

# Identive GmbH

ADDENDUM TEST REPORT 93717-11

**TouchSecure Mullion  
Model: Connectivity MUL**

**Tested To The Following Standards:**

**FCC Part 15 Subpart C Sections 15.207, 15.225  
and  
RSS 210 Issue 8**

**Report No.: 93717-11A**

**Date of issue: August 28, 2013**



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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## ADMINISTRATIVE INFORMATION

### Test Report Information

**REPORT PREPARED FOR:**

Identive GmbH  
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Representative: Stefan Trautner

**DATE OF EQUIPMENT RECEIPT:**

**DATE(S) OF TESTING:**

**REPORT PREPARED BY:**

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Project Number: 93717

March 26, 2013

March 26-29, 2013

August 23, 2013

### Revision History

**Original:** Testing of TouchSecure Mullion, Connectivity MUL to FCC Part 15 Subpart C Sections 15.207, 15.225 and RSS 210 Issue 8.

**Addendum A:** To add conducted emissions fundamental data and setup photos to section 15.207.

### Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



**Steve Behm**  
*Director of Quality Assurance & Engineering Services*  
*CKC Laboratories, Inc.*

## Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):  
CKC Laboratories, Inc.  
1120 Fulton Place  
Fremont, CA 94539

## Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

## Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Fremont	US0082	SL2-IN-E-1148R	3082B-1	958979	A-0149

## SUMMARY OF RESULTS

**Standard / Specification: FCC Part 15 Subpart C 15.207, 15.209 and RSS 210 Issue 8**

Description	Test Procedure/Method	Results
Voltage Variation	FCC Part 15 Subpart C Section 15.31(e)	Pass
Conducted Emissions	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4 (2003)	Pass
RF Power Output	FCC Part 15 Subpart C Section 15.225(a) / 2.1046	Pass
-20dBc & 99% Occupied Bandwidth	FCC Part 15 Subpart C 2.1049 / RSS 210 Issue 8	Pass
Bandedge	FCC Part 15 Subpart C / 15.225	Pass
Field Strength of Spurious Radiation	FCC Part 15 Subpart C Section 15.225(d) / 2.1053	Pass
Frequency Stability	FCC Part 15 Subpart C Section 15.225(e) / 2.1055(d)	Pass

## Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

## EQUIPMENT UNDER TEST (EUT)

### EQUIPMENT UNDER TEST

#### TouchSecure Mullion

Manuf: Identive GmbH  
Model: Connectivity MUL  
Serial: None

### PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

#### Laptop Power Adapter

Manuf: HP  
Model: PN: 677777-001  
Serial: PPP012L-E

#### Laptop

Manuf: Dell  
Model: Latitude E6320  
Serial: 8BZPYN1

#### DC Power Supply

Manuf: Protek  
Model: 3006B  
Serial: AG4070

#### POE Adapter Kit

Manuf: TP-LINK  
Model: TL-POE200A  
Serial: 10C82100800

#### DC Power Supply

Manuf: Sorensen  
Model: DCR55-90T1  
Serial: 9941B1004

## FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

### 15.31(e) Voltage Variations

#### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**

Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**

Work Order #: **93717**

Date: 3/27/2013

Test Type: **Radiated Scan**

Time: 10:00:43

Equipment: **TouchSecure Mullion**

Sequence#: 1

Manufacturer: Identive GmbH

Tested By: Hieu Song Nguyenpham

Model: Connectivity MUL

S/N: None

#### Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*		Connectivity MUL	None

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

***Test Conditions / Notes:***

Fundamental of the EUT

Temperature: 20.5°C

Humidity: 39 %

Atmospheric Pressure: 101.3 kPa

High Clock: 48 MHz

Software Used: Hyper Terminal and Ethernet Emulator

Transmitting Operation Frequency: 13.56MHz and 125kHz

RBW=VBW=9kHz for 13.56MHz

RBW=VBW=200Hz for 125kHz

**Mode: Power by DC power supply (12VDC)**

The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication.

The EUT is set continuously transmitting.

**15.31(e) compliance: the supply voltage was varied between 85% and 115% of the nominal rated supply voltage 12VDC (10.2 VDC and 13.8VDC), no change in the fundamental signal level was observed.**



Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/27/2013  
 Test Type: **Radiated Scan** Time: 10:49:53 AM  
 Equipment: **TouchSecure Mullion** Sequence#: 12  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
POE Adapter Kit	TP-LINK	TL-POE200A	10C82100800
DC Power Supply	Sorensen	DCR55-90T1	9941B1004

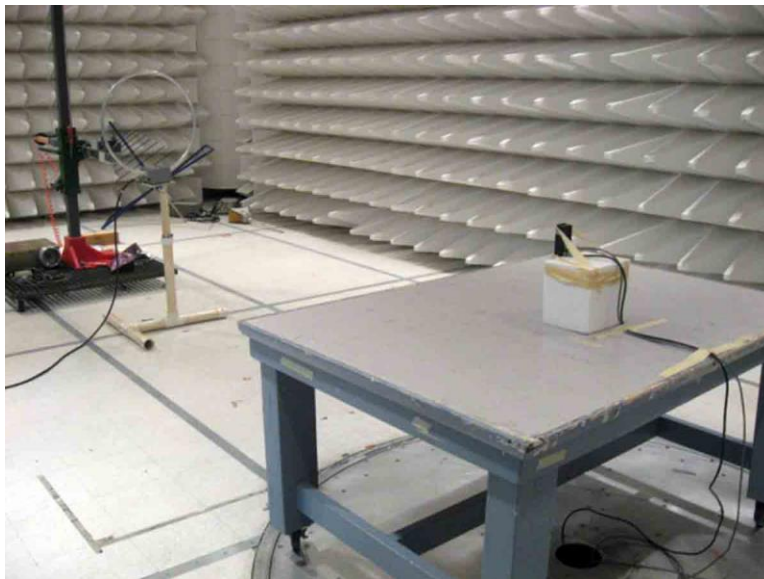
**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 9kHz to 30MHz  
 Temperature: 20.8°C  
 Humidity: 41 %  
 Atmospheric Pressure: 101.1 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 13.56MHz and 125kHz  
 RBW=VBW=9kHz from 150kHz to 30MHz  
 RBW=VBW=200Hz from 9kHz to 150kHz  
**Mode: Power Over Ethernet at 48VDC**  
 The EUT is a fixed device. It is powered by POE Adapter Kit at 48V which is outside of the chamber and communication with laptop through a RJ 45 cable. A DC power cable is terminated at this time. The EUT is placed on 80 cm table at the center of turning table. The EUT is set continuously transmitting.  
**15.31(e) compliance: the supply voltage was varied between 85% and 115% of the nominal rated supply voltage at 48VDC which was injected over the Ethernet (40.8 VDC and 55.2 VDC), no change in the fundamental signal level was observed.**

**Test Setup Photos**



Mode: Power by DC power supply (12VDC)



Mode: Power Over Ethernet @ 48VDC

**15.207 AC Conducted Emissions**

**Test Data Sheets**

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **93717** Date: 3/29/2013  
 Test Type: **Conducted Emissions** Time: 11:00:04  
 Equipment: **TouchSecure Mullion** Sequence#: 40  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL 120V 60Hz  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	23-10-34	4/15/2011	4/15/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
T4	AN00493	50uH LISN-L1 (L) Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN00493	50uH LISN-L(2) N Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T5	ANP05258	High Pass Filter	HE9615-150K- 50-720B	12/6/2012	12/6/2014

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Conducted Emission  
 Frequency Range: 150kHz to 30MHz

Temperature: 20.7°C  
 Humidity: 41 %  
 Atmospheric Pressure: 101.6kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator

Transmitting Operation Frequency: 125kHz and 13.56MHz

**Mode: Power by DC power supply (12VDC)**

Note:  
 Conducted emissions are being performed on AC input of the DC Power supply.  
 According to 15.207(b), the limit shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz.

Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	21.481M	33.2	+9.9 +0.2	+0.4	+0.3	+0.8	+0.0	44.8	50.0	-5.2	Black
2	25.772M	32.8	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	44.1	50.0	-5.9	Black
3	234.021k QP	45.4	+9.9 +0.2	+0.1	+0.1	+0.1	+0.0	55.8	62.3	-6.5	Black
4	17.184M	31.6	+9.9 +0.1	+0.4	+0.2	+0.2	+0.0	42.4	50.0	-7.6	Black
5	14.661M	27.7	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	38.3	50.0	-11.7	Black
6	623.411k	23.1	+9.9 +0.1	+0.1	+0.0	+0.1	+0.0	33.3	46.0	-12.7	Black
7	27.917M	24.7	+9.9 +0.2	+0.5	+0.2	+0.6	+0.0	36.1	50.0	-13.9	Black
8	25.067M	24.2	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	35.5	50.0	-14.5	Black
9	11.418M	24.1	+9.9 +0.1	+0.3	+0.2	+0.2	+0.0	34.8	50.0	-15.2	Black
10	23.634M	23.5	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	34.8	50.0	-15.2	Black
11	707.767k	20.2	+9.9 +0.1	+0.1	+0.1	+0.1	+0.0	30.5	46.0	-15.5	Black
12	15.184M	23.9	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	34.5	50.0	-15.5	Black
13	680.133k	20.3	+9.9 +0.1	+0.1	+0.0	+0.1	+0.0	30.5	46.0	-15.5	Black
14	12.896M	23.8	+9.9 +0.1	+0.3	+0.1	+0.2	+0.0	34.4	50.0	-15.6	Black

15	442.372k QP	31.4	+9.8 +0.0	+0.1	+0.0	+0.1	+0.0	41.4	57.0	-15.6	Black
16	25.526M	22.8	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	34.1	50.0	-15.9	Black
17	6.445M	23.7	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	34.0	50.0	-16.0	Black
18	661.953k	19.7	+9.9 +0.1	+0.1	+0.0	+0.1	+0.0	29.9	46.0	-16.1	Black
19	720.857k	19.6	+9.9 +0.1	+0.1	+0.1	+0.1	+0.0	29.9	46.0	-16.1	Black
20	23.374M	22.4	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	33.7	50.0	-16.3	Black
21	15.824M	23.0	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	33.6	50.0	-16.4	Black
22	11.454M	22.8	+9.9 +0.1	+0.3	+0.2	+0.2	+0.0	33.5	50.0	-16.5	Black
23	26.019M	21.3	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	32.6	50.0	-17.4	Black
24	774.670k	18.0	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	28.3	46.0	-17.7	Black
25	4.658M	16.6	+9.9 +0.2	+0.2	+0.1	+0.1	+0.0	27.1	46.0	-18.9	Black
26	8.589M	20.3	+9.9 +0.1	+0.3	+0.2	+0.2	+0.0	31.0	50.0	-19.0	Black
27	779.033k	16.6	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	26.9	46.0	-19.1	Black
28	16.427M	20.3	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	30.9	50.0	-19.1	Black
29	24.621M	19.5	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	30.8	50.0	-19.2	Black
30	15.040M	19.8	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	30.4	50.0	-19.6	Black
31	755.035k	16.0	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	26.3	46.0	-19.7	Black
32	786.305k	15.9	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	26.2	46.0	-19.8	Black
33	781.215k	15.7	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	26.0	46.0	-20.0	Black
34	10.743M	19.5	+9.8 +0.0	+0.3	+0.2	+0.2	+0.0	30.0	50.0	-20.0	Black
35	849.572k	15.6	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	25.9	46.0	-20.1	Black
36	19.995M	18.6	+9.8 +0.2	+0.4	+0.3	+0.6	+0.0	29.9	50.0	-20.1	Black
37	800.849k	15.4	+9.8 +0.2	+0.1	+0.0	+0.1	+0.0	25.6	46.0	-20.4	Black
38	6.337M	19.2	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	29.5	50.0	-20.5	Black
39	10.851M	18.9	+9.8 +0.0	+0.3	+0.2	+0.2	+0.0	29.4	50.0	-20.6	Black
40	19.968M	17.9	+9.8 +0.2	+0.4	+0.3	+0.6	+0.0	29.2	50.0	-20.8	Black

