

**TEST REPORT**  
FROM  
**SIEMIC**

For  
MP9311  
To  
FCC Part 15.247, 15.207, 15.209, IC RSS-210

Test Report Serial No.:  
SL05061102-PAX-002R1

This report supersedes SL05061102-PAX-002

**Remarks:**

Equipment complied with the specification  [X]  
Equipment did not comply with the specification  [ ]

**This Test Report is Issued Under the Authority of:**



.....  
*Tested by: Alvin Ilarina, Test Engineer*



.....  
*Reviewed by: Leslie Bai, Lab Manager*

Issue date: 5 October 2005

*Equipment Details:*

Manufacturer: Paxar Americas, Inc.



Registration No. 783147



Industry Canada  
Industrie Canada

Registration No. 4842



Lab Code: KR0032



RTA No. D23/16V



Registration No. 2195

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## **Executive Summary**

The purpose of this test programme was to demonstrate compliance of the Paxar Americas, Inc., MP9311 against the current FCC Part 15.247, 15.207, 15.209, IC RSS-210. The MP9311 demonstrated compliance with the FCC Part 15.247, 15.207, 15.209, IC RSS-210.

Paxar Americas, Inc. is the applicant and claimed manufacturer of this tested product. For the detailed description of this product, please refer to the MP9311 User Manual.

This equipment was tested with:

Paxar Americas, Inc. Model 126351 Antenna

The test has demonstrated that this unit complies with stipulated standards.



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## 1 Technical Details

Purpose	Compliance testing of MP9311 with FCC Part 15.247, 15.207, 15.209, IC RSS-210
Applicant / Client	Paxar Americas, Inc. 170 Monarch Lane Miamisburg, OH 45342
Manufacturer	Paxar Americas, Inc.
Laboratory performing the tests	SIEMIC Labs 2206 Ringwood Avenue San Jose, CA 95131
Test location(s)	SIEMIC Labs 2206 Ringwood Avenue San Jose, CA 95131
Test report reference number	SL05061102-PAX-002R1
Date EUT received	12 September 2005
Standard applied	FCC Part 15.247, 15.207, 15.209, IC RSS-210
No of Units:	1
Equipment Category:	DSS
Trade/Product Name:	MP9311
Type/Model Name/No:	MP9311
Technical Variants:	None
FCC ID No.	GU698559311



## 2 Tests Required

The product was tested in accordance with the following specifications.  
The test results recorded in this Test Report are exclusively referred to the tested sample(s).

Test Standard	Description	Pass / Fail
47CFR Part 15, General Conditions		
15.207	Power Line Conducted Emissions	Pass
15.209, 15.205	Radiated Spurious Emissions	Pass
47CFR Part 15, §15.247		
15.247(a)1	Carrier Frequency Separation	Pass
15.247(a)1	20 dB Bandwidth	Pass
15.247(a)1	Number of Hopping Frequencies	Pass
15.247(a)1	Time of Occupancy	Pass
15.247(b)(1)	Power Output	Pass
15.247(c)	Conducted Spurious Emissions	Pass
15.247(c)	Radiated Spurious Emissions	Pass
ANSI C63.4: 2001		

Notes: *Deviations to above standards are outlined in specific test sections if applicable.  
Cable loss and external attenuation are compensated for in the measurement system when applicable.*



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### **3 Measurements, Examinations and Derived Results**

#### **3.1 General observations**

Equipment serial number(s)		
Module:	Part number:	Serial number:
MP9311	MP9311	none





