

FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

# 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 Scramblepad TS

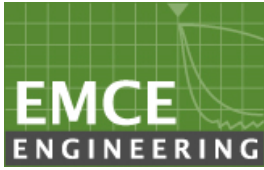
Model Name :  
DS47L-SSP-TS

Application Purpose : Original

Prepared by:

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

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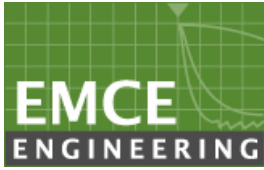


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## **Revision History**

| Rev. | Issue Date | Description   |
|------|------------|---------------|
| 0    | 3/26/2015  | Initial Issue |

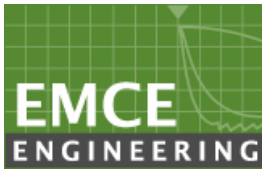


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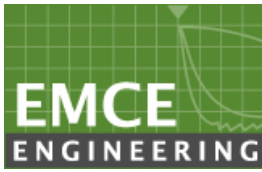
## 1.0 GENERAL INFORMATION

|                              |                                                                                                                                               |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Test Laboratory:             | EMCE Engineering<br>44366 S. Grimmer Blvd.<br>Fremont, CA 94538<br>USA<br>Tel: 510-490-4307, Fax: 510-490-3441<br>bob@universalcompliance.com |
|                              | FCC registration number : 743299                                                                                                              |
|                              | Test Site : FCC : US5291, IC : 3324A                                                                                                          |
| Applicant Name :             | Identiv Group, Inc.<br>1900B Carnegie Ave<br>Santa Ana, CA 92705<br>Tel: 510-933-3300                                                         |
|                              | Contact Person: Calai Bhoopathi                                                                                                               |
| Application Purpose :        | Original                                                                                                                                      |
| EUT Description              | RFID Smartcard Reader                                                                                                                         |
| Product Name                 | UTrust Scramblepad TS                                                                                                                         |
| Model Name :                 | DS47L-SSP-TS                                                                                                                                  |
| Applied Standards :          | 47 CFR §15.207, 15.209, 15.225: 2010 &<br>Canadian Standards RSS-GEN Issue 3, RSS-210 Issue 8                                                 |
| FCC ID :                     | FCC ID: MBPSPTS-01                                                                                                                            |
| IC :                         | IC: 7485-SPTSR1                                                                                                                               |
| RF Operating Frequency (ies) | 13.56MHz, 125 kHz                                                                                                                             |
| Modulation                   | ASK                                                                                                                                           |
| Emission Designator          | 64K1K1D, 1K47K1D                                                                                                                              |
| Receipt of EUT :             | 1/5/2015                                                                                                                                      |
| Date of Testing :            | 1/5/2015 - 1/12/2015                                                                                                                          |
| Date of Report :             | 3/26/2015                                                                                                                                     |

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

Contents approved:

|                                                                                     |
|-------------------------------------------------------------------------------------|
|  |
| Name: Bob Cole<br>Title: President                                                  |

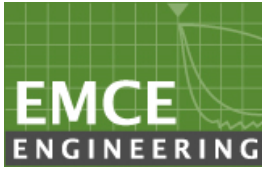


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## 2.0 EUT AND ACCESSORY INFORMATION

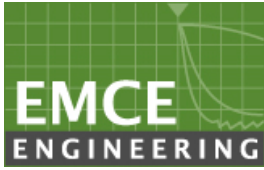
| EUT               |                       |                            |                |                           |
|-------------------|-----------------------|----------------------------|----------------|---------------------------|
| Model name:       | DS47L-SSP-TS          |                            |                |                           |
| Product Name:     | uTrust Scramblepad TS |                            |                |                           |
| Manufacturer:     | Identiv Group, Inc.   |                            |                |                           |
| Support Equipment |                       |                            |                |                           |
| Description       | Model Number          | Serial Number              | Manufacturer   | Power Cable Description   |
| Netbook PC        | Acer Aspire           | NUSH6AA0012410<br>25337600 | Acer           | Unshielded /<br>1.5 Meter |
|                   |                       |                            |                |                           |
|                   |                       |                            |                |                           |
|                   |                       |                            |                |                           |
| Cable Description |                       |                            |                |                           |
| From              | To                    | Length (Meters)            | Shielded (Y/N) | Ferrite Loaded (Y/N)      |
| EUT               | Netbook               | 0.5                        | Y              | N                         |



### 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.

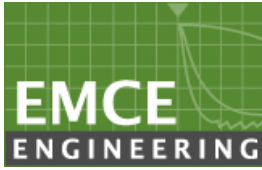


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## 4.0 MODIFICATIONS

There were no modifications.



## 5.0 TEST RESULTS

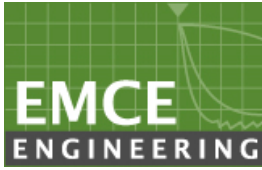
### 5.1 Antenna Requirement

**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.

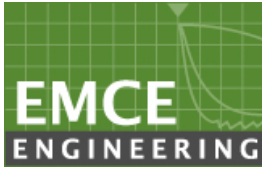
### Procedures:

1. 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.
2. "Ave" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency.
3. 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)  $\pm 3.5\text{dB}$ .
4. Environmental Conditions      Temperature      24°C  
                                                 Relative Humidity      45%  
                                                 Atmospheric Pressure      1010mbar

Test Date : 1/12/2015

Tested By : Bob Cole

**Results:** Pass



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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**  
Test Type: **Conducted Emissions**  
Equipment: **Physical Access Reader**  
Manufacturer: **Identiv**  
Model: **DS47L-SSP-TS**  
S/N: **N/A**

Date: 1/12/2015  
Time: 14:01:33  
Sequence#: 1  
Tested By: Mashood Danmole  
120V 60Hz

