CKC LABORATORIES, INC. Testing the Future

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EMC/SAFETY

ADDENDUM TO INSIDE TECHNOLOGIES TEST REPORT FC04-037

FOR THE

RADIO FREQUENCY TRANSCEIVER, M300-2G

FCC PART 15 SUBPART C SECTIONS 15.225 AND 15.209, SUBPART B SECTION 15.107 CLASS B AND RSS 210

COMPLIANCE

DATE OF ISSUE: OCTOBER 6, 2004

PREPARED FOR:

Inside Technologies
Bat 11A, Parc Club du Golf
ZAC de la Pichaury
13856 Aix En Provence, France

P.O. No.: 543
W.O. No.: 81888

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: May 11-13, 2004

Report No.: FC04-037A

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	May 11-13, 2004
DATE OF RECEIPT:	May 11, 2004
PURPOSE OF TEST:	To demonstrate the compliance of the Radio Frequency Transceiver, M300-2G with the requirements for FCC Part 15 Subpart C Sections 15.225 and 15.209 and Subpart B Section 15.107 Class B devices. **Addendum A** is to revise the test distance on the fundamental table.
TEST METHOD:	ANSI C63.4 (1992)
MANUFACTURER:	Inside Technologies Bat 11A, Parc Club du Golf ZAC de la Pichaury 13856 Aix En Provence, France
REPRESENTATIVE:	Adel Hamza
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92621

SUMMARY OF RESULTS

As received, the Inside Technologies Radio Frequency Transceiver, M300-2G was found to be fully compliant with the following standards and specifications:

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	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
	IC 3172-D		100638	Site File No.

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

CONDITIONS FOR COMPLIANCE

Modification: Ferrite Fairrite PN 04444164281. Three loops on DC power cable.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

Eddie Wong, EMC Engineer

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

FCC 15.33(a) Frequency Ranges Tested
15.107 Conducted Emissions: 150 kHz – 30 MHz
15.225 Radiated: 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 uses a unique connector; 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 EUT tested by CKC Laboratories was representative of a production unit.

EQUIPMENT UNDER TEST

Radio Frequency Transceiver
Manuf: Inside Contactless
Model: M300-2G
Serial: NA
FCC ID: pending

PERIPHERAL DEVICES

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

Power Supply
Manuf: Topward
Model: 3303D
Serial: 968604
FCC ID: NA

Laptop
Manuf: Compaq
Model: Presario X1000
Serial: CWD334054F
FCC ID: DoC

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.

FCC 15.225(a) Fundamental									
	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
13.563	64.3	10.2		0.7	-19.0	56.2	84.0	-27.8	L
13.563	62.2	10.2		0.7	-19.0	54.1	84.0	-29.9	L

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.225(a)
Test Distance: 10 Meters

NOTES: L = Loop Antenna

COMMENTS: The EUT is placed on the wooden table. The RF port is connected to a Loop antenna (34 cm x 28 cm). RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply. The EUT is in operational mode. 12VDC (110VAC/60Hz), 15.6°C, 48% relative humidity.. Antenna Balun was adjusted to lower the radiated field strength.

FCC 15.225(b) Six Highest Radiated Emission Levels									
	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
40.687	46.9	15.1	-27.0	1.5		36.5	40.0	-3.5	V
67.797	52.0	7.3	-27.0	1.9		34.2	40.0	-5.8	V
67.821	50.3	7.3	-27.0	1.9		32.5	40.0	-7.5	H
298.372	37.1	22.8	-26.3	4.1		37.7	46.0	-8.3	H
298.383	41.4	22.8	-26.3	4.1		42.0	46.0	-4.0	V
311.930	38.0	21.9	-26.4	4.2		37.7	46.0	-8.3	H

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.225(b)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: The EUT is placed on the wooden table. The RF port is connected to a Loop antenna (34 cm x 28 cm). RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply. The EUT is in operational mode. 12VDC (110VAC/60Hz), 15.6 °C, 48% relative humidity. Antenna Balun was adjusted to lower the radiated field strength. Frequency range of measurement = 9 kHz - 1 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz.

FCC 15.225(e) FREQUENCY STABILITY and FCC 15.31(e) VOLTAGE VARIATIONS

Test Conditions: The EUT is placed in the temperature chamber. RF signal is monitored from the antenna port. A spectrum analyzer is employed to measure the frequency stability of the EUT.

Customer: Inside Contactless
WO#: 81888
Date: 17-May-04
Test Engineer: E. Wong

Device Model #: M300-2G
Operating Voltage: 12 **VDC**
Frequency Limit: 0.01 **%**