### 3.2 Test Results

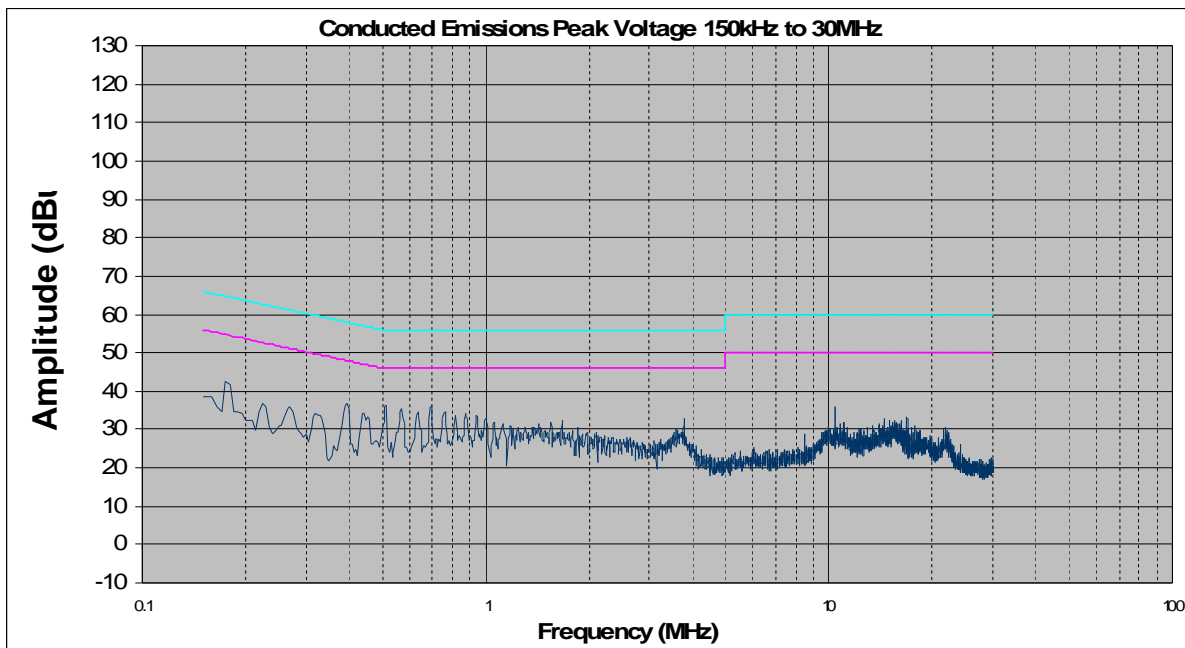
#### 3.2.1 Power Line Conducted Emissions

Requirement(s): 47 CFR §15.207

Procedures: Conducted Emissions measurements were made with a spectrum analyzer and LISN.

Results:

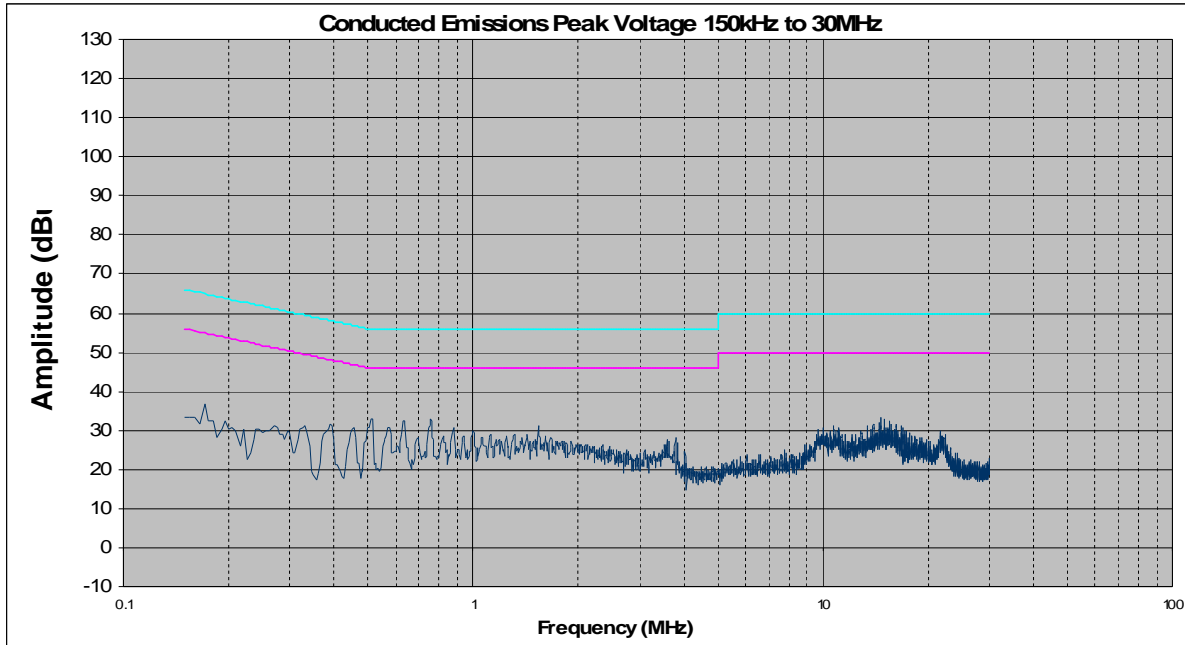
Line Under Test	Result
Phase	Pass
Neutral	Pass



