



FCC LISTED,
REGISTRATION NUMBER:
2764.01

ISED LISTED
REGISTRATION NUMBER:
23595-1

Test report No:
4086ERM.002

Partial Test report

Reference Standard:
USA FCC Part 15.247, 15.225, 15.209

(*) Identification of item tested	Mode 3 EV charging station. 120V AC
(*) Trademark	Teltonika Energy
(*) Model and /or type reference	TeltoCharger / EVC1310P1000
Other identification of the product	FCC ID: 2BBR8-EVC131 IC ID: 30933-EVC131
(*) Features	Bluetooth, Wi-Fi, LAN, NFC reader
Manufacturer	UAB Teltonika EMS Ditvos str. 6, LT-02121 Vilnius Lithuania
Test method requested, standard	USA FCC Part 15.247, 10-1-21 Edition: Operation within the bands 902 - 928 MHz, 2400 -2483.5 MHz, and 5725 - 5850 MHz CANADA RSS-247 Issue 2 (February 2017). CANADA RSS-Gen Issue 5 Amendment 2 (February 2021). 558074 D01 15.247 Meas. Guidance v05r02. Guidance for Compliance Measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum System, and Hybrid System Devices Operating Under section §15.247 of the FCC Rules ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices. USA FCC Part 15.225 (10-1-22 Edition): Operation within the band 13.110 -14.010. USA FCC Part 15.209 (10-1-22 Edition): Radiated emission limits, general requirements. CANADA RSS-210 Issue 10 (Dec 2019).
Summary	IN COMPLIANCE
Approved by (name / position & signature)	Domingo Galvez EMC&RF Lab Manager 
Date of issue	07-20-2023
Report template No	FDT08_23 (*) "Data provided by the client"

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Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

DEKRA Certification Inc. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Certification internal document PODT000.

Test case	Frequency (MHz)	U(k=2)	Units
Radiated Spurious Emission	30-180	4.27	dB
	180-1000	3.14	dB
	1000-18000	3.30	dB
	18000-40000	3.49	dB

Data provided by the client

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item under evaluation", "Trademark", "Model and/or type reference", "General description of the device", "Other identification of the product").
2. The device under evaluation consists of a Mode 3 EV charging station. 120V AC.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Usage of samples

Samples used for test have been selected by: The client.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
4086/01	EV Charger + Power Cable Type 3R	EVC1310P1000	-	4/13/2023

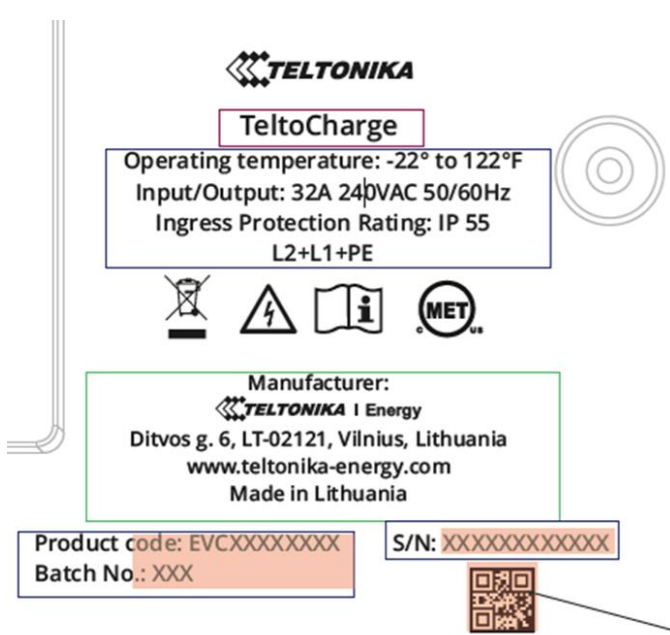
1. Sample S/01 was used for the following test(s): All radiated tests indicated in appendix A.

Test sample description

Ports..... :	Port name and description		Cable					
			Specified length [m]	Attached during test	Shielded			
	LAN		100	☐	☒			
				☐	☐			
			☐	☐				
Supplementary information to the ports..... :								
Rated power supply..... :	Voltage and Frequency		Reference poles					
			L1	L2	L3	N	PE	
	☒	AC: 120 V (L-L 240 V)	☒	☒	☐	☐	☒	
	☐	AC:	☐	☐	☐	☐	☐	
	☐	DC:						
	☐	DC:						
Rated Power..... :		7.6 kW						
Clock frequencies..... :		160 MHz						
Other parameters..... :		-						
Software version..... :		V1.8.0						
Hardware version..... :		Power board v3.2 Interface board v7						
Dimensions in cm (L x W x D) :		341mm x 170mm x 94mm						
Mounting position..... :	☐	Table top equipment						
	☒	Wall/Ceiling mounted equipment						
	☐	Floor standing equipment						
	☐	Hand-held equipment						
	☐	Other:						
Modules/parts..... :	Module/parts of test item			Type		Manufacturer		

