XCEEDID TEST REPORT

FOR THE

SMART CARD READER, XF1560CS2, XF1560CS4 & XF1560PS2

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 & 15.225 AND SUBPART B SECTIONS 15.107 & 15.109 CLASS B

COMPLIANCE

DATE OF ISSUE: MARCH 21, 2007

PREPARED FOR:

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

PREPARED BY:

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

P.O. No.: MC012607-1
W.O. No.: 85643

Date of test: January 15 - March 15, 2007

Report No.: FC07-018

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ADMINISTRATIVE INFORMATION

DATE OF TEST: January 15 - March 15, 2007

DATE OF RECEIPT: January 15, 2007

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)

PURPOSE OF TEST: To demonstrate the compliance of the Smart Card Reader, XF1560CS2, XF1560CS4 & XF1560PS2 with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.225 and Subpart B Sections 15.107 & 15.109 Class B devices.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

Mike Wilkinson, EMC Engineer/Lab Manager

Randy Clark, EMC Engineer

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS GEN	7.1.4	47CFR	15.203	Antenna Connector Requirements
RSS GEN	7.2.1	47CFR	15.35(c)	Pulsed Operation
RSS GEN	7.2.2	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	2.1	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	2.2	47CFR	15.205	Restricted Bands of Operation
RSS 210	2.6	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	A2.6	47CFR	15.225(a-c)	Fundamental and Emissions Mask Requirements
RSS 210	A2.6	NA	NA	±150kHz to ±450kHz Emissions Requirement
RSS 210	A2.6	47CFR	15.225(d)	Out of band emissions
RSS 210	A2.6	47CFR	15.225(e)	Carrier Stability
	IC 3082A-1		784962	Site File No.

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

FCC 15.33(a) Frequency Ranges Tested
15.109 Radiated Emissions: 30 MHz – 1000 MHz
15.107/15.207 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
RADIATED EMISSIONS	1000 MHz	40 GHz	1 MHz

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.

The following models have been tested by CKC Laboratories:

Smart Card Reader, XF1560CS2, XF1560CS4 & XF1560PS2

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they comply to the level of testing equivalent to the tested models.

Model Number	Model Description
XF1560P	13.56 MHz Only Pigtail with Wiegand output
XF1560C	13.56 MHz Only Connector with Wiegand output
XF1560CS2	13.56 MHz Only Connector with RS232 Interface
XF1560CS4	13.56 MHz Only Connector with RS485 Interface

EQUIPMENT UNDER TEST

Smart Card Reader
Manuf: XceedID
Model: XF1560CS2
Serial: 0003
FCC ID: pending

Smart Card Reader
Manuf: XceedID
Model: XF1560CS4
Serial: 0004
FCC ID: pending

Smart Card Reader
Manuf: XceedID
Model: XF1560PS2
Serial: 0004
FCC ID: pending

PERIPHERAL DEVICES

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

Power Supply
Manuf: Topward
Model: TPS-4000
Serial: 918520

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 to determine compliance. 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 to determine compliance.

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 "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/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

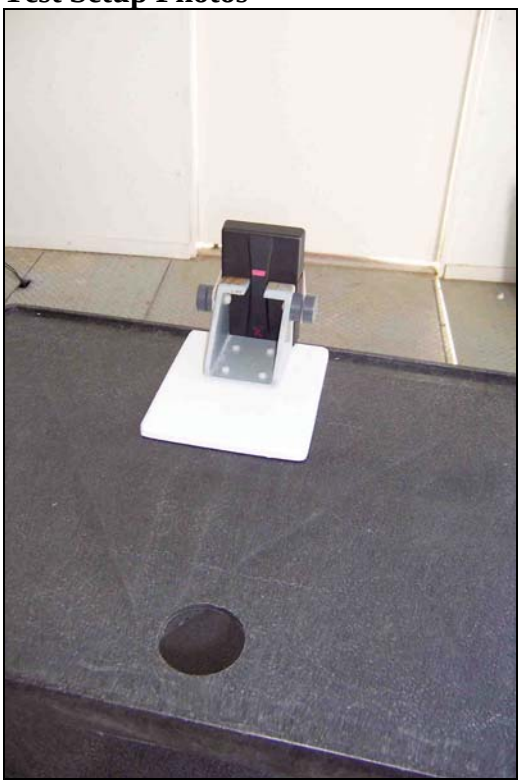
When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

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 15.109 RADIATED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **XceedID**
Specification: **15.109 CLASS B**
Work Order #: **85643** Date: 3/1/2007
Test Type: **Maximized Emissions** Time: 15:36:43
Equipment: **Smart Card Reader** Sequence#: 31
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS2
S/N: 0003

***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	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS2	0003

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Frequency range of investigation: 30-1000MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G T2=Amp - S/N 604
T3=Bilog Site D

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	191.988M	32.6	+4.0	-26.6	+8.3		+10.0	28.3	43.5	-15.2	Verti 100
2	208.017M	31.0	+4.3	-26.4	+9.0		+10.0	27.9	43.5	-15.6	Verti 100

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

Customer: **XceedID**
Specification: **15.109 CLASS B**
Work Order #: **85643** Date: 3/1/2007
Test Type: **Maximized Emissions** Time: 16:11:51
Equipment: **Smart Card Reader** Sequence#: 32
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS4
S/N: 0004

***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	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS4	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Frequency range of investigation: 30-1000MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G T2=Amp - S/N 604
T3=Bilog Site D

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	208.017M	30.4	+4.3	-26.4	+9.0		+10.0	27.3	43.5	-16.2	Verti 100
2	192.015M	31.6	+4.0	-26.6	+8.3		+10.0	27.3	43.5	-16.2	Verti 100

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

Customer: **XceedID**
Specification: **15.109 CLASS B**
Work Order #: **85643** Date: 3/1/2007
Test Type: **Maximized Emissions** Time: 14:11:40
Equipment: **Smart Card Reader** Sequence#: 33
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560PS2
S/N: 0004

***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	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560PS2	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Frequency range of investigation: 30-1000MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

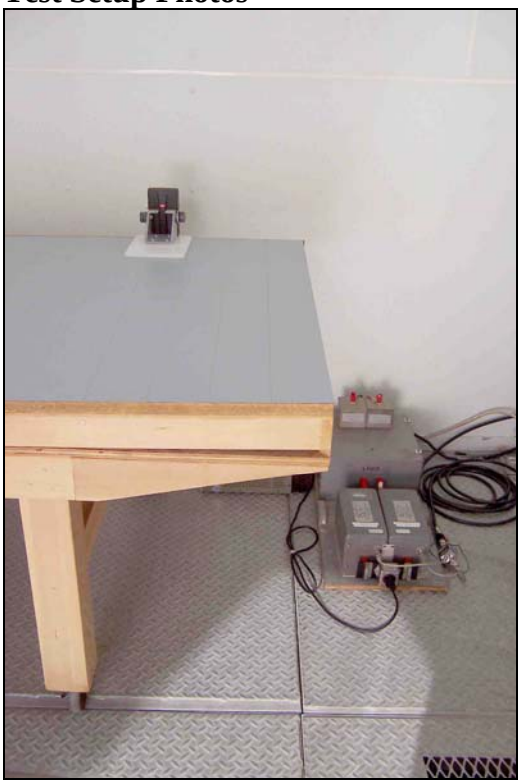
T1=Cable - Site D 10m 9k-1G T2=Amp - S/N 604
T3=Bilog Site D

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	192.025M	32.3	+4.0	-26.6	+8.3		+10.0	28.0	43.5	-15.5	Verti 100
2	207.975M	30.4	+4.3	-26.4	+9.0		+10.0	27.3	43.5	-16.2	Verti 100

FCC 15.107/15.207 CONDUCTED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **XceedID**
Specification: **FCC 15.107/15.207 - AVE**
Work Order #: **85643** Date: 3/15/2007
Test Type: **Conducted Emissions** Time: 11:32:58
Equipment: **Smart Card Reader** Sequence#: 21
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1560CS2 120V 60Hz
S/N: 0003

***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	06/03/2005	06/03/2007	1248 & 1249
10 dB Attenuator 10W	None	08/18/2005	08/18/2007	P04255

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS2	0003

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power provided via support power supply is routed through EUT LISN. Power supply is bonded to ground plane. Margin for QP measurements taken with respect to the QP limit, margin for all other measurements taken with respect to the average limit. Frequency range of investigation: 150kHz - 30MHz. Temperature: 19ºC, Relative Humidity: 32%. For the carrier (13.56MHz only) measurement, the integral antenna was replaced with a load of characteristic impedance.

