

FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015

# Intentional Radiator Test Report

Test Standards:  
FCC Part 15.225 (Subpart C – Intentional Radiators)  
Industry Canada RSS-210, Issue 8

Prepared For:  
Identiv Group, Inc.  
1900B Carnegie Ave,  
Santa Ana, CA 92705  
USA

Product Name :  
uTrust TS Scramblepad

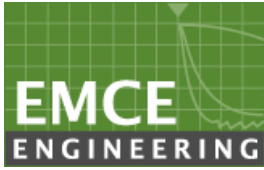
Model Name :  
8235

Application Purpose : Original

Prepared by:

EMCE Engineering, Inc.  
44366 S. Grimmer Blvd.  
Fremont, CA 94538  
USA

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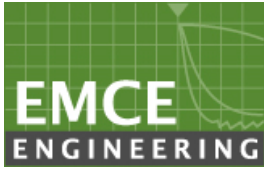


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## Revision History

Rev.	Issue Date	Description
0	03/24/2015	Initial Issue

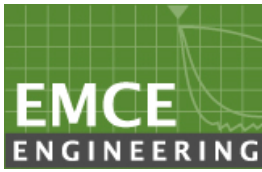


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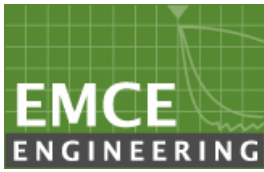
## 1.0 GENERAL INFORMATION

Test Laboratory:	EMCE Engineering 44366 S. Grimmer Blvd. Fremont, CA 94538 USA Tel: 510-490-4307, Fax: 510-490-3441 bob@universalcompliance.com
	FCC registration number : 743299
	Test Site : FCC : US5291, IC : 3324A
Applicant Name :	Identiv Group, Inc. 1900B Carnegie Ave Santa Ana, CA 92705 Tel: 510-933-3300
	Contact Person: Calai Bhoopathi
Application Purpose :	Original
EUT Description	RFID Smart Card Reader
Product Name	uTrust TS Scramblepad
Model Name :	8235
Applied Standards :	47 CFR §15.207, 15.209, 15.225: 2010 & Canadian Standards RSS-GEN Issue 3, RSS-210 Issue 8
FCC ID :	FCC ID: MBPTSSP-02
IC :	IC: 7485A-TSSPR2
RF Operating Frequency (ies)	13.56MHz, 125 kHz
Modulation	ASK
Emission Designator	57K0K1D, 1K48K1D
Receipt of EUT :	1/5/2015
Date of Testing :	1/7/15 – 1/15/15
Date of Report :	3/24/15

The tests listed in this report have been completed to demonstrated compliance to the CFR 47 Section 15.225, as well as Industry Canada Radio Standard RSS-210, Issue 8.

Contents approved:


Name: Bob Cole Title: President

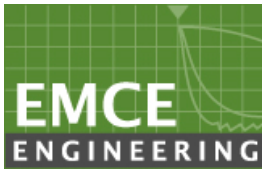


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## 2.0 EUT AND ACCESSORY INFORMATION

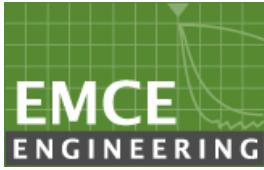
<i>EUT</i>				
<i>Model name:</i>	8235			
<i>Product Name:</i>	uTrust TS Scramblepad			
<i>Manufacturer:</i>	Identiv Group, Inc.			
<i>Support Equipment</i>				
<i>Description</i>	<i>Model Number</i>	<i>Serial Number</i>	<i>Manufacturer</i>	<i>Power Cable Description</i>
<i>Netbook PC</i>	<i>Acer Aspire</i>	<i>NUSH6AA0012410 25337600</i>	<i>Acer</i>	<i>Unshielded / 1.5 Meter</i>
<i>Cable Description</i>				
<i>From</i>	<i>To</i>	<i>Length (Meters)</i>	<i>Shielded (Y/N)</i>	<i>Ferrite Loaded (Y/N)</i>
<i>EUT</i>	<i>Netbook</i>	<i>0.5</i>	<i>Y</i>	<i>N</i>



### 3.0 SUMMARY OF TEST RESULTS

Test Standard		Description	Pass / Fail
47 CFR Part 15.225: 2010	RSS 210 Issue 8		
15.203		Antenna Requirement	Pass
15.207(a)	RSS Gen(7.2.2)	Conducted Emissions Voltage	Pass
15.225(a)	RSS210(A2.6)	Limit in the band of 13.553 – 13.567 MHz	Pass
15.225(b)	RSS210(A2.6)	Limit in the band of 13.410 – 13.553 MHz and 13.567 – 13.710 MHz	Pass
15.225(c)	RSS210(A2.6)	Limit in the band of 13.110 – 13.410 MHz and 13.710 – 14.010 MHz	Pass
15.225(d), 15.209	RSS210(A2.6)	Limit outside the band of 13.110 – 14.010 MHz	Pass
15.225(e)	RSS210(A2.6)	Frequency Stability	Pass
	RSS-210(5.9.1)	Occupied Bandwidth	Pass
ANSI C63.4: 2009/ RSS-Gen Issue 3			
PS: All measurement uncertainties are not taken into consideration for all presented test result.			

**PASS**      The EUT passed that particular test.  
**FAIL**      The EUT failed that particular test.  
**N/A**        Not Applicable due to product type.

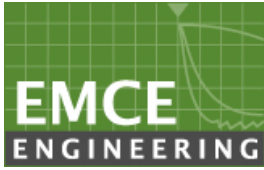


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## 4.0 MODIFICATIONS

There were no modifications.



## 5.0 TEST RESULTS

### 5.1 Antenna Requirement

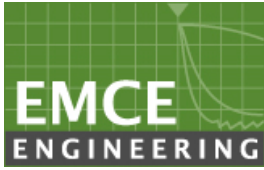
**Requirement(s):** 47 CFR §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna requirement must meet at least one of the following:

- a) Antenna must be permanently attached to the device.
  - b) Antenna must use a unique type of connector to attach to the device.
  - c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.
- 
- 1) The RFID antenna is integral to the main board permanently to the device which meets the requirement (See Internal Photographs submitted as another Exhibit).





## 5.2 Conducted Emissions Voltage

**Requirement(s):** 47 CFR §15.207

Requirement:

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 the logarithm of the frequency.