Accessories (not part of the test item)..... :	Description	Type	Manufacturer
	Programming cable for ESP		
	Programming cable for STM		
Documents as provided by the applicant..... :	Description	File name	Issue date

Copy of marking plate:



Identification of the client

Teltonika Energy UAB
Ditos str. 6, LT-02121 Vilnius
Lithuania

Testing period and place

Test Location	DEKRA Certification Inc.
Date (start)	04-26-2023
Date (finish)	05-31-2023

Document history

Report number	Date	Description
4086ERM.002	07-20-2023	First release

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semi anechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Remarks and comments

The tests have been performed by the technical personnel: Qi Zhang and Koji Nishimoto

Testing verdicts

Not applicable :	N/A
Pass :	P
Fail :	F
Not measured :	N/M

Summary

FCC PART 15 PARAGRAPH / RSS-247					
Section	FCC Spec Clause	RSS Spec Clause	Test Description	Verdict	Remark
--	§ 2.1049 & § 15.247 (a) (1)	RSS-247 5.1 (b)	20dB Emission Bandwidth, Occupied Bandwidth & Carrier Frequency Separation	N/M	Refer 1
--	§ 15.247 (a) (1) (iii)	RSS-247 5.1 (d)	Number of hopping channels	N/M	Refer 1
--	§ 15.247 (a) (1) (iii)	RSS-247 5.1 (d)	Time of Occupancy (Dwell Time)	N/M	Refer 1
--	§ 15.247 (b) (3)	RSS-247 5.4 (b)	Maximum peak conducted output power and antenna gain	N/M	Refer 1
--	§ 15.247 (d)	RSS-247 5.5	Band-edge conducted emissions compliance (Transmitter)	N/M	Refer 1
--	§ 15.247 (d)	RSS-247 5.5	Emission limitations Conducted (Transmitter)	N/M	Refer 1
A.1	§ 15.247 (d)	RSS-247 5.5	Emission limitations Radiated (Transmitter)	P	N/A
<u>Supplementary information and remarks:</u> Note 1: Only multi-transmitter radiated spurious emission test was requested.					

List of equipment used during the test

Radiated Measurements

Control Num	Equipment	Manufacturer	Serial	Model	Next calibration
878	DC Power supply	Ametek Prog	1707A01783	PROG-DC-PS	N/A
1012	ESR26 EMI Test Receiver	Rohde & Schwarz	101478	ESR26	2025-01-18
1014	FSV40 Signal Analyzer 40GHz	Rhode & Schwarz	101626	FSV40	2024-08-01
1056	3116C Double-Ridged Waveguide Horn Antenna 18-40 GHz	Ets Lindgren	213179	3116C	2026-02-23
1057	3115 Double-Ridged Waveguide Horn Antenna 1-18 GHz	Ets Lindgren	211373	1908-07-11	2023-06-03
1062	Active Loop Antenna	Ets Lindgren	208517	6502	2023-05-31
1065	3142E Biconilog Antenna	Ets Lindgren	208587	3142E	2023-08-13
1108	Ethernet SNMP Thermometer- CR Room	Hw Group	60038026954	HWg-STE Plain	2024-10-18
1111	Ethernet SNMP Thermometer- SAC	Hw Group	60038026577	HWg-STE Plain	2024-10-18
1179	Semi-Anechoic Chamber	Frankonia	F169021	SAC 3plus 'L'	N/A
1314	Wireless Measurement Software R&S EMC32	Rohde & Schwarz	1040-OT102236	-	N/A

Appendix A: Test results

Appendix A Content

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PRODUCT INFORMATION

The following information is provided by the client

Information	Description
Modulation	RFID: SO/IEC 14443/18092 (NFC-A) BLE: GFSK (1-2 Mbps) Wi-Fi 2.4 GHz: b mode (DSS)
Operating Frequency Range	RFID: 13.56 MHz BLE: 2402-2480 MHz Wi-Fi 2.4 GHz: 2412-2472 MHz
Maximum chipset/conducted output power:	RFID: 1.4 W BLE: 20 dBm Wi-Fi .7dBm
Nominal Channel Bandwidth	RFID: 0.03 MHz BLE: 2 MHz Wi-Fi 2.4 GHz: 20MHz
Antenna gain	BLE: 3.7 dBi Wi-Fi 2.4 GHz: 3.7 dBi
Nominal Voltage	
- Supply Voltage	120 V (L-L 240 V)
- Type of power source	AC voltage
Equipment type	RFID, BLE and Wi-Fi 2.4 GHz

DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS	DESCRIPTION															
TC#01 ⁽¹⁾	<u>Power supply (V):</u> AC 240 V															
	<u>Test Frequencies for Radiated tests:</u>															
	<table><tr><th>Technology</th><th>Tested Frequency</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>RFID</td><td>13,56 MHz</td><td>0.03</td><td>-</td><td>-</td></tr><tr><td>Bluetooth Low Energy</td><td>2480</td><td>2</td><td>GFSK</td><td>1 Mbps</td></tr></table>	Technology	Tested Frequency	BW (MHz)	Modulation	Mode	RFID	13,56 MHz	0.03	-	-	Bluetooth Low Energy	2480	2	GFSK	1 Mbps
	Technology	Tested Frequency	BW (MHz)	Modulation	Mode											
	RFID	13,56 MHz	0.03	-	-											
Bluetooth Low Energy	2480	2	GFSK	1 Mbps												
The test was performed with the equipment transmitting with RFID and Bluetooth radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.																
TC#02 ⁽¹⁾	<u>Power supply (V):</u> AC 240 V															
	<u>Test Frequencies for Radiated tests:</u>															
	<table><tr><th>Technology</th><th>Tested Frequency</th><th>BW (MHz)</th><th>Modulation</th><th>Mode</th></tr><tr><td>RFID</td><td>13,56 MHz</td><td>0.03</td><td>-</td><td>-</td></tr><tr><td>Wi-Fi 2.4 GHz MIMO</td><td>2437</td><td>20</td><td>DSSS</td><td>b mode</td></tr></table>	Technology	Tested Frequency	BW (MHz)	Modulation	Mode	RFID	13,56 MHz	0.03	-	-	Wi-Fi 2.4 GHz MIMO	2437	20	DSSS	b mode
	Technology	Tested Frequency	BW (MHz)	Modulation	Mode											
	RFID	13,56 MHz	0.03	-	-											
Wi-Fi 2.4 GHz MIMO	2437	20	DSSS	b mode												
The test was performed with the equipment transmitting with RFID and Wi-Fi 2.4 GHz radios simultaneously. These measurements have been performed in order to check the impact of the multi-transmitter of all radio interfaces that can be transmitting simultaneously.																

Note (1): Preliminary scan was performed to determine the worst case and the following tables and plots show the results for the worst case in RFID + BT and RFID + Wi-Fi 2.4 GHz.

TEST A.1: EMISSION LIMITATIONS RADIATED (TRANSMITTER)

LIMITS:	Product standard:	FCC 15.225 / FCC 15.247 / FCC 15.209 and RSS-247 / RSS-210 Issue 10 / RSS-Gen Issue 5
	Test standard:	FCC 15.225 / FCC 15.247 / FCC 15.209 and RSS-247 / RSS-210 Issue 10 / RSS-Gen Issue 5

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Measurement distance (m)
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	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function.

RSS-247. Attenuation below the general field strength limits specified in RSS-Gen is not required

TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna (Loop antenna) for the range between 9 kHz to 30 MHz and for the frequency range 30-1000 MHz (Bilog antenna) is situated at a distance of 3 m and at 1m for the frequency range 1-26 GHz (1 GHz-18 GHz and 18 GHz- 26 GHz Double ridge horn antennas).

For radiated emissions in the range 9 kHz to 30 MHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 40 dB per decade is used to normalize the measured data for determining compliance.

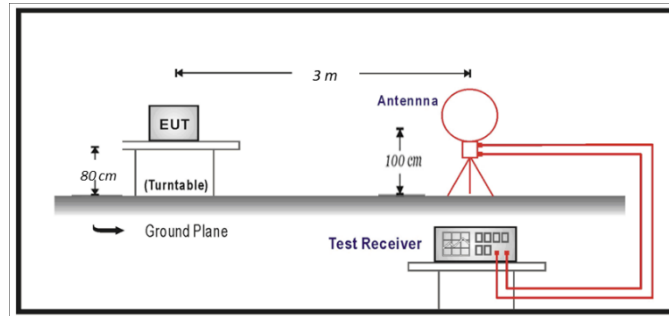
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

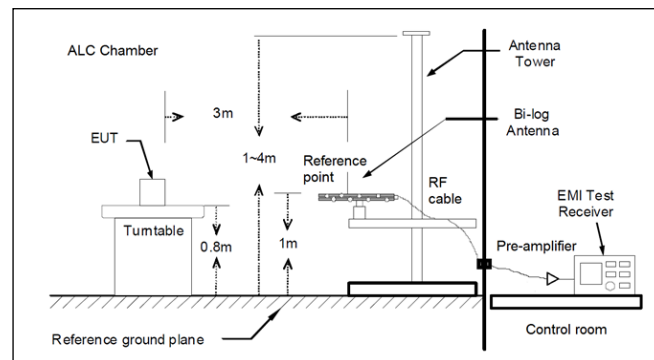
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

TEST SETUP (CONT.)