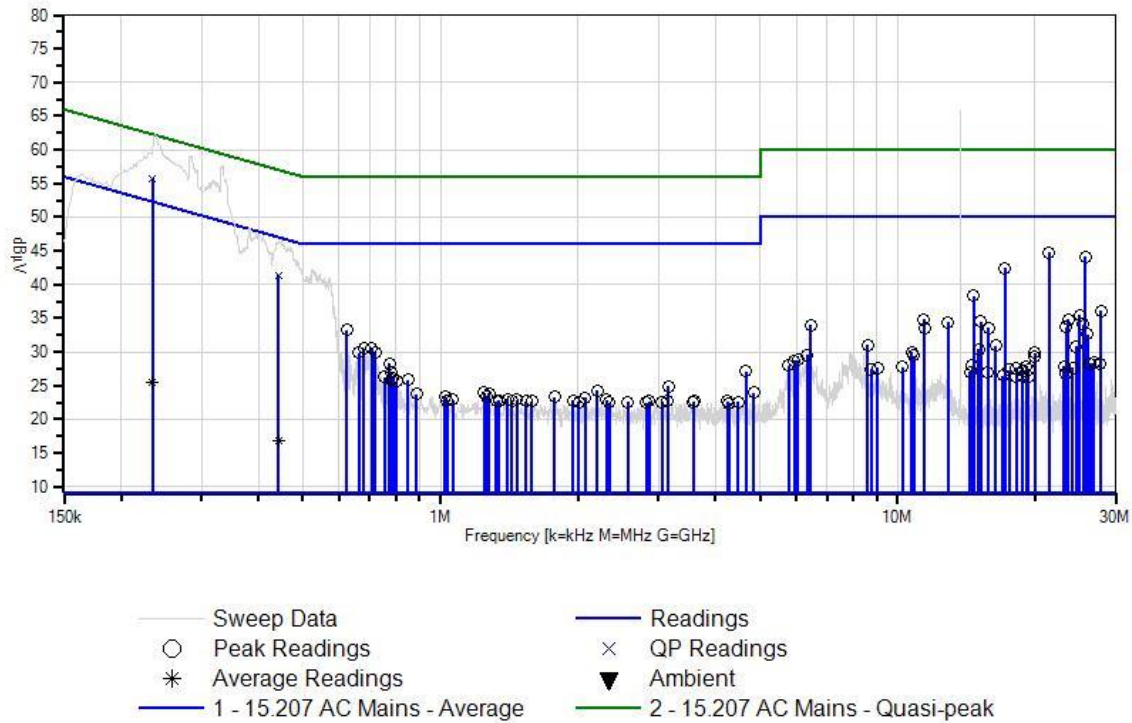
41	3.152M	14.6	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	24.9	46.0	-21.1	Black
42	6.058M	18.5	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	28.8	50.0	-21.2	Black
43	5.941M	18.4	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	28.7	50.0	-21.3	Black
44	26.910M	17.0	+9.9 +0.2	+0.5	+0.2	+0.6	+0.0	28.4	50.0	-21.6	Black
45	2.200M	14.1	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	24.3	46.0	-21.7	Black
46	26.457M	16.9	+9.9 +0.2	+0.5	+0.2	+0.6	+0.0	28.3	50.0	-21.7	Black
47	27.800M	16.9	+9.9 +0.2	+0.5	+0.2	+0.6	+0.0	28.3	50.0	-21.7	Black
48	4.854M	13.5	+9.9 +0.2	+0.2	+0.1	+0.1	+0.0	24.0	46.0	-22.0	Black
49	5.770M	17.7	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	28.0	50.0	-22.0	Black
50	14.571M	17.4	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	28.0	50.0	-22.0	Black
51	1.247M	13.9	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	24.0	46.0	-22.0	Black
52	23.121M	16.6	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	27.9	50.0	-22.1	Black
53	1.277M	13.6	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	23.8	46.0	-22.2	Black
54	10.247M	17.3	+9.8 +0.0	+0.3	+0.1	+0.3	+0.0	27.8	50.0	-22.2	Black
55	19.139M	16.6	+9.8 +0.2	+0.4	+0.3	+0.5	+0.0	27.8	50.0	-22.2	Black
56	885.710k	13.4	+9.8 +0.2	+0.1	+0.1	+0.1	+0.0	23.7	46.0	-22.3	Black
57	24.162M	16.4	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	27.7	50.0	-22.3	Black
58	9.058M	16.8	+9.9 +0.1	+0.3	+0.2	+0.3	+0.0	27.6	50.0	-22.4	Black
59	18.166M	16.7	+9.9 +0.1	+0.4	+0.2	+0.3	+0.0	27.6	50.0	-22.4	Black
60	1.260M	13.2	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	23.4	46.0	-22.6	Black
61	1.022M	13.2	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	23.4	46.0	-22.6	Black
62	19.337M	16.2	+9.8 +0.2	+0.4	+0.3	+0.5	+0.0	27.4	50.0	-22.6	Black
63	8.761M	16.7	+9.9 +0.1	+0.3	+0.2	+0.2	+0.0	27.4	50.0	-22.6	Black
64	1.775M	13.2	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	23.3	46.0	-22.7	Black
65	17.580M	16.5	+9.9 +0.1	+0.4	+0.2	+0.2	+0.0	27.3	50.0	-22.7	Black
66	2.072M	13.1	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	23.2	46.0	-22.8	Black

67	18.788M	16.2	+9.9 +0.1	+0.4	+0.2	+0.4	+0.0	27.2	50.0	-22.8	Black
68	1.405M	12.9	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	23.0	46.0	-23.0	Black
69	14.409M	16.4	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	27.0	50.0	-23.0	Black
70	1.468M	12.7	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.9	46.0	-23.1	Black
71	1.064M	12.7	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.9	46.0	-23.1	Black
72	15.752M	16.3	+9.8 +0.1	+0.3	+0.2	+0.2	+0.0	26.9	50.0	-23.1	Black
73	2.310M	12.7	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.9	46.0	-23.1	Black
74	1.434M	12.6	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.8	46.0	-23.2	Black
75	1.341M	12.7	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	22.8	46.0	-23.2	Black
76	23.264M	15.5	+9.9 +0.2	+0.4	+0.2	+0.6	+0.0	26.8	50.0	-23.2	Black
77	1.953M	12.6	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.8	46.0	-23.2	Black
78	1.536M	12.6	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	22.7	46.0	-23.3	Black
79	1.583M	12.6	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	22.7	46.0	-23.3	Black
80	1.035M	12.5	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.7	46.0	-23.3	Black
81	1.324M	12.5	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.7	46.0	-23.3	Black
82	3.586M	12.4	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.7	46.0	-23.3	Black
83	4.241M	12.4	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.7	46.0	-23.3	Black
84	2.863M	12.4	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.7	46.0	-23.3	Black
85	3.144M	12.4	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.7	46.0	-23.3	Black
86	2.574M	12.5	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	22.6	46.0	-23.4	Black
87	2.004M	12.5	+9.8 +0.1	+0.1	+0.0	+0.1	+0.0	22.6	46.0	-23.4	Black
88	4.475M	12.1	+9.9 +0.2	+0.2	+0.1	+0.1	+0.0	22.6	46.0	-23.4	Black
89	3.050M	12.3	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.6	46.0	-23.4	Black
90	2.816M	12.2	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.5	46.0	-23.5	Black

91	2.344M	12.3	+9.8 +0.1	+0.1	+0.1	+0.1	+0.0	22.5	46.0	-23.5	Black
92	16.977M	15.7	+9.9 +0.1	+0.4	+0.2	+0.2	+0.0	26.5	50.0	-23.5	Black
93	3.569M	12.2	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.5	46.0	-23.5	Black
94	18.211M	15.5	+9.9 +0.1	+0.4	+0.2	+0.3	+0.0	26.4	50.0	-23.6	Black
95	4.279M	12.1	+9.8 +0.1	+0.2	+0.1	+0.1	+0.0	22.4	46.0	-23.6	Black
96	19.364M	15.2	+9.8 +0.2	+0.4	+0.3	+0.5	+0.0	26.4	50.0	-23.6	Black
97	18.761M	15.4	+9.9 +0.1	+0.4	+0.2	+0.4	+0.0	26.4	50.0	-23.6	Black
98	234.021k Ave	15.0	+9.9 +0.2	+0.1	+0.1	+0.1	+0.0	25.4	52.3	-26.9	Black
^	234.021k	52.3	+9.9 +0.2	+0.1	+0.1	+0.1	+0.0	62.7	52.3	+10.4	Black
^	234.021k	51.9	+9.9 +0.2	+0.1	+0.1	+0.1	+0.0	62.3	52.3	+10.0	Black
101	442.372k Ave	6.9	+9.8 +0.0	+0.1	+0.0	+0.1	+0.0	16.9	47.0	-30.1	Black
^	442.372k	36.8	+9.8 +0.0	+0.1	+0.0	+0.1	+0.0	46.8	47.0	-0.2	Black
^	442.372k	36.3	+9.8 +0.0	+0.1	+0.0	+0.1	+0.0	46.3	47.0	-0.7	Black



CKC Laboratories, Inc Date: 3/29/2013 Time: 11:00:04 Identive Group, Inc WO#: 93717  
Test Lead: Black 120V 60Hz Sequence#: 40



The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive Group, Inc.**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **93717**  
 Test Type: **Conducted Emissions**  
 Equipment: **TouchSecure Mullion**  
 Manufacturer: Identive Group, Inc.  
 Model: Connectivity MUL  
 S/N: None

Date: 8/23/2013  
 Time: 11:43:29  
 Sequence#: 41  
 Tested By: Hieu Song Nguyenpham  
 120V 60Hz

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T2	AN00493	50uH LISN-L1 (L) Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN00493	50uH LISN-L(2) N Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T3	ANP05258	High Pass Filter	HE9615-150K- 50-720B	12/6/2012	12/6/2014
T4	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive Group, Inc.	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	P/N: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Conducted Emission  
 Frequency Range: 150kHz to 30MHz

Temperature: 23.7C  
 Humidity: 42%  
 Atmospheric Pressure: 101.0 kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 125kHz and 13.56MHz

Mode: Power by DC power supply (12VDC)

The EUT is a fix device. It is powered by DC power supply at 12VDC which is next to the EUT. The EUT and the DC power supply are placed on 80 cm table.  
 The EUT is set to continuously transmitting.  
 Note: RF output power goes to a dummy load 51 Ohm resister ( Digi-Key, P/N 51Q)

Ext Attn: 0 dB

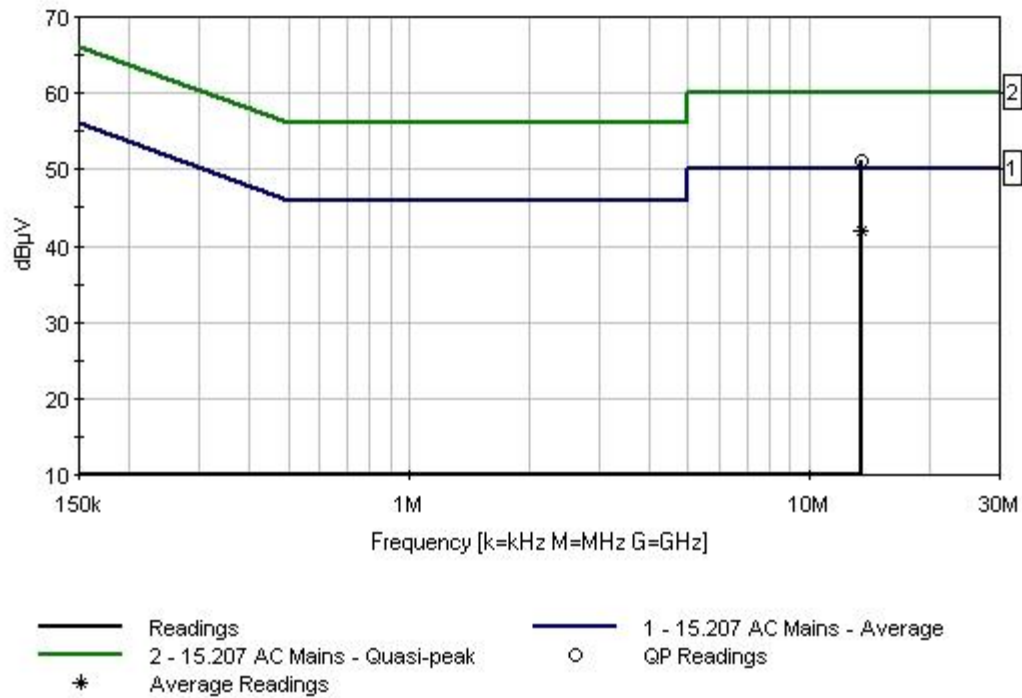
**Measurement Data:**

Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar Ant
1	13.560M Ave	31.7	+0.3 +0.1	+0.2	+0.1	+9.6	+0.0	42.0	50.0	-8.0	Black
2	13.560M QP	40.9	+0.3 +0.1	+0.2	+0.1	+9.6	+0.0	51.2	60.0	-8.8	Black
^	13.560M	43.3	+0.3 +0.1	+0.2	+0.1	+9.6	+0.0	53.6	50.0	+3.6	Black

CKC Laboratories, Inc Date: 8/23/2013 Time: 11:43:29 Identive Group, Inc WVO#: 93717  
Test Lead: Black 120V 60Hz Sequence#: 41



The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **93717**  
 Test Type: **Conducted Emissions**  
 Equipment: **TouchSecure Mullion**  
 Manufacturer: Identive GmbH  
 Model: Connectivity MUL  
 S/N: None

Date: 3/29/2013  
 Time: 11:08:20  
 Sequence#: 41  
 Tested By: Hieu Song Nguyenpham  
 120V 60Hz

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP01211	Attenuator	23-10-34	4/15/2011	4/15/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN00493	50uH LISN-L1 (L) Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
T4	AN00493	50uH LISN-L(2) N Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T5	ANP05258	High Pass Filter	HE9615-150K- 50-720B	12/6/2012	12/6/2014

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Conducted Emission  
 Frequency Range: 150kHz to 30MHz  
 Temperature: 20. 7°C  
 Humidity: 41 %  
 Atmospheric Pressure: 101.6kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 125kHz and 13.56MHz

**Mode: Power by DC power supply (12VDC)**

Note: Conducted emissions are being performed on AC input of the DC Power supply.  
 According to 15.207(b), the limit shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz

Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar Ant
1	21.400M	32.7	+9.9 +0.2	+0.4	+0.3	+1.1	+0.0	44.6	50.0	-5.4	White
2	25.676M	32.0	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	43.7	50.0	-6.3	White
3	243.571k QP	44.7	+9.9 +0.2	+0.1	+0.1	+0.6	+0.0	55.6	62.0	-6.4	White
4	17.121M	31.7	+9.9 +0.1	+0.4	+0.2	+0.8	+0.0	43.1	50.0	-6.9	White
5	593.596k	26.3	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	37.0	46.0	-9.0	White
6	14.643M	28.7	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	39.8	50.0	-10.2	White
7	13.031M	27.8	+9.8 +0.1	+0.3	+0.1	+0.7	+0.0	38.8	50.0	-11.2	White
8	27.835M	26.0	+9.9 +0.2	+0.5	+0.2	+1.0	+0.0	37.8	50.0	-12.2	White
9	29.966M	25.1	+10.0 +0.2	+0.5	+0.3	+1.2	+0.0	37.3	50.0	-12.7	White
10	13.094M	25.7	+9.8 +0.1	+0.3	+0.1	+0.7	+0.0	36.7	50.0	-13.3	White
11	26.033M	24.8	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	36.5	50.0	-13.5	White
12	23.545M	24.0	+9.9 +0.2	+0.4	+0.2	+1.1	+0.0	35.8	50.0	-14.2	White
13	11.743M	24.3	+9.9 +0.1	+0.3	+0.2	+0.7	+0.0	35.5	50.0	-14.5	White
14	13.013M	24.4	+9.8 +0.1	+0.3	+0.1	+0.7	+0.0	35.4	50.0	-14.6	White
15	29.733M	22.9	+10.0 +0.2	+0.5	+0.3	+1.2	+0.0	35.1	50.0	-14.9	White
16	699.768k	20.1	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	30.8	46.0	-15.2	White
17	15.184M	23.7	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	34.8	50.0	-15.2	White
18	679.406k	20.1	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	30.8	46.0	-15.2	White
19	26.937M	22.9	+9.9 +0.2	+0.5	+0.2	+1.0	+0.0	34.7	50.0	-15.3	White
20	719.402k	19.7	+9.9 +0.1	+0.1	+0.1	+0.6	+0.0	30.5	46.0	-15.5	White
21	672.134k	19.8	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	30.5	46.0	-15.5	White
22	12.328M	23.3	+9.9 +0.1	+0.3	+0.2	+0.7	+0.0	34.5	50.0	-15.5	White
23	26.492M	22.7	+9.9 +0.2	+0.5	+0.2	+1.0	+0.0	34.5	50.0	-15.5	White