### Procedures:

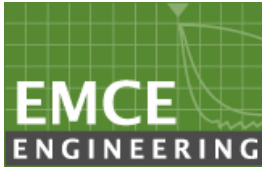
- All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR and Average detectors, are reported. All other emissions were relatively insignificant.
- "Ave" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
- Conducted Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of measurement at a confidence level of approximately 95% (in the case where distributions normal), with a coverage factor of 2, in the range 9kHz – 30MHz (Average & Quasi-peak) ±3.5dB.
- Environmental Conditions
 

Temperature	24°C
Relative Humidity	45%
Atmospheric Pressure	1010mbar

Test Date : 1/12/2015

Tested By : Bob Cole

**Results:** Pass



FCC ID: MBPTSSP-02  
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Test Report # 4096-1  
Dated: 3/24/2015

FCC Part 15.207 Line Conducted Emissions  
120V / 60 Hz - Line 1  
150kHz – 30 MHz

Test Location: EMCE Engineering •44366 S. Grimmer Blvd • Fremont, CA 94538 •

Customer: **Identiv Group, Inc.**  
 Specification: **FCC 15\_209 COND [AVE]**  
 Work Order #: **4096** Date: 1/12/2015  
 Test Type: **Conducted Emissions** Time: 14:01:33  
 Equipment: **Physical Access Reader** Sequence#: 1  
 Manufacturer: Identiv Tested By: Mashood Danmole  
 Model: 8235 120V 60Hz  
 S/N: N/A

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
FSV7-B160 Signal Analyzer	101468	01/28/2014	01/28/2017	N/A
Emco 3816/2 LISN	9808-1089	07/10/2014	07/10/2015	0059
EMITest Measurement Software	v4.01 Build 195	05/01/2014	05/01/2017	610

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Physical Access Reader*	Identiv	8235	N/A

**Support Devices:**

Function	Manufacturer	Model #	S/N
System Controller Box	Identiv	HIRSCH Mx Controller	N/A

**Test Conditions / Notes:**

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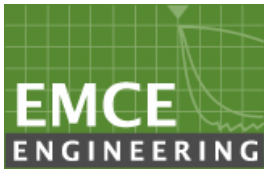
**Transducer Legend:**

T1=EMCO 3810-2 LISN S/N 9807-1988	T2=25' LMR #001
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Ext Attn: 0 dB

**Measurement Data:** Reading listed by margin. Test Lead: Line 1

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1.977M	30.7	+0.6	+0.1			+0.0	31.4	46.0	-14.6	Line
Ave											
^	1.977M	46.6	+0.6	+0.1			+0.0	47.3	46.0	+1.3	Line
3	3.528M	30.4	+0.6	+0.1			+0.0	31.1	46.0	-14.9	Line
Ave											
^	3.528M	49.7	+0.6	+0.1			+0.0	50.4	46.0	+4.4	Line

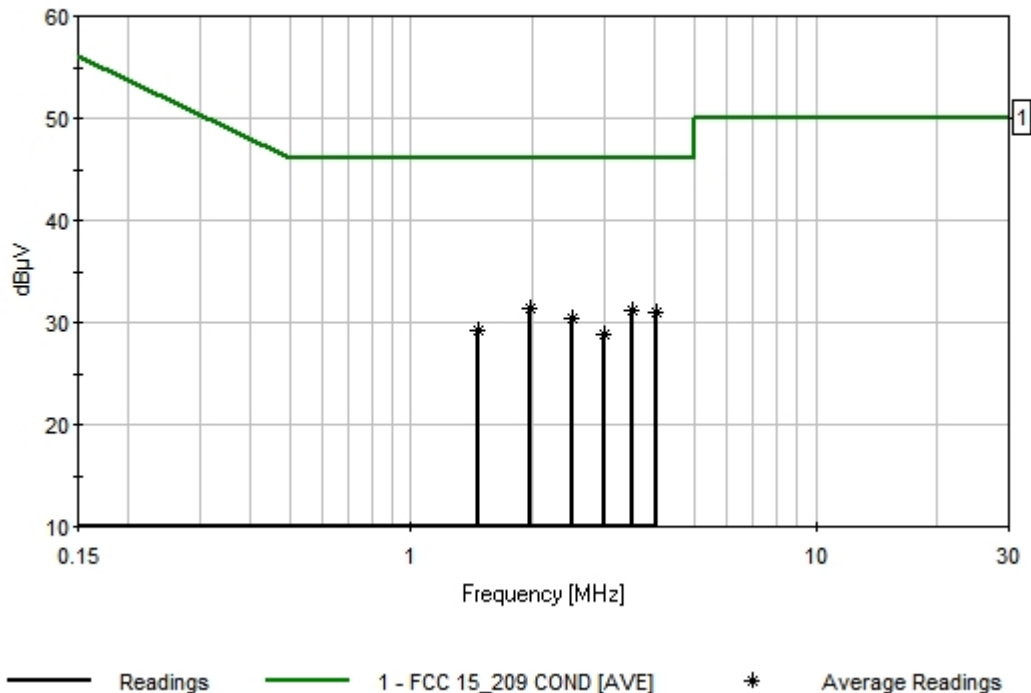


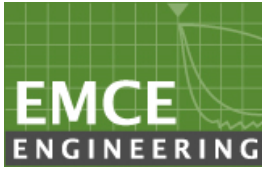
FCC ID: MBPTSSP-02  
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5	4.056M	30.3	+0.6	+0.1	+0.0	31.0	46.0	-15.0	Line
	Ave								
^	4.056M	49.6	+0.6	+0.1	+0.0	50.3	46.0	+4.3	Line
7	2.496M	29.6	+0.6	+0.1	+0.0	30.3	46.0	-15.7	Line
	Ave								
^	2.496M	46.4	+0.6	+0.1	+0.0	47.1	46.0	+1.1	Line
9	1.457M	28.6	+0.5	+0.1	+0.0	29.2	46.0	-16.8	Line
	Ave								
^	1.457M	47.1	+0.5	+0.1	+0.0	47.7	46.0	+1.7	Line
11	2.998M	28.2	+0.6	+0.1	+0.0	28.9	46.0	-17.1	Line
	Ave								
^	2.999M	48.3	+0.6	+0.1	+0.0	49.0	46.0	+3.0	Line

