



**FCC Test Report**  
**FCC Part 15.247 for FHSS systems/**  
**CANADA RSS-210**

**LXE, Inc.**

**MX9 and FC300**

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

**FCC ID: KDZLXEBT001**  
**IC ID: 1995B-BT001**

**TEST REPORT #: EMC\_LXEIN\_007\_09001\_15.247\_KDZLXEBT001\_rev2**  
**DATE: 2009-8-26**



**FCC listed#**  
**101450**  
**IC recognized #**  
**3925**

**CETECOM Inc.**

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CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686  
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 in compliance with the applicable criteria specified in Industry Canada rules RSS210.

| Company  | Description                                      | Model #    |
|----------|--------------------------------------------------|------------|
| LXE Inc. | MX9 Handheld Computer<br>FC300 Handheld Computer | MX9, FC300 |

This report is reviewed by:

Marc Douat

2009-8-26 EMC & Radio (EMC Lab 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.

This report is prepared by:

Peter Mu

2009-8-26 EMC & Radio (Project Manager)

---

| Date | Section | Name | Signature |
|------|---------|------|-----------|
|------|---------|------|-----------|

## **2 Administrative Data**

### **2.1 Identification of the Testing Laboratory Issuing the EMC Test Report**

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

### **2.2 Identification of the Client**

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

### **2.3 Identification of the Manufacturer**

| <b>MANUFACTURER</b>   |                                    |
|-----------------------|------------------------------------|
| <b>Manufacturer</b>   | <b>LXE, Inc</b>                    |
| <b>Street Address</b> | <b>125 Technology Parkway</b>      |
| <b>City/Zip Code</b>  | <b>Norcross, Georgia, US 30092</b> |
| <b>Country</b>        | <b>U.S.A</b>                       |

### 3 Equipment under Test (EUT)

#### 3.1 Specification of the Equipment under Test

|                                                |                                                                                                                                                                                                 |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marketing Name:                                | N/A                                                                                                                                                                                             |
| Description:                                   | <b>MX9 Handheld Computer<br/>FC300 Handheld Computer</b>                                                                                                                                        |
| Model No:                                      | <b>MX9, FC300</b>                                                                                                                                                                               |
| Antenna Type:                                  | <b>0dBi Dipole</b>                                                                                                                                                                              |
| Type(s) of Modulation:                         | <b>GFSK, DQPSK, 8DPSK</b>                                                                                                                                                                       |
| Frequency Band(s) of Operation:                | <b>2400~2483.5MHz</b>                                                                                                                                                                           |
| Numbers of Channels:                           | <b>79</b>                                                                                                                                                                                       |
| Equipment Classification:<br>(CLASS)           | <input type="checkbox"/> FIXED <input type="checkbox"/> VEHICULAR <input checked="" type="checkbox"/> PORTABLE<br><input type="checkbox"/> MODULE                                               |
| Equipment Classification:<br>(POWER(AC MAINS)) | <input checked="" type="checkbox"/> 110VAC ( <i>GROUND</i> ) <input type="checkbox"/> 230VAC ( <i>NO GROUND</i> )<br><input checked="" type="checkbox"/> 3.43VDC <input type="checkbox"/> 24VDC |

#### 3.2 Identification of the Equipment Under Test (EUT)

| EUT #    | TYPE       | MANF.          | MODEL      | SERIAL #   |
|----------|------------|----------------|------------|------------|
| <b>1</b> | <b>EUT</b> | <b>LXE Inc</b> | <b>MX9</b> | <b>N/A</b> |

#### 3.3 Identification of Accessory equipment

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



#### **4 Subject Of Investigation**

All testing was performed on the product referred to in Section 3 as EUT. This test report contains full radiated testing as per FCC15.247 on the EUT with the Bluetooth module.

During the testing process the EUT was tested on channel 0, 37, and 78 using PRBS9 payload using DH5, 2DH5 or 3DH5 packets, all data in this report shows the worst case between horizontal and vertical polarization for above 1GHz.

Bluetooth Module pre-certified under FCC ID # **KDZLXEBT001** and IC ID # **1995B-BT001**

The objective of the measurements done by Cetecom Inc. was to ensure the performance of the EUT as specified by requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and Industry Canada rules RSS210. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

This test report is to support the class 2 permissive change filing to add two portable host device to the module.

## 5 Measurements (Radiated)

### 5.1 MAXIMUM PEAK OUTPUT POWER

EIRP is calculated as EIRP = Conducted Peak Power (dBm) + Peak Antenna Gain (dBi)

Antenna Gain 0dBi (Dipole Antenna)

EIRP: GFSK

| TEST CONDITIONS         |                      | MAXIMUM PEAK OUTPUT POWER (dBm) |      |      |
|-------------------------|----------------------|---------------------------------|------|------|
| Frequency (MHz)         |                      | 2402                            | 2441 | 2480 |
| T <sub>nom</sub> (23)°C | V <sub>nom</sub> VDC | 2.83                            | 3.31 | 2.89 |
| Measurement uncertainty |                      | ±0.5dBm                         |      |      |

EIRP:  $\pi / 4$  DQPSK

| TEST CONDITIONS         |                      | MAXIMUM PEAK OUTPUT POWER (dBm) |      |      |
|-------------------------|----------------------|---------------------------------|------|------|
| Frequency (MHz)         |                      | 2402                            | 2441 | 2480 |
| T <sub>nom</sub> (23)°C | V <sub>nom</sub> VDC | 4.47                            | 4.59 | 4.04 |
| Measurement uncertainty |                      | ±0.5dBm                         |      |      |

EIRP: 8DPSK

| TEST CONDITIONS         |                      | MAXIMUM PEAK OUTPUT POWER (dBm) |      |      |
|-------------------------|----------------------|---------------------------------|------|------|
| Frequency (MHz)         |                      | 2402                            | 2441 | 2480 |
| T <sub>nom</sub> (23)°C | V <sub>nom</sub> VDC | 4.66                            | 4.73 | 4.19 |
| Measurement uncertainty |                      | ±0.5dBm                         |      |      |



## 5.2 RESTRICTED BAND EDGE COMPLIANCE RADIATED §15.247/15.205

### 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       |
| <sup>1</sup> 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     | ( <sup>2</sup> ) |
| 13.36 - 13.41              |                       |                 |                  |

\*PEAK LIMIT= 74dBuV/m

\*AVG. LIMIT= 54dBuV/m

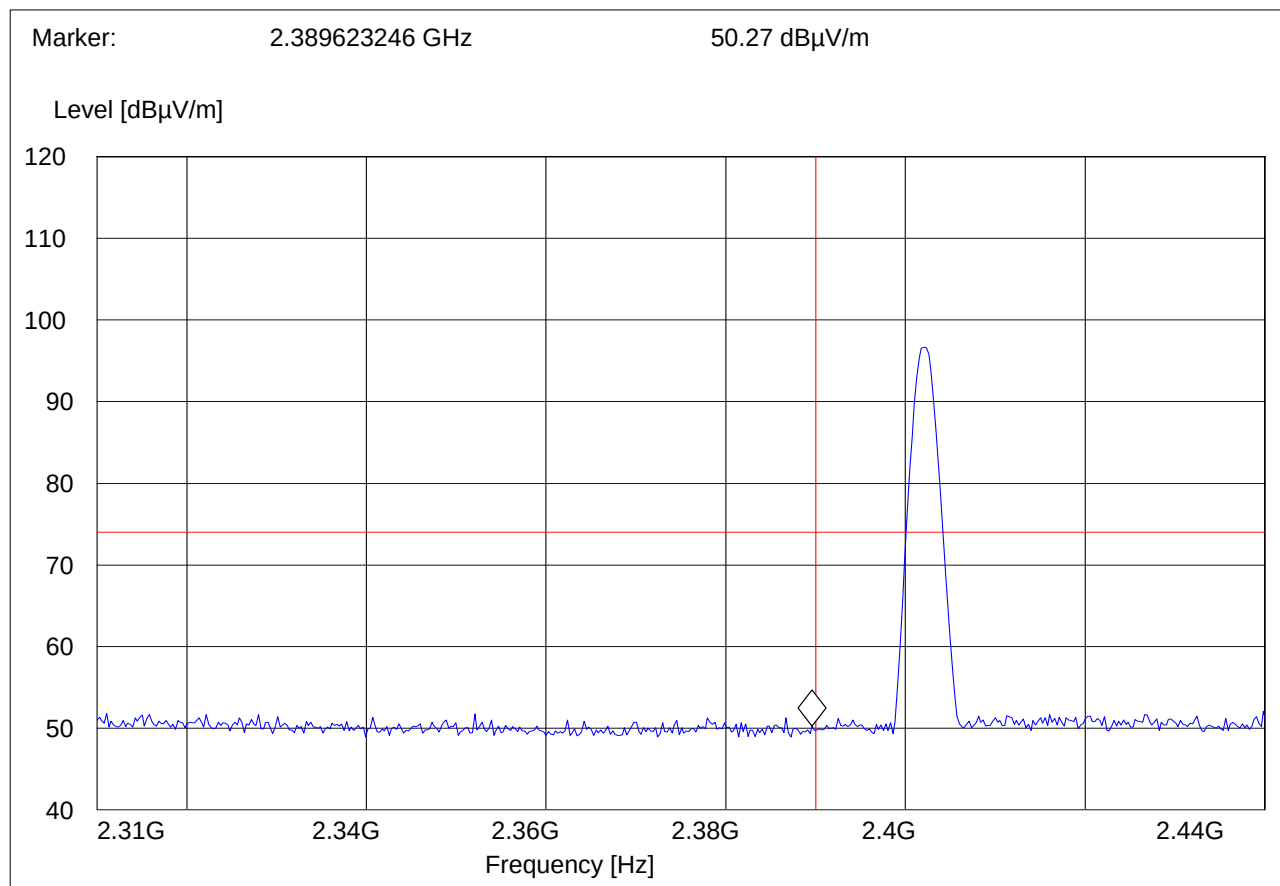
## 5.2.2 RESULTS: GFSK

### (2402MHz) LOWER BAND EDGE PEAK -GFSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: GFSK CH 0  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: Ahmad  
Voltage:  
Comments:

#### SWEEP TABLE: "FCC15.247 LBE\_PK"

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



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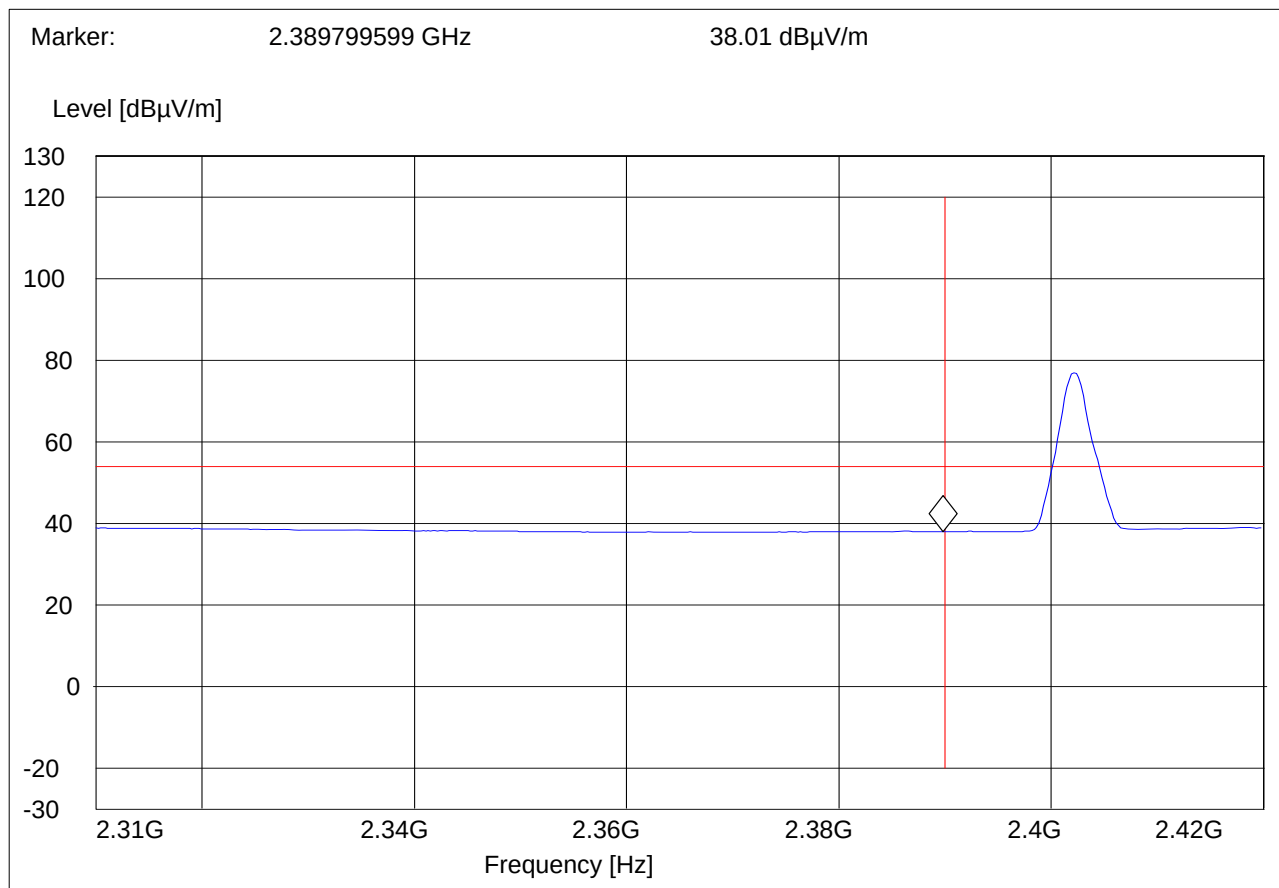


