

FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

Intentional Radiator Test Report

Test Standards:
FCC Part 15.225 (Subpart C – Intentional Radiators)
Industry Canada RSS-210, Issue 8(December 2010)

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

Product Name :
uTrust TS Keypad Reader / uTrust TS Network Keypad Reader

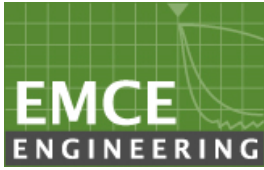
Model Name :
8210 (uTrust TS Keypad Reader)
8230 (uTrust TS Network Keypad Reader)

Application Purpose : Original

Prepared by:

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

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the EMCE Engineering, Inc.

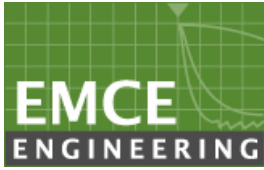


FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

Revision History

Rev.	Issue Date	Description
0	6/12/15	Initial Issue

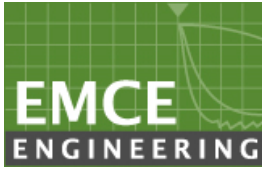


FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

TABLE OF CONTENTS

1. GENERAL INFORMATION	4
2. EUT AND ACCESSORY INFORMATION	5
3. SUMMARY OF TEST RESULTS	6
4. MODIFICATIONS	7
5. TEST RESULTS	8
6. TEST EQUIPMENT	27



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

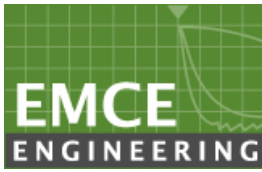
1.0 GENERAL INFORMATION

Test Laboratory:	EMCE Engineering 44366 S. Grimmer Blvd. Fremont, CA 94538 US Tel: 510-490-4307, Fax: 510-490-3441 bob@universalcompliance.com
	FCC registration number : 743299
	Test Site : FCC : US5291, IC : 3324A
Applicant Name :	Identiv, Inc. 1900B Carnegie Ave Santa Ana, CA 92705 Tel: 510-933-3300
	Contact Person: Calai Bhoopathi
Application Purpose :	Original
EUT Description	RFID Smartcard Reader
Product Name	uTrust TS Keypad Reader / uTrust TS Network Keypad Reader
Model Name :	8210 (uTrust TS Keypad Reader) 8230 (uTrust TS Network Keypad Reader)
Applied Standards :	FCC 47 CFR §15.207, 15.209, 15.225: 2010 & Canadian Standards RSS-GEN Issue 4(November 2014)/ RSS-210 Issue 1(December 2010)
FCC ID :	FCC ID: MBPTSKP-02
IC :	IC: 7485A-TSKPR2
RF Operating Frequency (ies)	13.56MHz, 125 kHz
Field Strength (at what distance)	56.84dBuV/m @10m and 18.23dBuV/m@10m
Modulation	ASK
Emission Designator	68K5K1D, 18K8K1D
Receipt of EUT :	4/20/2015
Date of Testing :	4/25/2015 – 5/1/2015
Date of Report :	6/12/2015

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 Title: President

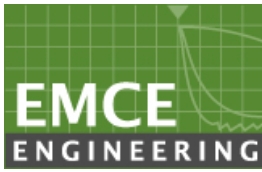


FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

2.0 EUT AND ACCESSORY INFORMATION

EUT				
Product Name:	uTrust TS Keypad Reader / uTrust TS Network Keypad Reader			
Model Name:	8210 (uTrust TS Keypad Reader) / 8230 (uTrust TS Network Keypad Reader)			
Manufacturer:	Identiv, Inc.			
Support Equipment				
Description	Model Number	Serial Number	Manufacturer	Power Cable Description
Netbook PC	Acer Aspire	NUSH6AA0012410 25337600	Acer	Unshielded / 1.5 Meter
Cable Description				
From	To	Length (Meters)	Shielded (Y/N)	Ferrite Loaded (Y/N)
EUT	Netbook	5.0	N	N



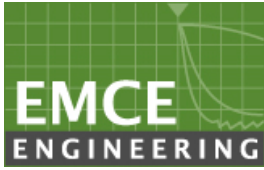
FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

3.0 SUMMARY OF TEST RESULTS

Test Standard		Description	Pass / Fail
47 CFR Part 15.225: 2010	RSS 210 Issue 8 (December 2010)		
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 4 (November 2014)			
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.

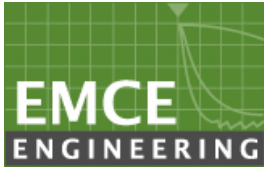


FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

4.0 MODIFICATIONS

There were no modifications.



5.0 TEST RESULTS

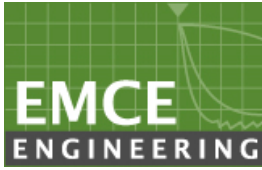
5.1 Antenna Requirement

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.

