CKC LABORATORIES, INC. Testing the Future

ACCREDITED
Certicate Numbers
803.01, 803.02, 803.05, 803.06
EMC

ADDENDUM TO XCEEDID TEST REPORT FC08-001

FOR THE

PROXIMITY READER, XF1200S4(T700)

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 & 15.225 AND RSS-210 ISSUE 7

TESTING

DATE OF ISSUE: APRIL 17, 2008

PREPARED FOR:

XceedID
500 Golden Ridge Road, Bldg. 1
Golden, CO 80401

P.O. No.: 62682
W.O. No.: 86212

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Date of test: November 8 - December 7, 2007

Report No.: FC08-001A

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

DATE OF TEST: November 8 – December 7, 2007

DATE OF RECEIPT: November 8, 2007

REPRESENTATIVE: Mike Conlin

MANUFACTURER:
XceedID
500 Golden Ridge Road, Bldg. 1
Golden, CO 80401

TEST LOCATION:
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

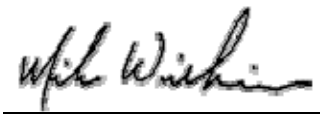
TEST METHOD: ANSI C63.4 (2003). RSS-210 Issue 7 and RSS GEN Issue 2

PURPOSE OF TEST:
Original Report: To perform the testing of the Proximity Reader, XF1200S4(T700) with the requirements for FCC Part 15 Subpart C Sections 15.207 & 15.209 & 15.225 and RSS-210 devices.
Addendum A: To correct the FCC ID number on page 6, the test conditions on page 16 and the model number for the EUT with serial number 007.

APPROVALS

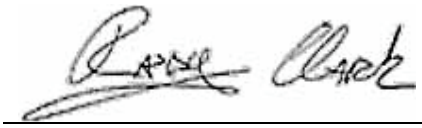
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Mike Wilkinson, EMC Engineer/Lab Manager

TEST PERSONNEL:



Randy Clark, EMC Engineer

SUMMARY OF RESULTS

Test	Specification/Method	Results
Mains Conducted Emissions	FCC Part 15 Subpart C Section 15.207	Pass
Radiated Emissions	FCC Part 15 Subpart C Section 15.209	Pass
Radiated Emissions	FCC Part 15 Subpart C Section 15.225	Pass
Occupied Bandwidth	FCC	Pass
Emissions Mask	FCC 15.225 (a-c)	Pass
Frequency Stability	FCC 15.225(e)	Pass
99% Bandwidth	RSS-210	Pass
FCC Site File No.	784962	
IC Site File No.	IC 3082A-1	

CONDITIONS DURING TESTING

EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable.
EUT has shield wire tied to DC common at the power supply.

FCC 15.31(m) Number Of Channels
This device operates on a single channel.

FCC 15.33(a) Frequency Ranges Tested
15.207 Conducted Emissions: 150 kHz – 30 MHz
15.209 Radiated Emissions: 9 kHz – 1000 MHz
15.225 Radiated Emissions: Carrier

FCC SECTION 15.35: ANALYZER 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

FCC 15.203 Antenna Requirements
The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

EUT Operating Frequency
The EUT was operating at 13.56 MHz.

Temperature And Humidity During Testing
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

EQUIPMENT UNDER TEST

Proximity Reader

Manuf:	XceedID
Model:	XF1200S4
Serial:	011 & 008
FCC ID:	R2LXF1200 (pending)

Proximity Reader

Manuf:	XceedID
Model:	XF1200W
Serial:	007
FCC ID:	NA

PERIPHERAL DEVICES

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

Power Supply

Manuf:	Topward
Model:	TPS-4000
Serial:	918520
FCC ID:	NA

REPORT OF EMISSIONS MEASUREMENTS

TESTING PARAMETERS

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	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/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. 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. When conducted emissions testing was performed, a 10 dB external attenuator was used with internal offset correction in the analyzer.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED 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 "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "QP" or an "Ave" on the appropriate rows of the data sheets. 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/receiver readings were recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients 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