Temperature Variations

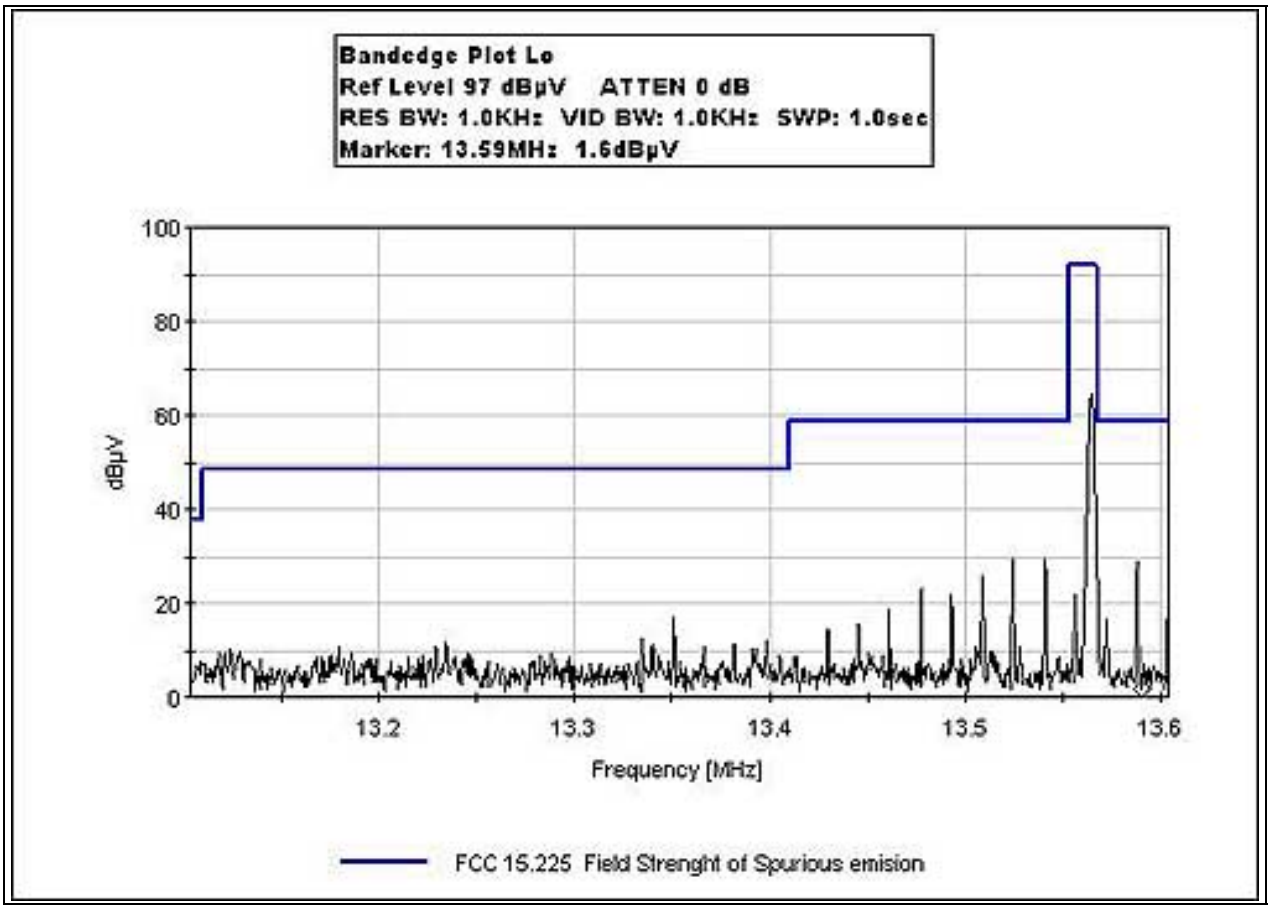
		Channel 1 (MHz)	**Dev. (MHz)**
Channel Frequency:		13.563010	
Temp (C)	Voltage		
-20	12	13.562950	0.00006
-10	12	13.563040	0.00003
0	12	13.563110	0.00010
10	12	13.563060	0.00005
20	12	13.563010	0.00000
30	12	13.562890	0.00012
40	12	13.562790	0.00022
50	12	13.562960	0.00005

Voltage Variations (±15%)

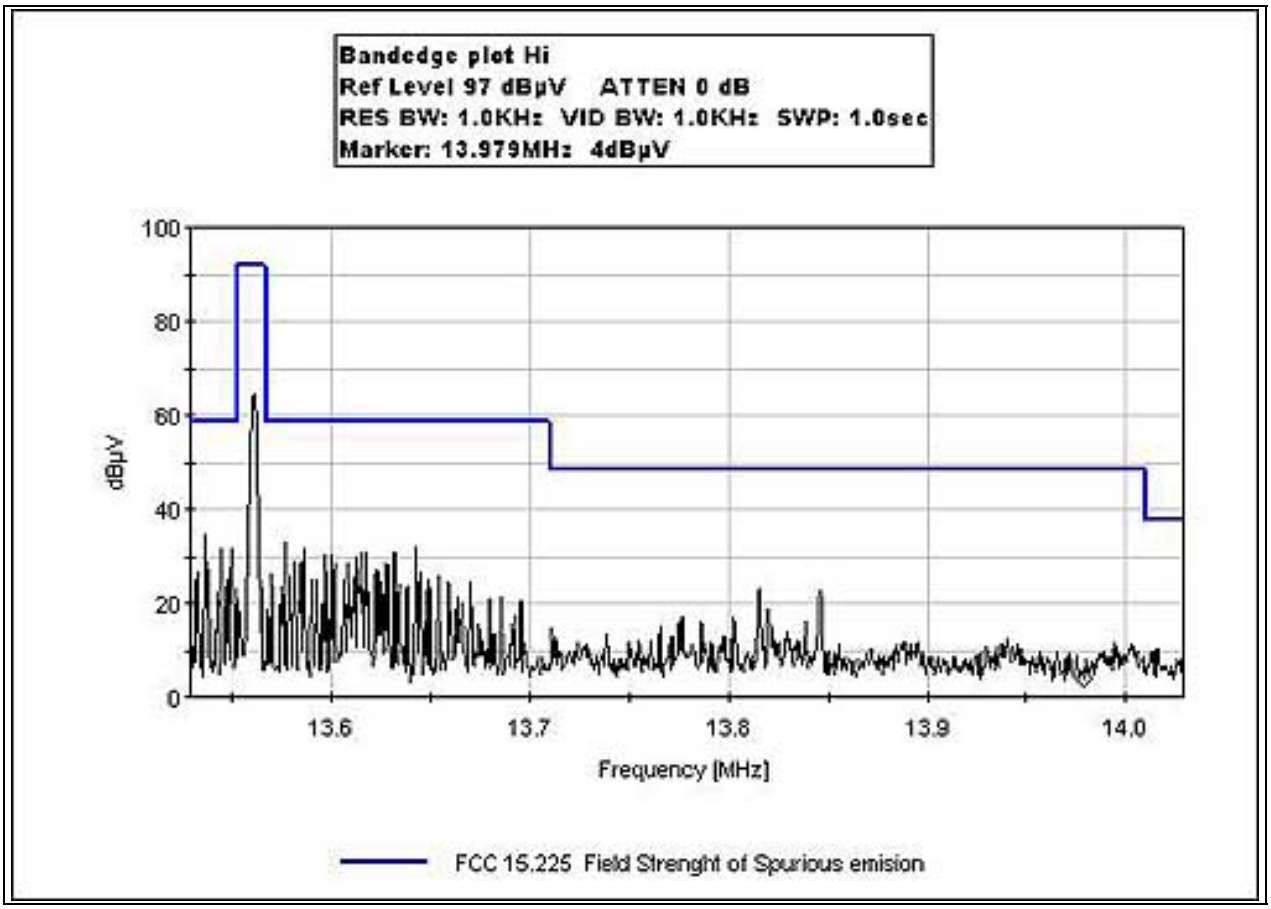
20	10.2	13.56301	0.00000
20	12.0	13.56301	0.00000
20	13.8	13.56301	0.00000