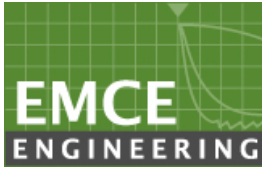
Procedures:

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 : 4/27/2015

Tested By : Bob Cole

Results: Pass



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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: **Micron Consumer Products Group**
Specification: **FCC 15_207 COND [QP]**
Work Order #: **4125**
Test Type: **Conducted Emissions**
Equipment: **Access Control Pad**
Manufacturer: **Idenitv, Inc.**
Model: **8210 (uTrust TS Keypad Reader) / 8230 (uTrust TS Network Keypad Reader)**
S/N: **1**

Date: 4/27/2015
Time: 16:31:35
Sequence#: 13
Tested By: Bob Cole
120V 60Hz

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
----------	-----	------------------	--------------	---------

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
UTrust Keypad Reader / uTrust Network Keypad Reader*	Idenitv, Inc.	8210 (uTrust TS Keypad Reader) / 8230 (uTrust TS Network Keypad Reader)	1

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Acer	Aspire One725-0687	NUSH6AA0012410253376 00
Printer	Epson	C62	N/A

Test Conditions / Notes:

--

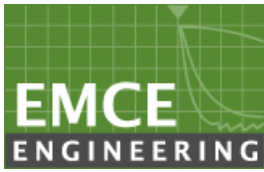
Transducer Legend:

T1=25' LMR #001	T2=HP 11947A Trans. Limiter TL1
-----------------	---------------------------------

Ext Attn: 0 dB

Measurement Data: Reading listed by frequency. 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	769.139k	19.3	+0.1	+9.9			+0.0	29.3	56.0	-26.7	Line
	QP										
2	769.139k	8.9	+0.1	+9.9			+0.0	18.9	56.0	-37.1	Line
	Ave										
3	1.729M	24.8	+0.1	+9.9			+0.0	34.8	56.0	-21.2	Line
	QP										
4	1.729M	18.7	+0.1	+9.9			+0.0	28.7	56.0	-27.3	Line
	Ave										

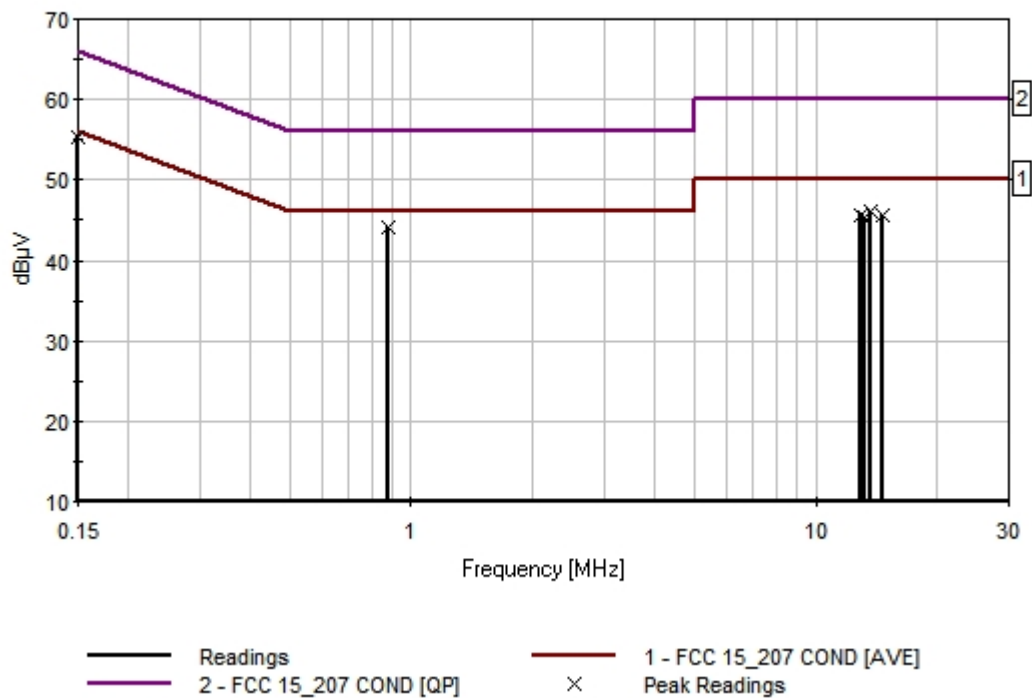


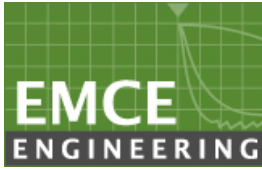
FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

5	6.753M	24.5	+0.1	+10.0	+0.0	34.6	60.0	-25.4	Line
QP									
6	6.753M	18.9	+0.1	+10.0	+0.0	29.0	60.0	-31.0	Line
Ave									
7	7.880M	25.3	+0.1	+10.0	+0.0	35.4	60.0	-24.6	Line
QP									
8	7.880M	19.8	+0.1	+10.0	+0.0	29.9	60.0	-30.1	Line
Ave									
9	8.746M	21.8	+0.1	+10.0	+0.0	31.9	60.0	-28.1	Line
QP									
10	8.746M	16.2	+0.1	+10.0	+0.0	26.3	60.0	-33.7	Line
Ave									

EMCE Engineering Date: 1/6/2015 Time: 5:59:42 AM Identive, Inc. WO#: 4097
FCC 15_207 COND [QP] Test Lead: Line 1 120V 60Hz Sequence#: 1 Ext ATTN: 0 dB





FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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: **Micron Consumer Products Group**

Specification: **FCC 15_207 COND [QP]**

Work Order #: **4124**

Date: 4/27/2015

Test Type: **Conducted Emissions**

Time: 16:08:12

Equipment: **Access Control Pad**

Sequence#: 12

Manufacturer: Idenitv, Inc.