CEV Phase

Line Under Test	FREQ. (MHz)	Corrected Amplitude (dBuV) PK	Limit (dBuV) QP	Margin (dB) QP	Corrected Amplitude (dBuV) PK	Limit (dBuV) AVG	Margin (dB) AVG
Phase	0.175	42.6	64.72	-22.12	42.6	54.72	-12.12
Phase	0.515	36.5	56	-19.5	36.5	46	-9.5
Phase	10.465	36.1	60	-23.9	36.1	50	-13.9
Phase	10.47	36.1	60	-23.9	36.1	50	-13.9
Phase	0.69	35.9	56	-20.1	35.9	46	-10.1
Phase	0.695	35.9	56	-20.1	35.9	46	-10.1

CEV Phase



**CEV Neutral**

Line Under Test	FREQ. (MHz)	Corrected Amplitude (dBuV) QP	Limit (dBuV) QP	Margin (dB) QP	Corrected Amplitude (dBuV) AVG	Limit (dBuV) AVG	Margin (dB) AVG
Neutral	0.51	32.8	56	-23.2	32.8	46	-13.2
Neutral	0.755	32.7	56	-23.3	32.7	46	-13.3
Neutral	0.63	32.4	56	-23.6	32.4	46	-13.6
Neutral	0.635	32.4	56	-23.6	32.4	46	-13.6
Neutral	1.535	31	56	-25	31	46	-15
Neutral	0.57	30.9	56	-25.1	30.9	46	-15.1

**CEV Neutral**

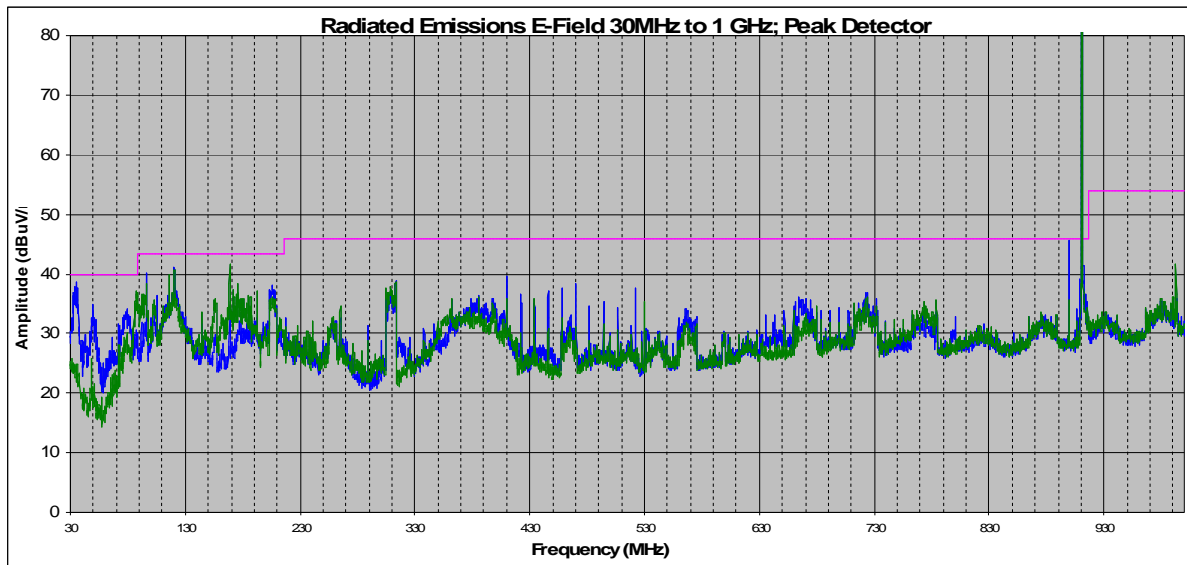


### 3.2.2 Radiated Spurious Emissions < 1 GHz

Requirement(s): 47 CFR §15.209

Procedures: Radiated emissions were measured according to ANSI C63.4. Equipment was tested in three orthogonal axis at hi mid and low with the worse case reported

Results:



Radiated Emissions Plot

Frequency	Azimuth	Measure	Antenna Polarity	Antenna Height	Raw Amplitude @ 3m	ACF	CBL loss	Corrected Amplitude @ 3m	Limit @3m	Delta
(MHz)	(degrees)	(Avg/QP)	(H/V)	(m)	(dBuV/m)	(dBm)	(dBm)	(dBuV/m)	(dBuV/m)	(dBuV/m)
96.5	300	qp	v	1	28.2	9.97	0.89	39.06	40	-0.94
96.5	280	qp	h	1.7	29.3	9.42	0.89	39.61	40	-0.39
120.62	80	qp	v	1	24.3	14.16	0.92	39.38	43.5	-4.11
168.89	180	qp	v	1	20.1	12.24	0.96	33.31	43.5	-10.18
168.89	135	qp	h	1.6	28.2	11.98	0.96	41.15	43.5	-2.34
33.6	140	qp	v	1	13.9	18.22	0.71	32.83	40	-7.16
900.19	45	qp	v	1	21	22.2	2.40	45.60	46	-0.39