**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      | DS47L-SSP-TS | N/A |

**Support Devices:**

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

**Test Conditions / Notes:**

|  |
|--|
|  |
|--|

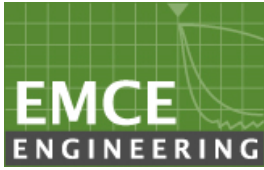
**Transducer Legend:**

|                                   |                 |
|-----------------------------------|-----------------|
| T1=EMCO 3810-2 LISN S/N 9807-1988 | T2=25' LMR #001 |
|-----------------------------------|-----------------|

Ext Attn: 0 dB

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

| #   | Freq<br>MHz | Rdng<br>dBµV | T1<br>dB | T2<br>dB |  | Dist<br>dB | Corr<br>dBµV | Spec<br>dBµV | Margin<br>dB | Polar<br>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         |

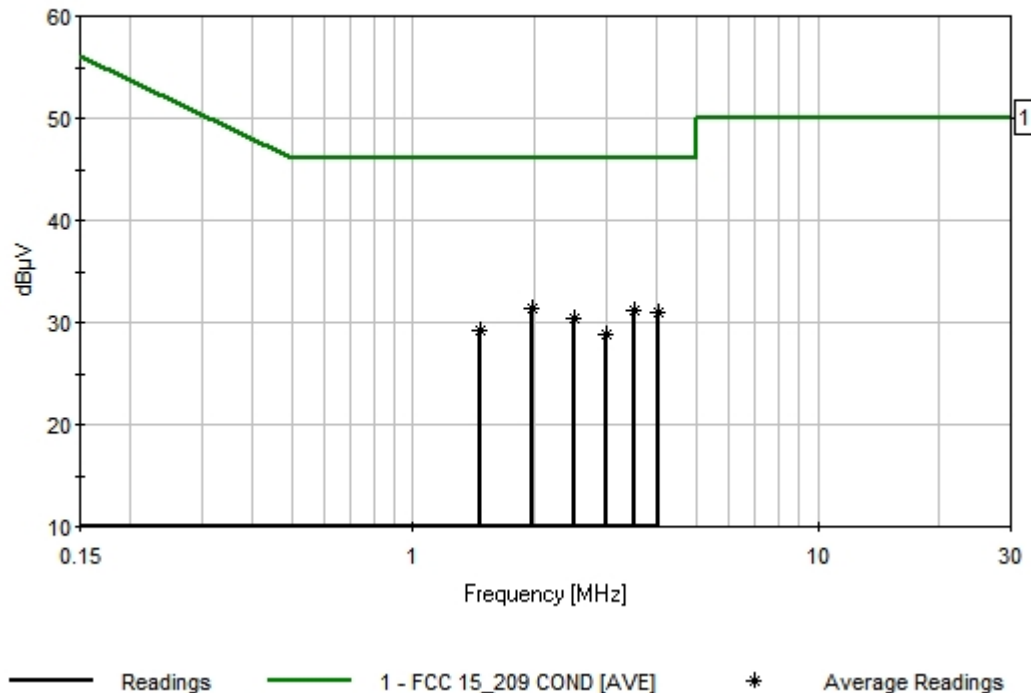


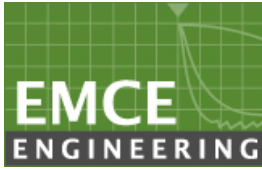
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|     |        |      |      |      |      |      |      |       |      |
|-----|--------|------|------|------|------|------|------|-------|------|
| 5   | 4.056M | 30.3 | +0.6 | +0.1 | +0.0 | 31.0 | 46.0 | -15.0 | Line |
| Ave |        |      |      |      |      |      |      |       |      |
| ^   | 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: MBPSPTS-01  
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Test Report # 4097-1  
Dated 3/26/2015

## 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**  
Test Type: **Conducted Emissions**  
Equipment: **Physical Access Reader**  
Manufacturer: Identiv  
Model: DS47L-SSP-TS  
S/N: N/A

Date: 1/12/2015  
Time: 14:08:57  
Sequence#: 2  
Tested By: Mashood Danmole  
120V 60Hz

### 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      | DS47L-SSP-TS | N/A |

### Support Devices:

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

### Test Conditions / Notes:

|  |
|--|
|  |
|--|

### Transducer Legend:

|                                   |                 |
|-----------------------------------|-----------------|
| T1=EMCO 3810-2 LISN S/N 9807-1988 | T2=25' LMR #001 |
|-----------------------------------|-----------------|

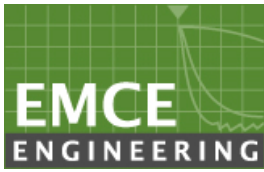
Ext Attn: 0 dB

### Measurement Data:

Reading listed by margin.

Test Lead: Line 2

| #   | Freq<br>MHz | Rdng<br>dBµV | T1<br>dB | T2<br>dB | Dist<br>dB | Table | Corr<br>dBµV | Spec<br>dBµV | Margin<br>dB | Polar<br>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 |             |              |          |          |            |       |              |              |              |              |