Max Deviation (MHz)	**0.00022**
Max Deviation (%)	**0.00162**
	PASS

FCC 15.209 BANDEDGE LOW



FCC 15.209 BANDEDGE HIGH



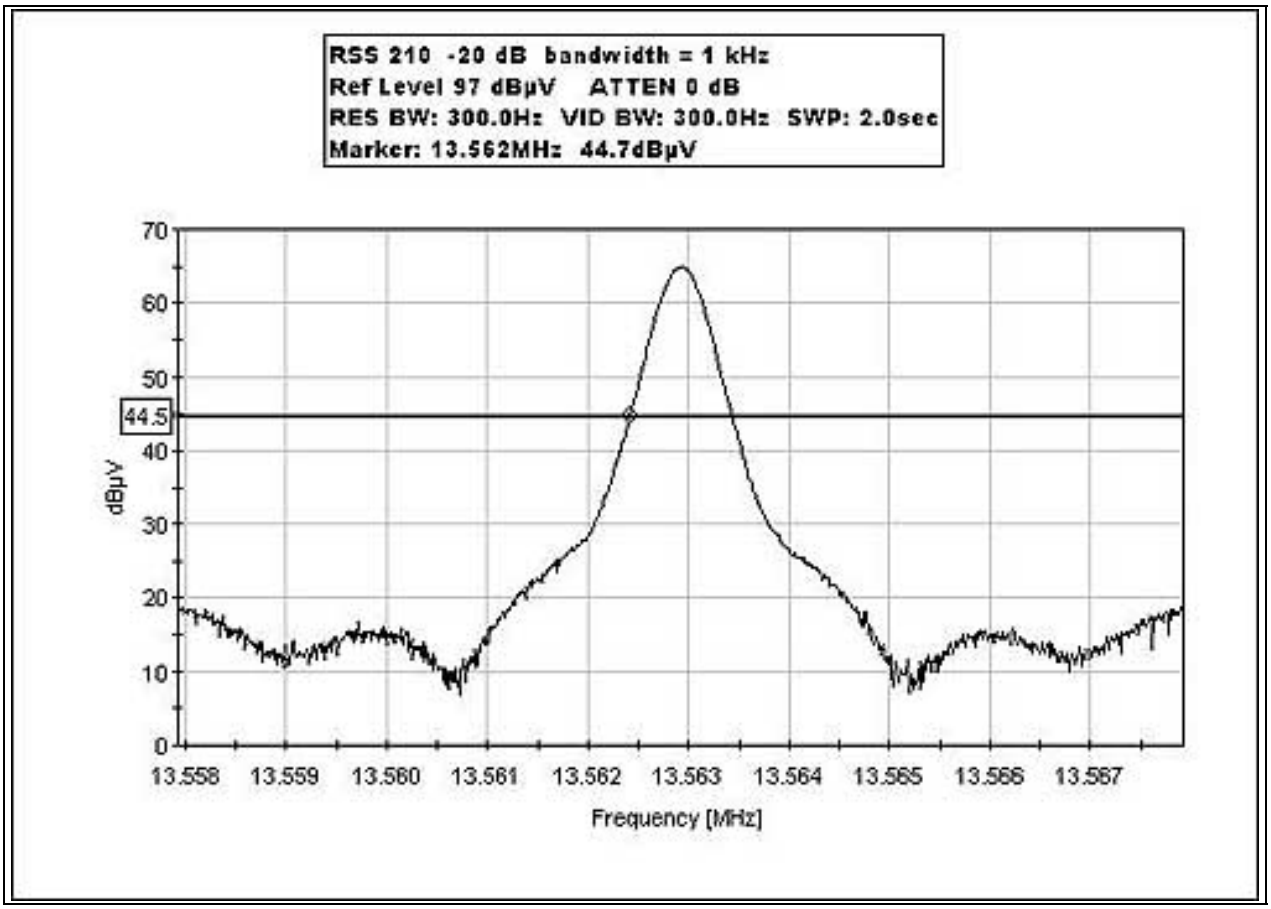
FCC 15.107 Six Highest Conducted Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Lisn dB	dB	Cable dB	dB	READING dBµV	LIMIT dBµV	MARGIN dB	NOTES
0.150000	54.7	0.0				54.7	56.0	-1.3	B
0.150727	54.2	0.0				54.2	56.0	-1.8	W
0.198722	51.3	0.0				51.3	53.7	-2.4	W
0.304000	47.9	0.0				47.9	50.1	-2.2	WA
0.406702	46.2	0.0				46.2	47.7	-1.5	W
0.507055	44.3	0.0				44.3	46.0	-1.7	W

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart B Section 15.107 Class B