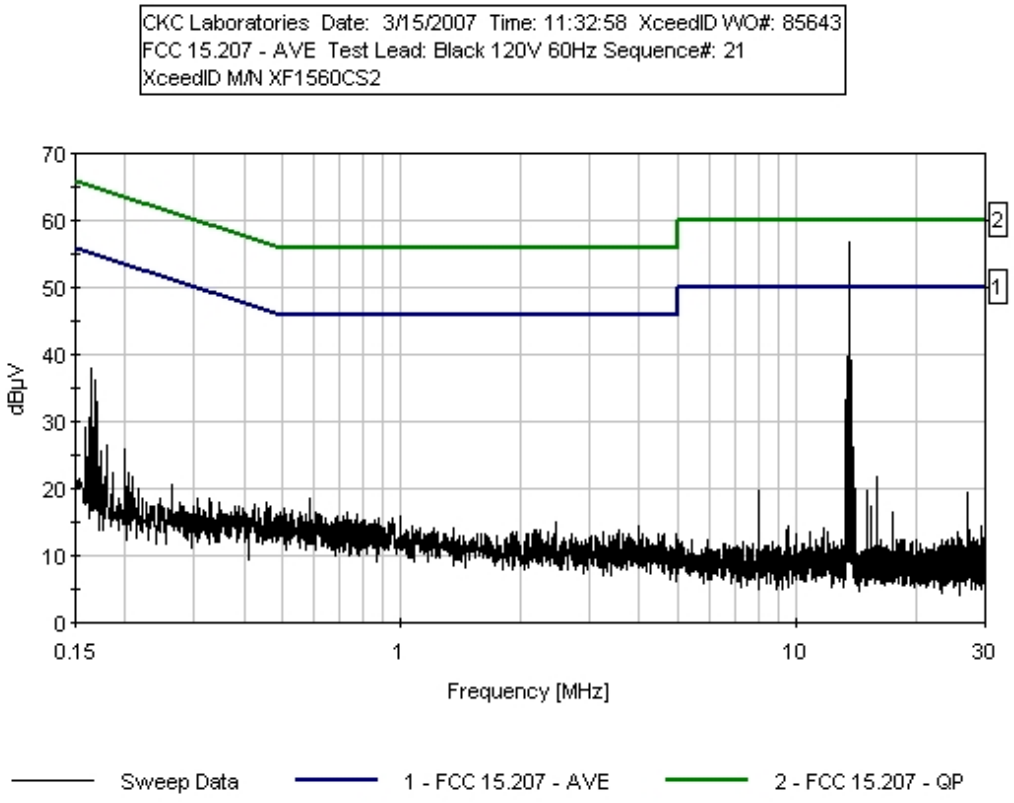
Transducer Legend:

T1=LISN Insertion Loss s/n280	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

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	47.8	+0.4	+0.1	+10.9		+0.0	59.2	59.2	+0.0	Black
									Carrier with integral antenna		
2	166.500k	23.4	+0.3	+1.2	+11.7		+0.0	36.6	55.1	-18.5	Black
3	13.560M	13.5	+0.4	+0.1	+10.9		+0.0	24.9	50.0	-25.2	Black
									Antenna with load		
4	16.000M	11.8	+0.4	+0.1	+10.8		+0.0	23.1	50.0	-26.9	Black

5	8.001M	10.1	+0.5	+0.1	+10.8	+0.0	21.5	50.0	-28.5	Black
6	27.123M	7.7	+0.5	+0.1	+11.0	+0.0	19.3	50.0	-30.7	Black
7	24.000M	2.1	+0.4	+0.2	+11.0	+0.0	13.7	50.0	-36.3	Black



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

Customer: **XceedID**
Specification: **FCC 15.107/15.207 - AVE**
Work Order #: **85643** Date: 3/15/2007
Test Type: **Conducted Emissions** Time: 11:33:42
Equipment: **Smart Card Reader** Sequence#: 22
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1560CS2 120V 60Hz
S/N: 0003

***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	06/03/2005	06/03/2007	1248 & 1249
10 dB Attenuator 10W	None	08/18/2005	08/18/2007	P04255

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS2	0003

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power provided via support power supply is routed through EUT LISN. Power supply is bonded to ground plane. Margin for QP measurements taken with respect to the QP limit, margin for all other measurements taken with respect to the average limit. Frequency range of investigation: 150kHz - 30MHz. Temperature: 19ºC, Relative Humidity: 32%. For the carrier (13.56MHz only) measurement, the integral antenna was replaced with a load of characteristic impedance.

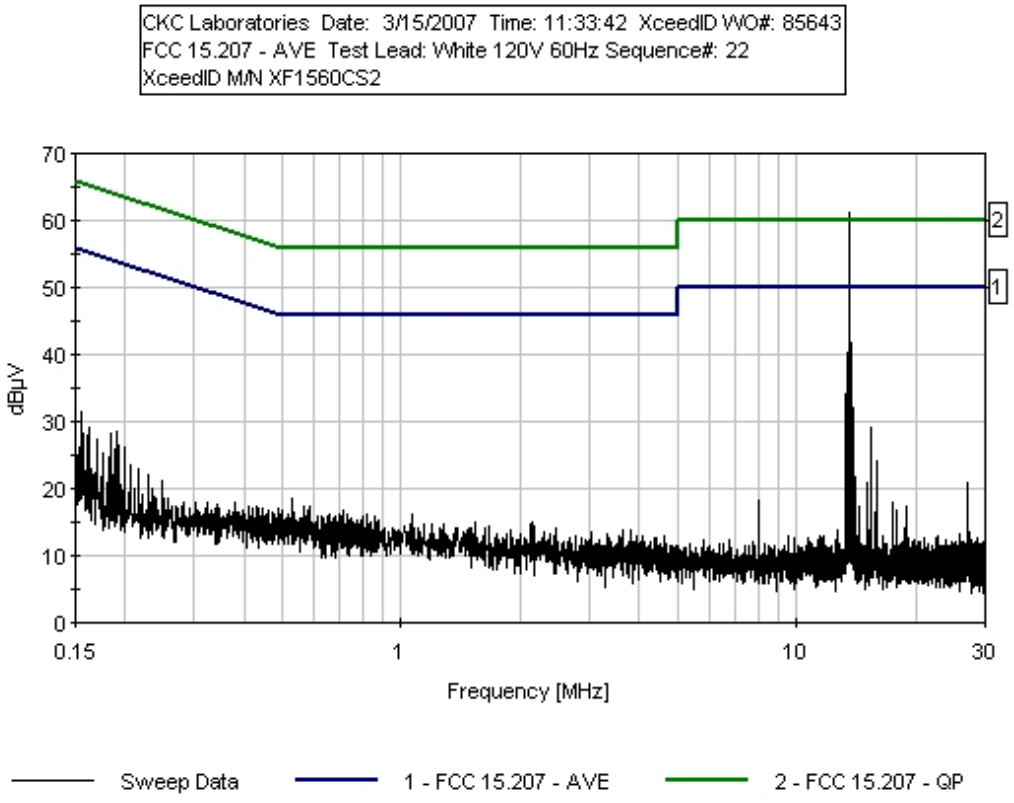
Transducer Legend:

T1=LISN Insertion Loss s/n276 T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M

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	50.0	+0.5	+0.1	+10.9		+0.0	61.5	61.5 Carrier with integral antenna	+0.0	White
2	160.500k	19.2	+0.4	+1.9	+11.6		+0.0	33.1	55.4	-22.3	White
3	13.560M	14.6	+0.5	+0.1	+10.9		+0.0	26.1	50.0	-23.9	White
4	16.000M	13.4	+0.4	+0.1	+10.8		+0.0	24.7	50.0	-25.3	White

5	27.120M	10.3	+0.4	+0.1	+11.0	+0.0	21.8	50.0	-28.2	White
6	8.000M	9.0	+0.5	+0.1	+10.8	+0.0	20.4	50.0	-29.6	White
7	24.000M	1.5	+0.4	+0.2	+11.0	+0.0	13.1	50.0	-36.9	White



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

Customer: **XceedID**
Specification: **FCC 15.107/15.207 - AVE**
Work Order #: **85643** Date: 3/15/2007
Test Type: **Conducted Emissions** Time: 11:35:35
Equipment: **Smart Card Reader** Sequence#: 19
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1560CS4 120V 60Hz
S/N: 0004

***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	06/03/2005	06/03/2007	1248 & 1249
10 dB Attenuator 10W	None	08/18/2005	08/18/2007	P04255

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS4	0004

Support Devices:

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

Test Conditions / Notes:

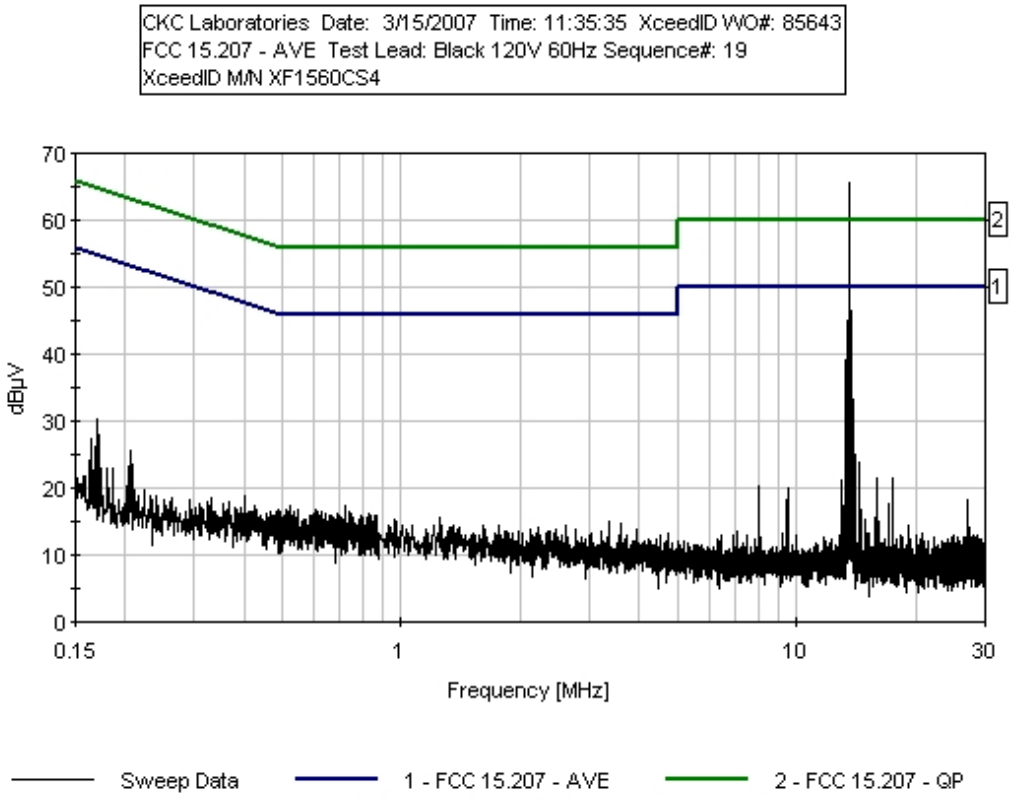
EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power provided via support power supply is routed through EUT LISN. Power supply is bonded to ground plane. Margin for QP measurements taken with respect to the QP limit, margin for all other measurements taken with respect to the average limit. Frequency range of investigation: 150kHz - 30MHz. Temperature: 19ºC, Relative Humidity: 32%.

Transducer Legend:

T1=LISN Insertion Loss s/n280 T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M

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	13.561M	54.8	+0.4	+0.1	+10.9		+0.0	66.2	66.2	+0.0	Black
									Carrier with integral antenna.		
2	13.561M	13.9	+0.4	+0.1	+10.9		+0.0	25.3	50.0	-24.7	Black
									Carrier with load		
3	16.000M	12.3	+0.4	+0.1	+10.8		+0.0	23.6	50.0	-26.4	Black
4	7.999M	10.3	+0.5	+0.1	+10.8		+0.0	21.7	50.0	-28.3	Black
5	27.120M	7.8	+0.5	+0.1	+11.0		+0.0	19.4	50.0	-30.6	Black
6	24.000M	1.4	+0.4	+0.2	+11.0		+0.0	13.0	50.0	-37.0	Black


CKC Laboratories Date: 3/15/2007 Time: 11:35:35 XceedID WO#: 85643
FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 19
XceedID M/N XF1560CS4
70
60
50
40
30
20
10
0
dBµV
0.15
1
10
30
Frequency [MHz]
2
1
Sweep Data
1 - FCC 15.207 - AVE
2 - FCC 15.207 - QP

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

Customer: **XceedID**
Specification: **FCC 15.107/15.207 - AVE**
Work Order #: **85643** Date: 3/15/2007
Test Type: **Conducted Emissions** Time: 11:34:30
Equipment: **Smart Card Reader** Sequence#: 20
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1560CS4 120V 60Hz
S/N: 0004

***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	06/03/2005	06/03/2007	1248 & 1249
10 dB Attenuator 10W	None	08/18/2005	08/18/2007	P04255

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS4	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power provided via support power supply is routed through EUT LISN. Power supply is bonded to ground plane. Margin for QP measurements taken with respect to the QP limit, margin for all other measurements taken with respect to the average limit. Frequency range of investigation: 150kHz - 30MHz. Temperature: 19ºC, Relative Humidity: 32%. For the carrier (13.56MHz only) measurement, the integral antenna was replaced with a load of characteristic impedance.