Tested By: Bob Cole

Model: 8210 (uTrust TS Keypad Reader) / 8230
(uTrust TS Network Keypad Reader)

120V 60Hz

S/N: 1

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
----------	-----	------------------	--------------	---------

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
UTrust Keypad Reader / uTrust Network Keypad Reader*	Idenitv, Inc.	8210 (uTrust TS Keypad Reader) / 8230 (uTrust TS Network Keypad Reader)	1

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop PC	Acer	Aspire One 725-0687	NUSH6AA0012410253376 00
Printer	Epson	C62	N/A

Test Conditions / Notes:

--

Transducer Legend:

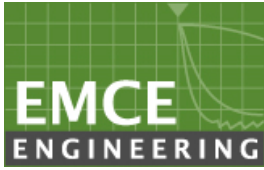
T1=25' LMR #001	T2=HP 11947A Trans. Limiter TL1
-----------------	---------------------------------

Ext Attn: 0 dB

Measurement Data: Reading listed by frequency.

Test Lead: Line 1

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB		Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	600.040k	30.5	+0.1	+9.9		+0.0	40.5	56.0	-15.5	Line
	QP									
2	600.098k	33.4	+0.1	+9.9		+0.0	43.4	56.0	-12.6	Line
	Ave									
3	758.413k	18.9	+0.1	+9.9		+0.0	28.9	56.0	-27.1	Line
	QP									
4	758.431k	26.0	+0.1	+9.9		+0.0	36.0	56.0	-20.0	Line
	Ave									
5	1.719M	28.7	+0.1	+9.9		+0.0	38.7	56.0	-17.3	Line
	Ave									

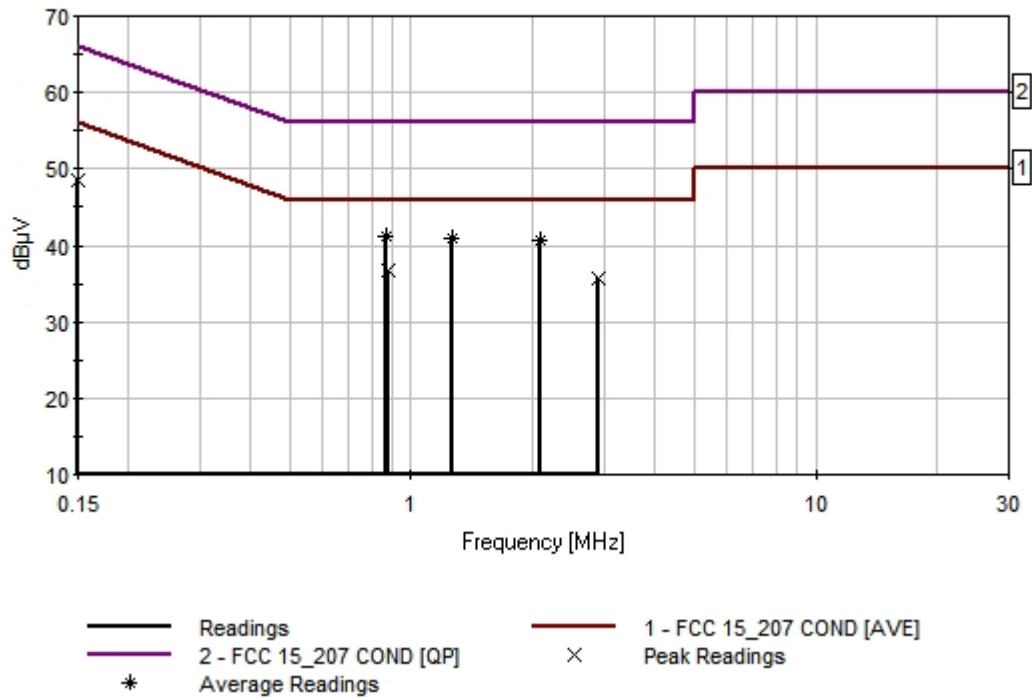


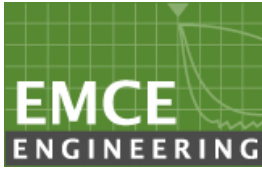
FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

6	1.719M	25.3	+0.1	+9.9	+0.0	35.3	56.0	-20.7	Line
QP									
7	3.966M	22.4	+0.1	+10.0	+0.0	32.5	56.0	-23.5	Line
Ave									
8	3.966M	18.0	+0.1	+10.0	+0.0	28.1	56.0	-27.9	Line
QP									
9	7.782M	30.2	+0.1	+10.0	+0.0	40.3	60.0	-19.7	Line
Ave									
10	7.782M	25.9	+0.1	+10.0	+0.0	36.0	60.0	-24.0	Line
QP									
11	8.135M	27.2	+0.1	+10.0	+0.0	37.3	60.0	-22.7	Line
Ave									
12	8.135M	22.8	+0.1	+10.0	+0.0	32.9	60.0	-27.1	Line
QP									

EMCE Engineering Date: 1/6/2015 Time: 06:16:20 Identive, Inc. WO#: 4097
FCC 15_207 COND [QP] 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.