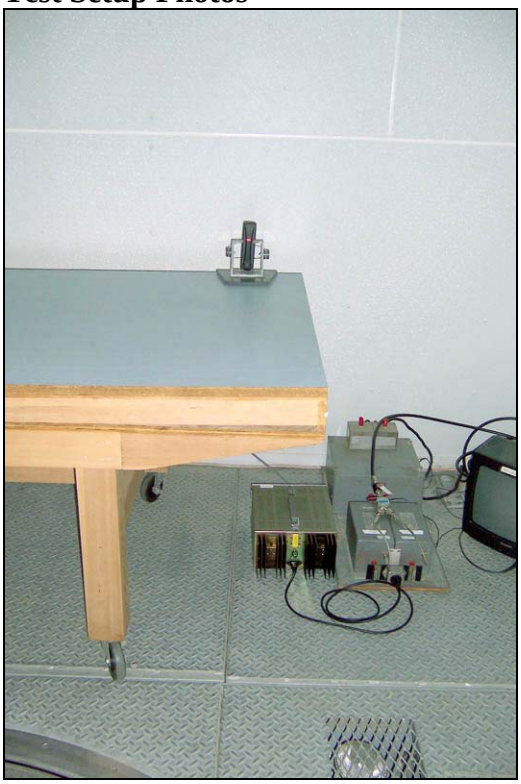
When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. 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.

FCC 15.207 CONDUCTED EMISSIONS

Test Setup Photos



Test Data Sheets

Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **XceedID**
Specification: **FCC 15.207 - AVE**
Work Order #: **86212** Date: 11/30/2007
Test Type: **Conducted Emissions** Time: 17:01:22
Equipment: **Proximity Reader** Sequence#: 7
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1200S4 120V 60Hz
S/N: 007

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	05/07/2007	05/07/2009	1248 & 1249
Internal LISN Cable	N/A	03/23/2007	03/23/2009	CAB-SITED-INT-LISN

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

Function	Manufacturer	Model #	S/N
Proximity Reader*	XceedID	XF1200W	007*
Proximity Reader	XceedID	XF1200S4	0011

*Manufacturer declares that the emissions from XF1200W represent compliance for the XF1200S4 for the purposes of this test.

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	TPS-4000	918520

Test Conditions / Notes:

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

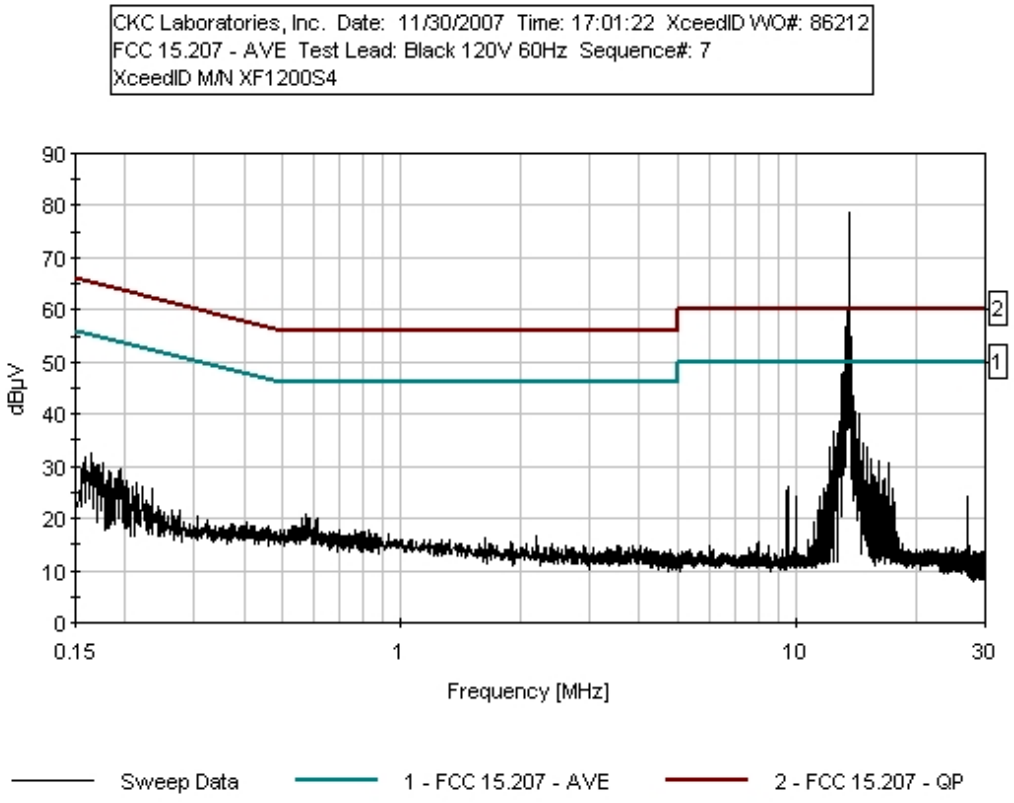
Transducer Legend:

T1=CAB-SITED INT LISN 100k-30M T2=Filter 150kHz HP AN02608
T3=LISN -280 - BK

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	13.560M	67.0	+10.9	+0.1	+0.8		+0.0	78.8	50.0 Carrier Emissions with antenna attached	+28.8	Black
2	13.560M	15.8	+10.9	+0.1	+0.8		+0.0	27.6	50.0 Carrier Emissions with dummy load	-22.4	Black
3	171.400k	16.6	+11.7	+0.7	+0.2		+0.0	29.2	54.9	-25.7	Black

4	27.121M	11.7	+11.0	+0.1	+1.3	+0.0	24.1	50.0	-25.9	Black
5	9.482M	11.4	+10.8	+0.1	+0.4	+0.0	22.7	50.0	-27.3	Black
6	9.978M	10.7	+10.8	+0.1	+0.5	+0.0	22.1	50.0	-27.9	Black



Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **XceedID**
Specification: **FCC 15.207 - AVE**
Work Order #: **86212** Date: 11/30/2007
Test Type: **Conducted Emissions** Time: 17:03:07
Equipment: **Proximity Reader** Sequence#: 8
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1200S4 120V 60Hz
S/N: 007

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	05/07/2007	05/07/2009	1248 & 1249
Internal LISN Cable	N/A	03/23/2007	03/23/2009	CAB-SITED-INT-LISN

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

Function	Manufacturer	Model #	S/N
Proximity Reader*	XceedID	XF1200W	007*
Proximity Reader	XceedID	XF1200S4	0011

*Manufacturer declares that the emissions from XF1200W represent compliance for the XF1200S4 for the purposes of this test.

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	TPS-4000	918520

Test Conditions / Notes:

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

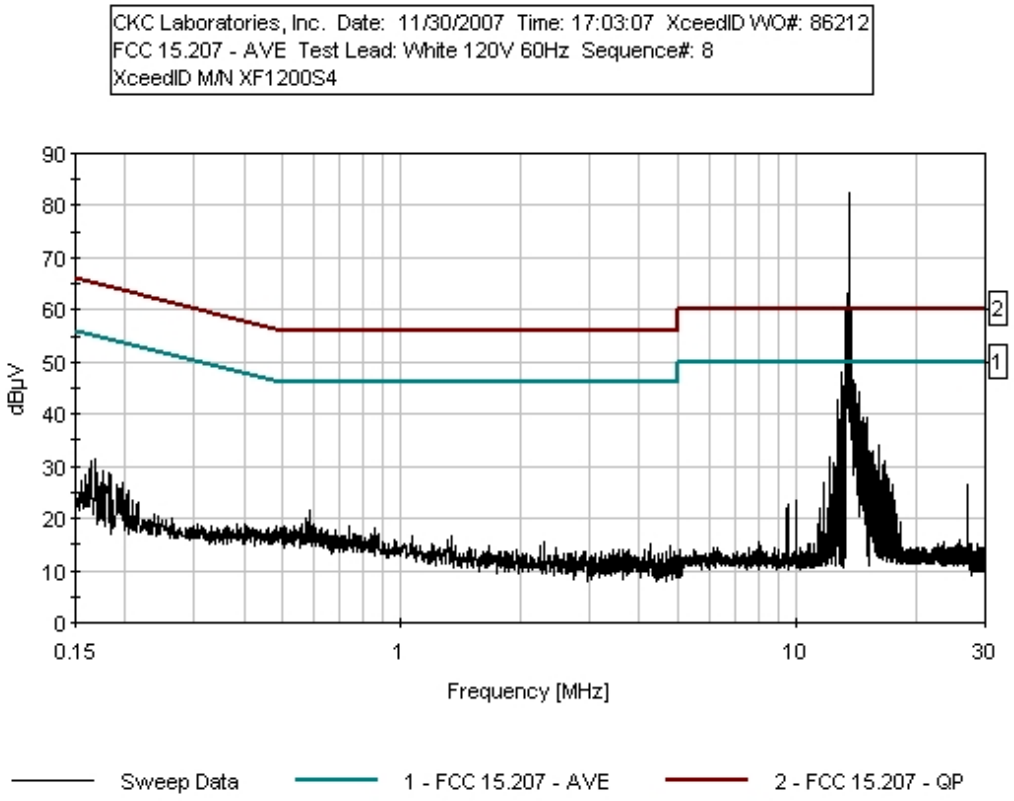
Transducer Legend:

T1=CAB-SITED INT LISN 100k-30M T2=Filter 150kHz HP AN02608
T3=LISN -276 - WT

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	13.560M	70.2	+10.9	+0.1	+1.2		+0.0	82.4	50.0 Carrier Emissions with antenna attached	+32.4	White
2	13.560M	18.1	+10.9	+0.1	+1.2		+0.0	30.3	50.0 Carrier Emissions with dummy load	-19.7	White
3	9.481M	16.0	+10.8	+0.1	+0.9		+0.0	27.8	50.0	-22.2	White

4	9.975M	14.5	+10.8	+0.1	+0.8	+0.0	26.2	50.0	-23.8	White
5	27.121M	12.5	+11.0	+0.1	+1.6	+0.0	25.2	50.0	-24.8	White
6	163.520k	16.2	+11.7	+1.5	+0.1	+0.0	29.5	55.3	-25.8	White



FCC 15.209 RADIATED EMISSIONS

Test Setup Photos

Test Data Sheets

Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **86212** Date: 11/8/2007
Test Type: **Radiated Scan** Time: 14:47:57
Equipment: **Proximity Reader** Sequence#: 8
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1200W
S/N: 007

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226
10M SITE CBL MAST CBL	N/A	03/23/2007	03/23/2009	CAB-SITED10M

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

Function	Manufacturer	Model #	S/N
Proximity Reader*	XceedID	XF1200W	007*

*Manufacturer declares that the emissions from XF1200W represent compliance for the XF1200S4 for the purposes of this test.

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	TPS-4000	918520

Test Conditions / Notes:

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Frequency Range Investigated: 9k - 30MHz. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

Transducer Legend:

T1=CAB-SITED10M-9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	27.120M	10.9	+1.4	+7.1			-19.0	0.4	29.5	-29.1	Verti 100
2	27.121M	8.0	+1.4	+7.1			-19.0	-2.5	29.5	-32.0	Horiz 100

Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **86212** Date: 12/3/2007
Test Type: **Radiated Scan** Time: 11:31:11
Equipment: **Proximity Reader** Sequence#: 1
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1200S4
S/N: 008

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
HP 8447D Preamp	1937A02604	03/14/2007	03/14/2009	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991
10M SITE CBL MAST CBL	N/A	03/23/2007	03/23/2009	CAB-SITED10M

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

Function	Manufacturer	Model #	S/N
Proximity Reader	XceedID	XF1200S4	008

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	TPS-4000	918520

Test Conditions / Notes:

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. %. EUT has lowest antenna tuning. Frequency Range Investigated: 30-1000MHz. Temperature: 18ºC, Relative Humidity: 48%.

Transducer Legend:

T1=AMP AN00099 T2=ANT AN01991 25-1000MHz
T3=CAB-SITED10M-9k-1G

Measurement Data: Reading listed by margin. Test Distance: 3 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	40.680M QP	47.6	-27.2	+14.0	+1.7		+0.0	36.1	40.0	-3.9	Verti 101
^	40.681M	49.4	-27.2	+14.0	+1.7		+0.0	37.9	40.0	-2.1	Verti 100
3	54.237M QP	52.0	-27.1	+8.2	+2.0		+0.0	35.1	40.0	-4.9	Verti 101
^	54.242M	58.1	-27.1	+8.2	+2.0		+0.0	41.2	40.0	+1.2	Verti 100
5	135.602M	49.6	-27.0	+11.6	+3.4		+0.0	37.6	43.5	-5.9	Verti 100
6	63.996M	47.1	-27.2	+6.5	+2.2		+0.0	28.6	40.0	-11.4	Verti 122
7	599.998M	34.4	-28.0	+19.7	+8.4		+0.0	34.5	46.0	-11.5	Verti 130