## (2402MHz) LOWER BAND EDGE AVERAGE -GFSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: GFSK CH 0  
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 |

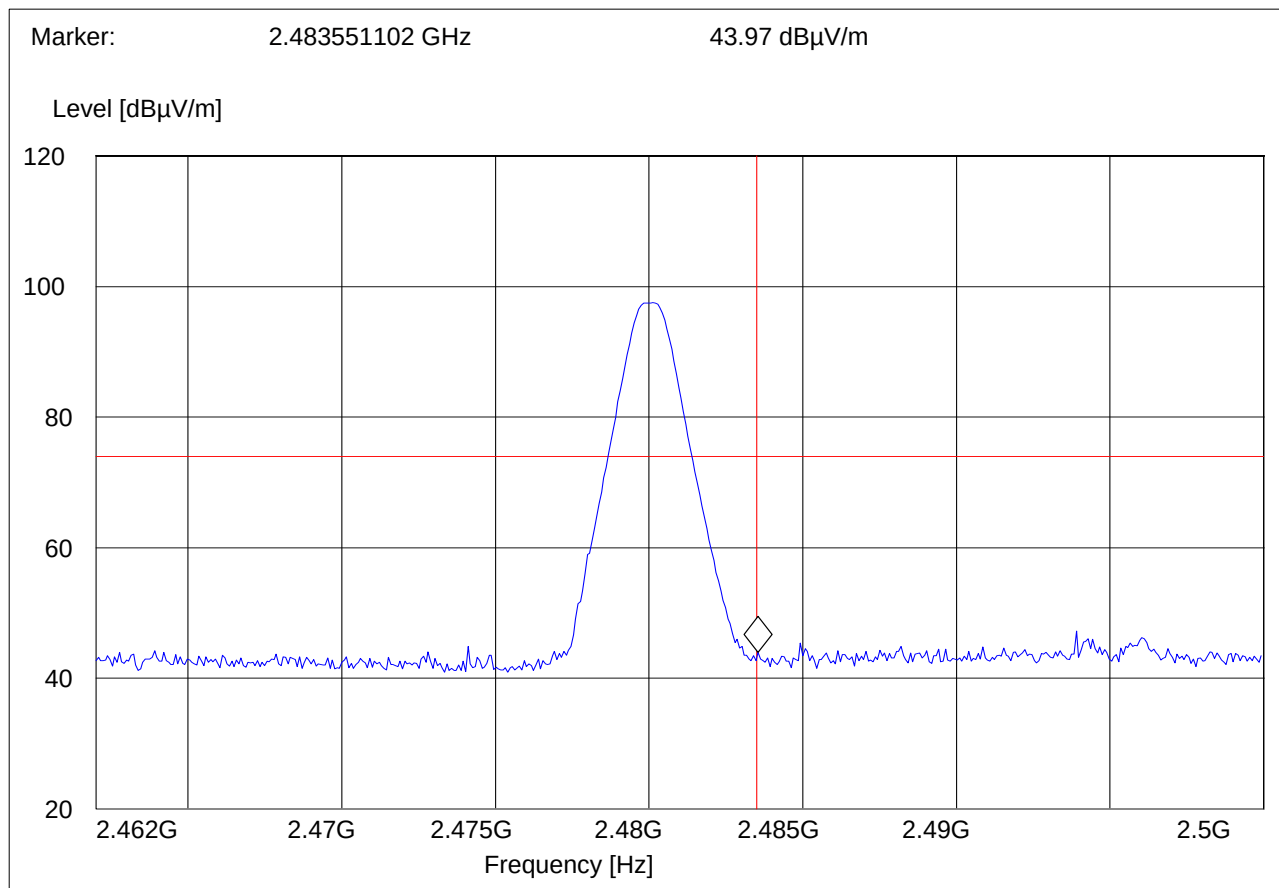


**(2480MHz) HIGHER BAND EDGE PEAK -GFSK MODULATION**

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: GFSK CH 78  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: Ahmad  
Voltage:  
Comments:

***SWEEP TABLE: "FCC15.247 HBE\_PK"***

| Start<br>Frequency | Stop<br>Frequency | Detector           | Meas.<br>Time | IF<br>Bandw. | Transducer       |
|--------------------|-------------------|--------------------|---------------|--------------|------------------|
| 2.5 GHz            | 2.5 GHz           | MaxPeak<br>MaxPeak | Coupled       | 1 MHz        | #326horn_AF_vert |

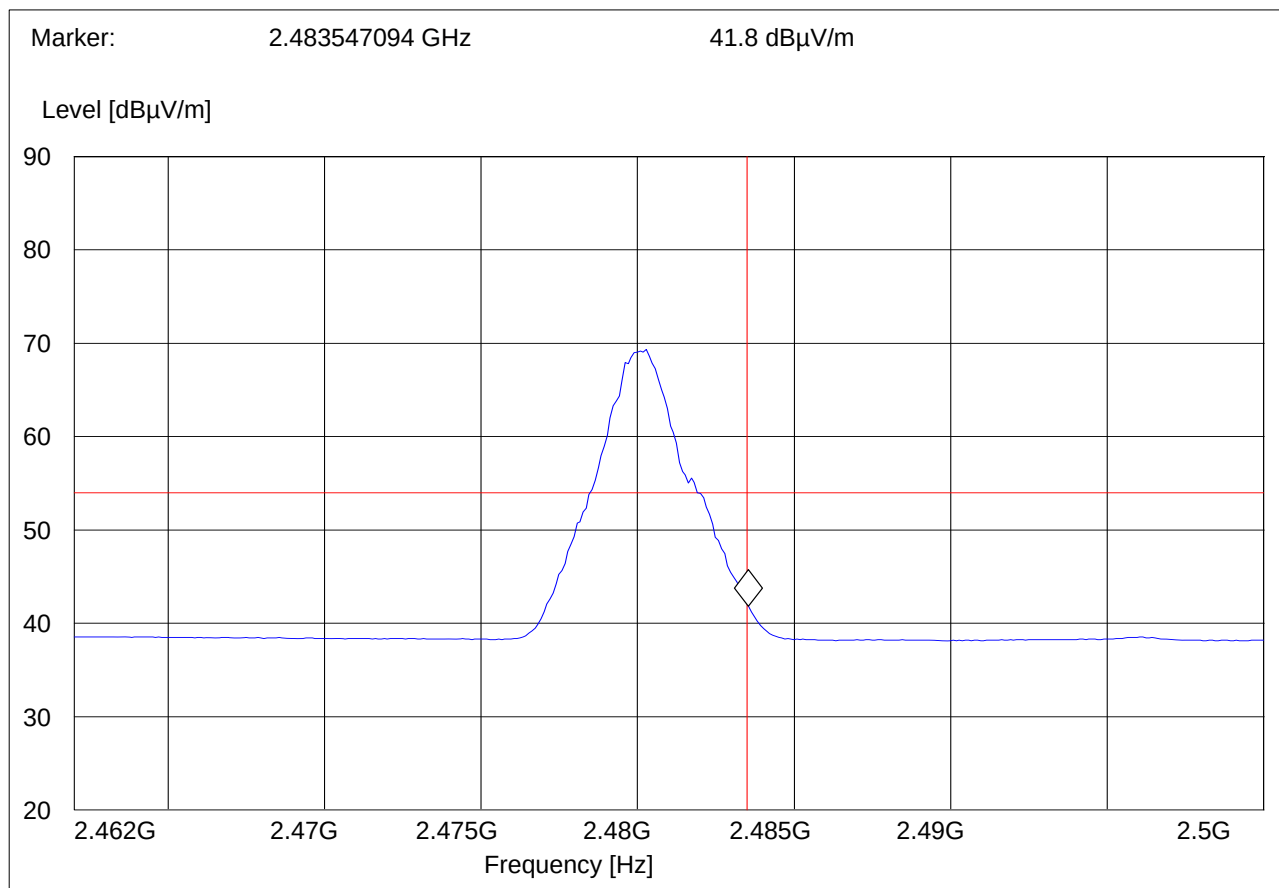


## HIGHER BAND EDGE AVERAGE-GFSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: GFSK CH 78  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: Ahmad  
Voltage:  
Comments:

### ***SWEEP TABLE: "FCC15.247 HBE\_AVG"***

| Start<br>Frequency | Stop<br>Frequency | Detector | Meas.<br>Time | IF<br>Bandw. | Transducer       |
|--------------------|-------------------|----------|---------------|--------------|------------------|
| 2.5 GHz            | 2.5 GHz           | MaxPeak  | Coupled       | 1 MHz        | #326horn_AF_horz |



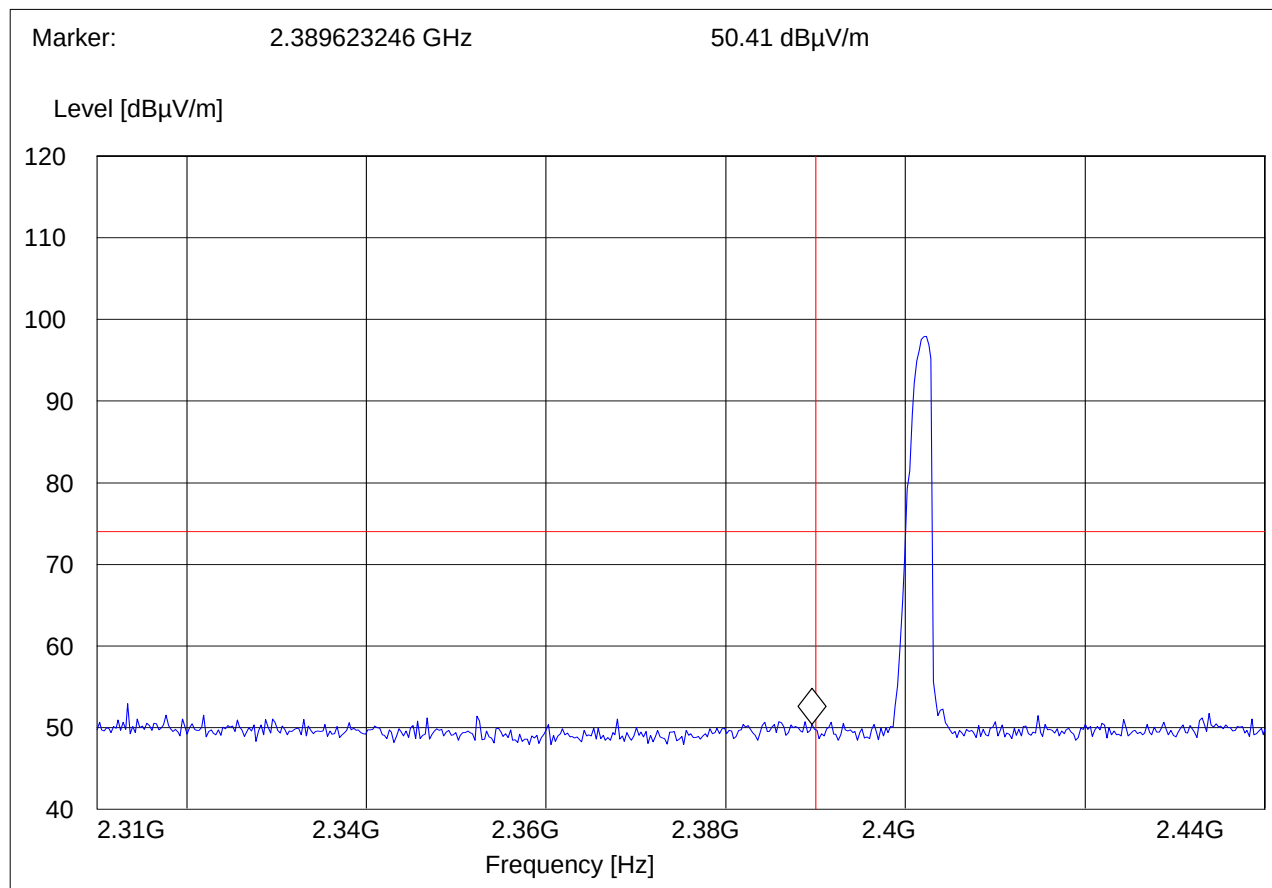
### 5.2.3 RESULTS: $\pi/4$ DQPSK

#### (2402MHz) LOWER BAND EDGE PEAK - $\pi/4$ DQPSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: DQPSK CH 0  
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  | Coupled    | 1 MHz     | #326horn_AF_vert |
|                 |                | MaxPeak  |            |           |                  |