24	395.796k QP	31.9	+9.8 +0.0	+0.1	+0.0	+0.6	+0.0	42.4	57.9	-15.5	White
25	655.408k	19.6	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	30.3	46.0	-15.7	White
26	12.851M	23.2	+9.9 +0.1	+0.3	+0.1	+0.7	+0.0	34.3	50.0	-15.7	White
27	684.496k	19.4	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	30.1	46.0	-15.9	White
28	25.587M	22.2	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	33.9	50.0	-16.1	White
29	634.319k	19.0	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	29.7	46.0	-16.3	White
30	739.764k	18.8	+9.9 +0.1	+0.1	+0.1	+0.6	+0.0	29.6	46.0	-16.4	White
31	615.412k	18.8	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	29.5	46.0	-16.5	White
32	621.229k	18.5	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	29.2	46.0	-16.8	White
33	18.157M	21.6	+9.9 +0.1	+0.4	+0.2	+0.9	+0.0	33.1	50.0	-16.9	White
34	6.418M	22.0	+9.8 +0.1	+0.2	+0.1	+0.7	+0.0	32.9	50.0	-17.1	White
35	611.776k	17.9	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	28.6	46.0	-17.4	White
36	11.130M	21.4	+9.9 +0.1	+0.3	+0.2	+0.7	+0.0	32.6	50.0	-17.4	White
37	789.941k	17.8	+9.8 +0.2	+0.1	+0.0	+0.6	+0.0	28.5	46.0	-17.5	White
38	14.986M	21.4	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	32.5	50.0	-17.5	White
39	618.321k	17.6	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	28.3	46.0	-17.7	White
40	641.591k	17.4	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	28.1	46.0	-17.9	White
41	13.589M	20.9	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	32.0	50.0	-18.0	White
42	20.004M	19.8	+9.8 +0.2	+0.4	+0.3	+1.1	+0.0	31.6	50.0	-18.4	White
43	19.508M	19.7	+9.8 +0.2	+0.4	+0.3	+1.1	+0.0	31.5	50.0	-18.5	White
44	25.142M	19.8	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	31.5	50.0	-18.5	White
45	15.761M	20.3	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	31.4	50.0	-18.6	White
46	643.046k	16.5	+9.9 +0.1	+0.1	+0.0	+0.6	+0.0	27.2	46.0	-18.8	White
47	792.850k	16.3	+9.8 +0.2	+0.1	+0.0	+0.6	+0.0	27.0	46.0	-19.0	White
48	24.189M	19.2	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	30.9	50.0	-19.1	White
49	765.943k	15.7	+9.8 +0.2	+0.1	+0.1	+0.6	+0.0	26.5	46.0	-19.5	White

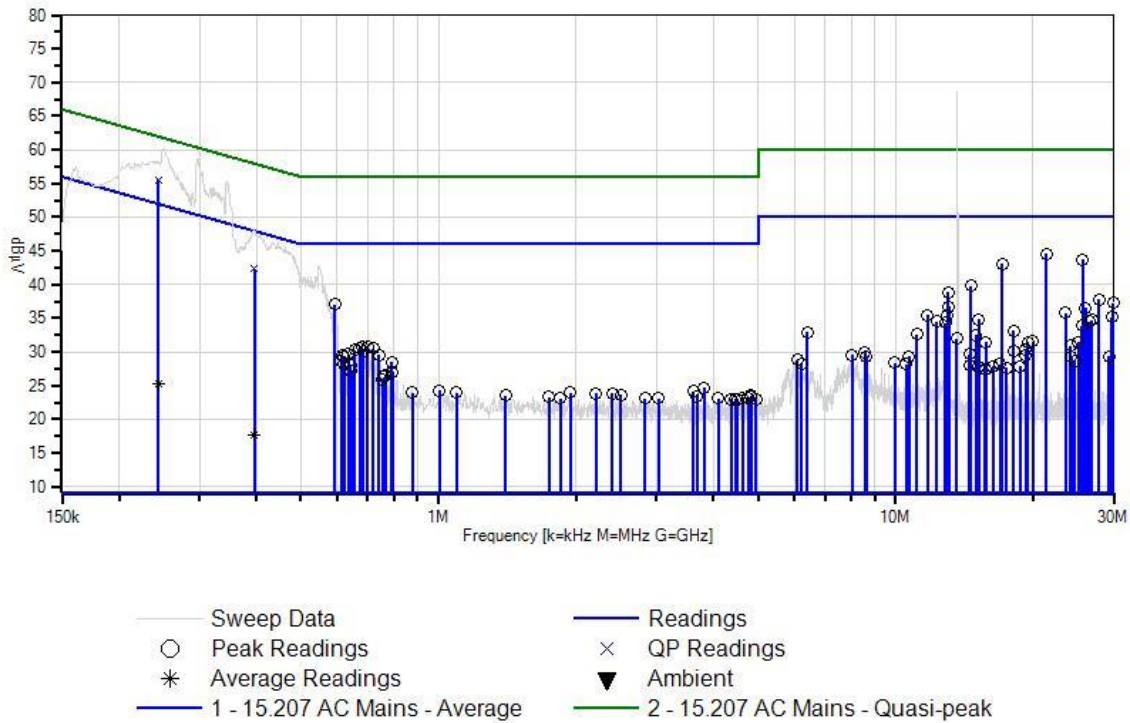
50	760.126k	15.5	+9.8 +0.2	+0.1	+0.1	+0.6	+0.0	26.3	46.0	-19.7	White
51	19.274M	18.5	+9.8 +0.2	+0.4	+0.3	+1.1	+0.0	30.3	50.0	-19.7	White
52	18.112M	18.6	+9.9 +0.1	+0.4	+0.2	+0.9	+0.0	30.1	50.0	-19.9	White
53	755.035k	15.2	+9.8 +0.2	+0.1	+0.1	+0.6	+0.0	26.0	46.0	-20.0	White
54	8.562M	18.8	+9.9 +0.1	+0.3	+0.2	+0.7	+0.0	30.0	50.0	-20.0	White
55	14.517M	18.6	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	29.7	50.0	-20.3	White
56	8.040M	18.5	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	29.6	50.0	-20.4	White
57	19.301M	17.8	+9.8 +0.2	+0.4	+0.3	+1.1	+0.0	29.6	50.0	-20.4	White
58	8.625M	18.1	+9.9 +0.1	+0.3	+0.2	+0.7	+0.0	29.3	50.0	-20.7	White
59	10.697M	18.3	+9.8 +0.0	+0.3	+0.2	+0.7	+0.0	29.3	50.0	-20.7	White
60	29.287M	17.2	+10.0 +0.2	+0.5	+0.3	+1.1	+0.0	29.3	50.0	-20.7	White
61	24.258M	17.5	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	29.2	50.0	-20.8	White
62	6.094M	17.9	+9.8 +0.1	+0.2	+0.1	+0.7	+0.0	28.8	50.0	-21.2	White
63	3.807M	13.9	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	24.7	46.0	-21.3	White
64	24.655M	16.9	+9.9 +0.2	+0.4	+0.2	+1.0	+0.0	28.6	50.0	-21.4	White
65	9.977M	17.4	+9.8 +0.0	+0.3	+0.1	+0.8	+0.0	28.4	50.0	-21.6	White
66	1.005M	13.6	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	24.3	46.0	-21.7	White
67	6.238M	17.3	+9.8 +0.1	+0.2	+0.1	+0.7	+0.0	28.2	50.0	-21.8	White
68	3.616M	13.4	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	24.2	46.0	-21.8	White
69	16.932M	16.9	+9.8 +0.1	+0.4	+0.2	+0.8	+0.0	28.2	50.0	-21.8	White
70	10.535M	17.3	+9.8 +0.0	+0.3	+0.1	+0.7	+0.0	28.2	50.0	-21.8	White
71	1.094M	13.3	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	24.0	46.0	-22.0	White
72	14.580M	16.9	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	28.0	50.0	-22.0	White
73	1.940M	13.2	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	23.9	46.0	-22.1	White
74	877.205k	13.1	+9.8 +0.2	+0.1	+0.1	+0.6	+0.0	23.9	46.0	-22.1	White
75	18.725M	16.3	+9.9 +0.1	+0.4	+0.2	+1.0	+0.0	27.9	50.0	-22.1	White

76	16.346M	16.8	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	27.9	50.0	-22.1	White
77	2.213M	13.1	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	23.8	46.0	-22.2	White
78	2.404M	13.1	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	23.8	46.0	-22.2	White
79	15.157M	16.7	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	27.8	50.0	-22.2	White
80	17.517M	16.3	+9.9 +0.1	+0.4	+0.2	+0.8	+0.0	27.7	50.0	-22.3	White
81	2.502M	12.9	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	23.6	46.0	-22.4	White
82	1.400M	12.9	+9.8 +0.1	+0.1	+0.0	+0.6	+0.0	23.5	46.0	-22.5	White
83	4.832M	12.4	+9.9 +0.2	+0.2	+0.1	+0.7	+0.0	23.5	46.0	-22.5	White
84	3.671M	12.6	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	23.4	46.0	-22.6	White
85	15.725M	16.3	+9.8 +0.1	+0.3	+0.2	+0.7	+0.0	27.4	50.0	-22.6	White
86	1.745M	12.6	+9.8 +0.1	+0.1	+0.1	+0.6	+0.0	23.3	46.0	-22.7	White
87	4.824M	12.2	+9.9 +0.2	+0.2	+0.1	+0.7	+0.0	23.3	46.0	-22.7	White
88	4.764M	12.1	+9.9 +0.2	+0.2	+0.1	+0.7	+0.0	23.2	46.0	-22.8	White
89	2.829M	12.3	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	23.1	46.0	-22.9	White
90	1.847M	12.5	+9.8 +0.1	+0.1	+0.0	+0.6	+0.0	23.1	46.0	-22.9	White
91	3.029M	12.3	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	23.1	46.0	-22.9	White
92	4.628M	12.0	+9.9 +0.2	+0.2	+0.1	+0.7	+0.0	23.1	46.0	-22.9	White
93	4.097M	12.3	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	23.1	46.0	-22.9	White
94	4.471M	12.2	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	23.0	46.0	-23.0	White
95	4.373M	12.2	+9.8 +0.1	+0.2	+0.1	+0.6	+0.0	23.0	46.0	-23.0	White
96	4.951M	11.9	+9.9 +0.2	+0.2	+0.1	+0.7	+0.0	23.0	46.0	-23.0	White
97	4.509M	12.0	+9.9 +0.2	+0.2	+0.1	+0.6	+0.0	23.0	46.0	-23.0	White
98	243.571k	14.4	+9.9 +0.2	+0.1	+0.1	+0.6	+0.0	25.3	52.0	-26.7	White
	Ave										
^	243.571k	49.6	+9.9 +0.2	+0.1	+0.1	+0.6	+0.0	60.5	52.0	+8.5	White
^	243.571k	49.5	+9.9 +0.2	+0.1	+0.1	+0.6	+0.0	60.4	52.0	+8.4	White



101	395.796k	7.1	+9.8	+0.1	+0.0	+0.6	+0.0	17.6	47.9	-30.3	White
	Ave		+0.0								
^	395.796k	37.9	+9.8	+0.1	+0.0	+0.6	+0.0	48.4	47.9	+0.5	White
			+0.0								
^	396.796k	37.5	+9.8	+0.1	+0.0	+0.6	+0.0	48.0	47.9	+0.1	White
			+0.0								

CKC Laboratories, Inc Date: 3/29/2013 Time: 11:08:20 Identive Group, Inc WO#: 93717  
 Test Lead: White 120V 60Hz Sequence#: 41



The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive Group, Inc.**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **93717**  
 Test Type: **Conducted Emissions**  
 Equipment: **TouchSecure Mullion**  
 Manufacturer: Identive Group, Inc.  
 Model: Connectivity MUL  
 S/N: None

Date: 8/23/2013  
 Time: 11:46:47  
 Sequence#: 42  
 Tested By: Hieu Song Nguyenpham  
 120V 60Hz

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	AN00493	50uH LISN-L1 (L) Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
T2	AN00493	50uH LISN-L(2) N Loss W/O European Adapter	3816/NM	3/4/2013	3/4/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T3	ANP05258	High Pass Filter	HE9615-150K- 50-720B	12/6/2012	12/6/2014
T4	ANP01211	Attenuator	PE7002-10	4/2/2013	4/2/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive Group, Inc.	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	P/N: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

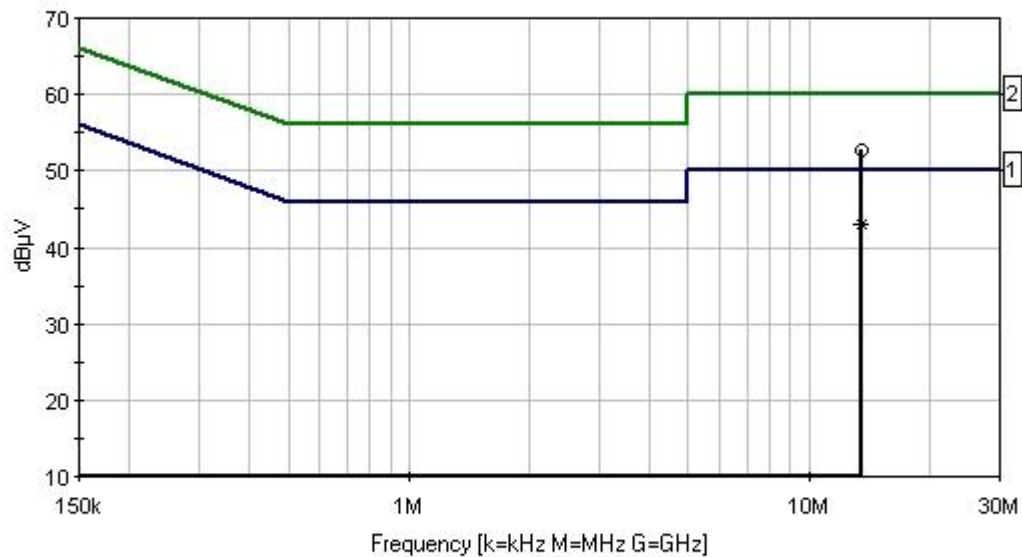
Conducted Emission  
 Frequency Range: 150kHz to 30MHz  
 Temperature: 23.7°C  
 Humidity: 42%  
 Atmospheric Pressure: 101.0 kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 125kHz and 13.56MHz  
 Mode: Power by DC power supply (12VDC)  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is next to the EUT. The EUT and the DC power supply are placed on 80 cm table.  
 The EUT is set continuously transmitting.  
 Note: RF output power goes to a dummy load 51 Ohm resister ( Digi-Key, P/N 51Q)