EMCE Engineering Date: 1/12/2015 Time: 14:01:33 Identiv Group, Inc. WO#: 4096  
FCC 15\_209 COND [AVE] Test Lead: Line 1 120V 60Hz Sequence#: 1 Ext ATTN: 0 dB





FCC ID: MBPTSSP-02  
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Test Report # 4096-1  
Dated: 3/24/2015

FCC Part 15.207 Line Conducted Emissions  
120V / 60 Hz - Line 2  
150kHz – 30 MHz

Test Location: EMCE Engineering • 44366 S. Grimmer Blvd • Fremont, CA 94538 •

Customer: **Identiv Group, Inc.**  
 Specification: **FCC 15\_209 COND [AVE]**  
 Work Order #: **4096** Date: 1/12/2015  
 Test Type: **Conducted Emissions** Time: 14:08:57  
 Equipment: **Physical Access Reader** Sequence#: 2  
 Manufacturer: Identiv Tested By: Mashood Danmole  
 Model: 8235 120V 60Hz  
 S/N: N/A

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
FSV7-B160 Signal Analyzer	101468	01/28/2014	01/28/2017	N/A
Emco 3816/2 LISN	9808-1089	07/10/2014	07/10/2015	0059
EMITest Measurement Software	v4.01 Build 195	05/01/2014	05/01/2017	610

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Physical Access Reader*	Identiv	8235	N/A

**Support Devices:**

Function	Manufacturer	Model #	S/N
System Controller Box	Identiv	HIRSCH Mx Controller	N/A

**Test Conditions / Notes:**

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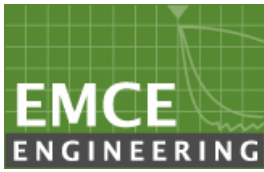
**Transducer Legend:**

T1=EMCO 3810-2 LISN S/N 9807-1988	T2=25' LMR #001
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Ext Attn: 0 dB

**Measurement Data:** Reading listed by margin. Test Lead: Line 2

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist dB	Corr dBμV	Spec dBμV	Margin dB	Polar Ant	
1	928.340k	35.8	+0.5	+0.1	+0.0	36.4	46.0	-9.6	Line	
Ave										
^	928.340k	46.4	+0.5	+0.1	+0.0	47.0	46.0	+1.0	Line	
3	3.621M	32.2	+0.6	+0.1	+0.0	32.9	46.0	-13.1	Line	
Ave										
^	3.621M	48.5	+0.6	+0.1	+0.0	49.2	46.0	+3.2	Line	
5	4.772M	31.7	+0.6	+0.1	+0.0	32.4	46.0	-13.6	Line	
Ave										

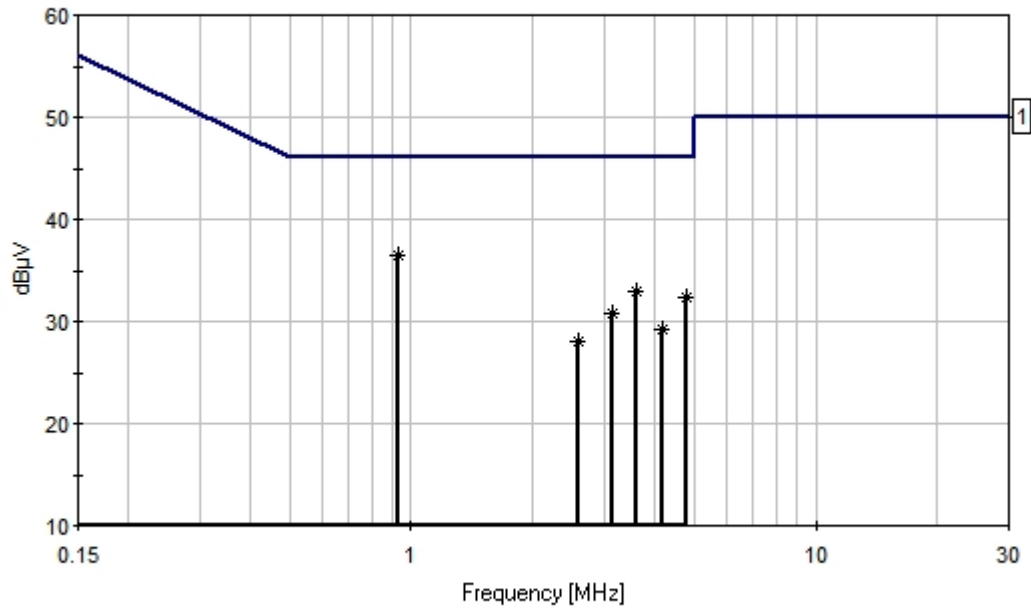


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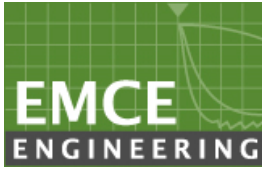
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^	4.772M	47.4	+0.6	+0.1	+0.0	48.1	46.0	+2.1	Line
7	3.127M	30.0	+0.6	+0.1	+0.0	30.7	46.0	-15.3	Line
Ave									
^	3.127M	48.5	+0.6	+0.1	+0.0	49.2	46.0	+3.2	Line
9	4.158M	28.6	+0.6	+0.1	+0.0	29.3	46.0	-16.7	Line
Ave									
^	4.158M	47.8	+0.6	+0.1	+0.0	48.5	46.0	+2.5	Line
11	2.599M	27.3	+0.6	+0.1	+0.0	28.0	46.0	-18.0	Line
Ave									
^	2.599M	46.9	+0.6	+0.1	+0.0	47.6	46.0	+1.6	Line

EMCE Engineering Date: 1/12/2015 Time: 14:08:57 Identiv Group, Inc. WO#: 4096  
FCC 15\_209 COND [AVE] Test Lead: Line 2 120V 60Hz Sequence#: 2 Ext ATTN: 0 dB



— Readings    — 1 - FCC 15\_209 COND [AVE]    \* Average Readings



### 5.3 Radiated Emission < 30MHz (9kHz - 30MHz, H-Field)

**Requirement(s):** 47 CFR §15.225 & RSS-210 (A2.6) & RSS-310 (3.7)

**Procedures:** For < 30MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 3 meter away from the measuring antenna. The loop antenna was positioned 1 meter above the ground from the centre of the loop. The measuring bandwidth was set to 10 kHz. (Note: During testing the receive antenna was rotated about its axis to maximize the emission from the EUT.)