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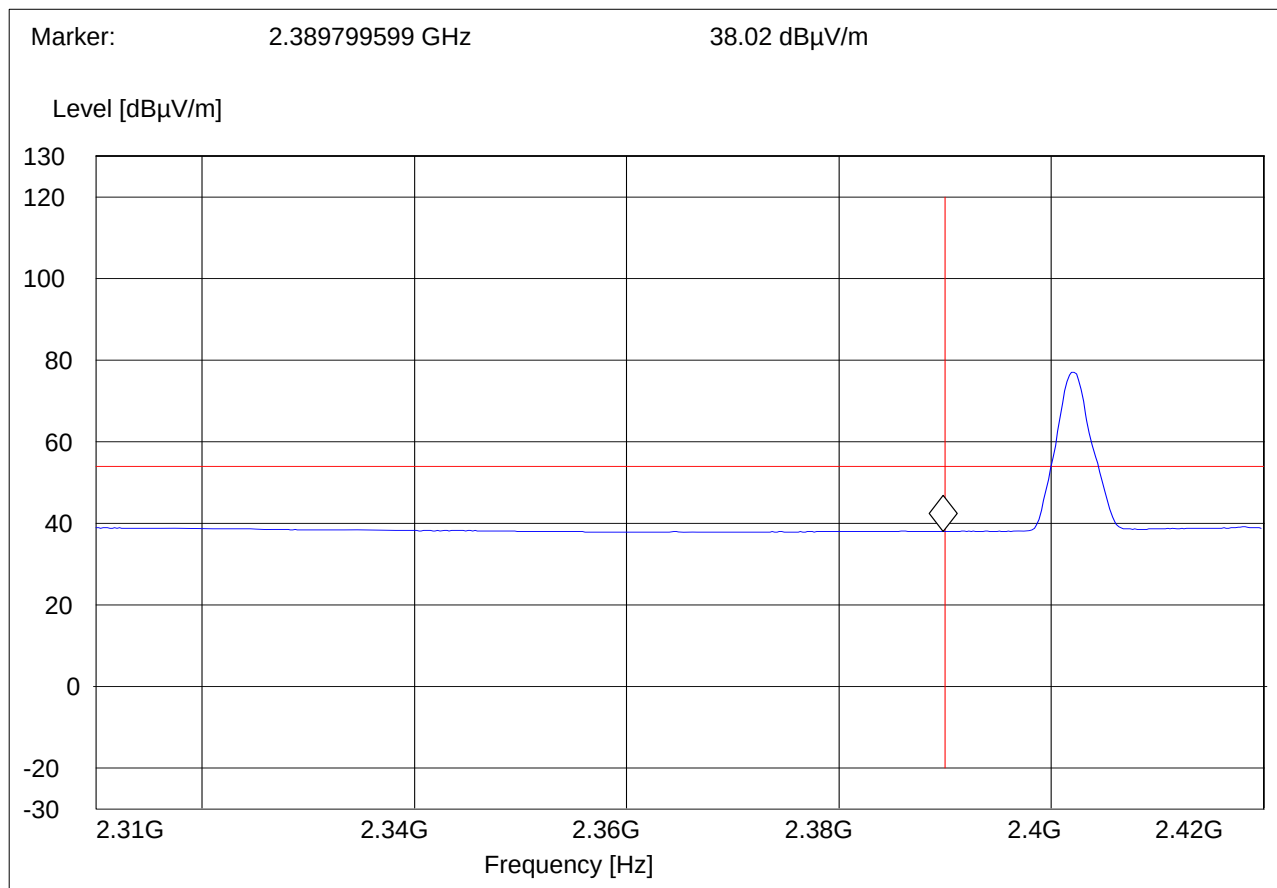


### (2402MHz) LOWER BAND EDGE AVERAGE $-\pi/4$ DQPSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: DQPSK CH 0  
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 |



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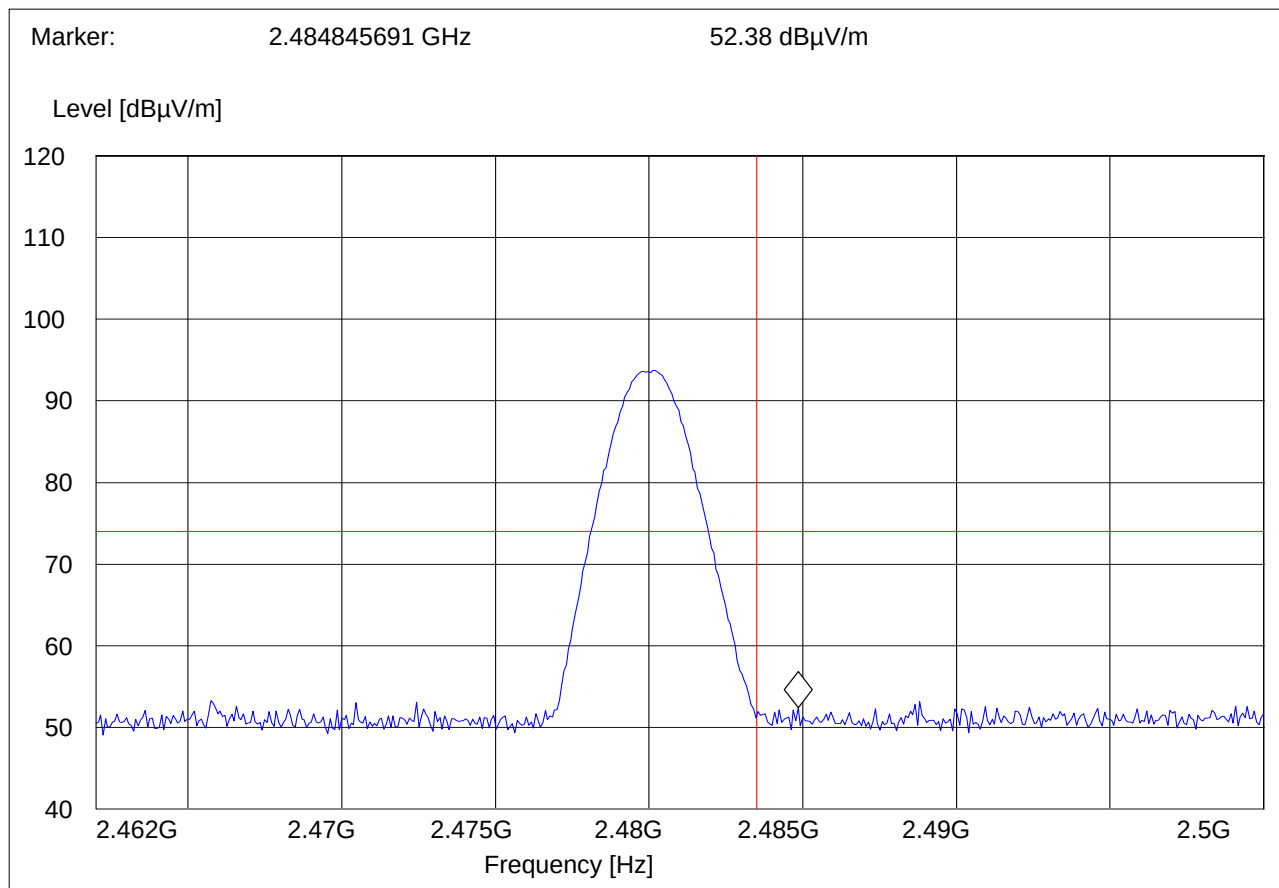


### (2480MHz) HIGHER BAND EDGE PEAK $-\pi/4$ DQPSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: DQPSK CH 78  
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<br>MaxPeak | Coupled    | 1 MHz     | #326horn_AF_vert |



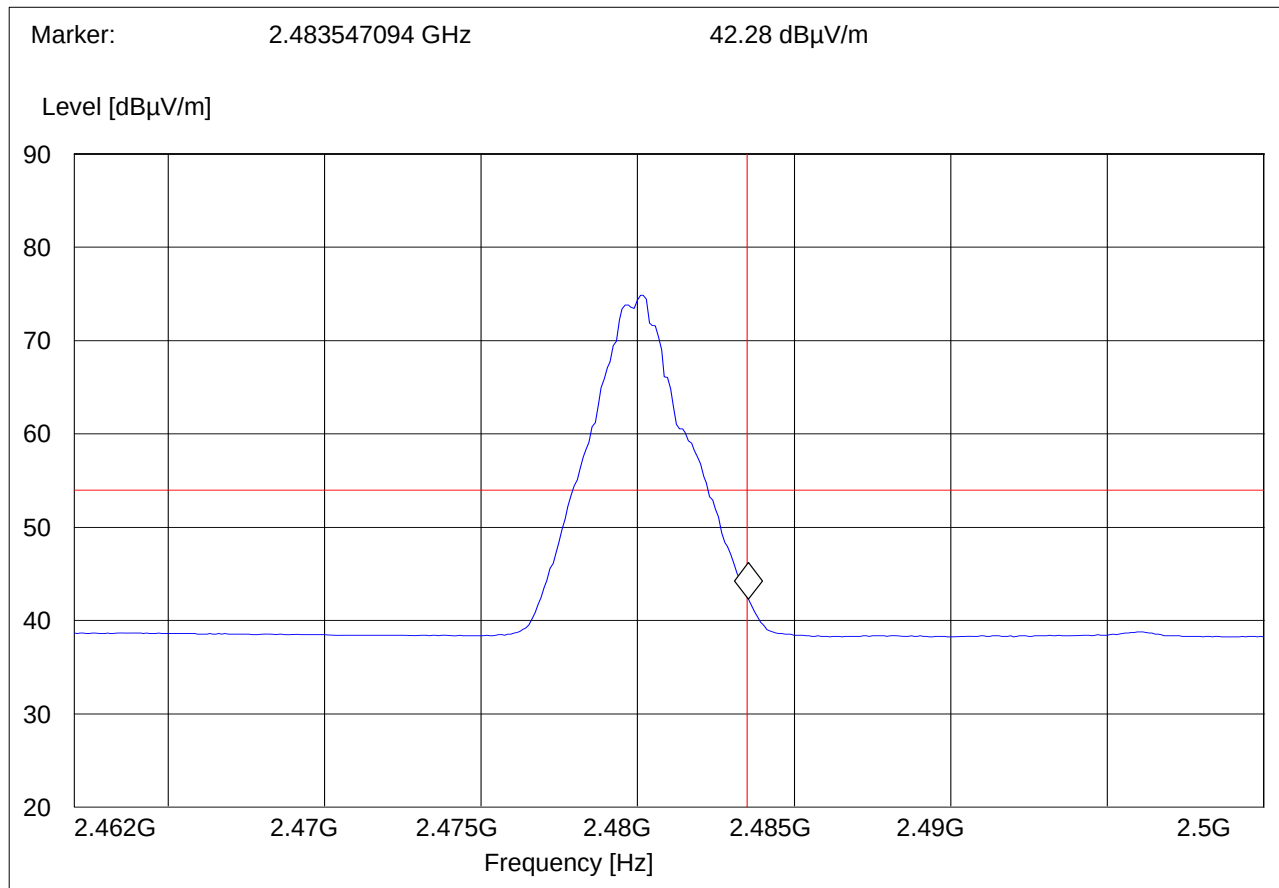


**HIGHER BAND EDGE AVERAGE-  $\pi/4$  DQPSK MODULATION**

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: DQPSK CH 78  
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 |



