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Test Report:	2007 118316 CX01 FCC
Project number:	8316-1
Applicant:	**Carttronics LLC** **2042 Corte Del Nogal Suite C** **Carlsbad, CA 92011**
Equipment Under Test (EUT):	**Low Power Sensor Device**
Model:	**CX01**
In Accordance With:	FCC Part 15 Subpart C, 15.249 RSS 210 (Issue 7, June 2007) RSS-Gen (Issue 2, June 2007)
FCC ID#	USH00003
IC ID#	6834A-00003
Tested By:	Nemko USA Inc. 11696 Sorrento Valley Road, Suite F San Diego, CA 92121
Authorized By:	 Alan Laudani, RF/EMC Test Specialist
Date:	November 2, 2007
Total Number of Pages:	25

Section 1. Summary of Test Results

General

All measurements are traceable to national standards

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15; Subpart C. Radiated tests were conducted is accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

This Radio Standards Specification (RSS) sets out the requirements for license exempt low-power intentional radiators. The applicable standard for low-power intentional radiators in Canada, corresponding to FCC Part 15 Subpart C, is RSS-210. The two are very closely harmonized in terms of permitted frequencies, types of operation, and other technical requirements. The test results reported in this report are deemed satisfactory evidence of compliance with Industry Canada Standard RSS-210.

The assessment summary is as follows:

Apparatus Assessed:	**Low Power Sensor Device** Model **CX01**
Specification:	FCC Part 15 Subpart C, 15.249 IC RSS-Gen (Issue 2, June 2007), IC RSS 210 (Issue 7, June 2007)
Compliance Status:	Complies
Exclusions:	None
Non-compliances:	None

Report Release History:

REVISION	DATE	COMMENTS
-	November 2, 2007	Prepared By: Ferdinand S. Custodio
-	November 2, 2007	Initial Release: Alan Laudani

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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TESTED BY: _____ Date: November 2, 2007
Ferdinand S. Custodio, EMC Test Engineer

TABLE OF CONTENTS

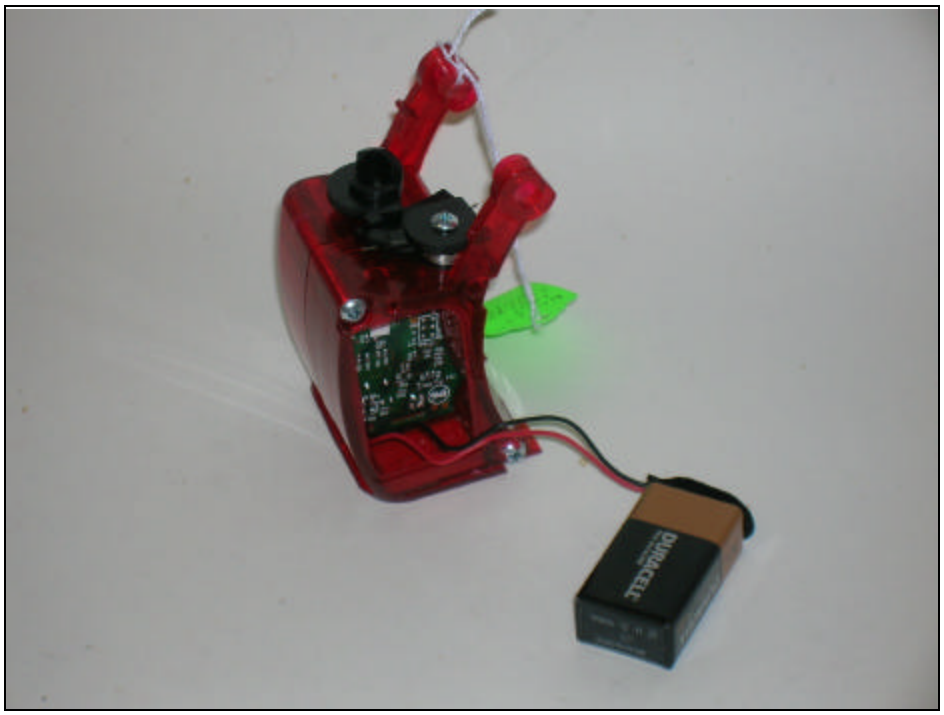
Section 2: Equipment Under Test

2.1 Product Identification

The Equipment Under Test was identified as follows:

CX01 Low Power Sensor Device

Engineering sample, serial number is 00001CA0



2.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
CX01	**Low Power Sensor Device** ASSY No. 50357-001 in a plastic enclosure with a 3.3dBi gain antenna	00001CA0

2.3 Theory of Operation

The CX01 is a **Low Power Sensor Device used** in retail stores for shopping cart security. It is a 2.4GHz radio transmitter and was exercised by fully powering on the unit and the output verified by a Spectrum Analyzer.

2.4 Technical Specifications of the EUT

Manufacturer:	**Carttronics LLC**
Operating Frequency:	2434 MHz in the 2400 - 2483.5 MHz Band
Emission Designator	1M38F1D
Field Strength:	31 mV/m @ 3m
Modulation:	FSK
Type of Receiver:	Heterodyne type with in-phase and quadrature components
Antenna Data:	PCB Printed “Inverted F-Antenna”
Antenna Connector:	NONE
Power Source:	9 Volt Alkaline Battery ANSI 1604A IEC 6LR61

Section 3: Test Conditions

3.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 15 Subpart C, 15.249
Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz bands.

RSS-Gen General Requirements and Information for the Certification of Radiocommunication Equipment

RSS-210 Low-power License–exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

3.2 Deviations From Laboratory Test Procedures

No deviations from Laboratory Test Procedure

3.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range	:	14 – 27 ^{o}C
Humidity range	:	19 - 44 %
Pressure range	:	86 - 106 kPa
Power supply range	:	+/- 5% of rated voltages

3.4 Test Equipment

Nemko ID	Device	Manufacturer	Model	Serial Number	Cal Date	Cal Due Date
877	Antenna, DRG Horn, .7-18GHz	AH Systems	SAS-571	688	7/10/2007	07/10/08
317	Preamplifier	HP	8449A	2749A00167	2/9/2007	02/09/08
835	Spectrum Analyzer	Rohde & Schwarz	RHDFSEK	829058/005	6/20/2007	06/20/08
N149	Environmental Chamber	Cincinnati Sub-Zero	ZPHS-32-2-2-H/AC	ZP0552665	5/30/2007	5/302008
110	Antenna, LPA	Electrometrics	LPA-25	1217	12/18/2006	12/18/07
899	RF Filter Section	HP	85460A	3448A00288	1/18/07	1/18/08
898	EMI Receiver	HP	8546A	3625A00348	1/18/07	1/18/08
809	Multimeter	Fluke	111	77790102	2/6/2007	02/06/08
NA	DC Power Supply	Xantrex	XT-30-2	NA	NCR	NCR

Section 4: Observations

4.1 Modifications Performed During Assessment

No modifications were performed during assessment.

4.2 Record Of Technical Judgements

No technical judgements were made during the assessment.

4.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

4.4 Test Deleted

No Tests were deleted from this assessment.

4.5 Additional Observations

There were no additional observations made during this assessment.

Section 5: Results Summary

This section contains the following:

FCC Part 15 Subpart C: Test Results and corresponding IC RSS-210 equivalent.

The column headed "Required" indicates whether the associated clauses were invoked for the apparatus under test. The following abbreviations are used:

N No: not applicable / not relevant
Y Yes: Mandatory i.e. the apparatus shall conform to these test.
N/T Not Tested, mandatory but not assessed. (See section 4.4 Test deleted)

The results contained in this section are representative of the operation of the apparatus as originally submitted.