Radiated Emissions Table



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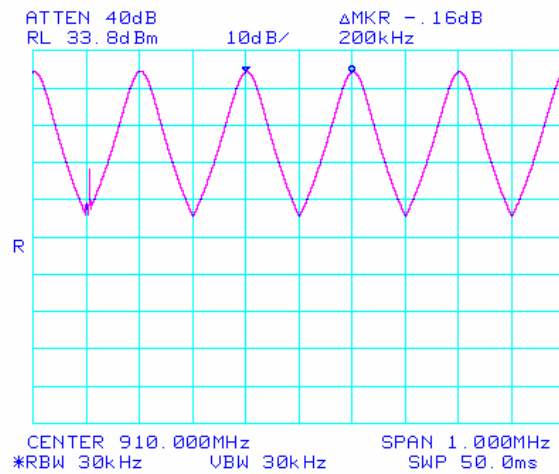
### 3.2.3 Carrier Frequency Separation

Requirement(s): 47 CFR §15.247(a)(1)

Procedures: The carrier frequency separation measurement was taken conducted using a spectrum analyzer.

Results:

Plot #	Carrier Frequency Separation (MHz)
1	0.200



Plot 1: Carrier Frequency Separation



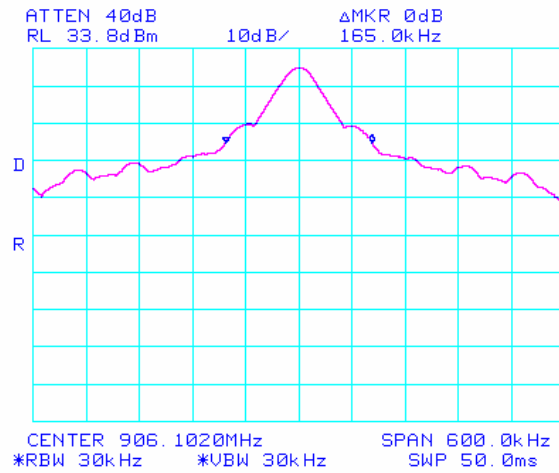
### 3.2.4 20dB Bandwidth

Requirement(s): 47 CFR §15.247(a)(1)

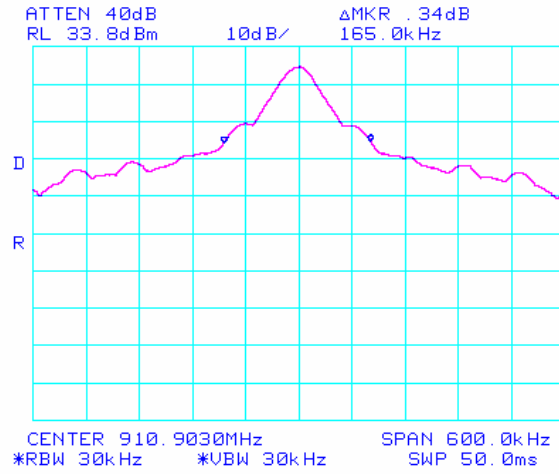
Procedures: The 20dB bandwidths were measured conducted using a spectrum analyzer for the low, mid, and hi channels.

Results:

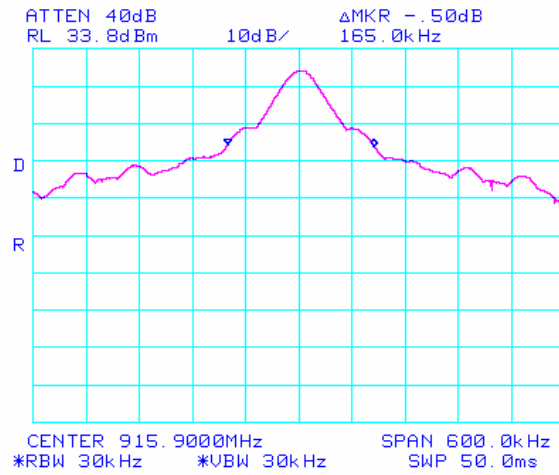
Plot #	Channel	Channel Bandwidth (MHz)
2	Low	0.165
3	Mid	0.165
4	Hi	0.165