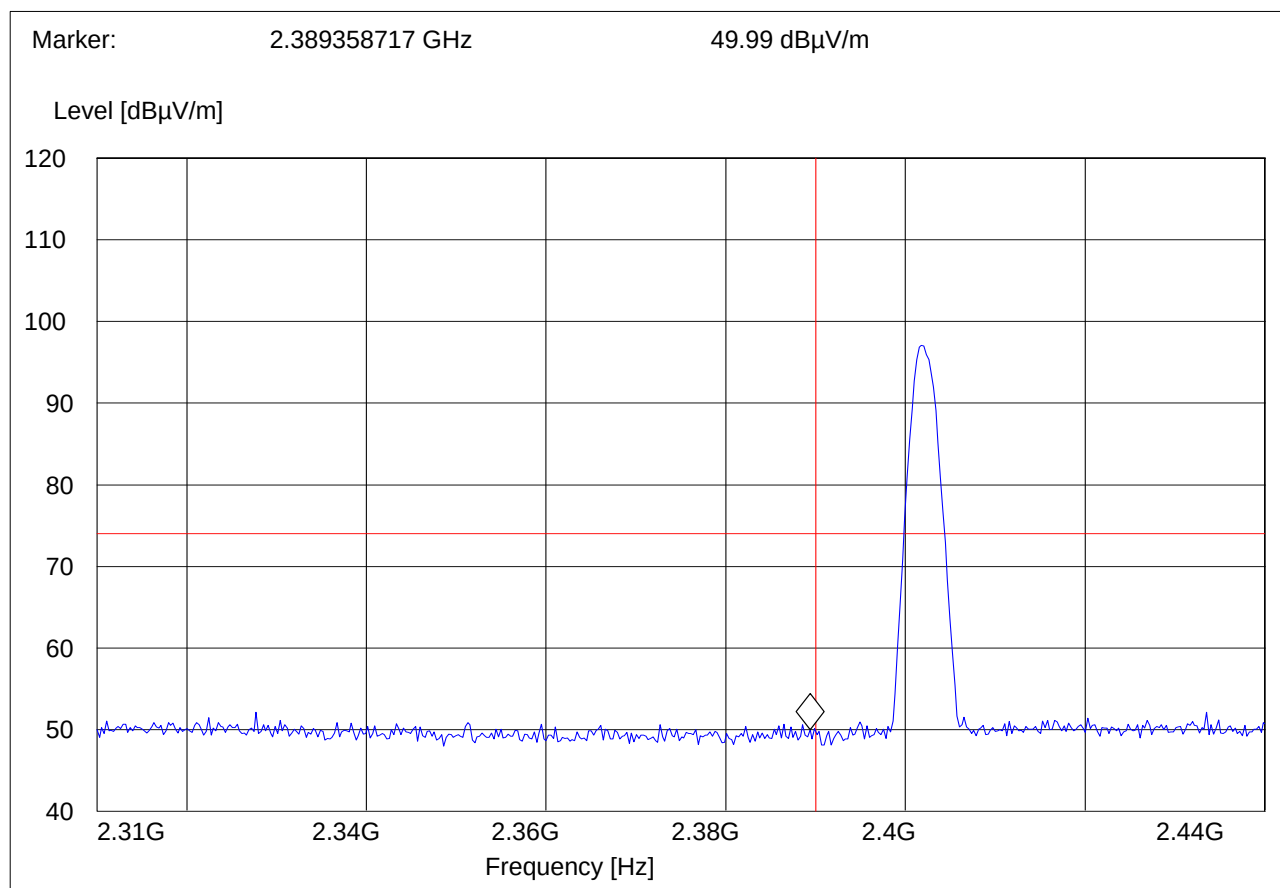
## 5.2.4 RESULTS: 8DPSK

### (2402MHz) LOWER BAND EDGE PEAK - 8DPSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: 8DPSK CH 0  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: Ahmad  
Voltage:  
Comments:

#### SWEEP TABLE: "FCC15.247 LBE\_PK"

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



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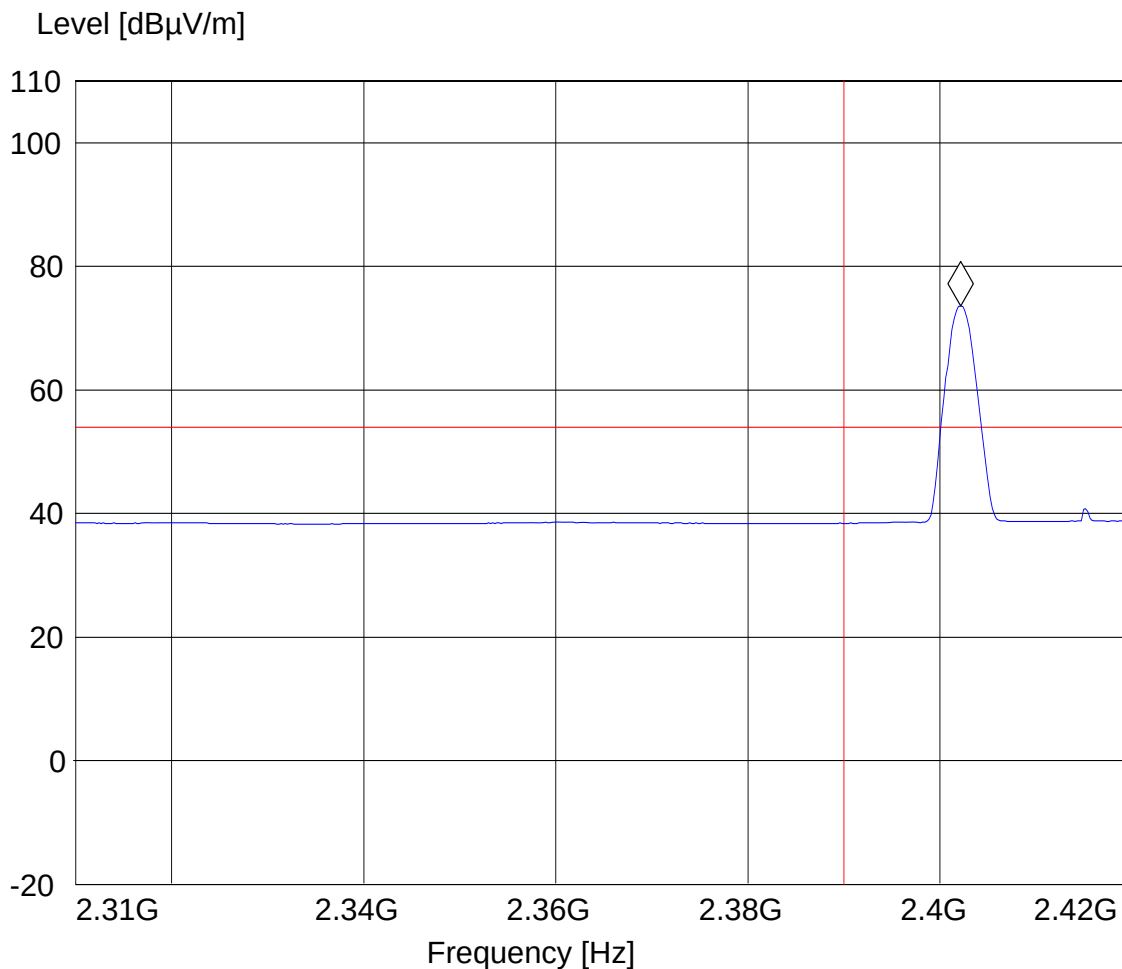
### (2402MHz) LOWER BAND EDGE AVERAGE -8DPSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: 8DPSK CH 0  
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: 2.402144289 GHz 73.58 dB $\mu$ V/m



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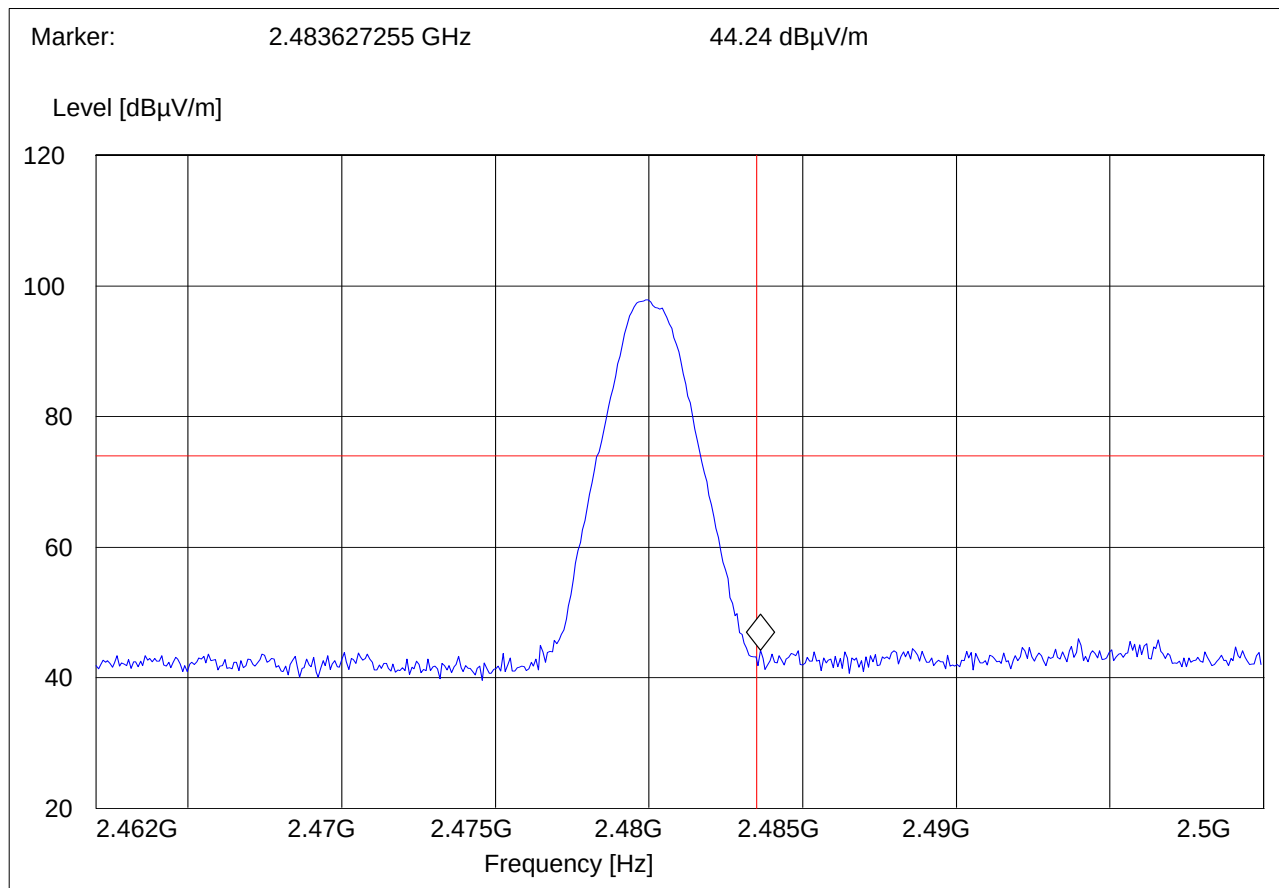


## RESULTS (2480MHz) HIGHER BAND EDGE PEAK - 8DPSK MODULATION

EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: 8DPSK CH 78  
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 |



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## HIGHER BAND EDGE AVERAGE-8DPSK MODULATION

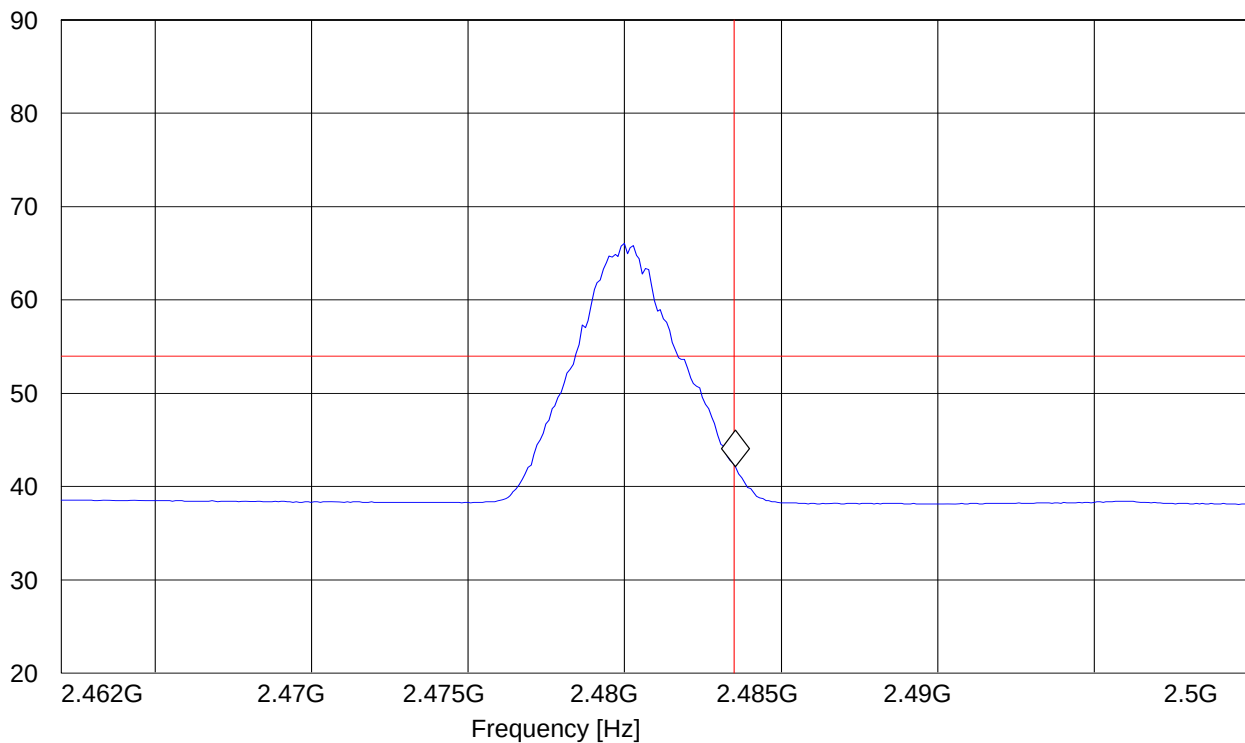
EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: 8DPSK CH 78  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: Ahmad  
Voltage:  
Comments:

### 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 42.13 dBμV/m

Level [dBμV/m]



### 5.3 TRANSMITTER SPURIOUS EMISSIONS RADIATED § 15.247/15.205/15.209

#### 5.3.1 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       |
| 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     | ( <sup>2</sup> ) |
| 13.36 - 13.41       |                       |                 |                  |

\*PEAK LIMIT= 74dBuV/m

\*AVG. LIMIT= 54dBuV/m

#### 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.

#### 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 |

### 5.3.2 RESULTS

30MHz – 1GHz (2402MHz)

Antenna: Horizontal/Vertical

Note: Emissions reported here are worse-case emissions for all modulations.