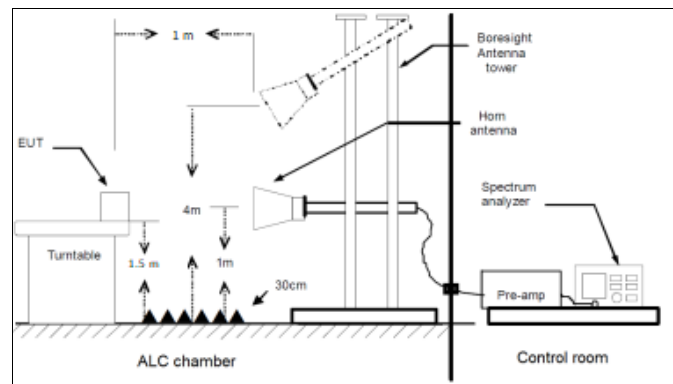
Radiated measurements Setup $f < 30$ MHz



Radiated measurements Setup $f < 1$ GHz



Radiated measurements setup $f > 1$ GHz



TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01
TEST RESULTS:	PASS

Frequency range 9 kHz – 1000 MHz

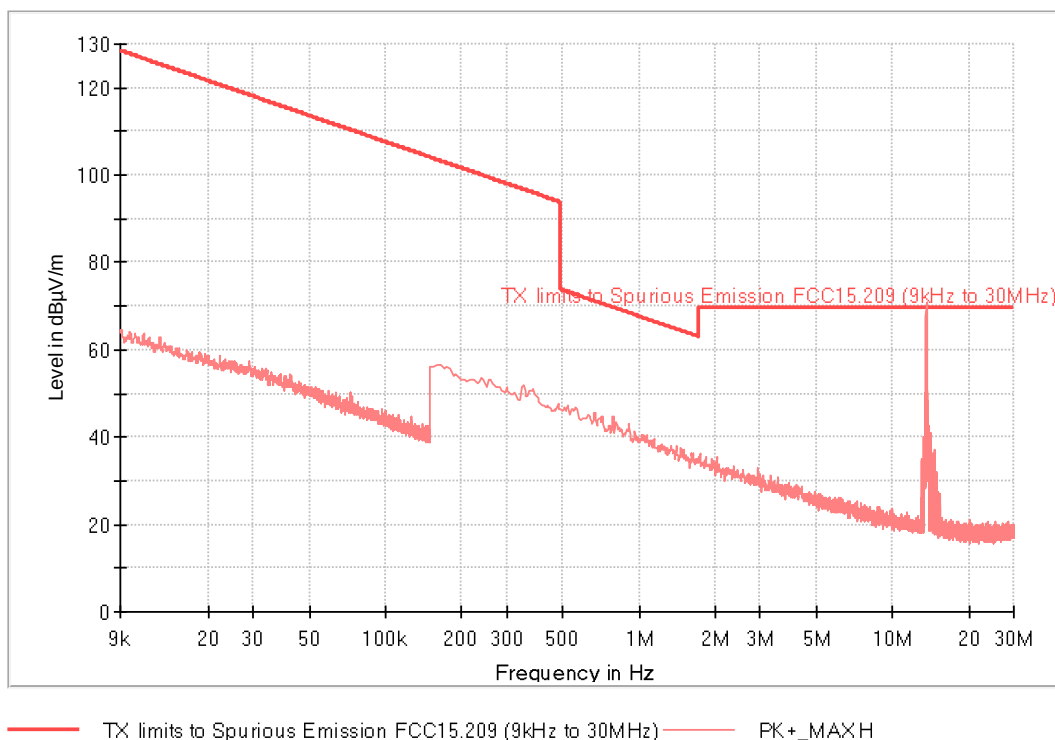
The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.

Frequency range 1 GHz – 26 GHz

The results in the next tables show the maximum measured levels in the 1-26 GHz.

