



Test Report

FCC Part 15.247

Industry Canada RSS210

Model #: MX9, FC300

**LXE Inc.
125 Technology Parkway
Norcross, GA 30092
U.S.A**

**FCC ID: KDZLXE4831P
IC ID: 1995B-4831**

**TEST REPORT #: EMC_LXEIN_007_09001_15.247_MX9_LXE4831
DATE: 2009-8-20**



**FCC listed:
A2LA
accredited**

**IC recognized #
3462B**

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Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

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1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Part 15.247 of the Code of Federal Regulations and RSS-210 Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment.

Company	Description	Model #
LXE, Inc.	MX9 Handheld Computer FC300 Handheld Computer	MX9, FC300

This report is reviewed by:

Marc Douat

2009-8-20 EMC & Radio (EMC Lab Manager)

Date

Section

Name

Signature

This report is prepared by:

Peter Mu

2009-8-20 EMC & Radio (Project Manager)

Date

Section

Name

Signature

The test results of this test report relate exclusively to the test item specified in Identification of the Equipment under Test. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	EMC
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Responsible Test Lab Manager:	Marc Douat
Responsible Project Leader:	Ahmad Safdari
Date of test:	2009-07-08 to 2009-7-14

2.2 Identification of the Client

APPLICANT	
Applicant (Company Name)	LXE, Inc.
Street Address	125 Technology Parkway
City/Zip Code	Norcross, Georgia, US 30092
Country	USA
Contact Person	Brett Davis
Telephone	(770) 447-4224 x6456
Fax	(770) 447-6928
e-mail	davis.b@lxe.com

2.3 Identification of the Manufacturer

Same as above applicant.

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

EUT	
Marketing Name of EUT (if not same as Model No.):	N/A
Description:	MX9 Handheld Computer FC300 Handheld Computer
Model No:	MX9, FC300
FCC ID:	KDZLXE4831P
IC ID:	1995B-4831

Frequency Range:	Sub-band 1: 2412.0-2462.0MHz Sub-band 2: 5745.0-5805.0MHz
Type(s) of Modulation:	OFDM, DSSS
Antenna Type/Gain:	Sub-band 1: Dipole -2dBi Sub-band 2: Dipole +2dBi
Max Output Power:	Sub-band 1, 2412-2462Mhz 802.11b: Radiated: 23.4dBm (219mW) EIRP 802.11g: Radiated: 22.1dBm (162mW) EIRP Sub-band 1, 5745.0-5805.0MHz 802.11a: Radiated: 17.6dBm (57.5mW) EIRP

3.2 Identification of the Equipment under Test (EUT)

EUT #	TYPE	MANF.	MODEL	SERIAL #
1	EUT	LXE, Inc.	MX9, FC300	N/A

3.3 Identification of Accessory equipment

AE #	TYPE	MANF.	MODEL	SERIAL #
1	AC/DC ADAPTER	GlobalTek Inc.	GT-81081-6015-T3	N/A

4 Subject Of Investigation

All testing was performed on the product referred to in Section 3 as EUT. EUT operates in the band 2400-2483.5MHz in 802.11b/g mode.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT operating under all operating modes as specified in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4 Radio module used in this product has been previously certified under its own FCC and IC ID. FCC ID: **KDZLXE4830P** IC ID # **1995B-4830**.

5 Radiated Measurements

5.1 Maximum Peak Output Power § 15.247 (b)(1) (Radiated)

5.1.1 Limits

FCC15.247 (b) (1): 4W (36dBm), with antenna gain < 6dBi.
RSS-210 A8.4 (4): 4W (36dBm)

5.1.2 Results: EIRP

EIRP is calculated as $EIRP = \text{Conducted Peak Power (dBm)} + \text{Peak Antenna Gain (dBi)}$

Antenna Type & Gain: **Sub-band 1: -2dBi, Sub-band 2: +2dBi**

Sub-band 1: 2412.0-2462.0MHz, 802.11 b/g Mode:

TEST CONDITIONS $T_{nom}(23)^{\circ}C$, $V_{nom}VDC$	Channel Frequency	EIRP (dBm)	EIRP (mW)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	21	125.89	PASS
	2437	21.8	151.36	PASS
	2462	21.4	138.04	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	22.1	162.18	PASS
	2437	21.7	147.91	PASS
	2462	21.2	131.83	PASS

Sub-band 2: 5745.0-5805.0MHz, 802.11a mode:

TEST CONDITIONS $T_{nom}(23)^{\circ}C$, $V_{nom}VDC$	Channel Frequency	EIRP (dBm)	EIRP (mW)	Verdict
Sub-band 1: 5745.0-5805.0MHz (802.11a)	5745	17.6	57.54	PASS
	5785	16.6	45.71	PASS
	5805	17.3	53.70	PASS

Restricted Band Edge Compliance §15.247/15.205**5.1.3 Limits**

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

***PEAK LIMIT= 74dBuV/m**

***AVG. LIMIT= 54dBuV/m**

Notes:

1. Radiated emissions are maximized by rotating the EUT 360° at 0.5 meter height increments between 1 and 4 meters.
2. Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity.

5.1.4 Sub-band 1 802.11b

Lower band edge PEAK

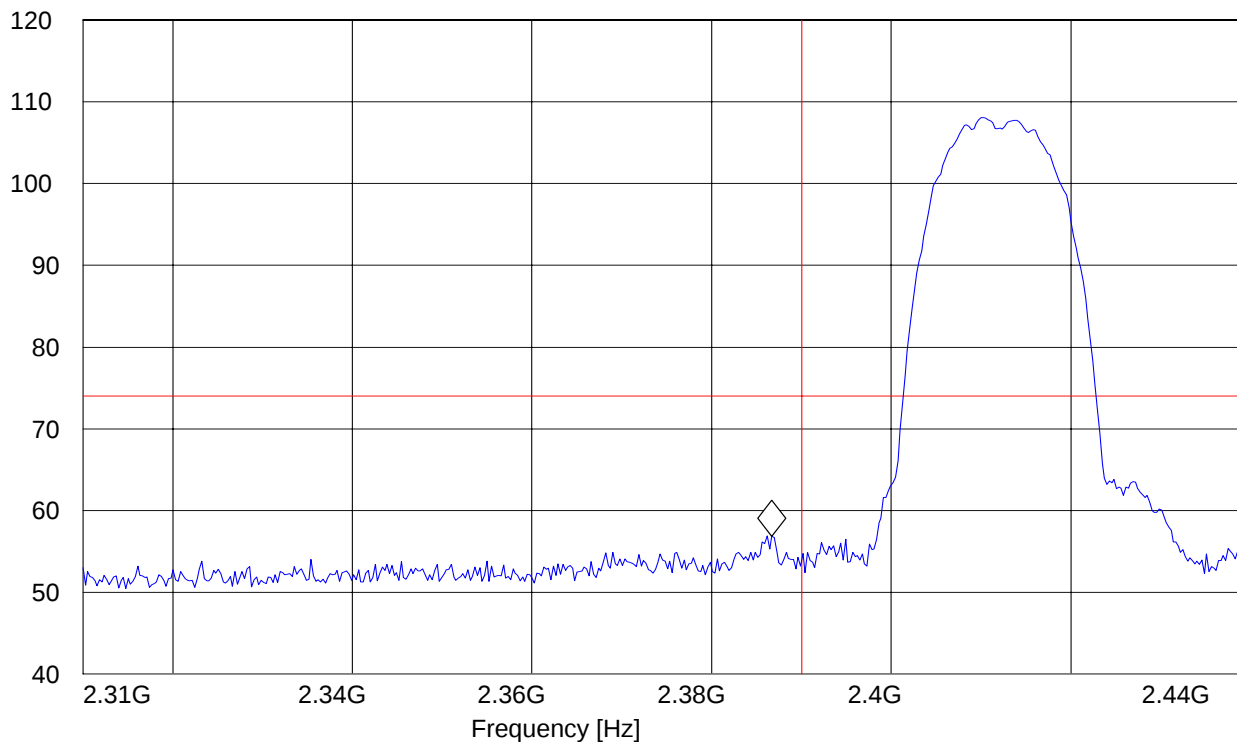
EUT: MX9
Customer:: LXE, Inc
Test Mode: 802.11 CH 1; b mode
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 LBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 2.386713427 GHz 56.82 dBμV/m

Level [dBμV/m]



Lower band edge Average

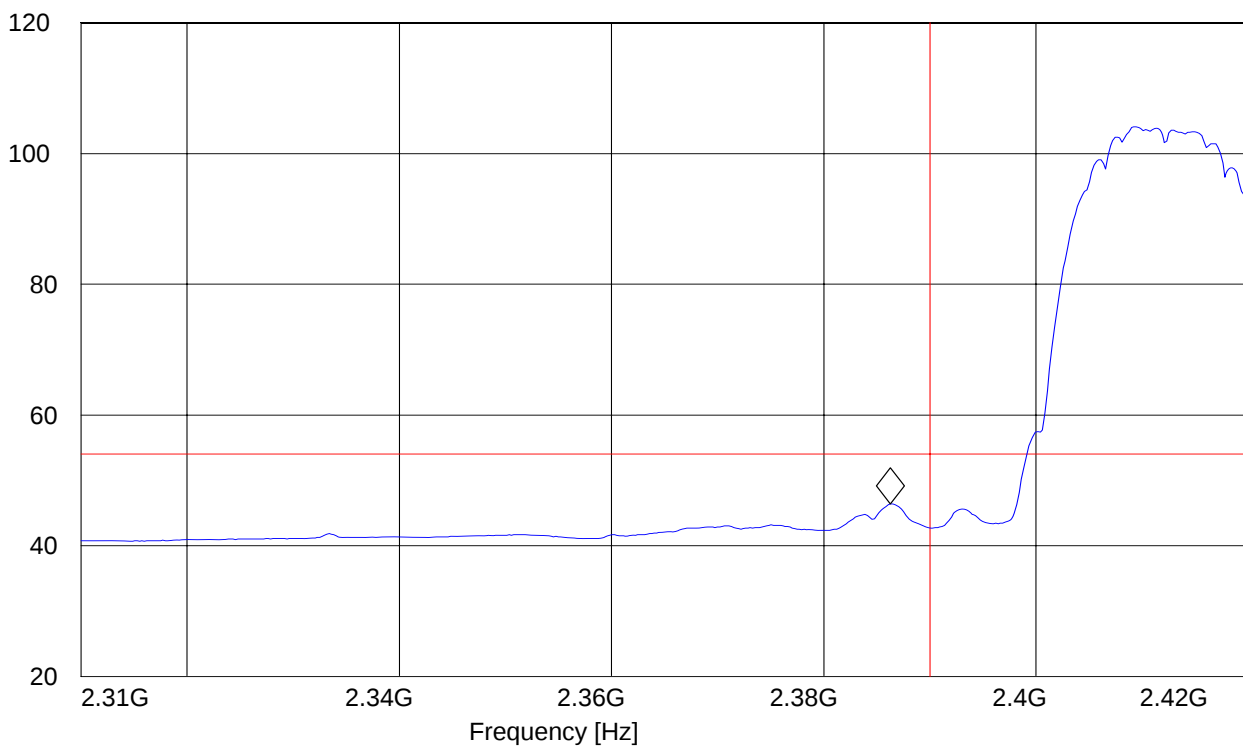
EUT: MX9
Customer:: LXE, Inc
Test Mode: 802.11 CH 1; b mode
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 LBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 2.386272545 GHz 46.43 dB μ V/m

Level [dB μ V/m]

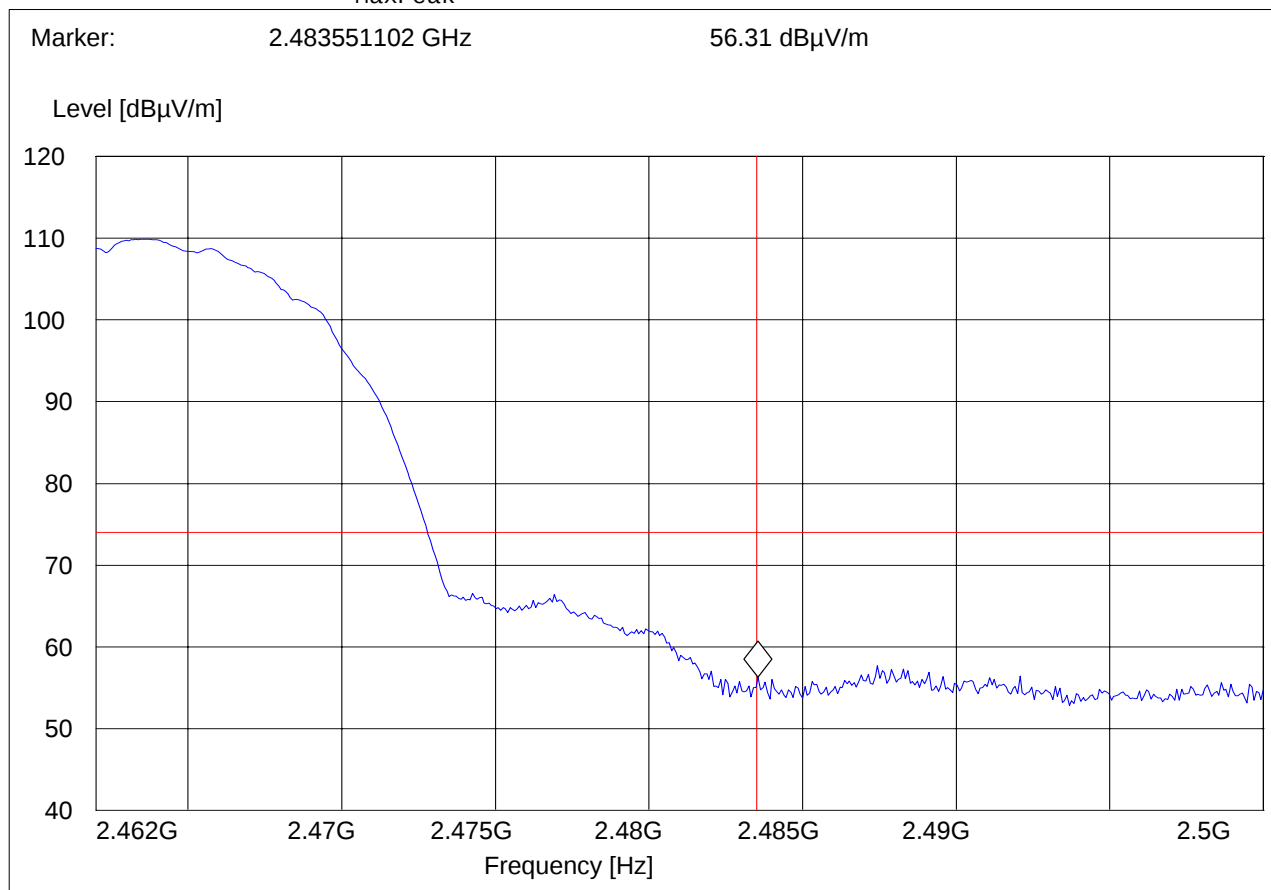


High band edge PEAK

EUT: MX9
Customer:: LXE, Inc
Test Mode: 802.11 CH 11; b mode
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 HBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



High band edge Average

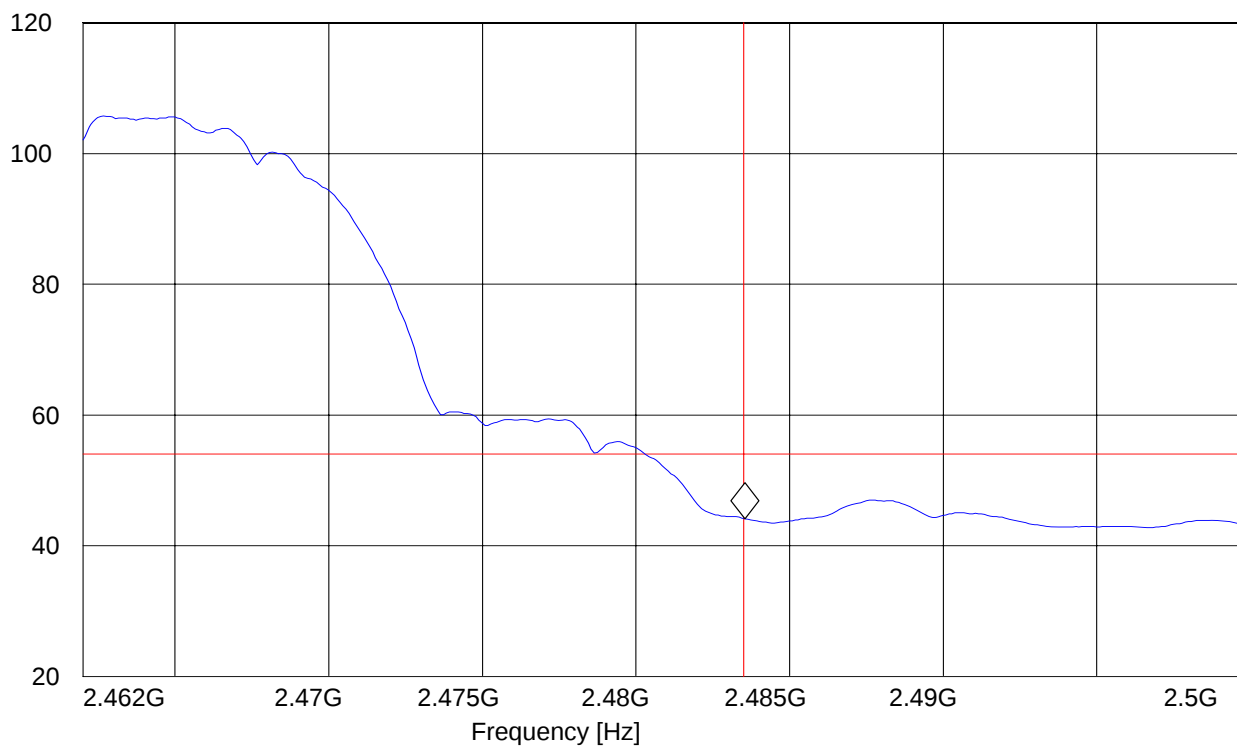
EUT: MX9
Customer:: LXE, Inc
Test Mode: 802.11 CH 11; b mode
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 HBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz

