX B Mode Channel 01/02/06/10/11			
Mode 7	TX G Mode Channel 01/02/06/10/11			
Mode 8	TX N(HT20) Mode Channel 01/02/06/10/11			
Mode 9	TX N(HT40) Mode Channel 03/04/06/08/09			



Conducted test		
Final Test Mode	Description	
Mode 1	TX B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N(HT20) Mode Channel 01/06/11	
Mode 4	TX N(HT40) Mode Channel 03/06/09	

NOTE:

- (1) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (2) For AC power line conducted emissions and radiated emission below 1 GHz test, the TX B Mode Channel 01 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 emission below 1 GHz test, PoE Adapter and PoE Switch are pretested, the worst case is PoE Adapter and recorded.
- (5) For radiated emission above 1 GHz test, the polarization of Vertical and Hoizontal are evaluated, the worst case is Vertical and recorded.

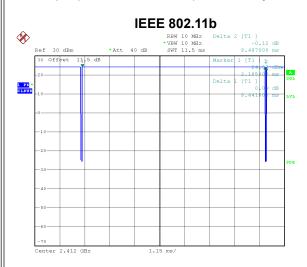
2.3 PARAMETERS OF TEST SOFTWARE

Test Software Version	QATool_Dbg V0.0.2.5		
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	27	27	28
IEEE 802.11g	24	29	23
IEEE 802.11n(HT20)	22	29	21
Frequency (MHz)	2422	2437	2452
IEEE 802.11n(HT40)	1F	27	20



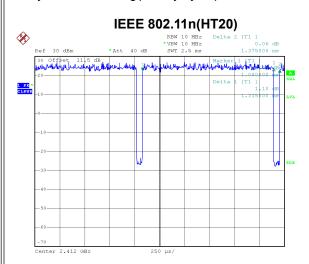
2.4 DUTY CYCLE

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.



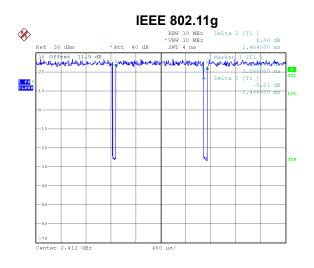
Date: 8.AUG.2022 09:32:37

Duty cycle = 8.441 ms / 8.487 ms = 99.46% Duty Factor = 10 log(1/Duty cycle) = 0.00



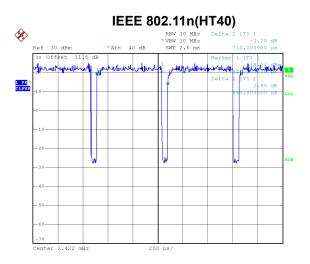
Date: 8.AUG.2022 09:33:33

Duty cycle = 1.315 ms / 1.375 ms = 95.64% Duty Factor = 10 log(1/Duty cycle) = 0.19



Date: 8.AUG.2022 09:32:56

Duty cycle = 1.408 ms / 1.464 ms = 96.17% Duty Factor = 10 log(1/Duty cycle) = 0.17



Date: 8.AUG.2022 09:34:05

Duty cycle = 0.650 ms / 0.710 ms = 91.55%Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.38$





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 710 Hz.

For IEEE 802.11n(HT20):

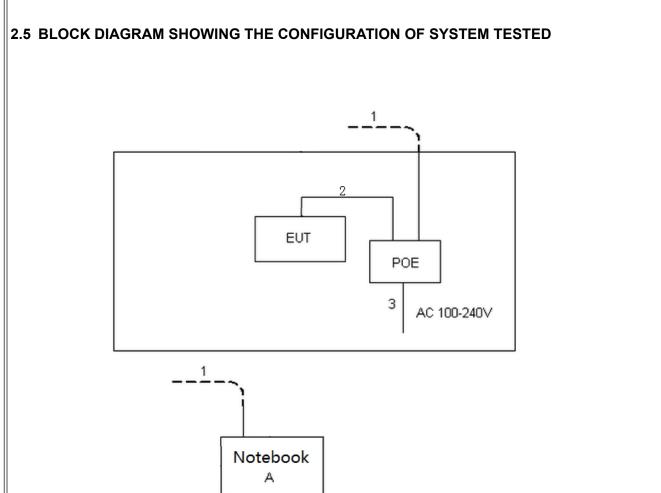
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 760 Hz.

For IEEE 802.11n(HT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1538 Hz.

(Remark: The video bandwidth of the spectrum analyzer was set to 1kHz during the test.)





2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
А	Notebook	Dell	Inspiron 15-7559	N/A
Item	Cable Type	Shielded Type	Ferrite Core	Length
1	RJ45 Cable	NO	NO	10m
2	RJ45 Cable	NO	NO	1m
3	AC Cable	NO	NO	1.5m



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:

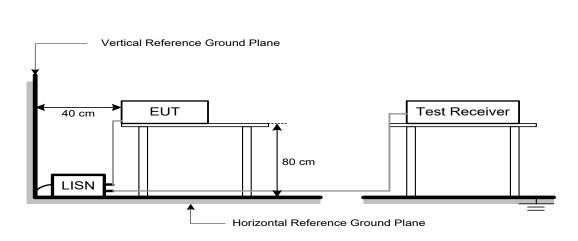
Receiver Parameters	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

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)	
	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)
- 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

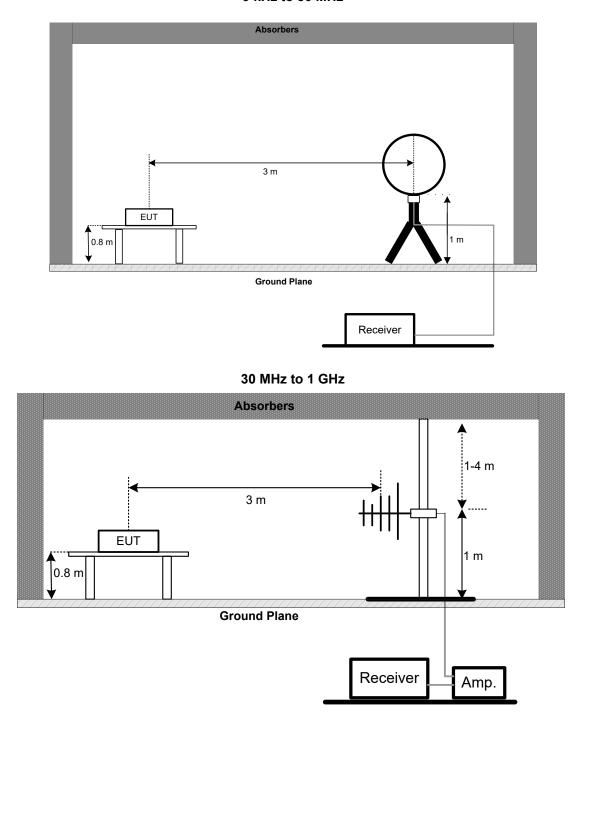


4.3 DEVIATION FROM TEST STANDARD

No deviation.

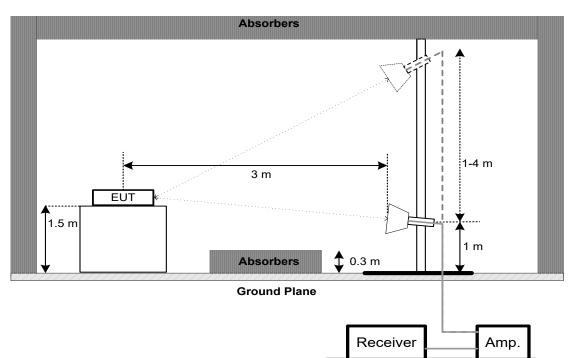
4.4 TEST SETUP

9 kHz to 30 MHz





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:

Setting	
> Measurement Bandwidth	
100 kHz	
300 kHz	
Peak	
Max Hold	
Auto	

For 99% Emission Bandwidth:

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

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP



5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX E.



6. MAXIMUM 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 peak power analyzer 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



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:

For	Reference	امريم ا
FUL	Relefence	Level.

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
		(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	Jan. 22, 2023					
2	LISN	EMCO	3816/2	52765	Jan. 23, 2023					
3	TWO-LINE V-NETWORK	$R_{\rm R} = 10^{-1}$		101447	Jan. 23, 2023					
4	50Ω Terminator	SHX	TF5-3	15041304	Jan. 22, 2023					
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A					
6	Cable	N/A	RG223	12m	Mar. 08, 2023					
7	643 Shield Room	ETS	6*4*3	N/A	N/A					

	Radiated Emissions - 9 kHz to 30 MHz								
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until				
1	MXE EMI Receiver	Keysight	N9038A	MY56400091	Jan. 22, 2023				
2*	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Aug. 23, 2024				
3	Cable N/A RG 213/U(9kHz~1GHz)		N/A	Jun. 17, 2023					
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A				
5	966 Chamber Room	ETS	9*6*6	N/A	Jul. 14, 2022 Jul. 14, 2023				

	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. 03, 2023				
2	Amplifier	HP	8447D	2944A08742	Jan. 22, 2023				
3	Cable	emci	LMR-400	N/A	Nov. 30, 2022				
4	Controller	roller CT SC100 N/A		N/A	N/A				
5	Controller	ontroller MF MF-7802 MF780208416		MF780208416	N/A				
6	Receiver	Agilent	N9038A	MY52130039	Jan. 22, 2023				
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A				
8	966 Chamber Room	RM	9*6*6	N/A	Jul. 15, 2022 Jul. 15, 2023				



Radiated Emissions - Above 1 GHz								
Item Kind of Equipment Manufacturer Type No. Serial No. Calibrated								
1	Double Ridged Horn Antenna	ARA	DRG-118A	16554	Apr. 18, 2023			
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	May 27, 2023			
3	Amplifier	Agilent	8449B	3008A02584	Jul. 03, 2023			
4	Controller	СТ	SC100	N/A	N/A			
5	Controller	MF	MF-7802	MF780208416	N/A			
6	Receiver	Agilent	N9038A	MY52130039	Jan. 22, 2023			
7	EXA Spectrum Analyzer	Keysight	N9010A	MY56480488	Jan. 22, 2023			
8*	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330 -K	619413	Jul. 05, 2025			
9	Cable	Talent microwave	A81-SMAMSMAM- 12.5M	N/A	Oct. 15, 2022			
10	Cable	Talent microwave	A40-2.92M2.92M-2. 5M	N/A	Nov. 30, 2022			
11	Filter	STI	STI15-9912	N/A	Jul. 03, 2023			
12	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A			
13	966 Chamber Room	RM	9*6*6	N/A	Jul. 15, 2022 Jul. 15, 2023			

Bandwidth & Conducted Spurious Emissions & Power Spectral Density							
Item Kind of Equipment Manufacturer Type No. Serial No. Calibrated u							
1	Spectrum Analyzer	R&S	FSP40	100185	Jul. 03, 2023		
2	2 Attenuator WOKEN 6SM3502 VAS1214NL N/A						
3	RF Cable	Tongkaichuan	N/A	N/A	N/A		
4	DC Block	Mini	N/A	N/A	N/A		

	Maximum Average Output Power								
Item Kind of Equipment Manufacturer Type No. Serial No. Cal									
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Jul. 03, 2023				
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jul. 03, 2023				
3	Attenuator	WOKEN	6SM3502	VAS1214NL	N/A				
4	RF Cable Tongkaichuan		N/A	N/A	N/A				

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

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

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





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AC Power Line Conducted Emissions Test Photos