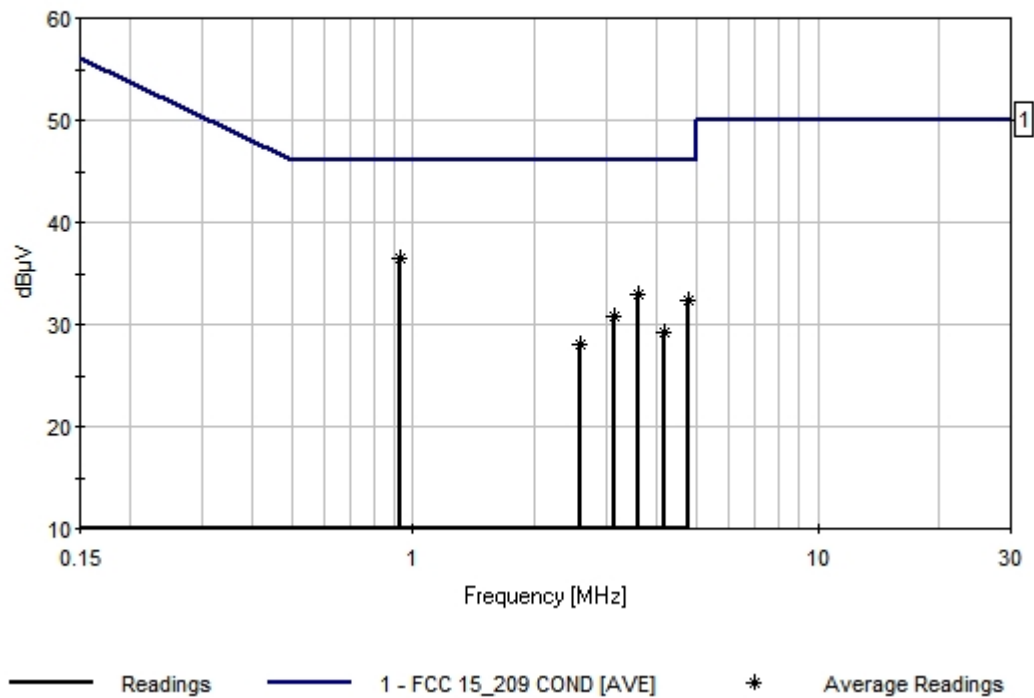


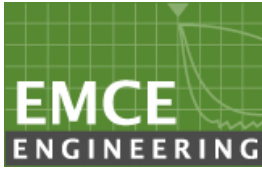
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|     |        |      |      |      |      |      |      |       |      |
|-----|--------|------|------|------|------|------|------|-------|------|
| ^   | 4.772M | 47.4 | +0.6 | +0.1 | +0.0 | 48.1 | 46.0 | +2.1  | Line |
| 7   | 3.127M | 30.0 | +0.6 | +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





### 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.

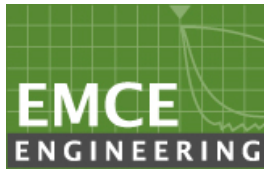
**Sample Calculation:** Corrected Amplitude = Raw Amplitude (dBμV/m) + ACF (dB) + Cable Loss (dB) – Distance Correction Factor

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



FCC ID: MBPSPTS-01  
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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: **Identiv**  
Specification: **15.209 9k-30M FCC Limits II**  
Work Order #: **4097**  
Test Type: **Radiated Scan**  
Equipment: **Physical Access Pad**  
Manufacturer: **Identiv**  
Model: **DS47L-SSP-TS**  
S/N: **N/A**

Date: 1/7/2015  
Time: 12:30:07 PM  
Sequence#: 1  
Tested By: Mashood Danmole

### 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      | DS47L-SSP-TS | N/A |

### Support Devices:

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

### Test Conditions / Notes:

|  |
|--|
|  |
|--|

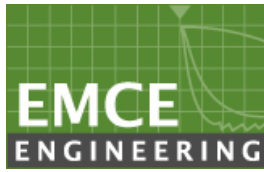
### Transducer Legend:

|                           |                           |
|---------------------------|---------------------------|
| 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

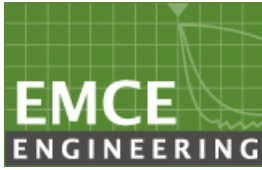
| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | T3<br>dB | T4<br>dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----------|----------|---------------|----------------|----------------|--------------|--------------|
| 1 | 10.805k     | 21.9         | +28.0    | +0.0     | +41.8    | +51.5    | +0.0          | 87.2           | 126.3          | -39.1        | X (ho        |
| 2 | 31.456k     | 10.2         | +27.9    | +0.0     | +41.4    | +51.5    | +0.0          | 75.2           | 113.3          | -38.1        | X (ho        |
| 3 | 47.095k     | 7.2          | +27.8    | +0.0     | +41.2    | +51.5    | +0.0          | 72.1           | 108.4          | -36.3        | X (ho        |



FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

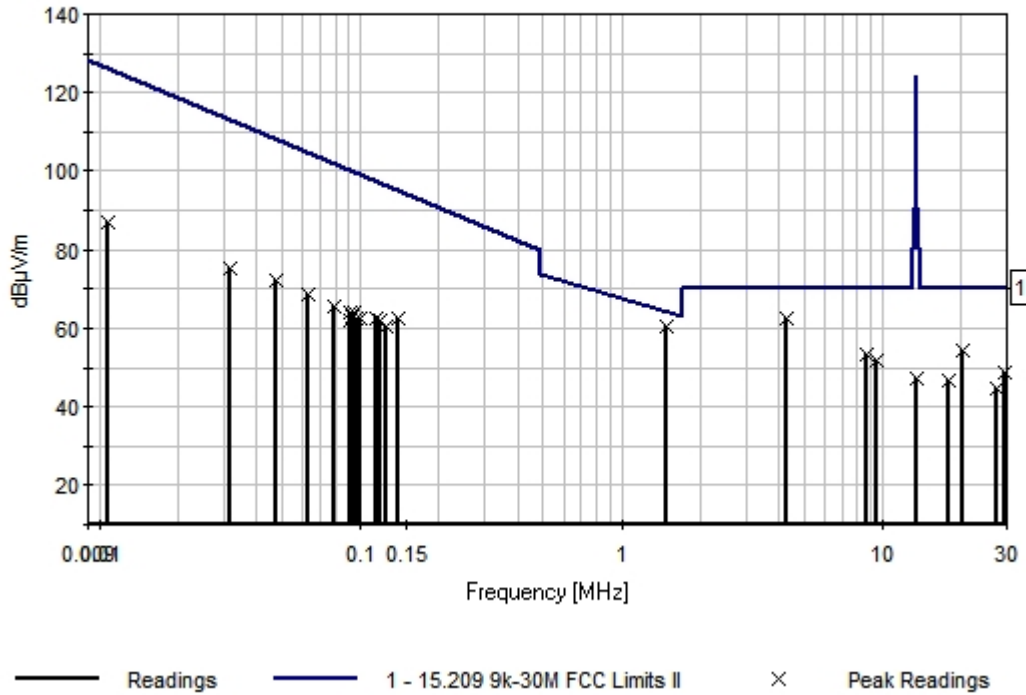
|    |          |      |       |      |       |       |      |      |       |       |       |
|----|----------|------|-------|------|-------|-------|------|------|-------|-------|-------|
| 4  | 62.935k  | 3.9  | +27.8 | +0.0 | +41.0 | +51.5 | +0.0 | 68.6 | 104.9 | -36.3 | X (ho |
| 5  | 78.574k  | 0.9  | +27.8 | +0.0 | +41.0 | +51.5 | +0.0 | 65.6 | 102.2 | -36.6 | X (ho |
| 6  | 90.388k  | -0.4 | +27.8 | +0.0 | +40.9 | +51.5 | +0.0 | 64.2 | 100.5 | -36.3 | X (ho |
| 7  | 91.090k  | -2.7 | +27.8 | +0.0 | +40.9 | +51.5 | +0.0 | 61.9 | 100.4 | -38.5 | X (ho |
| 8  | 93.196k  | -1.8 | +27.8 | +0.0 | +40.9 | +51.5 | +0.0 | 62.8 | 100.1 | -37.3 | X (ho |
| 9  | 94.249k  | -0.7 | +27.8 | +0.0 | +40.9 | +51.5 | +0.0 | 63.9 | 100.0 | -36.1 | X (ho |
| 10 | 96.544k  | -2.4 | +27.7 | +0.0 | +40.9 | +51.5 | +0.0 | 62.3 | 99.7  | -37.4 | X (ho |
| 11 | 98.893k  | -2.4 | +27.7 | +0.0 | +40.9 | +51.5 | +0.0 | 62.3 | 99.4  | -37.1 | X (ho |
| 12 | 114.750k | -2.0 | +27.7 | +0.0 | +40.8 | +51.5 | +0.0 | 62.6 | 97.6  | -35.0 | X (ho |
| 13 | 117.875k | -2.6 | +27.7 | +0.0 | +40.8 | +51.5 | +0.0 | 62.0 | 97.3  | -35.3 | X (ho |
| 14 | 125.750k | -4.1 | +27.7 | +0.0 | +40.8 | +51.5 | +0.0 | 60.5 | 97.1  | -36.6 | X (ho |
| 15 | 138.500k | -1.8 | +27.7 | +0.0 | +40.7 | +51.5 | +0.0 | 62.7 | 95.3  | -32.6 | X (ho |
| 16 | 1.493M   | 7.3  | +27.4 | +0.0 | +29.3 | +51.5 | +0.0 | 60.7 | 64.1  | -3.4  | X (ho |
| 17 | 4.289M   | 13.9 | +27.3 | +0.0 | +24.6 | +51.5 | +0.0 | 62.7 | 70.0  | -7.3  | X (ho |
| 18 | 8.710M   | 5.7  | +27.4 | +0.0 | +23.6 | +51.5 | +0.0 | 53.4 | 70.0  | -16.6 | X (ho |
| 19 | 9.522M   | 5.1  | +27.4 | +0.0 | +22.8 | +51.5 | +0.0 | 52.0 | 70.0  | -18.0 | X (ho |
| 20 | 13.555M  | 3.2  | +27.3 | +0.0 | +19.7 | +51.5 | +0.0 | 47.1 | 90.5  | -43.4 | X (ho |
| 21 | 17.967M  | 5.0  | +27.2 | +0.0 | +17.3 | +51.5 | +0.0 | 46.6 | 70.0  | -23.4 | X (ho |
| 22 | 20.331M  | 13.7 | +27.2 | +0.0 | +16.2 | +51.5 | +0.0 | 54.2 | 70.0  | -15.8 | X (ho |
| 23 | 27.323M  | 6.5  | +27.0 | +0.0 | +13.6 | +51.5 | +0.0 | 44.6 | 70.0  | -25.4 | X (ho |
| 24 | 29.576M  | 11.5 | +27.0 | +0.0 | +12.8 | +51.5 | +0.0 | 48.8 | 70.0  | -21.2 | X (ho |

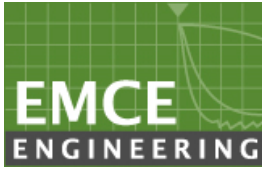


FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

EMCE Engineering Date: 1/1/2015 Time: 12:30:07 PM Identiv WO#: 4097  
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

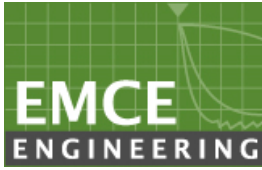
1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A “-ve” margin indicates a PASS as it refers to the margin present below the limit line at the particular 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 : 1/6/2015

Tested By : Bob Cole

**Results:** Pass



FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

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

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

Customer: **Identiv**  
Specification: **FCC 15.209 30-1000 10M**  
Work Order #: **4097**  
Test Type: **Radiated Scan**  
Equipment: **Phisycal Access Pad**  
Manufacturer: Identiv  
Model: DS47L-SSP-TS  
S/N: N/A