Ext Attn: 0 dB

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.				Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar Ant
			T1 T5 dB	T2 dB	T3 dB	T4 dB					
1	13.560M Ave	32.3	+0.3 +0.1	+0.7	+0.1	+9.6	+0.0	43.1	50.0	-6.9	White
2	13.560M QP	42.0	+0.3 +0.1	+0.7	+0.1	+9.6	+0.0	52.8	60.0	-7.2	White
^	13.560M	44.4	+0.3 +0.1	+0.7	+0.1	+9.6	+0.0	55.2	50.0	+5.2	White

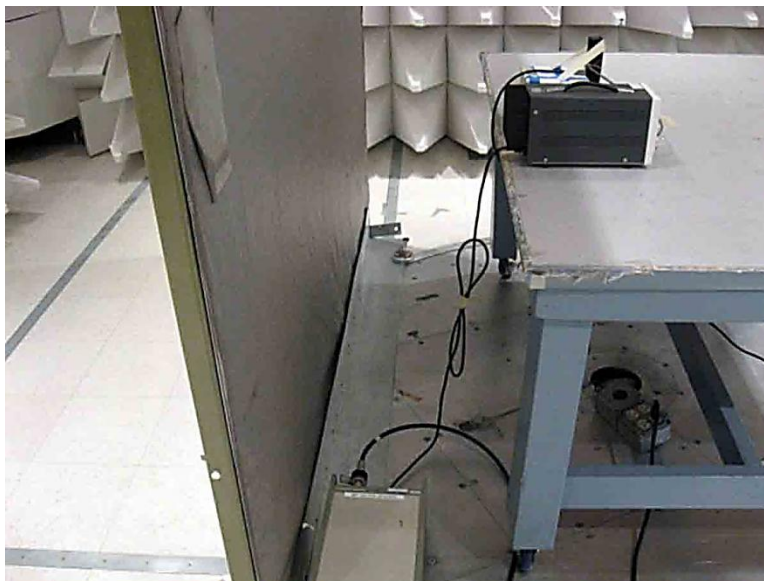
CKC Laboratories, Inc Date: 8/23/2013 Time: 11:46:47 Identive Group, Inc WVO#: 93717  
Test Lead: White 120V 60Hz Sequence#: 42

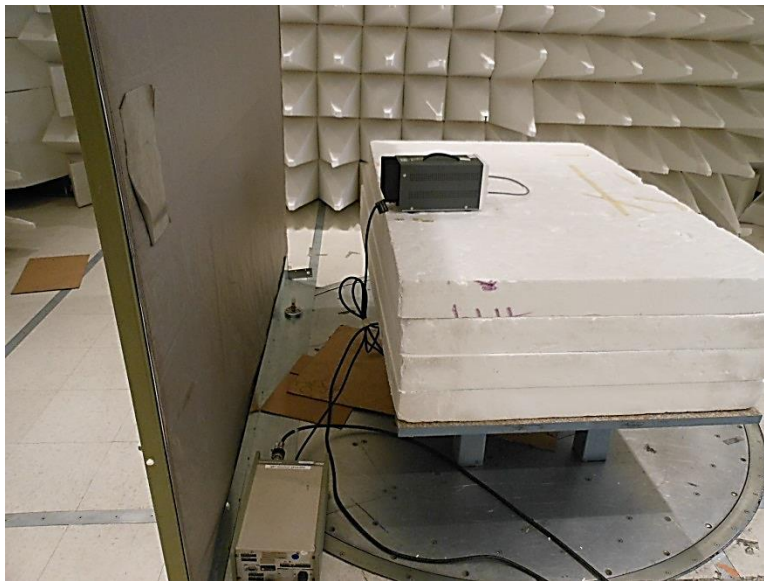


— Readings  
— 2 - 15.207 AC Mains - Quasi-peak  
— 1 - 15.207 AC Mains - Average  
\* Average Readings  
○ QP Readings

The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

**Test Setup Photos**







**15.225(a) RF Power Output**

**Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/28/2013  
 Test Type: **Radiated Scan** Time: 16:35:26  
 Equipment: **TouchSecure Mullion** Sequence#: 36  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Fundamental of the EUT  
 Temperature: 20.5°C  
 Humidity: 39 %  
 Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 125kHz and 13.56MHz  
 RBW=VBW=200Hz for 125kHz  
 RBW=VBW=13.56MHz for 13.56MHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.  
**Note: The EUT is connected to a DC power supply by PIGTAIL cable.**

Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	124.990k	63.6	+11.0	+0.1	+0.1		-80.0	-5.2	25.7	-30.9	Paral
2	124.990k	60.2	+11.0	+0.1	+0.1		-80.0	-8.6	25.7	-34.3	Perpe
3	13.559M	66.5	+10.8	+0.3	+0.2		-40.0	37.8	84.0	-46.2	Perpe
4	13.559M	62.1	+10.8	+0.3	+0.2		-40.0	33.4	84.0	-50.6	Paral

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/27/2013  
 Test Type: **Radiated Scan** Time: 10:00:43  
 Equipment: **TouchSecure Mullion** Sequence#: 1  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Fundamental of the EUT

Temperature: 20.5°C  
 Humidity: 39 %  
 Atmospheric Pressure: 101.3 kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator

Transmitting Operation Frequency: 13.56MHz and 125kHz

RBW=VBW=9kHz for 13.56MHz  
 RBW=VBW=200Hz for 125kHz

**Mode: Power by DC power supply (12VDC)**

The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.



Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	124.986k	62.3	+11.0	+0.1	+0.1		-80.0	-6.5	25.7	-32.2	Paral
2	124.986k	61.0	+11.0	+0.1	+0.1		-80.0	-7.8	25.7	-33.5	Perpe
3	13.559M	66.2	+10.8	+0.3	+0.2		-40.0	37.5	84.0	-46.5	Perpe
4	13.559M	62.2	+10.8	+0.3	+0.2		-40.0	33.5	84.0	-50.5	Paral

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/27/2013  
 Test Type: **Radiated Scan** Time: 10:07:36  
 Equipment: **TouchSecure Mullion** Sequence#: 11  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
POE Adapter Kit	TP-LINK	TL-POE200A	10C82100800
DC Power Supply	Sorensen	DCR55-90T1	9941B1004

**Test Conditions / Notes:**

<p>Fundamental</p> <p>Temperature: 20.8°C          Humidity: 41 %          Atmospheric Pressure: 101.1 kPa</p> <p>High Clock: 48 MHz          Software Used: Hyper Terminal and Ethernet Emulator</p> <p>Transmitting Operation Frequency: 13.56MHz and 125kHz</p> <p>RBW=VBW=9kHz for 13.56MHz          RBW=VBW=200Hz for 125kHz</p> <p><b>Mode: Power Over Ethernet at 48VDC</b></p> <p>The EUT is a fix device. It is powered by POE Adapter Kit which is outside of the chamber and communication with laptop through a RJ 45 cable. A DC power cable is terminated at this time. The EUT is placed on 80 cm table at the center of turning table. The EUT is set continuously transmitting.</p>
--

Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

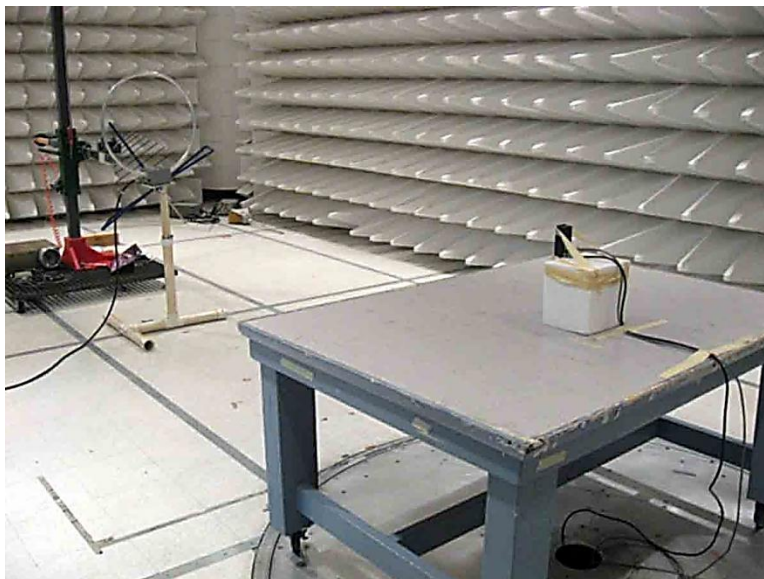
Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	125.000k	62.3	+11.0	+0.1	+0.1		-80.0	-6.5	25.7	-32.2	Paral
2	125.000k	60.3	+11.0	+0.1	+0.1		-80.0	-8.5	25.7	-34.2	Perpe
3	13.559M	67.0	+10.8	+0.3	+0.2		-40.0	38.3	84.0	-45.7	Perpe
4	13.559M	63.2	+10.8	+0.3	+0.2		-40.0	34.5	84.0	-49.5	Paral

**Test Setup Photos**



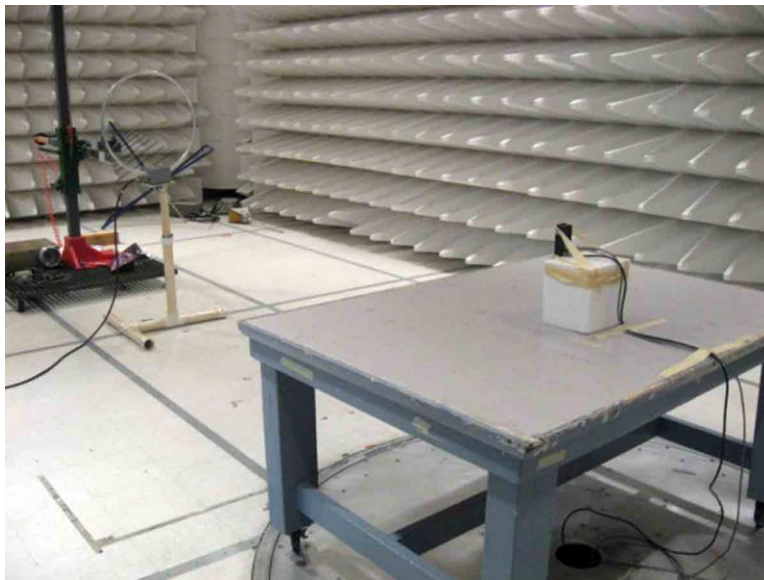
DC Power w/ Pigtail



DC Power w/ Pigtail



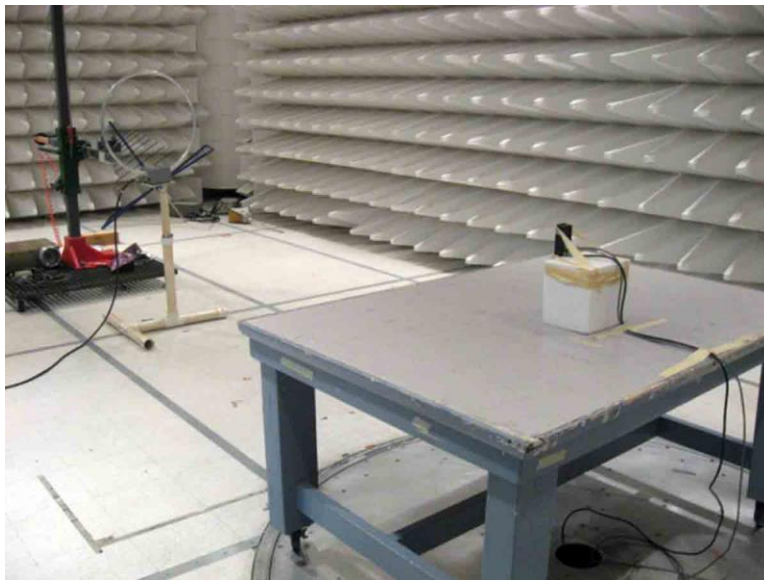
DC Power w/ Phoenix Connector



DC Power w/ Phoenix Connector



Power Over Ethernet



Power Over Ethernet



**-20dBc & 99% Occupied Bandwidth**

**Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**

Specification: **OBW Set up**

Work Order #: **93717**

Date: 3/27/2013

Test Type: **Radiated Scan**

Time: 10:00:43

Equipment: **TouchSecure Mullion**

Sequence#: 1

Manufacturer: Identive GmbH

Tested By: Hieu Song Nguyenpham

Model: Connectivity MUL

S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

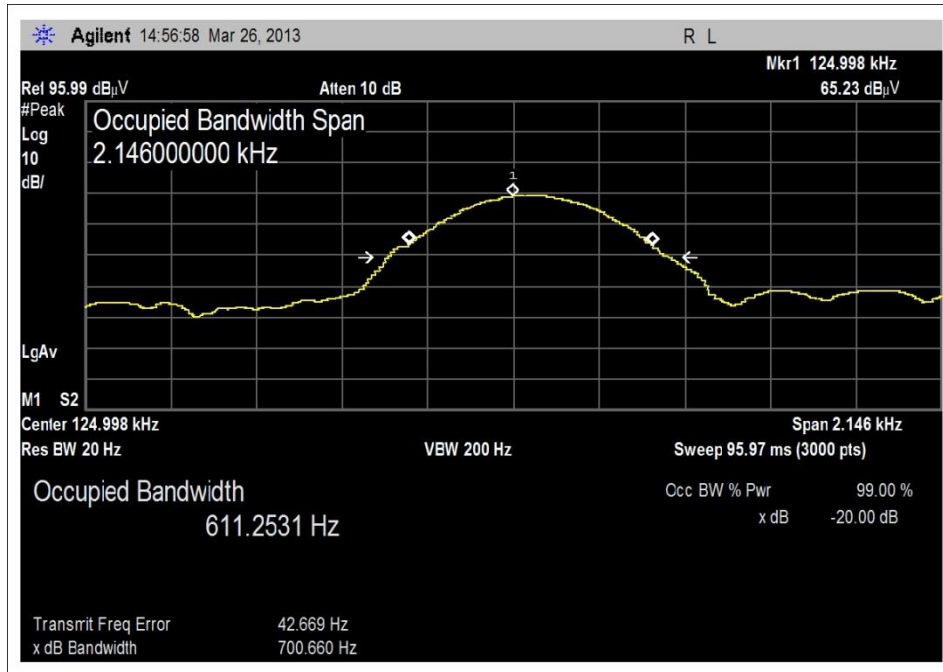
**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