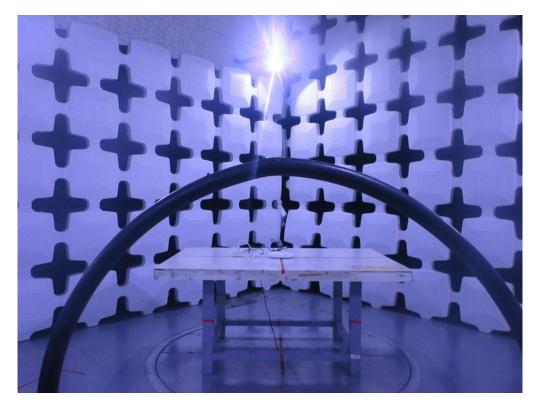


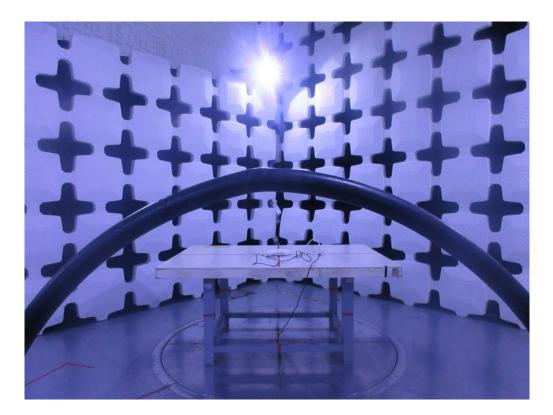




Radiated Emissions Test Photos

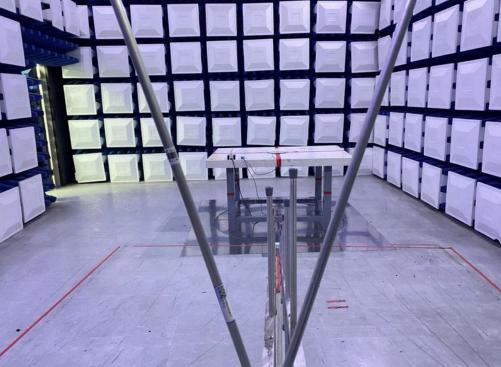
9 kHz to 30 MHz







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Radiated Emissions Test Photos

Above 1 GHz







Conducted Test Photos

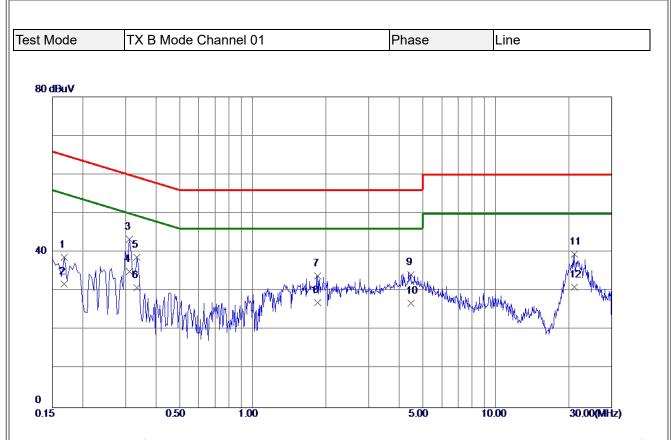






APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS



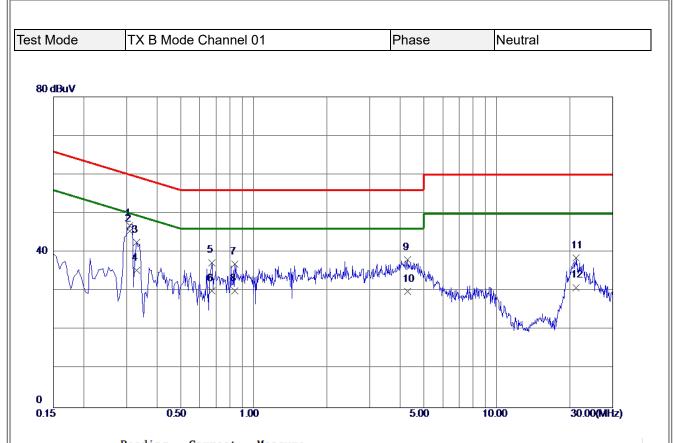


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1680	29.01	9.67	38.68	65.06	-26.38	QP	
2	0.1680	22.10	9.67	31.77	55. 0 6	-23. 29	AVG	
3	0.3120	33.66	9.72	43. 38	59.9 2	-16. 54	QP	
4 *	0.3120	25. 30	9.72	35.02	49. 9 2	-14. 90	AVG	
5	0.3345	28.97	9.73	38.70	59.34	-20.64	QP	
6	0.3345	21.10	9.73	30.83	49.34	-18. 51	AVG	
7	1.8510	23.97	9.88	33.85	56.00	-22.15	QP	
8	1.8510	17.20	9.88	27.08	46.00	-18. 92	AVG	
9	4.4699	24.12	10.08	34.20	56.00	-21.80	QP	
10	4.4699	16.80	10.08	26.88	46.00	-19.12	AVG	
11	21.0660	28.72	10.80	39. 52	60.00	-20. 48	QP	
12	21.0660	20. 30	10.80	31.10	50.00	-18. 90	AVG	

REMARKS:

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





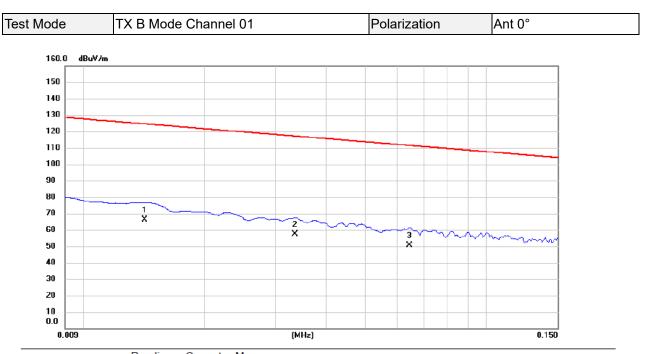
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.3100	37.09	9.75	46.84	59.97	-13. 13	QP	
2 *	0.3100	35.70	9.75	45.45	49.97	-4. 52	AVG	
3	0.3300	32.82	9.76	42.58	59.4 5	-16.87	QP	
4	0.3300	25.61	9.76	35.37	49.45	-14. 0 8	AVG	
5	0.6720	27. 53	9.83	37.36	56.00	-18. 64	QP	
6	0.6720	20. 30	9.83	30.13	46.00	-15.87	AVG	
7	0.8385	27.16	9.83	36.99	56.00	-19. 01	QP	
8	0.8385	20.30	9.83	30.13	46.00	-15.87	AVG	
9	4.2990	27.91	10.10	38.01	56.00	-17.99	QP	
10	4. 2990	19.80	10.10	29.90	46.00	-16. 10	AVG	
11	21. 1875	27.65	10.86	38. 51	60.00	-21. 49	QP	
12	21. 1875	20.10	10.86	30.96	50.00	-19. 04	AVG	

REMARKS:

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



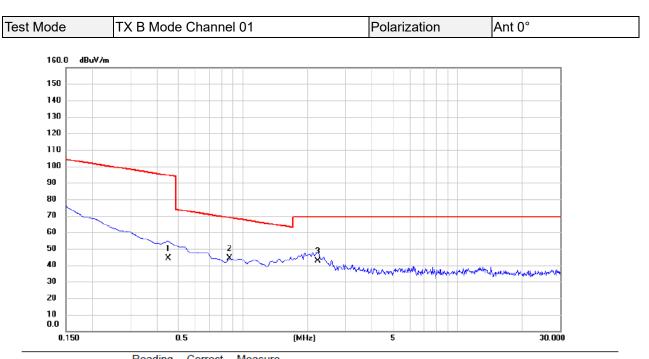
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ



No.	Mk.	Freq.	Reading Level		Measure- ment		Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0142	50.02	16.11	66.13	124.56	-58.43	AVG	
2		0.0335	43.59	13.98	57.57	117.10	-59.53	AVG	
3		0.0644	37.15	13.61	50.76	111.43	-60.67	AVG	

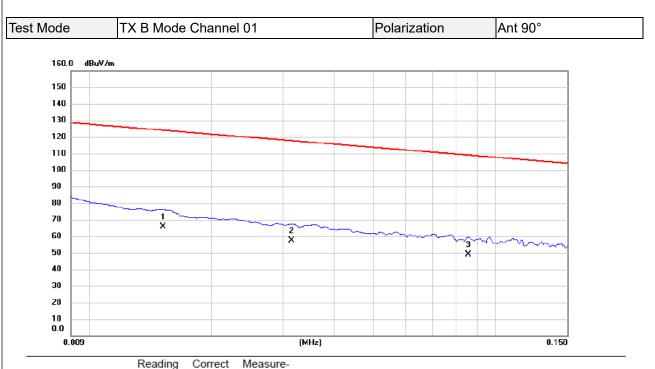
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





No. Mk.	Freq.		Factor	Measure- ment		Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.4485	30.28	13.73	44.01	94.57	-50.56	AVG	
2 *	0.8663	30.99	13.31	44.30	68.85	-24.55	QP	
3	2.2395	30.28	12.48	42.76	69.54	-26.78	QP	

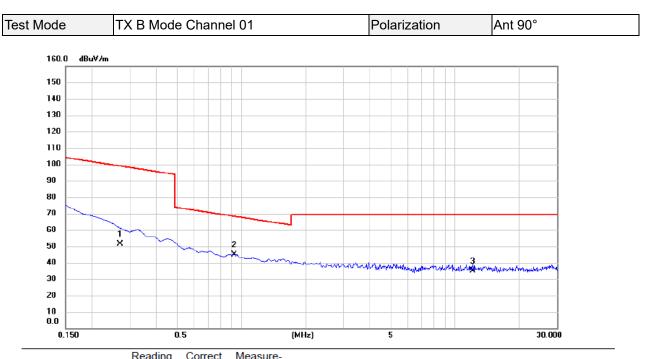
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0152	50.20	15.80	66.00	123.97	-57.97	AVG	
2		0.0314	43.18	14.03	57.21	117.67	-60.46	AVG	
 3		0.0855	35.29	13.64	48.93	108.97	-60.04	AVG	

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



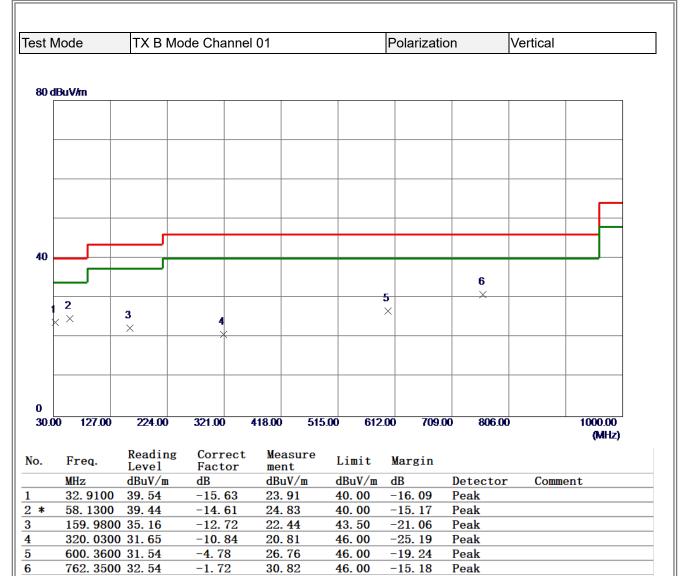


	No. Mk.	Freq.	Level	Factor	ment	Limit	Margin		
-		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1	0.2714	37.46	13.76	51.22	98.93	-47.71	AVG	
-	2 *	0.9261	31.87	13.30	45.17	68.27	-23.10	QP	
	3	12.1198	22.49	12.35	34.84	69.54	-34.70	QP	

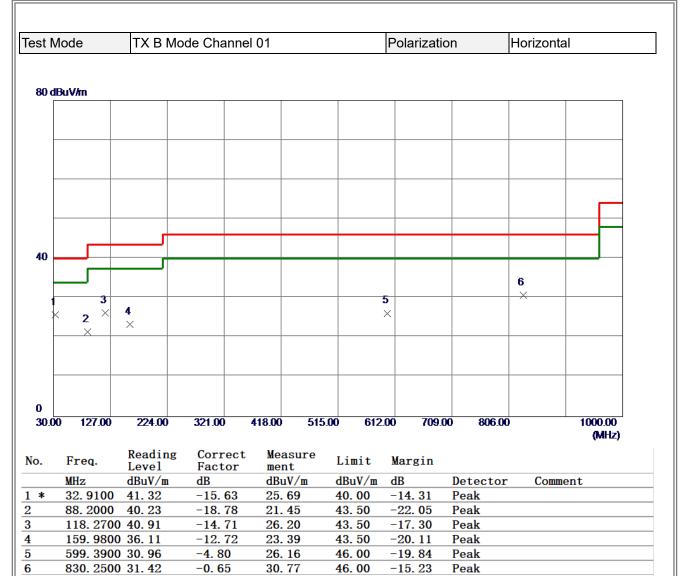
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ



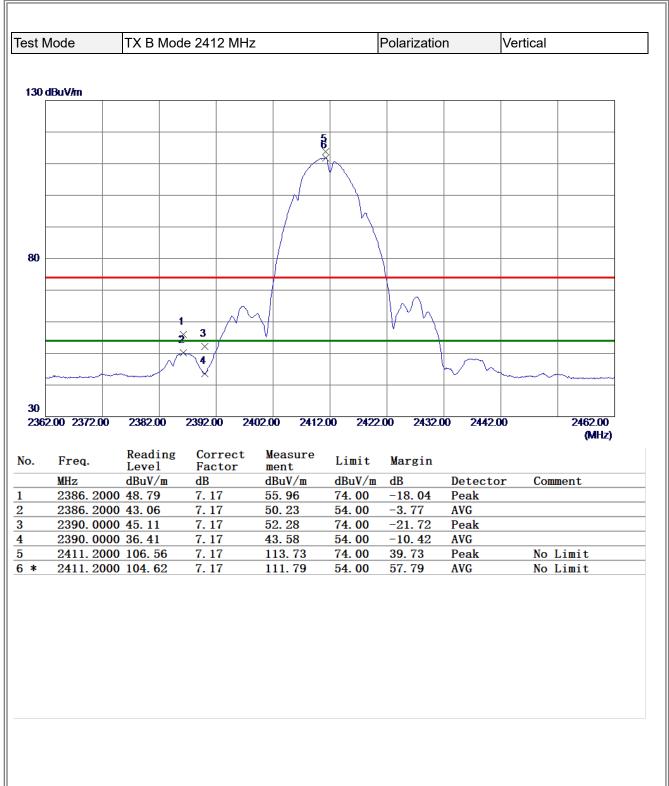
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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



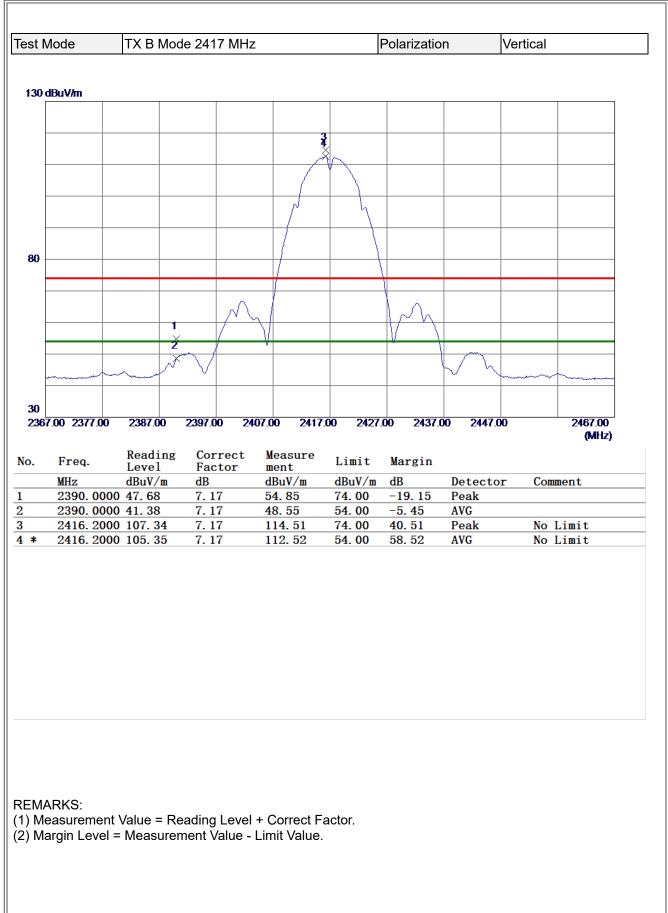
APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ



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

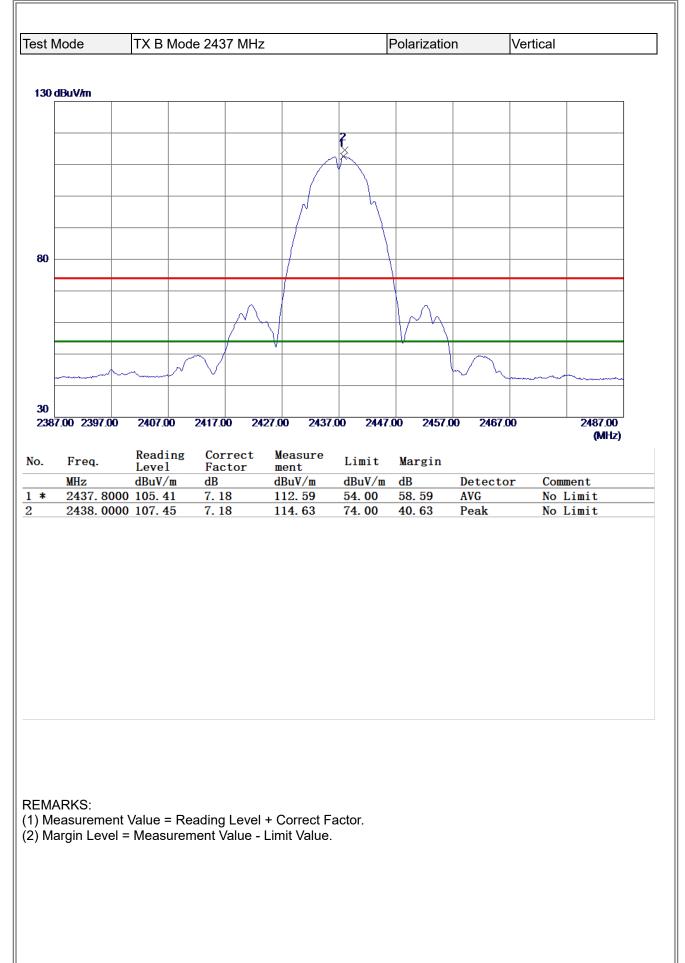
3TL

est Mode	TV D	1. 0440 1411	_				V (a set i se set i
	I X B Mo	ode 2412 MHz	2		Polarizatio	n	Vertical
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	×						
30							
-20 1000.00 3550.0	0 6100.00	8650.00 11	200.00 13750).00 1630	0.00 18850	00 21400	.00 26500.00
							(MHz)
o. Freq.	Reading Level	g Correct Factor	Measure ment	Limit	Margin		
MHz	dBuV/m	dB	dBuV/m	dBuV/m		Detecto	or Comment
	500 43.89	4.23	48.12	74.00	-25.88	Peak	
	600 38.43	4. 23	42.66	54.00	-11. 34	AVG	
* <u>4823.9</u> EMARKS:	600 38.43	4. 23	42.66	54.00			
* 4823.9 EMARKS:) Measureme	600 38.43 ent Value = F	4. 23 Reading Level	42. 66 + Correct Fa	54. 00			
EMARKS:	600 38.43 ent Value = F	4. 23	42. 66 + Correct Fa	54. 00			
2 * 4823.9 EMARKS:	600 38.43 ent Value = F	4. 23 Reading Level	42. 66 + Correct Fa	54. 00			
* 4823.9 EMARKS:) Measureme	600 38.43 ent Value = F	4. 23 Reading Level	42. 66 + Correct Fa	54. 00			
* 4823.9 EMARKS:) Measureme	600 38.43 ent Value = F	4. 23 Reading Level	42. 66 + Correct Fa	54. 00			
* 4823.9 EMARKS:) Measureme	600 38.43 ent Value = F	4. 23 Reading Level	42. 66 + Correct Fa	54. 00			
⊧ 4823.9 MARKS: Measureme	600 38.43 ent Value = F	4. 23 Reading Level	42. 66 + Correct Fa	54. 00			



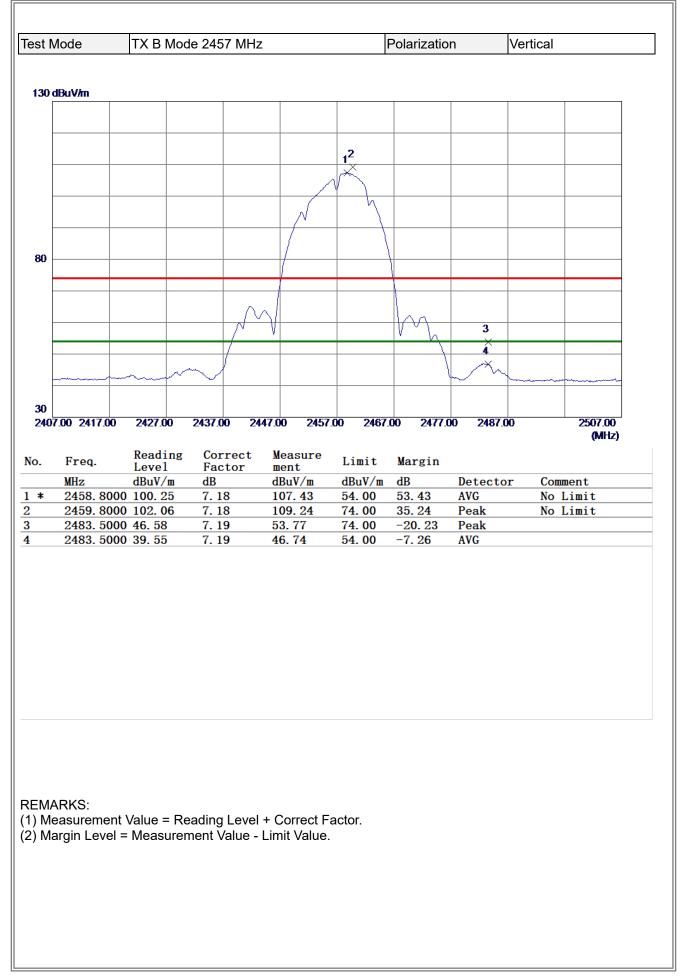
BLL

st Mode	TX B Mo	de 2417 MHz	2		Polarizatio	n	Vertical	
0 dBuV/m	1 1					1	1	
	2 K							
	×							
30								
20 1000.00 3550.0	0 6100.00	8650.00 11	200.00 13750	0.00 1630	0.00 18850	0.00 21400	0.00	26500.00
	0100.00	0000.00 TI						(MHz)
o. Freq.	Reading	Correct	Measure	Limit	Margin			
MHz	Level dBuV/m	Factor	ment		_			
	ubuv/ш	dB	dBuV/m	dBuV/m	dB	Detecto	or Com	ment
* 4833.9	600 38.95	dB 4. 26	dBuV/m 43.21	dBuV/m 54.00	-10. 79	Detecto AVG	or Com	ment
* 4833.9							or Com	ment
* 4833.9	600 38.95	4.26	43. 21	54.00	-10. 79	AVG	or Com	ment



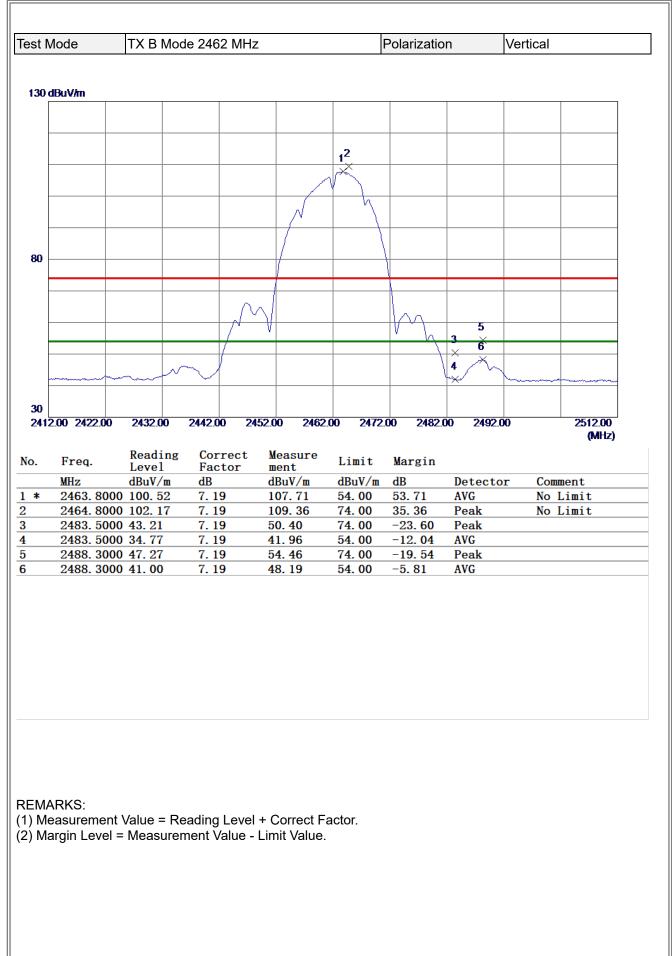
BTL

	TX B Mo	de 2437 MHz	2		Polarizatio	n	Vertical	
0 dBuV/m						1		
	1							
	ž							
0								
20 1000.00 3550.00	6100.00	8650.00 11	200.00 13750	0.00 1630	18850	0.00 21400	100	26500.00
000.00 000.00	0100.00				1000	2110		(MHz)
. Freq.	Reading	Correct	Measure	Limit	Margin			
MHz	Level dBuV/m	Factor dB	ment dBuV/m	dBuV/m	dB	Detecto	or Com	ment
4873.895		4. 38	45. 99	74. 00	-28. 01	Peak		шенс
* 4873.950	00 35.24	4.38	39.62	54.00	-14. 38	AVG		
Measuremen	t Value = R	eading Level	+ Correct Fa	actor.				
EMARKS:) Measuremen) Margin Level	t Value = Re = Measure	eading Level ment Value -	+ Correct Fa Limit Value.	actor.				
) Measuremen	t Value = Ro = Measure	eading Level ment Value -	+ Correct Fa Limit Value.	actor.				
) Measuremen	t Value = Ri = Measurei	eading Level ment Value -	+ Correct Fa Limit Value.	actor.				
) Measuremen	t Value = Ro = Measure	eading Level ment Value -	+ Correct Fa Limit Value.	actor.				
Measuremen	t Value = Ri = Measurei	eading Level ment Value -	+ Correct Fa Limit Value.	actor.				
Measuremen	t Value = Re = Measure	eading Level ment Value -	+ Correct Fa Limit Value.	actor.				