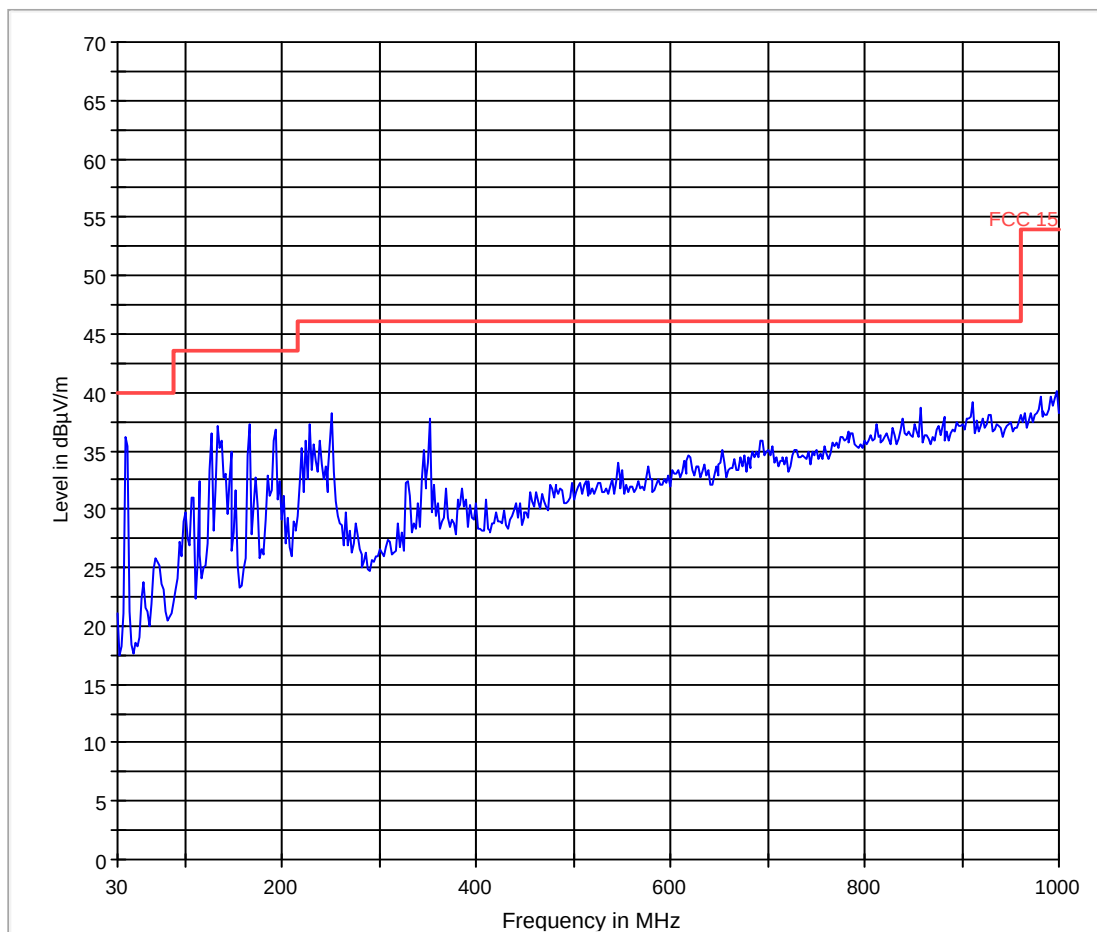
### EUT Information

Description:

EUT Name: MX9  
Manufacturer: LXE, Inc.  
Test Mode: BT, CH.0  
Hardware Rev:  
Software Rev:  
Comment: FCC Unit

## Test

FCC 15 30-1000MHz



— FCC 15.LimitLine

— Preview Result 1

**30MHz – 1GHz (2441MHz)**

**Antenna: horizontal/Vertical**

**Note: Emissions reported here are worse-case emissions for all modulations.**

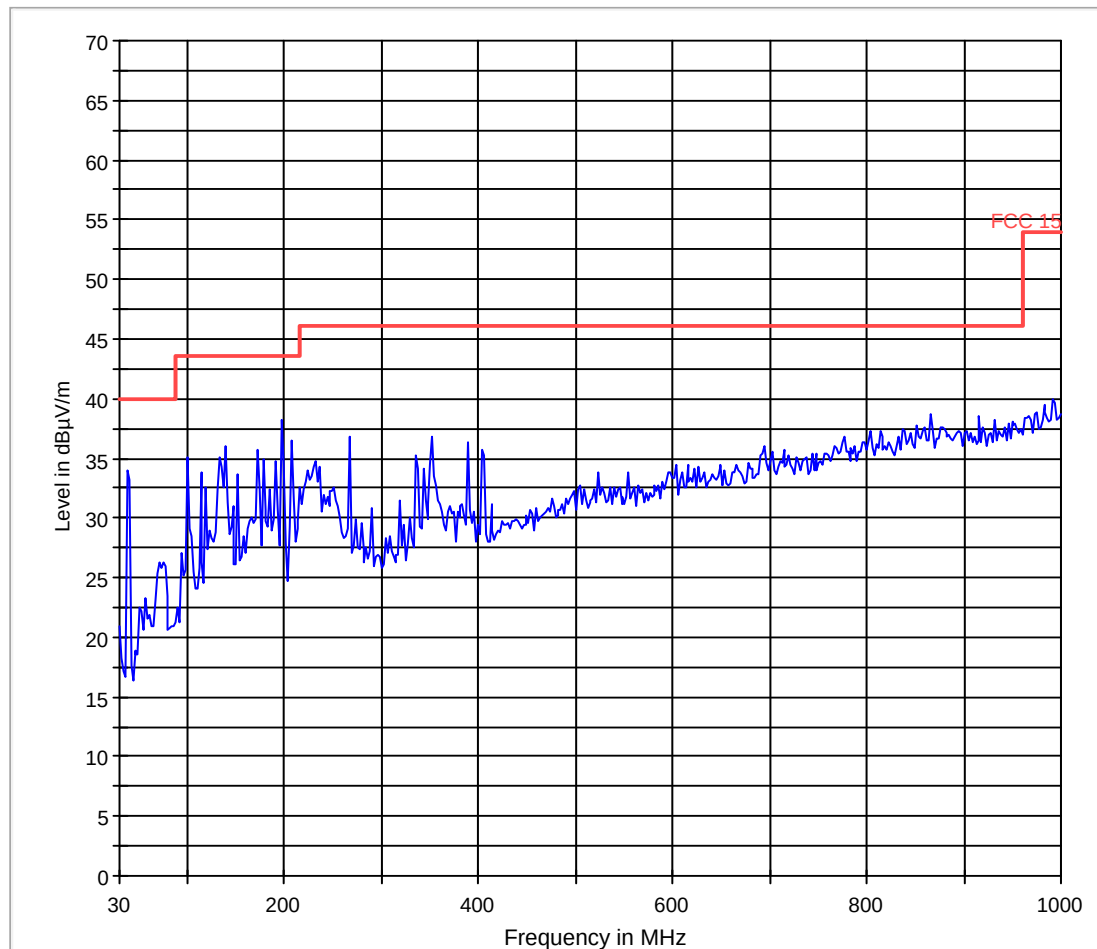
## EUT Information

Description:

EUT Name: MX9  
Manufacturer: LXE, Inc.  
Test Mode: BT, CH. 39  
Hardware Rev:  
Software Rev:  
Comment: FCC Unit

## Test

FCC 15 30-1000MHz



FCC 15.LimitLine

Preview Result 1



**30MHz – 1GHz (2480MHz)**

**Antenna: horizontal/Vertical**

**Note: Emissions reported here are worse-case emissions for all modulations.**

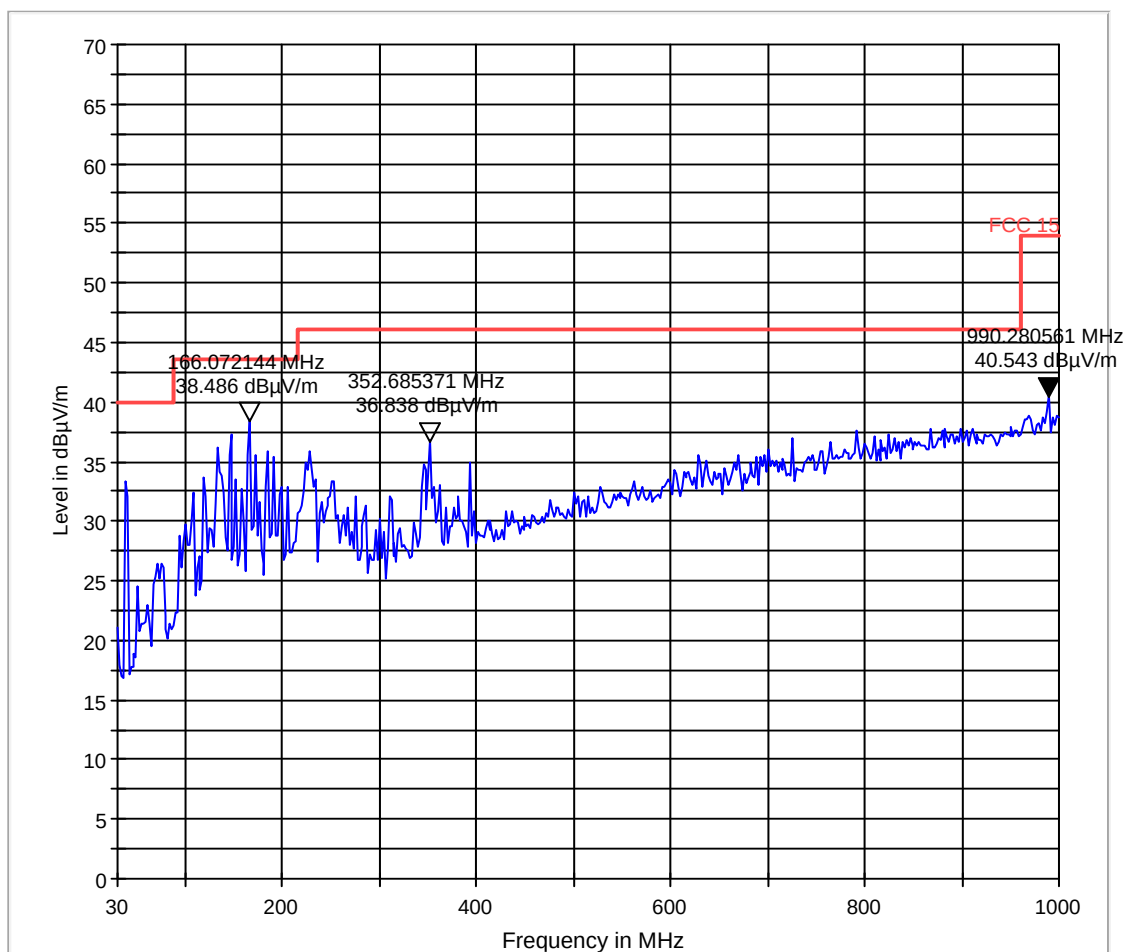
## EUT Information

Description:

EUT Name: MX9  
Manufacturer: LXE  
Test Mode: BT, CH.78  
Hardware Rev:  
Software Rev:  
Comment: FCC Unit

## Test

FCC 15 30-1000MHz



**1-18GHz (2402MHz)**

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Antenna: horizontal/Vertical

Note: Peak Reading vs. Average limit

Note: Emissions reported here are worse-case emissions for all modulations.