Date: 1/6/2015  
Time: 12:24:01  
Sequence#: 3  
Tested By: Mashood Danmole

### 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      | DS47L-SSP-TS | N/A |

### Support Devices:

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

### Test Conditions / Notes:

|  |
|--|
|  |
|--|

### Transducer Legend:

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

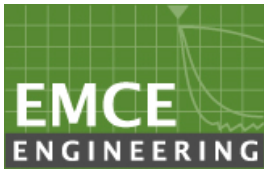
Ext Attn: 0 dB

### Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

| # | Freq<br>MHz | Rdng<br>dBμV | T1<br>dB | T2<br>dB | T3<br>dB | dB | Dist<br>Table | Corr<br>dBμV/m | Spec<br>dBμV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----------|----|---------------|----------------|----------------|--------------|--------------|
| 1 | 162.720M    | 42.8         | +12.2    | +26.7    | +0.0     |    | +0.0          | 28.3           | 33.5           | -5.2         | Vert         |
|   | QP          |              |          |          |          |    | 120           |                |                |              | 100          |
| 2 | 856.116M    | 33.7         | +21.9    | +27.0    | +1.7     |    | +0.0          | 30.3           | 36.0           | -5.7         | Vert         |
|   |             |              |          |          |          |    | 130           |                |                |              | 397          |
| 3 | 922.080M    | 32.4         | +22.3    | +26.9    | +1.8     |    | +0.0          | 29.6           | 36.0           | -6.4         | Vert         |
|   |             |              |          |          |          |    | 147           |                |                |              | 190          |
| 4 | 271.200M    | 40.2         | +13.3    | +27.0    | +0.3     |    | +0.0          | 26.8           | 36.0           | -9.2         | Vert         |
|   |             |              |          |          |          |    | 245           |                |                |              | 100          |

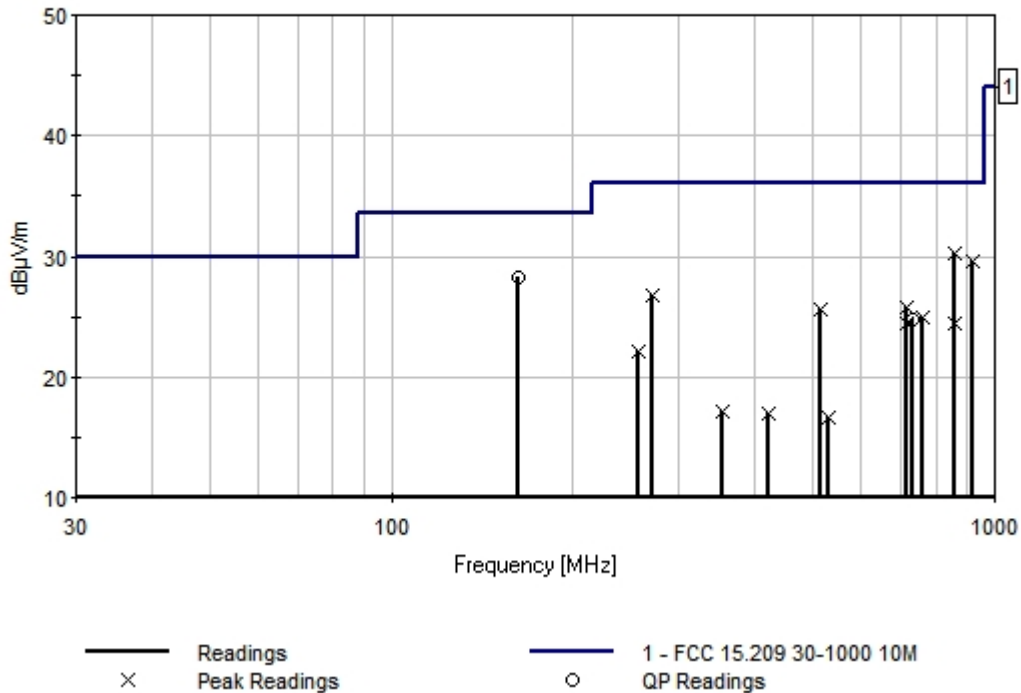


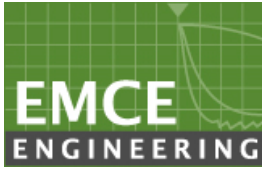
FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

|    |                |      |       |       |      |             |      |      |       |              |
|----|----------------|------|-------|-------|------|-------------|------|------|-------|--------------|
| 5  | 712.158M       | 31.0 | +20.4 | +27.1 | +1.4 | +0.0<br>88  | 25.7 | 36.0 | -10.3 | Vert<br>309  |
| 6  | 514.966M       | 33.5 | +18.1 | +26.9 | +0.9 | +0.0<br>194 | 25.6 | 36.0 | -10.4 | Horiz<br>311 |
| 7  | 759.574M       | 29.9 | +20.7 | +27.1 | +1.5 | +0.0<br>116 | 25.0 | 36.0 | -11.0 | Vert<br>219  |
| 8  | 732.240M<br>QP | 29.9 | +20.6 | +27.1 | +1.4 | +0.0<br>209 | 24.8 | 36.0 | -11.2 | Vert<br>173  |
| 9  | 715.564M       | 29.7 | +20.4 | +27.1 | +1.4 | +0.0<br>240 | 24.4 | 36.0 | -11.6 | Horiz<br>265 |
| 10 | 856.811M       | 27.8 | +21.9 | +27.0 | +1.7 | +0.0<br>214 | 24.4 | 36.0 | -11.6 | Horiz<br>325 |
| 11 | 257.640M       | 36.8 | +12.0 | +27.0 | +0.3 | +0.0<br>270 | 22.1 | 36.0 | -13.9 | Horiz<br>250 |
| 12 | 352.560M       | 29.1 | +14.5 | +27.0 | +0.6 | +0.0<br>189 | 17.2 | 36.0 | -18.8 | Horiz<br>175 |
| 13 | 420.360M       | 27.0 | +16.1 | +26.9 | +0.7 | +0.0<br>310 | 16.9 | 36.0 | -19.1 | Horiz<br>229 |
| 14 | 528.840M       | 24.4 | +18.1 | +26.9 | +1.0 | +0.0<br>133 | 16.6 | 36.0 | -19.4 | Horiz<br>229 |

EMCE Engineering Date: 1/6/2015 Time: 12:24:01 Identiv WO#: 4097  
FCC 15.209 30-1000 10M Test Distance: 10 Meters Sequence#: 3 Ext ATTN: 0 dB





FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

## 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

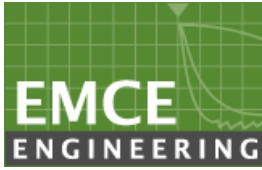
Tested By : Bob Cole

**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               | 13.560101                 | 121              | <0.01                          | Pass      |
| 40               | 13.560077                 | 97               | <0.01                          | Pass      |
| 30               | 13.559997                 | 17               | <0.01                          | Pass      |
| 20               | Reference (13.559980 MHz) |                  |                                |           |
| 10               | 13.559931                 | 49               | <0.01                          | Pass      |
| 0                | 13.559909                 | 71               | <0.01                          | Pass      |
| -10              | 13.559883                 | 97               | <0.01                          | Pass      |
| -20              | 13.559864                 | 126              | <0.01                          | Pass      |



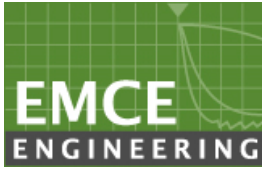
FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

**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                                        | 13.559985            | 15               | <0.01                          | Pass      |
| 5.75                                        | 13.559991            | 9                | <0.01                          | Pass      |



## 5.6 Fundamental Field Strength Test Result

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 |

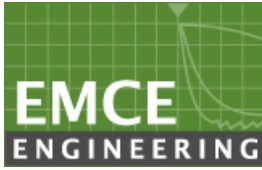
Test Date : 1/12/2015

Tested By : Bob Cole

### Test Requirement:

13.56MHz

- (a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.



FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

## 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: **Identiv**  
Specification: **RFID FCC Mask 10 Meter**  
Work Order #: **4097**  
Test Type: **Radiated Scan**  
Equipment: **Physical Access Pad**  
Manufacturer: Identiv  
Model: DS47L-SSP-TS  
S/N: N/A

Date: 1/12/2015  
Time: 11:21:42 PM  
Sequence#: 10  
Tested By: Mashood Danmole

### 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      | DS47L-SSP-TS | N/A |

### Support Devices:

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

### Test Conditions / Notes:

|  |
|--|
|  |
|--|

### Transducer Legend:

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

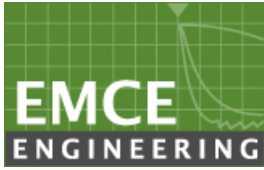
Ext Attn: 0 dB

### Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

| # | Freq<br>MHz | Rdng<br>dBµV | T1<br>dB | T2<br>dB | T3<br>dB | dB | Dist<br>Table | Corr<br>dBµV/m | Spec<br>dBµV/m | Margin<br>dB | Polar<br>Ant |
|---|-------------|--------------|----------|----------|----------|----|---------------|----------------|----------------|--------------|--------------|
| 1 | 14.380M     | 33.3         | +27.3    | +0.0     | +39.2    |    | +0.0<br>186   | 45.2           | 60.0           | -14.8        | X (ho<br>244 |
| 2 | 14.469M     | 20.0         | +27.3    | +0.0     | +39.1    |    | +0.0<br>186   | 31.8           | 60.0           | -28.2        | X (ho<br>244 |
| 3 | 13.575M     | 39.5         | +27.3    | +0.0     | +39.7    |    | +0.0<br>186   | 51.9           | 80.5           | -28.6        | X (ho<br>244 |

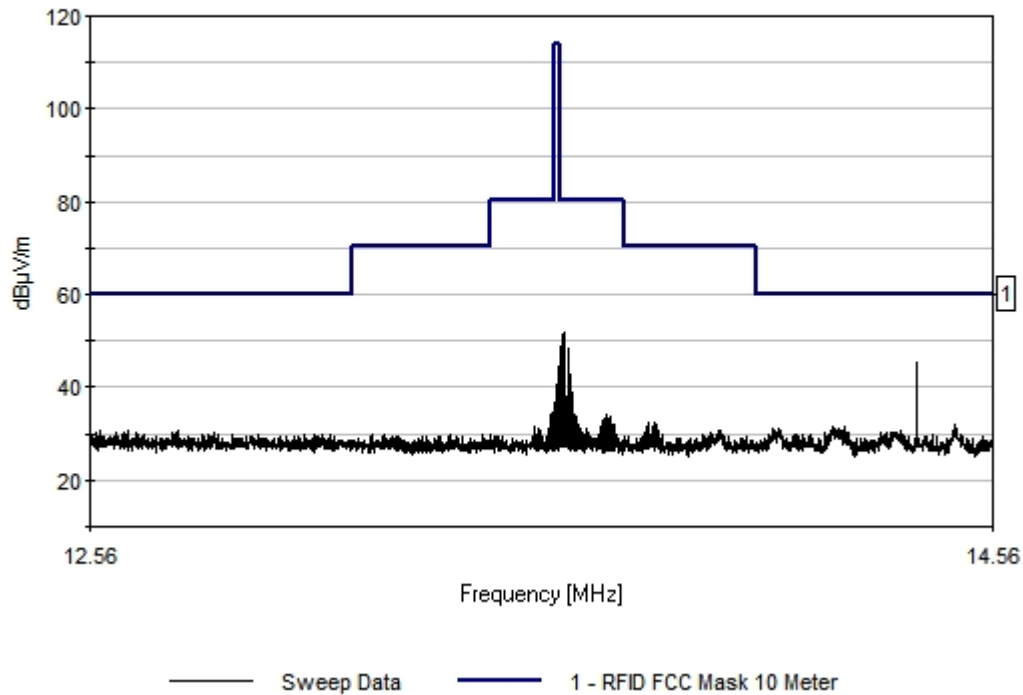


FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

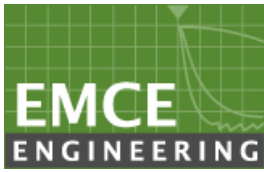
|   |         |      |       |      |       |      |      |      |       |       |
|---|---------|------|-------|------|-------|------|------|------|-------|-------|
| 4 | 14.184M | 19.4 | +27.3 | +0.0 | +39.3 | +0.0 | 31.4 | 60.0 | -28.6 | X (ho |
|   |         |      |       |      |       | 186  |      |      |       | 244   |
| 5 | 14.211M | 19.4 | +27.3 | +0.0 | +39.3 | +0.0 | 31.4 | 60.0 | -28.6 | X (ho |
|   |         |      |       |      |       | 186  |      |      |       | 244   |
| 6 | 14.060M | 19.0 | +27.3 | +0.0 | +39.4 | +0.0 | 31.1 | 60.0 | -28.9 | X (ho |
|   |         |      |       |      |       | 186  |      |      |       | 244   |