5.1 FCC Part 15 Subpart C and IC RSS-210 Equivalent: Test Results

Part 15	Test Description	Required	Result
15.207 (a) *IC RS-Gen 7.2.2*	Power line Conducted Emissions	N[1]	
15.209 (a) *IC RS-210 2.2/2.7*	Radiated Emissions within Restricted Bands	Y	Pass
15.215 (c) *IC RS-Gen 4.6.1*	Occupied Bandwidth	Y	Pass
15.249 (a) *IC RS-210 A2.9*	Radiated Emissions not in Restricted Bands	Y	Pass
15.249 (b)	Fixed Point-to-Point operation in the 24.0-24.25 GHZ Band	N	
15.249 (d) *IC RS-210 2.6*	Spurious Emissions (except Harmonics)	Y	Pass
IC RS-Gen 4.10	Receiver Spurious Emissions	Y[2]	Pass
IC RS-210 2.1, *IC RS-Gen 4.7*	Frequency Stability	N	

Notes:

1 EUT does not operate directly or indirectly from the public utility AC power supply
2Spurious Emissions was measured when the unit is in "Receive" mode to show compliance with IC RSS General Receiver requirements, however no emissions were detected.

Appendix A: Test Results

Clause 15.209(a) Radiated Emissions within Restricted Bands

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (uV/meter)	Measurement Distance (meter)
0.009-0.490	2400/F (kHz)	300
0.490-1.705	24000/F (kHz)	30
1.705-30.0	30	3
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Conditions:

Sample Number:	CX01	**Temperature:**	27
Date:	October 29, 2007	**Humidity:**	26
Modification State:		**Tester:**	Ferdinand Custodio
		Laboratory:	SOATS

Test Results:

See Attached Plots.

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

These results apply to emissions found in the restricted bands defined in FCC Part 15 Subpart C, 15.205. The EUT was measured on three orthogonal axis.

All Measurements below 1GHz were performed at 3m employing a CISPR quasi-peak detector. Average measurements above 1GHz of emissions not caused by the RF intentional radio emissions were done utilizing RBW of 1MHz and VBW of 10Hz. Average measurements above 1GHz caused by the EUT RF intentional radio emissions were calculated by adding duty cycle factor to peak measurements.

Clause 15.209(a) Radiated Emissions within Restricted Bands (Below 1GHz)

No emissions were detected.

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Radiated Emissions Data

Job # :	8316-1	Date :	Oct.29, 2007	Page	1 of 1
NEX #:	95120	Time :	8:00AM		
		Staff :	FSC		
Client Name :	Carttronics LLC			EUT Voltage :	9VDC
EUT Name :	Low Power Sensor Transmitter			EUT Frequency :	
EUT Model # :	CX01			Phase:	
EUT Serial # :	00001CA0			NOATS	
EUT Config. :	Transmit @ 2.434GHz/Receive @ 2.433GHz			SOATS	X
				Distance < 1000 MHz:	
				Distance > 1000 MHz:	3 m
Specification :	CFR47 Part 15, Subpart B, Class B				
Loop Ant. #:	NA				
Bicon Ant.#:	NA	Temp. (°C) :	27		
Log Ant.#:	110	Humidity (%) :	26		
DRG Ant. #	NA	Spec An.#:	899/898		
Dipole Ant.#:	NA	Spec An. Display #:	899/898		
Cable LF#:	SOATS	QP #:			
Cable HF#:	NA	PreSelect#:	NA		
Preamp LF#:	NA				
Preamp HF#	NA				

Quasi-Peak	RBW: 120 kHz
	Video Bandwidth 300 kHz
Peak	RBW: 1 MHz
	Video Bandwidth 3 MHz
Average	RBW: 1 MHz
	Video Bandwidth 10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.

Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBuV)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
327.460	10.5	10.3	P		1.0	10.5	27.2	46.0	-18.9	Pass	Noise Floor

See next page for examples of measurement calculations.

Clause 15.209(a) Radiated Emissions within Restricted Bands (Above 1GHz)
7302 MHz measurement was noted NF for noise floor—not an EUT caused emission.