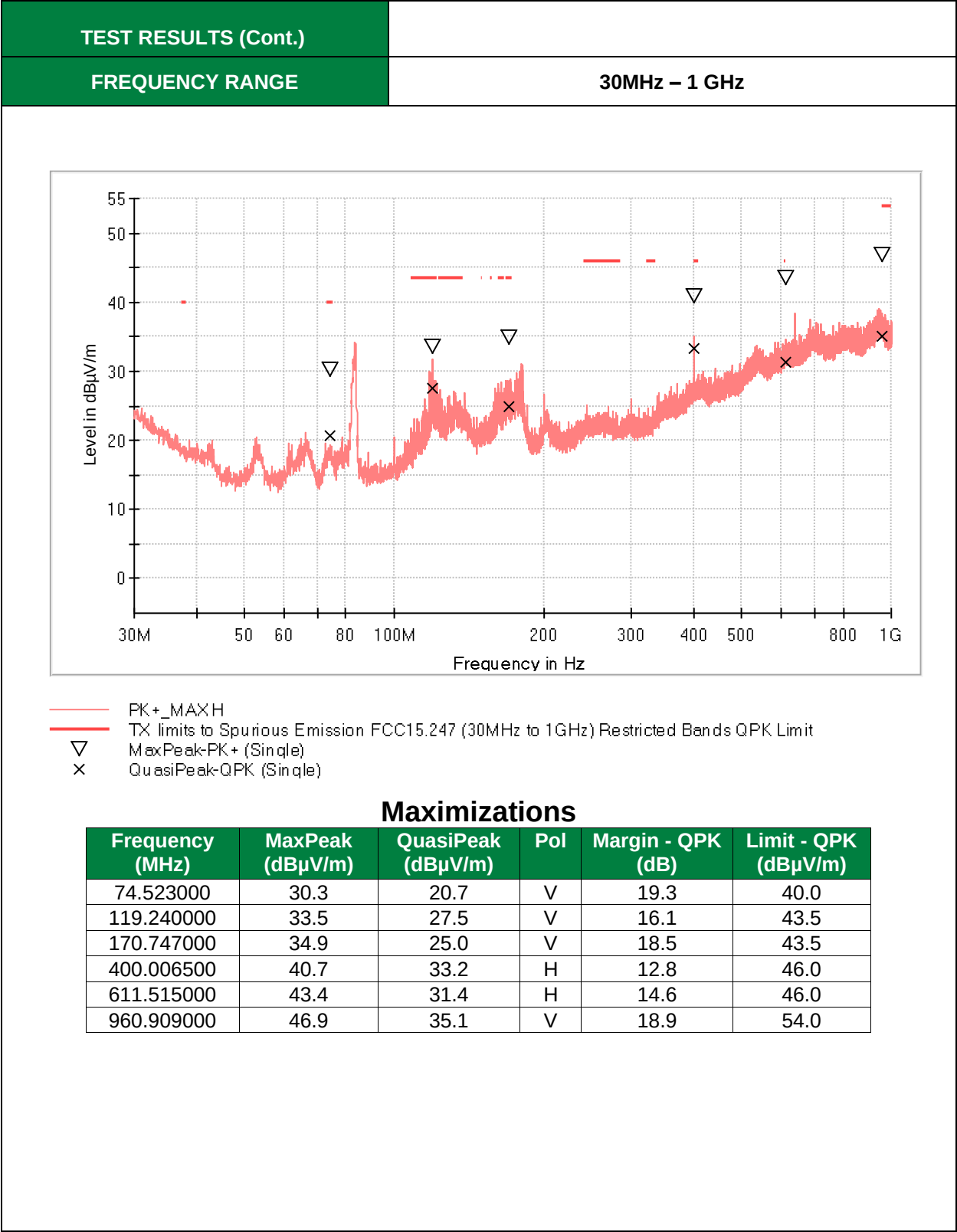
For 18 – 26 GHz frequency range the radiated spurious signals detected were at 10 dB below the reference limit or lower for the operating channels.