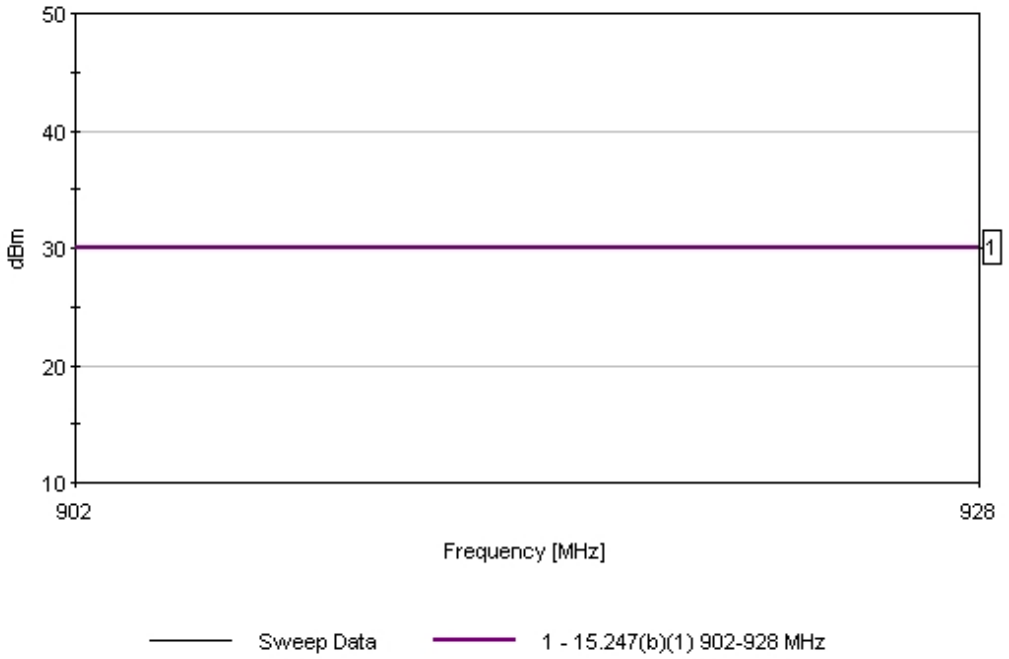
Transducer Legend:

T1=LISN Insertion Loss s/n276 T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M

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	13.561M	56.0	+0.5	+0.1	+10.9		+0.0	67.5	50.0	+17.5	White
									Carrier with integral antenna.		
2	13.561M	15.4	+0.5	+0.1	+10.9		+0.0	26.9	50.0	-23.1	White
									Carrier with load		
3	16.001M	13.9	+0.4	+0.1	+10.8		+0.0	25.2	50.0	-24.8	White
4	8.000M	10.0	+0.5	+0.1	+10.8		+0.0	21.4	50.0	-28.6	White
5	27.119M	9.5	+0.4	+0.1	+11.0		+0.0	21.0	50.0	-29.0	White
6	24.000M	2.6	+0.4	+0.2	+11.0		+0.0	14.2	50.0	-35.8	White

CKC Laboratories Date: 3/29/2007 Time: 12:16:06 Impinj Inc WO#: 86329
15.247(b)(1) 902-928 MHz Test Lead: RF Output port 120V 60Hz Sequence#: 13 Polarity: RF Output port
Notes: RFID reader is connected to laptop via crossover cable to RTP program; RF port 1 connected with suitable attenua



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

Customer: **XceedID**
Specification: **FCC 15.107/15.207 - AVE**
Work Order #: **85643** Date: 3/15/2007
Test Type: **Conducted Emissions** Time: 11:39:17
Equipment: **Smart Card Reader** Sequence#: 23
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1560PS2 120V 60Hz
S/N: 0004

***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	06/03/2005	06/03/2007	1248 & 1249
10 dB Attenuator 10W	None	08/18/2005	08/18/2007	P04255

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560PS2	0004

Support Devices:

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

Test Conditions / Notes:

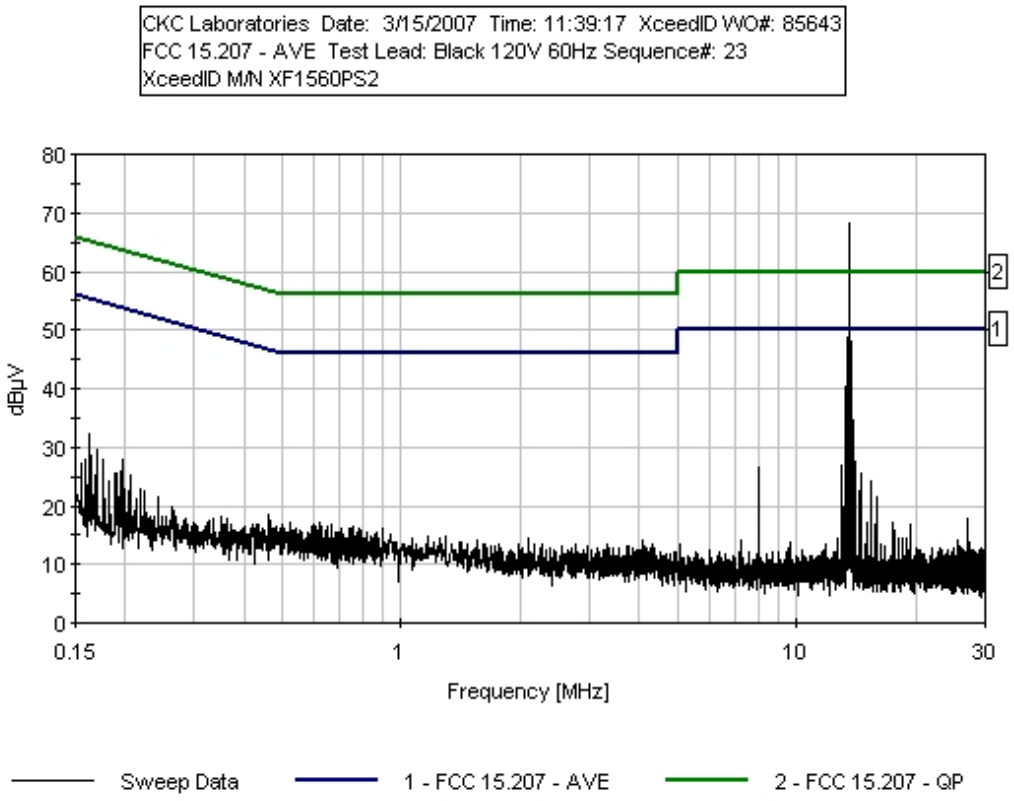
EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power provided via support power supply is routed through EUT LISN. Power supply is bonded to ground plane. Margin for QP measurements taken with respect to the QP limit, margin for all other measurements taken with respect to the average limit. Frequency range of investigation: 150kHz - 30MHz. Temperature: 19ºC, Relative Humidity: 32%. For the carrier (13.56MHz only) measurement, the integral antenna was replaced with a load of characteristic impedance.

Transducer Legend:

T1=LISN Insertion Loss s/n280 T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M

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	13.561M	56.8	+0.4	+0.1	+10.9		+0.0	68.2	68.2	+0.0	Black
									Carrier with integral antenna		
2	8.000M	16.4	+0.5	+0.1	+10.8		+0.0	27.8	50.0	-22.2	Black
3	13.561M	14.0	+0.4	+0.1	+10.9		+0.0	25.4	50.0	-24.6	Black
									Carrier with load		
4	16.000M	11.7	+0.4	+0.1	+10.8		+0.0	23.0	50.0	-27.0	Black
5	27.121M	7.3	+0.5	+0.1	+11.0		+0.0	18.9	50.0	-31.1	Black
6	24.000M	3.7	+0.4	+0.2	+11.0		+0.0	15.3	50.0	-34.7	Black


CKC Laboratories Date: 3/15/2007 Time: 11:39:17 XceedID WO#: 85643
FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 23
XceedID M/N XF1560PS2
80
70
60
50
40
30
20
10
0
dBµV
0.15
1
10
30
Frequency [MHz]
2
1
Sweep Data
1 - FCC 15.207 - AVE
2 - FCC 15.207 - QP

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

Customer: **XceedID**
Specification: **FCC 15.107/15.207 - AVE**
Work Order #: **85643** Date: 3/15/2007
Test Type: **Conducted Emissions** Time: 11:40:03
Equipment: **Smart Card Reader** Sequence#: 24
Manufacturer: XceedID Tested By: Randal Clark
Model: XF1560PS2 120V 60Hz
S/N: 0004