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Radiated Emissions Data

Complete	YES			Job # : 8316-1	Test # : 1
Preliminary				Page 1	of 1
Client Name :	Expertise Engineering				
EUT Name :	Low Power Sensor Transmitter				
EUT Model # :	CX01				
EUT ANTENNA Part # :					
EUT Serial # :	00001CA0				
EUT Config. :	Transmit @ 2.434GHz/Receive @ 2.433GHz				
Specification :	FCC Part 15.209 (a)				
Rod. Ant. #:	NA	Temp. (deg. C) :	14	Date :	Oct. 29, 2007
Bicon Ant.#:	NA	Humidity (%) :	27	Time :	2:00PM
Log Ant.#:	NA	EUT Voltage :	9VDC	Staff :	FSCustodio
DRG Ant. #	877	EUT Frequency :		Photo ID:	
Dipole Ant.#:	NA	Phase:		Peak Res Bandwidth:	1 MHz
Cable#:	40ft	Location:	SOATS	Peak Video Bandwidth	1 MHz
Preamp#:	317	Distance:	3 m	AVE Res Bandwidth:	1 MHz
Spec An.#:	835	Duty Cycle Factor	-5.352	AVE Video Bandwidth	10 Hz
QP #:	NA	Duty Cycle (%)	0.54		

Meas. Freq. (MHz)	Vertical (dBuV) pk	Vertical (dBuV) av	Horizontal (dBuV) pk	Horizontal (dBuV) av	CF (db)	Max Level (dBuV/m) pk	Max Level (dBuV/m) av	Spec. Limit (dBuV/m) pk	Spec. Limit (dBuV/m) av	Margin dB pk	Margin dB av	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
4868.00	48.7	43.3	48.7	43.4	6.3	55.0	49.6	74.0	54.0	-19.0	-4.4			Pass	
7302.00	44.7	31.4	44.7	31.5	15.8	60.5	47.3	74.0	54.0	-13.5	-6.7			Pass	NF

Note: *Correction Factor (CF) computations = Antenna Factor + Path Loss – RF Gain (preamp)*
= 33.0 + 8.5 – 35.2
= 6.3

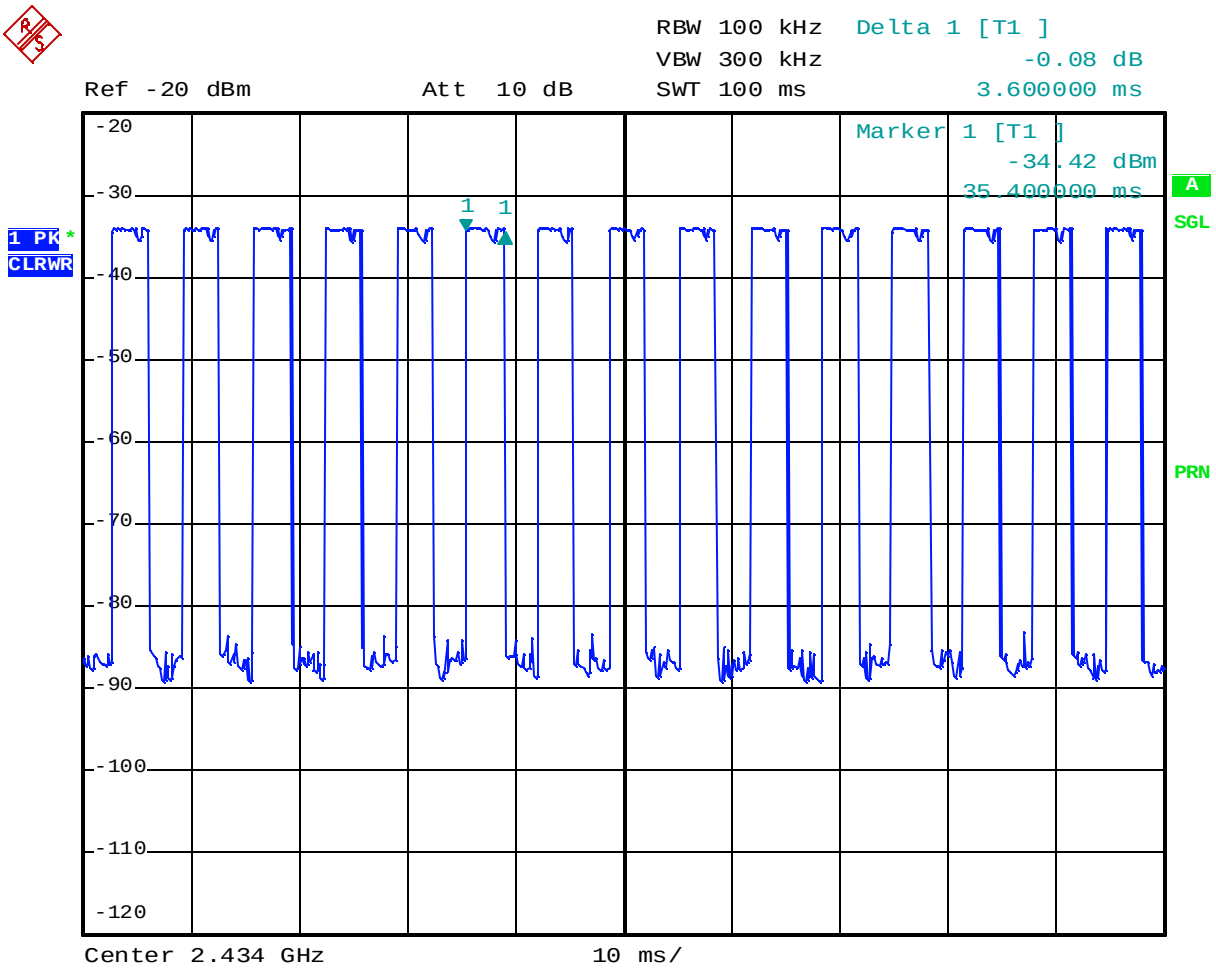
Max Level = higher of Vertical or Horizontal Peak or Average Reading + Correction Factor
= 48.7 + 6.3 = 55.0
Margin = Max Level – Spec. Limit
= 55.0 –74.0 = -19.0