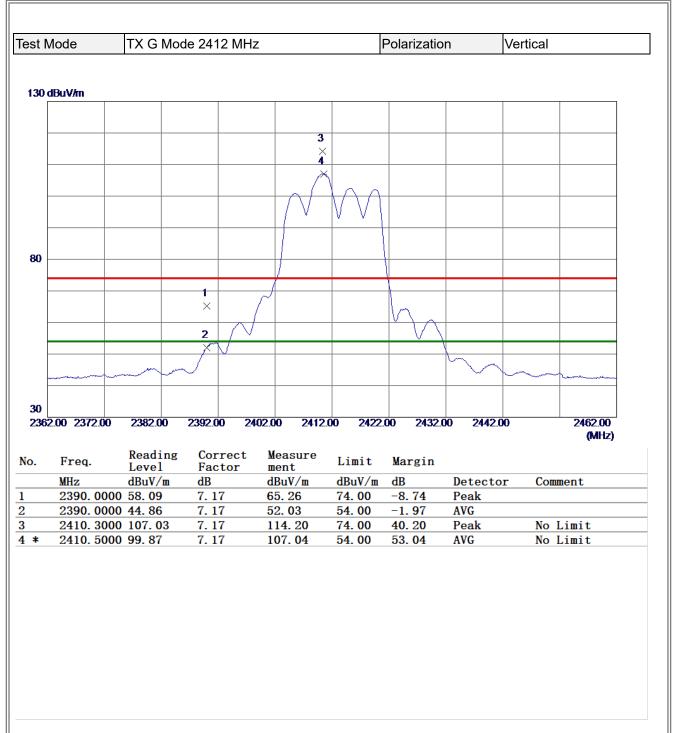
3TL

	IXBM	ode 2457	MHz		I	Polarizatio	n	Vertical	
lBuV/m									
	2								
	×								
0.00 0550.0			44000.00	40750		00 40050	00 04400		
0.00 3550.0	0 6100.00	8650.00	11200.00	13750	.00 16300	0.00 18850	.00 21400	0.00	26500.00 (MHz)
Freq.	Readin	g Corre	at Mar						
			ct mea	isure	Limit	Margin			
	Level	Facto	or men	nt	Limit	Margin	Dotooto	r Cor	mont
MHz	dBuV/m	Facto dB	or men dBu	nt IV/m	dBuV/m	dB	Detecto AVG	or Con	ment
MHz 4913.98		Facto	or men	nt IV/m 97			Detecto AVG Peak	or Con	ment
MHz 4913.98	dBuV/m 350 34.48	Facto dB 4.49	or men dBu 38.	nt IV/m 97	dBuV/m 54.00	dB -15. 03	AVG	or Con	ment



3TL

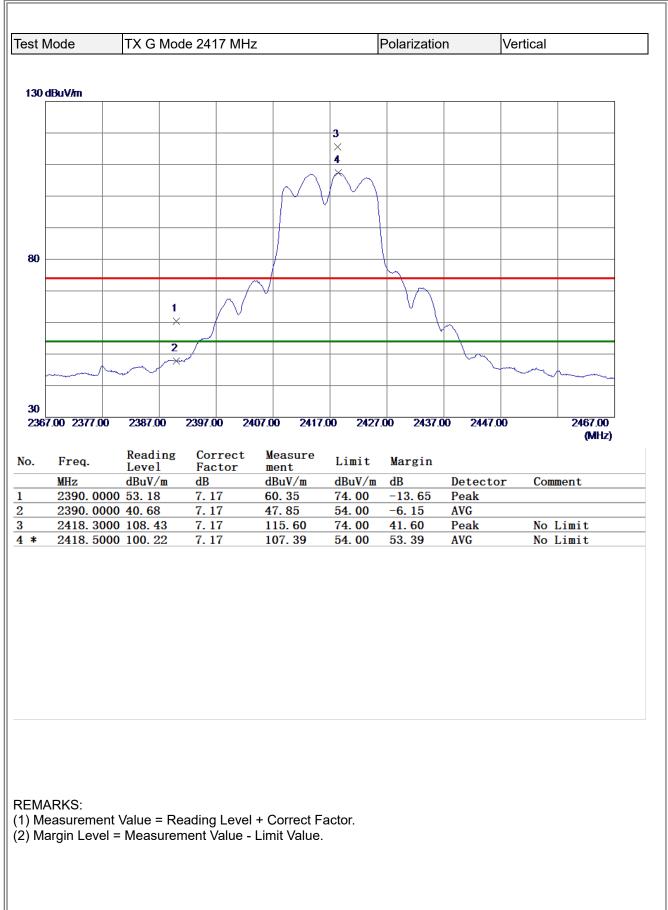
	TX	B Mod	de 246	2 MHz				Polarizatio	on	Vertical	
80 dBuV/m											
	1										
	2×										
30											
-20											
1000.00 355	0.00 61	00.00	8650.0	0 112	00.00 1	13750.0	0 1630	0.00 1885	0.00 2140	0.00	26500.00
	P										(MHz)
o. Freq.	. Ke	ading	Cor	roct							
	Le	vel	Fac		Measu: ment	re	Limit	Margin			
MHz	dB	ıV∕m	Fac dB	tor	ment dBuV/r	n (dBuV/m	dB	Detect	or Co	mment
4923.		uV/m 18	Fac	tor 2	ment	n			Detect Peak AVG	or Co	nment
4923.	dB 9500 42	uV/m 18	Fac dB 4. 52	tor 2	ment dBuV/r 46.70	n	dBuV/m 74. 00	dB −27. 30	Peak	or Co	nment



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

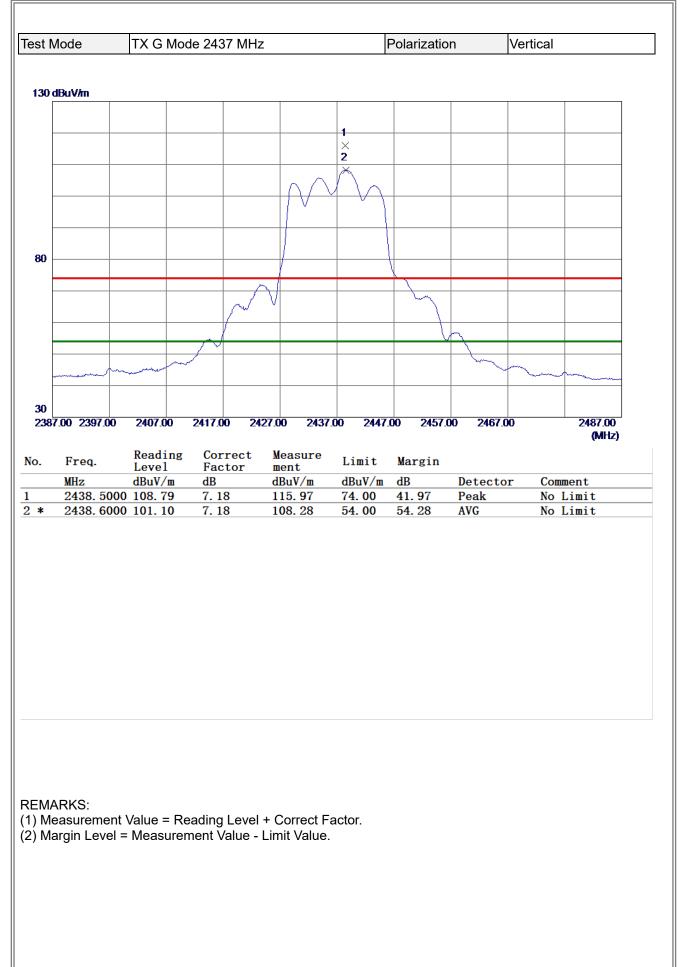
3TL

t Mode	TX G Mo	ode 2412 MH	Z	I	Polarizatio	n	Vertical	
0 dBuV/m								
	2							
	×							
	×							
0								
0 000.00 3550.0	0 6100.00	8650.00 11	200.00 13750).00 16300	100 19950	.00 21400	200	26500.00
000.00 5550.0	0 0100.00	0000.00 11	200.00 13130	1.00 10.50	7.00 100.00	.00 2140		(MHz)
. Freq.	Reading	Correct	Measure	Limit	Margin			
MHz	Level dBuV/m	Factor dB	ment dBuV/m	dBuV/m	dB	Detecto	or Com	ment
MHz ≰ 4823.7	Level	Factor	ment			Detecto AVG Peak	or Com	ment
MHz ≰ 4823.7	Level dBuV/m 750 30.64	Factor dB 4.23	ment dBuV/m 34.87	dBuV/m 54.00	dB -19. 13	AVG	or Con	ment



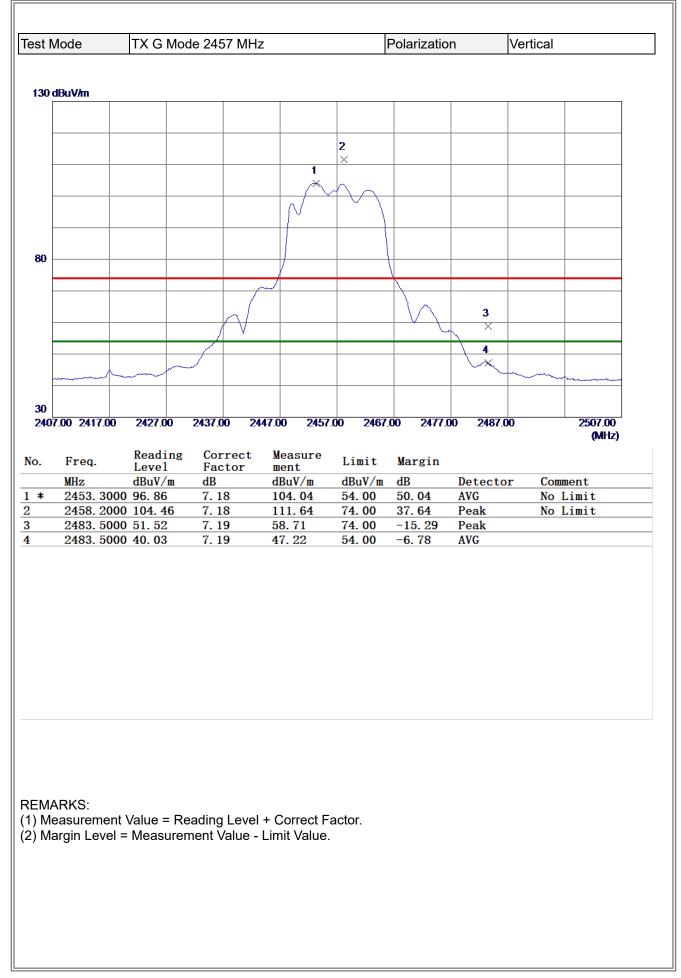
3TL

st Mode	TX G Mo	ode 2417 MHz	7		Polarizatio	n	Vertical	
0 dBuV/m								
	1							
	×							
	2 ×							
30								
20 1000.00 3550.0	0 6100.00	8650.00 11	200.00 13750	.00 1630	0.00 18850	.00 21400	00 2651	00.00
000.00 5550.0	0 0100.00	0000.00 11	200.00 13130	100 1030	0.00 100.00	.00 21400		/Hz)
. Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
MHz	dBuV/m	dB						
	a	UD	dBuV/m	dBuV/m	dB	Detecto	or Comment	
4831.9 4	400 41.06 300 29.83	4. 25 4. 26	45. 31 34. 09	dBuV/m 74.00 54.00	dB -28.69 -19.91	Detecto Peak AVG	or Comment	
4831. 9 4	400 41.06	4.25	45.31	74.00	-28.69	Peak	or Comment	