Plot 1: 20dB Bandwidth Low



Plot 2: 20dB Bandwidth Mid



Plot 3: 20dB Bandwidth Hi



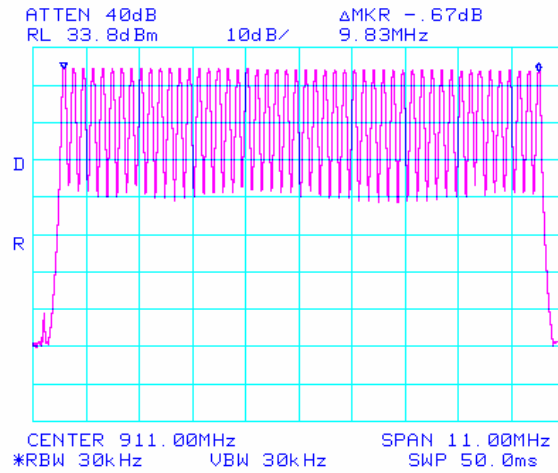
### 3.2.5 Number of Hopping Frequencies

Requirement(s): 47 CFR §15.247(a)(1)

Procedures: The number of hopping channels was measured conducted with a spectrum analyzer.

Results:

Plot #	Number of Hopping Channels
4	50



Plot 4: Number of Hopping Channels





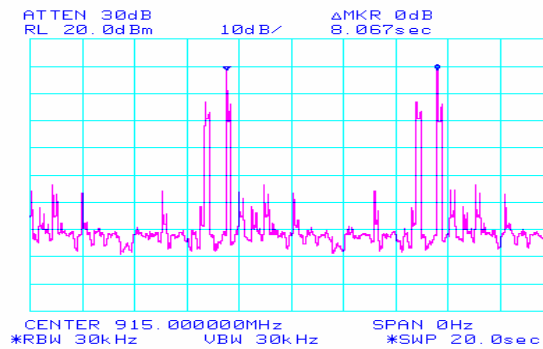
### 3.2.6 Time of Occupancy

Requirement(s): 47 CFR §15.247(a)(1)

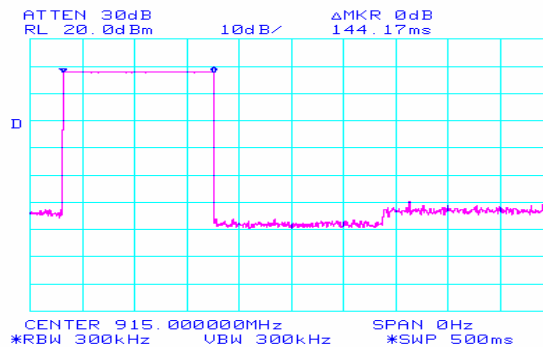
Procedures: The time of occupancy was measured conducted with a spectrum analyzer.

Results: The average time of occupancy in a 20 second period shall not be greater 0.4 second.  
Therefore, 20 seconds period / time between occupancy \* dwell time (single transmission);  
 $20 / 8.067 * 0.144 = 0.357$  seconds

Plot #	Description
5a	Time between Occupancy
5b	Dwell Time (single transmission)



Plot 5a: Time between Occupancy



Plot 5b: Dwell Time (single transmission)



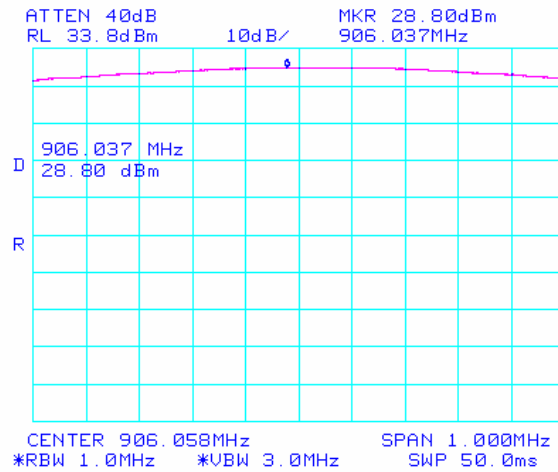
### 3.2.7 Peak Output Power

Requirement(s): 47 CFR §15.247(b)(1)