IC RS-210 2.2/2.7 Radiated Emissions within Restricted Bands

Test Results:

Results are similar to Clause 15.209(a) Radiated Emissions within Restricted Bands test results. Please refer to previous table on page 13 and 14.

Duty Cycle Plots



Date: 26.OCT.2007 14:04:59

Duty Cycle Computations *= 3.6ms x 15*
= 54ms/100ms
= 0.54 or 54%

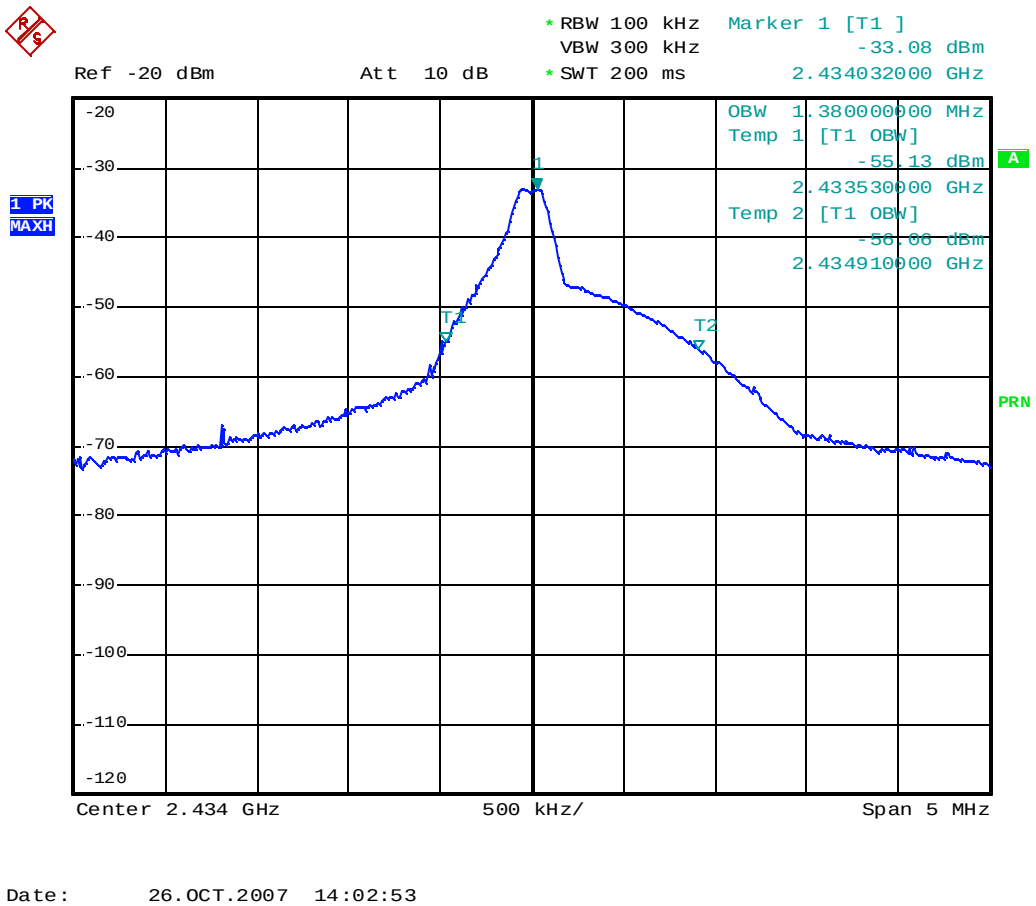
Clause 15.215(c) Occupied Bandwidth

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in Sec. Sec. 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Test Conditions:

Sample Number:	CX01	**Temperature:**	22
Date:	October 26, 2007	**Humidity:**	44
Modification State:		**Tester:**	Ferdinand Custodio
		Laboratory:	Nemko

Test Results:



Measured Occupied Bandwidth = 1.38MHz

Band edge Measurements:

Test Results:

Band edge emissions were measured under Part 15.209 General Emission Limits. The EUT was measured on three orthogonal axis and only the worst case reported. Average measurement were obtained using settings of RBW=1MHz and VBW=10Hz as the emissions measured were not the result of the EUT. This process was repeated for the upper band edge measurement.

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Radiated Emissions Data

Complete	YES			Job # :	8316-1	Test # :	1
Preliminary				Page	1	of	1
Client Name :	Expertise Engineering						
EUT Name :	Low Power Sensor Transmitter						
EUT Model # :	CX01						
EUT ANTENNA Part # :							
EUT Serial # :	00001CA0						