***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	06/03/2005	06/03/2007	1248 & 1249
10 dB Attenuator 10W	None	08/18/2005	08/18/2007	P04255

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560PS2	0004

Support Devices:

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

Test Conditions / Notes:

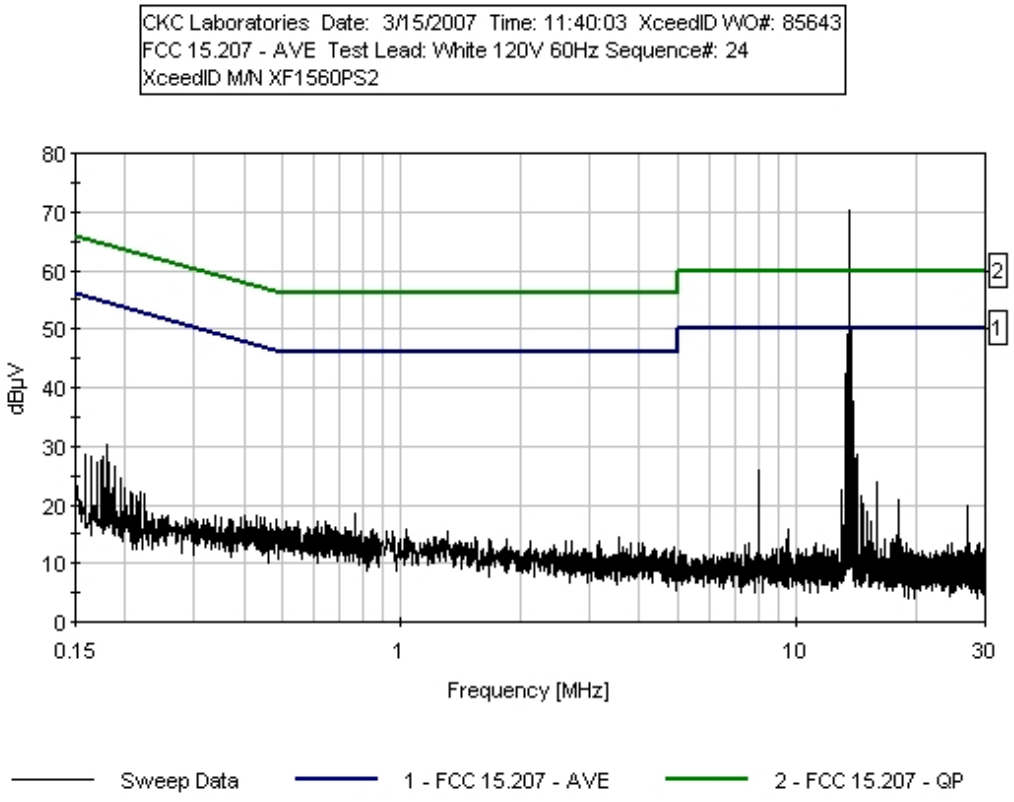
EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power provided via support power supply is routed through EUT LISN. Power supply is bonded to ground plane. Margin for QP measurements taken with respect to the QP limit, margin for all other measurements taken with respect to the average limit. Frequency range of investigation: 150kHz - 30MHz. Temperature: 19ºC, Relative Humidity: 32%. For the carrier (13.56MHz only) measurement, the integral antenna was replaced with a load of characteristic impedance.

Transducer Legend:

T1=LISN Insertion Loss s/n276 T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M

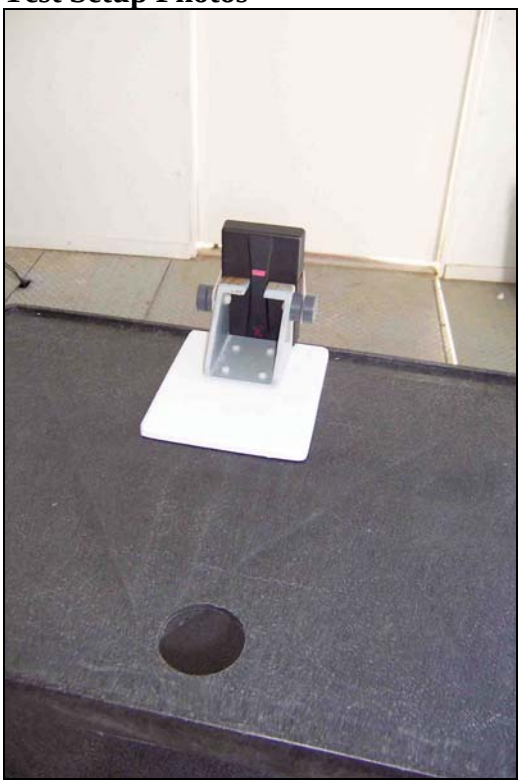
Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	13.561M	58.8	+0.5	+0.1	+10.9		+0.0	70.3	70.3 Carrier with integral antenna	+0.0	White
2	13.560M	15.6	+0.5	+0.1	+10.9		+0.0	27.1	50.0	-22.9	White
3	7.999M	15.5	+0.5	+0.1	+10.8		+0.0	26.9	50.0	-23.1	White
4	16.000M	13.7	+0.4	+0.1	+10.8		+0.0	25.0	50.0	-25.0	White
5	27.123M	7.6	+0.4	+0.1	+11.0		+0.0	19.1	50.0	-30.9	White
6	24.000M	1.4	+0.4	+0.2	+11.0		+0.0	13.0	50.0	-37.0	White


CKC Laboratories Date: 3/15/2007 Time: 11:40:03 XceedID WO#: 85643
FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 24
XceedID M/N XF1560PS2
80
70
60
50
40
30
20
10
0
dBµV
0.15
1
10
30
Frequency [MHz]
2
1
Sweep Data
1 - FCC 15.207 - AVE
2 - FCC 15.207 - QP

FCC 15.209 RADIATED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **85643** Date: 3/2/2007
Test Type: **Maximized Emissions** Time: 15:49:38
Equipment: **Smart Card Reader** Sequence#: 11
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS2
S/N: 0003

***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

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS2	0003

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency range of investigation: 9 kHz - 30MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G 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	13.2	+1.4	+6.6	-20.0		+0.0	1.2	29.5	-28.3	Horiz
2	27.120M	10.3	+1.4	+6.6	-20.0		+0.0	-1.7	29.5	-31.2	Horiz

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

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **85643** Date: 3/2/2007
Test Type: **Maximized Emissions** Time: 16:27:53
Equipment: **Smart Card Reader** Sequence#: 13
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS4
S/N: 0004

***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

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS4	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency range of investigation: 9kHz to 30MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G 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	27.120M	14.2	+1.4	+6.6	-20.0		+0.0	2.2	29.5	-27.3	Horiz
2	27.120M	7.0	+1.4	+6.6	-20.0		+0.0	-5.0	29.5	-34.5	Vert

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

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **85643** Date: 3/2/2007
Test Type: **Maximized Emissions** Time: 14:56:29
Equipment: **Smart Card Reader** Sequence#: 9
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560PS2
S/N: 0004

***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

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560PS2	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 125kHz and 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency range of investigation: 9 kHz - 30MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G 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	27.123M	12.4	+1.4	+6.6	-20.0		+0.0	0.4	29.5	-29.1	Horiz
2	27.152M	8.4	+1.4	+6.6	-20.0		+0.0	-3.6	29.5	-33.1	Vert

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

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **85643** Date: 3/1/2007
Test Type: **Maximized Emissions** Time: 15:36:43
Equipment: **Smart Card Reader** Sequence#: 3
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS2
S/N: 0003

***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	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS2	0003

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Frequency range of investigation: 30-1000MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G T2=Amp - S/N 604
T3=Bilog Site D