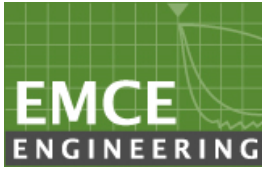
Sample Calculation: Corrected Amplitude = Raw Amplitude (dBμV/m) + ACF (dB) + Cable Loss (dB) – Distance Correction Factor

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 26°C
 Relative Humidity 42.2%

Test Date : 5/4/2015

Tested By : Bob Cole

Results: Pass



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

FCC Part 15.209 Radiated Emissions 9 kHz – 30 MHz

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

Customer: **Identiv, Inc.**
Specification: **15.209 9k-30M FCC Limits 10M**
Work Order #:
Test Type: **Radiated Scan**
Equipment: **Access Control Pad**
Manufacturer: Identiv, Inc.
Model: 8210 (uTrust TS Keypad Reader) / 8230
(uTrust TS Network Keypad Reader)

Date: 5/4/2015
Time: 12:22:11 PM
Sequence#: 1
Tested By: Test Engineer

S/N:

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
----------	-----	------------------	--------------	---------

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Access Control Keypad	Identiv, Inc.	8210 (uTrust TS Keypad Reader) / 8230 (uTrust TS Network Keypad Reader)	

Support Devices:

Function	Manufacturer	Model #	S/N
Power Over Ethernet	TP-Link	TL-POE150S Ver 3.0	2144545000690

Test Conditions / Notes:

--

Transducer Legend:

T1=100' LMR 900 Rad Cable 12-2013	T2=8447 Pre-Amp Asset 377
T3=LP-105 Loop Factors	

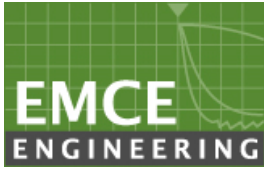
Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	1.540M	16.4	+0.2	+27.4	+50.8		+0.0	40.0	53.9	-13.9	Vert
2	1.493M	15.8	+0.2	+27.4	+50.9		+0.0	39.5	54.1	-14.6	Vert
3	1.640M	15.4	+0.2	+27.4	+50.5		+0.0	38.7	53.3	-14.6	Vert
4	1.352M	16.1	+0.2	+27.5	+51.4		+0.0	40.2	55.0	-14.8	Vert
5	866.065k	17.3	+0.2	+27.5	+53.5		+0.0	43.5	58.9	-15.4	Vert
6	845.158k	17.1	+0.2	+27.5	+53.6		+0.0	43.4	59.1	-15.7	Vert

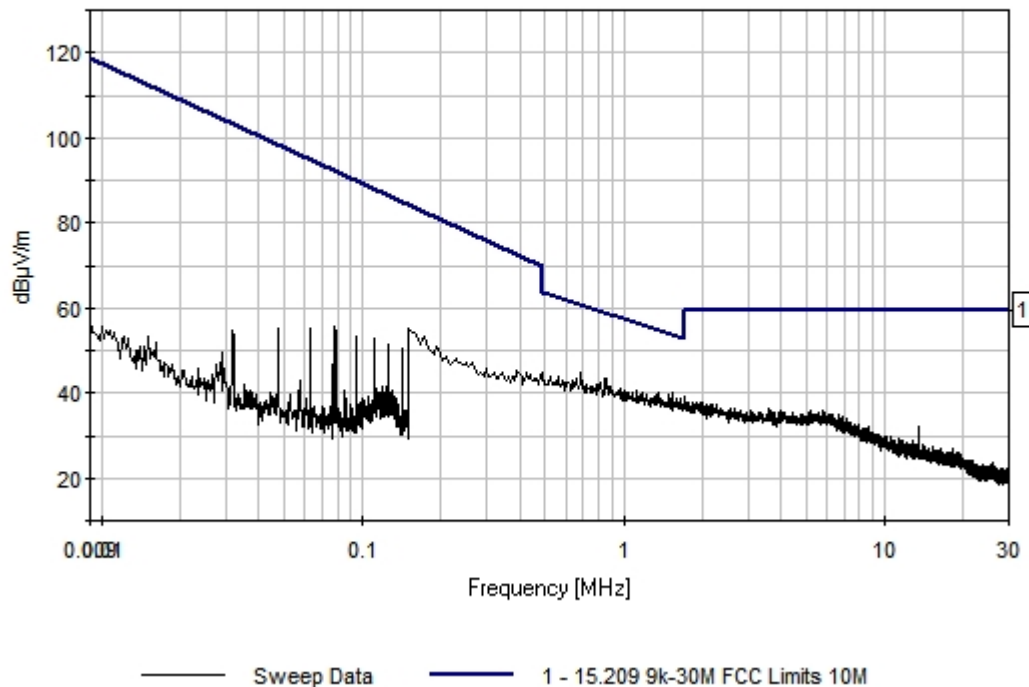


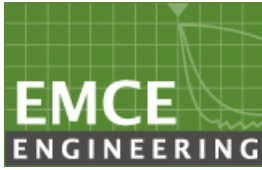
FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