EUT Config. :	Transmit @ 2,434GHz/Receive @ 2.433GHz						
Specification :	FCC Part 15.209(a)			Reference :			
Rod. Ant. #:	NA	Temp. (deg. C) :	14	Date :	Oct. 29, 2007		
Bicon Ant.#:	NA	Humidity (%) :	27	Time :	3:30PM		
Log Ant.#:	NA	EUT Voltage :	9VDC	Staff :	FSC		
DRG Ant. #	877	EUT Frequency :		Photo ID:			
Dipole Ant.#:	NA	Phase:		Peak Res Bandwidth:	1 MHz		
Cable#:	40ft	Location:	SOATS	Peak Video Bandwidth	1 MHz		
Preamp#:	317	Distance:	3M	Average Res Bandwidth:	1 MHz		
Spec An.#:	835			Average Video Bandwidth	10 Hz		

Meas. Freq. (MHz)	Vertical (dBuV) pk	av	Horizontal (dBuV) pk	av	CF (db)	Max Level (dBuV/m) pk	av	Spec. Limit (dBuV/m) pk	av	Margin dB pk	av	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
2400.0	49.2	35.7	49.2	35.7	13.6	62.76	49.26	74.0	54.0	-11.2	-4.7			Pass	
2483.5	48.1	35.5	48.1	35.5	13.6	61.66	49.06	74.0	54.0	-12.3	-4.9			Pass	

Note: *Correction factor (CF) computations = Antenna Factor + Path Loss – RF Gain (Preamp)*
= 29.5+ 17.6 – 33.5
= 13.6

Clause 15.249(a) Radiated Emissions not in Restricted Bands

Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of fundamental (mV/meter)	Field strength of harmonics (uV/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

(e) As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Test Conditions:

Sample Number:	CX01	**Temperature:**	14
Date:	October 29, 2007	**Humidity:**	27
Modification State:		**Tester:**	Ferdinand Custodio
		Laboratory:	SOATS

Test Results:

See Attached Plots.

