CKC LABORATORIES, INC. Testing the Future

XCEEDID TEST REPORT

FOR THE

PHYSICAL ACCESS CONTROL READER, XF1060

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

COMPLIANCE

DATE OF ISSUE: MAY 24, 2005

PREPARED FOR:

XceedID
112 N. Rubey Drive, Suite 100
Golden, CO 80403

P.O. No.: 011305JDM
W.O. No.: 83110

PREPARED BY:

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

Date of test: May 16-19, 2005

Report No.: FC05-012

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	May 16-19, 2005
DATE OF RECEIPT:	May 16, 2005
MANUFACTURER:	XceedID 112 N. Rubey Drive, Suite 100 Golden, CO 80403
REPRESENTATIVE:	Mike Conlin
TEST LOCATION:	CKC Laboratories, Inc. 5046 Sierra Pines Drive Mariposa, CA 95338
TEST METHOD:	ANSI C63.4 (2003) and RSS-212
PURPOSE OF TEST:	To demonstrate the compliance of the Physical Access Control Reader, XF1060 with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209, 15.225 and RSS-210 devices.

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 210	5.5	47CFR	15.203	Antenna Connector Requirements
RSS 210	6.2.1	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	6.2.2(e)	47CFR	15.225(a)*	Fundamental Requirements
RSS 210	6.2.2(e)	NA	NA	±150kHz to ±450kHz Emissions Requirement
RSS 210	6.2.2(e)	47CFR	15.225(b)*	Out of band emissions
RSS 210	6.2.2(e)	47CFR	15.225(c)*	Carrier Stability
RSS 210	6.3	47CFR	15.205	Restricted Bands of Operation
RSS 210	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.5	47CFR	15.35(c)	Pulsed Operation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
	IC 3082-D		784962	Site File No.

* Indicates that FCC Requirements are more stringent than the Canadian Equivalent.

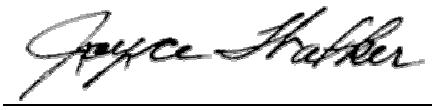
CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

Mike Wilkinson, Lab Manager

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
15.209/15.225 Radiated Emissions: 9 kHz – 1000 MHz

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

Physical Access Control Reader

Manuf: XceedID
Model: XF1060
Serial: 1001
FCC ID: R2L1060MINI (pending)

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 MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 1: FCC 15.207 Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Lisn dB	HPF dB	Cable dB		CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
13.559950	44.0	0.1	0.4	0.4		44.9	50.0	-5.1	W
13.560150	44.1	0.1	0.4	0.4		45.0	50.0	-5.0	W
13.560350	44.0	0.1	0.4	0.4		44.9	50.0	-5.1	W
13.560600	44.0	0.1	0.4	0.4		44.9	50.0	-5.1	W
13.560850	44.0	0.1	0.4	0.4		44.9	50.0	-5.1	W
13.561100	43.9	0.1	0.4	0.4		44.8	50.0	-5.2	W

Test Method: ANSI C63.4 (2003) NOTES: W = White Lead
Spec Limit: FCC Part 15 Subpart C Section 15.207

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Frequency range investigated: 150 kHz - 30 MHz. Temperature: 18ºC, Relative Humidity: 45%.

Table 2: FCC 15.225 Six Highest Radiated Emission Levels: 9 kHz - 30 MHz									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB		Cable dB	Corr dB	READING dBµV/m	LIMIT dBµV/m	MARGIN DB	NOTES
7.570	11.3	9.8		0.6	-20.0	1.7	29.5	-27.8	H
26.668	8.0	6.8		1.1	-20.0	-4.1	29.5	-33.6	H
27.015	17.9	6.6		1.1	-20.0	5.6	29.5	-23.9	V
27.121	18.0	6.6		1.1	-20.0	5.7	29.5	-23.8	H
27.250	6.5	6.6		1.1	-20.0	-5.8	29.5	-35.3	H
27.438	7.6	6.5		1.2	-20.0	-4.7	29.5	-34.2	H

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.225
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: 9 kHz -30 MHz. Temperature: 18ºC, Relative Humidity: 45%.

Table 3: FCC 15.209 Six Highest Radiated Emission Levels: 30-1000 MHz									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN DB	NOTES
54.201	34.3	7.3	-26.8	1.6	10.0	26.4	40.0	-13.6	VQ
135.605	33.7	11.0	-26.7	2.6	10.0	30.6	43.5	-12.9	V
162.724	36.9	9.8	-26.7	2.9	10.0	32.9	43.5	-10.6	V
298.312	36.9	12.8	-26.2	4.1	10.0	37.6	46.0	-8.4	V
298.335	32.9	12.8	-26.2	4.1	10.0	33.6	46.0	-12.4	H
406.819	29.8	15.6	-26.9	5.1	10.0	33.6	46.0	-12.4	H

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 20dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: 30-1000 MHz. Temperature: 18ºC, Relative Humidity: 45%.