7	1.326M	15.3	+0.2	+27.5	+51.5	+0.0	39.5	55.2	-15.7	Vert
8	688.356k	17.5	+0.2	+27.5	+54.7	+0.0	44.9	60.9	-16.0	Vert
9	1.122M	15.6	+0.2	+27.5	+52.3	+0.0	40.6	56.6	-16.0	Vert
10	1.174M	15.3	+0.2	+27.5	+52.0	+0.0	40.0	56.2	-16.2	Vert
11	1.221M	15.1	+0.2	+27.5	+51.9	+0.0	39.7	55.9	-16.2	Vert
12	808.571k	16.1	+0.2	+27.5	+53.9	+0.0	42.7	59.5	-16.8	Vert
13	782.437k	15.4	+0.2	+27.5	+54.0	+0.0	42.1	59.7	-17.6	Vert
14	557.687k	15.5	+0.2	+27.6	+55.7	+0.0	43.8	62.7	-18.9	Vert
15	1.723M	16.0	+0.2	+27.4	+50.2	+0.0	39.0	59.5	-20.5	Vert

EMCE Engineering Date: 5/4/2015 Time: 12:22:11 PM Customer WO#: 15.209 9k-30M FCC Limits 10M Test Distance: 10 Meters Sequence#: 1 Ext ATTN: 0 dB





FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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

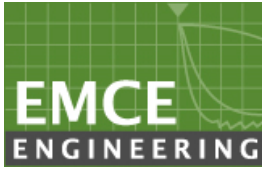
1. All possible modes of operation were investigated. Only the 6 worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
2. A “-ve” margin indicates a PASS as it refers to the margin present below the limit line at the particular 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 : 4/29/2015

Tested By : Bob Cole

Results: Pass



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

FCC Part 15B Radiated Emissions 30 MHz – 1 GHz

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

Customer: **Identive, Inc.**
Specification: **FCC 15.209 30-1000 10M**
Work Order #: **4125** Date: 4/29/2015
Test Type: **Radiated Scan** Time: 11:49:38
Equipment: **Access Control Pad** Sequence#: 2
Manufacturer: Identiv Tested By: Bob Cole
Model: 8210 (uTrust TS Keypad Reader) / 8230
(uTrust TS Network Keypad Reader)
S/N: N/A

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
----------	-----	------------------	--------------	---------

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Access Control Pad*	Identiv	8210 (uTrust TS Keypad Reader) / 8230 (uTrust TS Network Keypad Reader)	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
Power Over Ethernet	TP-Link	TL-POE150S Ver 3.0	2144545000690

Test Conditions / Notes:

--

Transducer Legend:

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

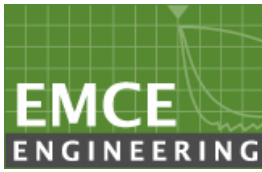
Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

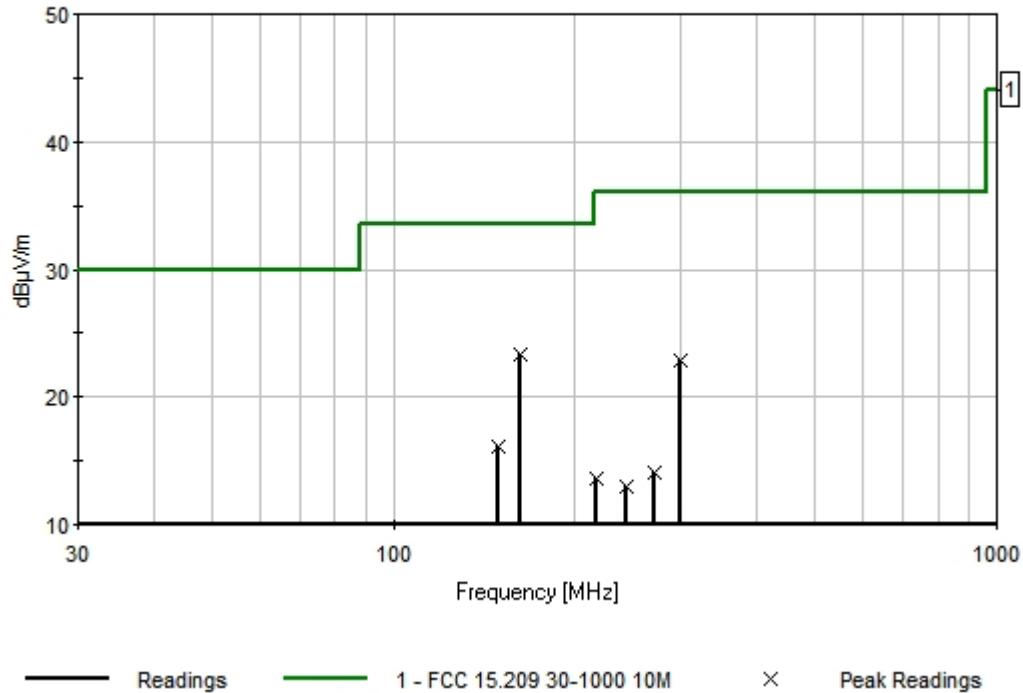
#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	162.718M	37.9	+0.0	+26.7	+12.2		+0.0 156	23.4	33.5	-10.1	Vert 110
2	298.320M	35.9	+0.4	+27.0	+13.6		+0.0 284	22.9	36.0	-13.1	Vert 292
3	149.167M	30.2	-0.1	+26.7	+12.7		+0.0 180	16.1	33.5	-17.4	Vert 140
4	271.201M	27.4	+0.3	+27.0	+13.3		+0.0 156	14.0	36.0	-22.0	Vert 127
5	216.460M	29.7	+0.2	+26.9	+10.6		+0.0	13.6	36.0	-22.4	Horiz 294
6	244.081M	28.2	+0.3	+27.0	+11.5		+0.0	13.0	36.0	-23.0	Horiz 294



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

EMCE Engineering Date: 4/29/2015 Time: 11:49:38 Identive, Inc. WO#: 4125
FCC 15.209 30-1000 10M Test Distance: 10 Meters Sequence#: 2 Ext ATTN: 0 dB



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.