The limit is converted from microvolt/meter to decibel microvolt/meter.

**Sample Calculation:** Corrected Amplitude = Raw Amplitude (dBµV/m) + ACF (dB) + Cable Loss (dB) – Distance Correction Factor

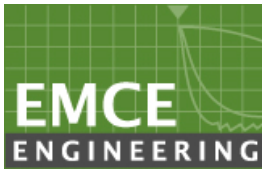
1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A "-ve" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. Radiated Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, is +/-6dB.
4. Environmental Conditions
 

Temperature	24°C
Relative Humidity	45%
Atmospheric Pressure	1010mbar

Test Date : 1/7/2015

Tested By : Bob Cole

**Results:** Pass



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## FCC Part 15.209 Radiated Emissions 9 kHz – 30 MHz

Test Location: EMCE Engineering • 44366 S. Grimmer Blvd • Fremont, CA 94538 •

Customer:	<b>Identiv</b>	Date:	1/7/2015
Specification:	<b>15.209 9k-30M FCC Limits II</b>	Time:	10:21:45 AM
Work Order #:	<b>4096</b>	Sequence#:	1
Test Type:	<b>Radiated Scan</b>	Tested By:	Mashood Danmole
Equipment:	<b>Physical Access Pad</b>		
Manufacturer:	Identiv		
Model:	8235		
S/N:	N/A		

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
FSV7-B160 Signal Analyzer	101468	01/28/2014	01/28/2017	N/A
HP 8447D PreAmp	2443A03587	05/01/2014	05/01/2015	008
Empire Devices Loop Antenna	N/A	05/07/2014	05/07/2015	114
EMITest Measurement Software	v4.01 Build 195	05/01/2014	05/01/2017	610

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Physical Access Pad	Identiv	8235	N/A

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell	Latitude E6320	8BZPYN1
Power Over Ethernet	TP-Link	TL-POE150S Ver 3.0	2144545000690

**Test Conditions / Notes:**

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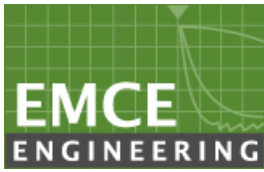
**Transducer Legend:**

T1=8447 Pre-Amp Asset 377	T2=25' LMR #001
T3=LP-105 Loop Antenna	T4=dBuA - dBuV Conversion

Ext Attn: 0 dB

**Measurement Data:** Reading listed by frequency. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	14.013k	17.8	+28.0	+0.0	+41.7	+51.5	+0.0	83.0	123.1	-40.1	X (ho)
2	15.617k	16.1	+27.9	+0.0	+41.7	+51.5	+0.0	81.4	121.8	-40.4	X (ho)

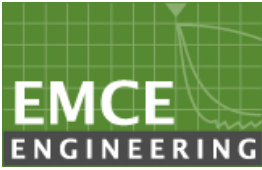


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3	31.456k	9.5	+27.9	+0.0	+41.4	+51.5	+0.0	74.5	113.3	-38.8	X (ho)
4	47.095k	7.9	+27.8	+0.0	+41.2	+51.5	+0.0	72.8	108.4	-35.6	X (ho)
5	57.321k	2.4	+27.8	+0.0	+41.1	+51.5	+0.0	67.2	106.0	-38.8	X (ho)
6	62.935k	4.0	+27.8	+0.0	+41.0	+51.5	+0.0	68.7	104.9	-36.2	X (ho)
7	93.331k	-1.0	+27.8	+0.0	+40.9	+51.5	+0.0	63.6	100.1	-36.5	X (ho)
8	94.249k	1.3	+27.8	+0.0	+40.9	+51.5	+0.0	65.9	100.0	-34.1	X (ho)
9	96.382k	-2.0	+27.7	+0.0	+40.9	+51.5	+0.0	62.7	99.7	-37.0	X (ho)
10	98.569k	-2.4	+27.7	+0.0	+40.9	+51.5	+0.0	62.3	99.5	-37.2	X (ho)
11	110.625k	-1.7	+27.7	+0.0	+40.8	+51.5	+0.0	62.9	98.1	-35.2	X (ho)
12	115.500k	-1.6	+27.7	+0.0	+40.8	+51.5	+0.0	63.0	97.5	-34.5	X (ho)
13	136.875k	-2.1	+27.7	+0.0	+40.7	+51.5	+0.0	62.4	95.5	-33.1	X (ho)
14	1.493M	6.8	+27.4	+0.0	+29.3	+51.5	+0.0	60.2	64.1	-3.9	X (ho)
15	3.693M	5.5	+27.3	+0.0	+25.8	+51.5	+0.0	55.5	70.0	-14.5	X (ho)
16	6.120M	5.5	+27.3	+0.0	+26.5	+51.5	+0.0	56.2	70.0	-13.8	X (ho)
17	11.101M	4.8	+27.4	+0.0	+21.4	+51.5	+0.0	50.3	70.0	-19.7	X (ho)
18	13.546M	14.7	+27.3	+0.0	+19.7	+51.5	+0.0	58.6	90.5	-31.9	X (ho)
19	18.797M	5.8	+27.2	+0.0	+17.0	+51.5	+0.0	47.1	70.0	-22.9	X (ho)
20	23.651M	6.6	+27.1	+0.0	+14.8	+51.5	+0.0	45.8	70.0	-24.2	X (ho)
21	24.770M	5.2	+27.1	+0.0	+14.4	+51.5	+0.0	44.0	70.0	-26.0	X (ho)
22	28.558M	5.6	+27.0	+0.0	+13.2	+51.5	+0.0	43.3	70.0	-26.7	X (ho)