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 QP	40.708M	38.6	+1.7	-27.0	+12.0		+10.0	35.3	40.0	-4.7	Verti 100
^	40.708M	40.4	+1.7	-27.0	+12.0		+10.0	37.1	40.0	-2.9	Verti 100
3	610.223M	28.9	+8.4	-27.7	+19.2		+10.0	38.8	46.0	-7.2	Horiz 314
4	610.237M	27.7	+8.4	-27.7	+19.2		+10.0	37.6	46.0	-8.4	Verti 350
5	81.365M	37.8	+2.5	-27.0	+6.9		+10.0	30.2	40.0	-9.8	Verti 100
6	474.623M	28.9	+7.1	-27.3	+16.9		+10.0	35.6	46.0	-10.4	Horiz 314
7	122.045M	34.5	+3.3	-26.7	+11.0		+10.0	32.1	43.5	-11.4	Verti 100

8	176.285M	35.4	+3.9	-26.7	+8.4	+10.0	31.0	43.5	-12.5	Verti 100
9	447.485M	25.7	+6.8	-27.3	+16.4	+10.0	31.6	46.0	-14.4	Verti 350
10	244.085M	30.6	+4.9	-26.0	+11.6	+10.0	31.1	46.0	-14.9	Verti 100
11	216.965M	32.8	+4.4	-26.3	+9.7	+10.0	30.6	46.0	-15.4	Verti 100

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

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **85643** Date: 3/1/2007
Test Type: **Maximized Emissions** Time: 16:11:51
Equipment: **Smart Card Reader** Sequence#: 4
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS4
S/N: 0004

***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	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS4	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Frequency range of investigation: 30-1000MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G T2=Amp - S/N 604
T3=Bilog Site D

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	40.681M QP	39.6	+1.7	-27.0	+12.0		+10.0	36.3	40.0	-3.7	Verti 100
^	40.683M	40.8	+1.7	-27.0	+12.0		+10.0	37.5	40.0	-2.5	Verti 100
3	555.983M QP	32.5	+8.2	-27.5	+18.4		+10.0	41.6	46.0	-4.4	Verti 248
^	555.983M	33.6	+8.2	-27.5	+18.4		+10.0	42.7	46.0	-3.3	Verti 248
5	583.103M	29.5	+8.3	-27.6	+18.8		+10.0	39.0	46.0	-7.0	Verti 248
6	583.103M	28.9	+8.3	-27.6	+18.8		+10.0	38.4	46.0	-7.6	Horiz 169
7	501.719M	30.4	+7.3	-27.3	+17.4		+10.0	37.8	46.0	-8.2	Verti 211

8	555.985M QP	28.7	+8.2	-27.5	+18.4	+10.0	37.8	46.0	-8.2	Horiz 267
^	555.983M	30.3	+8.2	-27.5	+18.4	+10.0	39.4	46.0	-6.6	Horiz 267
10	542.423M	28.0	+8.1	-27.5	+18.2	+10.0	36.8	46.0	-9.2	Horiz 267
11	501.743M	29.2	+7.3	-27.3	+17.4	+10.0	36.6	46.0	-9.4	Horiz 185
12	176.282M	38.3	+3.9	-26.7	+8.4	+10.0	33.9	43.5	-9.6	Verti 100
13	528.861M QP	27.9	+7.8	-27.4	+17.9	+10.0	36.2	46.0	-9.8	Verti 211
^	528.863M	31.1	+7.8	-27.4	+17.9	+10.0	39.4	46.0	-6.6	Verti 211
15	528.863M	27.7	+7.8	-27.4	+17.9	+10.0	36.0	46.0	-10.0	Horiz 267
16	447.521M	28.6	+6.8	-27.3	+16.4	+10.0	34.5	46.0	-11.5	Verti 246
17	284.764M	31.6	+5.4	-26.1	+12.6	+10.0	33.5	46.0	-12.5	Verti 100
18	216.962M	35.5	+4.4	-26.3	+9.6	+10.0	33.2	46.0	-12.8	Verti 100
19	447.503M	27.2	+6.8	-27.3	+16.4	+10.0	33.1	46.0	-12.9	Horiz 169
20	122.043M	30.8	+3.3	-26.7	+11.0	+10.0	28.4	43.5	-15.1	Verti 100
21	244.116M	30.2	+4.9	-26.0	+11.6	+10.0	30.7	46.0	-15.3	Verti 100
22	474.623M	23.6	+7.1	-27.3	+16.9	+10.0	30.3	46.0	-15.7	Horiz 169
23	67.803M	32.0	+2.3	-26.8	+5.8	+10.0	23.3	40.0	-16.7	Verti 100
24	230.522M	28.3	+4.7	-26.2	+10.7	+10.0	27.5	46.0	-18.5	Verti 100

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

Customer: **XceedID**
Specification: **FCC 15.209**
Work Order #: **85643** Date: 3/1/2007
Test Type: **Maximized Emissions** Time: 14:11:40
Equipment: **Smart Card Reader** Sequence#: 2
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560PS2
S/N: 0004

***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	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560PS2	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Frequency range of investigation: 30-1000MHz. Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G T2=Amp - S/N 604
T3=Bilog Site D

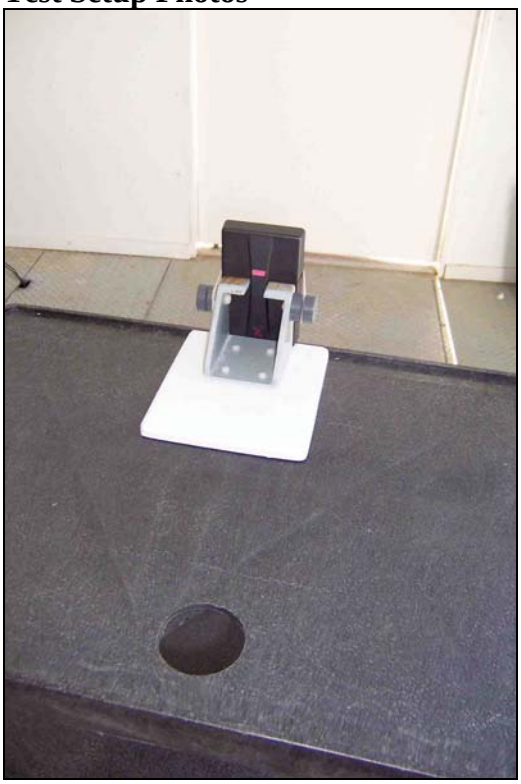
Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	40.679M	40.3	+1.7	-27.0	+12.0		+10.0	37.0	40.0	-3.0	Verti 100
2	596.669M	31.0	+8.4	-27.7	+19.0		+10.0	40.7	46.0	-5.3	Verti 100
3	596.668M	30.5	+8.4	-27.7	+19.0		+10.0	40.2	46.0	-5.8	Horiz 154
4	569.548M	30.2	+8.3	-27.6	+18.6		+10.0	39.5	46.0	-6.5	Horiz 154
5	569.537M	29.7	+8.3	-27.6	+18.6		+10.0	39.0	46.0	-7.0	Verti 100
6 QP	542.425M	30.2	+8.1	-27.5	+18.2		+10.0	39.0	46.0	-7.0	Horiz 154
^	542.428M	32.1	+8.1	-27.5	+18.2		+10.0	40.9	46.0	-5.1	Horiz 154
8	555.988M	29.5	+8.2	-27.5	+18.4		+10.0	38.6	46.0	-7.4	Horiz 154