Table 4: FCC 15.225 Fundamental Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	dB	Cable dB	Corr dB	READING dBµV/m	LIMIT dBµV/m	MARGIN DB	NOTES
13.560	38.2	9.6		0.8	-20.0	28.6	84.0	-55.4	H
13.560	34.7	9.6		0.8	-20.0	25.1	84.0	-58.9	V

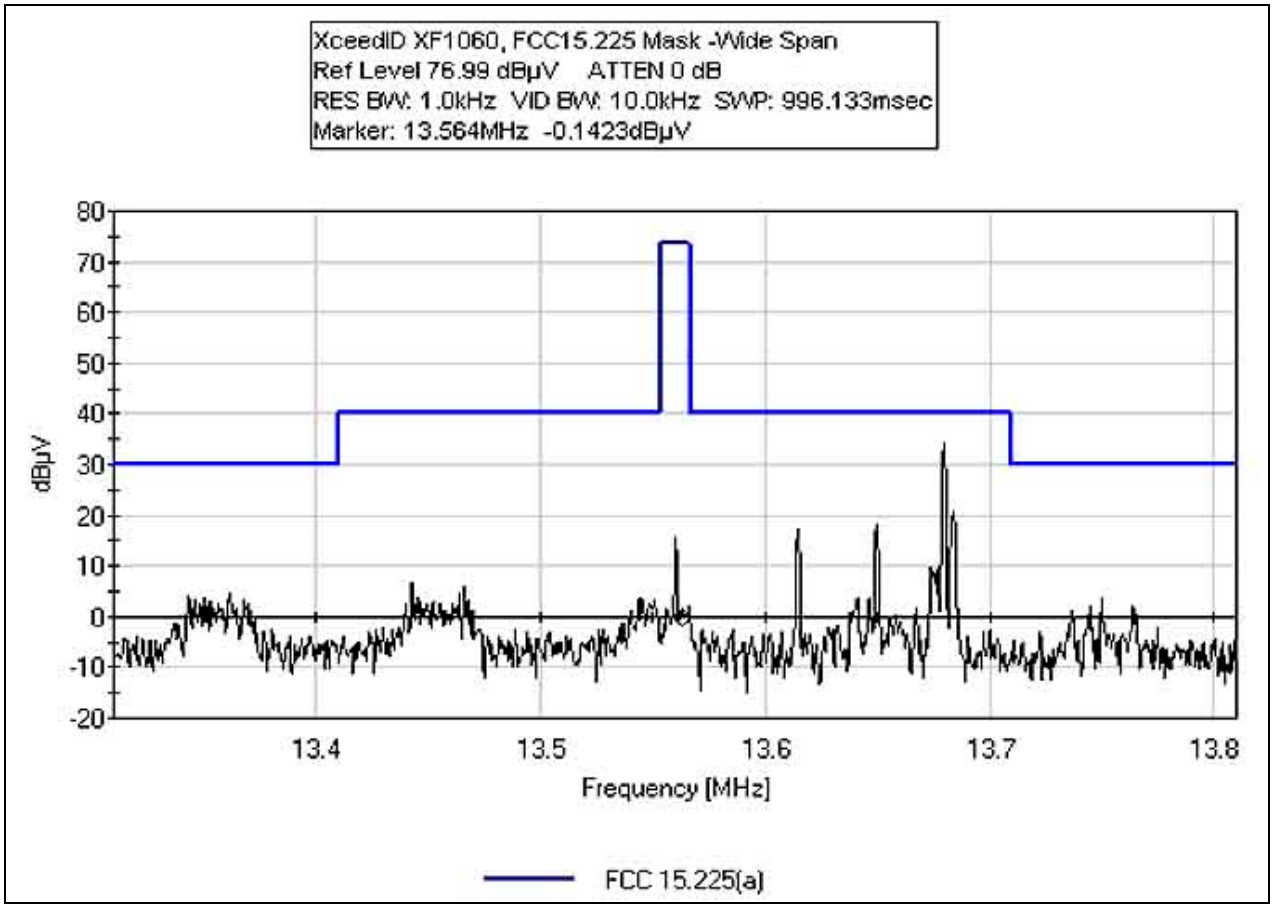
Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.225
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: Carrier. Temperature: 18ºC, Relative Humidity: 45%.