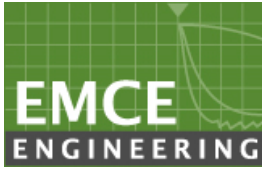
Limit: $\pm 0.01\%$ of 13.5589 MHz = 1355 Hz

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

Test Date : 4/29/2015

Tested By : Bob Cole

Results: Pass



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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 $+50^{\circ}\text{C}$ at normal supply voltage.

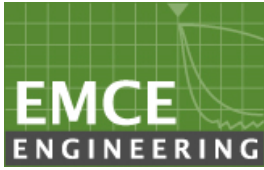
Reference Frequency: 13.559981 MHz

Temperature (°C)	Measured Freq. (MHz)	Freq. Drift (Hz)	Freq. Deviation (Limit: 0.01%)	Pass/Fail
50	13.560172	191	<0.01	Pass
40	13.560107	126	<0.01	Pass
30	13.560018	37	<0.01	Pass
20	Reference (13.559980 MHz)			
10	13.559942	39	<0.01	Pass
0	13.559912	69	<0.01	Pass
-10	13.559891	90	<0.01	Pass
-20	13.559858	123	<0.01	Pass

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: 13.559981 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	13.559984	3	<0.01	Pass
5.75	13.559988	7	<0.01	Pass



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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

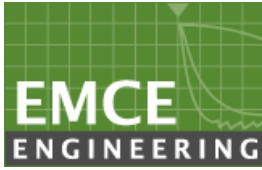
Test Date : 4/29/2015

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: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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 Group, Inc**
Specification: **RFID FCC Mask 10 Meter**
Work Order #: **4125**
Test Type: **Radiated Scan**
Equipment: **Access Control Pad**
Manufacturer: Identiv
Model: 8210 (uTrust Keypad Reader) / 8230 (uTrust Network Keypad Reader)
S/N: N/A

Date: 4/29/2015
Time: 12:00:45 PM
Sequence#: 3
Tested By: Bob Cole

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
----------	-----	------------------	--------------	---------

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Access Control Keypad	Identiv, Inc.	8210 (uTrust Keypad Reader) / 8230 (uTrust Network Keypad Reader)	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
Power Over Ethernet	TP-Link	TL-POE150S Ver 3.0	2144545000690

Test Conditions / Notes:

--

Transducer Legend:

T1=100' LMR 900 Rad Cable 12-2013	T2=8447 Pre-Amp Asset 377
T3=LP-105 Loop Factors	

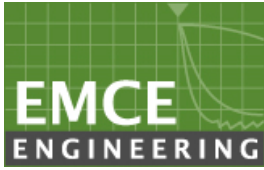
Ext Attn: 0 dB

Measurement Data:

Reading listed by amplitude.

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	13.566M	39.7	+0.2	+27.3	+39.7		+0.0	52.3	114.0	-61.7	Vert
2	14.518M	27.4	+0.2	+27.3	+39.1		+0.0	39.4	60.0	-20.6	Vert
3	14.218M	27.2	+0.2	+27.3	+39.3		+0.0	39.4	60.0	-20.6	Vert
4	14.426M	26.9	+0.2	+27.3	+39.1		+0.0	38.9	60.0	-21.1	Vert
5	13.549M	26.7	+0.2	+27.3	+39.7		+0.0	39.3	80.5	-41.2	Vert