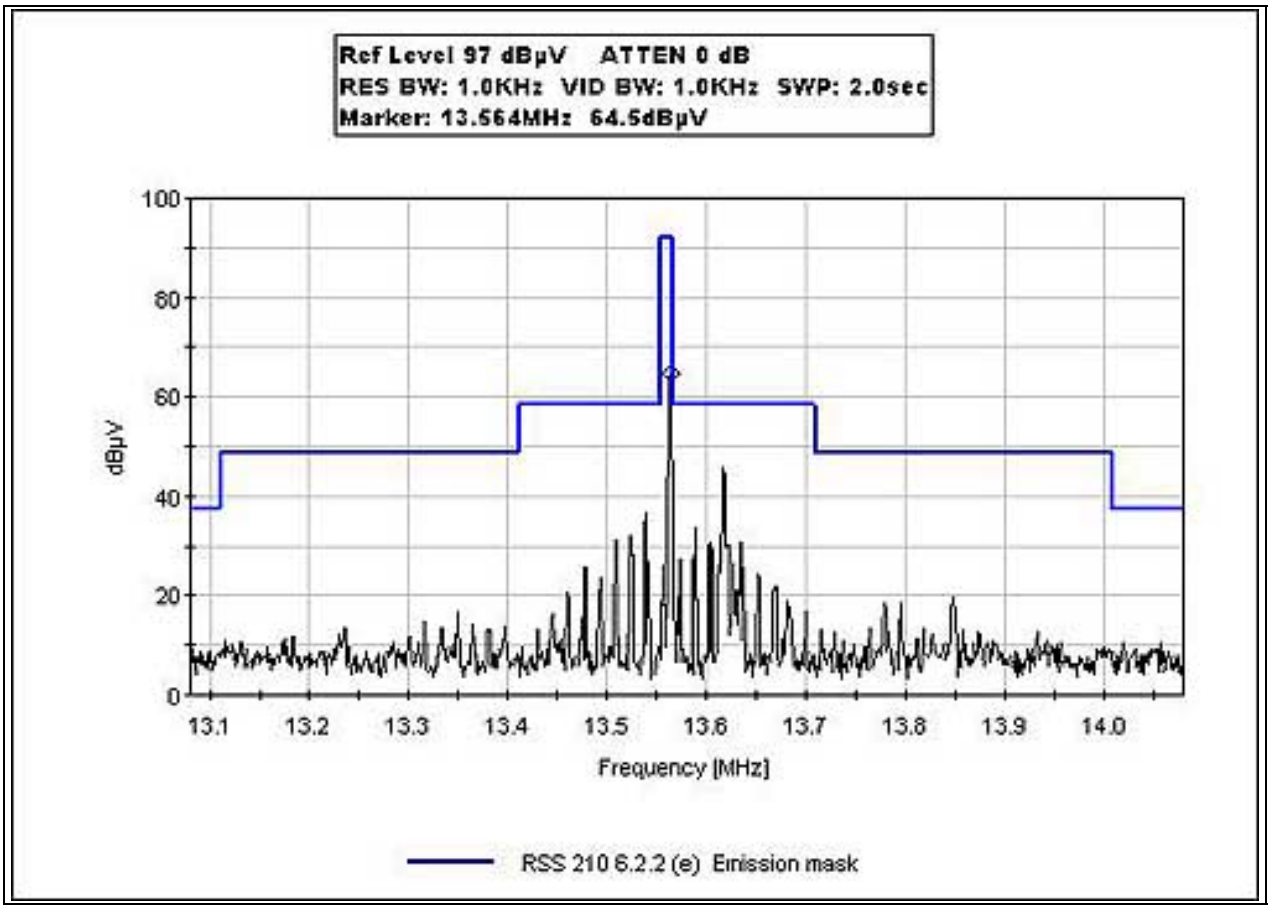
NOTES: A = Average Reading
B = Black Lead
W = White Lead

COMMENTS: The EUT is placed on the wooden table. The RF port is connected to a 50 ohm RF load. RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply. The EUT is in operational mode. 12VDC (from AC power supply), 15.6°C, 48% relative humidity. Modification: Ferrite Fairrite PN 04444164281. Three loops on DC power cable.

RSS 210 20dB BANDWIDTH



RSS 210 EMISSIONS MASK



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 radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic 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.

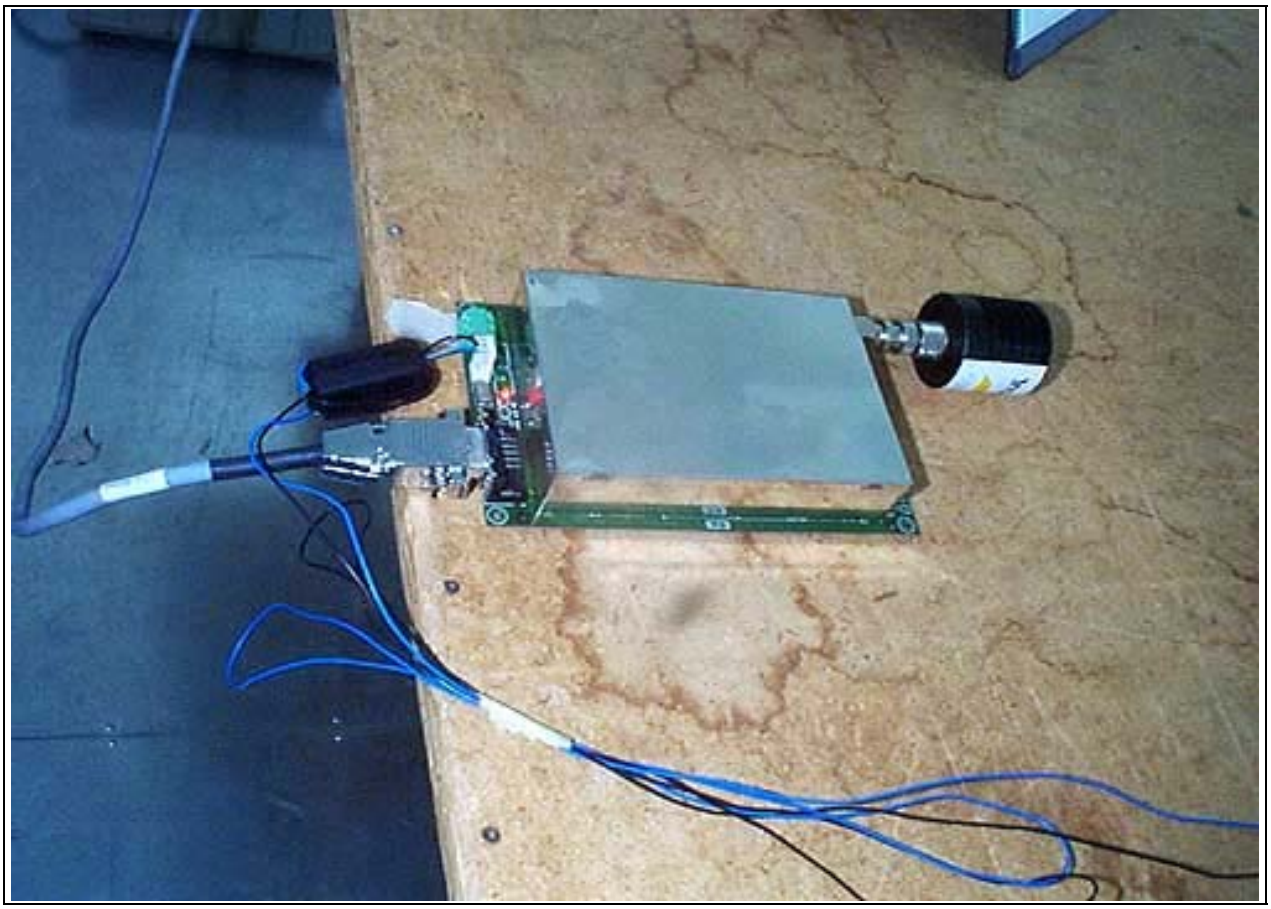
During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 88 MHz was scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. The frequency range of 100 to 300 MHz was then scanned in the same manner using the biconical antenna and the peaks recorded. Lastly, a scan of the FM band from 88 to 110 MHz was made, using a reduced resolution bandwidth and frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 to 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 to 1000 MHz was again scanned. 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 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 MODIFICATIONS



PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions – Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions – Back View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Loop Antenna

PHOTOGRAPH SHOWING TEMPERATURE TESTING

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

Mains Conducted Emissions - Front View

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PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS

Mains Conducted Emissions - Back View

APPENDIX B

TEST EQUIPMENT LIST

Radiated Emissions
FCC15.255(a) (b), Bandedge plots, -20 dB plots
RSS 210, Bandedge plots, -20dB plots

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00312	HP	8568A	2049A01287	073102	073104
Spectrum Analyzer Display Section	00312	HP	85662A	2106A02109	073102	073104
Quasi Peak Adapter	02325	HP	85650A	2521A00932	073102	073104
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	100203	100204
Antenna cable from bulkhead to antenna	N/A	Pasternack	RG-214/U	Cable #33	032904	032905
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	100603	100604
Pre-amp	00010	HP	8447D	2727A05392	071602	071604
Magnetic Loop Antenna	00314	Emco	6502	2014	072302	072304
Bicon Antenna	306	AH	SAS200/540	220	092302	092304
Log Periodic Antenna	300	AH	SAS 00/516	331	092302	092304

Conducted Emissions
FCC 15.107

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00312	HP	8568A	2049A01287	073102	073104
Spectrum Analyzer Display Section	00312	HP	85662A	2106A02109	073102	073104
Quasi Peak Adapter	02325	HP	85650A	2521A00932	073102	073104
Coaxial Cable		Harbour Industries	M17/60-RG142	Cable #8	072803	072804
LISN	00848	EMCO	3816/2	1102	010403	010405

FCC 15.31e, 15.225(e)

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00312	HP	8568A	2049A01287	073102	073104
Spectrum Analyzer Display Section	00312	HP	85662A	2106A02109	073102	073104
Quasi Peak Adapter	02325	HP	85650A	2521A00932	073102	073104
Temperature chamber	01878	Thermotron	NA	NA	080702	080704

APPENDIX C:

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Inside Technologies**
Specification: **-20 dB Bandedge**
Work Order #: **81888** Date: 05/12/2004
Test Type: **Maximized Emissions** Time: 13:34:17
Equipment: **Radio Frequency Transceiver** Sequence#: 1
Manufacturer: Inside Contactless Tested By: Eddie Wong
Model: M300-2G
S/N: NA

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

Function	Manufacturer	Model #	S/N
Radio Frequency Transceiver*	Inside Contactless	M300-2G	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	3303D	968604
Laptop	Compaq	Presario X1000	CWD334054F

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF port is connected to a Loop antenna (34 cm x 28 cm). RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply The EUT is in operational mode. 12VDC (110VAC/60Hz), 15.6°C, 48% relative humidity. Antenna Balun was adjusted to lower the radiated field strength.

Transducer Legend:

T1=Cable #33 44ft. RG-214/U	T2=Cable Heliax #17 84ft(10 meter)
T3=Cable#22 BNC (preamp to SA)	T4=6502 Active Loop Antenna

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.563M	64.3	+0.3	+0.3	+0.1	+10.2	-19.0	56.2	84.0	-27.8	Loop
2	13.563M	62.2	+0.3	+0.3	+0.1	+10.2	-19.0	54.1	84.0	-29.9	Loop

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Inside Technologies**
Specification: **FCC15.225(b) Field Strength of Spurious**
Work Order #: **81888** Date: 05/12/2004
Test Type: **Maximized Emissions** Time: 12:02:24
Equipment: **Radio Frequency Transceiver** Sequence#: 3
Manufacturer: Inside Contactless Tested By: Eddie Wong
Model: M300-2G
S/N: NA

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

Function	Manufacturer	Model #	S/N
Radio Frequency Transceiver*	Inside Contactless	M300-2G	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	3303D	968604
Laptop	Compaq	Presario X1000	CWD334054F

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF port is connected to a Loop antenna (34 cm x 28 cm). RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply The EUT is in operational mode. 12VDC (110VAC/60Hz), 15.6°C, 48% relative humidity. Antenna Balun was adjusted to lower the radiated field strength. Frequency range of measurement = 9 kHz - 1 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz.