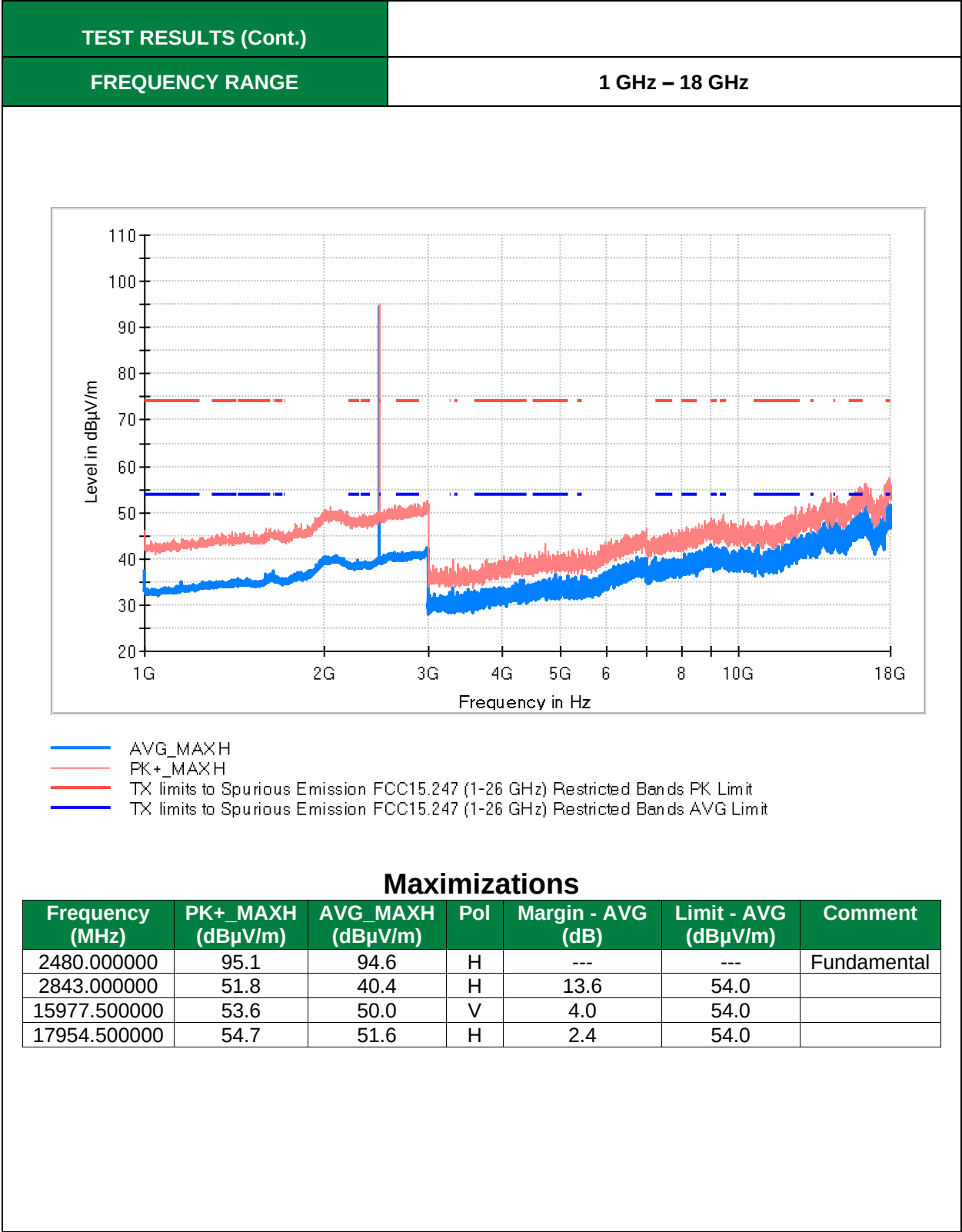
Frequency range 9 kHz – 30 MHz

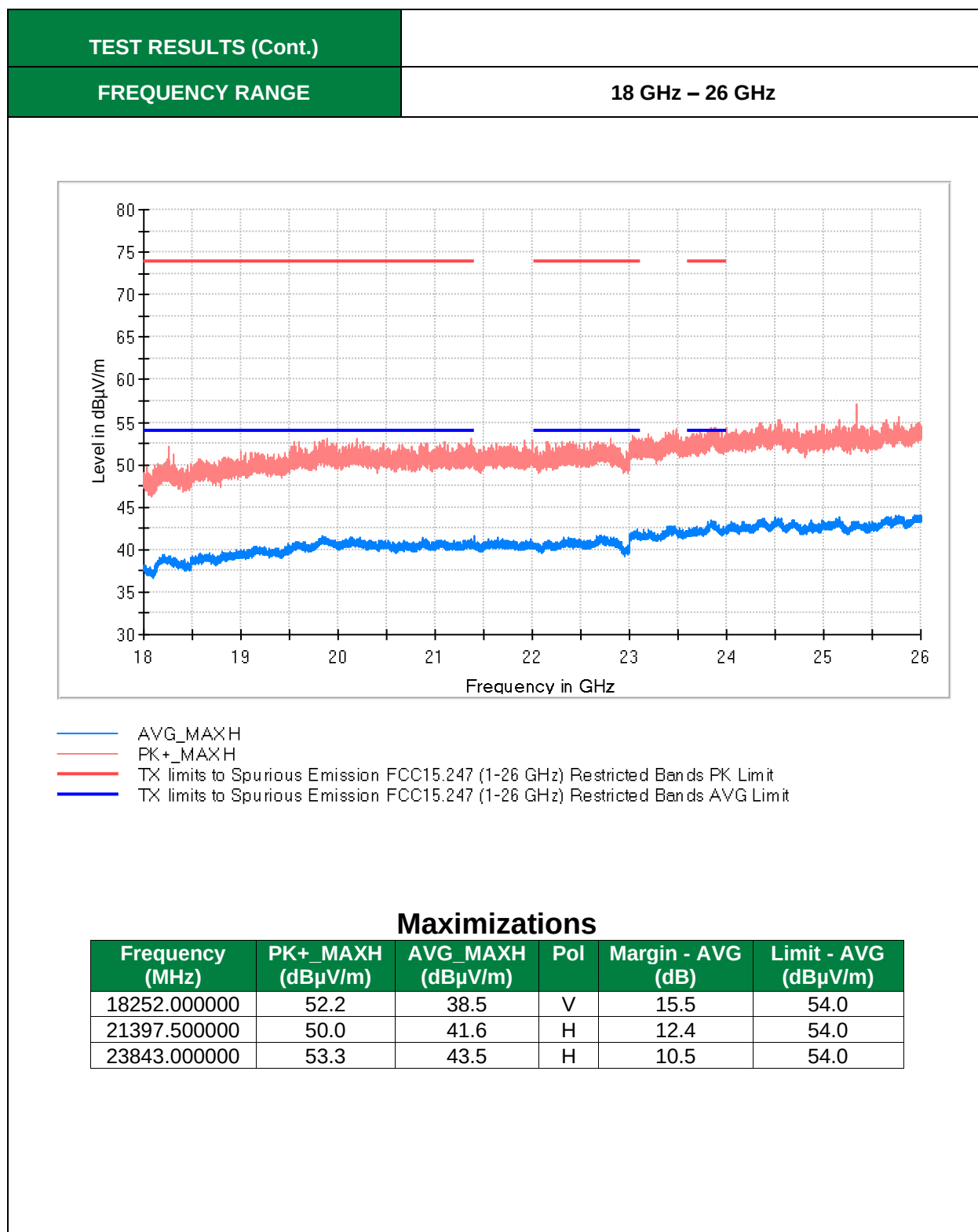


Maximizations

Frequency (MHz)	PK+_MAXH (dBuV/m)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
0.523125	47.1	H	26.1	73.2
12.995450	34.9	H	34.6	69.5
14.119800	40.8	H	28.7	69.5







TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02
9 kHz – 30 MHz	9 kHz – 30 MHz