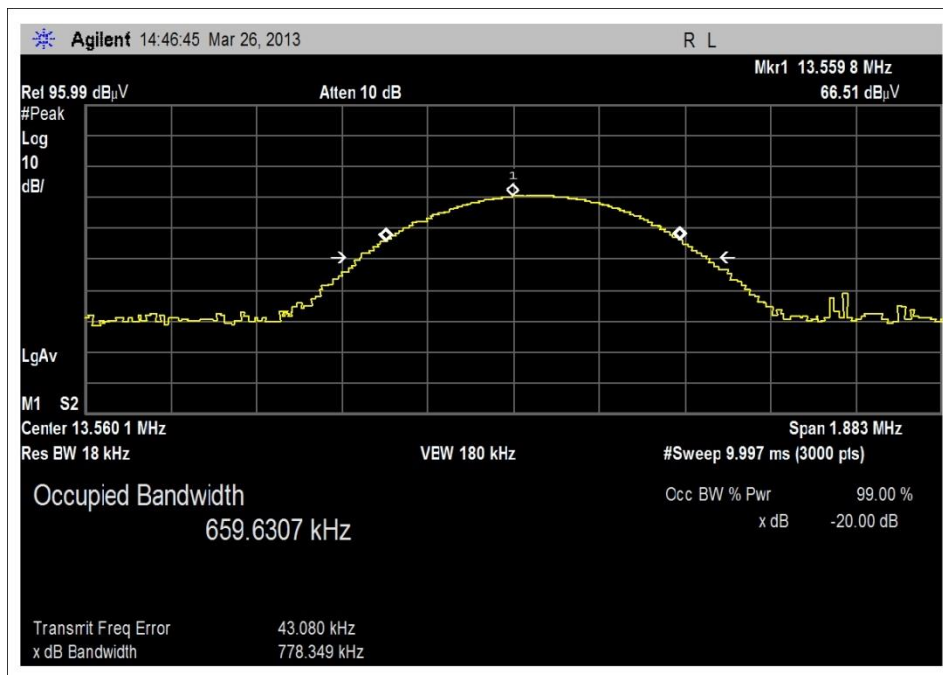
**Test Conditions / Notes:**

Fundamental of the EUT  
 Temperature: 20.5°C, Humidity: 39 %, Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 13.56MHz and 125kHz  
 RBW=VBW=9kHz for 13.56MHz  
 RBW=VBW=200Hz for 125kHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.

### Test Plots



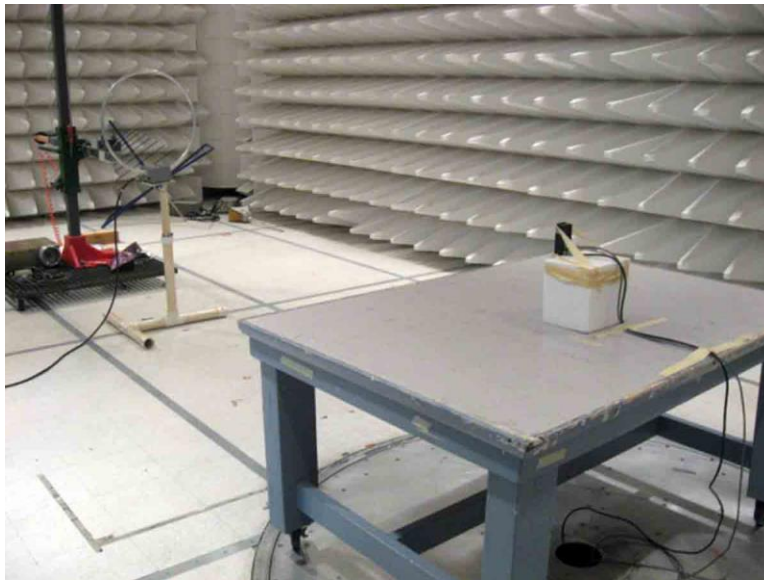
125kHz-DC power



13.56MHz-DC power



**Test Setup Photos**



**Bandedge**

**Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/27/2013  
 Test Type: **Radiated Scan** Time: 10:00:43  
 Equipment: **TouchSecure Mullion** Sequence#: 1  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

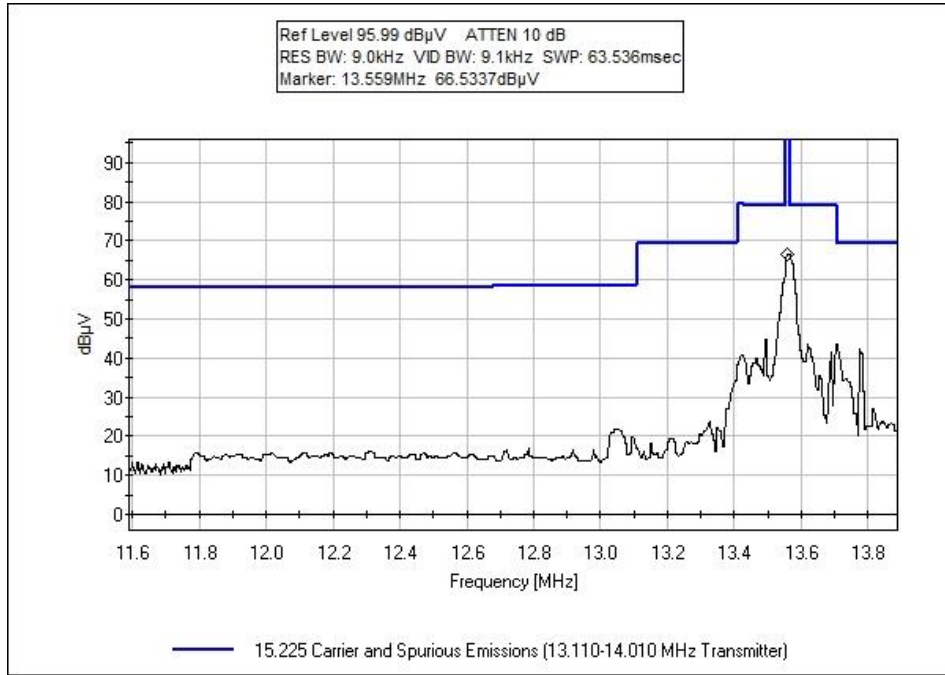
**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	P/N: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

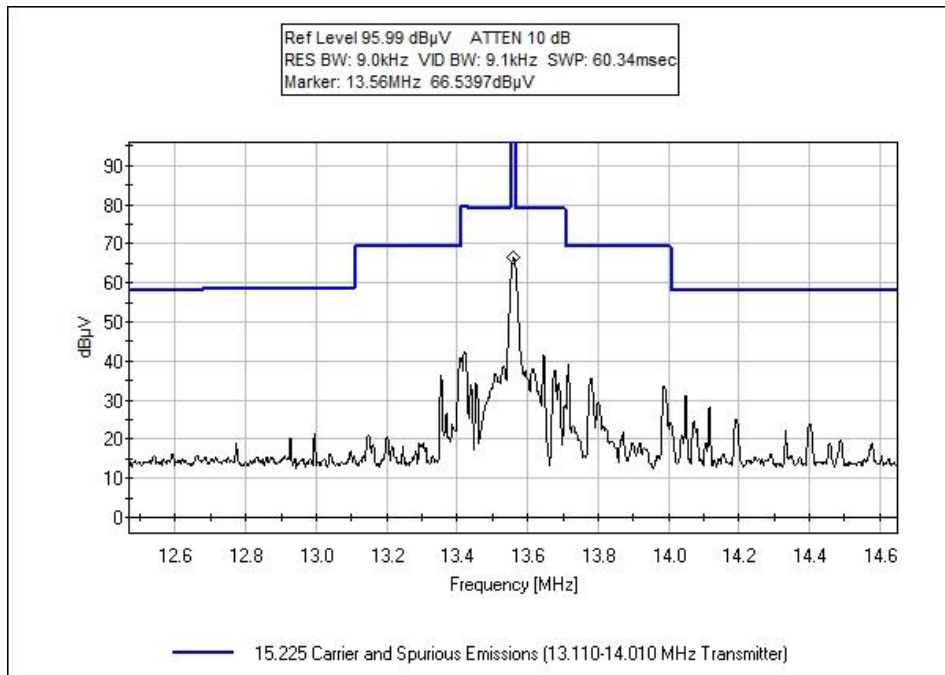
**Test Conditions / Notes:**

Fundamental of the EUT  
 Temperature: 20.5°C, Humidity: 39 %, Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 13.56MHz and 125kHz  
 RBW=VBW=9kHz for 13.56MHz  
 RBW=VBW=200Hz for 125kHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.

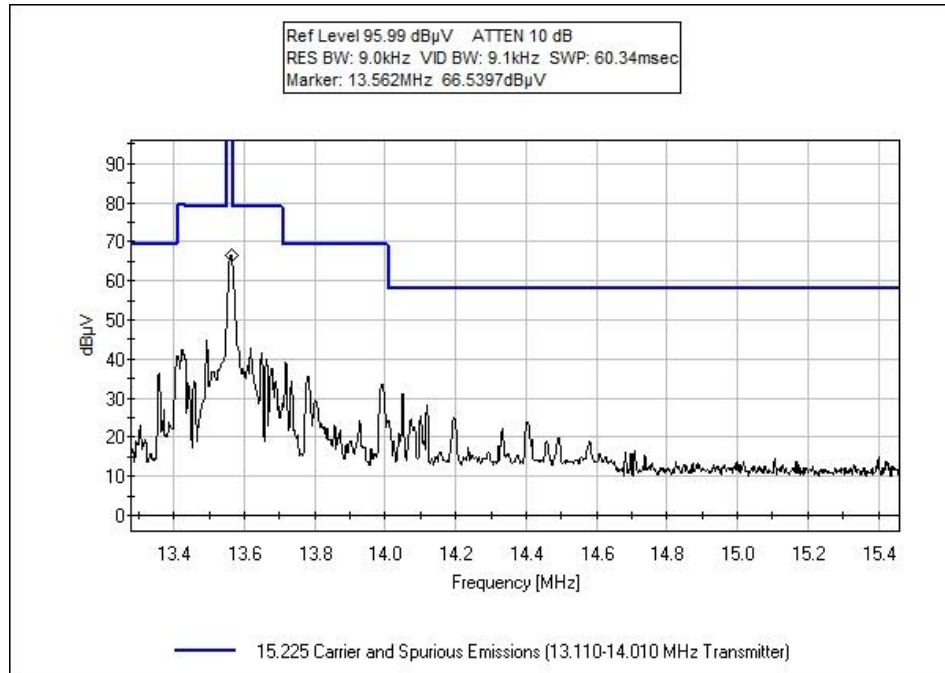
**Test Data**



Left, DC Power

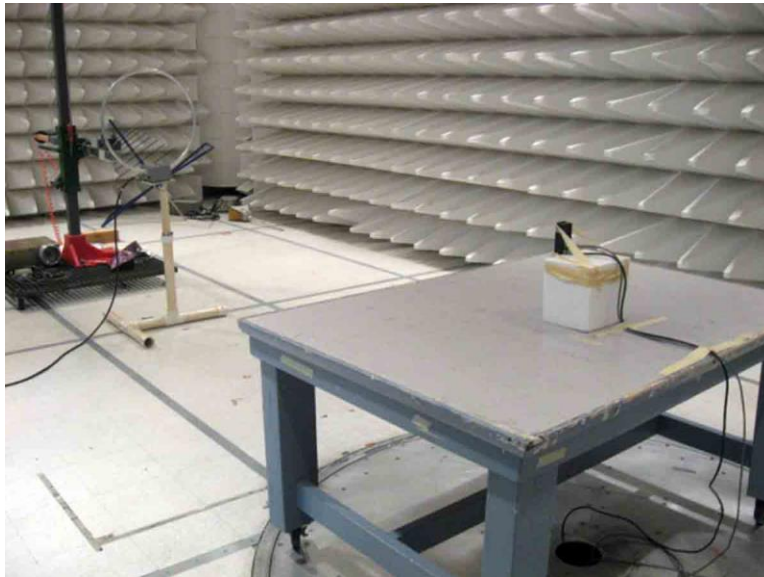


Center, DC Power



Right, DC Power

**Test Setup Photos**



**15.225(d) Field Strength of Spurious Radiation**

**Test Data Sheets**

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/26/2013  
 Test Type: **Radiated Scan** Time: 16:29:02  
 Equipment: **TouchSecure Mullion** Sequence#: 4  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 9kHz to 30MHz  
 Temperature: 20.5°C  
 Humidity: 39 %  
 Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 13.56MHz and 125kHz  
 RBW=VBW=9kHz from 9kHz to 150kHz  
 RBW=VBW=200Hz from 150kHz to 30MHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.