Marker: 2.483547094 GHz 44.15 dB μ V/m

Level [dB μ V/m]



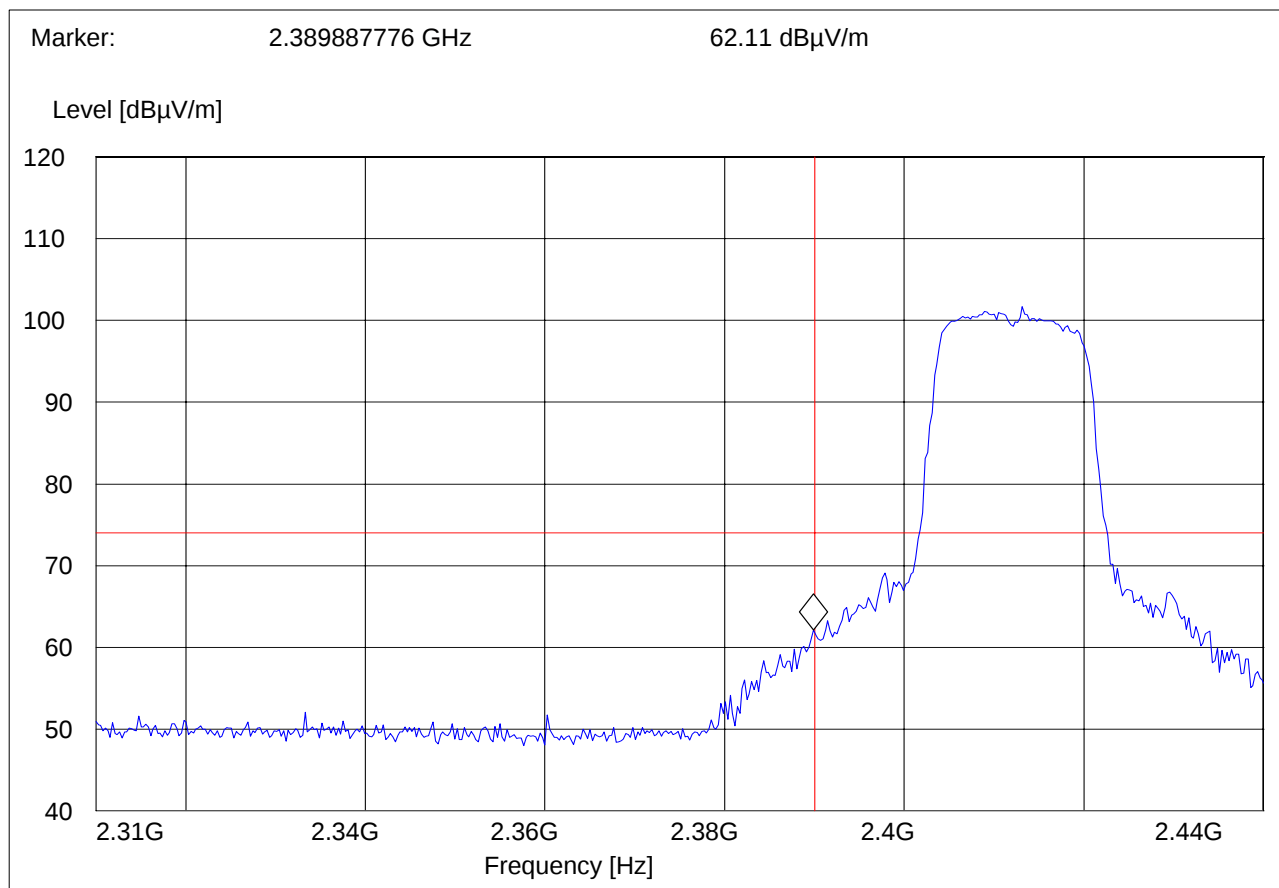
5.1.5 Sub-band 1 802.11g

Lower band edge PEAK

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11g CH 1
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 LBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak MaxPeak	Coupled	1 MHz	#326horn_AF_vert



Lower band edge Average

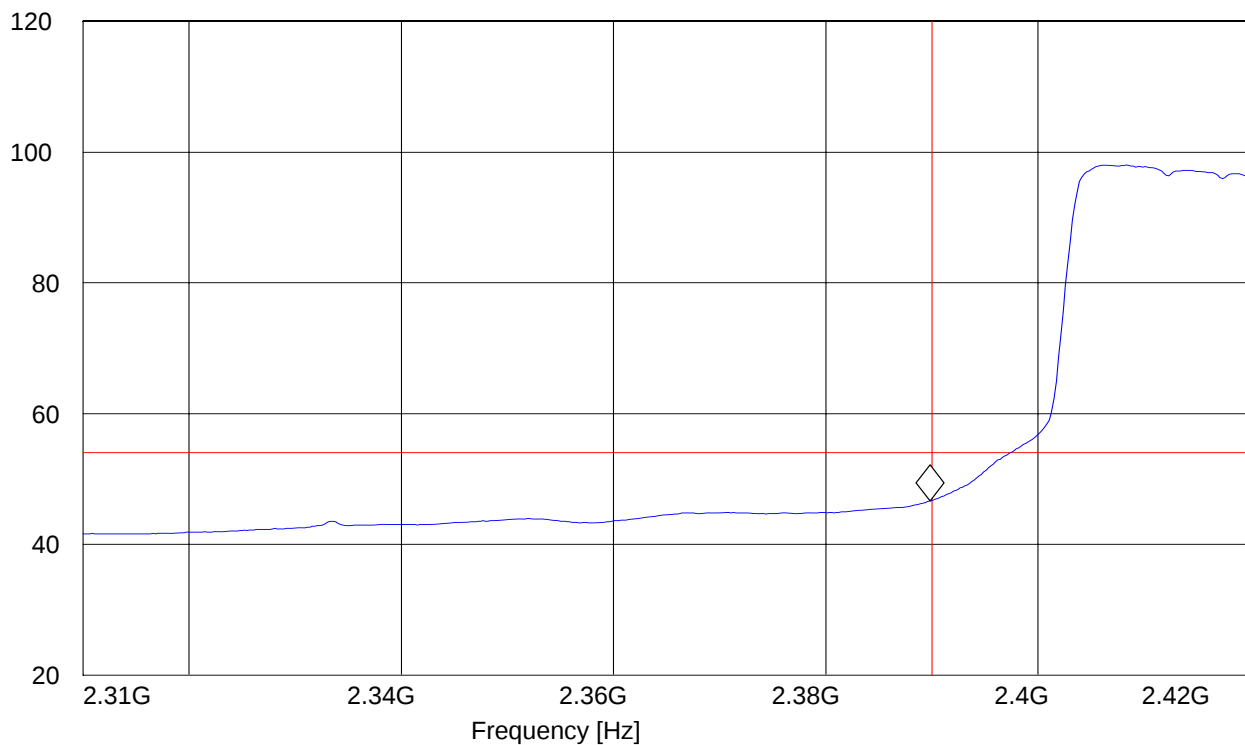
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11g CH 1
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 LBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 2.389799599 GHz 46.63 dB μ V/m

Level [dB μ V/m]

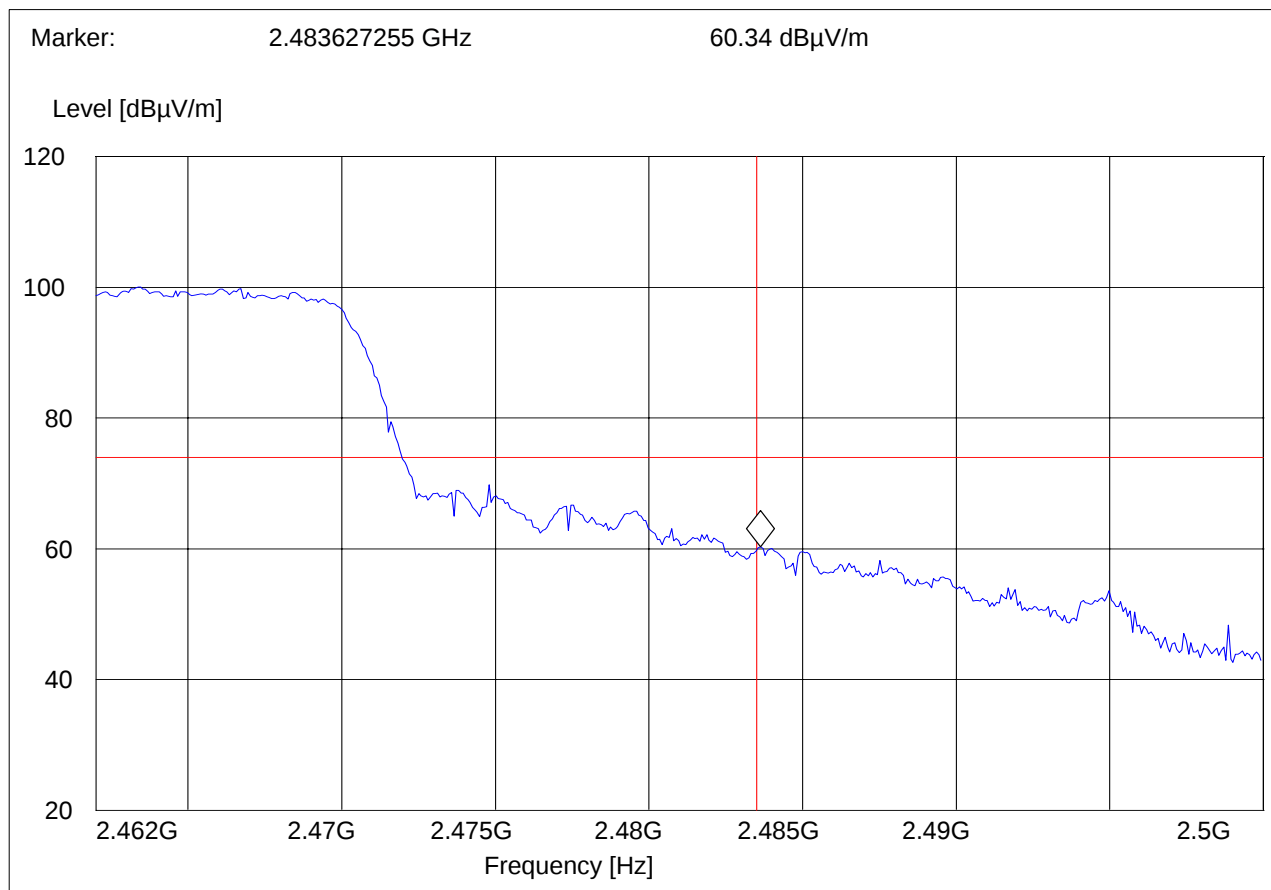


High band edge PEAK

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11g CH 11
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 HBE_PK"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak MaxPeak	Coupled	1 MHz	#326horn_AF_vert

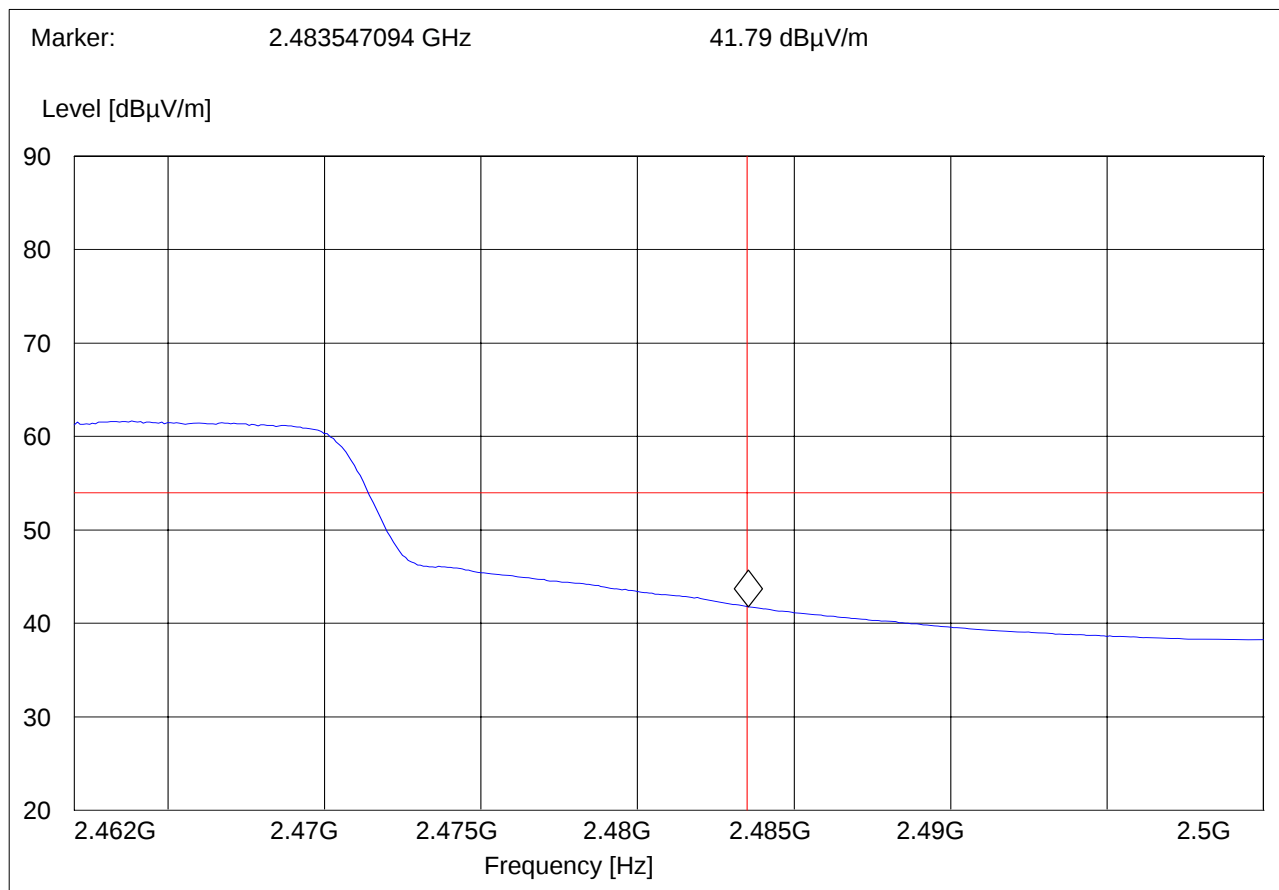


High band edge Average

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11g CH 11
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247 HBE_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz



5.2 Transmitter Spurious Emission § 15.247/15.205/15.209

5.2.1 Limits

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

***PEAK LIMIT= 74dBuV/m**

***AVG. LIMIT= 54dBuV/m**

Notes:

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.
2. All measurements are done in peak mode using an average limit , unless specified with the plots.
3. Radiated emissions are maximized by rotating the EUT 360° at 0.5 meter height increments between 1 and 4 meters.
4. Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity

Results for the radiated measurements below 30MHz according § 15.33

Frequency	Measured values	Remarks
9KHz – 30MHz	No emissions found, caused by the EUT	This is valid for all the tested channels

5.2.2 RESULTS Sub-band 1 802.11b/g MODE

Emissions reported here are worse cases emissions for all operation modes.

30MHz – 1GHz, Antenna: Horizontal/Vertical

Note: This plot is valid for low, mid, high channels (worst-case plot).