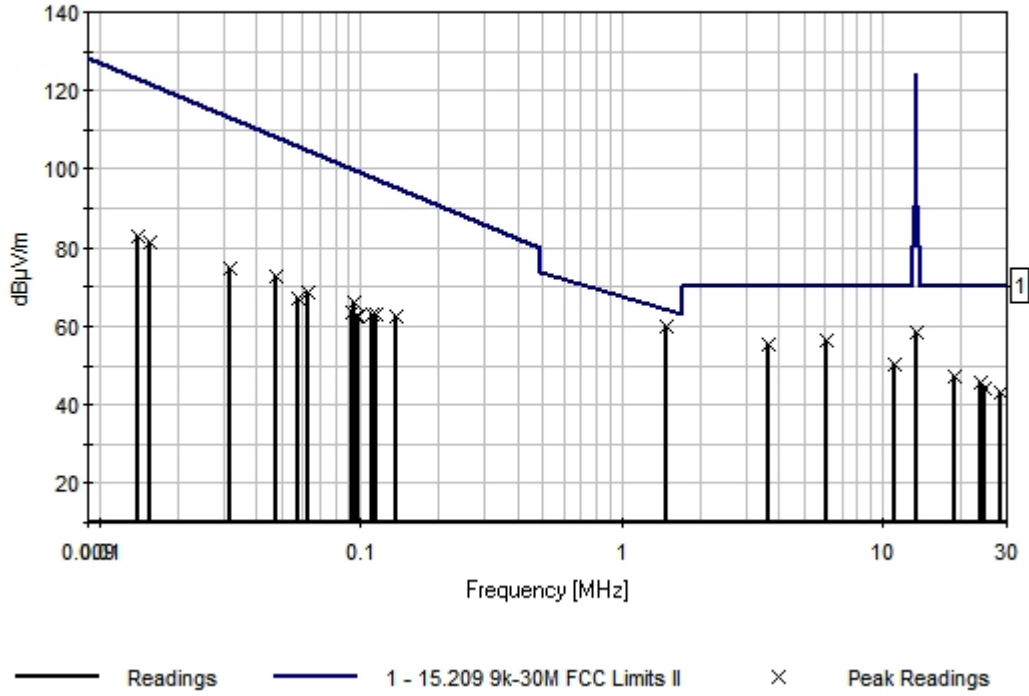


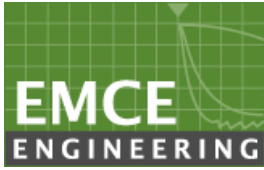


FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015

EMCE Engineering Date: 1/7/2015 Time: 10:21:45 AM Identiv WO#: 4096  
15.209 9k-30M FCC Limits II Test Distance: 3 Meters Sequence#: 1 Ext ATTN: 0 dB





## 5.4 Radiated Emissions > 30 MHz (30MHz – 1 GHz, E-Field)

**Requirement(s):** 47 CFR §15.209; 47 CFR §15.225(d) & RSS-210 (A2.6)

**Procedures:** For > 30MHz, Radiated emissions were measured according to ANSI C63.4. The EUT was set to transmit at the highest output power. The EUT was set 10 meter away from the measuring antenna. The Log periodic antenna was positioned 1 meter above the ground from the centre of the antenna. The measuring bandwidth was set to 120 kHz. (Note: During testing the receive antenna was raise from 1~4 meters to maximize the emission from the EUT.)

The limit is converted from microvolt/meter to decibel microvolt/meter.

Sample Calculation: Corrected Amplitude = Raw Amplitude (dBµV/m) + ACF (dB) + Cable Loss(dB) – Distance Correction Factor

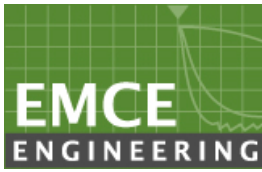
1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A “-ve” margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. Radiated Emissions Measurement Uncertainty  
All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, is +/-6dB.
4. Environmental Conditions
 

Temperature	24°C
Relative Humidity	45%
Atmospheric Pressure	1010mbar

Test Date : 1/7/2015

Tested By : Bob Cole

**Results:** Pass



FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015

## FCC Part 15B Radiated Emissions 30 MHz – 1 GHz

Test Location: EMCE Engineering • 44366 S. Grimmer Blvd • Fremont, CA 94538 •

Customer:	<b>Identiv</b>	Date:	1/7/2015
Specification:	<b>FCC 15.209 30-1000 10M</b>	Time:	19:55:45
Work Order #:	<b>4096</b>	Sequence#:	5
Test Type:	<b>Radiated Scan</b>	Tested By:	Mashood Danmole
Equipment:	<b>Phisycal Access Pad</b>		
Manufacturer:	Identiv		
Model:	8235		
S/N:	N/A		

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
FSV7-B160 Signal Analyzer	101468	01/28/2014	01/28/2017	N/A
HP 8447D PreAmp	2443A03587	05/01/2014	05/01/2015	008
Sunol Sciences JB6 Antenna	1090	02/12/2014	02/12/2016	701
EMITest Measurement Software	v4.01 Build 195	05/01/2014	05/01/2017	610

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Phisycal Access Pad*	Identiv	8235	N/A

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell	Latitude E6320	8BZPYN1
Power Over Ethernet	TP-Link	TL-POE150S Ver 3.0	2144545000690

**Test Conditions / Notes:**

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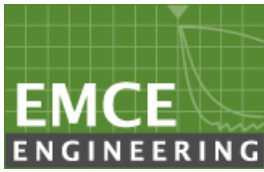
**Transducer Legend:**

T1=Sunol JB6 S/N A42610	T2=8447 Pre-Amp Asset 377
T3=100' LMR 900 Rad Cable 12-2013	

Ext Attn: 0 dB

**Measurement Data:**      Reading listed by margin.      Test Distance: 10 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	30.702M	28.7	+20.5	+27.0	+0.2		+0.0 128	22.4	30.0	-7.6	Horiz 287
2	474.601M	36.4	+17.4	+26.9	+0.9		+0.0 286	27.8	36.0	-8.2	Horiz 172
3	420.360M	36.6	+16.1	+26.9	+0.7		+0.0 291	26.5	36.0	-9.5	Horiz 234
4	379.680M	36.2	+15.1	+26.9	+0.6		+0.0 275	25.0	36.0	-11.0	Horiz 230