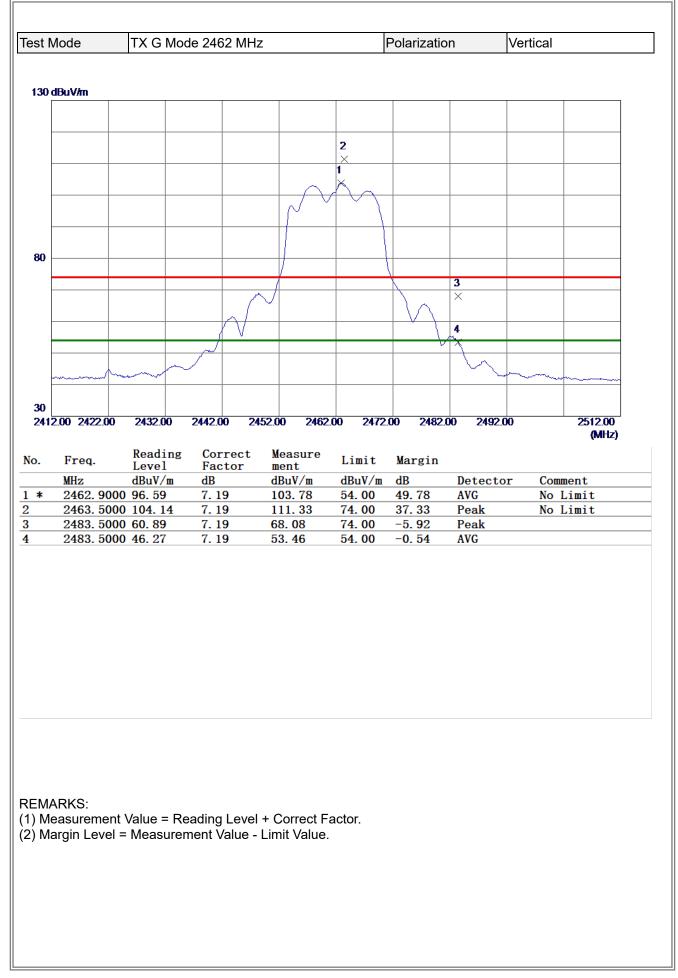
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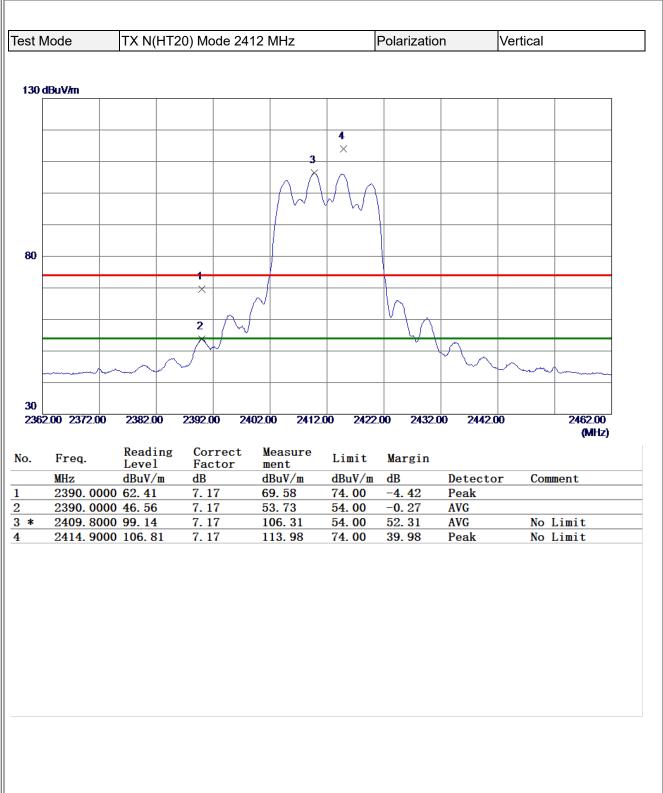
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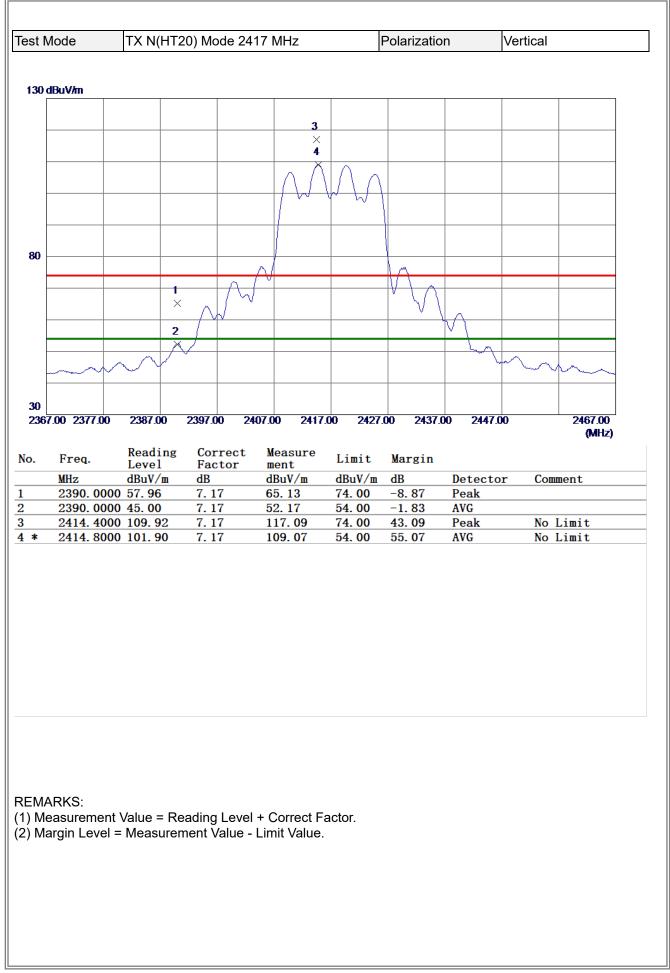


- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



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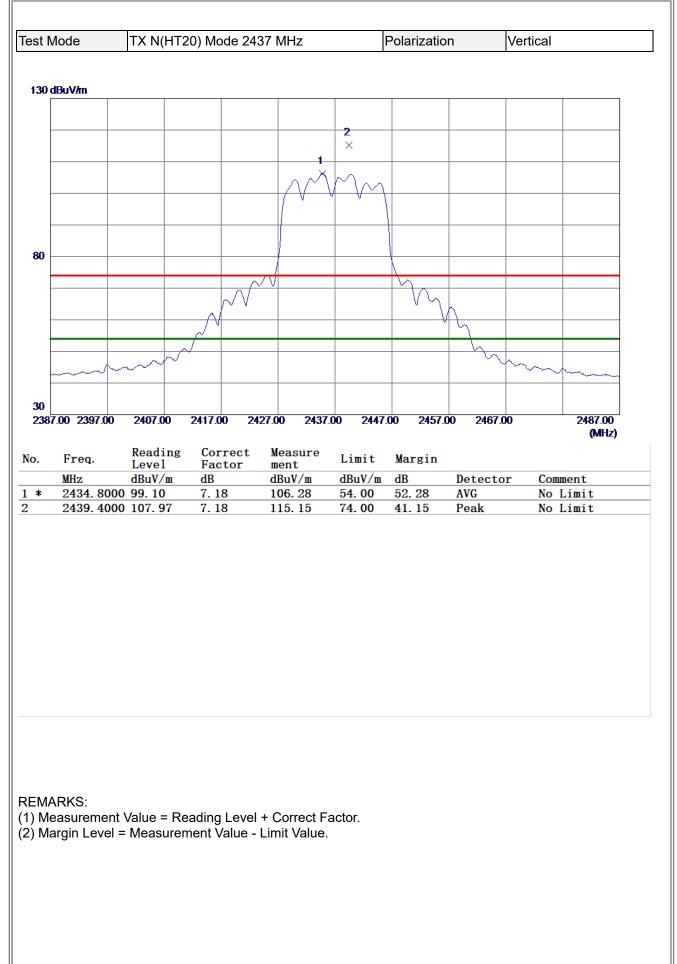






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1000.00 3550.00 6100.00 8650.00 11200.00 13750.00 16300.00 18850.00 21400.00 26500.00 b. Freq. Reading Level Correct Factor Measure ment Limit Margin MHz dBuV/m dB dBuV/m dBuV/m dB Detector Comment * 4831.6400 29.33 4.25 33.58 54.00 -20.42 AVG											
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1000.00 3550.00 6100.00 8650.00 11200.00 13750.00 16300.00 18850.00 21400.00 26500.00 b. Freq. Reading Level Correct Factor Measure ment Limit Margin MHz dBuV/m dB dBuV/m dBuV/m dB Detector Comment * 4831.6400 29.33 4.25 33.58 54.00 -20.42 AVG											
MHz Reading Level Correct Factor Measure ment Limit Margin MHz dBuV/m dB dBuV/m dBuV/m dB Detector Comment * 4831.6400 29.33 4.25 33.58 54.00 -20.42 AVG	-20										
MHz dBuV/m dB dBuV/m dBuV/m dB Detector Comment * 4831.6400 29.33 4.25 33.58 54.00 -20.42 AVG	100	0.00 3550.00) 6100.00	8650.	00 112	200.00 1375	0.00 1630	0.00 18850	0.00 2140	0.00	
MHz dBuV/m dB dBuV/m dBuV/m dB Detector Comment * 4831.6400 29.33 4.25 33.58 54.00 -20.42 AVG											
* 4831. 6400 29. 33 4. 25 33. 58 54. 00 -20. 42 AVG	0	Freq	Readin	ng Co	rrect		Limit	Margin			
4834. 2500 39. 76 4. 26 44. 02 74. 00 -29. 98 Peak	о.		Level	Fa	rrect ctor	ment			Detect	or Con	nment
		MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	nment
	*	MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	nment
	*	MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
		MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
	*	MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
	*	MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
	*	MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
	*	MHz 4831.64	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
EMARKS:	*	MHz 4831.64 4834.25	Leve1 dBuV/1 00 29.33	Fa 1 dB 4.2	ctor 25	ment dBuV/m 33.58	dBuV/m 54.00	dB -20. 42	AVG	or Con	ment
EMARKS:) Measurement Value = Reading Level + Correct Factor.	* EMA) M(MHz 4831. 64 4834. 25	Level dBuV/n 00 29. 33 00 39. 76	Reading	g Level -	ment dBuV/m 33.58 44.02 + Correct F	dBuV/m 54.00 74.00	dB -20. 42	AVG	or Con	ment
	* EMA) M(MHz 4831. 64 4834. 25	Level dBuV/n 00 29. 33 00 39. 76	Reading	g Level -	ment dBuV/m 33.58 44.02 + Correct F	dBuV/m 54.00 74.00	dB -20. 42	AVG	or Con	ment
) Measurement Value = Reading Level + Correct Factor.	* EMA) M(MHz 4831. 64 4834. 25	Level dBuV/n 00 29. 33 00 39. 76	Reading	g Level -	ment dBuV/m 33.58 44.02 + Correct F	dBuV/m 54.00 74.00	dB -20. 42	AVG	or Con	ment
) Measurement Value = Reading Level + Correct Factor.	* EMA) M(MHz 4831. 64 4834. 25	Level dBuV/n 00 29. 33 00 39. 76	Reading	g Level -	ment dBuV/m 33.58 44.02 + Correct F	dBuV/m 54.00 74.00	dB -20. 42	AVG	or Con	ment
) Measurement Value = Reading Level + Correct Factor.	* EMA) M(MHz 4831. 64 4834. 25	Level dBuV/n 00 29. 33 00 39. 76	Reading	g Level -	ment dBuV/m 33.58 44.02 + Correct F	dBuV/m 54.00 74.00	dB -20. 42	AVG	or Con	ment
) Measurement Value = Reading Level + Correct Factor.	* ====================================	MHz 4831. 64 4834. 25	Level dBuV/n 00 29. 33 00 39. 76	Reading	g Level -	ment dBuV/m 33.58 44.02 + Correct F	dBuV/m 54.00 74.00	dB -20. 42	AVG	or Con	ment