EUT Information

Description:

EUT Name: MX9
 Manufacturer: LXE, Inc.
 Test Mode: 802.11g CH.6
 Hardware Rev:
 Software Rev:
 Comment: FCC Unit

Test

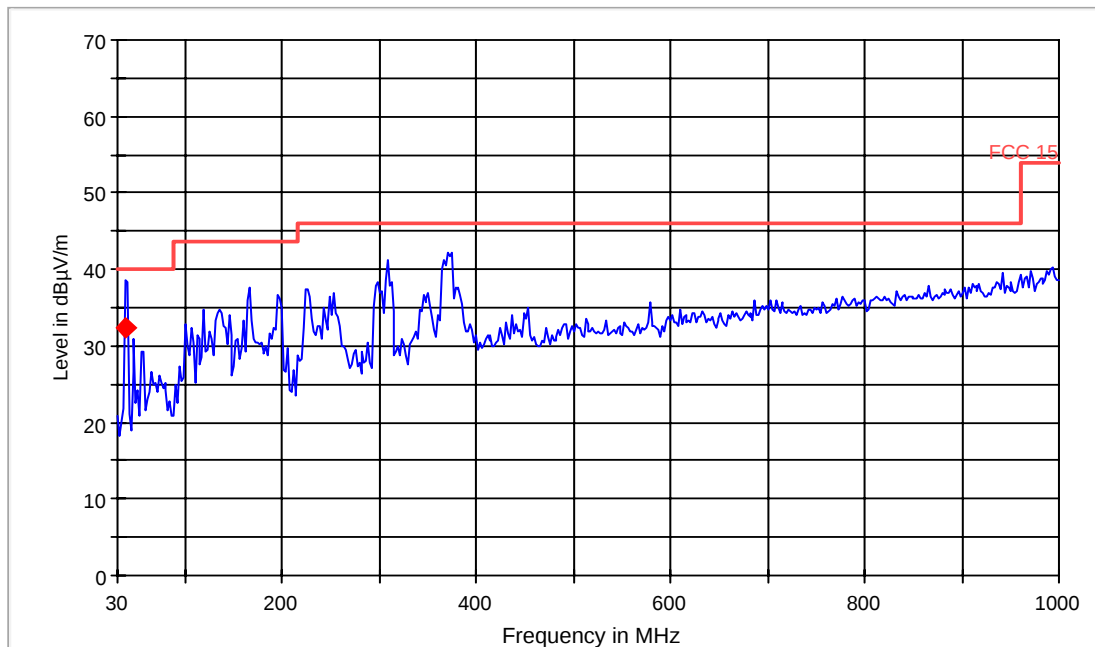
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
38.967936	32.4	20.000	120.000	120.0	V	112.0	5.7	7.6	40.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
38.967936	

FCC 15 30-1000MHz



— FCC 15.LimitLine

— Preview Result 1



Final Result 1

1-18GHz (2412MHz) Antenna: Horizontal/Vertical**Note: Worst case emissions for both b and g mode.****EUT Information**

Description:

EUT Name: MX9
Manufacturer: LXE, Inc.
Test Mode: 802.11g CH.1
Hardware Rev:
Software Rev:
Comment: FCC Unit

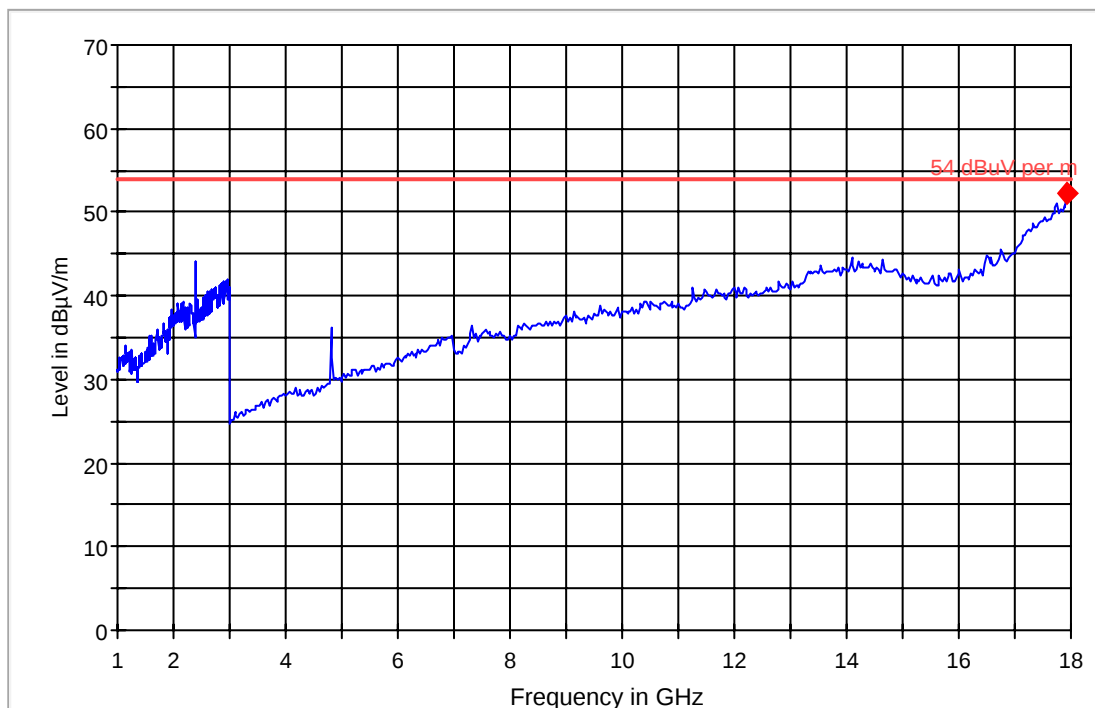
Test**Final Result 1**

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
17943.677355	52.3	20.000	1000.000	170.0	H	11.0	29.4	1.7	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17943.677355	

FCC 15 1-18GHz



54 dBμV per m.LimitLine

Preview Result 1



Final Result 1

1-18GHz (2437MHz) Antenna: Horizontal/Vertical**Note: Worst case emissions for both b and g mode.****EUT Information**

Description:

EUT Name: MX9
Manufacturer: LXE, Inc.
Test Mode: 802.11g CH.6
Hardware Rev:
Software Rev:
Comment: FCC Unit

Test

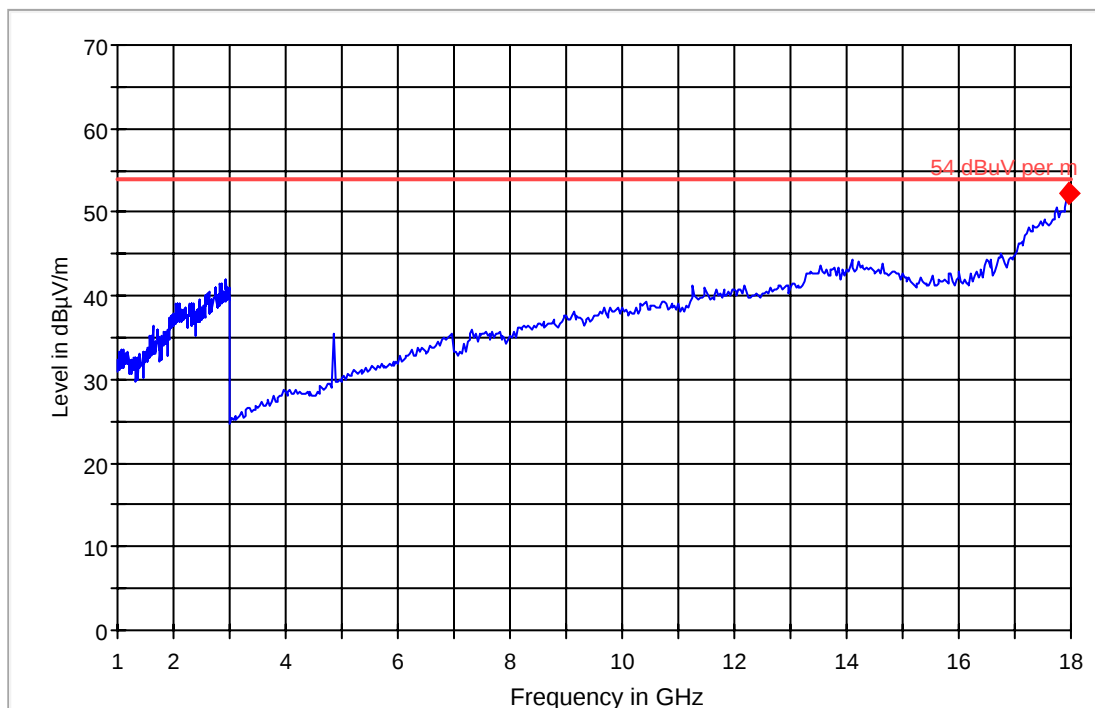
Final Result 1

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
17967.444890	52.4	20.000	1000.000	146.0	V	1.0	29.5	1.6	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17967.444890	

FCC 15 1-18GHz



— 54 dBμV per m.LimitLine

— Preview Result 1



Final Result 1

1-18GHz (2462MHz) Antenna: Horizontal/Vertical**Note: Worst case emissions for both b and g mode.****EUT Information**

Description:

EUT Name: MX9
 Manufacturer: LXE, Inc.
 Test Mode: 802.11g CH.11
 Hardware Rev:
 Software Rev:
 Comment: FCC Unit

Test

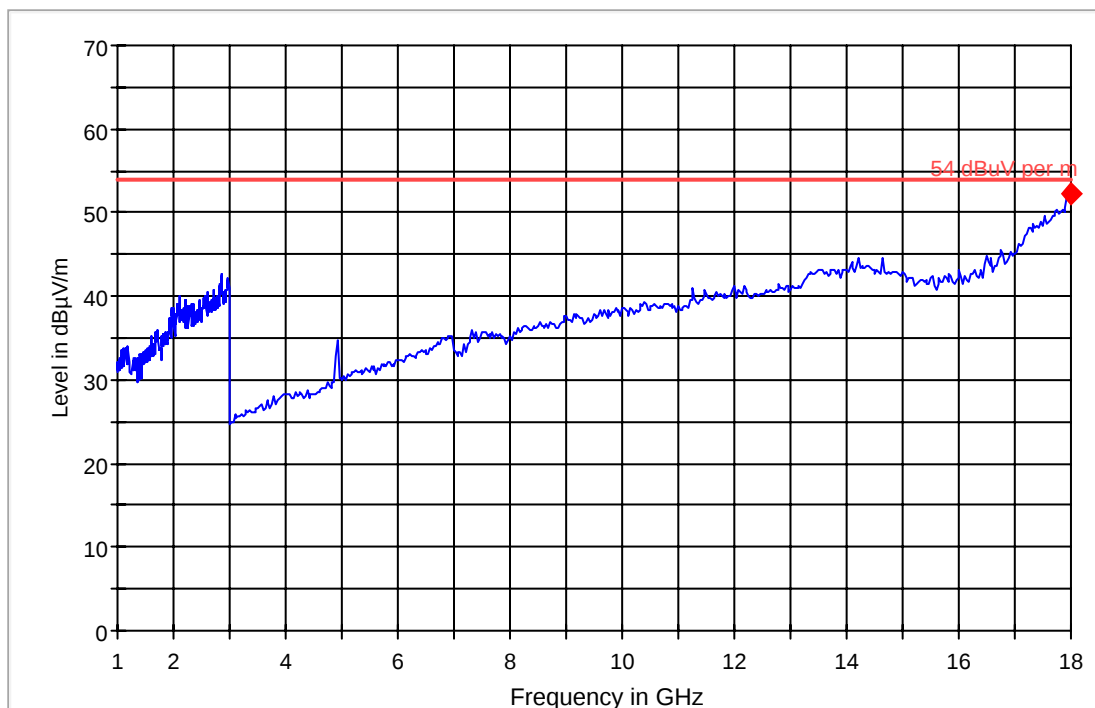
Final Result 1

Frequency (MHz)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
17995.450902	52.2	20.000	1000.000	162.0	V	202.0	29.4	1.8	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17995.450902	

FCC 15 1-18GHz



— 54 dBμV per m.LimitLine

— Preview Result 1



◆ Final Result 1

18-26.5GHz

Note: This plot is valid for low, mid, high channels (worst-case plot).

Note: Peak Reading vs. Average limit

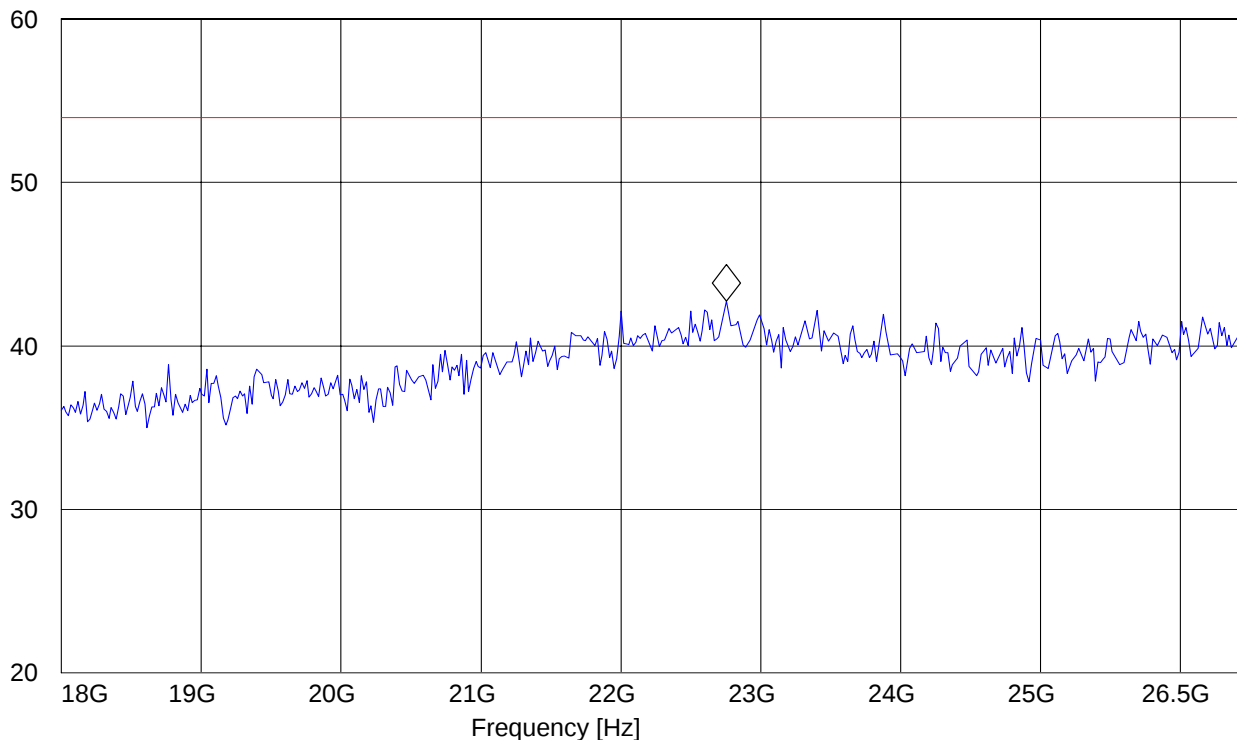
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11g CH 1
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC15.247_18-26.5G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.5 GHz	MaxPeak MaxPeak	Coupled	100 kHz	Horn # 3116_18-40G

Marker: 22.75250501 GHz 42.75 dBμV/m

Level [dBμV/m]



5.2.3 RESULTS Sub-band 2 802.11a MODE

30MHz – 1GHz, Antenna: Horizontal/Vertical

Note: This plot is valid for low, mid, high channels (worst-case plot).

EUT Information

Description:

EUT Name: MX9
 Manufacturer: LXE
 Operating Mode: 802.11a 5745MHz
 Comment: FCC Unit

Test

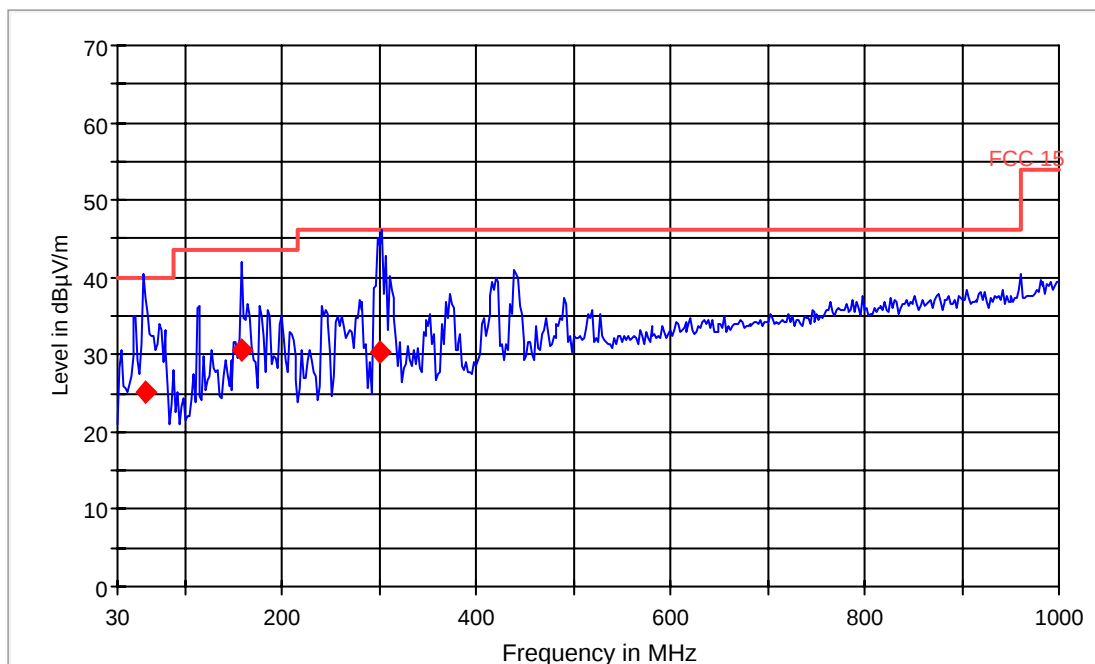
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
58.306613	25.2	20.000	120.000	120.1	V	177.0	7.7	14.8	40.0
158.607214	30.5	20.000	120.000	145.0	H	1.0	12.1	13.0	43.5
300.470942	30.4	20.000	120.000	120.1	V	267.0	15.6	15.6	46.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
58.306613	
158.607214	
300.470942	

FCC 15 30-1000MHz



— FCC 15.LimitLine — Preview Result 1 ◆ Final Result 1

1-7GHz (5745MHz)

Note: The peak above the limit line is the carrier freq.