EMCE Engineering Date: 1/12/2015 Time: 11:21:42 PM Identiv WO#: 4097  
RFID FCC Mask 10 Meter Test Distance: 10 Meters Sequence#: 10 Ext ATTN: 0 dB



### 13.56 MHz Peak Power

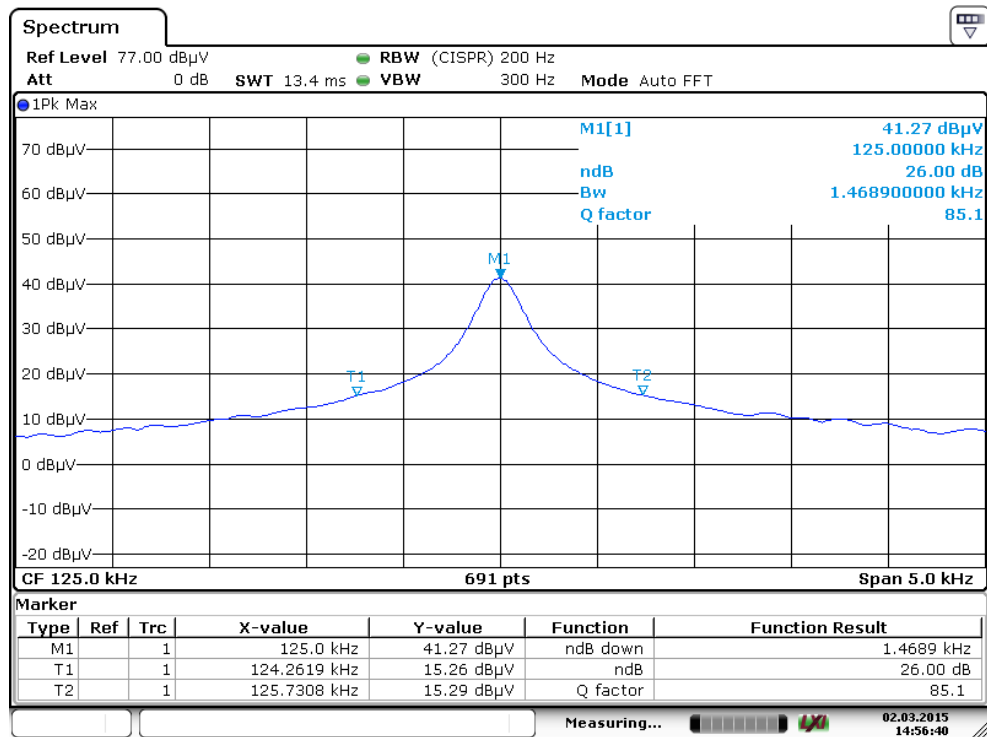
| Frequency (MHz) | Corrected Amplitude Reading (dBuV/m @ 10M) |
|-----------------|--------------------------------------------|
| 13.558          | 51.8                                       |



FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

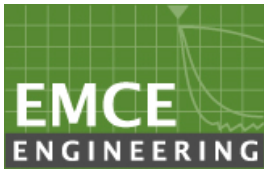
Test Report # 4097-1  
Dated 3/26/2015

## 125 kHz Peak Power / Occupied Bandwidth



## 125 kHz Peak Power

| Frequency | Corrected Amplitude Reading (dBuV/m @ 3M) |
|-----------|-------------------------------------------|
| 125 kHz   | 41.27                                     |



FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

## 5.7 Occupied Bandwidth

**Requirement(s):** RSS-210 (5.9.1)

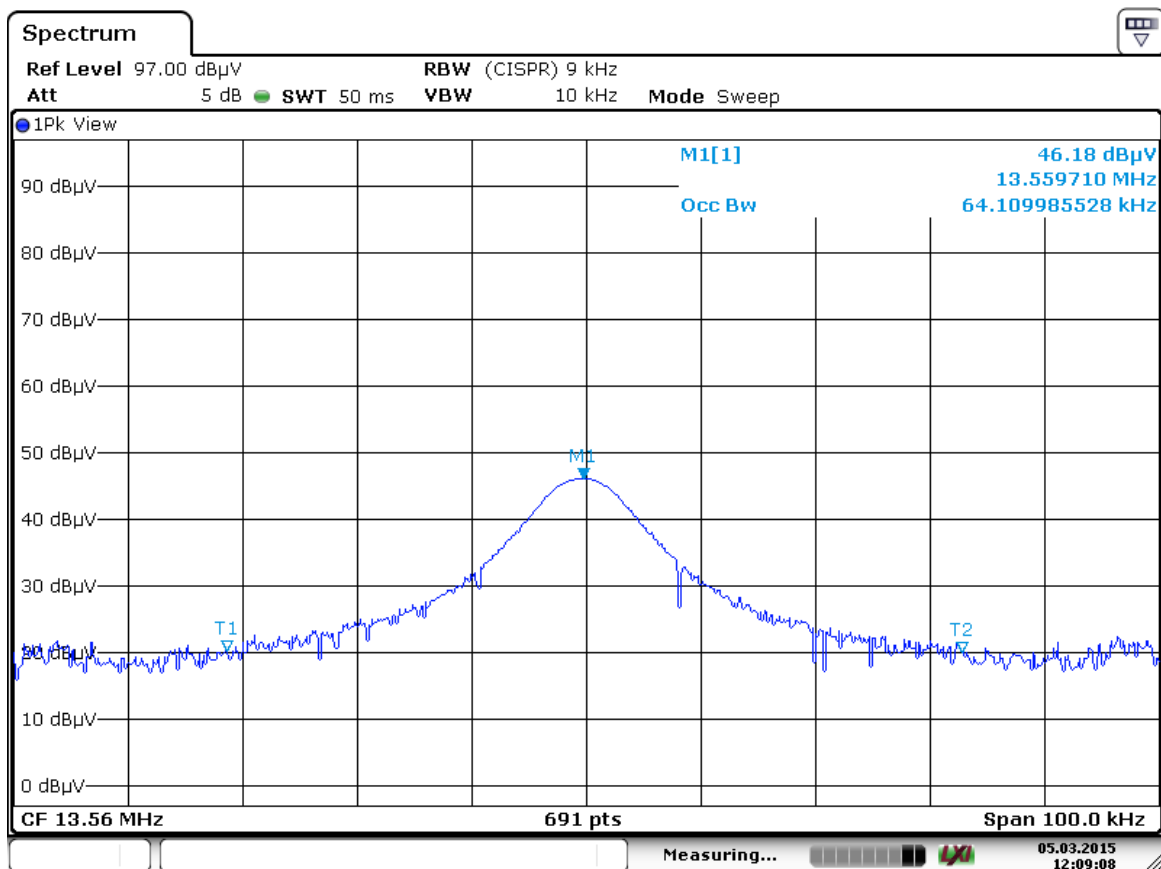
**Procedures:** Occupied Bandwidth was measured according to RSS-210 (5.9.1). Measurement was taken with spectrum analyzer. The spectrum analyzer bandwidth and span was set to read in hertz.