## EUT Information

Description:

EUT Name: MX9  
 Manufacturer: LXE, Inc.  
 Test Mode: BT, CH. 0  
 Hardware Rev:  
 Software Rev:  
 Comment: FCC Unit

## Test

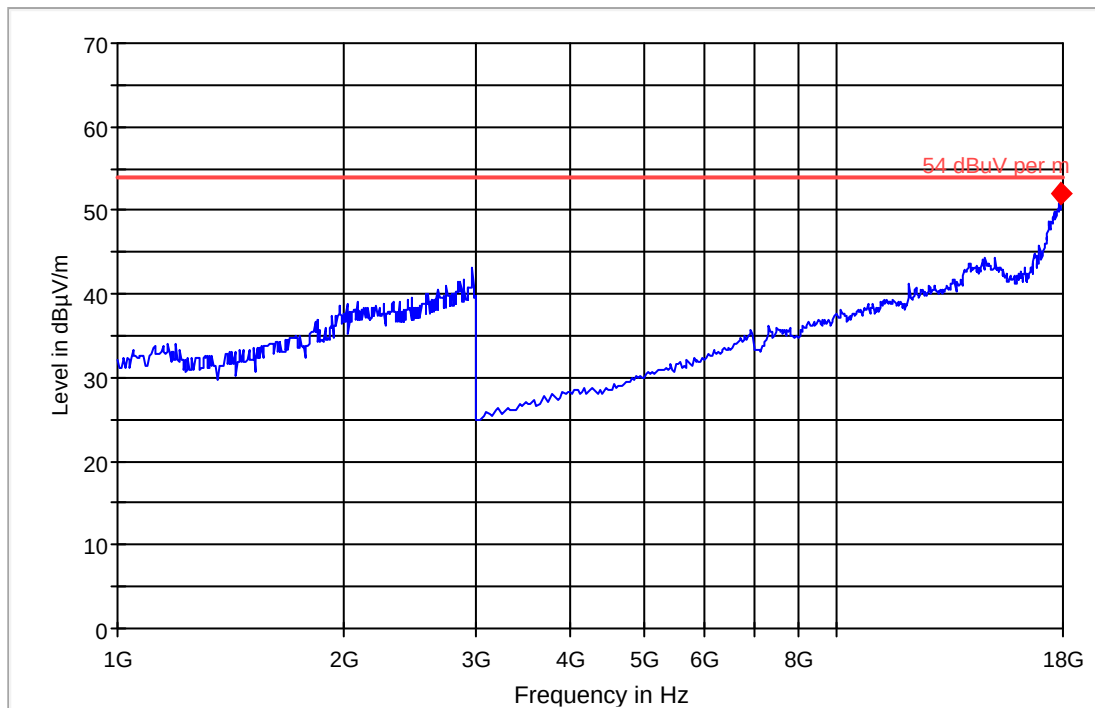
### Final Result 1

| Frequency (MHz) | Average (dBμV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBμV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 17935.380762    | 52.0             | 20.0            | 1000.000        | 170.0       | V            | 94.0          | 29.2       | 2.0         | 54.0           |

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

| Frequency (MHz) | Comment |
|-----------------|---------|
| 17935.380762    |         |

FCC 15 1-18GHz



54 dBμV per m.LimitLine

Preview Result 1



Final Result 1

## 1-18GHz (2441MHz)

Antenna: horizontal/Vertical

Note: Peak Reading vs. Average limit

Note: Emissions reported here are worse-case emissions for all modulations.

## EUT Information

Description:

EUT Name: MX9  
Manufacturer: LXE, Inc.  
Test Mode: BT, CH. 39  
Hardware Rev:  
Software Rev:  
Comment: FCC Unit

## Test

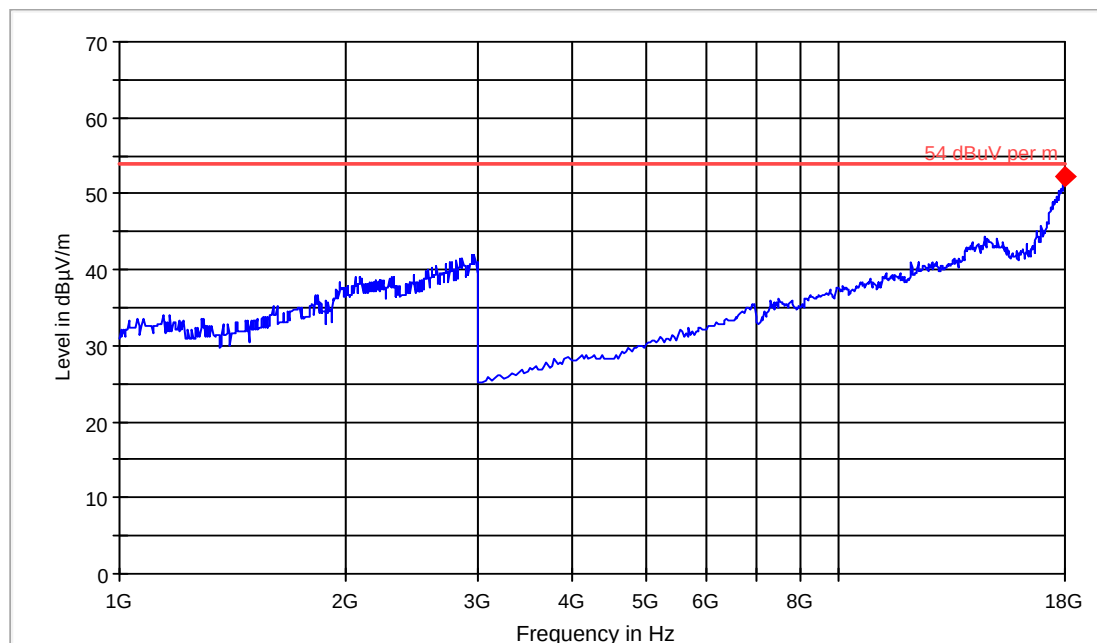
### Final Result 1

| Frequency (MHz) | Average (dBμV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBμV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 17965.060120    | 52.2             | 20.0            | 1000.000        | 120.0       | H            | 68.0          | 29.5       | 1.8         | 54.0           |

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

| Frequency (MHz) | Comment |
|-----------------|---------|
| 17965.060120    |         |

FCC 15 1-18GHz



54 dBuV per m.LimitLine

Preview Result 1



Final Result 1

## 1-18GHz (2480MHz)

Antenna: horizontal/Vertical

Note: Peak Reading vs. Average limit

Note: Emissions reported here are worse-case emissions for all modulations.

## EUT Information

Description:

EUT Name: MX9  
Manufacturer: LXE, Inc.  
Test Mode: BT, CH. 78  
Hardware Rev:  
Software Rev:  
Comment: FCC Unit

## Test

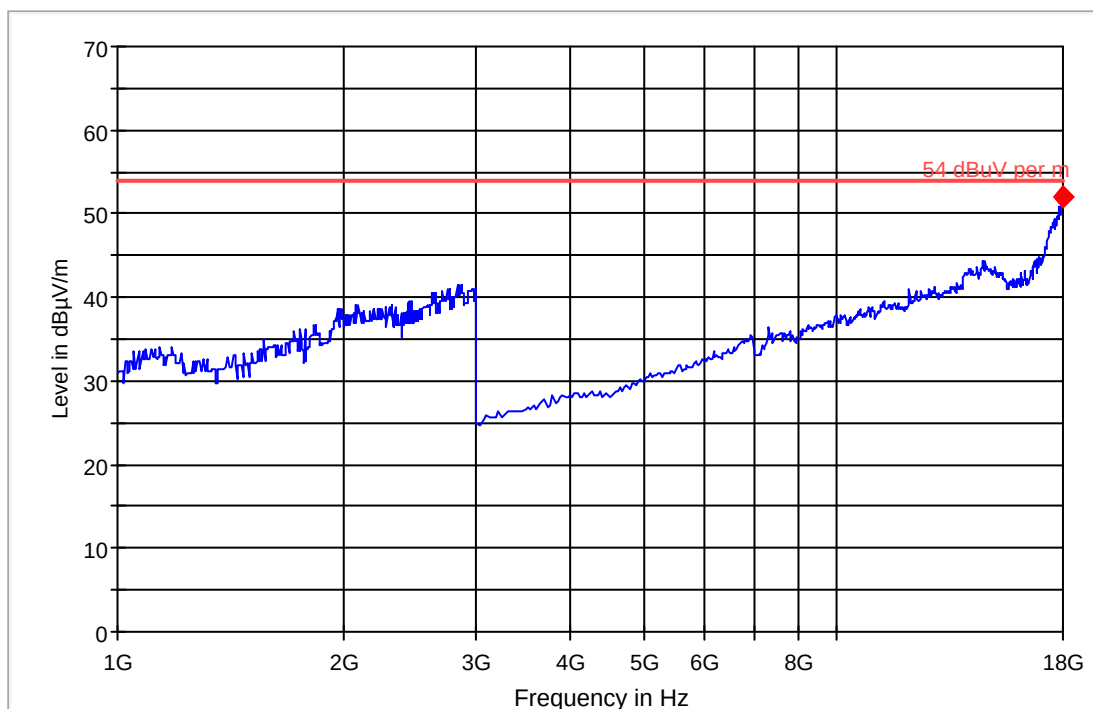
### Final Result 1

| Frequency (MHz) | Average (dBμV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBμV/m) |
|-----------------|------------------|-----------------|-----------------|-------------|--------------|---------------|------------|-------------|----------------|
| 17997.014028    | 52.0             | 20.0            | 1000.000        | 120.0       | H            | 87.0          | 29.3       | 2.0         | 54.0           |

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

| Frequency (MHz) | Comment |
|-----------------|---------|
| 17997.014028    |         |

FCC 15 1-18GHz



54 dBμV per m.LimitLine

Preview Result 1



Final Result 1

# 18-25GHz

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

**Note: Peak Reading vs. Average limit**

**Note: Emissions reported here are worse-case emissions for all modulations.**

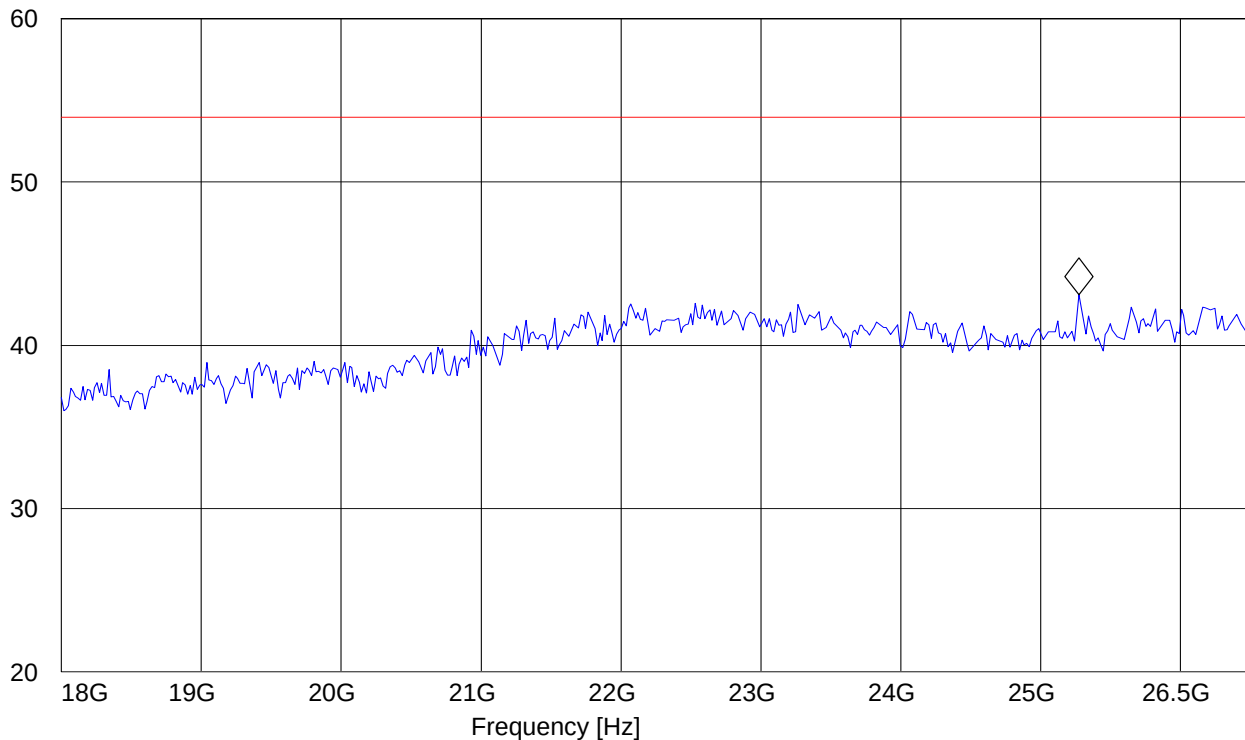
EUT: MX9  
Customer:: LXE, Inc.  
Test Mode: GFSK CH 0  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: Ahmad  
Voltage:  
Comments:

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

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

Marker: 25.273547094 GHz 43.09 dBμV/m

Level [dBμV/m]



## 6 Measurements (Conducted)

### 6.1 MAXIMUM PEAK OUTPUT POWER § 15.247 (CONDUCTED)

#### 6.1.1 LIMIT SUB CLAUSE § 15.247 (b) (1)

| Frequency range | RF power output |
|-----------------|-----------------|
| 2400-2483.5 MHz | 30dBm           |

\*limit is based upon antenna gain of less than or equal to 6dBi.

#### 6.1.2 RESULTS:

The module integrated in this hose device is already FCC approved. For conducted measurement results please refer to the original FCC test report for the module.