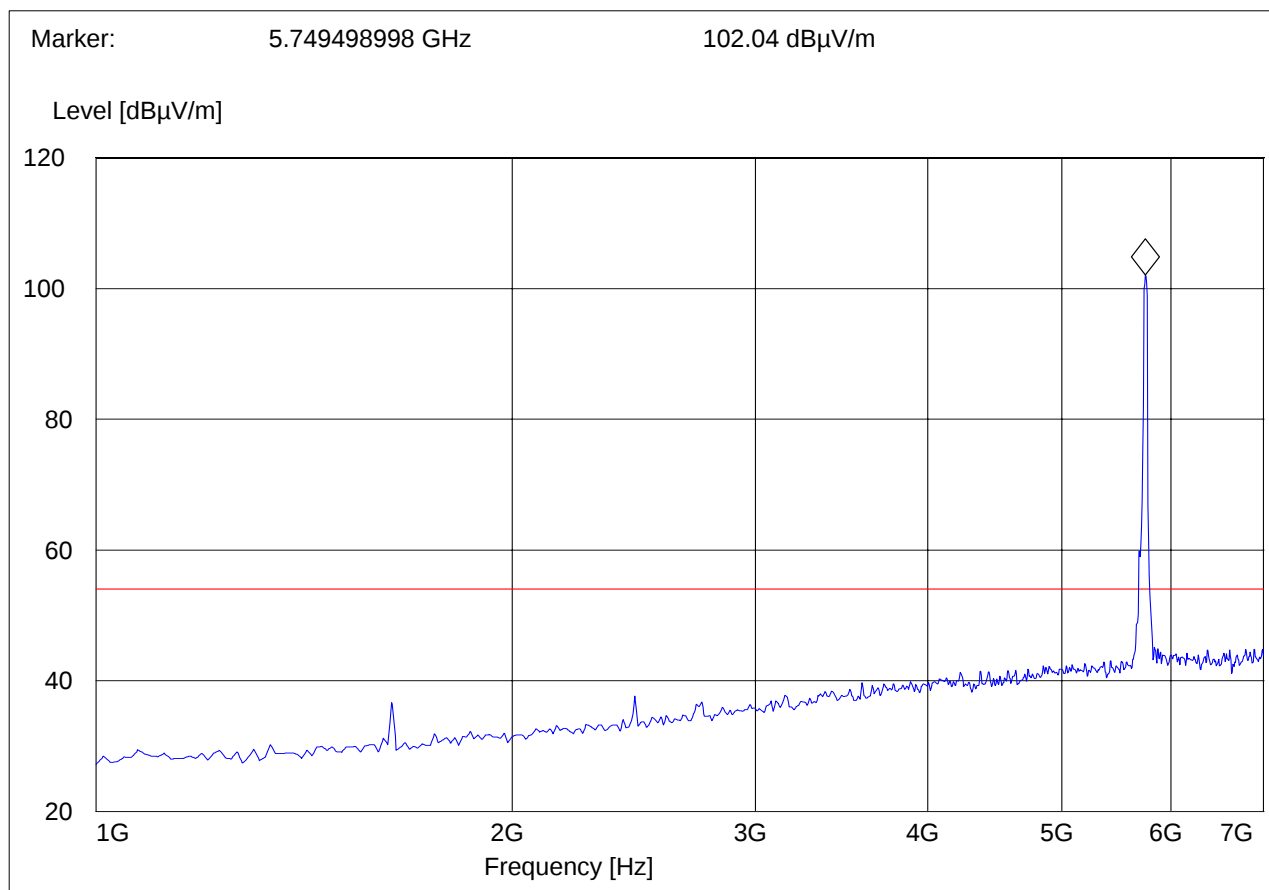
Note: Peak Reading vs. Average limit

Note: Worse case emission in both Horizontal and vertical antenna orientation.

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5745MHz
ANT Orientation: H
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 1-7G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	7.0 GHz	MaxPeak	Coupled	1 MHz	#35114 Horn



7-18GHz (5745MHz) Average measurement

Note: Worse case emission in both Horizontal and vertical antenna orientation.

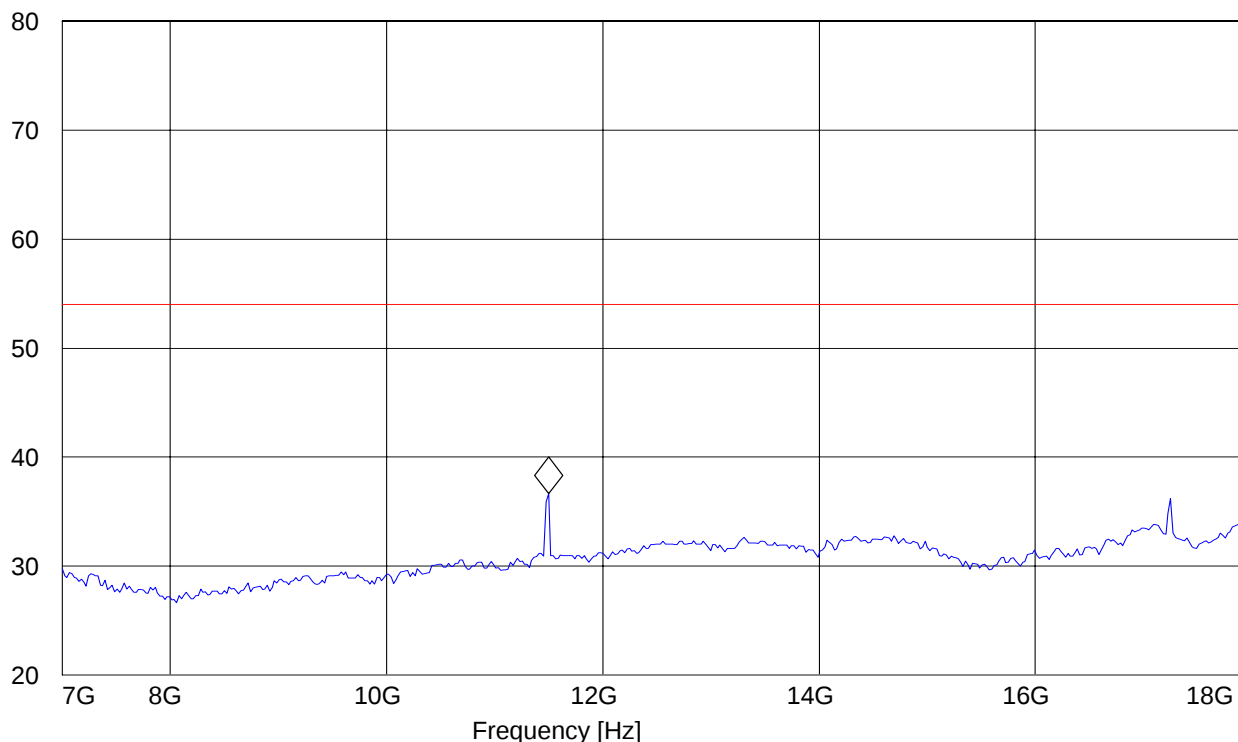
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5745MHz
ANT Orientation: H
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 7-18G_Avg"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
7.0 GHz	18.0 GHz	Average	1.0 s	1 MHz	#326horn_AF_horz

Marker: 11.496993988 GHz 36.67 dB μ V/m

Level [dB μ V/m]



7-18GHz (5745MHz) Peak measurement**Note:** Worse case emission in both Horizontal and vertical antenna orientation.

EUT:

Customer:: LXE

Test Mode: Ch 149

ANT Orientation: H

EUT Orientation: H

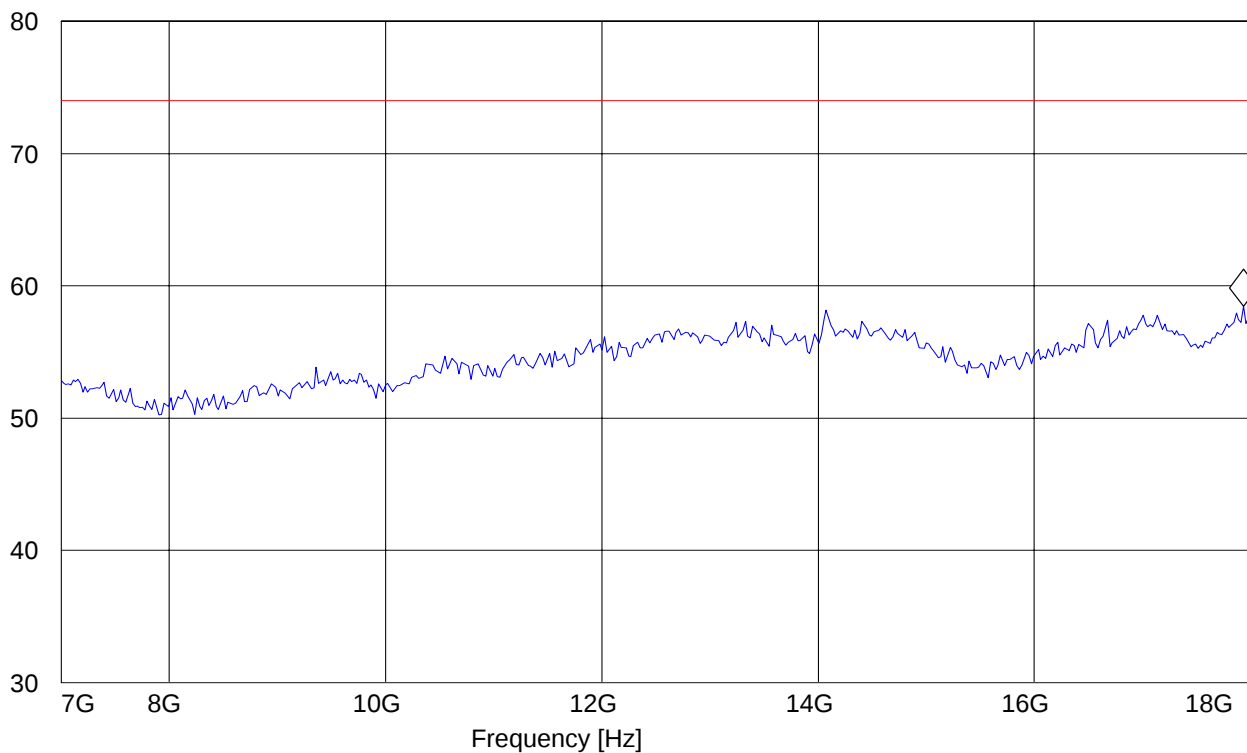
Test Engineer: Josie

Voltage: AC Adapter

Comments:

SWEEP TABLE: "FCC 15.407 7-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
7.0 GHz	18.0 GHz	MaxPeak	1.0 s	1 MHz	#326horn_AF_horz

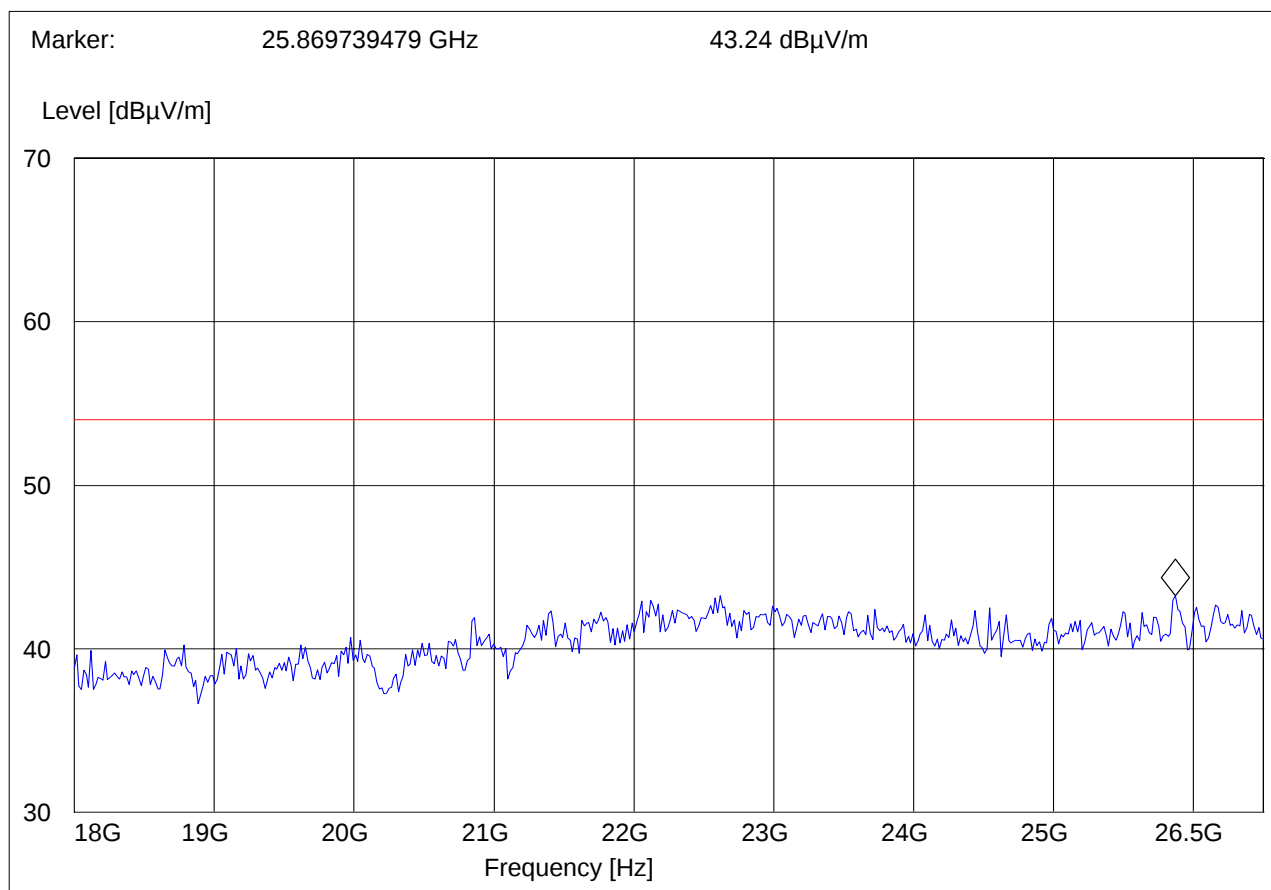
Marker: 17.933867735 GHz 58.47 dB μ V/mLevel [dB μ V/m]

18-26.5GHz (5745MHz)**Note: Peak Reading vs. Average limit**

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5745
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 18-26.5G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	Horn # 3116_18-40G



1-7GHz (5785MHz)

Note: The peak above the limit line is the carrier freq.

Note: Peak Reading vs. Average limit

Note: Worse case emission in both Horizontal and vertical antenna orientation.

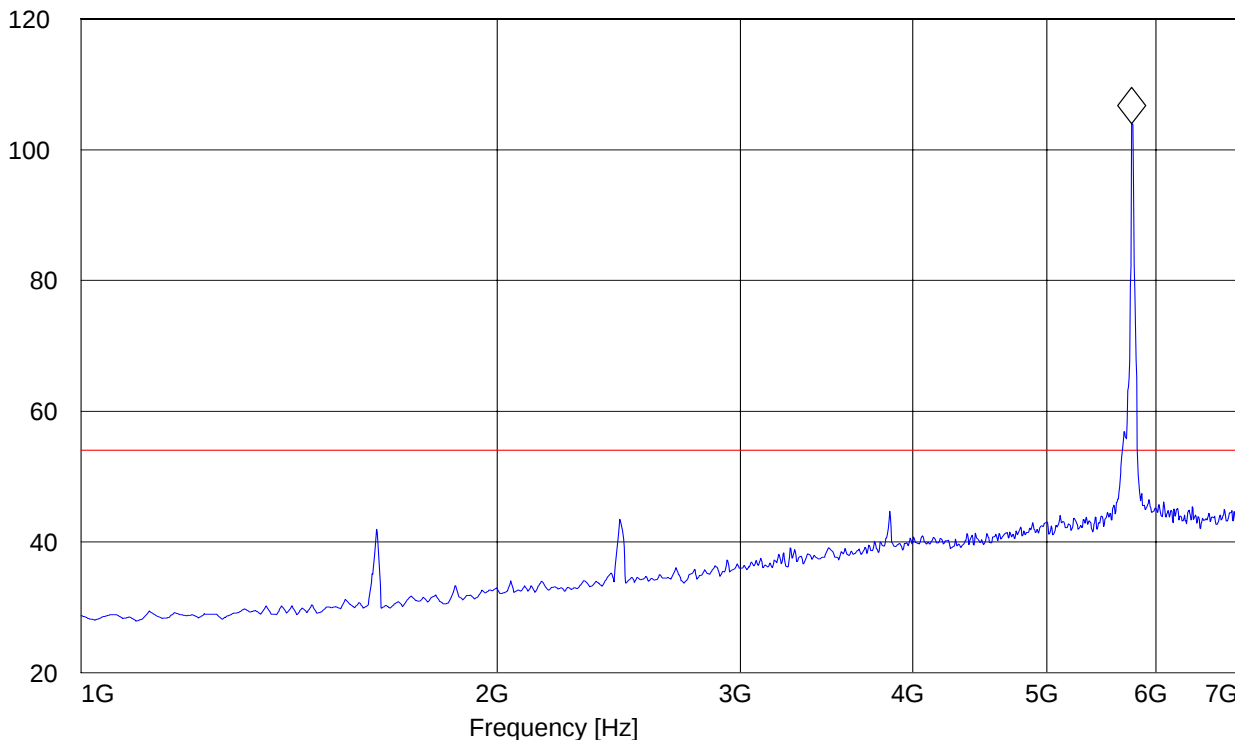
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5785MHz
ANT Orientation: H
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 1-7G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	7.0 GHz	MaxPeak	Coupled	1 MHz	#35114 Horn

Marker: 5.761523046 GHz 103.99 dBμV/m

Level [dBμV/m]



7-18GHz (5785MHz) Average measurement**Note:** Worse case emission in both Horizontal and vertical antenna orientation.