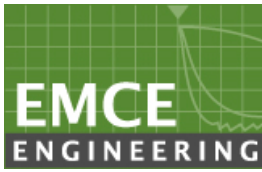
|                          |                      |          |
|--------------------------|----------------------|----------|
| Environmental Conditions | Temperature          | 24°C     |
|                          | Relative Humidity    | 45%      |
|                          | Atmospheric Pressure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

Test Date : 1/12/2015

Tested By : Bob Cole

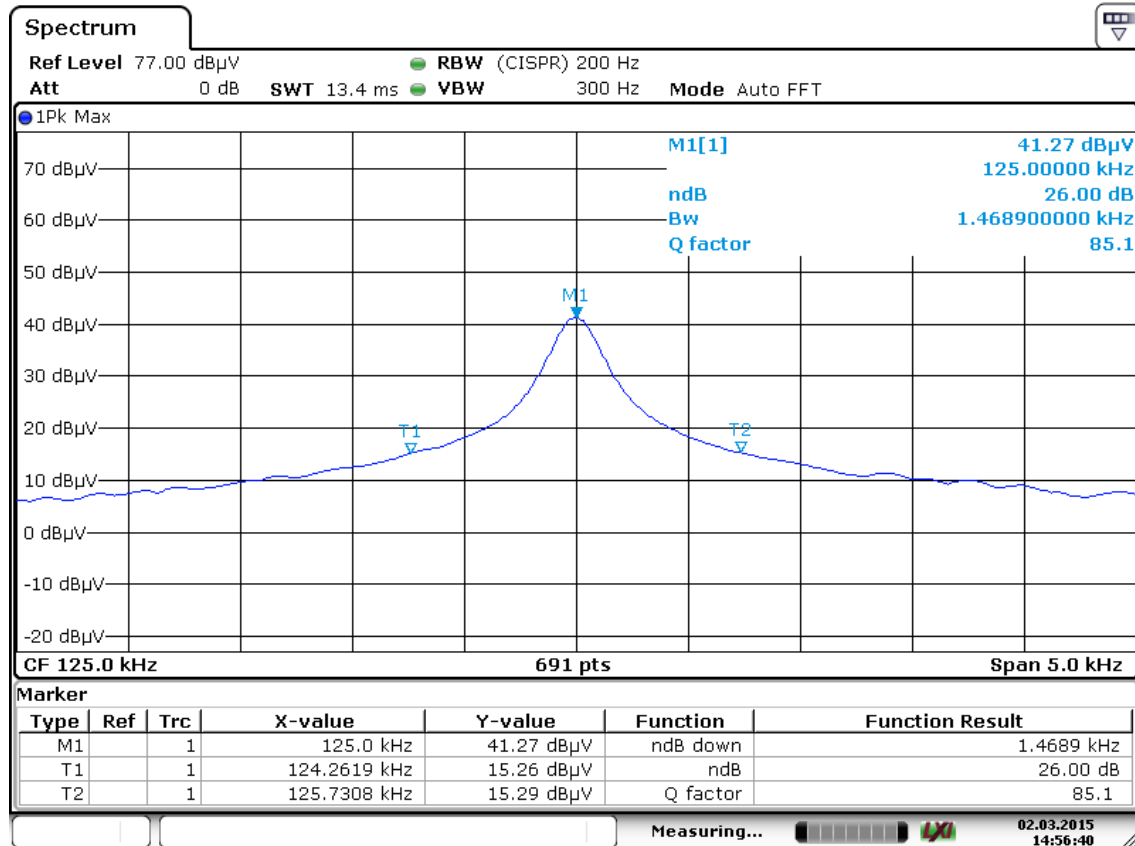
**Results:** Pass



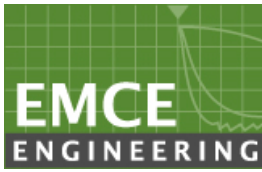


FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015



| Frequency | Occupied Bandwidth (99%) |
|-----------|--------------------------|
| 13.56 MHz | 64.1099 kHz              |
| 125 kHz   | 1.4689 kHz               |



FCC ID: MBPSPTS-01  
IC: 7485-SPTSR1

Test Report # 4097-1  
Dated 3/26/2015

## 6.0 TEST EQUIPMENT

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