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

The EUT was measured on three orthogonal axis.

All Measurements (including above 1GHz) were performed at 3m with a Peak detector of 1MHz RBW/VBW. Average measurements are computed using the formula FS avg = FS peak-20 log (duty cycle).

Voltage of 9 Volts DC was maintained by a DC power supply. Normally, a fresh battery would be used but as the test mode would use more current than normal operation, a DC power supply was used to sustain 9 VDC during testing.

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Radiated Emissions Data

Complete	YES			Job # :	8116-1
Preliminary				Page	1
Client Name :	Carttronics LLC				
EUT Name :	Low Power Sensor Transmitter				
EUT Model # :	CX01				
EUT Serial # :	00001CA0				
EUT Config. :	Transmit @ 2.434GHz/Receive @ 2.433GHz				
Specification :	Clause 15.249(a)				
Rod. Ant. #:	NA	Temp. (deg. C) :	14	Date :	Oct. 29, 2007
Bicon Ant.#:	NA	Humidity (%) :	27	Time :	2:00PM
Log Ant.#:	NA	EUT Voltage :	9VDC	Staff :	FSCustodio
DRG Ant. #	529	EUT Frequency :		Photo ID:	
Dipole Ant.#:	NA	Phase:		Peak Res Bandwidth:	1 MHz
Cable#:	40ft	Location:	SOATS	Peak Video Bandwidth	1 MHz
Preamp#:	NA	Distance:	3 m		
Spec An.#:	835	Duty Cycle Factor	-5.352		
QP #:	NA	Duty Cycle	0.54		

Meas. Freq. (MHz)	Vertical (dBuV) pk	Vertical (dBuV) av	Horizontal (dBuV) pk	Horizontal (dBuV) av	CF (db)	Max Level (dBuV/m) pk	Max Level (dBuV/m) av	Spec. Limit (dBuV/m) pk	Spec. Limit (dBuV/m) av	Margin dB pk	Margin dB av	EUT Orientation	Ant. Height	Pass Fail Unc.	Comment
2434.00	58.9	53.6	57.1	51.7	35.4	94.3	88.9		94.0		-5.1	X	1.0	Pass	
2434.00	54.2	48.8	53.7	48.4	35.4	89.5	84.2		94.0		-9.8	Y	1.0	Pass	
2434.00	59.7	54.4	57.8	52.5	35.4	95.1	89.7		94.0		-4.3	Z	1.0	Pass	

Correction factor (CF) computations
Antenna Factor + Path Loss – RF Gain (Preamp)
29.5+ 5.9 – 0 = 35.4

Field Strength of Fundamental Calculations:

Average Power Level Limit = 50 mV/m
Highest of Vertical or Horizontal Peak Reading
Average = Peak + Duty Cycle Factor
59.7 + (-5.35) = 54.4

Max Level = Average Reading + Correction Factor
= 54.4 + 35.4 = 89.7 dBuV/m
$10^{((89.7-120)/20)}$ *= 0.031 V/m*
0.031 V/m = ***31 mV/m*** *which complies.*

Clause 15.249(d) Spurious Emissions (except Harmonics)

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Sec. 15.209, whichever is the lesser attenuation.

Test Conditions:

Sample Number:	CX01	**Temperature:**	27
Date:	October 29, 2007	**Humidity:**	26
Modification State:	Transmit	**Tester:**	Ferdinand Custodio
		Laboratory:	SOATS

Test Results:

See Attached Plots.

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

The EUT was measured on three orthogonal axis, only the worst case is reported.

All measurements were performed at 3m with a Quasi-Peak detector below 1GHz when a valid emission is found otherwise Peak detector. Peak detector with settings of 1MHz RBW/VBW is used above 1GHz.

No Spurious Emissions (except Harmonics) were detected above 1GHz.