8	813.622M	29.6	-27.7	+22.0	+10.1	+0.0	34.0	46.0	-12.0	Verti 165
9	54.243M	43.4	-27.1	+8.2	+2.0	+0.0	26.5	40.0	-13.5	Horiz 100
10	40.685M	37.4	-27.2	+14.0	+1.7	+0.0	25.9	40.0	-14.1	Horiz 265
11	192.002M	42.9	-26.7	+9.1	+4.0	+0.0	29.3	43.5	-14.2	Verti 100
12	67.801M	44.3	-27.1	+6.3	+2.3	+0.0	25.8	40.0	-14.2	Verti 100
13	47.996M	40.4	-27.1	+10.1	+1.9	+0.0	25.3	40.0	-14.7	Verti 100
14	176.288M	42.4	-26.8	+9.3	+3.9	+0.0	28.8	43.5	-14.7	Verti 100
15	325.449M	38.0	-26.6	+14.1	+5.6	+0.0	31.1	46.0	-14.9	Verti 165
16	691.578M	29.2	-27.8	+20.6	+9.0	+0.0	31.0	46.0	-15.0	Verti 161
17	718.690M	28.5	-27.8	+20.9	+9.1	+0.0	30.7	46.0	-15.3	Verti 161
18	640.000M	30.1	-27.9	+20.1	+8.3	+0.0	30.6	46.0	-15.4	Verti 117
19	176.278M	41.4	-26.8	+9.3	+3.9	+0.0	27.8	43.5	-15.7	Horiz 105
20	704.004M	27.9	-27.8	+20.8	+9.1	+0.0	30.0	46.0	-16.0	Verti 117
21	678.015M	28.4	-27.8	+20.5	+8.8	+0.0	29.9	46.0	-16.1	Verti 161
22	559.990M	30.4	-27.9	+19.1	+8.2	+0.0	29.8	46.0	-16.2	Verti 130
23	320.002M	36.8	-26.5	+14.0	+5.5	+0.0	29.8	46.0	-16.2	Verti 130
24	664.451M	28.1	-27.9	+20.4	+8.5	+0.0	29.1	46.0	-16.9	Verti 161
25	298.331M	36.6	-26.4	+13.4	+5.5	+0.0	29.1	46.0	-16.9	Verti 165
26	596.642M	29.0	-28.0	+19.7	+8.4	+0.0	29.1	46.0	-16.9	Verti 153
27	216.960M	40.5	-26.6	+10.3	+4.4	+0.0	28.6	46.0	-17.4	Horiz 145
28	664.463M	27.3	-27.9	+20.4	+8.5	+0.0	28.3	46.0	-17.7	Verti 161
29	623.774M	27.9	-28.0	+20.0	+8.4	+0.0	28.3	46.0	-17.7	Verti 153
30	637.341M	27.4	-27.9	+20.1	+8.3	+0.0	27.9	46.0	-18.1	Verti 153
31	230.522M	38.0	-26.5	+11.3	+4.7	+0.0	27.5	46.0	-18.5	Horiz 145

32	569.523M	27.7	-27.9	+19.3	+8.3	+0.0	27.4	46.0	-18.6	Verti 161
33	192.004M	38.5	-26.7	+9.1	+4.0	+0.0	24.9	43.5	-18.6	Horiz 100
34	80.002M	38.4	-27.1	+7.6	+2.5	+0.0	21.4	40.0	-18.6	Verti 122
35	583.083M	27.5	-28.0	+19.5	+8.3	+0.0	27.3	46.0	-18.7	Verti 161
36	256.002M	36.0	-26.4	+12.6	+5.1	+0.0	27.3	46.0	-18.7	Verti 100
37	272.002M	35.4	-26.4	+12.9	+5.3	+0.0	27.2	46.0	-18.8	Verti 102
38	244.090M	36.5	-26.4	+12.1	+4.9	+0.0	27.1	46.0	-18.9	Horiz 145
39	189.847M	38.2	-26.7	+9.1	+4.0	+0.0	24.6	43.5	-18.9	Verti 100
40	81.362M	37.9	-27.1	+7.8	+2.5	+0.0	21.1	40.0	-18.9	Verti 100
41	650.899M	26.4	-27.9	+20.2	+8.3	+0.0	27.0	46.0	-19.0	Verti 153
42	128.002M	35.8	-27.0	+11.7	+3.3	+0.0	23.8	43.5	-19.7	Verti 117
43	120.002M	35.7	-27.0	+11.6	+3.2	+0.0	23.5	43.5	-20.0	Verti 117
44	203.396M	36.5	-26.7	+9.4	+4.2	+0.0	23.4	43.5	-20.1	Horiz 105
45	112.002M	35.7	-27.0	+11.0	+3.1	+0.0	22.8	43.5	-20.7	Verti 117
46	271.209M	33.4	-26.4	+12.9	+5.3	+0.0	25.2	46.0	-20.8	Horiz 145
47	162.722M	35.2	-26.8	+10.4	+3.8	+0.0	22.6	43.5	-20.9	Verti 100
48	122.045M	34.5	-27.0	+11.6	+3.3	+0.0	22.4	43.5	-21.1	Verti 100
49	284.767M	32.2	-26.4	+13.1	+5.4	+0.0	24.3	46.0	-21.7	Verti 165
50	325.436M	31.1	-26.6	+14.1	+5.6	+0.0	24.2	46.0	-21.8	Horiz 145
51	244.088M	33.6	-26.4	+12.1	+4.9	+0.0	24.2	46.0	-21.8	Verti 100
52	203.407M	34.8	-26.7	+9.4	+4.2	+0.0	21.7	43.5	-21.8	Verti 100
53	311.880M	31.3	-26.5	+13.7	+5.5	+0.0	24.0	46.0	-22.0	Verti 165
54	230.522M	34.3	-26.5	+11.3	+4.7	+0.0	23.8	46.0	-22.2	Verti 100
55	304.002M	30.9	-26.4	+13.5	+5.5	+0.0	23.5	46.0	-22.5	Verti 118