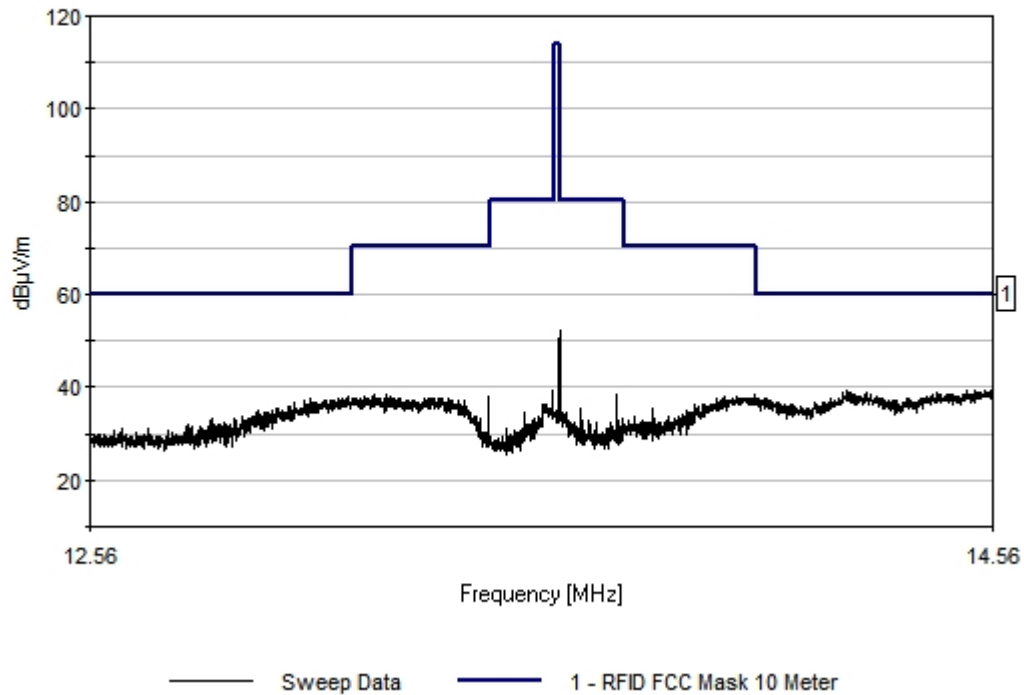


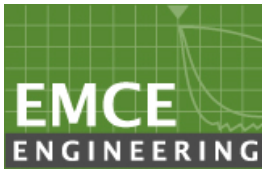
FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

6	14.209M	26.7	+0.2	+27.3	+39.3	+0.0	38.9	60.0	-21.1	Vert
7	13.691M	26.1	+0.2	+27.3	+39.6	+0.0	38.6	80.5	-41.9	Vert

EMCE Engineering Date: 4/29/2015 Time: 12:00:45 PM Identive, Inc. WO#: 4125
RFID FCC Mask 10 Meter Test Distance: 10 Meters Sequence#: 3 Ext ATTN: 0 dB



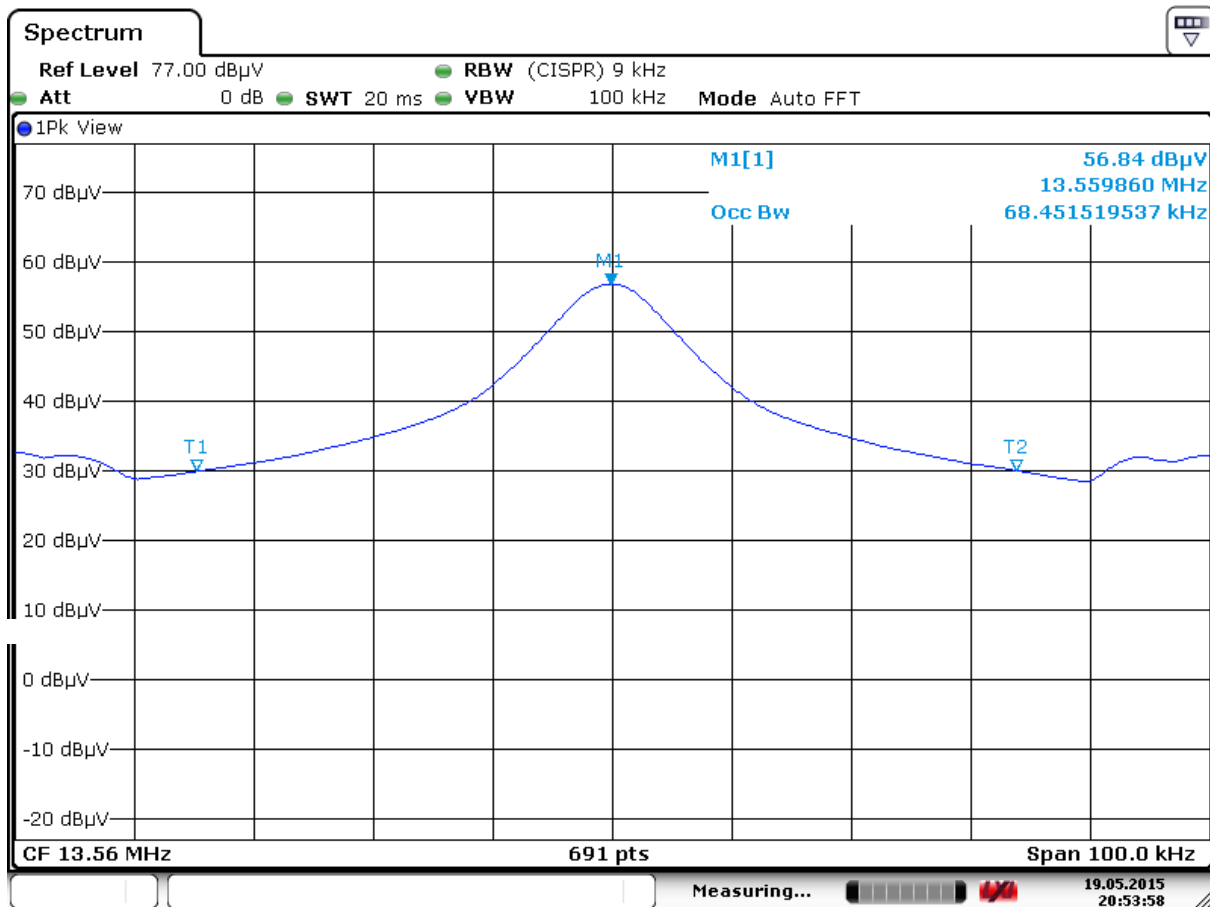


FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

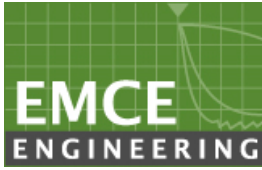
Test Report # 4125-1
Dated 6/12/2015

13.56 MHz Peak Power / 99% OBW

Frequency (MHz)	Corrected Amplitude Reading (dBuV/m @ 10M)	99% OBW
13.558	56.84	68.45 kHz