9	555.998M	29.4	+8.2	-27.5	+18.4	+10.0	38.5	46.0	-7.5	Verti 100
10	583.094M	28.2	+8.3	-27.6	+18.8	+10.0	37.7	46.0	-8.3	Verti 100
11	542.428M QP	28.6	+8.1	-27.5	+18.2	+10.0	37.4	46.0	-8.6	Verti 337
^	542.422M	32.8	+8.1	-27.5	+18.2	+10.0	41.6	46.0	-4.4	Verti 336
13	515.308M	27.0	+7.6	-27.4	+17.7	+10.0	34.9	46.0	-11.1	Horiz 154
14	149.172M	34.8	+3.6	-26.7	+10.4	+10.0	32.1	43.5	-11.4	Verti 100
15	176.292M	34.0	+3.9	-26.7	+8.4	+10.0	29.6	43.5	-13.9	Verti 100
16	244.092M	31.6	+4.9	-26.0	+11.6	+10.0	32.1	46.0	-13.9	Verti 100
17	271.210M	29.8	+5.3	-26.0	+12.4	+10.0	31.5	46.0	-14.5	Verti 100
18	216.973M	33.5	+4.4	-26.3	+9.7	+10.0	31.3	46.0	-14.7	Verti 100
19	379.708M	25.8	+6.1	-26.7	+14.9	+10.0	30.1	46.0	-15.9	Horiz 154
20	352.582M	25.5	+5.6	-26.5	+14.3	+10.0	28.9	46.0	-17.1	Horiz 154
21	284.770M	23.4	+5.4	-26.1	+12.6	+10.0	25.3	46.0	-20.7	Verti 100

FCC 15.225 RADIATED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **XceedID**
Specification: **47 CFR 15.225 Mask**
Work Order #: **85643** Date: 3/2/2007
Test Type: **Maximized Emissions** Time: 15:23:08
Equipment: **Smart Card Reader** Sequence#: 10
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS2
S/N: 0003

***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

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS2	0003

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency range of investigation: Carrier Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 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	13.561M	45.1	+1.0	+9.6			-19.0	36.7	84.0	-47.3	Horiz
2	13.560M	40.1	+1.0	+9.6			-19.0	31.7	84.0	-52.3	Horiz

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

Customer: **XceedID**
Specification: **47 CFR 15.225 Mask**
Work Order #: **85643** Date: 3/2/2007
Test Type: **Maximized Emissions** Time: 16:06:42
Equipment: **Smart Card Reader** Sequence#: 12
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560CS4
S/N: 0004

***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

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560CS4	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency range of investigation: Carrier Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 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	13.561M	48.2	+1.0	+9.6			-19.0	39.8	84.0	-44.2	Vert
2	13.561M	46.6	+1.0	+9.6			-19.0	38.2	84.0	-45.8	Horiz

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

Customer: **XceedID**
Specification: **47 CFR 15.225 Mask**
Work Order #: **85643** Date: 3/2/2007
Test Type: **Maximized Emissions** Time: 14:27:27
Equipment: **Smart Card Reader** Sequence#: 8
Manufacturer: XceedID Tested By: Mike Wilkinson
Model: XF1560PS2
S/N: 0004

***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

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

Function	Manufacturer	Model #	S/N
Smart Card Reader*	XceedID	XF1560PS2	0004

Support Devices:

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

Test Conditions / Notes:

EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency range of investigation: Carrier Temperature: 17ºC, Relative Humidity: 41%.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M

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

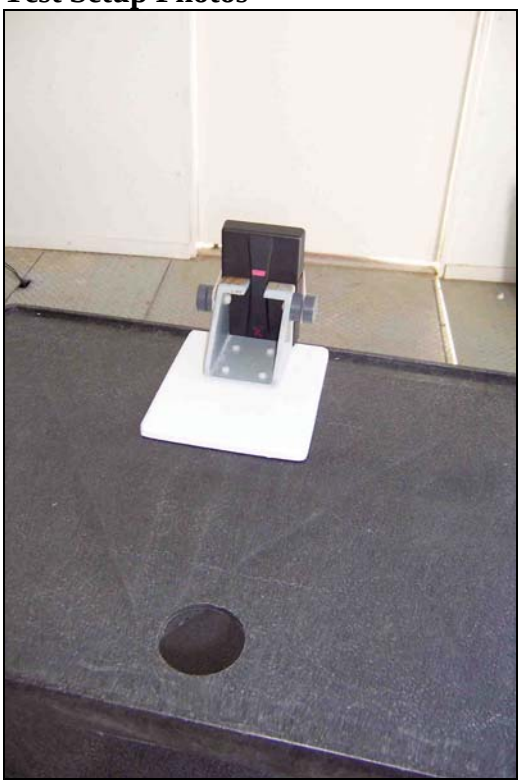
#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.561M	49.0	+1.0	+9.6			-19.0	40.6	84.0	-43.4	Vert
2	13.561M	47.0	+1.0	+9.6			-19.0	38.6	84.0	-45.4	Horiz

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	05/13/2005	05/13/2007	00226

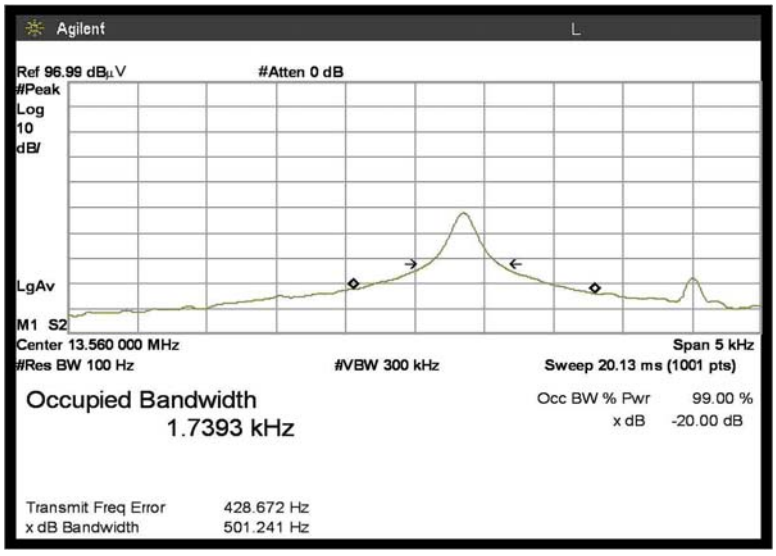
Test Setup Photos



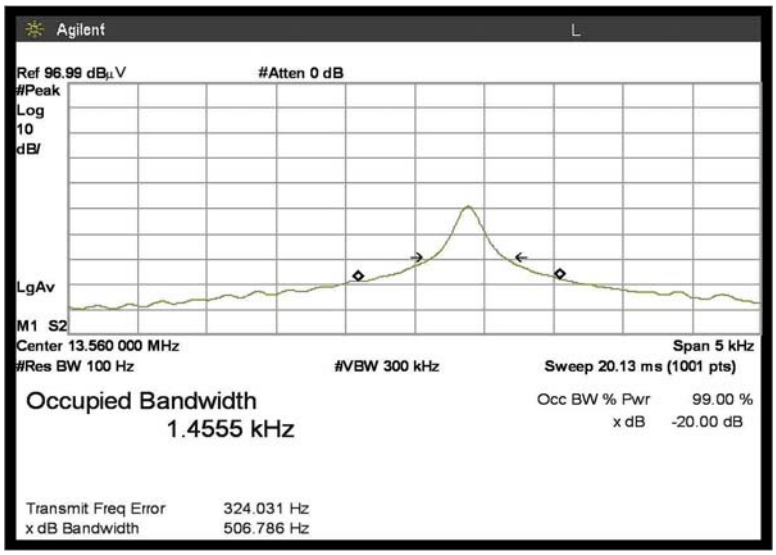
Test Conditions: EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane.