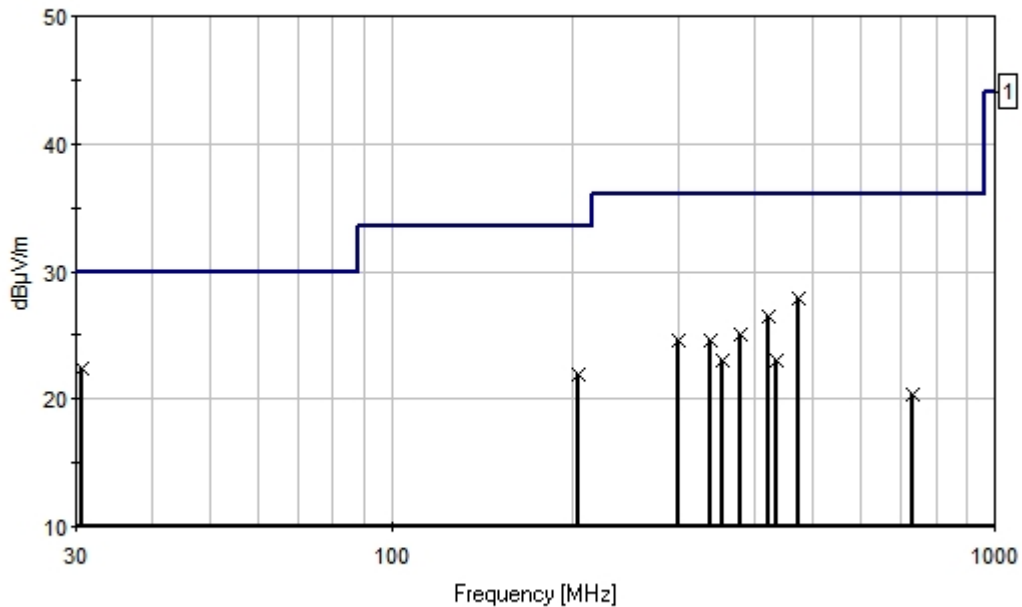


FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

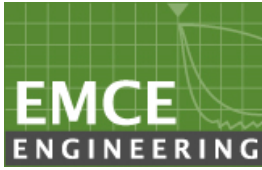
Test Report # 4096-1  
Dated: 3/24/2015

5	338.995M	36.9	+14.2	+27.0	+0.5	+0.0	24.6	36.0	-11.4	Horiz
						244				303
6	298.321M	37.6	+13.6	+27.0	+0.4	+0.0	24.6	36.0	-11.4	Horiz
						252				303
7	203.400M	37.2	+11.4	+26.9	+0.2	+0.0	21.9	33.5	-11.6	Horiz
						292				328
8	352.560M	34.9	+14.5	+27.0	+0.6	+0.0	23.0	36.0	-13.0	Horiz
						274				226
9	433.919M	32.5	+16.6	+26.9	+0.8	+0.0	23.0	36.0	-13.0	Horiz
						282				186
10	729.805M	25.4	+20.6	+27.1	+1.4	+0.0	20.3	36.0	-15.7	Vert
						55				347

EMCE Engineering Date: 1/7/2015 Time: 19:55:45 Identiv WO#: 4096  
FCC 15.209 30-1000 10M Test Distance: 10 Meters Sequence#: 5 Ext ATTN: 0 dB



— Readings      — 1 - FCC 15.209 30-1000 10M      × Peak Readings



FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015

## 5.5 Frequency Stability

**Requirement(s):** 47 CFR §15.225(e) & RSS-210 (A2.6)

**Procedures:** Frequency Stability was measured according to 47 CFR §2.1055. Measurement was taken with spectrum analyzer. The spectrum analyzer bandwidth and span was set to read in hertz. A voltmeter was used to monitor when varying the voltage.

Limit:  $\pm 0.01\%$  of 13.5589 MHz = 1355 Hz

Environmental Conditions	Temperature	24°C
	Relative Humidity	45%
	Atmospheric Pressure	1010mbar

Test Date : 1/8/2015

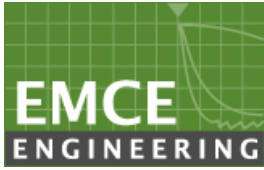
Tested By : Bob Cole

**Results:** Pass

**Frequency Stability versus Temperature:** The Frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of -20°C to +50°C at normal supply voltage.

Reference Frequency: 13.559975 MHz

Temperature (°C)	Measured Freq. (MHz)	Freq. Drift (Hz)	Freq. Deviation (Limit: 0.01%)	Pass/Fail
50	13.560102	124	<0.01	Pass
40	13.560072	84	<0.01	Pass
30	13.560049	67	<0.01	Pass
20	Reference (13.559982 MHz)			
10	13.559914	68	<0.01	Pass
0	13.559901	81	<0.01	Pass
-10	13.559888	94	<0.01	Pass
-20	13.559868	114	<0.01	Pass



FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

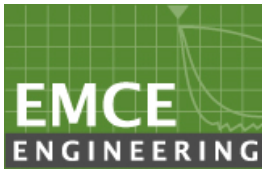
Test Report # 4096-1  
Dated: 3/24/2015

**Frequency Stability versus Input Voltage:** The Frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$ , the frequency of the transmitter was measured at 85% and at 115% of the rated power supply voltage at 20°C environmental temperature.

Carrier Frequency: 13.559975 MHz at 20°C at 5VDC

Measured Voltage $\pm 15\%$ of nominal (DC)	Measured Freq. (MHz)	Freq. Drift (Hz)	Freq. Deviation (Limit: 0.01%)	Pass/Fail
4.25	13.559997	15	<0.01	Pass
5.75	13.559992	10	<0.01	Pass





FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015

## Peak Output Power Per CFR 47, Section 15.225 and RSS-210 Issue 8 A2.6

Test Location: EMCE Engineering • 44366 S. Grimmer Blvd • Fremont, CA 94538 •

Customer:	<b>Identiv</b>	Date:	1/12/2015
Specification:	<b>RFID FCC Mask 10 Meter</b>	Time:	9:45:01 PM
Work Order #:	<b>4096</b>	Sequence#:	6
Test Type:	<b>Radiated Scan</b>	Tested By:	Mashood Danmole
Equipment:	<b>Physical Access Pad</b>		
Manufacturer:	Identiv		
Model:	8235		
S/N:	N/A		

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
FSV7-B160 Signal Analyzer	101468	01/28/2014	01/28/2017	N/A
HP 8447D PreAmp	2443A03587	05/01/2014	05/01/2015	008
Empire Devices Loop Antenna	N/A	05/07/2014	05/07/2015	114
EMITest Measurement Software	v4.01 Build 195	05/01/2014	05/01/2017	610

**Equipment Under Test (\* = EUT):**

Function	Manufacturer	Model #	S/N
Physical Access Pad	Identiv	8235	N/A

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell	Latitude E6320	8BZPYN1
Power Over Ethernet	TP-Link	TL-POE150S Ver 3.0	2144545000690