### 6.2 20dB BANDWIDTH

#### 6.2.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii)

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

#### 6.2.2 RESULTS:

The module integrated in this hose device is already FCC approved. For conducted measurement results please refer to the original FCC test report for the module.

### **6.3 CARRIER FREQUENCY SEPARATION**

#### **6.3.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii)**

| SEPARATION                    |
|-------------------------------|
| > 25 KHz or > 20 dB BANDWIDTH |

#### **6.3.2 RESULTS:**

The module integrated in this hose device is already FCC approved. For conducted measurement results please refer to the original FCC test report for the module.

### **6.4 NUMBER OF HOPPING CHANNELS**

#### **6.4.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (iii)**

| NUMBER OF CHANNELS |
|--------------------|
| > 15               |

#### **6.4.2 RESULTS:**

The module integrated in this hose device is already FCC approved. For conducted measurement results please refer to the original FCC test report for the module.

## **6.5 TIME OF OCCUPANCY (DWELL TIME)**

### **6.5.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii)**

| <b>FREQUENCY RANGE</b> | <b>AVERAGE TIME OF<br/>OCCUPANCY PER<br/>31.6 SECONDS (LIMIT)</b> |
|------------------------|-------------------------------------------------------------------|
| <b>2400-2483.5</b>     | <b>0.4 SECONDS</b>                                                |

### **6.5.2 RESULTS:**

**The module integrated in this hose device is already FCC approved. For conducted measurement results please refer to the original FCC test report for the module.**



## 6.6 CONDUCTED SPURIOUS EMISSION

### 6.6.1 LIMIT SUB CLAUSE § 15.247 (d)

| FREQUENCY RANGE | limit  |
|-----------------|--------|
| 30M-25GHz       | -20dBc |

### 6.6.2 RESULTS:

The module integrated in this hose device is already FCC approved. For conducted measurement results please refer to the original FCC test report for the module.

## 6.7 AC POWER LINE CONDUCTED EMISSIONS § 15.107/207

### 6.7.1 LIMITS

Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)

#### Limit

| Frequency of Emission (MHz)                 | Conducted Limit (dBμV) |           |
|---------------------------------------------|------------------------|-----------|
|                                             | 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

### 6.7.2 Test Results:

Pass, see plots.

## Results TX Line

**Note:** emissions reported here are worse-case emissions for all modulations and for low, mid high channels.

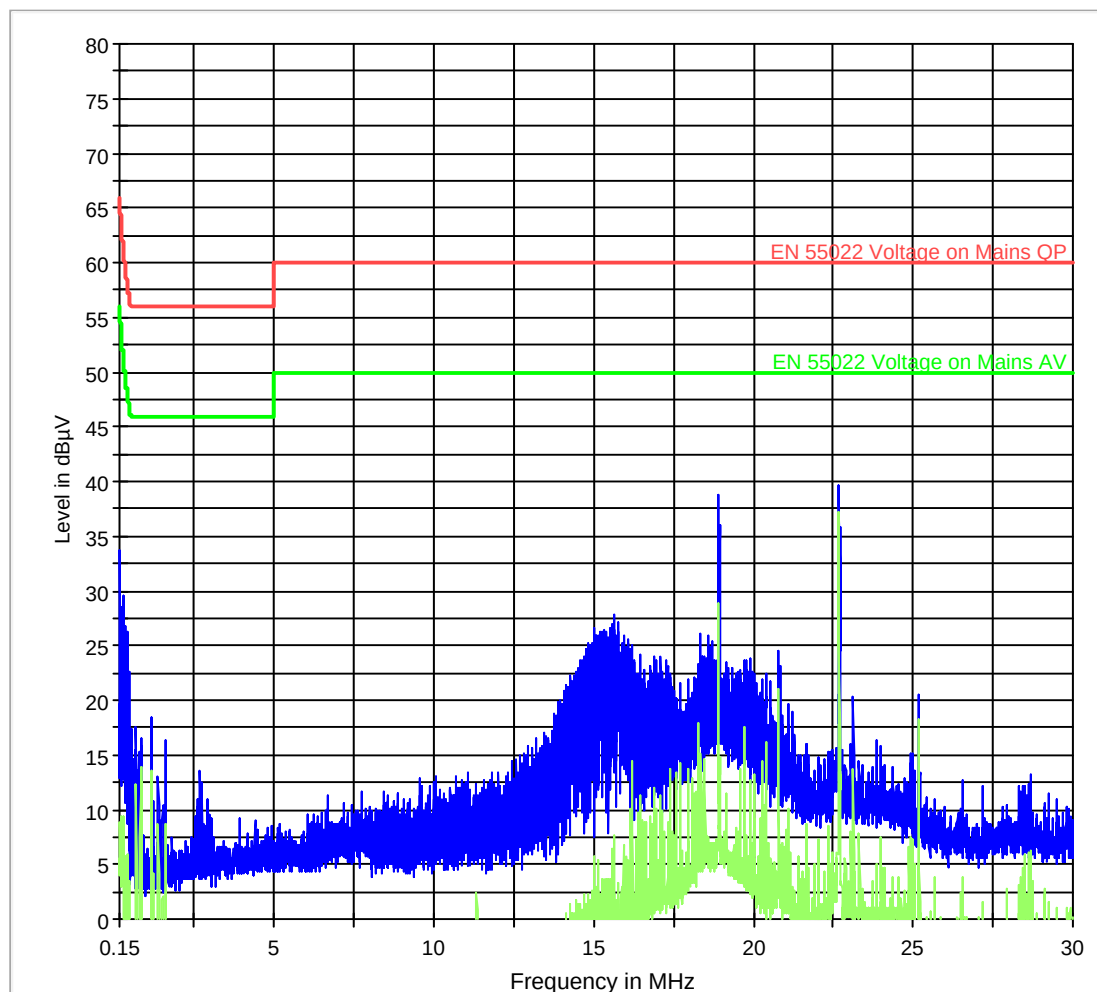
## EUT Information

Description:

|                 |           |
|-----------------|-----------|
| EUT Name:       | MX9       |
| Manufacturer:   | LXE, Inc. |
| Operating Mode: | TX BT     |
| 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

## Results TX Neutral:

**Note: emissions reported here are worse-case emissions for all modulations and for low, mid high channels.**

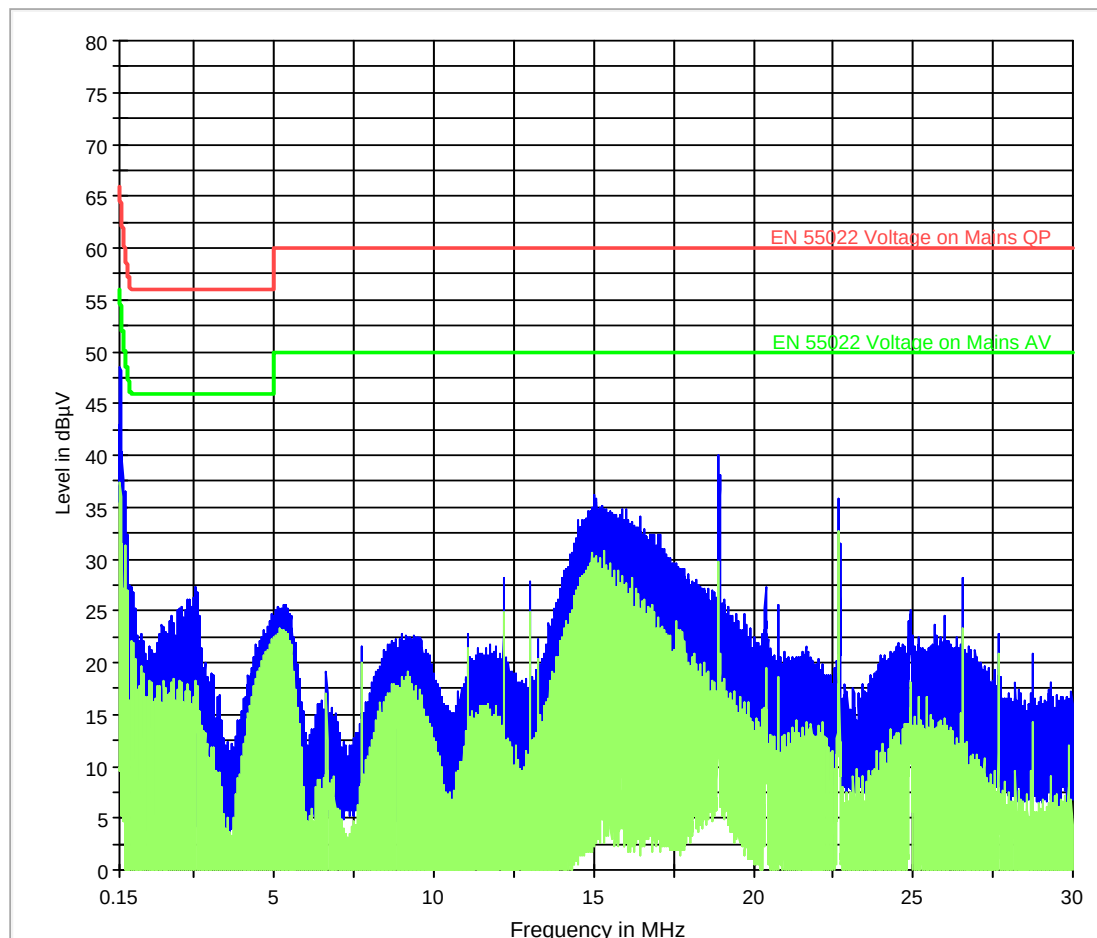
## EUT Information

### Description:

|                 |           |
|-----------------|-----------|
| EUT Name:       | MX9       |
| Manufacturer:   | LXE, Inc. |
| Operating Mode: | TX BT     |
| 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

## Results RX Line:

**Note:** emissions reported here are worse-case emissions for all modulations and for low, mid high channels.

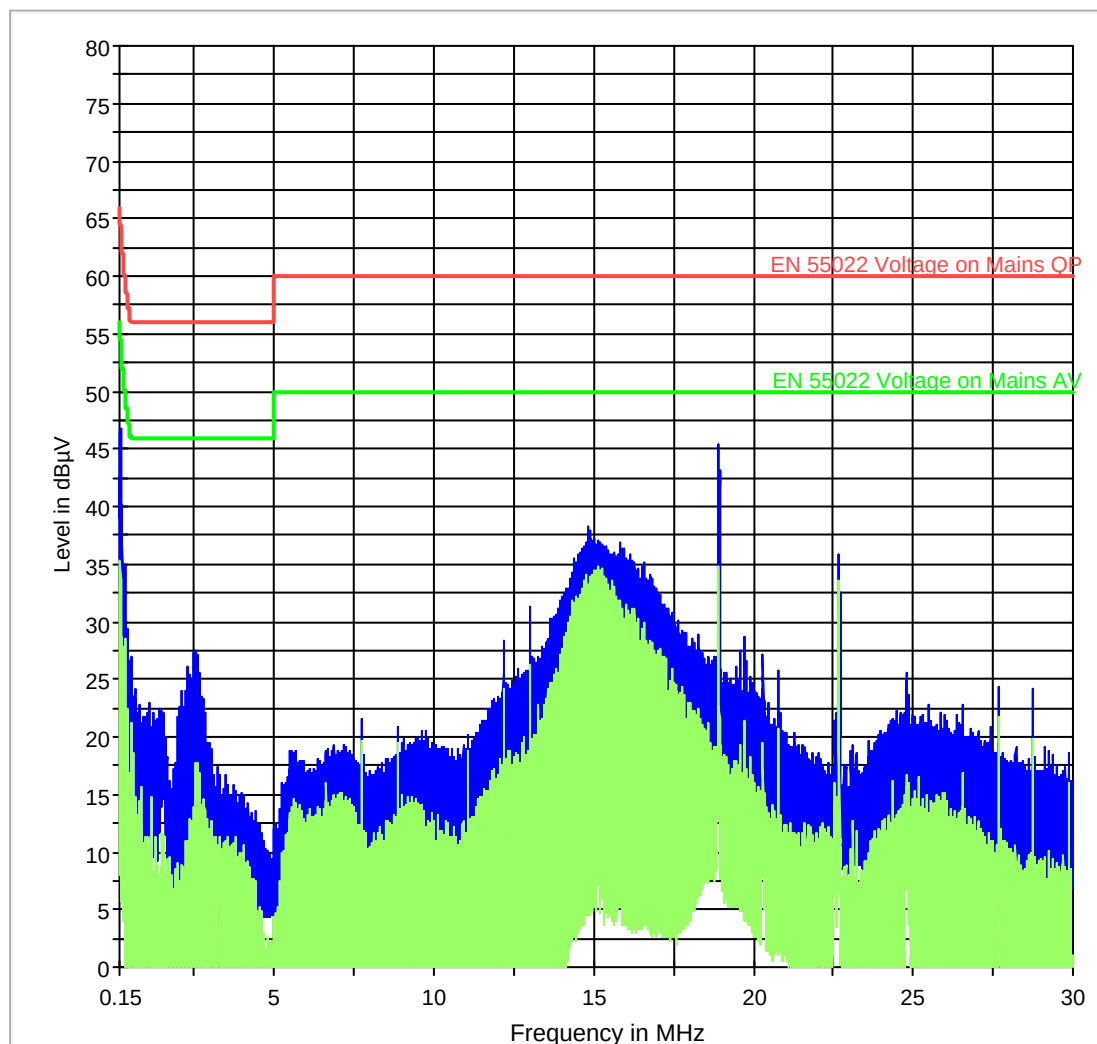
## EUT Information

Description:

|                 |           |
|-----------------|-----------|
| EUT Name:       | MX9       |
| Manufacturer:   | LXE, Inc. |
| Operating Mode: | RX BT     |
| 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