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Radiated Emissions Data

Job # :	8316-1	Date :	Oct.29, 2007	Page	1 of 1
NEX #:	95120	Time :	8:00AM		
		Staff :	FSC		
Client Name :	Carttronics LLC			EUT Voltage :	9VDC
EUT Name :	Low Power Sensor Transmitter			EUT Frequency :	
EUT Model # :	CX01			Phase:	
EUT Serial # :	00001CA0			NOATS	
EUT Config. :	Transmit @ 2.434GHz/Receive @ 2.433GHz			SOATS	X
				Distance < 1000 MHz:	
				Distance > 1000 MHz:	3 m
Specification :	CFR47 Part 15, Subpart B, Class B				
Loop Ant. #:	NA				
Bicon Ant.#:	NA	Temp. (°C) :	27		
Log Ant.#:	110	Humidity (%) :	26		
DRG Ant. #	NA	Spec An.#:	899/898		
Dipole Ant.#:	NA	Spec An. Display #:	899/898		
Cable LF#:	SOATS	QP #:			
Cable HF#:	NA	PreSelect#:	NA		
Preamp LF#:	NA				
Preamp HF#	NA				

Quasi-Peak	RBW: 120 kHz
	Video Bandwidth 300 kHz
Peak	RBW: 1 MHz
	Video Bandwidth 3 MHz
Average	RBW: 1 MHz
	Video Bandwidth 10 Hz

Measurements below 1 GHz are Quasi-Peak values, unless otherwise stated.

Measurements above 1 GHz are Average values, unless otherwise stated.

Meas. Freq. (MHz)	Meter Reading **Vertical**	Meter Reading **Horizontal**	Det.	EUT Side F/L/R/B	Ant. Height m	Max. Reading (dBuV)	Corrected Reading (dBuV/m)	Spec. limit (dBuV/m)	CR/SL Diff. (dB)	Pass Fail	Comment
327.460	10.5	10.3	P		1.0	10.5	27.2	46.0	-18.9	Pass	Noise Floor
341.8	10.5	10.3	P		1.0	10.5	27.4	46.0	-18.7	Pass	Noise Floor
358.5	12.0	10.9	P		1.0	12	29.0	46.0	-17.0	Pass	Noise Floor
379.3	10.4	10.6	P		1.0	10.6	27.5	46.0	-18.5	Pass	Noise Floor
431.9	10.4	10.9	P		1.0	10.9	29.0	46.0	-17.1	Pass	Noise Floor
449.6	4.8	5.4	OP		1.0	5.4	24.3	46.0	-21.8	Pass	Ambient Noise

IC RS-210 2.1,IC RS-Gen 4.7 Frequency Stability

Frequency stability is a measure of frequency drift due to temperature and supply voltage variations with reference to the frequency measured at an appropriate reference temperature and the rated supply voltage.
The reference temperature for transmitters is +20°C, unless specified otherwise in the applicable RSS to the device.
A hand-held device that is only capable of operating using internal batteries shall be tested using a new battery without any further requirement to vary the supply voltage. Alternatively, an external supply voltage can be used and set at the battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer.
The operating carrier frequency shall be set up in accordance with the manufacturer's published operation and instruction manual prior to the commencement of these tests. No adjustment of any frequency-determining circuit element shall be made subsequent to this initial set-up.
With the transmitter installed in an environment test chamber, the unmodulated carrier frequency shall be measured under the conditions specified below. A sufficient stabilization period at each temperature shall be used prior to each frequency measurement. The following temperatures and supply voltage ranges apply, unless specified otherwise in the applicable RSS.

(a) at temperatures of -30°C, +20°C and +50°C, and at the manufacturer's rated supply voltage; and

(b) at temperature of +20°C and at ±15 percent of the manufacturer's rated supply voltage.

Test Conditions:

Sample Number:	CX01	**Temperature:**	25°C
Date:	November 2, 2007	**Humidity:**	40%
Modification State:	Transmit	**Tester:**	Ferdinand Custodio
		Laboratory:	Humidity Chamber

Test Results:

Note: Clause A2.9 (RSS 210) does not require frequency stability test.

Appendix B: Setup Photographs

Spurious Emissions Setup (below 1GHz):

Spurious Emissions Setup (above 1GHz and Fundamental):


"X" Configuration


"Y" Configuration


"Z" Configuration

Appendix C: Block Diagram of Test Setups

Test Site For Radiated Emissions