Plots

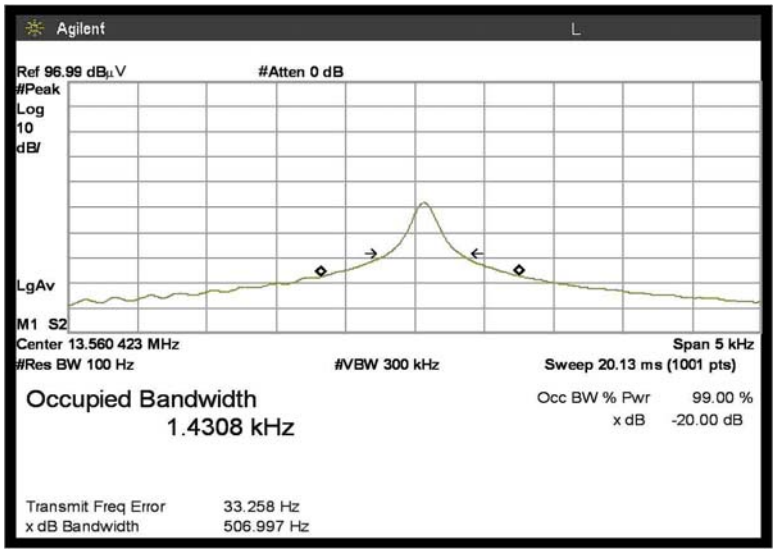
OCCUPIED BANDWIDTH 13.56MHz XF1560CS2



OCCUPIED BANDWIDTH 13.56MHz XF1560CS4



OCCUPIED BANDWIDTH 13.56MHz XF1560PS2



FREQUENCY STABILITY

Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
Oven Thermotron S-1.2 Min.	11899	12/21/2006	12/21/2008	01879
Spectrum Analyzer, PSA Agilent E4446A	US44300407	1/3/2007	1/3/2009	02660
Power Supply, DC HP 6205C	2228A01775	8/15/2005	8/15/2007	00762

Test Setup Photos

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 Data

Customer:	XceedID	
WO#:	85643	
Date:	6-Mar-07	
Test Engineer:	Randal Clark	
Device Model #:	XF1560xx	
Operating Voltage:	12.00	**VDC**
Frequency Limit:	0.01	**%**

Temperature Variations

		XF1500P	**Dev. (MHz)**
Channel Frequency:		**13.5603**	
Temp (C)	Voltage		
-30	12.00		
-20	12.00	13.56038	0.00008
-10	12.00	13.56035	0.00005
0	12.00	13.56036	0.00006
10	12.00	13.56033	0.00003
20	12.00	13.56031	0.00001
30	12.00	13.56035	0.00005
40	12.00	13.56044	0.00014
50	12.00	13.56039	0.00009

Voltage Variations (±15%)

20	10.2	13.56031	0.00001
20	12.00	13.56031	0.00001
20	13.8	13.56031	0.00001

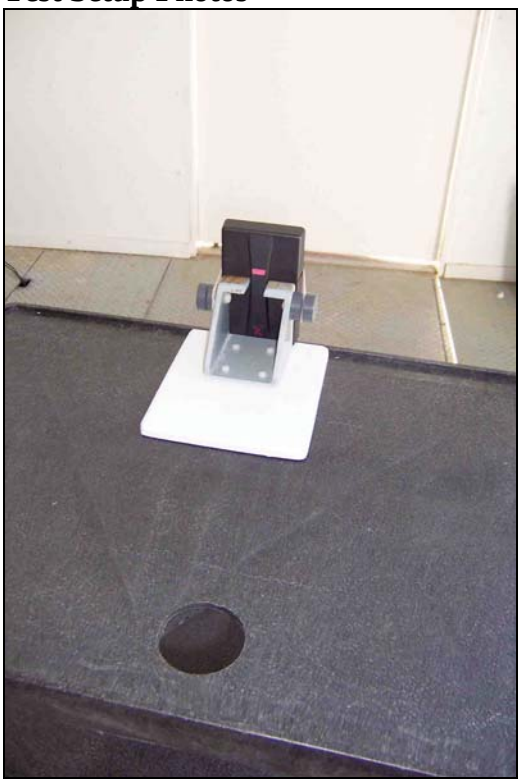
Max Deviation (MHz)	**0.00014**
Max Deviation (%)	**0.00103**
	PASS

FCC 15.225/RSS-210 EMISSIONS MASKS

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

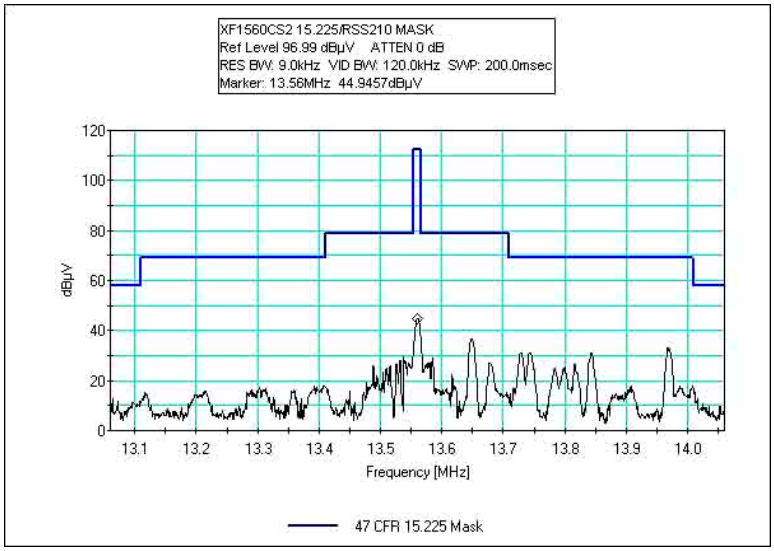
Test Setup Photos



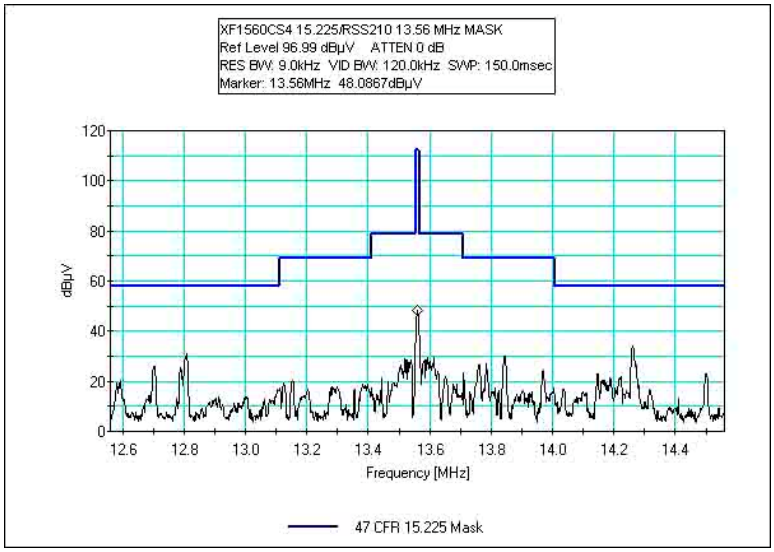
Test Conditions: EUT is a multi-technology reader operating on a frequency of 13.56MHz. EUT is mounted on a vertical support structure, simulating normal installation. DC power is provided via support power supply. Power supply is bonded to ground plane.

Plots

FCC 15.225/RSS-210 EMISSIONS MASK XF1560CS2



FCC 5.225/RSS-210 EMISSIONS MASK XF1560CS4



FCC 5.225/RSS-210 EMISSIONS MASK XF1560PS2