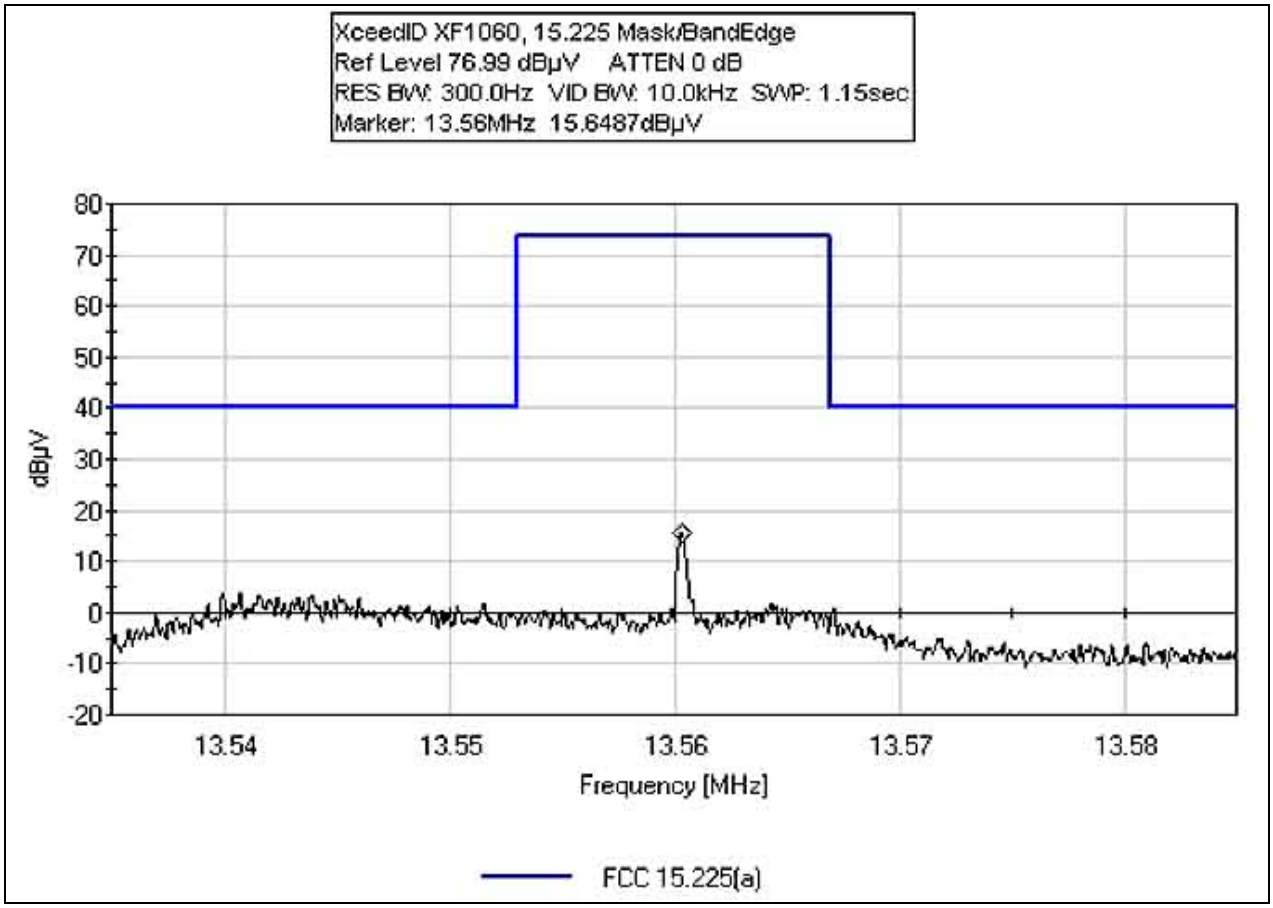
FCC 15.225 EMISSIONS MASK - WIDE SPAN

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: Carrier. Temperature: 18ºC, Relative Humidity: 45%.



FCC 15.225(b) BAND EDGE

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: Carrier. Temperature: 18ºC, Relative Humidity: 45%.



FCC 15.225(c) FREQUENCY STABILITY AND VOLTAGE VARIATIONS

Test Conditions: EUT is a Card Reader transmitting at 13.56 MHz. EUT was placed inside the temperature chamber where the frequency was monitored by the spectrum analyzer and antenna. The EUT was powered by a remote power supply which was monitored by the multimeter. SA Res & Video BW = 300 Hz.