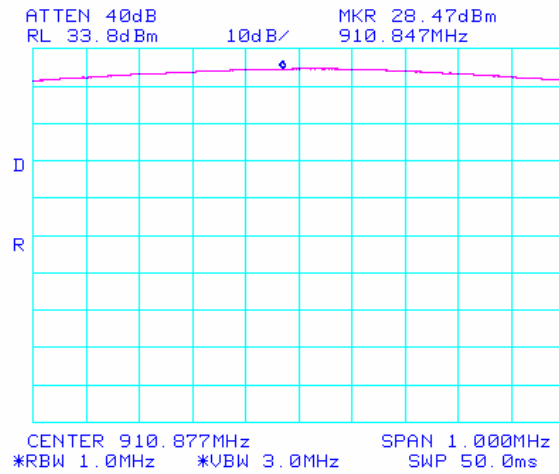
Procedures: The peak output power was measured conducted using a spectrum analyzer for the low, mid, and hi channels.

Results:

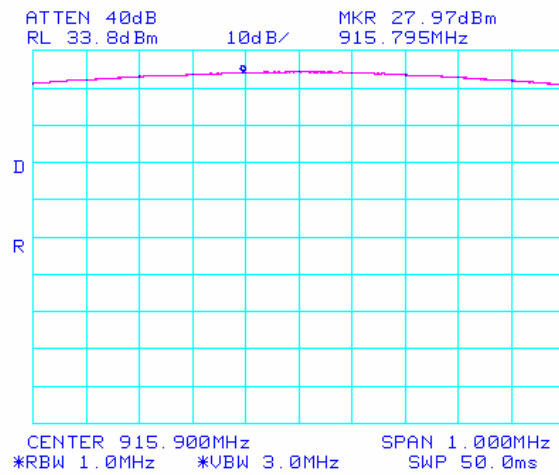
Plot #	Channel	Peak Power (dBm)
9	Low	28.8
10	Mid	28.5
11	Hi	28.0



Plot 9: Peak Power Low



Plot 9: Peak Power Mid



Plot 10: Peak Power Hi



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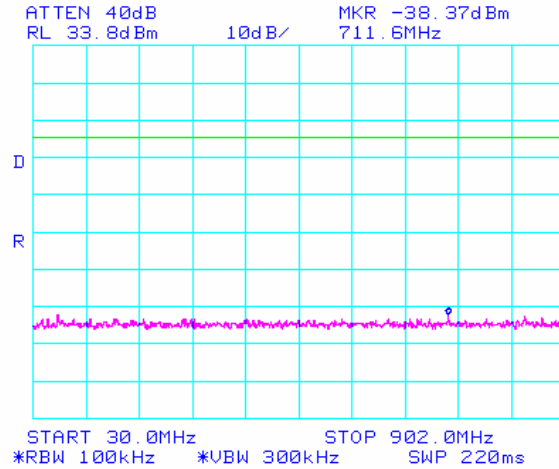
### 3.2.8 Conducted Spurious Emissions

Requirement(s): 47 CFR §15.247(c)

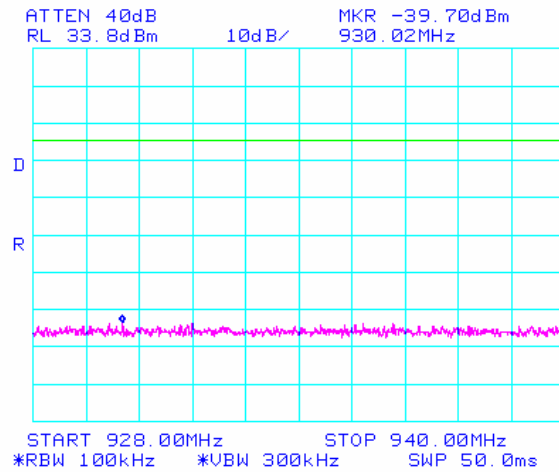
**Procedures:** The conducted spurious emissions were measured conducted using a spectrum analyzer for the low, mid, and hi channels.

**Results:**

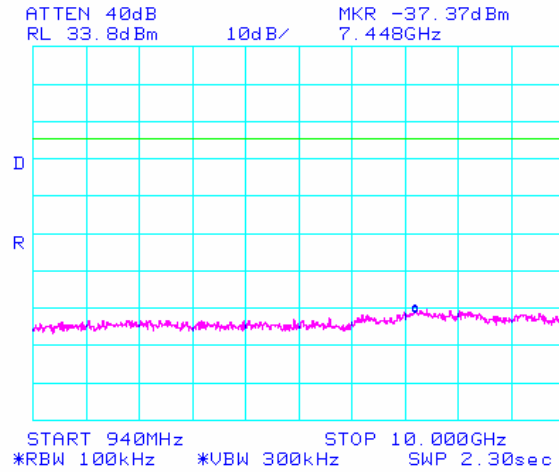
Plots #	Channel	Pass/Fail
11 to 14	Hi	Pass
15 to 16	Mid	Pass
17 to 20	Low	Pass