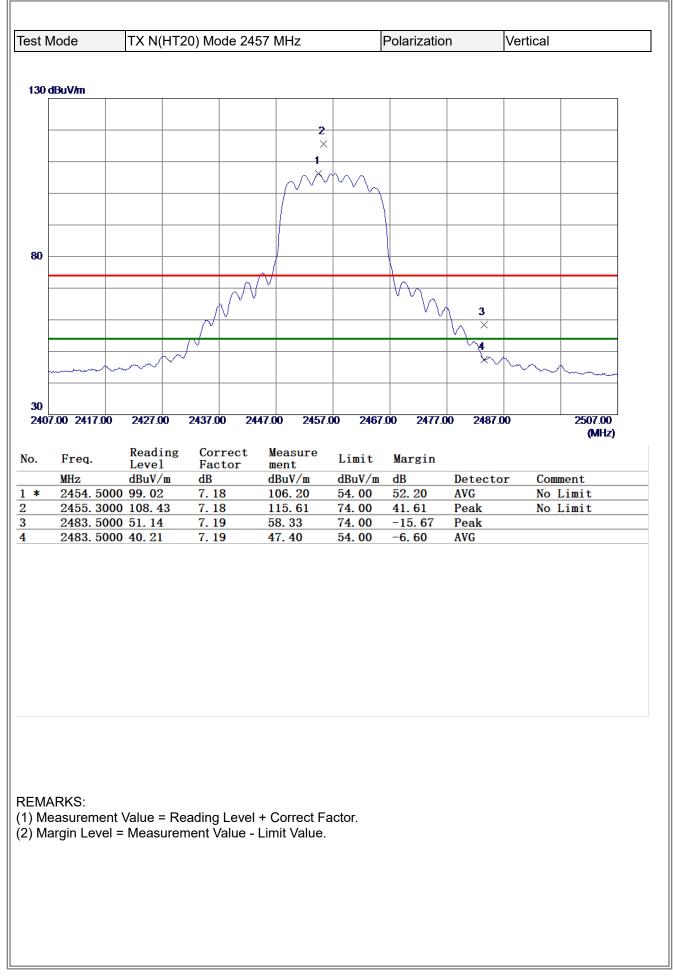






t Mode	TX N(H	[20) Mode 2	437 MHz		Polarizatio	n	Vertical	
0 dBuV/m								
	2							
0								
0 000.00 3550.	.00 6100.00	8650.00	11200.00 1375	0.00 1630	0.00 49950	00 21400		26500.00
000.00 3000	.00 6100.00	00.000	11200.00 1375	0.00 1030	0.00 16650	200 21400	1.00	2000.00 (MHz)
Freq.	Reading	g Correct	Measure	Limit	Margin			
	Level	Factor	ment		Margin			
			10 17 /	10 17 /	10	D · · ·	C	
MHz 4873 0	dBuV/m	dB 4 38	dBuV/m 44 44	dBuV/m 74 00		Detecto	or Com	ment
4873. 9	0800 40.06 3600 29.18	dB 4. 38 4. 38	dBuV/m 44.44 33.56	dBuV/m 74.00 54.00	dB -29. 56 -20. 44	Detecto Peak AVG	or Com	ment
4873. 9	800 40.06	4. 38	44. 44	74.00	-2 9. 56	Peak	or Com	

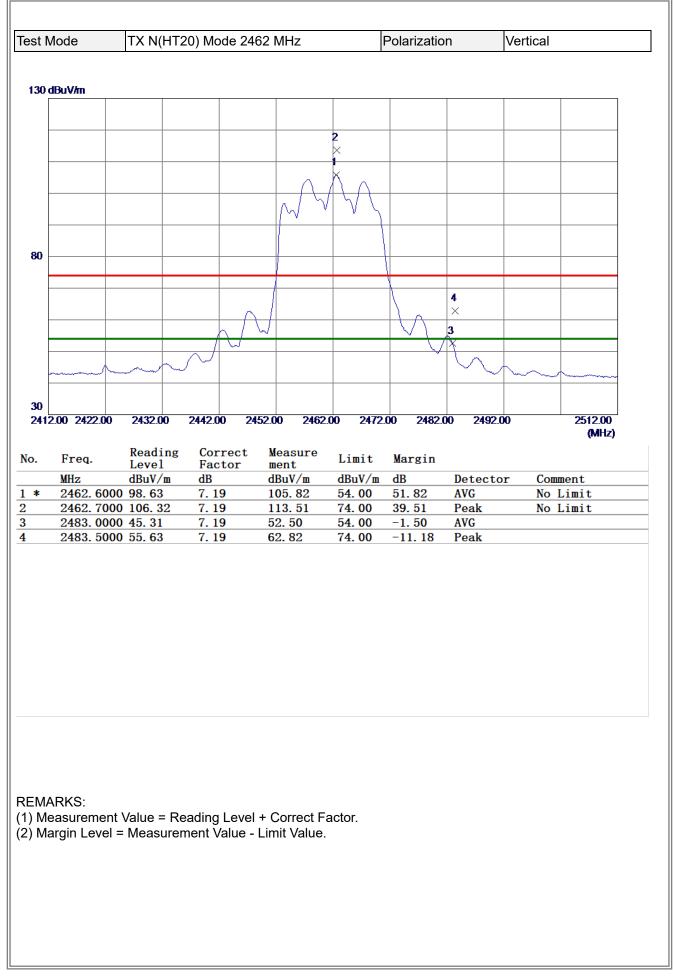






	lode	TX N(HT	20) Mode	2457 M	Hz		Polarizatio	on	Vertical	
80 di	BuV/m									
\vdash										
		2								
		×								
		1								
30		×								
F										
-20										
	0.00 3550.00	6100.00	8650.00	11200.00) 13750	0.00 1630	0.00 1885	0.00 2140	D.00	26500.00 (MHz)
о.	Freq.	Reading	Corre	et Mo						
		T 1			isure	Limit	Margin			
		Level dBuV/m	Facto	r mei	nt	Limit dBuV/m	Margin dB	Detect	or Com	ment
	MHz 4912.253	dBuV/m 50 29.22	Facto dB 4.49	r mei dBu 33.	nt 1 <mark>V/m</mark> 71	dBuV/m 54.00	dB -20. 29	Detecto AVG	or Com	ment
*	MHz	dBuV/m 50 29.22	Facto dB	r mei dBi	nt 1 <mark>V/m</mark> 71	dBuV/m	dB		or Com	ment
*	MHz 4912.253	dBuV/m 50 29.22	Facto dB 4.49	r mei dBu 33.	nt 1 <mark>V/m</mark> 71	dBuV/m 54.00	dB -20. 29	AVG	or Com	ment

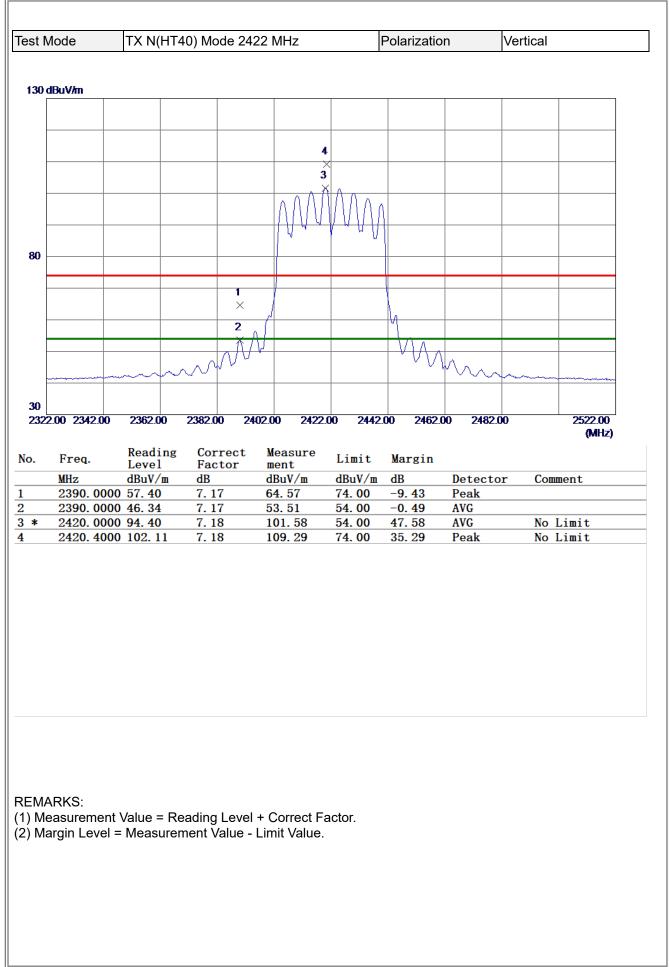






	IX N(H	[20) Mode 24	462 MHz		Polarizatio	n	Vertical	
30 dBuV/m								
	2 ×							
	1							
	×							
30								
20								
000.00 355	0.00 6100.00	8650.00 1	1200.00 1375	0.00 1630	0.00 18850	0.00 2140	0.00	26500.00 (MHz)
o. Freq.	Reading Level	g Correct Factor	Measure ment	Limit	Margin			
MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detect	or Com	nent
	8600 29.19	4. 52	33.71	54.00	-20. 29	AVG		
	8600 29. 19 8650 40. 20	4. 52 4. 52	33. 71 44. 72	54.00 74.00		AVG Peak		
					-20. 29			

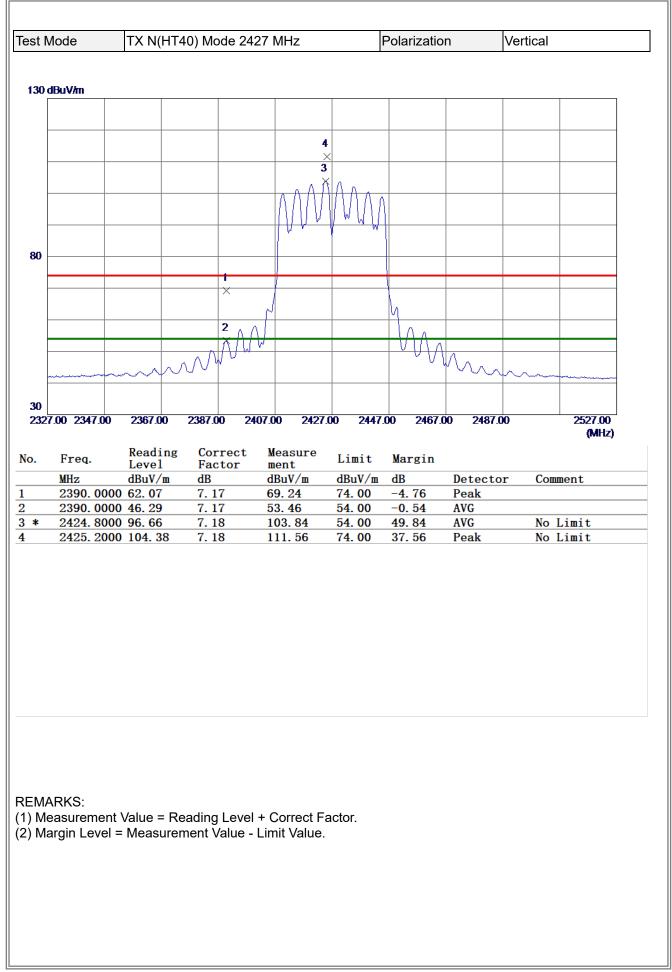






st Mode	TX N(H	۲40) Mode 2	422 MHz		Polarizatio	on	Vertical	
i0 dBuV/m						1	1	
	2							
	×							
	1							
90 	×							
20 1000.00 3550.	00 6100.00	8650.00 1	1200.00 1375	0.00 1630	0.00 18850).00 21400		26500.00
1000.00 5550.	00 0100.00	0000.00	1200.00 1513	0.00 10.00	0.00 100.00	2140		(MHz)
. Freq.	Reading	g Correct		Limit	Margin			
MHz	Level dBuV/m	Factor dB	ment dBuV/m	dBuV/m		Detecto	or Con	ment
* 4842.4	950 29. 24	4.28	33. 52	54.00	-20. 48	AVG		
4843. 3	050 39.93	4.28	44. 21	74.00	-29.79	Peak		