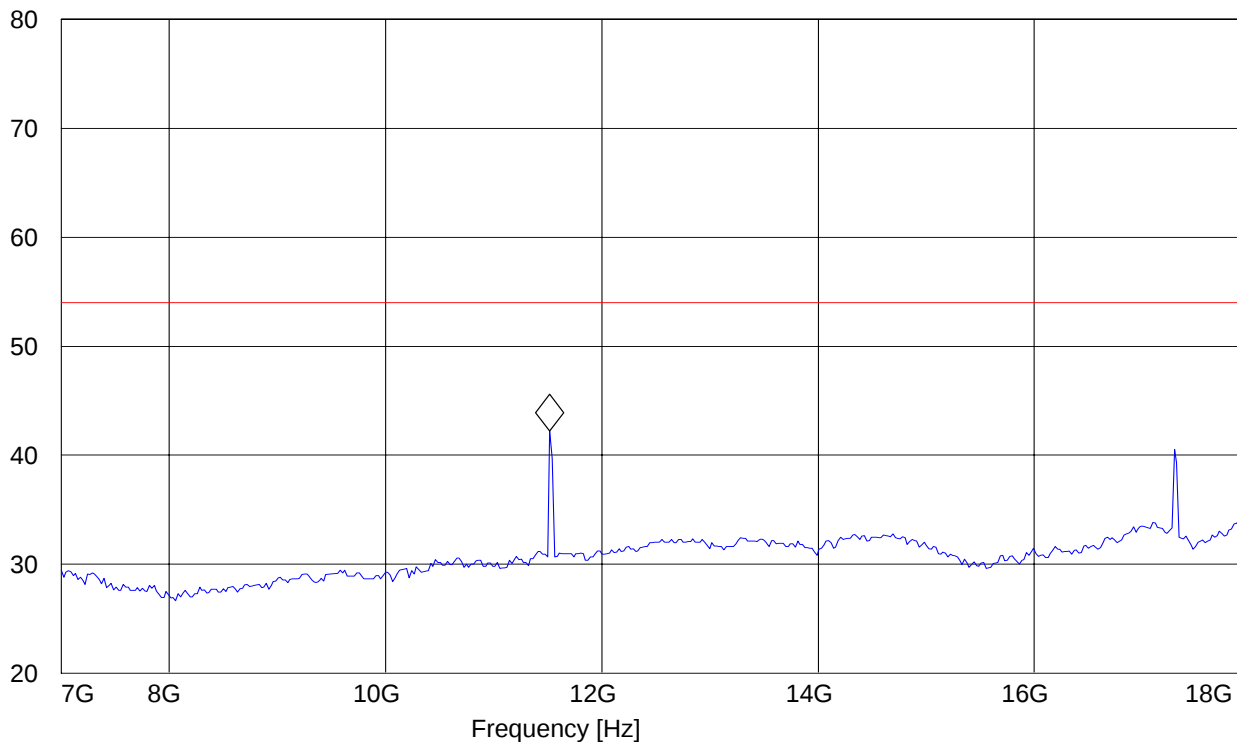
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5785MHz
ANT Orientation: H
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 7-18G_Avg"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
7.0 GHz	18.0 GHz	Average	1.0 s	1 MHz	#326horn_AF_horz

Marker: 11.519038076 GHz 42.24 dBμV/m

Level [dBμV/m]



7-18GHz (5785MHz) Peak measurement**Note:** Worse case emission in both Horizontal and vertical antenna orientation.

EUT:

Customer:: LXE

Test Mode: Ch 157

ANT Orientation: H

EUT Orientation: H

Test Engineer: Josie

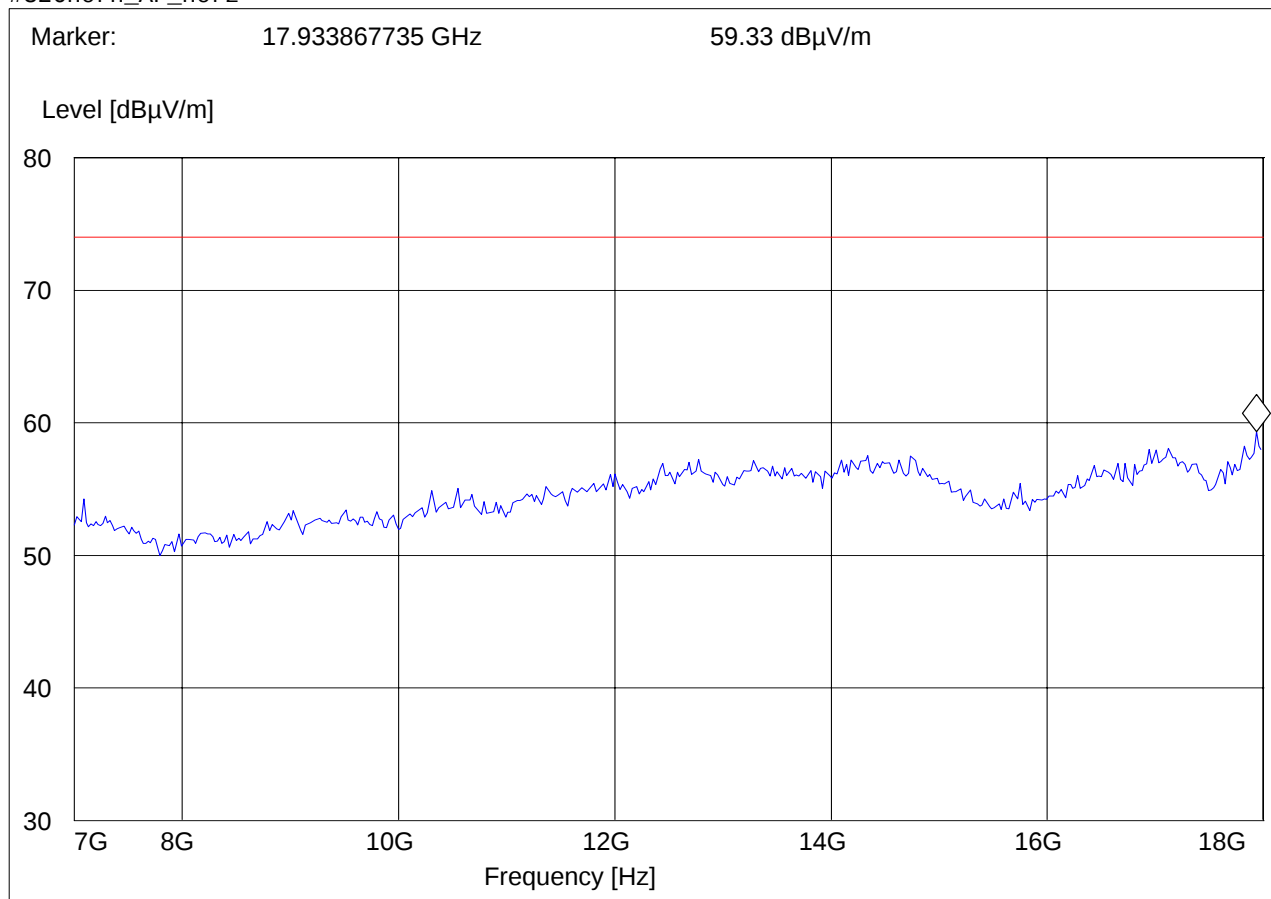
Voltage: AC Adapter

Comments:

SWEEP TABLE: "FCC 15.407 7-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
7.0 GHz	18.0 GHz	MaxPeak	1.0 s	1 MHz	

#326horn_AF_horz



18-26.5GHz (5785MHz)**Note: Peak Reading vs. Average limit**

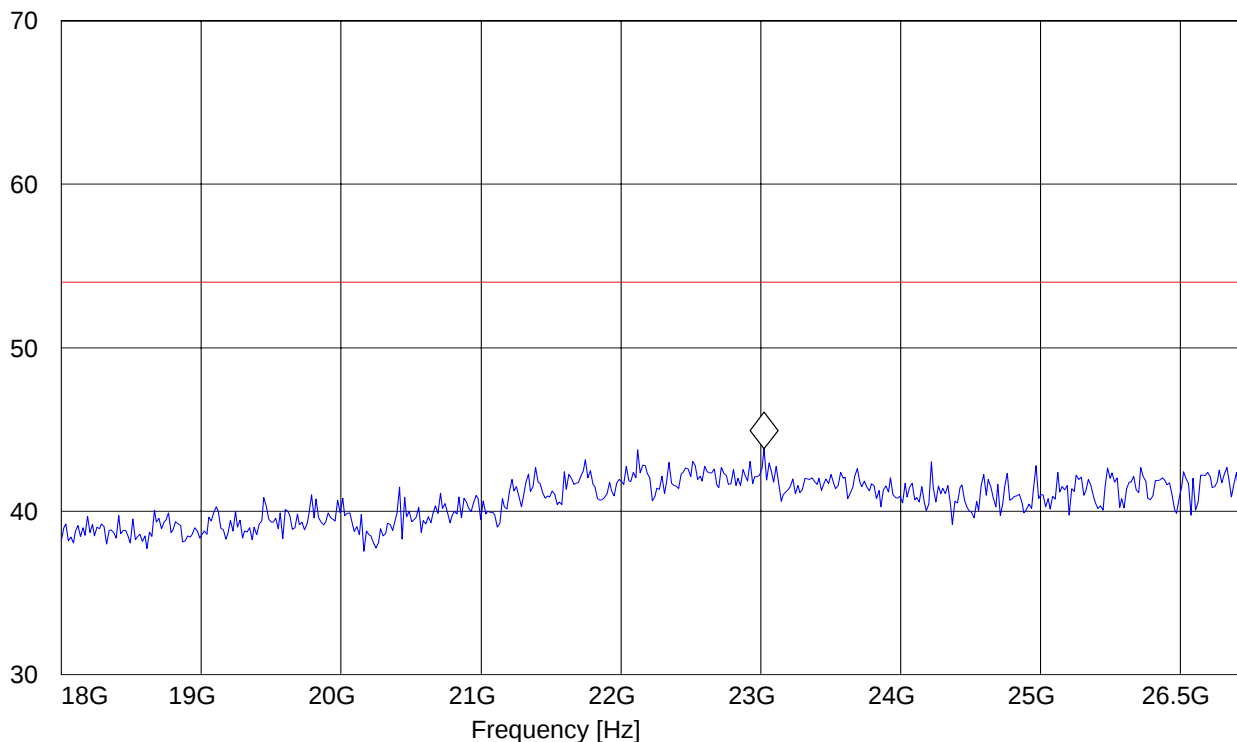
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5765
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 18-26.5G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	Horn # 3116_18-40G

Marker: 23.0250501 GHz 43.8 dBμV/m

Level [dBμV/m]



1-7GHz (5805MHz)

Note: The peak above the limit line is the carrier freq.

Note: Peak Reading vs. Average limit

Note: Worse case emission in both Horizontal and vertical antenna orientation.

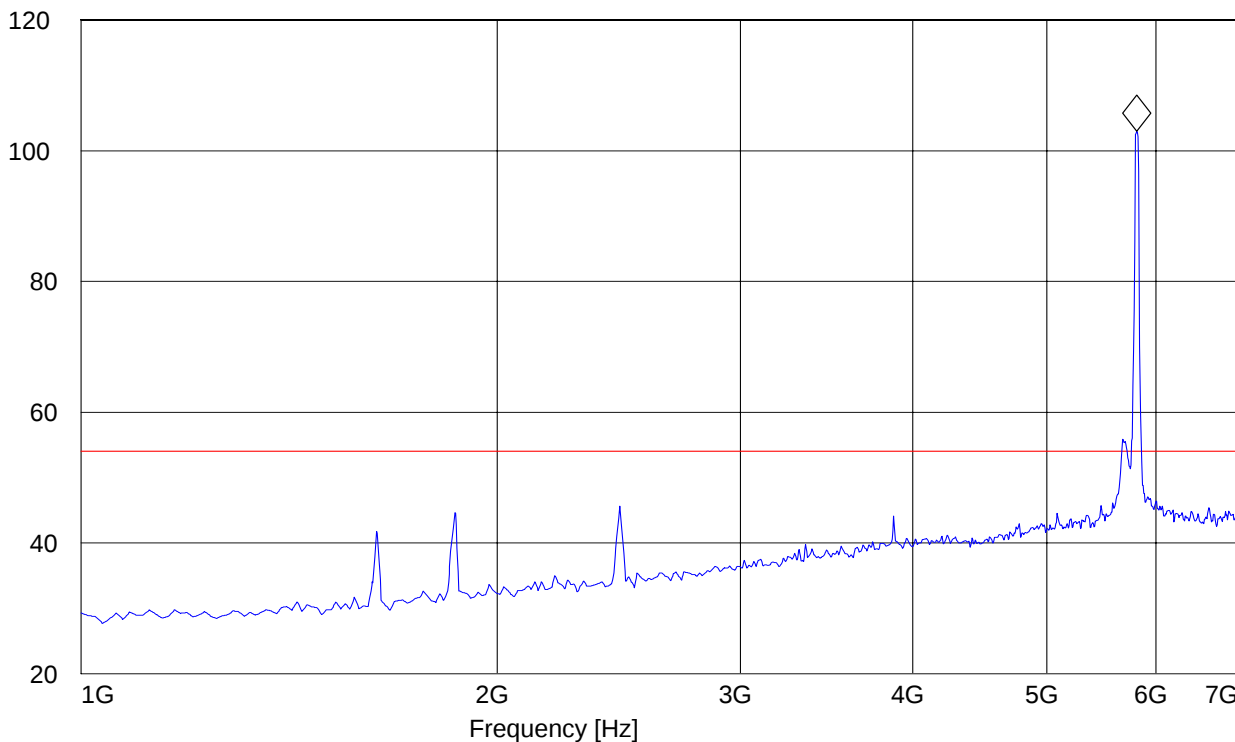
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5805MHz
ANT Orientation: H
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.247 1-7G"

Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1.0 GHz	7.0 GHz	MaxPeak	Coupled	1 MHz	#35114 Horn

Marker: 5.809619238 GHz 103.02 dB μ V/m

Level [dB μ V/m]



7-18GHz (5805MHz) Average Measurement**Note:** Worse case emission in both Horizontal and vertical antenna orientation.

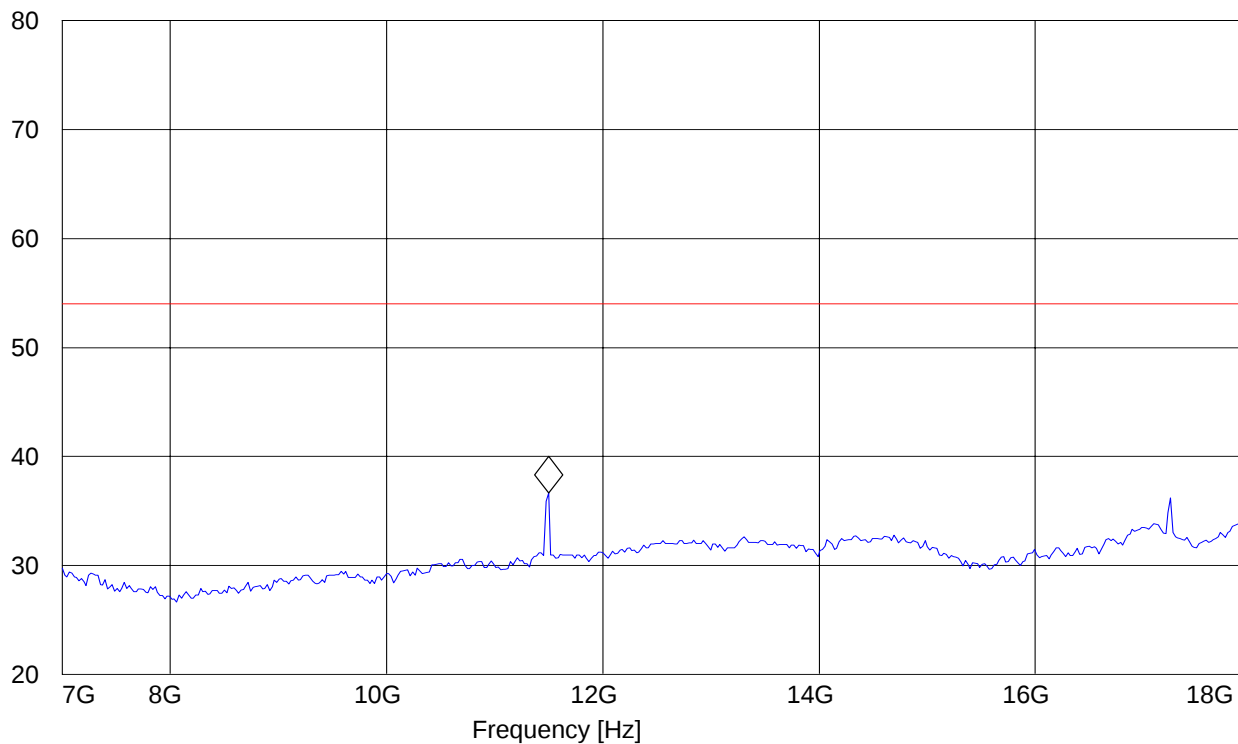
EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5805MHz
ANT Orientation: H
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15. 247 7-18G_Avg"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
7.0 GHz	18.0 GHz	Average	1.0 s	1 MHz	#326horn_AF_horz

Marker: 11.496993988 GHz 36.67 dBμV/m

Level [dBμV/m]



7-18GHz (5805MHz) Peak Measurement**Note:** Worse case emission in both Horizontal and vertical antenna orientation.