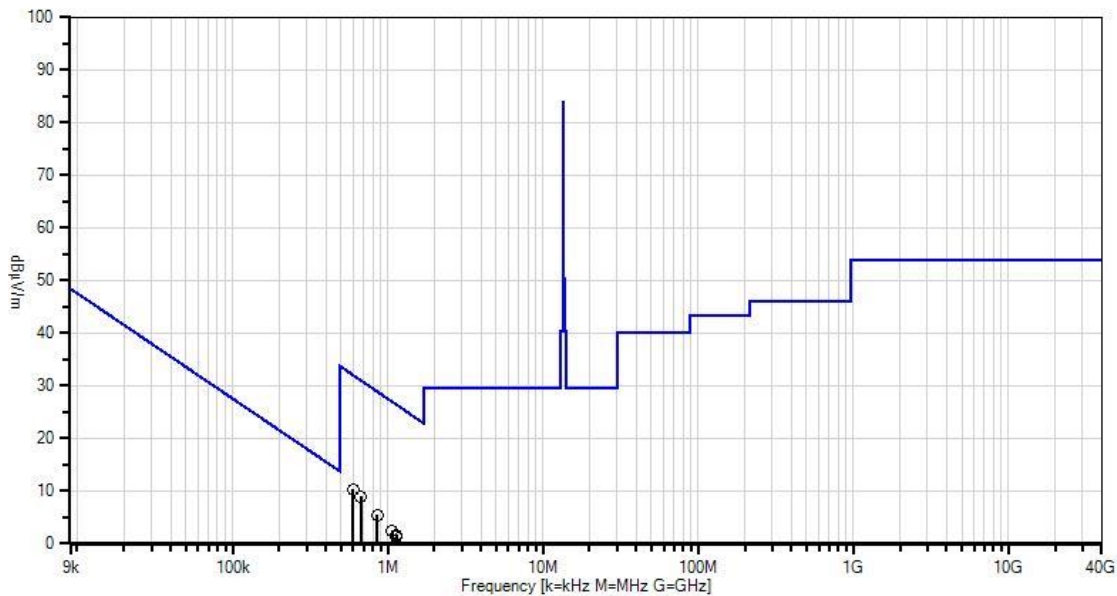


Ext Attn: 0 dB

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

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	597.410k	38.9	+11.3	+0.1	+0.0		-40.0	10.3	32.1	-21.8	Perpe
2	668.494k	37.5	+11.4	+0.1	+0.0		-40.0	9.0	31.1	-22.1	Paral
3	858.748k	33.9	+11.4	+0.1	+0.1		-40.0	5.5	28.9	-23.4	Perpe
4	1.066M	30.6	+11.5	+0.1	+0.1		-40.0	2.3	27.0	-24.7	Perpe
5	1.143M	30.0	+11.5	+0.1	+0.1		-40.0	1.7	26.4	-24.7	Paral
6	1.122M	29.6	+11.5	+0.1	+0.1		-40.0	1.3	26.6	-25.3	Paral

CKC Laboratories, Inc Date: 3/26/2013 Time: 16:29:02 Identive Group, Inc WO#: 93717  
Test Distance: 3 Meters Sequence#: 4



— Readings  
 × QP Readings  
 ▼ Ambient  
 ○ Peak Readings  
 \* Average Readings  
 — 1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Indentive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/26/2013  
 Test Type: **Radiated Scan** Time: 17:20:02  
 Equipment: **TouchSecure Mullion** Sequence#: 7  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	10/24/2011	10/24/2013
T5	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 30MHz to 1000MHz  
 Temperature: 20.5°C  
 Humidity: 39 %  
 Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 13.56MHz and 125kHz  
 RBW=VBW=120kHz from 30MHz to 1000MHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.

Ext Attn: 0 dB

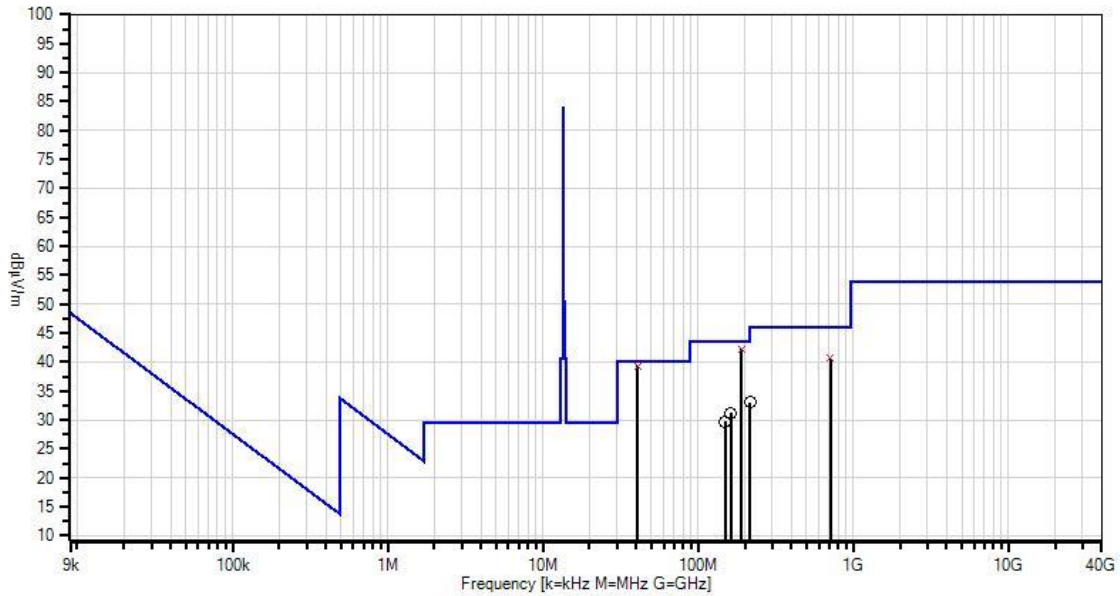
**Measurement Data:** Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	T5				Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	40.654M	52.3	-27.0	+13.0	+0.6	+0.1	+0.0	39.3	40.0	-0.7	Vert
	QP		+0.3								
^	40.654M	53.9	-27.0	+13.0	+0.6	+0.1	+0.0	40.9	40.0	+0.9	Vert
			+0.3								



^	40.654M	52.0	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	39.0	40.0	-1.0	Vert
4	189.882M QP	57.9	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	42.3	43.5	-1.2	Vert
^	189.882M	59.2	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	43.6	43.5	+0.1	Vert
^	189.882M	57.7	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	42.1	43.5	-1.4	Vert
7	712.739M QP	41.1	-26.7 +1.9	+20.7	+2.9	+0.8	+0.0	40.7	46.0	-5.3	Vert
^	712.739M	55.5	-26.7 +1.9	+20.7	+2.9	+0.8	+0.0	55.1	46.0	+9.1	Vert
^	712.739M	46.9	-26.7 +1.9	+20.7	+2.9	+0.8	+0.0	46.5	46.0	+0.5	Vert
10	162.735M	45.7	-26.9 +0.7	+10.2	+1.3	+0.2	+0.0	31.2	43.5	-12.3	Horiz
11	216.909M	48.6	-27.0 +0.8	+8.8	+1.5	+0.3	+0.0	33.0	46.0	-13.0	Horiz
12	149.161M	43.5	-26.9 +0.7	+10.9	+1.2	+0.3	+0.0	29.7	43.5	-13.8	Horiz

CKC Laboratories, Inc Date: 3/26/2013 Time: 17:20:02 Identive Group, Inc WO#: 93717  
 Test Distance: 3 Meters Sequence#: 7



The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/28/2013  
 Test Type: **Radiated Scan** Time: 16:52:43  
 Equipment: **TouchSecure Mullion** Sequence#: 39  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

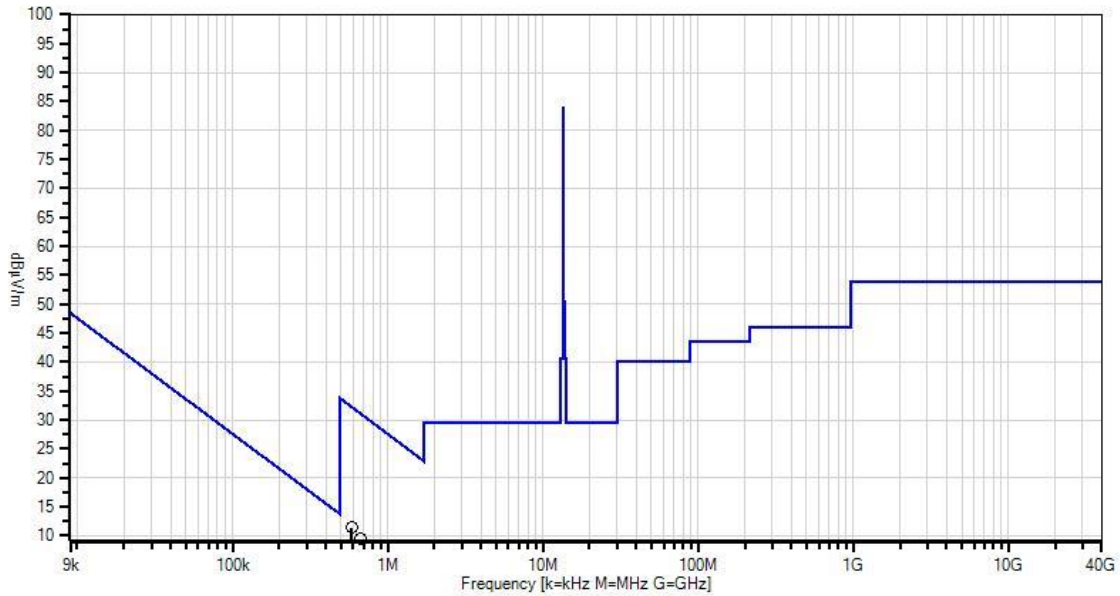
Radiated Spurious Emission  
 Frequency Range: 9kHz to 30MHz  
 Temperature: 20.5°C, Humidity: 39 %, Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 125kHz and 13.56MHz  
 RBW=VBW=200Hz from 9kHz to 150kHz  
 RBW=VBW=13.56MHz from 150kHz to 30MHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication.  
 The EUT is set continuously transmitting.  
**Note: The EUT is connected to a DC power supply by PIGTAIL cable.**

Ext Attn: 0 dB

**Measurement Data:** Reading listed by margin. Test Distance: 3 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	583.512k	39.9	+11.3	+0.1	+0.1	-40.0	11.4	32.3	-20.9	Paral
2	666.652k	37.9	+11.4	+0.1	+0.0	-40.0	9.4	31.1	-21.7	Paral
3	743.852k	36.7	+11.5	+0.1	+0.1	-40.0	8.4	30.2	-21.8	Paral

CKC Laboratories, Inc Date: 3/28/2013 Time: 16:52:43 Identive Group, Inc WO#: 93717  
 Test Distance: 3 Meters Sequence#: 39



The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/28/2013  
 Test Type: **Radiated Scan** Time: 15:01:26  
 Equipment: **TouchSecure Mullion** Sequence#: 35  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	10/24/2011	10/24/2013
T5	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 30MHz to 1000MHz  
 Temperature: 20.5°C  
 Humidity: 39 %  
 Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 125kHz and 13.56MHz  
 RBW=VBW=200Hz for 125kHz  
 RBW=VBW=13.56MHz for 13.56MHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed on 80 cm table at the center of turning table. The EUT is connected to the Laptop by RJ45 cable in order to communication.  
 The EUT is set continuously transmitting.  
**Note: The EUT is connected to a DC power supply by PIGTAIL cable.**

Ext Attn: 0 dB

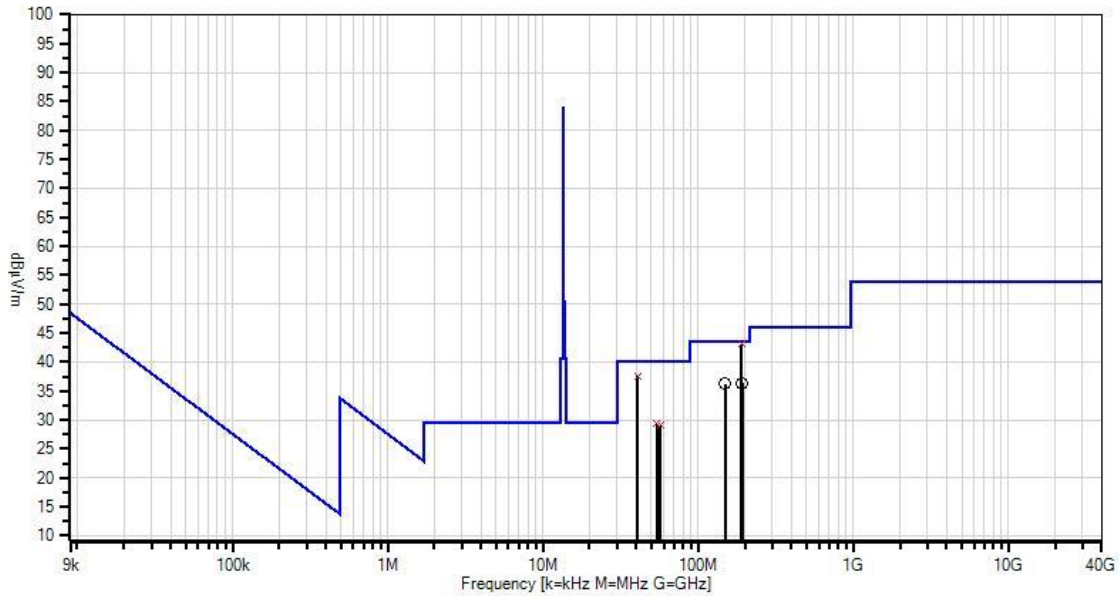
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	189.882M	58.7	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	43.1	43.5	-0.4	Horiz
^	189.882M	61.4	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	45.8	43.5	+2.3	Horiz
^	189.882M	60.2	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	44.6	43.5	+1.1	Horiz
4	40.648M	50.6	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	37.6	40.0	-2.4	Vert
^	40.648M	53.3	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	40.3	40.0	+0.3	Vert
^	40.648M	51.6	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	38.6	40.0	-1.4	Vert
7	192.525M	51.9	-27.0 +0.8	+8.9	+1.4	+0.3	+0.0	36.3	43.5	-7.2	Horiz
8	149.161M	50.0	-26.9 +0.7	+10.9	+1.2	+0.3	+0.0	36.2	43.5	-7.3	Horiz
9	54.157M	47.6	-27.0 +0.4	+7.5	+0.7	+0.2	+0.0	29.4	40.0	-10.6	Vert
^	54.157M	56.1	-27.0 +0.4	+7.5	+0.7	+0.2	+0.0	37.9	40.0	-2.1	Vert
^	54.157M	52.1	-27.0 +0.4	+7.5	+0.7	+0.2	+0.0	33.9	40.0	-6.1	Vert
12	57.019M	48.2	-27.0 +0.4	+6.6	+0.7	+0.2	+0.0	29.1	40.0	-10.9	Vert
^	57.019M	56.6	-27.0 +0.4	+6.6	+0.7	+0.2	+0.0	37.5	40.0	-2.5	Vert
^	57.019M	55.5	-27.0 +0.4	+6.6	+0.7	+0.2	+0.0	36.4	40.0	-3.6	Vert

CKC Laboratories, Inc Date: 3/28/2013 Time: 15:01:26 Identive Group, Inc WO#: 93717  
 Test Distance: 3 Meters Sequence#: 35



— Readings  
 × QP Readings  
 ▼ Ambient  
 ○ Peak Readings  
 \* Average Readings  
 — 1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/27/2013  
 Test Type: **Radiated Scan** Time: 11:17:44  
 Equipment: **TouchSecure Mullion** Sequence#: 14  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
POE Adapter Kit	TP-LINK	TL-POE200A	10C82100800
DC Power Supply	Sorensen	DCR55-90T1	9941B1004

**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 9kHz to 30MHz

Temperature: 20.8°C  
 Humidity: 41 %  
 Atmospheric Pressure: 101.1 kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator

Transmitting Operation Frequency: 13.56MHz and 125kHz

RBW=VBW=9kHz from 150kHz to 30MHz  
 RBW=VBW=200Hz from 9kHz to 150kHz

**Mode: Power Over Ethernet at 48VDC**

The EUT is a fix device. It is powered by POE Adapter Kit at 48V which is outside of the chamber and communication with laptop through a RJ 45 cable. A DC power cable is terminated at this time. The EUT is placed on 80 cm table at the center of turning table.  
 The EUT is set continuously transmitting.