56	352.568M	29.6	-26.7	+14.8	+5.6	+0.0	23.3	46.0	-22.7	Verti 183
57	339.006M	29.7	-26.6	+14.5	+5.6	+0.0	23.2	46.0	-22.8	Verti 100
58	320.004M	29.8	-26.5	+14.0	+5.5	+0.0	22.8	46.0	-23.2	Horiz 100
59	135.603M	32.1	-27.0	+11.6	+3.4	+0.0	20.1	43.5	-23.4	Horiz 100
60	256.004M	31.3	-26.4	+12.6	+5.1	+0.0	22.6	46.0	-23.4	Horiz 100
61	352.568M	28.6	-26.7	+14.8	+5.6	+0.0	22.3	46.0	-23.7	Verti 183
62	336.002M	28.8	-26.6	+14.4	+5.6	+0.0	22.2	46.0	-23.8	Verti 130
63	298.324M	29.6	-26.4	+13.4	+5.5	+0.0	22.1	46.0	-23.9	Horiz 145
64	136.002M	31.5	-27.0	+11.6	+3.4	+0.0	19.5	43.5	-24.0	Verti 117
65	108.482M	32.6	-27.1	+10.8	+3.0	+0.0	19.3	43.5	-24.2	Verti 100
66	240.004M	31.4	-26.4	+11.9	+4.8	+0.0	21.7	46.0	-24.3	Horiz 100
67	366.125M	27.5	-26.9	+15.1	+5.9	+0.0	21.6	46.0	-24.4	Verti 183
68	271.206M	29.6	-26.4	+12.9	+5.3	+0.0	21.4	46.0	-24.6	Verti 100
69	67.814M	33.9	-27.1	+6.3	+2.3	+0.0	15.4	40.0	-24.6	Horiz 265
70	379.682M	27.0	-27.1	+15.4	+6.1	+0.0	21.4	46.0	-24.6	Verti 183
71	384.002M	26.5	-27.1	+15.5	+6.2	+0.0	21.1	46.0	-24.9	Verti 130
72	240.002M	30.8	-26.4	+11.9	+4.8	+0.0	21.1	46.0	-24.9	Verti 100
73	257.647M	29.6	-26.4	+12.6	+5.1	+0.0	20.9	46.0	-25.1	Verti 134
74	120.010M	30.1	-27.0	+11.6	+3.2	+0.0	17.9	43.5	-25.6	Horiz 100
75	149.158M	29.4	-26.9	+11.1	+3.6	+0.0	17.2	43.5	-26.3	Horiz 100
76	216.963M	31.2	-26.6	+10.3	+4.4	+0.0	19.3	46.0	-26.7	Verti 100
77	144.002M	28.7	-26.9	+11.4	+3.5	+0.0	16.7	43.5	-26.8	Verti 117
78	122.050M	28.6	-27.0	+11.6	+3.3	+0.0	16.5	43.5	-27.0	Horiz 265

79	160.002M	28.9	-26.9	+10.7	+3.7	+0.0	16.4	43.5	-27.1	Verti 117
80	64.010M	31.1	-27.2	+6.5	+2.2	+0.0	12.6	40.0	-27.4	Horiz 100
81	168.002M	27.9	-26.8	+9.9	+3.8	+0.0	14.8	43.5	-28.7	Verti 117
82	224.004M	27.2	-26.5	+10.8	+4.6	+0.0	16.1	46.0	-29.9	Horiz 100

FCC 15.225 RADIATED EMISSIONS

Test Setup Photos

Test Data Sheets

Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **XceedID**
Specification: **47 CFR 15.225(a)**
Work Order #: **86212** Date: 11/30/2007
Test Type: **Radiated Scan** Time: 16:31:09
Equipment: **Proximity Reader** Sequence#: 17
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1200S4
S/N: 008