Date: 19 MAY 2015 20:53:59

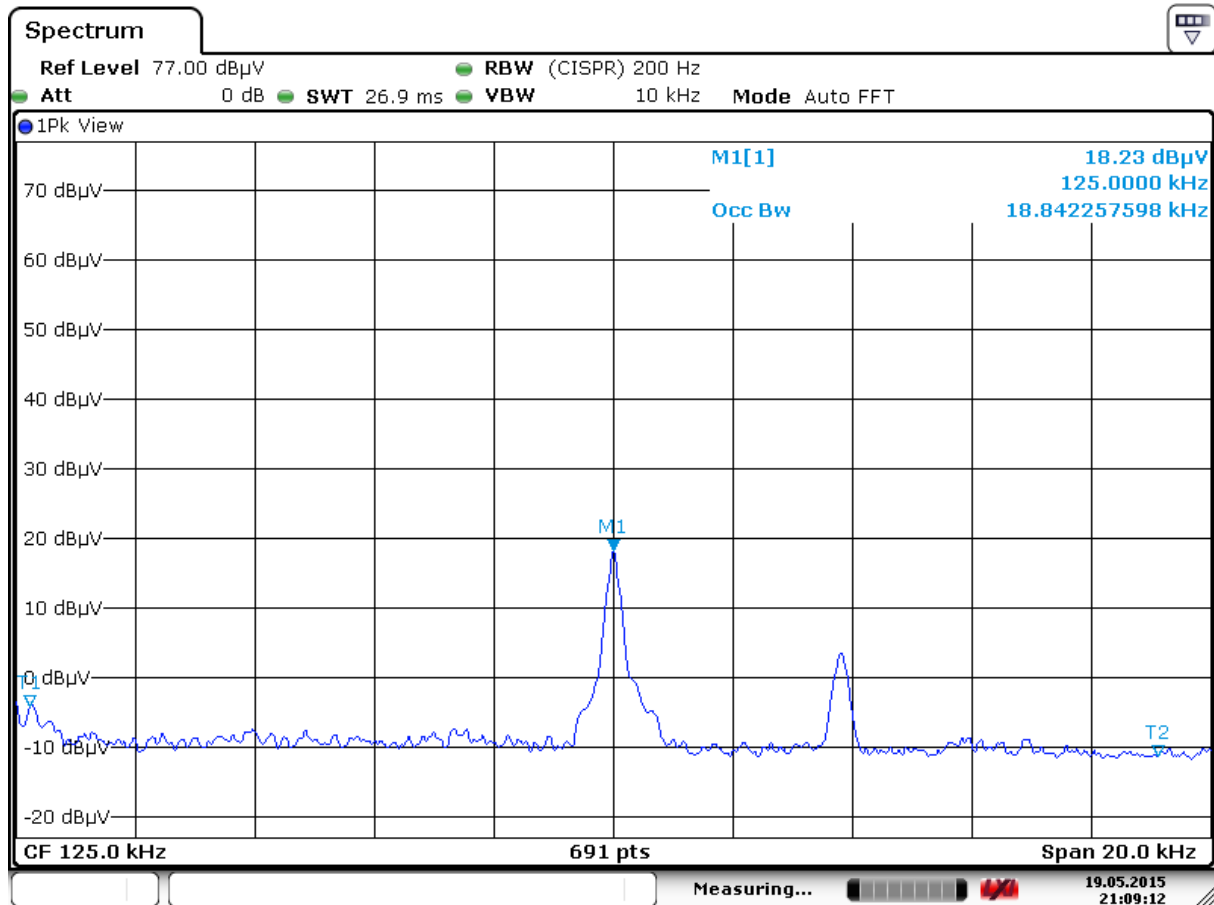


FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

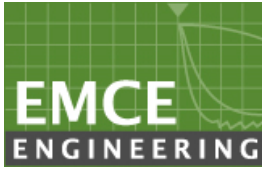
Test Report # 4125-1
Dated 6/12/2015

125 kHz Peak Power / 99% OBW

Frequency	Corrected Amplitude Reading (dBuV/m @ 10M)	99% OBW
125 kHz	18.23	18.84 kHz



Date: 19 MAY 2015 21:09:12



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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.

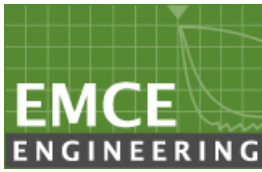
Environmental Conditions	Temperature	25.5°C
	Relative Humidity	47.2%

Test Date : 5/19/2015

Tested By : Bob Cole

Results: Pass

Frequency	Occupied Bandwidth (99%)
13.56 MHz	68.45 kHz
125 kHz	18.84 kHz



FCC ID: MBPTSKP-02
IC: 7485A-TSKPR2

Test Report # 4125-1
Dated 6/12/2015

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	5/1/16
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 /16
RF Signal Cable EMCE	100' LMR	N/A	5/1 /13	5/1 /16