**Test Conditions / Notes:**

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**Transducer Legend:**

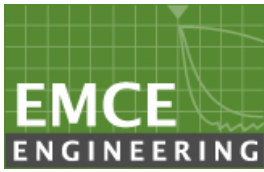
T1=8447 Pre-Amp Asset 377	T2=25' LMR #001
T3=LP-105 Loop Factors	

Ext Attn: 0 dB

**Measurement Data:**      Reading listed by margin.      Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist Table dB	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	14.051M	20.0	+27.3	+0.0	+39.4	+0.0 186	32.1	60.0	-27.9	X (ho 258
2	14.211M	20.0	+27.3	+0.0	+39.3	+0.0 186	32.0	60.0	-28.0	X (ho 258



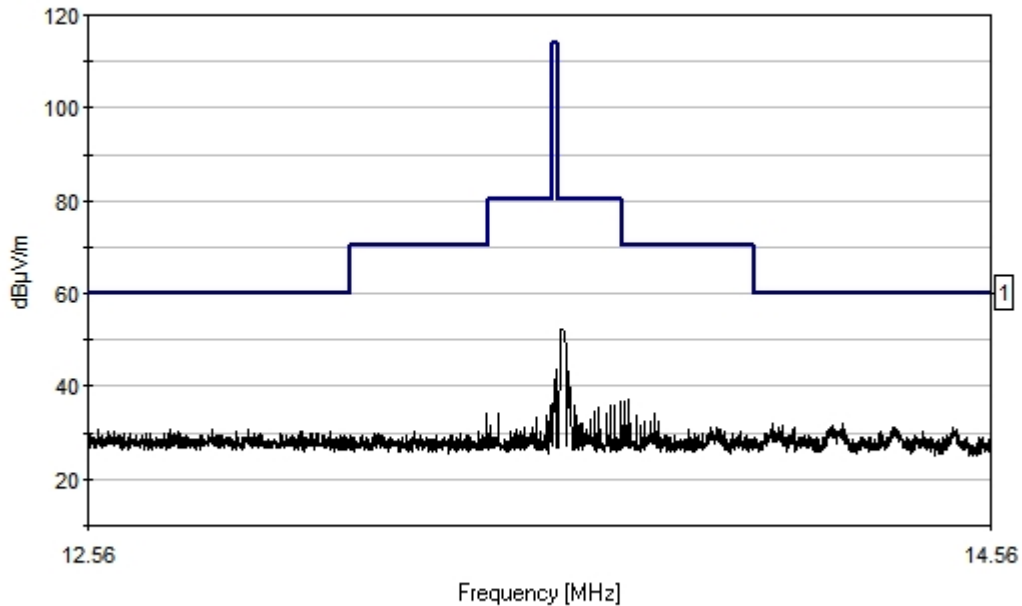


FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015

3	13.573M	40.0	+27.3	+0.0	+39.7	+0.0	52.4	80.5	-28.1	X (ho 258
4	14.070M	19.5	+27.3	+0.0	+39.4	+0.0	31.6	60.0	-28.4	X (ho 258
5	14.188M	19.4	+27.3	+0.0	+39.3	+0.0	31.4	60.0	-28.6	X (ho 258
6	14.471M	19.4	+27.3	+0.0	+39.1	+0.0	31.2	60.0	-28.8	X (ho 258

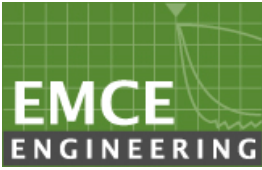
EMCE Engineering Date: 1/12/2015 Time: 9:45:01 PM Identiv WO#: 4096  
RFID FCC Mask 10 Meter Test Distance: 10 Meters Sequence#: 6 Ext ATTN: 0 dB



— Sweep Data      — 1 - RFID FCC Mask 10 Meter

### 13.56 MHz Peak Power

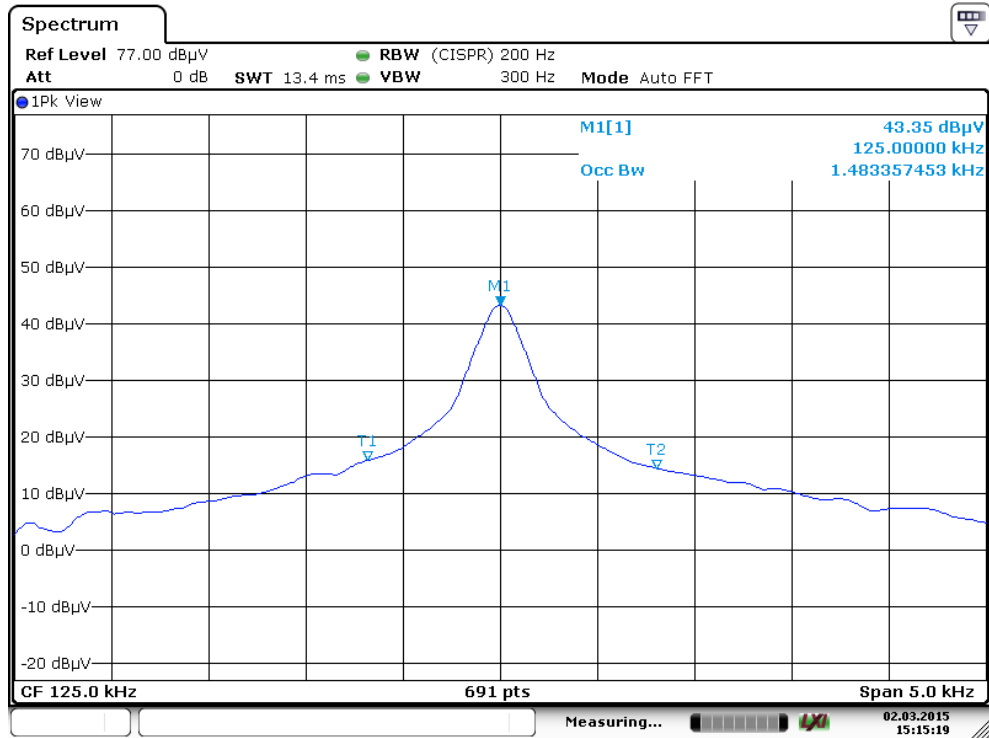
Frequency (MHz)	Corrected Amplitude Reading (dBuV/m @ 10M)
13.558	52.4



FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

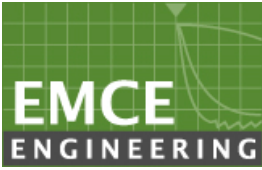
Test Report # 4096-1  
Dated: 3/24/2015

125 kHz Peak Power



125 kHz Peak Power

Frequency (MHz)	Corrected Amplitude Reading (dBuV/m @ 3M)
125.0 kHz	43.35



## 5.7 Occupied Bandwidth

Requirement(s): RSS-210 (5.9.1)

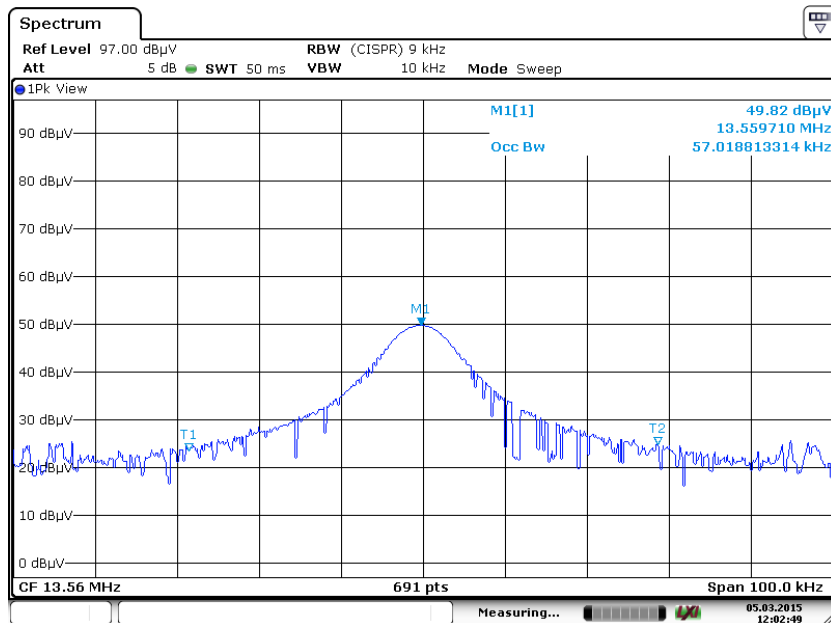
Procedures: Occupied Bandwidth was measured according to RSS-210 (5.9.1). Measurement was taken with spectrum analyzer. The spectrum analyzer bandwidth and span was set to read in hertz.

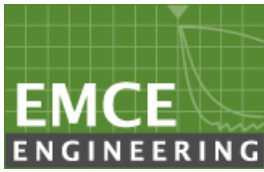
Environmental Conditions	Temperature	24°C
	Relative Humidity	45%
	Atmospheric Pressure	1010mbar

Test Date : 1/12/2015

Tested By : Bob Cole

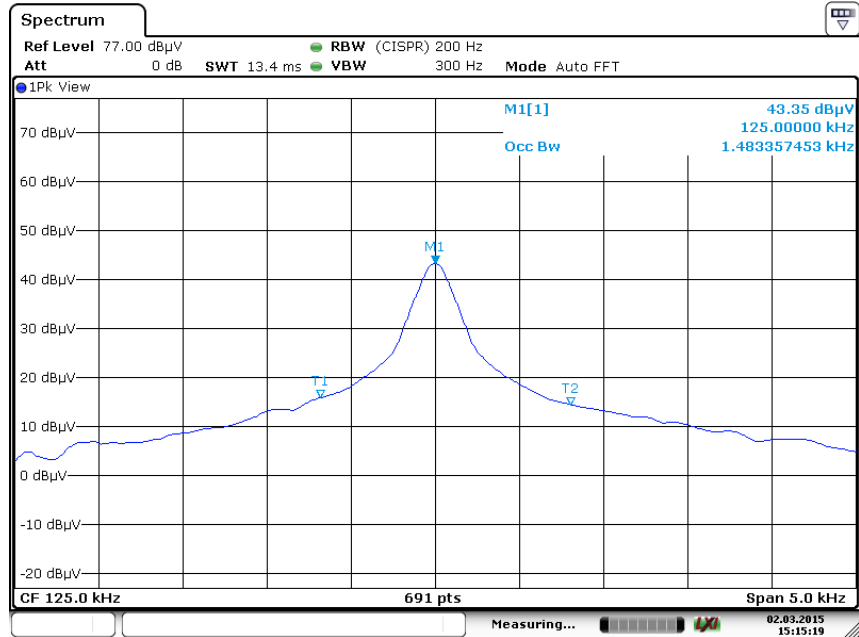
Results: Pass





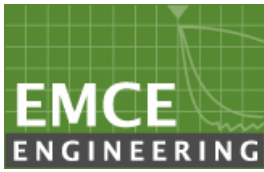
FCC ID: MBPTSSP-02  
IC: 7485A-TSSPR2

Test Report # 4096-1  
Dated: 3/24/2015



### Occupied BW

Frequency	Occupied Bandwidth (99%)
13.56 MHz	57.01 kHz
125 kHz	1.4833 kHz



## 6.0 TEST EQUIPMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DATE	CAL. DUE DATE
Spectrum Analyzer Hewlett-Packard	8566B	3014A06947	5/2/14	5/2/16
Quasi-Peak Adapter Hewlett-Packard	85650A	3145A01673	5/2/14	5/2/16
EMI Analyzer System Hewlett-Packard	8593EM	3497A5703	5/17/14	5/17/16
Signal Analyzer Rohde-Schwarz	FSV7	101468	1/28/14	1/28/17
HP 84125 EMI Measurement System	84125B	US36432003	5/1 /13	5/1/15
Pre-Amplifier(100KHz-1.3GHz) Hewlett-Packard	8447D	2443A03587	5/1/14	5/1/16
LISN(9KHz-30MHz) EMCO	3816-2	9807-1988	7/10/14	7/10/15
LISN(9KHz-30MHz) EMCO	3816-2	4576	7/10/14	7/10/15
BiConiLog Antenna Sunol Sciences	JB6	1090	8/14/14	8/14/16
Loop Antenna Empire Devices	LP105	000114	1/15/14	1/15/16
Webber Temperature Chamber	WE4-100- 200	3-60-32	8/15/13	8/15/15
RF Signal Cable Murata	25' LMR	N/A	5/10 /13	5/10 /15
RF Signal Cable EMCE	100' LMR	N/A	5/1 /13	5/1 /15