Customer: XceedID
WO#: 83110
Test Engineer: Mike Wilkinson

Device Model #: XF1060
Operating Voltage: 12 **VDC**
Frequency Limit: 0.01 **%**

Temperature Variations

		Channel 1 (MHz)	**Dev. (MHz)**
Channel Frequency:		13.55949	
Temp (C)	Voltage		
-20	12	13.559384	0.000106
-10	12	13.559504	0.000014
0	12	13.559648	0.000158
10	12	13.559488	0.000002
20	12	13.559490	0.000000
30	12	13.559492	0.000002
40	12	13.55955	0.00006
50	12	13.55951	0.00002

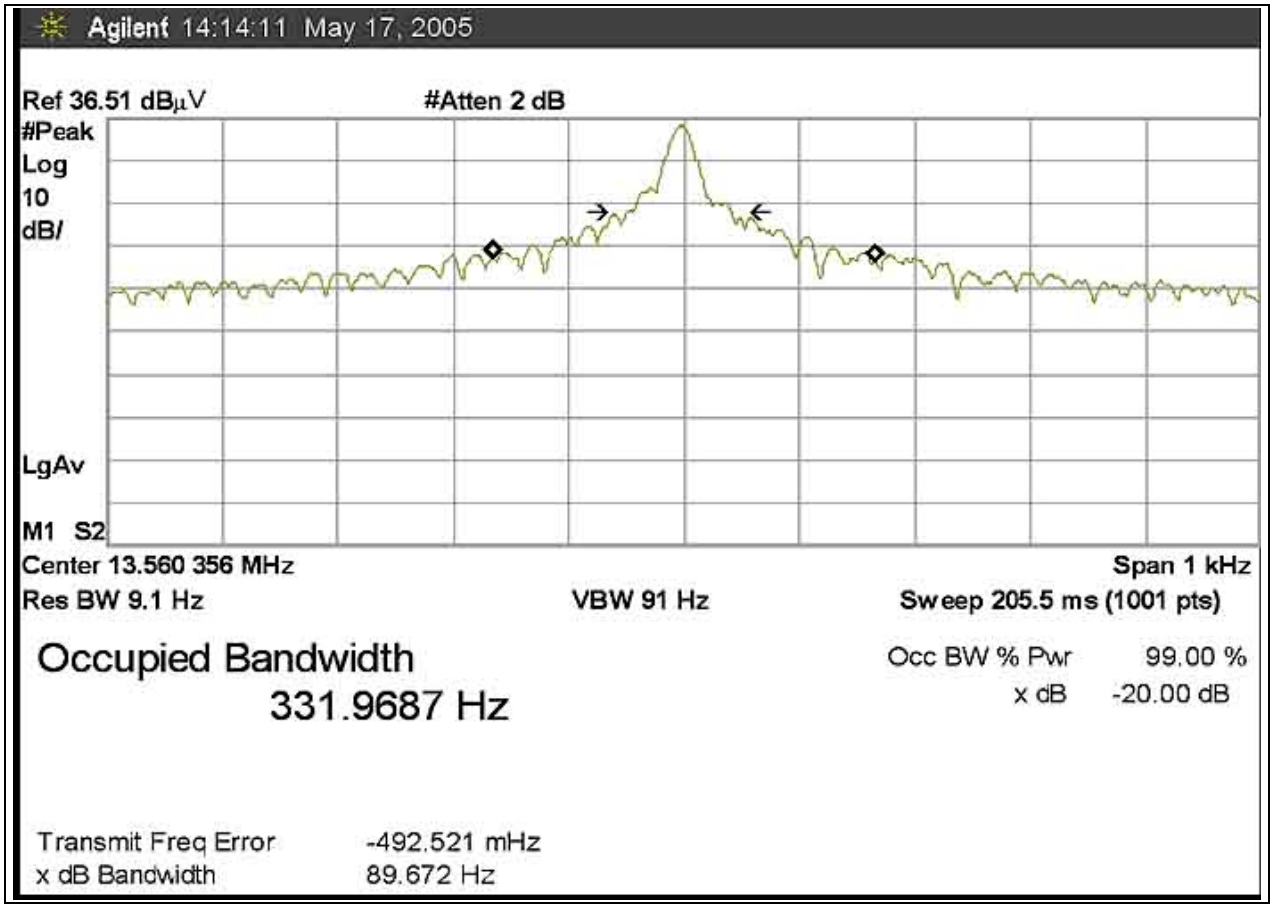
Voltage Variations (±15%)

20	10.2	13.559486	0.000004
20	12	13.559490	0.000000
20	13.8	13.559491	0.000001

Max Deviation (MHz)	**0.00016**
Max Deviation (%)	**0.00117**
	PASS

RSS-210 OCCUPIED BANDWIDTH

COMMENTS: EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: Carrier. Temperature: 18ºC, Relative Humidity: 45%.



EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

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 in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: 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 in Appendix B were used to collect both the radiated and conducted emissions data. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the 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 six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. 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 test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer 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 HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

The LISNs used were 50 µH-/+50 ohms. Above 150 kHz, a 0.15 µF series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

Mains Conducted Emissions - Side View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View

PHOTOGRAPH SHOWING FREQUENCY STABILITY AND VOLTAGE VARIATIONS

APPENDIX B

TEST EQUIPMENT LIST

15.207

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer (RF Section)	2007A01066	02/16/2005	02/16/2007	01184
Spectrum Analyzer (Display)	2005A01550	02/16/2005	02/16/2007	01183
QP Adapter	2043A00104	02/16/2005	02/16/2007	00069
LISN, 8028-50-TS-24-BNC	8379276, 280	06/05/2003	06/05/2005	1248 & 1249

15.225 and RSS-210

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer (RF Section)	2007A01066	02/16/2005	02/16/2007	01184
Spectrum Analyzer (Display)	2005A01550	02/16/2005	02/16/2007	01183
QP Adapter	2043A00104	02/16/2005	02/16/2007	00069
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

15.209 30-1000 MHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer (RF Section)	2007A01066	02/16/2005	02/16/2007	01184
Spectrum Analyzer (Display)	2005A01550	02/16/2005	02/16/2007	01183
QP Adapter	2043A00104	02/16/2005	02/16/2007	00069
PreAmp	S/N 2727A05444	07/18/2004	07/18/2006	62
Bilog Antenna Chase CBL6111	2455	06/26/2003	06/26/2005	1992

15.225(c)

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer HP 8564	3623A00539	08/02/2004	08/02/2006	1406
Antenna, Loop EMCO 6502	1074	03/04/2005	03/04/2007	226
Temp Chamber Thermotron S-1.2	11899	01/24/2005	01/24/2007	1879
MiniMax				
Thermometer Omega HH-26K	T-202884	08/15/2003	08/14/2005	2242
Multimeter Fluke 8520	2905006	04/25/2005	04/25/2007	2369

APPENDIX C:

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa CA, 95338 • (209) 966-5240

Customer: **XceedID**
Specification: **FCC 15.207 - AVE**
Work Order #: **83110** Date: 05/16/2005
Test Type: **Conducted Emissions** Time: 10:24:34 AM
Equipment: **Physical Access Control Reader** Sequence#: 5
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1060 120V 60Hz
S/N: 1001

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

Function	Manufacturer	Model #	S/N
Physical Access Control Reader*	XceedID	XF1060	1001

Support Devices:

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

Test Conditions / Notes:

EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Frequency range investigated: 150 kHz - 30 MHz. Temperature: 18ºC, Relative Humidity: 45%.

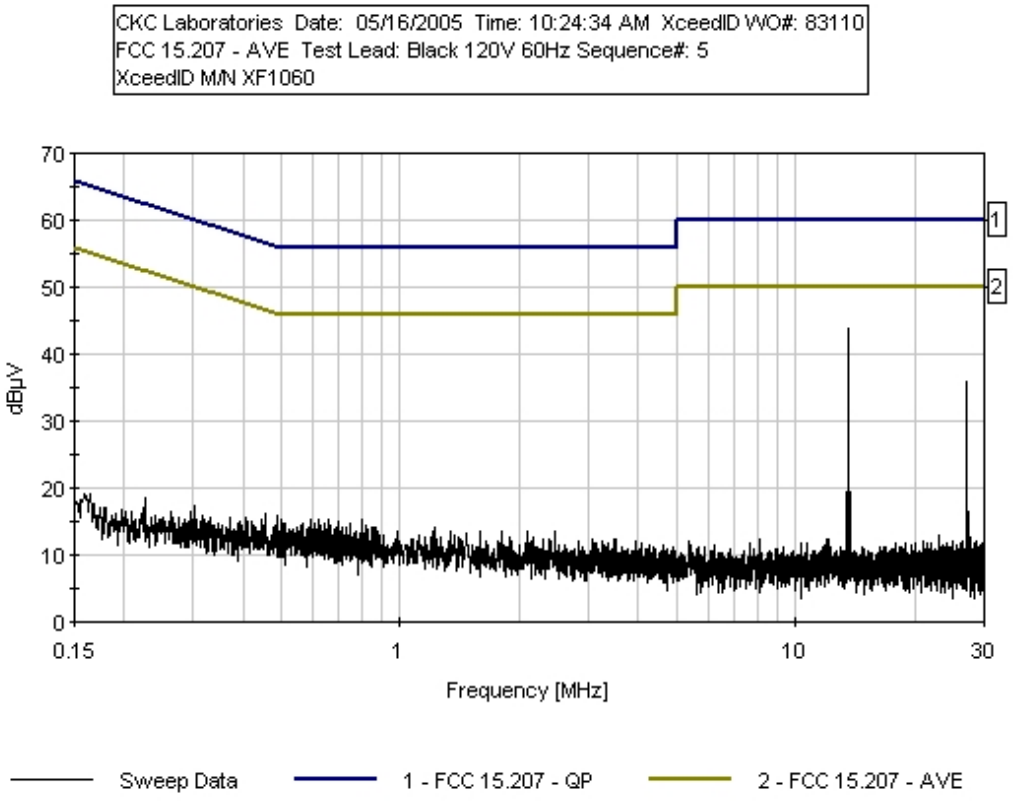
Transducer Legend:

T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n276
T3=HP Filter AN02608	

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	42.8	+0.4	+0.5	+0.1		+0.0	43.8	50.0	-6.2	Black
2	13.560M	42.8	+0.4	+0.5	+0.1		+0.0	43.8	50.0	-6.2	Black
3	13.561M	42.8	+0.4	+0.5	+0.1		+0.0	43.8	50.0	-6.2	Black
4	13.561M	42.8	+0.4	+0.5	+0.1		+0.0	43.8	50.0	-6.2	Black
5	13.560M	42.7	+0.4	+0.5	+0.1		+0.0	43.7	50.0	-6.3	Black
6	13.561M	42.7	+0.4	+0.5	+0.1		+0.0	43.7	50.0	-6.3	Black
7	13.560M	42.6	+0.4	+0.5	+0.1		+0.0	43.6	50.0	-6.4	Black
8	13.561M	42.6	+0.4	+0.5	+0.1		+0.0	43.6	50.0	-6.4	Black
9	13.562M	42.5	+0.4	+0.5	+0.1		+0.0	43.5	50.0	-6.5	Black
10	13.559M	42.4	+0.4	+0.5	+0.1		+0.0	43.4	50.0	-6.6	Black

11	13.559M	42.3	+0.4	+0.5	+0.1	+0.0	43.3	50.0	-6.7	Black
12	13.562M	42.2	+0.4	+0.5	+0.1	+0.0	43.2	50.0	-6.8	Black
13	13.559M	42.0	+0.4	+0.5	+0.1	+0.0	43.0	50.0	-7.0	Black
14	13.562M	42.0	+0.4	+0.5	+0.1	+0.0	43.0	50.0	-7.0	Black
15	13.559M	41.8	+0.4	+0.5	+0.1	+0.0	42.8	50.0	-7.2	Black



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa CA, 95338 • (209) 966-5240

Customer: **XceedID**
Specification: **FCC 15.207 - AVE**
Work Order #: **83110** Date: 05/16/2005
Test Type: **Conducted Emissions** Time: 10:31:16 AM
Equipment: **Physical Access Control Reader** Sequence#: 6
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1060 120V 60Hz
S/N: 1001

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

Function	Manufacturer	Model #	S/N
Physical Access Control Reader*	XceedID	XF1060	1001

Support Devices:

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

Test Conditions / Notes:

EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Frequency range investigated: 150 kHz - 30 MHz. Temperature: 18ºC, Relative Humidity: 45%.