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226
10M SITE CBL MAST CBL	N/A	03/23/2007	03/23/2009	CAB-SITED10M

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

Function	Manufacturer	Model #	S/N
Proximity Reader*	XceedID	XF1200S4	008

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	TPS-4000	918520

Test Conditions / Notes:

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Frequency Range Investigated: Carrier. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

Transducer Legend:

T1=CAB-SITED10M-9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	42.9	+1.0	+9.6			-19.0	34.5	84.0	-49.5	Verti 100
2	13.560M	39.1	+1.0	+9.6			-19.0	30.7	84.0	-53.3	Horiz 100

OCCUPIED BANDWIDTH

Test Equipment

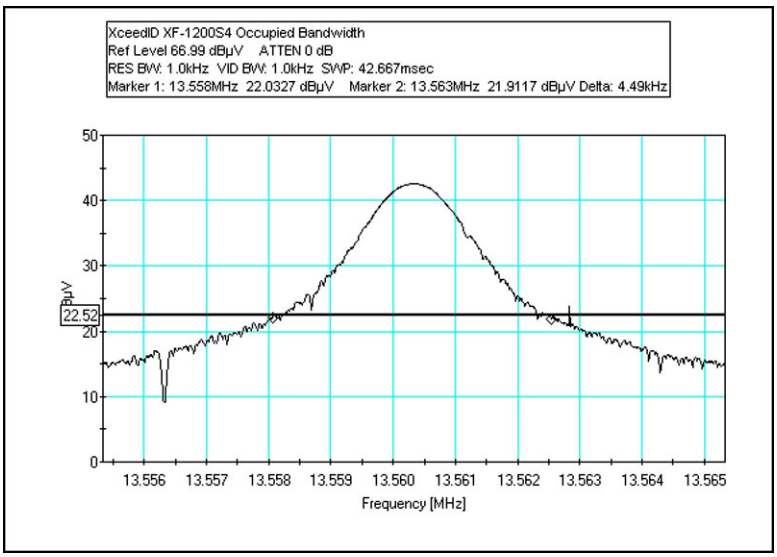
Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/01/2007	05/01/2009	00226
10M SITE CBL MAST CBL	N/A	03/23/2007	03/23/2009	CAB-SITED10M

Test Conditions

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

Test Setup Photos

Plots


XceedID XF-1200S4 Occupied Bandwidth
Ref Level 66.99 dBµV ATTEN 0 dB
RES BW: 1.0kHz VID BW: 1.0kHz SWP: 42.667msec
Marker 1: 13.558MHz 22.0327 dBµV Marker 2: 13.563MHz 21.9117 dBµV Delta: 4.49kHz
50
40
30
dBµV
22.52
20
10
0
13.556
13.557
13.558
13.559
13.560
13.561
13.562
13.563
13.564
13.565
Frequency [MHz]

FCC 15.225 (a-c) EMISSIONS MASK

Test Equipment

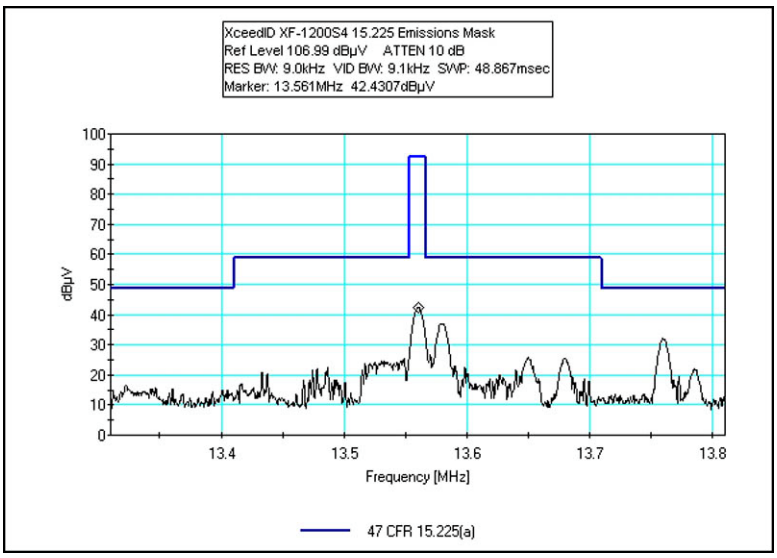
Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/01/2007	05/01/2009	00226
10M SITE CBL MAST CBL	N/A	03/23/2007	03/23/2009	CAB-SITED10M