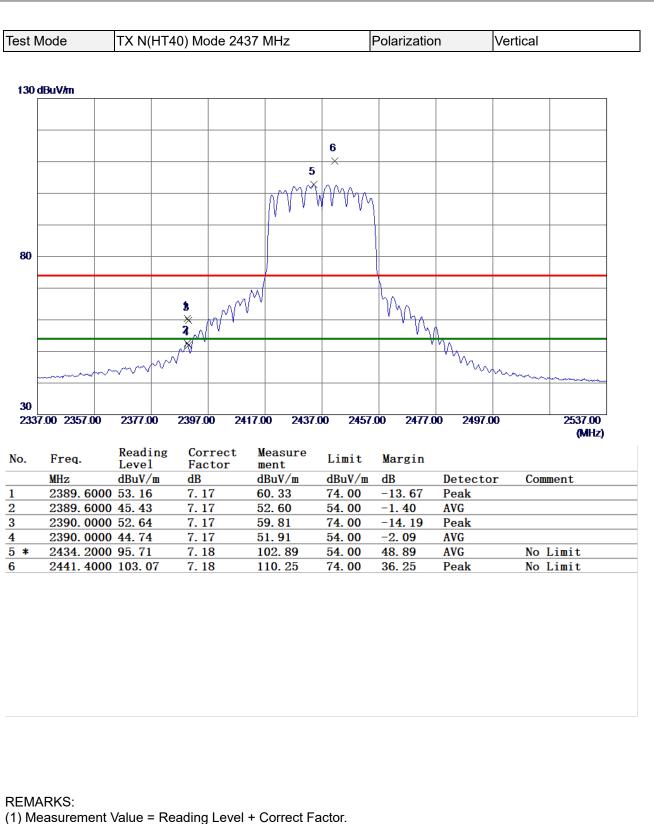






t Mode	TX N(H1	⁻ 40) Mode 2	427 MHz		Polarizatio	on	Vertical	
) dBuV/m								
	1							
	×							
	2							
0	×							
0			44000 00 4075	0.000 4000	0.00 40054			00500.00
000.00 3550.	00 6100.00	8650.00	11200.00 1375	0.00 1630	0.00 18850	0.00 2140	0.00	26500.00 (MHz)
-	Reading	Correct	Measure					
Freq.	Reading Level		ment	Limit	Margin			
MHz	dBuV/m	<u>dB</u>	dBuV/m	dBuV/m		Detect	or Com	ment
	250 40.11 049 29.10	4.31 4.31	44. 42 33. 41	74.00 54.00	-29.58 -20.59	Peak AVG		



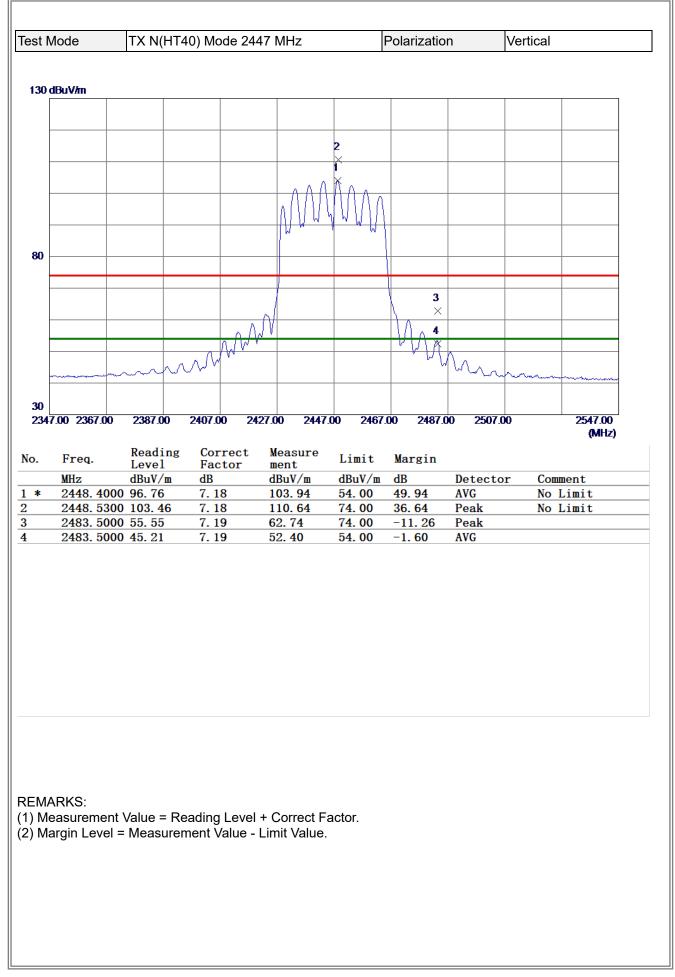


(2) Margin Level = Measurement Value - Limit Value.



	IX N(HI	40) Mode 24	37 MHz		Polarizatic	n	Vertical	
0 dBuV/m								
	2 ×							
	1							
_	• ×							
0								
o								
000.00 3550.	.00 6100.00	8650.00 11	1200.00 1375	0.00 1630	0.00 18850	.00 2140	0.00	26500.00
	Deading	Correct	Measure					(MHz)
Freq.	Reading Level	Factor	measure	Limit	Margin			
MHz	dBuV/m	dB	dBuV/m	dBuV/m		Detecto	or Comm	ient
	2700 29. 13 2150 39. 85	<u>4. 37</u> <u>4. 37</u>	33. 50 44. 22	54.00 74.00	-20. 50 -29. 78	AVG Peak		

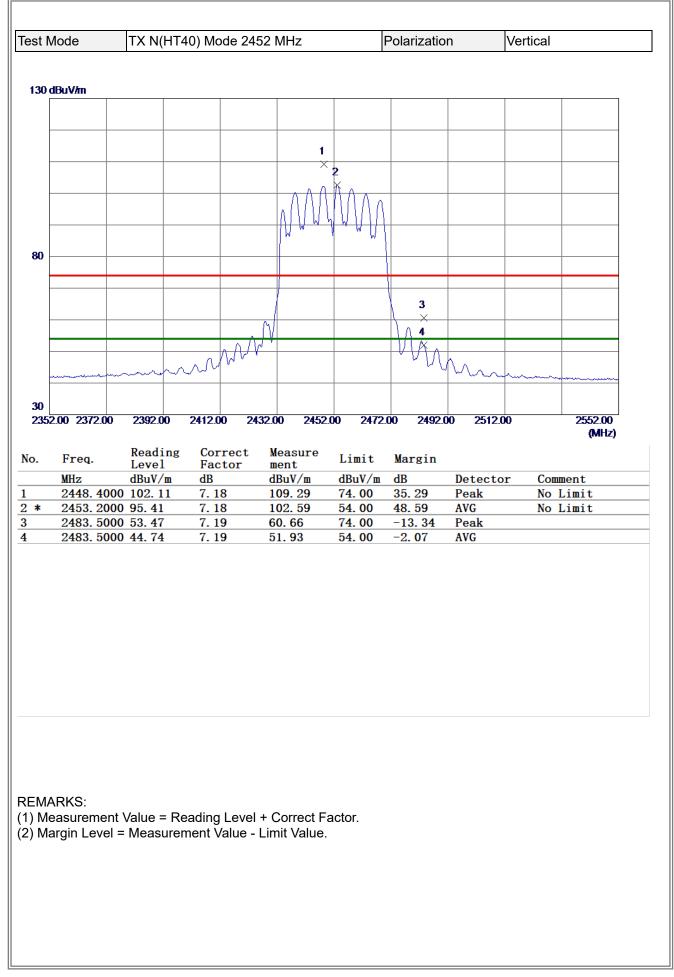






	TX N(H1	40) Mode 24	147 MHz		Polarizatio	on	Vertical	
dBuV/m								
	2							
	×							
	1 ×							
00.00 3550	0.00 6100.00	8650.00 1	1200.00 1375	0.00 1630	0.00 18850	0.00 21400	00	26500.00
00.00 3330		0050.00	1200.00 1515	0.00 10.00	0.00 10050	2140		(MHz)
Freq.	Reading	Correct	Measure	Limit	Margin			
MHz	Level dBuV/m	Factor dB	 dBuV/m	dBuV/m		Detecto	or Com	ment
	9750 29. 22	4. 43	33.65	54.00	-20.35	AVG		
4896.	3000 40.18	4. 44	44.6 2	74.00	-29.38	Peak		







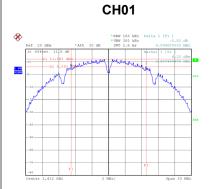
	/lode	TX N(HT4	10) Mode 24	452 MHz		Polarizatio	n	Vertical	
) d	BuV/m								
ł									
		2							
		×							
		1							
		×							
ŀ									
ł									
U	0.00 3550.00	6100.00	8650.00 1	1200.00 1375	0.00 1630	0.00 18850	0.00 21400	0.00	26500.00 (MHz)
	Ener	Reading	Correct	Measure	Limit	Manada			
	Freq.	Level	Factor	ment	Limit	Margin	Detect	Com	
_	MHz 4904.620	dBuV/m 00 29.33	dB 4.47	dBuV/m 33.80	dBuV/m 54.00	dB -20. 20	Detecto AVG	or com	ment
		00 40. 33	4.47	44.80	74.00	-29.20	Peak		

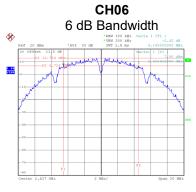


APPENDIX E - BANDWIDTH

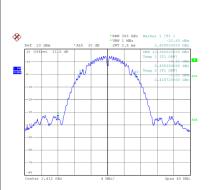


Test Mod	Test Mode TX B Mode										
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result						
01	2412	9.100	13.360	0.5	Complies						
06	2437	9.140	13.440	0.5	Complies						
11	2462	9.110	13.440	0.5	Complies						





*RBW 100 kEz *VEW 300 kEz SWT 2.5 ms

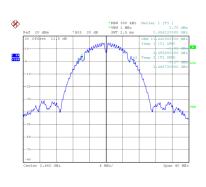


-80 Center 2.462 GHz

Date: 16.JUL.2022 11:25:43

8

1 PK VIEW



Date: 8.AUG.2022 09:45:06

Date: 16.JUL.2022 11:23:02

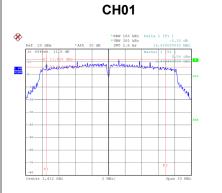
Date: 8.AUG.2022 09:45:24

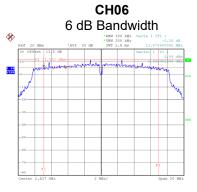
Date: 16.JUL.2022 11:24:42

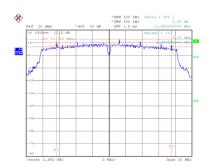
Date: 8.AUG.2022 09:45:42



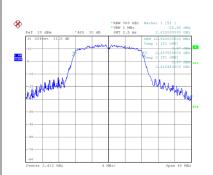
Test Mode	Test Mode TX G Mode										
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result						
01	2412	14.430	16.960	0.5	Complies						
06	2437	13.878	16.880	0.5	Complies						
11	2462	13.959	17.040	0.5	Complies						

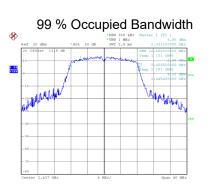




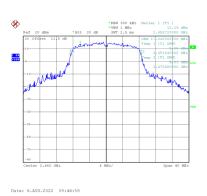


Date: 16.JUL.2022 11:26:49





Date: 16.JUL.2022 11:28:39



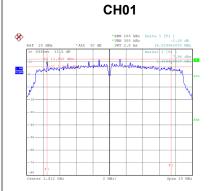
Date: 8.AUG.2022 09:46:11

Date: 8.AUG.2022 09:46:34

Date: 16.JUL.2022 11:27:50

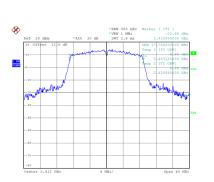


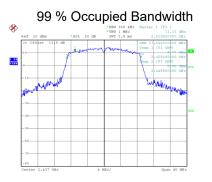
Test Mode	∍ TX N	N(HT20) Mode			
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result
01	2412	15.030	17.760	0.5	Complies
06	2437	15.100	17.840	0.5	Complies
11	2462	16.049	17.920	0.5	Complies
	CH01		CH06	CH11	