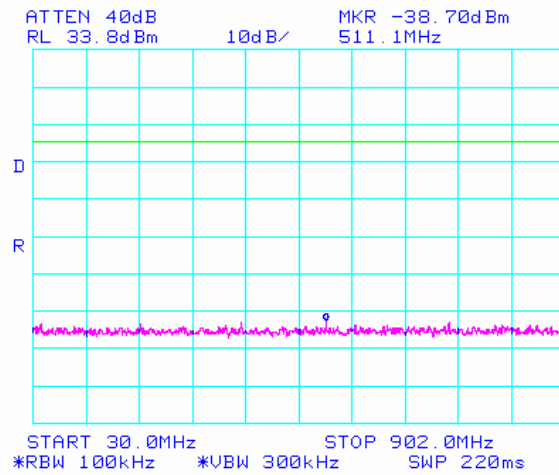
Plot 11: Conducted Spurious - Hi



Plot 12: Conducted Spurious - Hi



Plot 13: Conducted Spurious - Hi



Plot 14: Conducted Spurious - Mid



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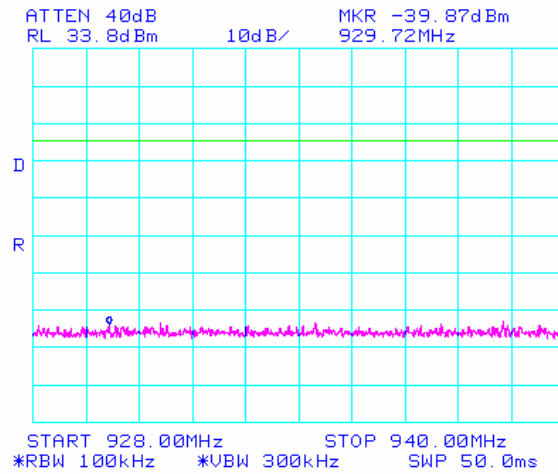
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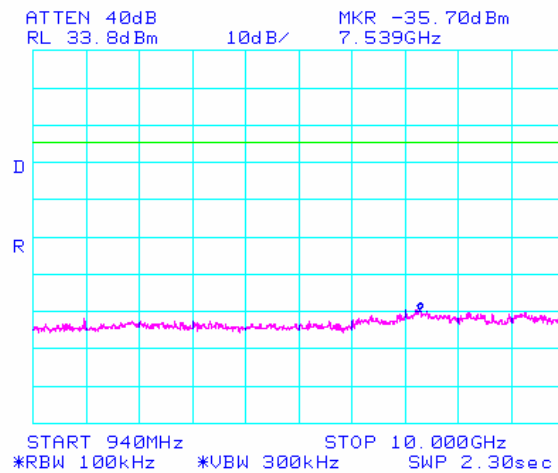
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Plot 15: Conducted Spurious - Mid



Plot 16: Conducted Spurious - Mid



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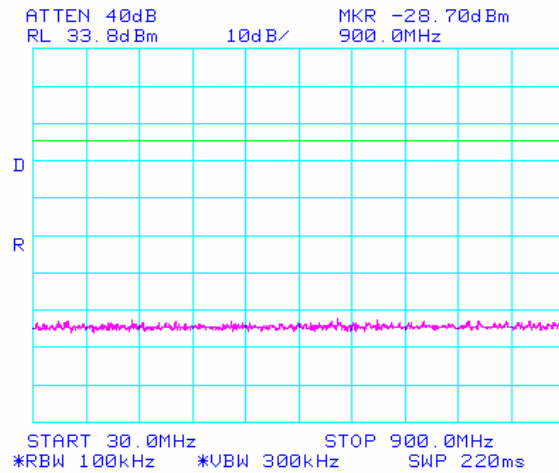
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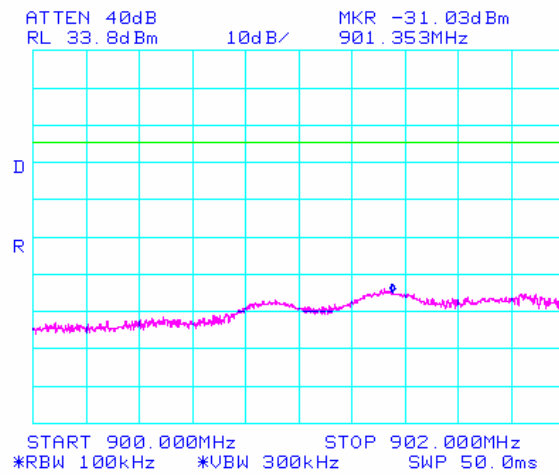
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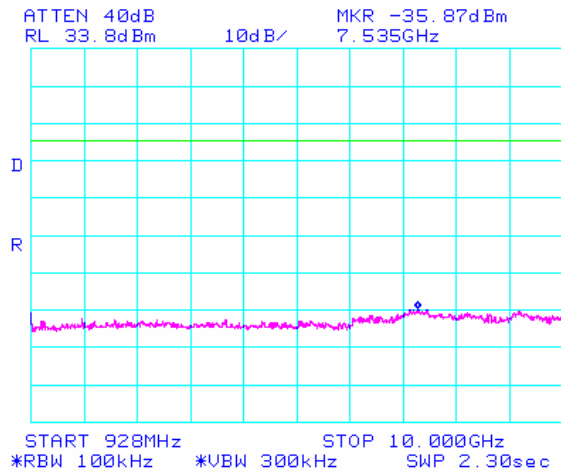