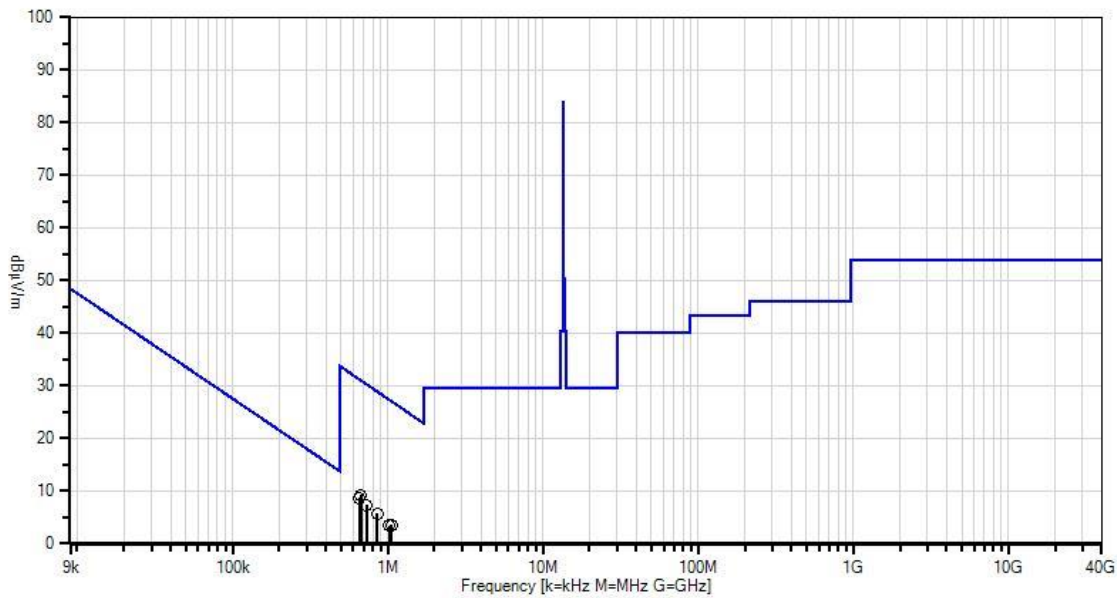


Ext Attn: 0 dB

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

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	670.585k	37.8	+11.4	+0.1	+0.0		-40.0	9.3	31.1	-21.8	Paral
2	660.131k	37.2	+11.4	+0.1	+0.0		-40.0	8.7	31.2	-22.5	Perpe
3	733.306k	35.7	+11.5	+0.1	+0.1		-40.0	7.4	30.3	-22.9	Paral
4	858.748k	34.1	+11.4	+0.1	+0.1		-40.0	5.7	28.9	-23.2	Perpe
5	1.053M	31.9	+11.5	+0.1	+0.1		-40.0	3.6	27.1	-23.5	Paral
6	1.022M	31.8	+11.5	+0.1	+0.1		-40.0	3.5	27.4	-23.9	Perpe

CKC Laboratories, Inc Date: 3/27/2013 Time: 11:17:44 Identive Group, Inc WO#: 93717  
 Test Distance: 3 Meters Sequence#: 14



— Readings  
 × QP Readings  
 ▼ Ambient  
 ○ Peak Readings  
 \* Average Readings  
 — 1 - 15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Indentive GmbH. The screen capture was taken at the time of testing and cannot be changed.

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**  
 Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**  
 Work Order #: **93717** Date: 3/27/2013  
 Test Type: **Radiated Scan** Time: 09:32:06  
 Equipment: **TouchSecure Mullion** Sequence#: 10  
 Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham  
 Model: Connectivity MUL  
 S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	10/24/2011	10/24/2013
T5	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
POE Adapter Kit	TP-LINK	TL-POE200A	10C82100800
DC Power Supply	Sorensen	DCR55-90T1	9941B1004

**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 30MHz to 1000MHz

Temperature: 20.8°C  
 Humidity: 41 %  
 Atmospheric Pressure: 101.1 kPa

High Clock: 48 MHz  
 Software Used: Hyper Terminal and Ethernet Emulator

Transmitting Operation Frequency: 13.56MHz and 125kHz

RBW=VBW=120kHz from 30MHz to 1000MHz

**Mode: Power Over Ethernet at 48VDC**

The EUT is a fix device. It is powered by POE Adapter Kit which is outside of the chamber and communication with laptop through a RJ 45 cable. a DC power cable is terminated at this time. The EUT is placed on 80 cm table at the center of turning table. The EUT is set continuously transmitting.

Ext Attn: 0 dB

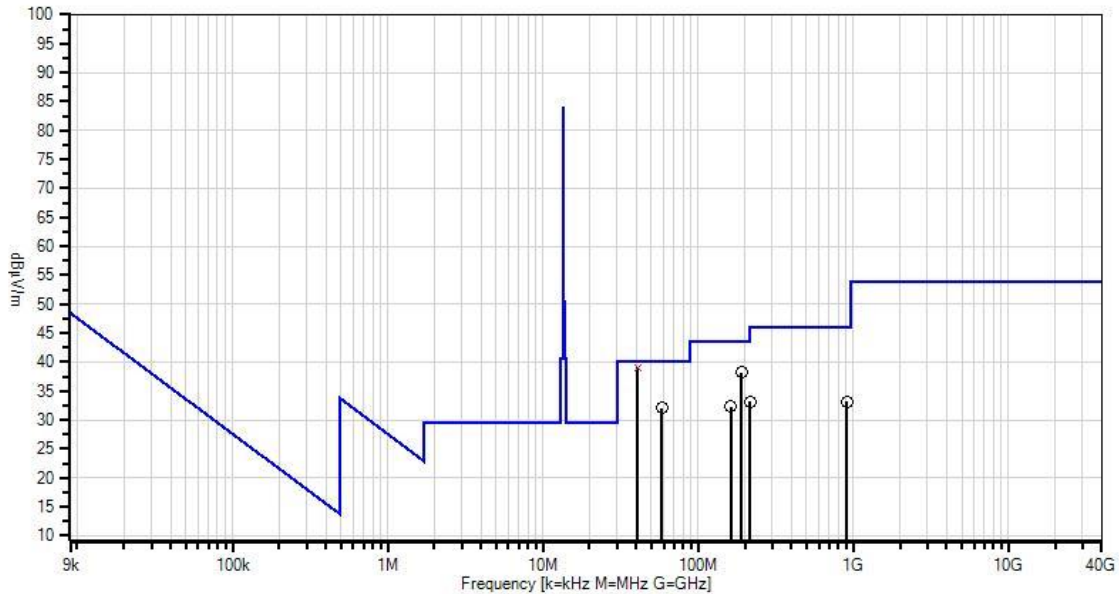
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	40.648M QP	52.1	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	39.1	40.0	-0.9	Vert
^	40.648M	54.5	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	41.5	40.0	+1.5	Vert
^	40.648M	52.9	-27.0 +0.3	+13.0	+0.6	+0.1	+0.0	39.9	40.0	-0.1	Vert
4	189.882M	53.8	-27.0 +0.8	+8.8	+1.4	+0.4	+0.0	38.2	43.5	-5.3	Vert
5	58.549M	51.6	-27.1 +0.4	+6.2	+0.7	+0.2	+0.0	32.0	40.0	-8.0	Vert
6	162.735M	46.8	-26.9 +0.7	+10.2	+1.3	+0.2	+0.0	32.3	43.5	-11.2	Horiz
7	904.116M	30.8	-27.1 +2.1	+23.0	+3.4	+1.0	+0.0	33.2	46.0	-12.8	Horiz
8	216.909M	48.8	-27.0 +0.8	+8.8	+1.5	+0.3	+0.0	33.2	46.0	-12.8	Horiz

CKC Laboratories, Inc Date: 3/27/2013 Time: 09:32:06 Identive Group, Inc WO#: 93717  
Test Distance: 3 Meters Sequence#: 10

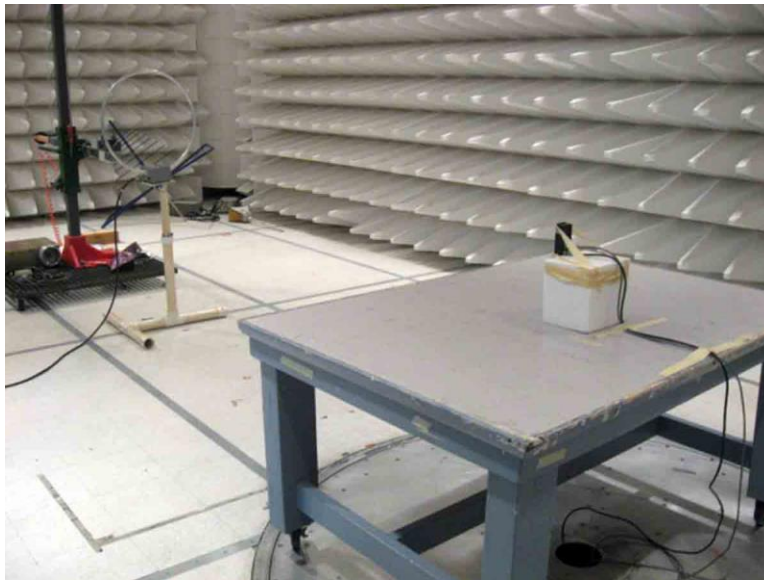


The above manufacturer name, Identive Group, Inc. was referenced by CKC Laboratories during testing. Since the time of testing, it has come to CKC Laboratories attention the manufacturer name should read Identive GmbH. The screen capture was taken at the time of testing and cannot be changed.