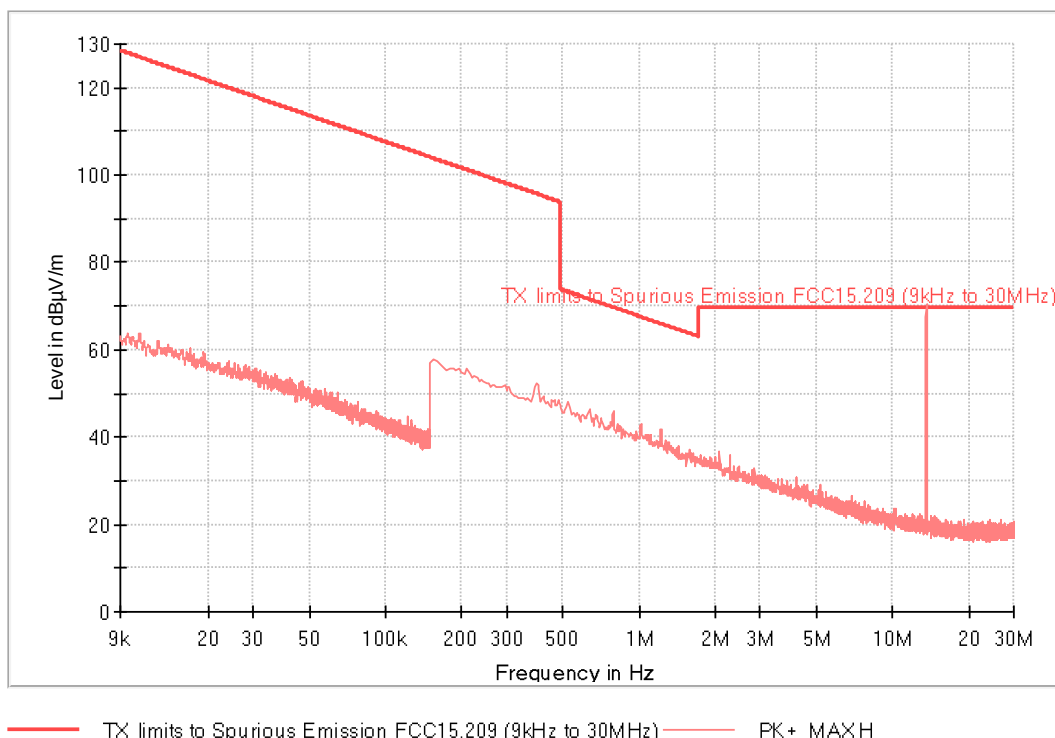
Frequency range 9 kHz – 1000 MHz

The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT.

Frequency range 1 GHz – 26 GHz

The results in the next tables show the maximum measured levels in the 1-26 GHz.

For 18 – 26 GHz frequency range the radiated spurious signals detected were at 10 dB below the reference limit or lower for the operating channels.



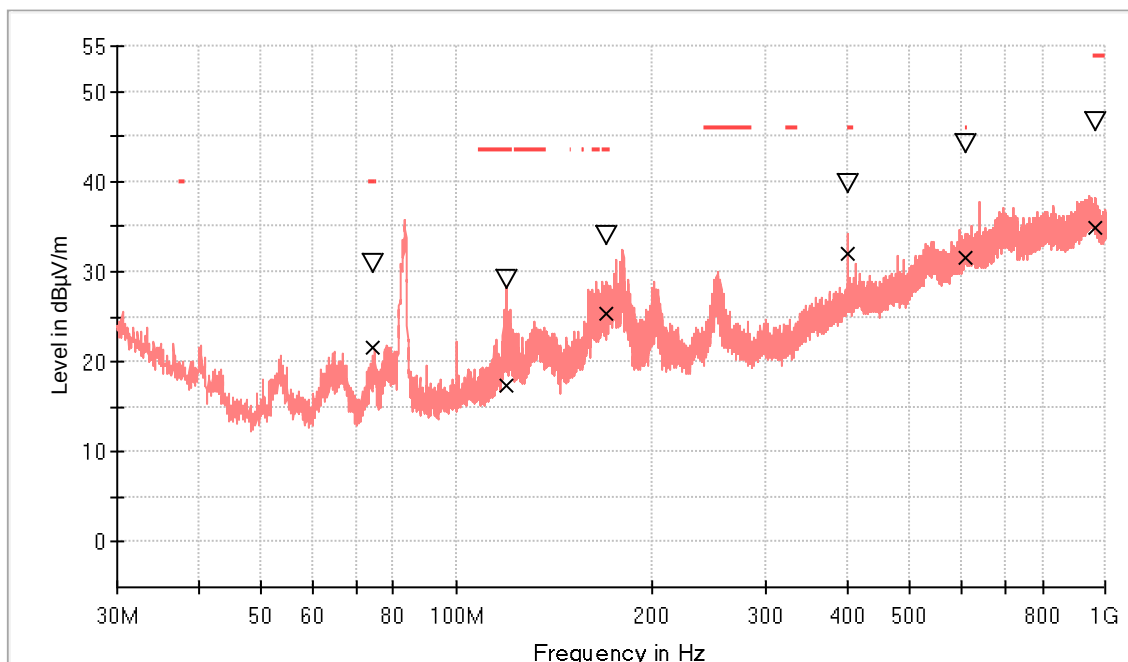
Maximizations

Frequency (MHz)	PK+_MAXH (dBµV/m)	Pol	Margin - PK+ (dB)	Limit - PK+ (dBµV/m)
0.393775	52.2	H	43.5	95.7
0.786800	45.3	H	24.4	69.7
2.075325	36.5	H	33.0	69.5

TEST RESULTS (Cont.)

FREQUENCY RANGE

30MHz – 1 GHz



- PK+_MAX_H
- TX limits to Spurious Emission FCC15.247 (30MHz to 1GHz) Restricted Bands QPK Limit
- ▽ MaxPeak-PK+ (Single)
- x QuasiPeak-QPK (Single)

Maximizations

Frequency (MHz)	MaxPeak (dBμV/m)	QuasiPeak (dBμV/m)	Pol	Margin - QPK (dB)	Limit - QPK (dBμV/m)
74.183500	30.9	21.5	V	18.5	40.0
119.191500	29.2	17.3	H	26.2	43.5
170.456000	34.0	25.3	V	18.3	43.5
400.006500	39.7	31.9	H	14.1	46.0
610.593500	44.2	31.4	V	14.6	46.0
968.620500	46.6	34.8	V	19.3	54.0