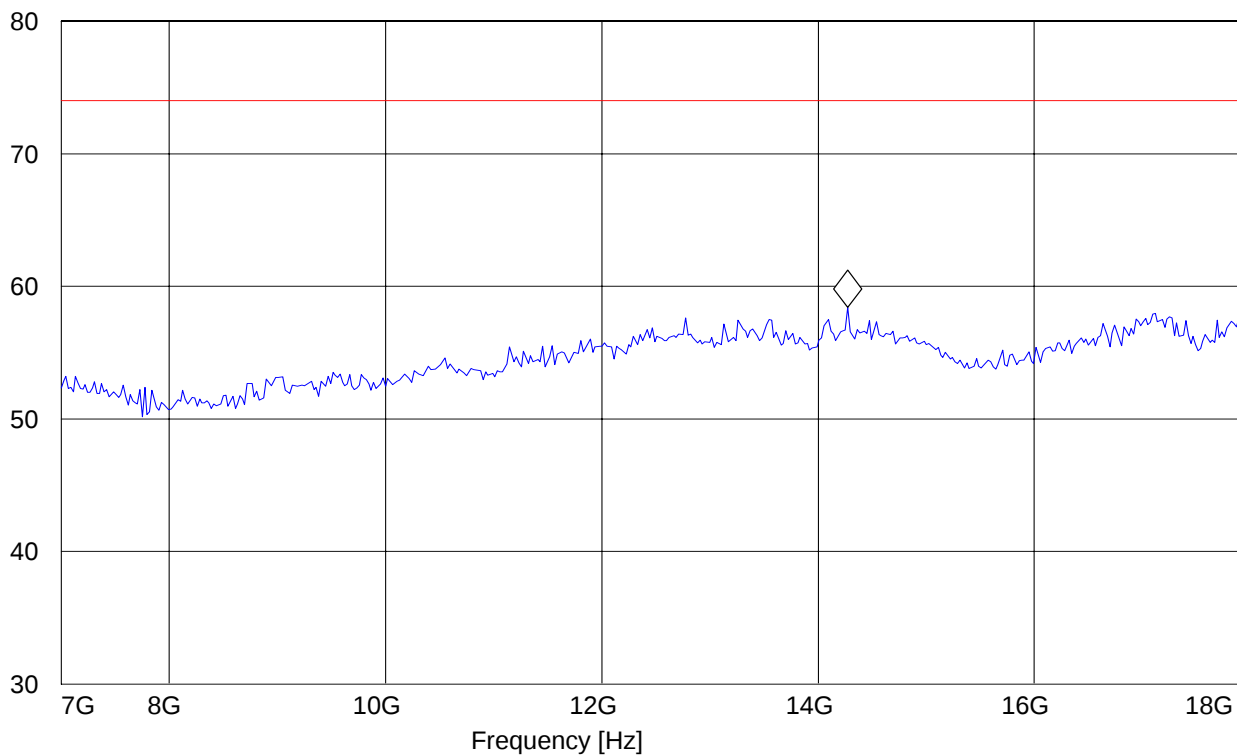
EUT:

Customer:: LXE
Test Mode: Ch 161
ANT Orientation: H
EUT Orientation: H
Test Engineer: Josie
Voltage: AC Adapter
Comments:

SWEEP TABLE: "FCC 15.407 7-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
7.0 GHz	18.0 GHz	MaxPeak	1.0 s	1 MHz	#326horn_AF_horz

Marker: 14.274549098 GHz 58.42 dB μ V/m

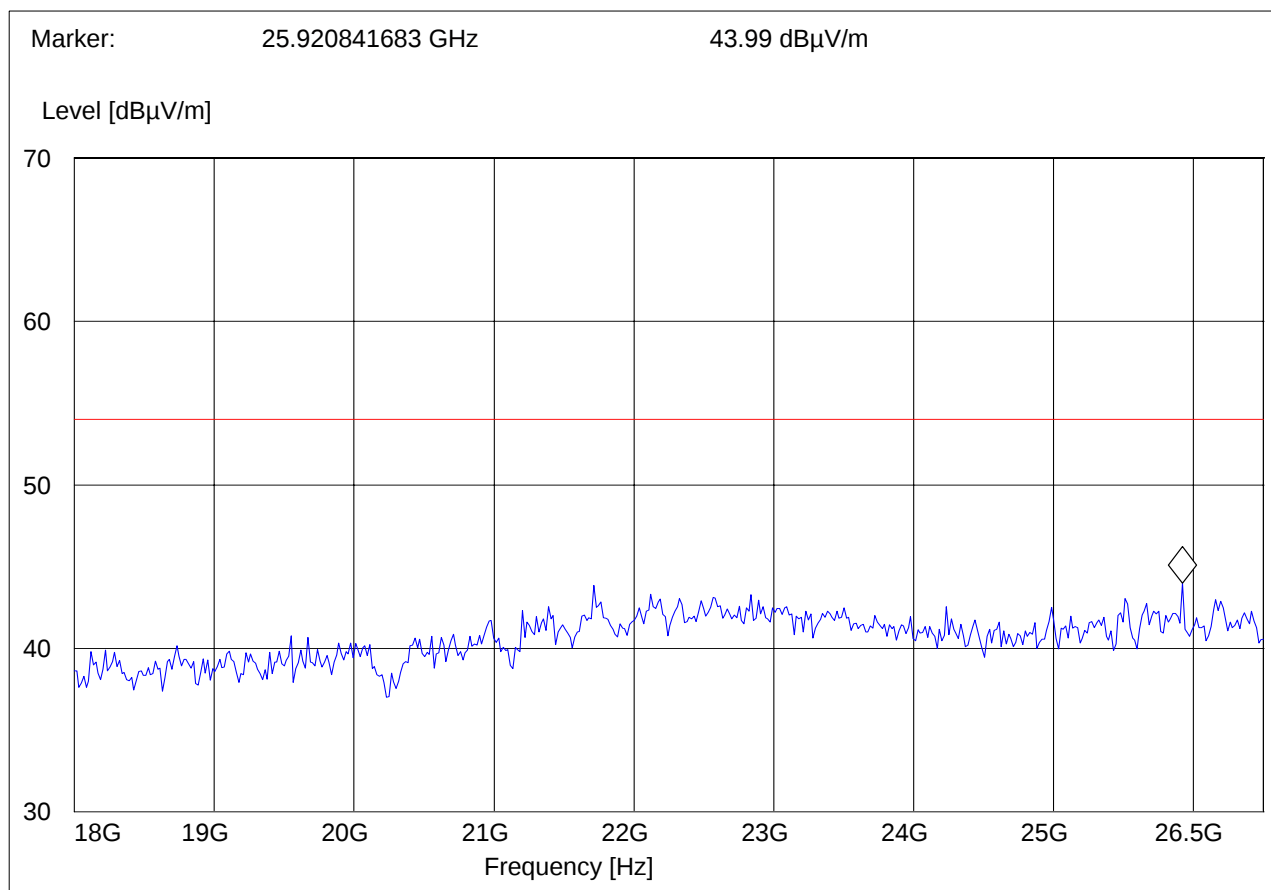
Level [dB μ V/m]

18-26.5GHz (5805MHz)**Note: Peak Reading vs. Average limit**

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5805
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 18-26.5G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	Horn # 3116_18-40G

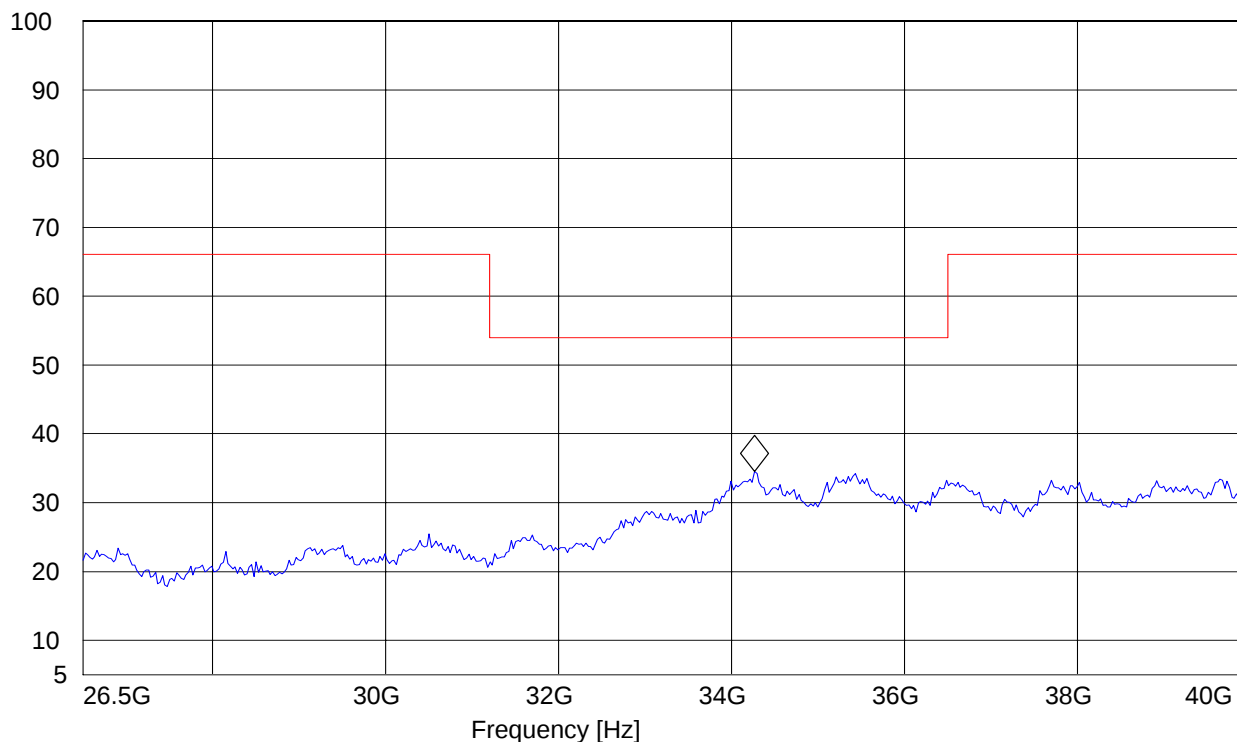


26.5-40GHz**Note:** This plot is valid for low, mid, and high channels (worst-case plot).**Note:** Peak Reading vs. Average limit

EUT: MX9
Customer:: LXE, Inc.
Test Mode: 802.11a 5765
ANT Orientation: V
EUT Orientation: V
Test Engineer: Ahmad
Voltage:
Comments:

SWEEP TABLE: "FCC 15.407 26.5-40G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
26.5 GHz	40.0 GHz	MaxPeak	Coupled	1 MHz	Horn # 3116_18-40G

Marker: 34.264529058 GHz 34.51 dB μ V/mLevel [dB μ V/m]

5.3 Receiver Spurious Emission § 15.209/RSS210

5.3.1 Limits

Frequency (MHz)	Field strength (µV/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	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

NOTE:

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.
2. All measurements are done in peak mode using an average limit unless specified with the plots.
3. There are no measurable emissions up to 18GHz in Rx mode.
4. Receiver spurious emissions reported here are the worse case emissions for all receiver modes and between two receiving chains.

5.3.2 RESULTS

30MHz – 1GHz, Antenna: Horizontal/Vertical

Note: This plot is valid for low, mid, high channels (worst-case plot).

EUT Information

Description:

EUT Name: MX9
 Manufacturer: LXE, Inc
 Test Mode: 802.11g Ch.6 RX
 Hardware Rev:
 Software Rev:
 Comment: FCC Unit

Test

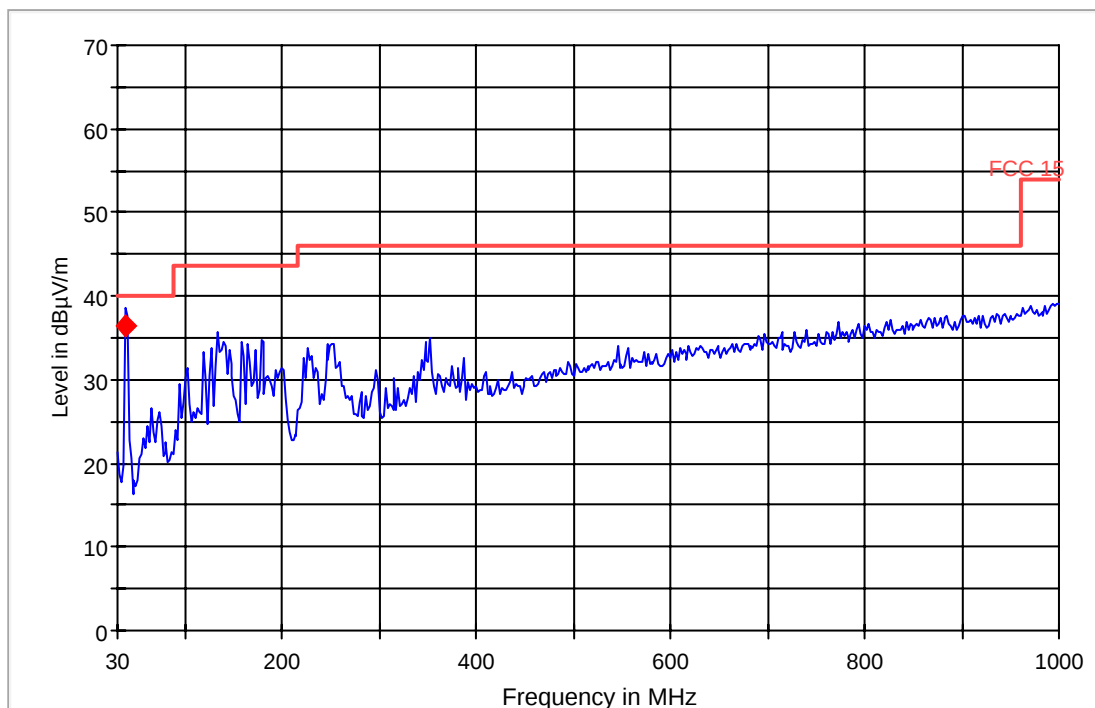
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)
38.967936	36.5	20.000	120.000	120.0	V	292.0	5.7	3.5	40.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
38.967936	

FCC 15 30-1000MHz



— FCC 15.LimitLine

— Preview Result 1



Final Result 1

1-18GHz**Note:** Peak Reading vs. Average limit**Note:** This plot is valid for low, mid, high channels (worst-case plot).**EUT Information**

Description:

EUT Name: MX9
Manufacturer: LXE, Inc
Test Mode: 802.11g Ch.6 RX
Hardware Rev:
Software Rev:
Comment: FCC Unit

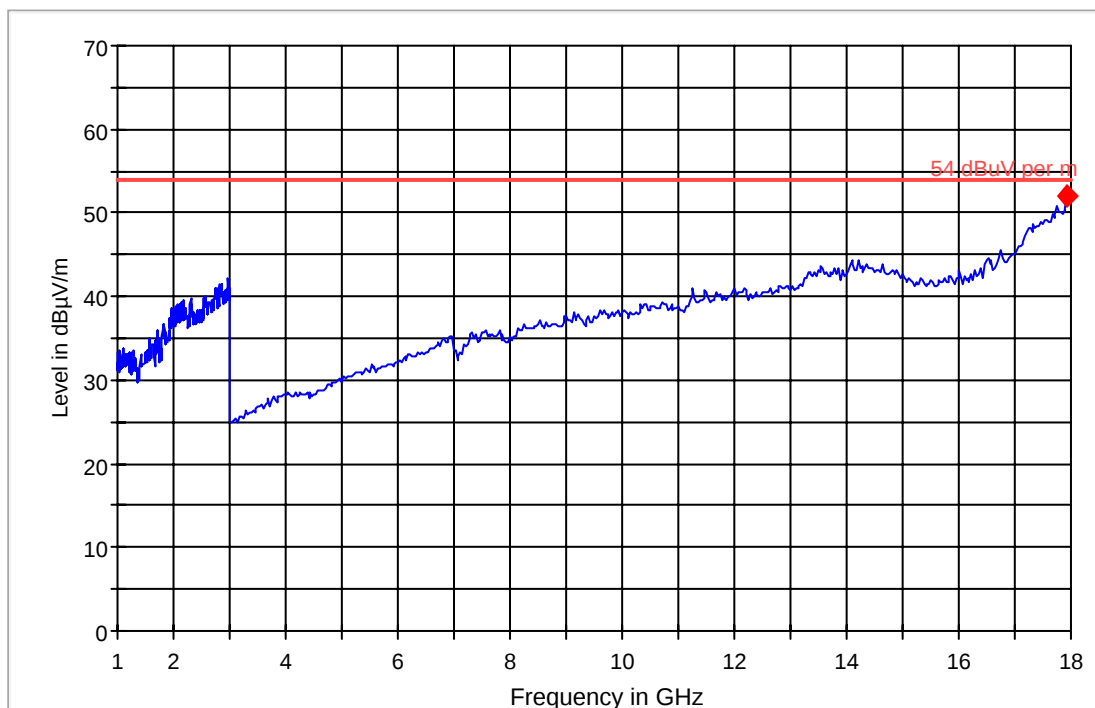
Test**Final Result 1**

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
17939.448898	52.1	20.000	1000.000	153.0	V	69.0	29.3	1.9	54.0

(continuation of the "Final Result 1" table from column 10 ...)