Plot 17: Conducted Spurious – Low



Plot 18: Conducted Spurious - Low





Plot 19: Conducted Spurious - Low



### 3.2.9 Radiated Spurious Emissions > 1 GHz (Restricted Bands)

Requirement(s): 47 CFR §15.247(c)

**Procedures:** Equipment was setup in a semi-anechoic chamber. For measurements above 1 GHz an average measurement was taken with a 1MHz resolution bandwidth was used.

**Results:**

Channel	Frequency (GHz)	Detector	Azimuth (Degrees)	Antenna Polarity (H/V)	Height (m)	EUT Field Strength Final Amp. (dBuV/m)	FS Limit @ 3m (dBuV/m)	Margin (dBuV/m)
Low	1.8122	Pk	180	V	1		noise floor	
Low	1.8122	Pk	180	H	1		noise floor	
Low	1.8122	Avg	180	V	1		noise floor	
Low	1.8122	Avg	180	H	1		noise floor	
Low	2.7183	Pk	180	V	1		noise floor	
Low	2.7183	Pk	180	H	1		noise floor	
Low	2.7183	Avg	180	V	1		noise floor	
Low	2.7183	Avg	180	H	1		noise floor	
Mid	1.8218	Pk	180	V	1		noise floor	
Mid	1.8218	Pk	180	H	1		noise floor	
Mid	1.8218	Avg	180	V	1		noise floor	
Mid	1.8218	Avg	180	H	1		noise floor	
Mid	2.7327	Pk	180	V	1		noise floor	
Mid	2.7327	Pk	180	H	1		noise floor	
Mid	2.7327	Avg	180	V	1		noise floor	
Mid	2.7327	Avg	180	H	1		noise floor	
High	1.8318	Pk	180	V	1		noise floor	
High	1.8318	Pk	180	H	1		noise floor	
High	1.8318	Avg	180	V	1		noise floor	
High	1.8318	Avg	180	H	1		noise floor	
High	2.7477	Pk	180	V	1		noise floor	
High	2.7477	Pk	180	H	1		noise floor	
High	2.7477	Avg	180	V	1		noise floor	
High	2.7477	Avg	180	H	1		noise floor	

NOTE: Investigated up to 10<sup>th</sup> harmonics of the highest operating frequency.

Sample Calculation:

$$\text{EUT Field Strength} = \text{Antenna Factor(dB)} + \text{Cable Loss(dB)} - \text{Amplifier Gain(dB)} + \text{Filter Attenuation(dB, if used)}$$





## APPENDIX A: EUT TEST CONDITIONS

The following is the description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Cable Description
PC Laptop	1. Power cord 2. Ethernet

EUT Description : MP9311
Model No : MP9311

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
	The EUT was controlled and monitored via serial port interface by a PC running a radio test program.



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## **APPENDIX B: External Photos**

See Attachment



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## **APPENDIX C: CIRCUIT/BLOCK DIAGRAMS**

See Attachment



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## **APPENDIX D: Internal Photos**

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## **APPENDIX F: PRODUCT DESCRIPTION**

Detail description of this product is shown in the User's Guide.





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## **APPENDIX H: FCC LABEL LOCATION**

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## **APPENDIX I: USER MANUAL**

See Attachment