*RBW 100 kHz *VBW 300 kHz SWT 2.5 ms







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20 di



Date: 8.AUG.2022 09:47:33

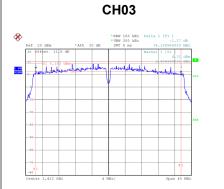
Date: 16.JUL.2022 11:29:30

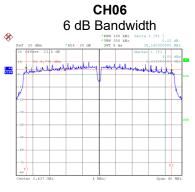
Date: 8.AUG.2022 09:48:02

Date: 16.JUL.2022 11:30:06

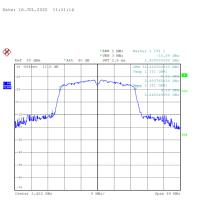


Test Mode	Test Mode TX N(HT40) Mode										
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	6 dB Bandwidth Min. Limit (MHz)	Result						
03	2422	35.190	36.480	0.5	Complies						
06	2437	35.160	36.480	0.5	Complies						
09	2452	35.080	36.480	0.5	Complies						





*RBW 100 kHz *VBW 300 kHz SWT 5 ms



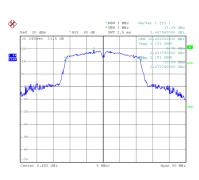
BOB COCCUPICE DESCRIPTION CONTINUES CONTINUE Date: 16.JUL.2022 11:32:17

60-

Industrial household

Ø

1 25



Date: 8.AUG.2022 10:12:05

Date: 8.AUG.2022 10:12:26

Date: 16.JUL.2022 11:31:46

Date: 8.AUG.2022 10:12:44



APPENDIX F - MAXIMUM AVERAGE OUTPUT POWER



Test Mode	Test Mode TX B Mode_Ant. 1										
Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result				
01	2412	21.81	0.00	21.81	29.43	0.8770	Complies				
06	2437	21.73	0.00	21.73	29.43	0.8770	Complies				
11	2462	22.03	0.00	22.03	29.43	0.8770	Complies				

Test Mode TX B Mode_Ant. 2

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	22.28	0.00	22.28	29.43	0.8770	Complies
06	2437	22.36	0.00	22.36	29.43	0.8770	Complies
11	2462	22.12	0.00	22.12	29.43	0.8770	Complies

Test Mode TX B Mode_Ant. 3

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	21.82	0.00	21.82	29.43	0.8770	Complies
06	2437	20.28	0.00	20.28	29.43	0.8770	Complies
11	2462	20.78	0.00	20.78	29.43	0.8770	Complies

Test Mode TX B Mode_Total

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	26.75	29.43	0.8770	Complies
06	2437	26.31	29.43	0.8770	Complies
11	2462	26.46	29.43	0.8770	Complies



Test Mode	TX G Mode_Ant. 1								
				0.4.4.0					
Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result		
01	2412	19.82	0.17	19.99	29.43	0.8770	Complies		
06	2437	21.77	0.17	21.94	29.43	0.8770	Complies		
11	2462	19.75	0.17	19.92	29.43	0.8770	Complies		

Test Mode TX G Mode_Ant. 2

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	20.13	0.17	20.30	29.43	0.8770	Complies
06	2437	22.08	0.17	22.25	29.43	0.8770	Complies
11	2462	20.05	0.17	20.22	29.43	0.8770	Complies

Test Mode TX G Mode_Ant. 3

Output Power Max. Limit Max. Limit Frequency Output Power **Duty Factor** + Duty Factor Channel Result (MHz) (dBm) (dBm) (W) (dBm) 01 2412 20.69 0.17 20.86 29.43 0.8770 Complies 06 2437 20.52 0.17 20.69 29.43 0.8770 Complies 11 2462 20.16 0.17 20.33 29.43 0.8770 Complies

Test Mode TX G Mode_Total

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	25.17	29.43	0.8770	Complies
06	2437	26.45	29.43	0.8770	Complies
11	2462	24.93	29.43	0.8770	Complies



Test Mode	Test Mode TX N(HT20) Mode_Ant. 1										
Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result				
01	2412	18.59	0.19	18.78	29.43	0.8770	Complies				
06	2437	21.63	0.19	21.82	29.43	0.8770	Complies				
11	2462	17.62	0.19	17.81	29.43	0.8770	Complies				

Test Mode TX N(HT20) Mode_Ant. 2

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	19.16	0.19	19.35	29.43	0.8770	Complies
06	2437	22.38	0.19	22.57	29.43	0.8770	Complies
11	2462	18.19	0.19	18.38	29.43	0.8770	Complies

Test Mode TX N(HT20) Mode_Ant. 3

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	19.52	0.19	19.71	29.43	0.8770	Complies
06	2437	19.93	0.19	20.12	29.43	0.8770	Complies
11	2462	16.06	0.19	16.25	29.43	0.8770	Complies

Test Mode TX N(HT20) Mode_Total

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	24.07	29.43	0.8770	Complies
06	2437	26.39	29.43	0.8770	Complies
11	2462	22.34	29.43	0.8770	Complies



Test Mode	Test Mode TX N(HT40) Mode_Ant. 1										
Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result				
03	2422	16.43	0.38	16.81	29.43	0.8770	Complies				
06	2437	21.25	0.38	21.63	29.43	0.8770	Complies				
09	2452	17.57	0.38	17.95	29.43	0.8770	Complies				

Test Mode TX N(HT40) Mode_Ant. 2

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	16.89	0.38	17.27	29.43	0.8770	Complies
06	2437	21.05	0.38	21.43	29.43	0.8770	Complies
09	2452	17.74	0.38	18.12	29.43	0.8770	Complies

Test Mode TX N(HT40) Mode_Ant. 3

Channel	Frequency (MHz)	Output Power (dBm)	Duty Factor	Output Power + Duty Factor (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	17.34	0.38	17.72	29.43	0.8770	Complies
06	2437	20.56	0.38	20.94	29.43	0.8770	Complies
09	2452	15.54	0.38	15.92	29.43	0.8770	Complies

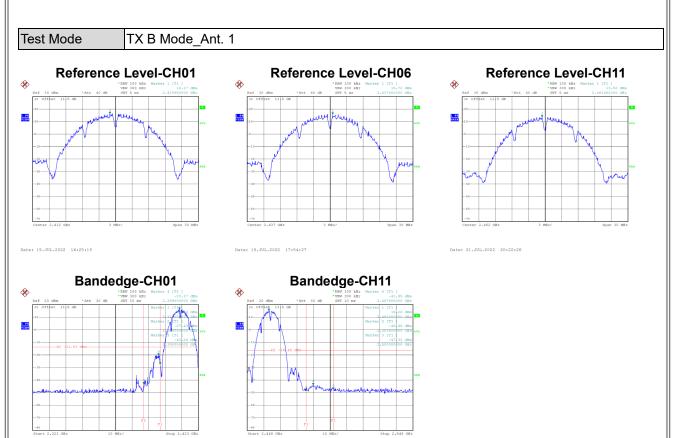
Test Mode TX N(HT40) Mode_Total

Channel	Frequency (MHz)	Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
03	2422	22.06	29.43	0.8770	Complies
06	2437	26.12	29.43	0.8770	Complies
09	2452	22.21	29.43	0.8770	Complies



APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

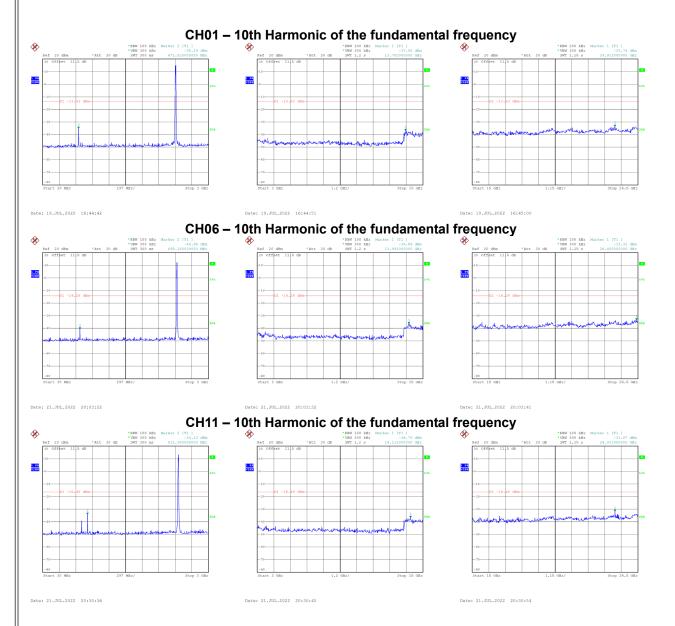




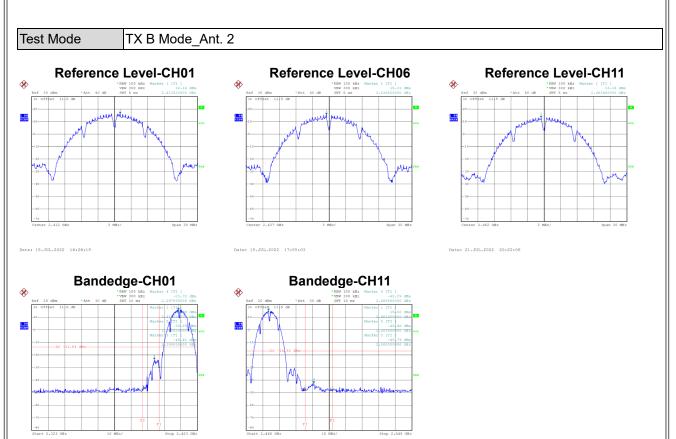
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Date: 21.JUL.2022 20:30:00





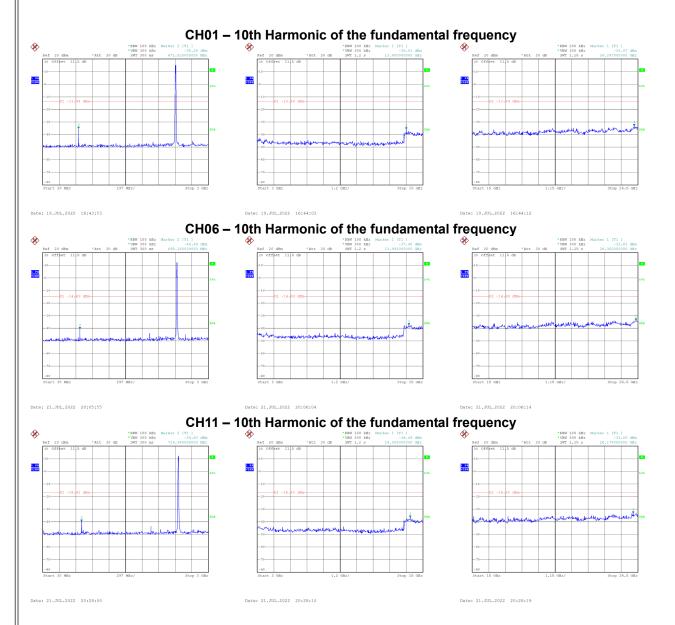




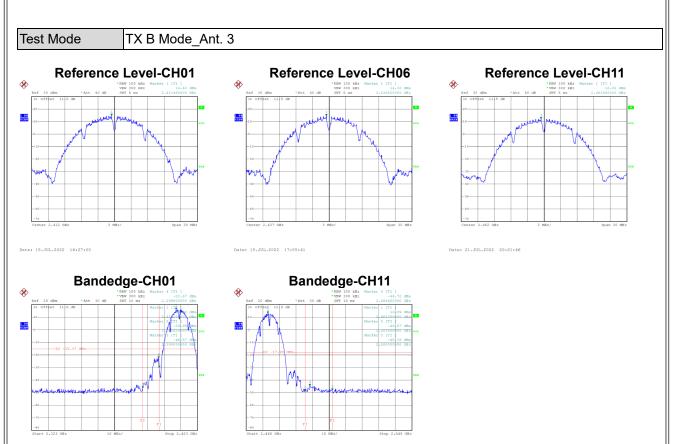
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Date: 19.JUL.2022 17:44:19

Date: 21.JUL.2022 20:24:32