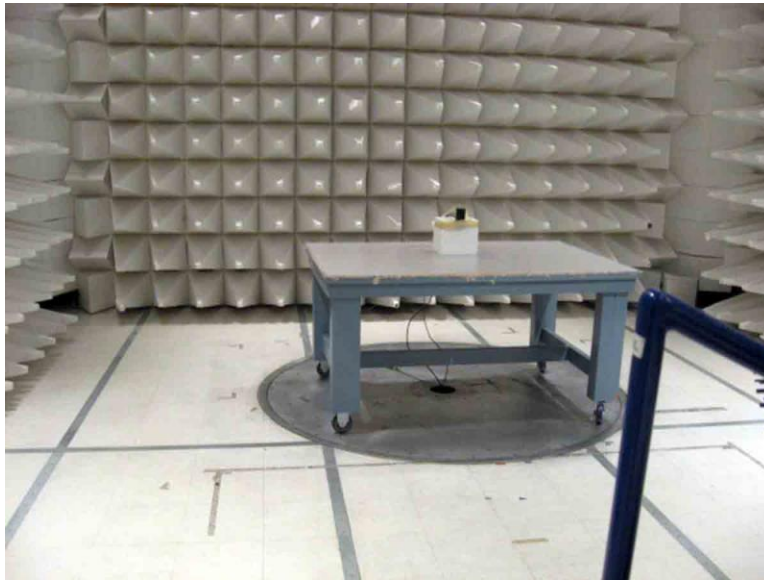
**Test Setup Photos**



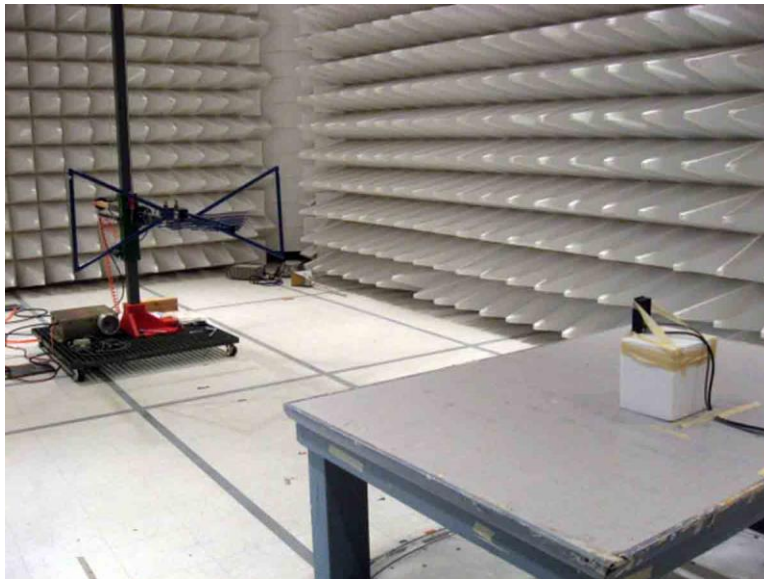
DC Power w/ Pigtail, 9kHz-30MHz



DC Power w/ Pigtail, 9kHz-30MHz



DC Power w/ Pigtail, 30MHz-1GHz

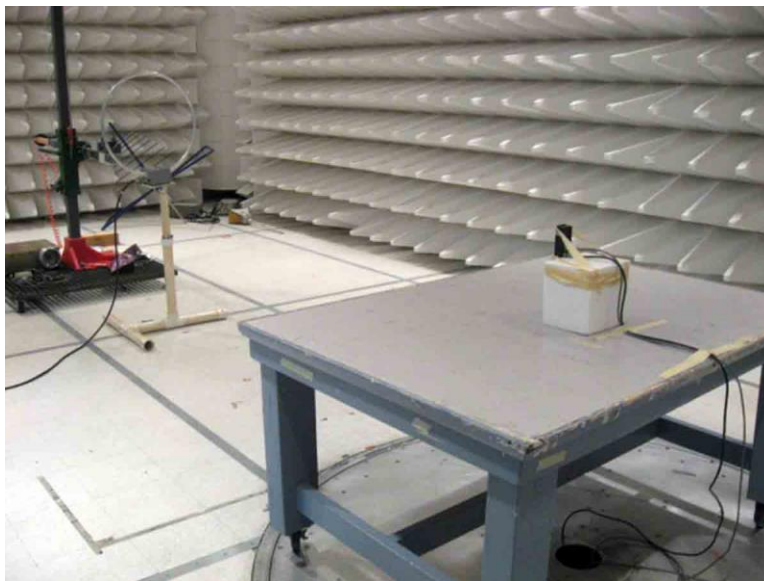


DC Power w/ Pigtail, 30MHz-1GHz

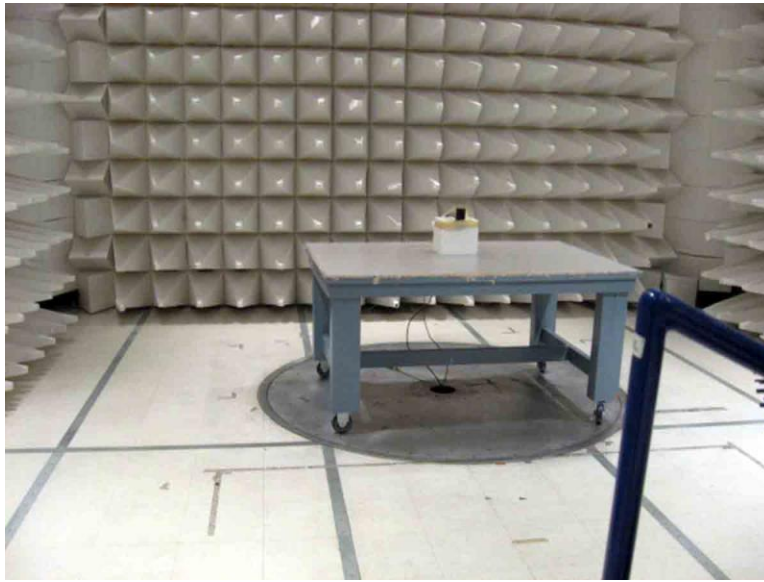




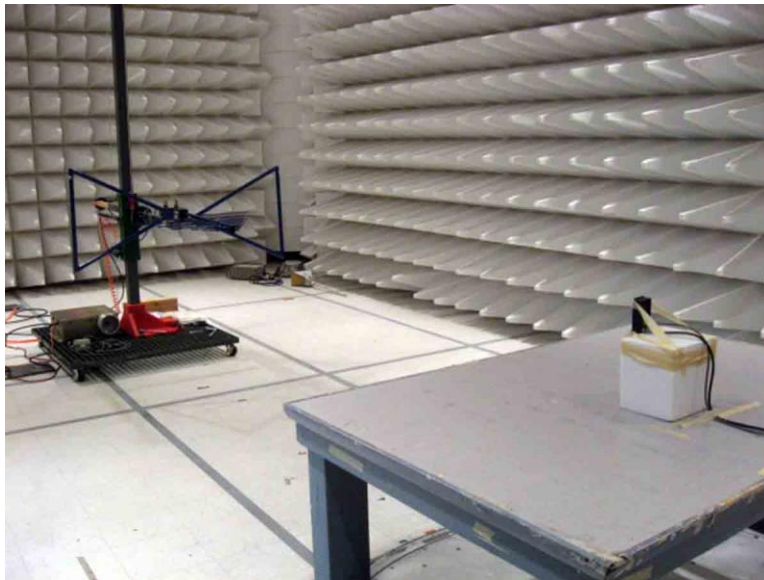
DC Power w/ Phoenix Connector, 9kHz-30MHz



DC Power w/ Phoenix Connector, 9kHz-30MHz



DC Power w/ Phoenix Connector, 30MHz-1GHz

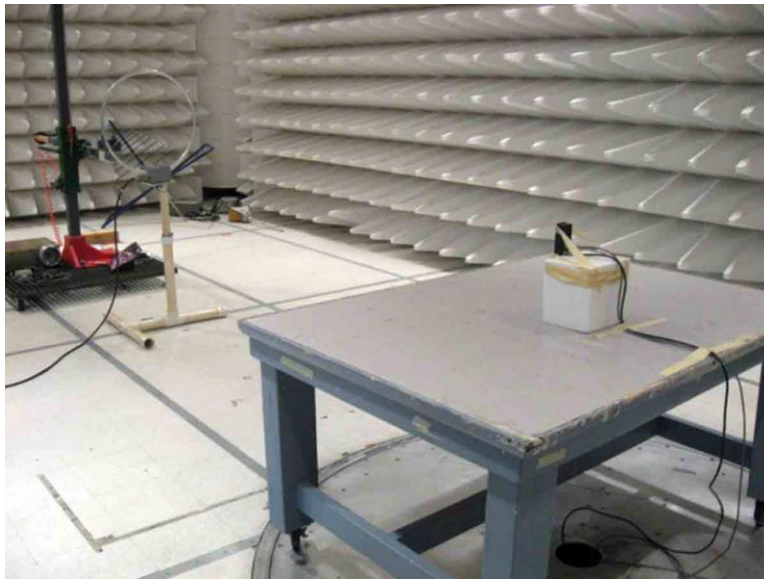


DC Power w/ Phoenix Connector, 30MHz-1GHz

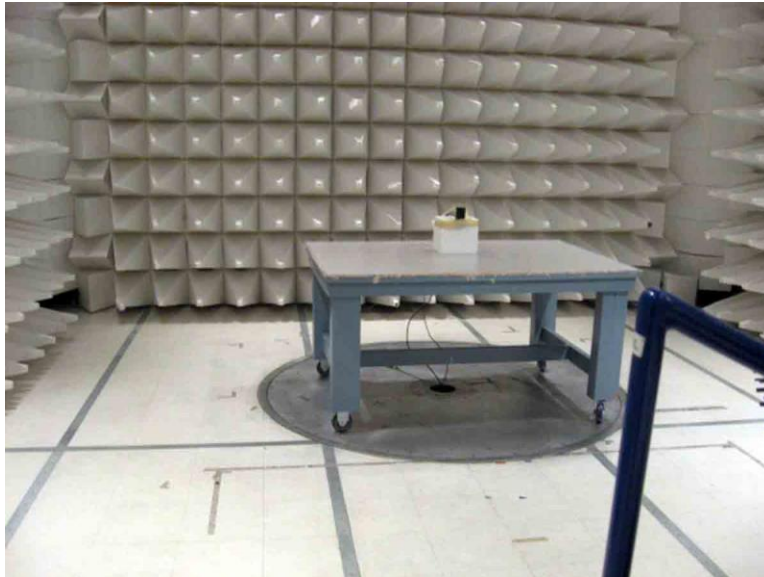




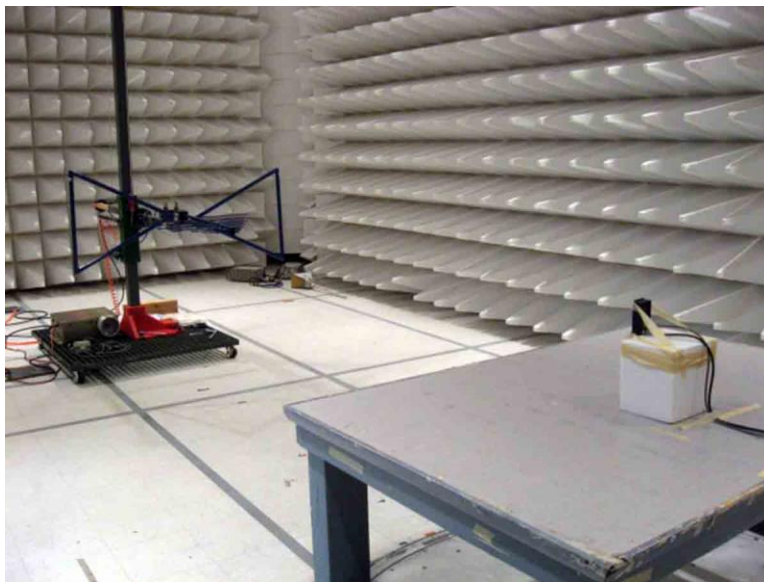
Power Over Ethernet, 9kHz-30MHz



Power Over Ethernet, 9kHz-30MHz



Power Over Ethernet, 30MHz-1GHz



Power Over Ethernet, 30MHz-1GHz

**15.225(e) Frequency Stability**

**Test Conditions / Setup**

Test Location: CKC Laboratories, Inc. • 1120 Fulton Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Identive GmbH**

Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**

Work Order #: **93717** Date: 3/27/2013

Test Type: **Radiated Scan** Time: 10:00:43

Equipment: **TouchSecure Mullion** Sequence#: 1

Manufacturer: Identive GmbH Tested By: Hieu Song Nguyenpham

Model: Connectivity MUL

S/N: None

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	ANP05440	Cable	RG214/U	1/21/2013	1/21/2015
	02721	Temperature Humidity Chamber/Oven	SM-8C	10911-S	6/14/2012
	P06024	Near Field Probe	CKC	NCR	NCR
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
TouchSecure Mullion*	Identive GmbH	Connectivity MUL	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop Power Adapter	HP	PN: 677777-001	PPP012L-E
Laptop	Dell	Latitude E6320	8BZPYN1
DC Power Supply	Protek	3006B	AG4070

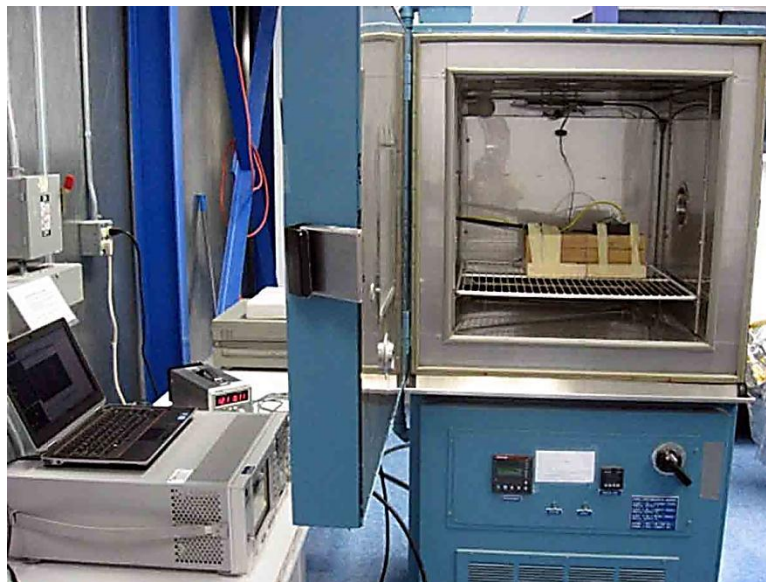
**Test Conditions / Notes:**

Fundamental of the EUT Temperature: 20.5°C, Humidity: 39 %, Atmospheric Pressure: 101.3 kPa  
 High Clock: 48 MHz Software Used: Hyper Terminal and Ethernet Emulator  
 Transmitting Operation Frequency: 13.56MHz and 125kHz  
 RBW=VBW=9kHz for 13.56MHz; RBW=VBW=200Hz for 125kHz  
**Mode: Power by DC power supply (12VDC)**  
 The EUT is a fix device. It is powered by DC power supply at 12VDC which is outside of the chamber. The EUT is placed inside the temperature chamber. The EUT is connected to the Laptop by RJ45 cable in order to communication. The EUT is set continuously transmitting.

**Test Data**

Temperature °C	Voltage (V DC)	Fundamental Frequency Reading (MHz)	+/-0.01% Range (MHz)	Results
-20	10.2	13.559857	13.559857	Pass
-20	13.8	13.559857	13.559857	Pass
-10	10.2	13.559857	13.559928	Pass
-10	13.8	13.559857	13.559857	Pass
0	10.2	13.559857	13.559857	Pass
0	13.8	13.559857	13.560000	Pass
10	10.2	13.559857	13.559928	Pass
10	13.8	13.559857	13.560000	Pass
20	10.2	13.559857	13.559928	Pass
20	13.8	13.559857	13.560000	Pass
30	10.2	13.559857	13.559857	Pass
30	13.8	13.559857	13.559928	Pass
40	10.2	13.559857	13.559857	Pass
40	13.8	13.559857	13.559857	Pass
50	10.2	13.559857	13.559876	Pass
50	13.8	13.559857	13.559714	Pass

**Test Setup Photos**



## SUPPLEMENTAL INFORMATION

### Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

### Emissions Test Details

**TESTING PARAMETERS**

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

**CORRECTION FACTORS**

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBμV/m, the spectrum analyzer reading in dBμV was corrected by using the following formula. This reading was then compared to the applicable specification limit.



SAMPLE CALCULATIONS		
	Meter reading	(dB $\mu$ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB $\mu$ V/m)

### TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

### SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

#### **Peak**

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

#### **Quasi-Peak**

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

#### **Average**

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.