Transducer Legend:

T1=Cable #33 44ft. RG-214/U	T2=Cable Heliax #17 84ft(10 meter)
T3=Cable#22 BNC (preamp to SA)	T4=6502 Active Loop Antenna
T5=Log antenna, SN331 092304	T6=Bicon SN220 092304
T7=Cable #33 44ft. RG-214/U	T8=Cable Heliax #17 84ft(10 meter)
T9=Cable#22 BNC (preamp to SA)	T10=Pre Amp 8447D AN 0010_071604

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	40.687M	46.9	+0.0 +0.0 +0.2	+0.0 +15.1 -27.0	+0.0 +0.6	+0.0 +0.7	+0.0	36.5	40.0	-3.5	Vert
2	298.383M	41.4	+0.0 +0.0 +0.4	+0.0 +22.8 -26.3	+0.0 +1.9	+0.0 +1.8	+0.0	42.0	46.0	-4.0	Vert
3	67.797M	52.0	+0.0 +0.0 +0.2	+0.0 +7.3 -27.0	+0.0 +0.8	+0.0 +0.9	+0.0	34.2	40.0	-5.8	Vert
4	67.821M	50.3	+0.0 +0.0 +0.2	+0.0 +7.3 -27.0	+0.0 +0.8	+0.0 +0.9	+0.0	32.5	40.0	-7.5	Horiz

5	311.930M	38.0	+0.0 +21.9 +0.4	+0.0 +0.0 -26.4	+0.0 +1.9	+0.0 +1.9	+0.0	37.7	46.0	-8.3	Horiz
6	298.372M	37.1	+0.0 +0.0 +0.4	+0.0 +22.8 -26.3	+0.0 +1.9	+0.0 +1.8	+0.0	37.7	46.0	-8.3	Horiz
7	284.798M	37.4	+0.0 +0.0 +0.3	+0.0 +21.7 -26.2	+0.0 +1.9	+0.0 +1.8	+0.0	36.9	46.0	-9.1	Vert
8	325.479M	37.5	+0.0 +21.1 +0.4	+0.0 +0.0 -26.5	+0.0 +1.9	+0.0 +2.0	+0.0	36.4	46.0	-9.6	Horiz
9	271.248M	36.8	+0.0 +0.0 +0.3	+0.0 +20.6 -26.2	+0.0 +1.8	+0.0 +1.8	+0.0	35.1	46.0	-10.9	Vert
10	284.821M	35.3	+0.0 +0.0 +0.3	+0.0 +21.7 -26.2	+0.0 +1.9	+0.0 +1.8	+0.0	34.8	46.0	-11.2	Horiz
11	311.947M	34.7	+0.0 +21.9 +0.4	+0.0 +0.0 -26.4	+0.0 +1.9	+0.0 +1.9	+0.0	34.4	46.0	-11.6	Vert
12	40.684M	38.3	+0.0 +0.0 +0.2	+0.0 +15.1 -27.0	+0.0 +0.6	+0.0 +0.7	+0.0	27.9	40.0	-12.1	Horiz
13	203.420M	36.6	+0.0 +0.0 +0.2	+0.0 +17.8 -26.5	+0.0 +1.5	+0.0 +1.5	+0.0	31.1	43.5	-12.4	Vert
14	339.060M	35.4	+0.0 +20.2 +0.4	+0.0 +0.0 -26.5	+0.0 +1.9	+0.0 +2.1	+0.0	33.5	46.0	-12.5	Horiz
15	352.638M	36.1	+0.0 +19.4 +0.4	+0.0 +0.0 -26.6	+0.0 +1.9	+0.0 +2.1	+0.0	33.3	46.0	-12.7	Vert
16	339.069M	35.1	+0.0 +20.2 +0.4	+0.0 +0.0 -26.5	+0.0 +1.9	+0.0 +2.1	+0.0	33.2	46.0	-12.8	Vert
17	325.504M	34.3	+0.0 +21.1 +0.4	+0.0 +0.0 -26.5	+0.0 +1.9	+0.0 +2.0	+0.0	33.2	46.0	-12.8	Vert
18	352.623M	34.0	+0.0 +19.4 +0.4	+0.0 +0.0 -26.6	+0.0 +1.9	+0.0 +2.1	+0.0	31.2	46.0	-14.8	Horiz
19	189.878M	33.0	+0.0 +0.0 +0.2	+0.0 +18.1 -26.5	+0.0 +1.5	+0.0 +1.5	+0.0	27.8	43.5	-15.7	Vert
20	257.698M	33.2	+0.0 +0.0 +0.3	+0.0 +19.4 -26.3	+0.0 +1.8	+0.0 +1.8	+0.0	30.2	46.0	-15.8	Vert
21	406.875M	35.0	+0.0 +17.1 +0.4	+0.0 +0.0 -27.1	+0.0 +2.3	+0.0 +2.2	+0.0	29.9	46.0	-16.1	Vert