## Results RX Neutral:

**Note: emissions reported here are worse-case emissions for all modulations and for low, mid high channels.**

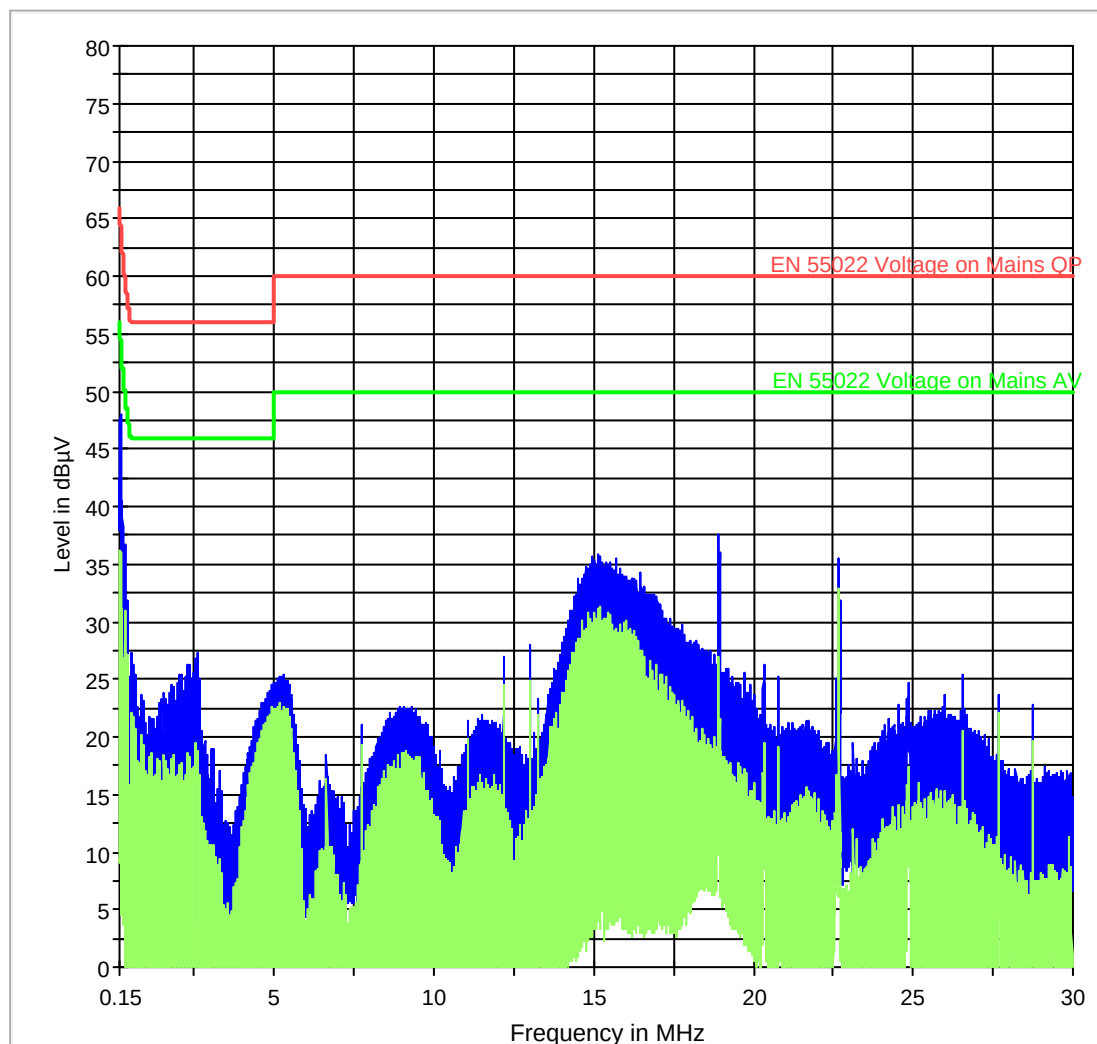
## EUT Information

Description:

|                 |          |
|-----------------|----------|
| EUT Name:       | MX9      |
| Manufacturer:   | LXE      |
| Operating Mode: | BT Rx    |
| Comment:        | FCC Unit |

## Neutral

CISPR 22 Mains Conducted - N



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

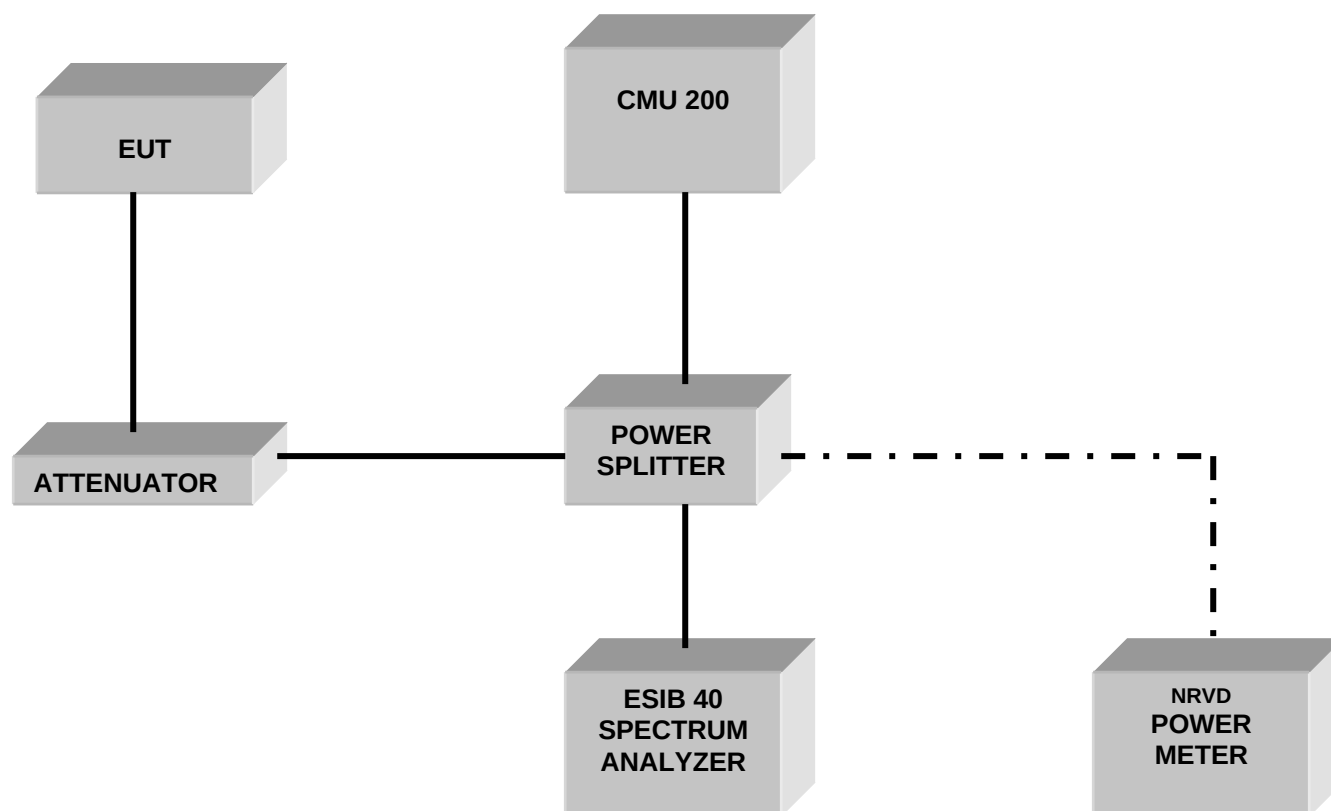
— EN 55022 Voltage on Mains AV.LimitLine  
— Preview Result 2

## **7 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS**

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

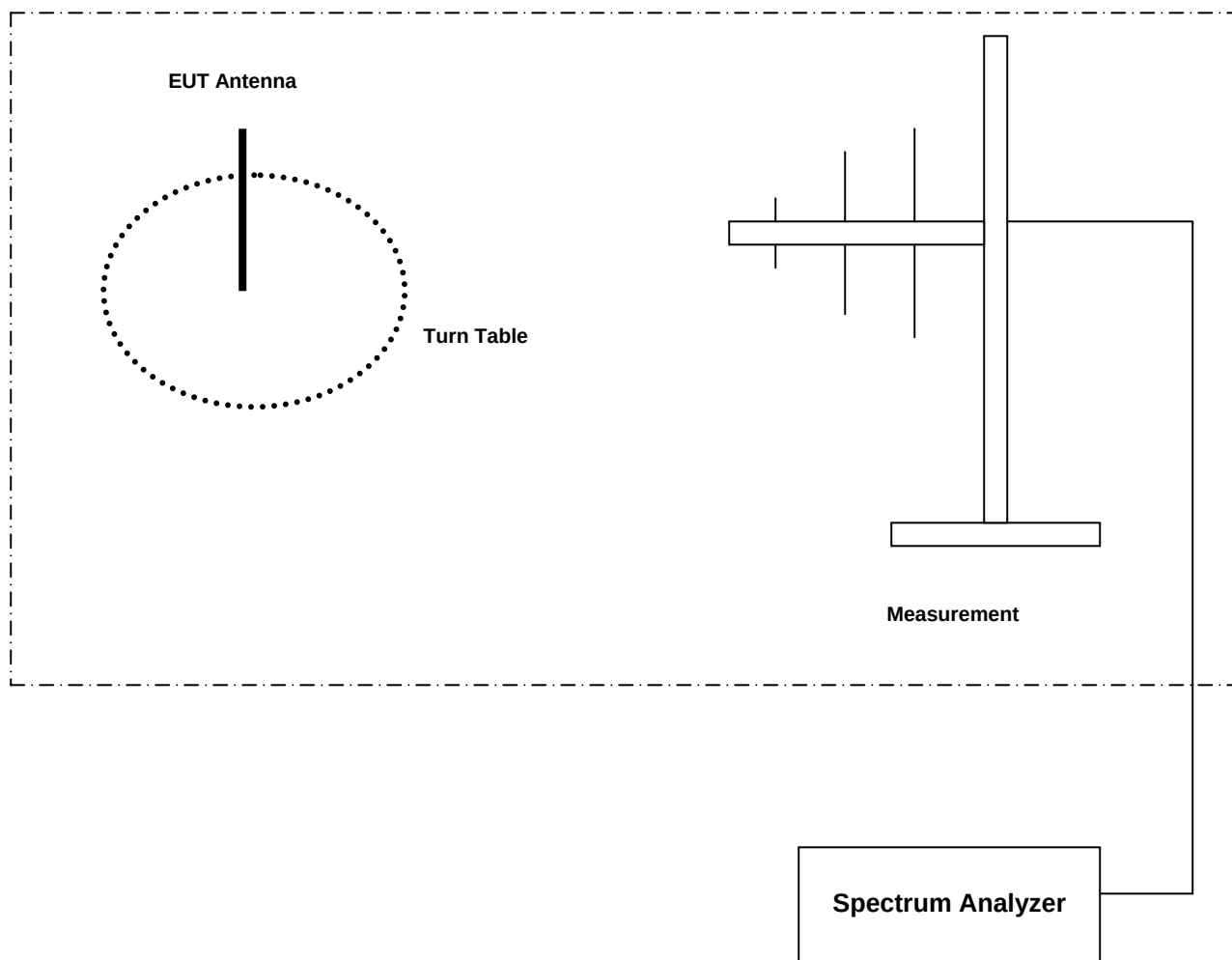
## 8 BLOCK DIAGRAMS

### Conducted Testing



## Radiated Testing

### ANECHOIC CHAMBER





Test Report #: **EMC\_LXEIN\_007\_09001\_15.247\_KDZLXEB  
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## **9 Revision History**

2009-7-21: First Issue

2009-8-20: Rev1. Eliminated unnecessary conducted measurement data. Replaces original titled EMC\_LXEIN\_007\_09001\_15.247\_KDZLXEBT001 and dated 2009-7-21.

2009-8-26: Rev2. Corrected Typos. Replaces original titled EMC\_LXEIN\_007\_09001\_15.247\_KDZLXEBT001\_rev1 and dated 2009-8-20.