Frequency (MHz)	Comment
17939.448898	

FCC 15 1-18GHz



54 dBuV per m.LimitLine

Preview Result 1



Final Result 1

6 Conducted Measurements

6.1 6dB bandwidth and 99% bandwidth

6.1.1 Limit

FCC15.247(a)(2) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

RSS210 A8.2 (a): The minimum 6 dB bandwidth shall be at least 500 kHz.

6.1.2 Measurement Result:

6 dB bandwidth tests not conducted. The EUT integrates an FCC approved module. 6 dB bandwidth measurements are referenced from the original report for the module.

6.2 Conducted Power Measurement

6.2.1 Limit

FCC15.247 (b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt

RSS210 A8.4(4): For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W. Except as provided in Section A8.4(5), the e.i.r.p. shall not exceed 4 W.

6.2.2 Results

Test Not conducted. The EUT integrates an FCC approved module. All conducted measurements are referenced from the original report for the module.

6.3 Power Spectral Density

6.3.1 Limit

FCC 15.247 (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

6.3.2 Results

Test Not conducted. The EUT integrates an FCC approved module. All conducted measurements are referenced from the original report for the module.

6.4 Conducted Spurious Emission

6.4.1 Limit

§15.247(d) & RSS-210 (A8.5): -30dBc

6.4.2 Results:

Test not conducted. The EUT integrates an FCC approved module. All conducted measurements are referenced from the original report for the module.

6.5 AC POWER LINE CONDUCTED EMISSIONS § 15.107/207**6.5.1 LIMITS****Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)**

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Limit

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50
* Decreases with logarithm of the frequency		

ANALYZER SETTINGS: RBW = 10KHz**VBW = 10KHz**

Note: AC Line Conducted Emission reported here are the worse cases among all operating modes.

6.5.2 RESULT:

AC Line Conducted: Line: TX 802.11b/g

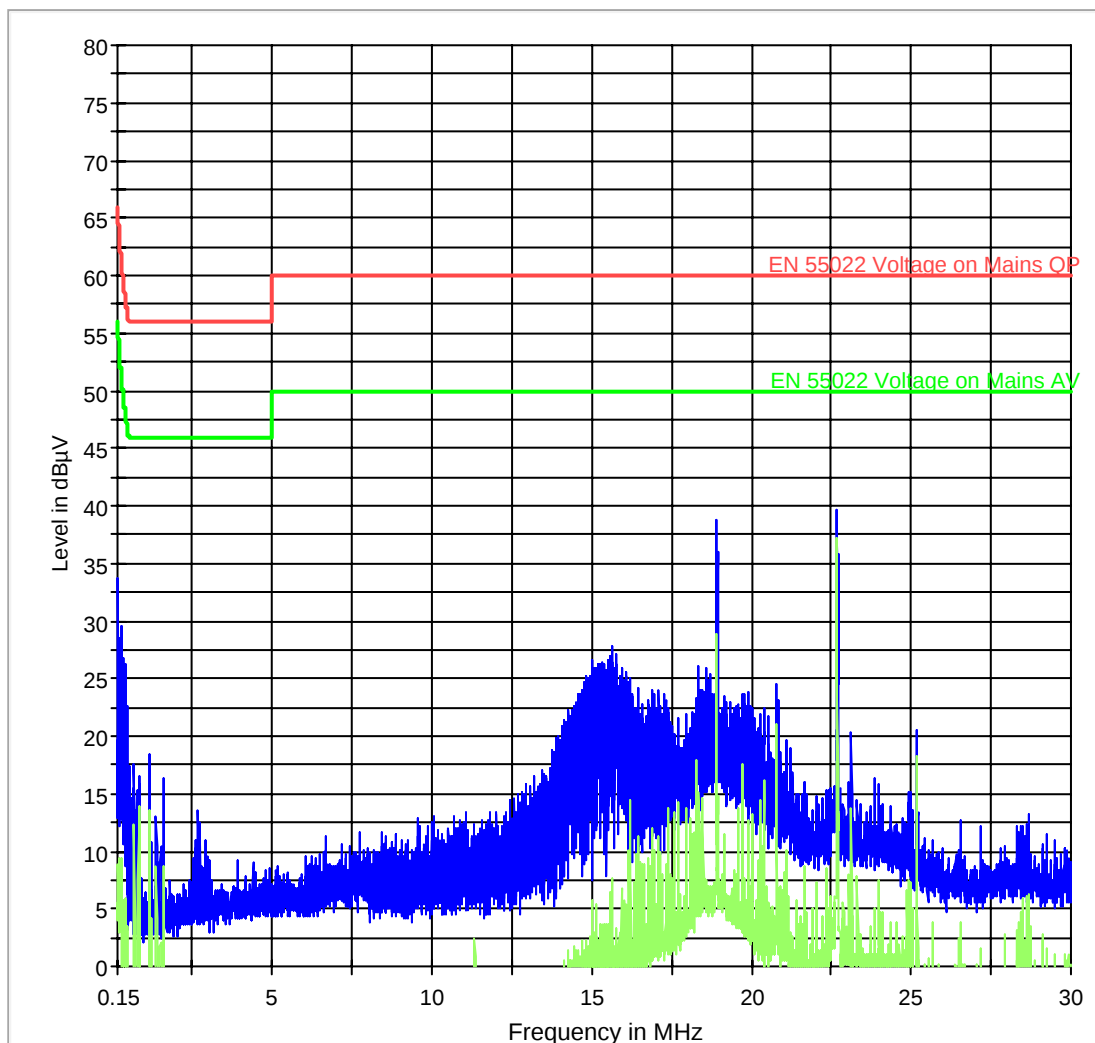
EUT Information

Description:

EUT Name:	MX9
Manufacturer:	LXE
Operating Mode:	802.11g Tx
Comment:	FCC Unit

Line

CISPR 22 Mains Conducted - L



EN 55022 Voltage on Mains QP.LimitLine
Preview Result 1

EN 55022 Voltage on Mains AV.LimitLine
Preview Result 2

AC Line Conducted: Neutral: TX 802.11b/g

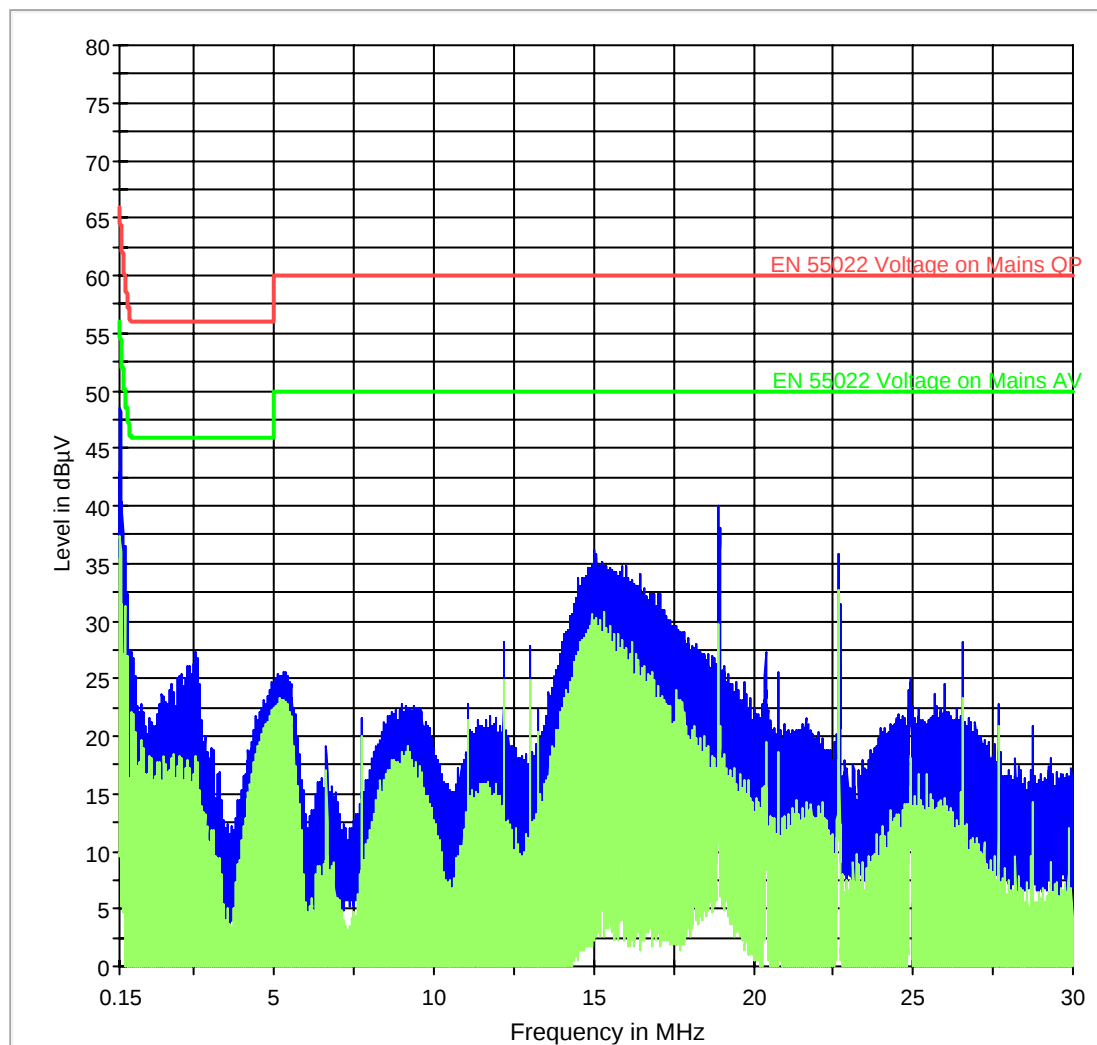
EUT Information

Description:

EUT Name: MX9
 Manufacturer: LXE
 Operating Mode: 802.11g Tx
 Comment: FCC Unit

Neutral

CISPR 22 Mains Conducted - N



EN 55022 Voltage on Mains QP.LimitLine
 Preview Result 1

EN 55022 Voltage on Mains AV.LimitLine
 Preview Result 2

AC Line Conducted: Line: TX 802.11a

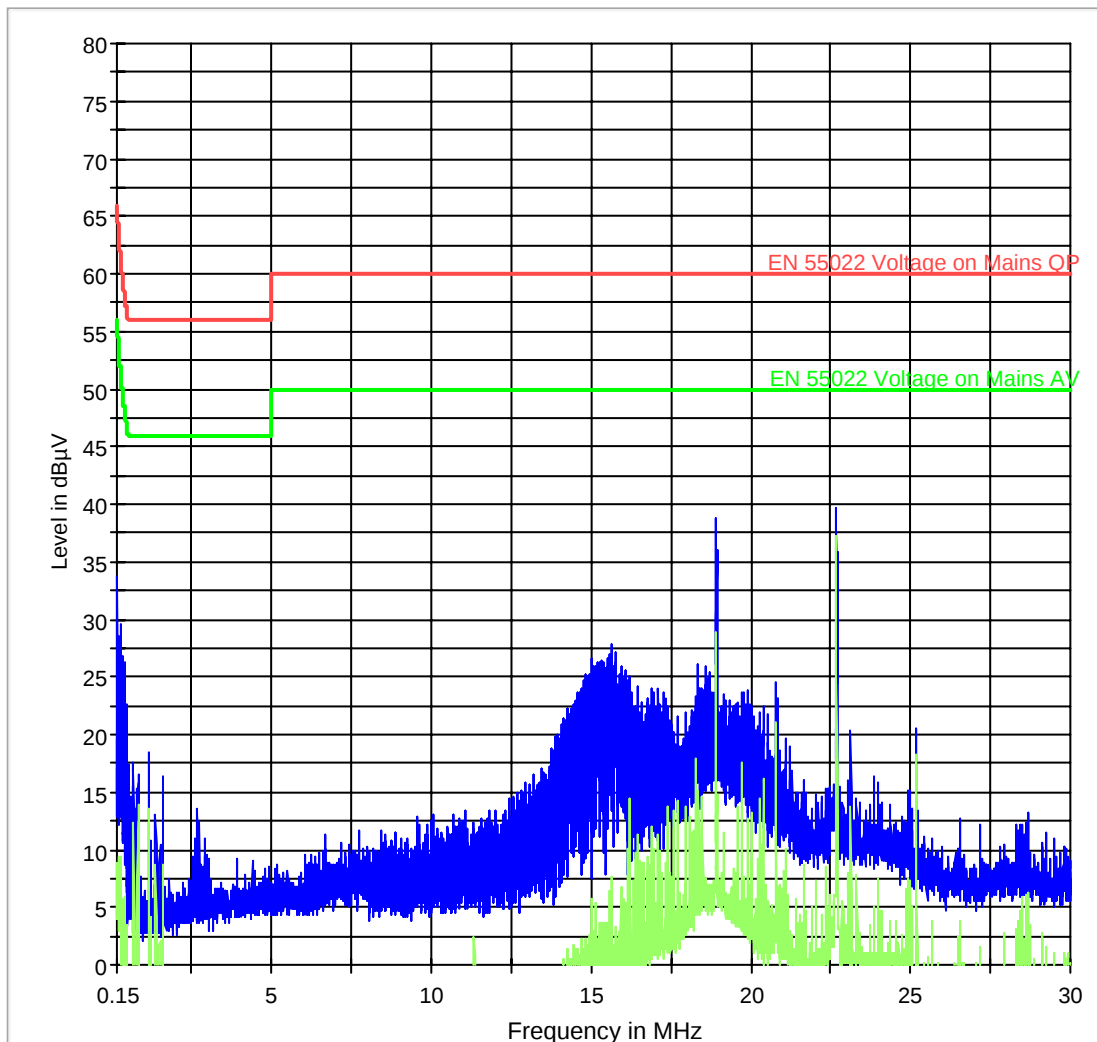
EUT Information

Description:

EUT Name: MX9
 Manufacturer: LXE
 Operating Mode: 802.11a Tx
 Comment: FCC Unit

Line

CISPR 22 Mains Conducted - L



— EN 55022 Voltage on Mains QP.LimitLine
 — Preview Result 1

— EN 55022 Voltage on Mains AV.LimitLine
 — Preview Result 2

AC Line Conducted: Neutral: TX 802.11a

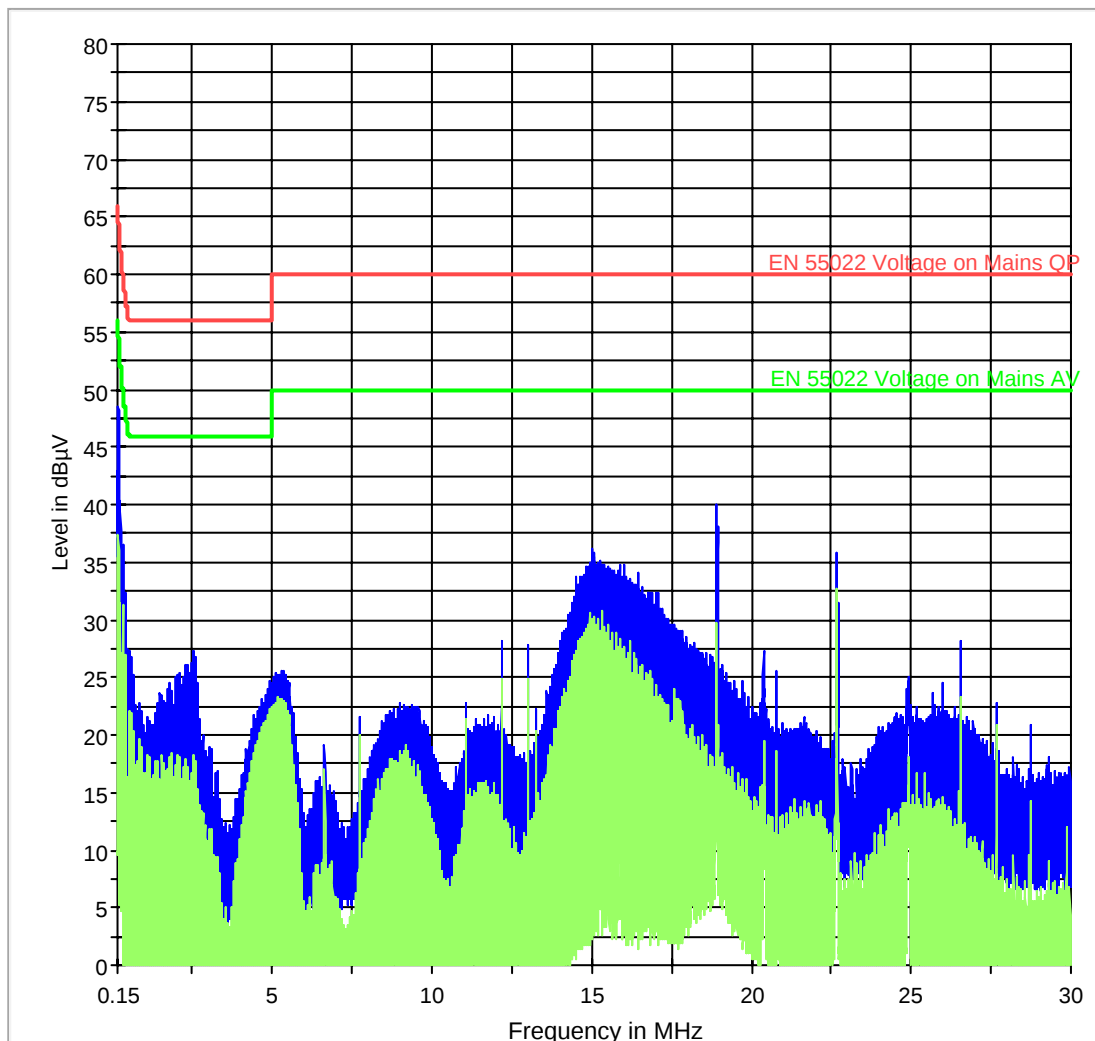
EUT Information

Description:

EUT Name: MX9
 Manufacturer: LXE
 Operating Mode: 802.11a Tx
 Comment: FCC Unit

Neutral

CISPR 22 Mains Conducted - N



EN 55022 Voltage on Mains QP.LimitLine
 Preview Result 1

EN 55022 Voltage on Mains AV.LimitLine
 Preview Result 2

AC Line Conducted: Line: RX

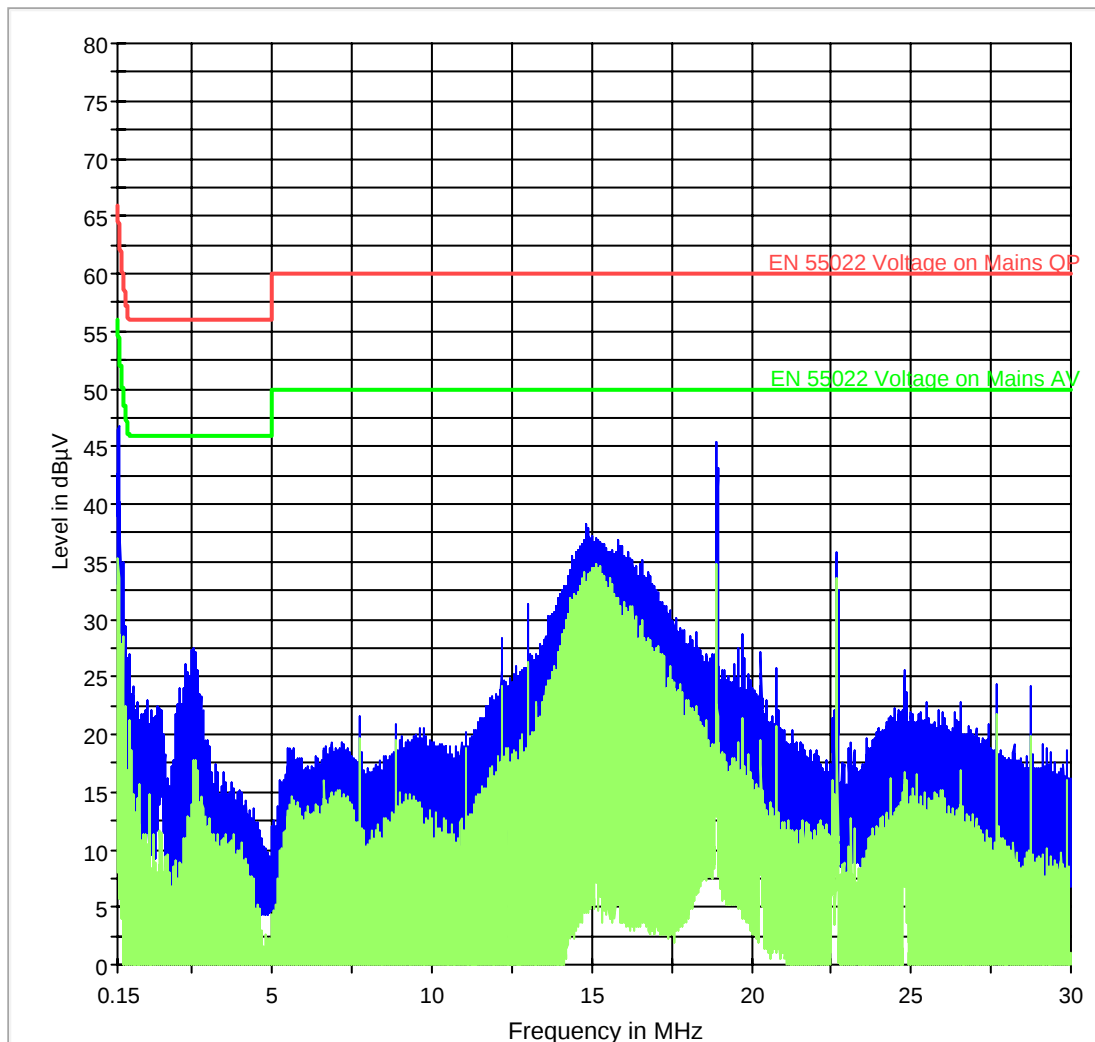
EUT Information

Description:

EUT Name:	MX9
Manufacturer:	LXE
Operating Mode:	802.11g Rx
Comment:	FCC Unit

Line

CISPR 22 Mains Conducted - L



EN 55022 Voltage on Mains QP.LimitLine
Preview Result 1

EN 55022 Voltage on Mains AV.LimitLine
Preview Result 2

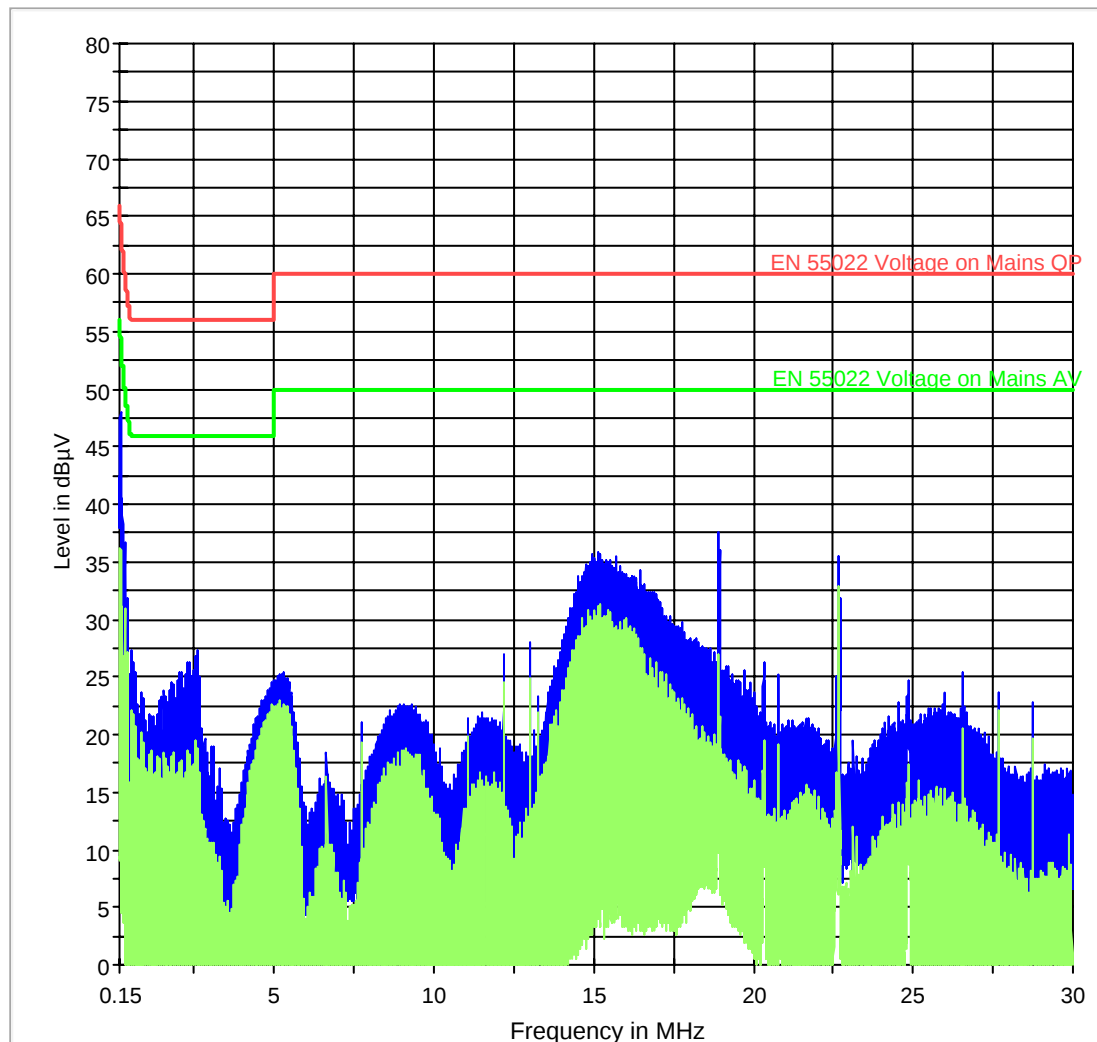
AC Line Conducted: Neutral: RX**EUT Information**

Description:

EUT Name:	MX9
Manufacturer:	LXE
Operating Mode:	802.11g Rx
Comment:	FCC Unit

Neutral

CISPR 22 Mains Conducted - N



EN 55022 Voltage on Mains QP.LimitLine
Preview Result 1

EN 55022 Voltage on Mains AV.LimitLine
Preview Result 2

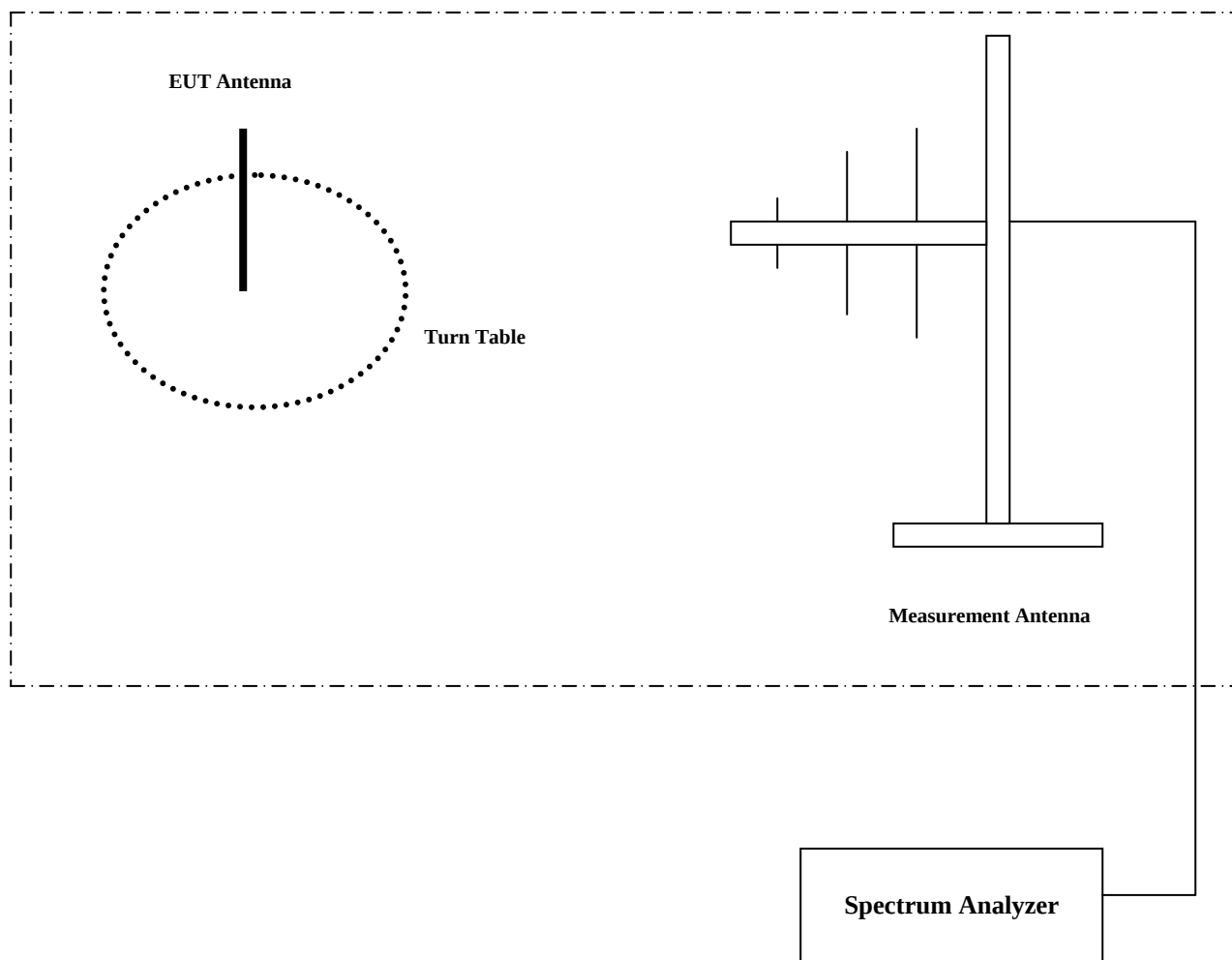
7 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2010	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	August 2010	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2010	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2010	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2010	1 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2010	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2010	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2010	1 year
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
12	Pre-Amplifier	JS4-00102600	Miteq	00616	May 2010	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2010	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2010	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2010	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2010	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2010	2 years

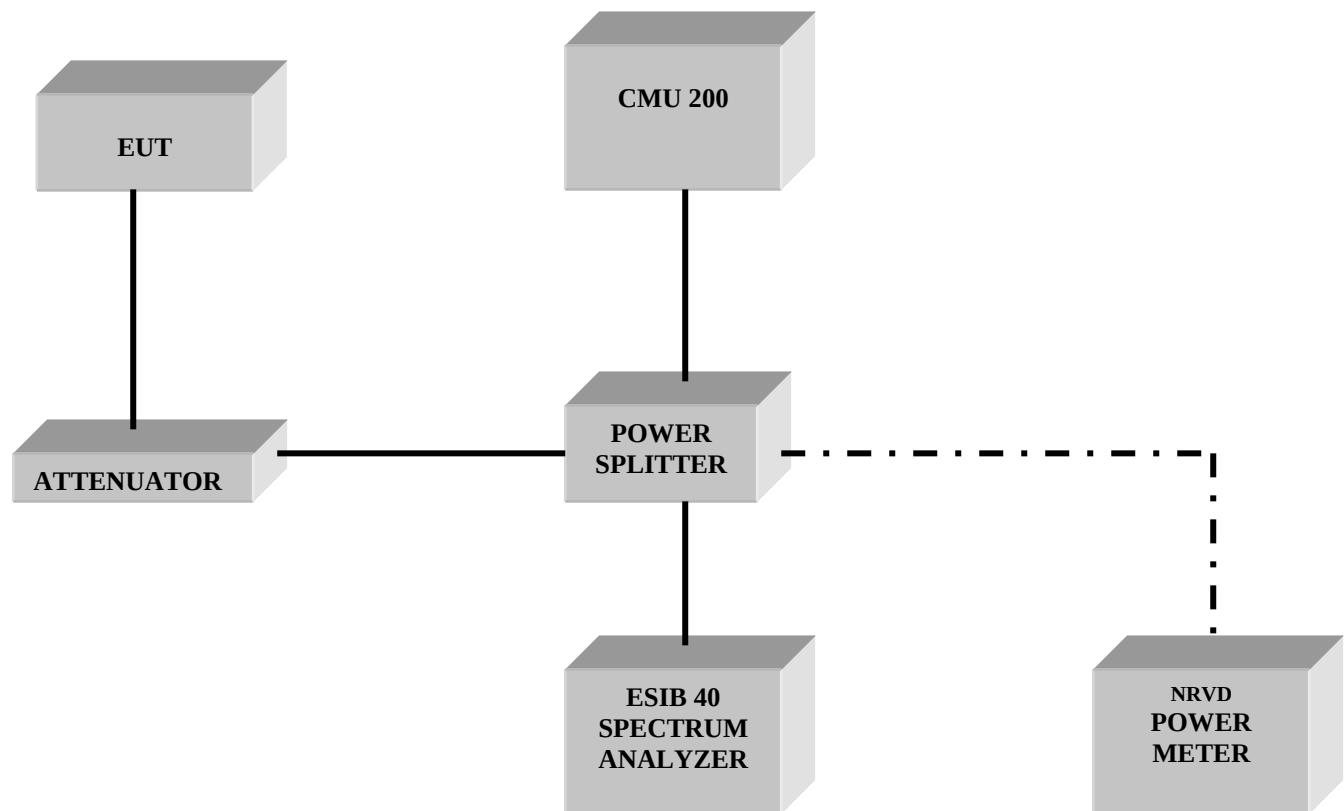
8 BLOCK DIAGRAMS

Radiated Testing

ANECHOIC CHAMBER



Conducted Testing



Test Report #: EMC_LXEIN_007_09001_15.247_MX9_LXE4831



Date of Report: 2009-8-20

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9 Revision History

2009-8-20: First Issue