22	230.573M	34.0	+0.0 +0.0 +0.3	+0.0 +18.3 -26.4	+0.0 +1.7	+0.0 +1.6	+0.0	29.5	46.0	-16.5	Horiz
23	122.048M	35.1	+0.0 +0.0 +0.2	+0.0 +16.0 -26.8	+0.0 +1.1	+0.0 +1.2	+0.0	26.8	43.5	-16.7	Vert
24	81.371M	39.8	+0.0 +0.0 +0.2	+0.0 +7.8 -26.9	+0.0 +0.9	+0.0 +1.0	+0.0	22.8	40.0	-17.2	Vert
25	447.567M	32.7	+0.0 +18.4 +0.4	+0.0 +0.0 -27.5	+0.0 +2.4	+0.0 +2.3	+0.0	28.7	46.0	-17.3	Vert
26	271.264M	30.3	+0.0 +0.0 +0.3	+0.0 +20.6 -26.2	+0.0 +1.8	+0.0 +1.8	+0.0	28.6	46.0	-17.4	Horiz
27	244.175M	32.2	+0.0 +0.0 +0.3	+0.0 +18.6 -26.3	+0.0 +1.8	+0.0 +1.8	+0.0	28.4	46.0	-17.6	Horiz
28	244.116M	32.2	+0.0 +0.0 +0.3	+0.0 +18.6 -26.3	+0.0 +1.8	+0.0 +1.8	+0.0	28.4	46.0	-17.6	Vert
29	366.197M	31.5	+0.0 +18.7 +0.4	+0.0 +0.0 -26.7	+0.0 +2.0	+0.0 +2.2	+0.0	28.1	46.0	-17.9	Vert
30	203.435M	30.9	+0.0 +0.0 +0.2	+0.0 +17.8 -26.5	+0.0 +1.5	+0.0 +1.5	+0.0	25.4	43.5	-18.1	Horiz
31	230.567M	32.0	+0.0 +0.0 +0.3	+0.0 +18.3 -26.4	+0.0 +1.7	+0.0 +1.6	+0.0	27.5	46.0	-18.5	Vert
32	135.621M	32.0	+0.0 +0.0 +0.2	+0.0 +16.9 -26.8	+0.0 +1.3	+0.0 +1.3	+0.0	24.9	43.5	-18.6	Vert
33	257.694M	30.3	+0.0 +0.0 +0.3	+0.0 +19.4 -26.3	+0.0 +1.8	+0.0 +1.8	+0.0	27.3	46.0	-18.7	Horiz
34	81.365M	38.0	+0.0 +0.0 +0.2	+0.0 +7.8 -26.9	+0.0 +0.9	+0.0 +1.0	+0.0	21.0	40.0	-19.0	Horiz
35	149.187M	30.4	+0.0 +0.0 +0.2	+0.0 +17.8 -26.7	+0.0 +1.3	+0.0 +1.4	+0.0	24.4	43.5	-19.1	Vert
36	528.957M	28.8	+0.0 +19.9 +0.5	+0.0 +0.0 -27.7	+0.0 +2.7	+0.0 +2.5	+0.0	26.7	46.0	-19.3	Vert
37	189.878M	29.4	+0.0 +0.0 +0.2	+0.0 +18.1 -26.5	+0.0 +1.5	+0.0 +1.5	+0.0	24.2	43.5	-19.3	Horiz
38	162.739M	29.0	+0.0 +0.0 +0.3	+0.0 +18.4 -26.6	+0.0 +1.3	+0.0 +1.4	+0.0	23.8	43.5	-19.7	Horiz

39	379.740M	30.3	+0.0 +17.9 +0.4	+0.0 +0.0 -26.8	+0.0 +2.1	+0.0 +2.2	+0.0	26.1	46.0	-19.9	Vert
40	54.243M	35.2	+0.0 +0.0 +0.2	+0.0 +10.2 -27.0	+0.0 +0.6	+0.0 +0.8	+0.0	20.0	40.0	-20.0	Horiz
41	488.265M	28.3	+0.0 +19.5 +0.4	+0.0 +0.0 -27.6	+0.0 +2.6	+0.0 +2.4	+0.0	25.6	46.0	-20.4	Vert
42	434.002M	29.9	+0.0 +18.0 +0.4	+0.0 +0.0 -27.3	+0.0 +2.4	+0.0 +2.2	+0.0	25.6	46.0	-20.4	Vert
43	122.054M	31.0	+0.0 +0.0 +0.2	+0.0 +16.0 -26.8	+0.0 +1.1	+0.0 +1.2	+0.0	22.7	43.5	-20.8	Horiz
44	108.506M	33.3	+0.0 +0.0 +0.2	+0.0 +13.8 -26.8	+0.0 +1.0	+0.0 +1.1	+0.0	22.6	43.5	-20.9	Vert
45	27.125M	18.6	+0.5 +0.0 +0.0	+0.5 +0.0 +0.0	+0.1 +0.0	+8.8 +0.0	+0.0	28.5	49.5	-21.0	Loop
46	366.209M	28.3	+0.0 +18.7 +0.4	+0.0 +0.0 -26.7	+0.0 +2.0	+0.0 +2.2	+0.0	24.9	46.0	-21.1	Horiz
47	406.876M	28.4	+0.0 +17.1 +0.4	+0.0 +0.0 -27.1	+0.0 +2.3	+0.0 +2.2	+0.0	23.3	46.0	-22.7	Horiz
48	108.499M	31.3	+0.0 +0.0 +0.2	+0.0 +13.8 -26.8	+0.0 +1.0	+0.0 +1.1	+0.0	20.6	43.5	-22.9	Horiz
49	27.118M	11.5	+0.5 +0.0 +0.0	+0.5 +0.0 +0.0	+0.1 +0.0	+8.8 +0.0	+0.0	21.4	49.5	-28.1	Loop

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Inside Technologies**
Specification: **FCC 15.107 Class B COND [AVE]**
Work Order #: **81888** Date: 05/12/2004
Test Type: **Conducted Emissions** Time: 4:11:00 PM
Equipment: **Radio Frequency Transceiver** Sequence#: 6
Manufacturer: Inside Contactless Tested By: Eddie Wong
Model: M300-2G 110V 60Hz
S/N: NA

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

Function	Manufacturer	Model #	S/N
Radio Frequency Transceiver*	Inside Contactless	M300-2G	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	3303D	968604
Laptop	Compaq	Presario X1000	CWD334054F

Test Conditions / Notes:

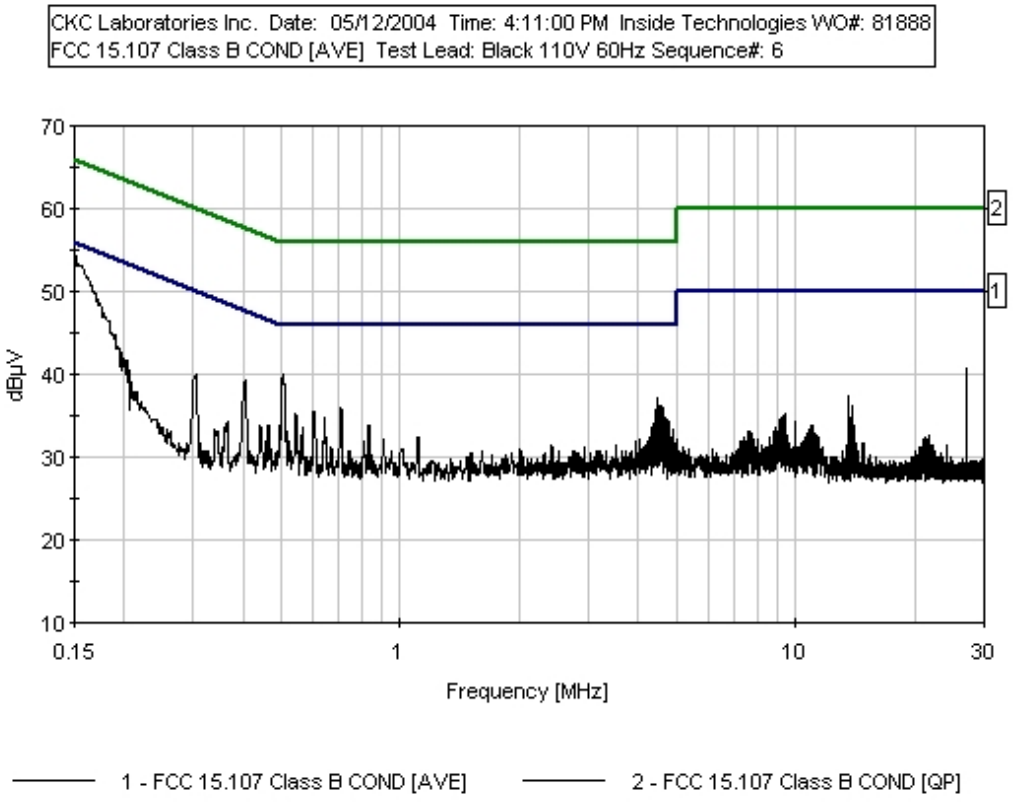
The EUT is placed on the wooden table. The RF port is connected to a 50 ohm RF load. RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply The EUT is in operational mode 12VDC (from AC power supply), 15.6°C, 48% relative humidity. Modification : Ferrite Fairrite PN 04444164281. Three loops on DC power cable.

Transducer Legend:

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

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	150.000k	54.7					+0.0	54.7	56.0	-1.3	Black
2	503.419k	40.1					+0.0	40.1	46.0	-5.9	Black
3	404.520k	39.2					+0.0	39.2	47.8	-8.6	Black
4	4.467M	37.2					+0.0	37.2	46.0	-8.8	Black
5	27.129M	40.8					+0.0	40.8	50.0	-9.2	Black
6	4.573M	36.2					+0.0	36.2	46.0	-9.8	Black
7	4.522M	36.1					+0.0	36.1	46.0	-9.9	Black
8	707.762k	35.9					+0.0	35.9	46.0	-10.1	Black
9	4.637M	35.9					+0.0	35.9	46.0	-10.1	Black
10	304.894k	39.9					+0.0	39.9	50.1	-10.2	Black

11	4.407M	35.7	+0.0	35.7	46.0	-10.3	Black
12	603.773k	35.5	+0.0	35.5	46.0	-10.5	Black
13	542.688k	35.3	+0.0	35.3	46.0	-10.7	Black
14	4.688M	34.8	+0.0	34.8	46.0	-11.2	Black
15	645.223k	34.7	+0.0	34.7	46.0	-11.3	Black



Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Inside Technologies**
Specification: **FCC 15.107 Class B COND [AVE]**
Work Order #: **81888** Date: 05/12/2004
Test Type: **Conducted Emissions** Time: 16:18:59
Equipment: **Radio Frequency Transceiver** Sequence#: 7
Manufacturer: Inside Contactless Tested By: Eddie Wong
Model: M300-2G 110Vac 60 Hz
S/N: NA

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

Function	Manufacturer	Model #	S/N
Radio Frequency Transceiver*	Inside Contactless	M300-2G	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Topward	3303D	968604
Laptop	Compaq	Presario X1000	CWD334054F

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF port is connected to a 50 ohm RF load. RS232 port is connected to a remote support laptop. The EUT obtains 12 VDC from a support power supply The EUT is in operational mode 12VDC (from AC power supply), 15.6°C, 48% relative humidity. Modification : Ferrite Fairrite PN 04444164281. Three loops on DC power cable.

Transducer Legend:

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

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	406.702k	46.2					+0.0	46.2	47.7	-1.5	White
2	507.055k	44.3					+0.0	44.3	46.0	-1.7	White
3	150.727k	54.2					+0.0	54.2	56.0	-1.8	White
4 Ave	304.000k	47.9					+0.0	47.9	50.1	-2.2	White
^	304.166k	50.7					+0.0	50.7	50.1	+0.6	White
6	198.722k	51.3					+0.0	51.3	53.7	-2.4	White
7	13.571M	46.5					+0.0	46.5	50.0	-3.5	White
8	361.615k	40.9					+0.0	40.9	48.7	-7.8	White
9	443.062k	38.2					+0.0	38.2	47.0	-8.8	White
10	344.162k	39.7					+0.0	39.7	49.1	-9.4	White

11	605.954k	36.6	+0.0	36.6	46.0	-9.4	White
12	464.150k	37.1	+0.0	37.1	46.6	-9.5	White
13	4.530M	36.3	+0.0	36.3	46.0	-9.7	White
14	544.142k	36.1	+0.0	36.1	46.0	-9.9	White
15	564.504k	35.9	+0.0	35.9	46.0	-10.1	White
16	4.471M	35.9	+0.0	35.9	46.0	-10.1	White