Test Conditions

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

Test Setup Photos

Plots


XceedID XF-1200S4 15.225 Emissions Mask
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 9.0kHz VID BW: 9.1kHz SWP: 48.867msec
Marker: 13.561MHz 42.4307dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
0
13.4
13.5
13.6
13.7
13.8
Frequency [MHz]
47 CFR 15.225(a)

FCC 15.225(e) FREQUENCY STABILITY

Test Equipment

Function	S/N	Cal Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	1/3/2007	1/3/2009	2660
Solar Loop Sensor	N/A	3/4/2007	3/4/2009	170
Thermotron Temperature Chamber	11899	12/21/2006	12/21/2008	1879
HP 6205C Dual DC Power Supply	2228A01775	7/19/2007	7/19/2009	762
Fluke Multimeter	55230270	4/12/06	4/12/08	P00756

Test Conditions: Equipment is placed inside of a temperature chamber. EUT power is provided via bench supply. Power variations are performed while monitoring with a digital voltage meter.

Test Setup Photos

Test Data

Customer:	XceedID
WO#:	86212
Date:	7-Dec-07
Test Engineer:	Randal Clark

Device Model #:	XF1200S4	
Operating Voltage:	12.00	**VDC**
Frequency Limit:	0.01	**%**

Temperature Variations

		Channel 1 (MHz)	**Dev. (MHz)**
Channel Frequency:		**13.560000**	
Temp (C)	Voltage		
-30	12.00		
-20	12.00	13.56037	0.00037
-10	12.00	13.56037	0.00037
0	12.00	13.56036	0.00036
10	12.00	13.56035	0.00035
20	12.00	13.56033	0.00033
30	12.00	13.56031	0.00031
40	12.00	13.56024	0.00024
50	12.00	13.56022	0.00022

Voltage Variations (±15%)

20	10.20	13.56031	0.00031
20	12.00	13.56029	0.00029
20	13.80	13.56029	0.00029

Max Deviation (MHz)	**0.00037**
Max Deviation (%)	**0.00273**
	PASS

RSS-210 99% BANDWIDTH

Test Equipment

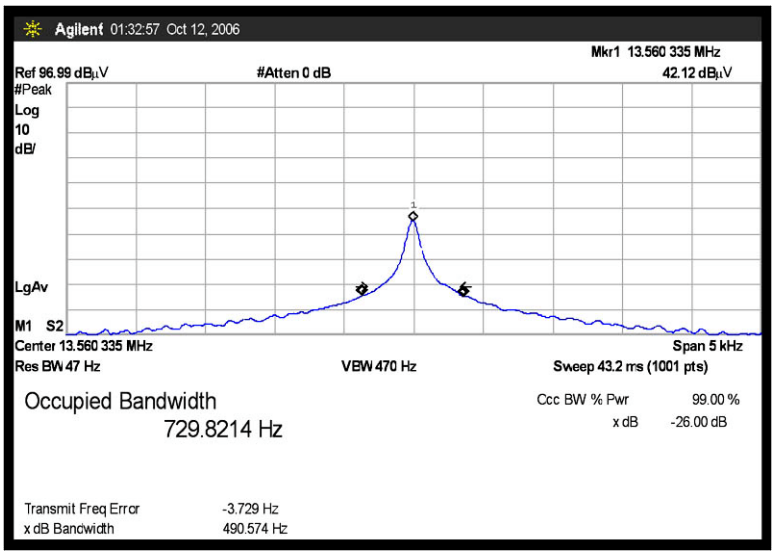
Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/01/2007	05/01/2009	00226
10M SITE CBL MAST CBL	N/A	03/23/2007	03/23/2009	CAB-SITED10M

Test Conditions

EUT is a proximity reader operating at 13.56MHz. The equipment is powered via 12VDC power supply. Temperature: 18ºC, Relative Humidity: 48%. EUT has lowest antenna tuning. EUT has additional ferrite bead around the power and ground wires at the EUT end of the cable. EUT has shield wire tied to DC common at the power supply.

Test Setup Photos

Plots


Agilent 01:32:57 Oct 12, 2006
Mkr1 13.560 335 MHz
Ref 96.99 dBµV
#Atten 0 dB
42.12 dBµV
#Peak
Log
10
dB/
LgAv
M1 S2
Center 13.560 335 MHz
Span 5 kHz
Res BW 47 Hz
VBW 470 Hz
Sweep 43.2 ms (1001 pts)
Occupied Bandwidth
729.8214 Hz
Ccc BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -3.729 Hz
x dB Bandwidth 490.574 Hz