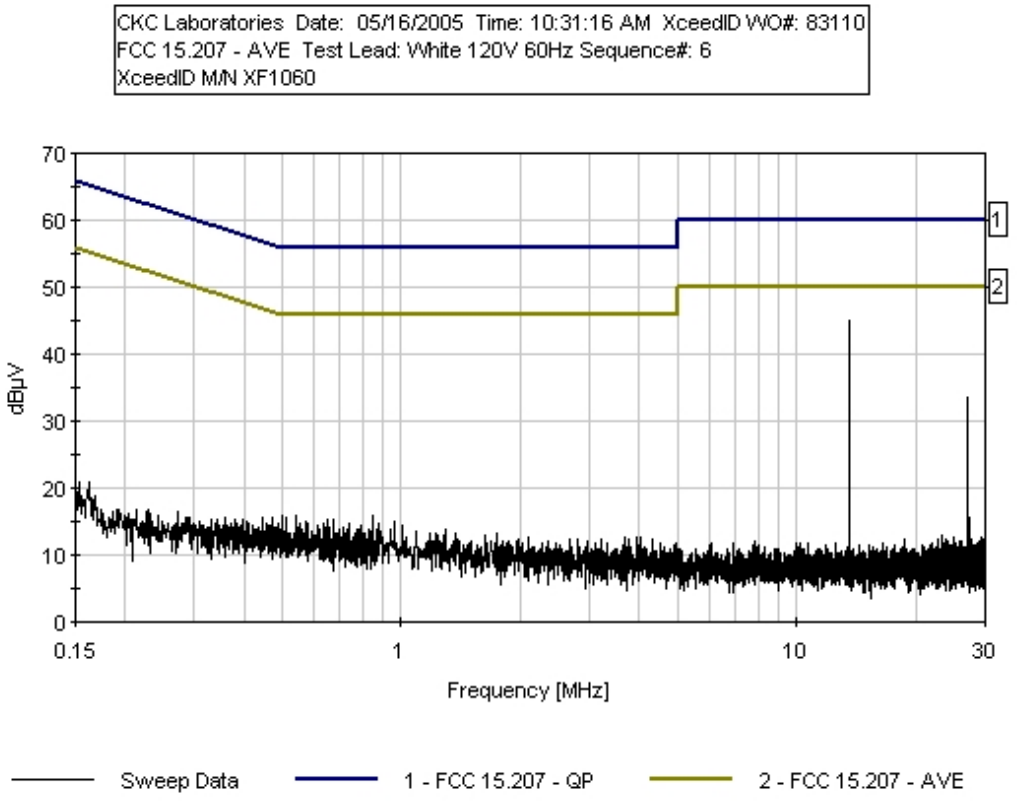
Transducer Legend:

T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n280
T3=HP Filter AN02608	

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	44.1	+0.4	+0.4	+0.1		+0.0	45.0	50.0	-5.0	White
2	13.560M	44.0	+0.4	+0.4	+0.1		+0.0	44.9	50.0	-5.1	White
3	13.560M	44.0	+0.4	+0.4	+0.1		+0.0	44.9	50.0	-5.1	White
4	13.561M	44.0	+0.4	+0.4	+0.1		+0.0	44.9	50.0	-5.1	White
5	13.561M	44.0	+0.4	+0.4	+0.1		+0.0	44.9	50.0	-5.1	White
6	13.561M	43.9	+0.4	+0.4	+0.1		+0.0	44.8	50.0	-5.2	White
7	13.560M	43.8	+0.4	+0.4	+0.1		+0.0	44.7	50.0	-5.3	White
8	13.561M	43.8	+0.4	+0.4	+0.1		+0.0	44.7	50.0	-5.3	White
9	13.559M	43.7	+0.4	+0.4	+0.1		+0.0	44.6	50.0	-5.4	White
10	13.562M	43.7	+0.4	+0.4	+0.1		+0.0	44.6	50.0	-5.4	White

11	13.559M	43.5	+0.4	+0.4	+0.1	+0.0	44.4	50.0	-5.6	White
12	13.562M	43.4	+0.4	+0.4	+0.1	+0.0	44.3	50.0	-5.7	White
13	13.559M	43.3	+0.4	+0.4	+0.1	+0.0	44.2	50.0	-5.8	White
14	13.562M	43.2	+0.4	+0.4	+0.1	+0.0	44.1	50.0	-5.9	White
15	13.559M	43.1	+0.4	+0.4	+0.1	+0.0	44.0	50.0	-6.0	White



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa CA, 95338 • (209) 966-5240

Customer: **XceedID**
Specification: **FCC 15.225(a)**
Work Order #: **83110** Date: 05/17/2005
Test Type: **Maximized Emissions** Time: 15:56:46
Equipment: **Physical Access Control Reader** Sequence#: 10
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1060
S/N: 1001

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

Function	Manufacturer	Model #	S/N
Physical Access Control Reader*	XceedID	XF1060	1001

Support Devices:

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

Test Conditions / Notes:

EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: 9 kHz -30 MHz. Temperature: 18ºC, Relative Humidity: 45%.

Transducer Legend:

T1=Cable - 10 Meter T2=Mag Loop - AN 00226 - 9kHz-30M
T3=15.31 10m 40dB/Dec Correction

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	27.121M	18.0	+1.1	+6.6	-20.0		+0.0 279	5.7	29.5	-23.8	Horiz 100
2	27.015M	17.9	+1.1	+6.6	-20.0		+0.0 279	5.6	29.5	-23.9	Verti 100
3	7.570M	11.3	+0.6	+9.8	-20.0		+0.0 279	1.7	29.5	-27.8	Horiz 100
4	26.668M	8.0	+1.1	+6.8	-20.0		+0.0 279	-4.1	29.5	-33.6	Horiz 100
5	27.438M	7.6	+1.2	+6.5	-20.0		+0.0 279	-4.7	29.5	-34.2	Horiz 100
6	27.250M	6.5	+1.1	+6.6	-20.0		+0.0 279	-5.8	29.5	-35.3	Horiz 100

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa CA, 95338 • (209) 966-5240

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **83110** Date: 05/16/2005
Test Type: **Maximized Emissions** Time: 09:08:26
Equipment: **Physical Access Control Reader** Sequence#: 2
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1060
S/N: 1001

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

Function	Manufacturer	Model #	S/N
Physical Access Control Reader*	XceedID	XF1060	1001

Support Devices:

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

Test Conditions / Notes:

EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 20dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: 30-1000 MHz. Temperature: 18ºC, Relative Humidity: 45%.

Transducer Legend:

T1=Amp - S/N 604 T2=Bilog Site D
T3=Cable - 10 Meter

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	298.312M	36.9	-26.2	+12.8	+4.1		+10.0 360	37.6	46.0	-8.4	Verti 100
2	162.724M	36.9	-26.7	+9.8	+2.9		+10.0 360	32.9	43.5	-10.6	Verti 100
3	406.819M	29.8	-26.9	+15.6	+5.1		+10.0 32	33.6	46.0	-12.4	Horiz 301
4	298.335M	32.9	-26.2	+12.8	+4.1		+10.0 32	33.6	46.0	-12.4	Horiz 301
5	135.605M	33.7	-26.7	+11.0	+2.6		+10.0 360	30.6	43.5	-12.9	Verti 100
6	311.915M	31.3	-26.3	+13.2	+4.2		+10.0	32.4	46.0	-13.6	Verti 100
7	54.201M QP	34.3	-26.8	+7.3	+1.6		+10.0 40	26.4	40.0	-13.6	Verti 100
8	325.441M	30.8	-26.4	+13.5	+4.3		+10.0	32.2	46.0	-13.8	Verti 100
9	284.784M	31.0	-26.1	+12.6	+3.9		+10.0	31.4	46.0	-14.6	Verti 100

10	67.805M	34.5	-26.8	+5.8	+1.9	+10.0 360	25.4	40.0	-14.6	Verti 100
11	271.205M	30.2	-26.0	+12.4	+3.8	+10.0	30.4	46.0	-15.6	Verti 100
12	67.811M	33.1	-26.8	+5.8	+1.9	+10.0	24.0	40.0	-16.0	Verti 100
13	271.207M	28.6	-26.0	+12.4	+3.8	+10.0 32	28.8	46.0	-17.2	Horiz 301
14	311.899M	27.4	-26.3	+13.2	+4.2	+10.0 32	28.5	46.0	-17.5	Horiz 301
15	203.405M	29.4	-26.5	+8.6	+3.3	+10.0 360	24.8	43.5	-18.7	Verti 100
16	216.965M	27.8	-26.3	+9.7	+3.4	+10.0 135	24.6	46.0	-21.4	Verti 100

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa CA, 95338 • (209) 966-5240

Customer: **XceedID**
Specification: **FCC 15.225(a)**
Work Order #: **83110** Date: 05/17/2005
Test Type: **Maximized Emissions** Time: 14:20:33
Equipment: **Physical Access Control Reader** Sequence#: 9
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1060
S/N: 1001

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

Function	Manufacturer	Model #	S/N
Physical Access Control Reader*	XceedID	XF1060	1001

Support Devices:

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

Test Conditions / Notes:

EUT is operating on a frequency of 13.56 MHz. RF Tag present in the field for continuous communication. EUT is powered via support power supply at 12 VDC. EUT is tested in three orthogonal orientations; the worst case emissions are reported. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. Frequency range investigated: Carrier. Temperature: 18ºC, Relative Humidity: 45%.

Transducer Legend:

T1=Cable - 10 Meter T2=Mag Loop - AN 00226 - 9kHz-30M
T3=15.31 10m 40dB/Dec Correction

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	38.2	+0.8	+9.6	-20.0		+0.0 279	28.6	84.0	-55.4	Horiz 100
2	13.560M	34.7	+0.8	+9.6	-20.0		+0.0	25.1	84.0	-58.9	Vert 100