TEST REPORT

FCC Part 15 Subpart C Section 15.231
IC RSS-210 Issue 8
IC RSS-Gen Issue 4

MANUFACTURER'S NAME	Cinch Systems Inc 12075 43rd Street NE Suite 300 St Michael MN 55376 USA
PRODUCT NAME	Micro Door Window Sensor Micro DWS-External contact
MODEL NUMBER(S) TESTED	RF-MDWS-ITI RF-MDWSX-ITI
SERIAL NUMBER(S) TESTED	7 1
PRODUCT DESCRIPTION	Micro Door Window Sensors with 319.5 MHz transmitters
TEST REPORT NUMBER	NC1409669.1 Rev A
TEST DATE(S)	07-10 October 2014

TÜV SÜD America Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the applicable EMC requirements of FCC Part 15 Subpart C Section 15.231 “Periodic operation in the band 40.66–40.70 MHz and above 70 MHz.” and Industry Canada RSS-210 Issue 8 “Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment” and Industry Canada RSS-Gen Issue 4 “General Requirements and Information for the Certification of Radio Apparatus”.

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

Issue Date: 29 April 2015

Joel T Schneider
Senior EMC Engineer

Greg Jakubowski
Senior EMC Technician

Not Transferable

EMC TEST REPORT

Test Report No.	**NC1409669.1 Rev A** Date of issue: 29 April 2015
Product Names	Micro Door Window Sensor & Micro DWS-External contact
Model(s) Tested	RF-MDWS-ITI & RF-MDWSX-ITI
Serial No(s) Tested	7 & 1
Product Description	Micro Door Window Sensor & Micro DWS-External contact (319.5 MHz)
Manufacturer	Cinch Systems Inc 12075 43rd Street NE Suite 300 St Michael MN 55376
Issuing Laboratory	TÜV SÜD America Inc USA 1775 Old Highway 8 NW, Suite 104 New Brighton MN 55112 - 1891 Phone: 651-631-2487 / Fax: 651-638-0285
Test Result	■ **Positive** ☐ **Negative**

TÜV SÜD America Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV SÜD America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD America Inc issued reports.

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TÜV SÜD America Inc and its professional staff hold government and professional organization certifications and are members of AAMI, ACIL, AEA, ANSI, IEEE, NARTE, and VCCI.

REVISION RECORD

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	23	07 November 2014	Initial Release
A	23	29 April 2015	Page 4 and corresponding Test Result Summary (TRS): Updated RSS-GEN Issue 3 to RSS-GEN Issue 4

DIRECTORY

Contents

EMC TEST REGULATIONS:
The tests were performed according to the following regulations:
FCC Part 15 Subpart C §15.231
IC RSS-210 Issue 8
IC RSS-Gen Issue 4

ENVIRONMENTAL CONDITIONS IN THE LAB

	Actual
Temperature:	: 17-20°C
Atmospheric pressure	: 97-99kPa
Relative Humidity	: 40-46%

POWER SUPPLY UTILIZED
Power supply system : 3 VDC

TEST EQUIPMENT
All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

MEASUREMENT UNCERTAINTY
The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ±1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ±4.8 dB. All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

SIGN EXPLANATIONS
☐ - not applicable
■ - applicable

Radiated Emissions 30 - 3200 MHz
FCC 15.231(b), IC RSS-210 A1.1

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Testing was performed in accordance with the test procedure of ANSI C63.4 2009, clause 8.3.

Test location
Taylors Falls Lab Large Test Site (Open Area Test Site)

Test distance
3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE03995	EM-6917B	Electro-Metrics	Biconicalog Periodic	151	07-Jul-14	07-Jul-15
WRLE10897	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA QA1148002	NA	Code B 14-Jan-14	Code B 14-Jan-15
WRLE03894	NHP-600	Mini-Circuits	30-600 MHz Stopband Filter	2	Code B 04-Feb-13	Code B 29-May-15
WRLE11144	8566B	Hewlett-Packard	Spectrum Analyzer	2728A04260	03-Mar-14	03-Mar-15
WRLE11145	85662A	Hewlett-Packard	Analyzer Display	2648A14613	03-Mar-14	03-Mar-15
WRLE11146	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01299	04-Mar-14	04-Mar-15
WRLE10998	ESU 26	Rohde & Schwarz	EMI Receiver	100379	29-Aug-14	29-Aug-15
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.71	N/A	Code Y	Code Y
OWLE02074	3115	Electro-Mechanics (EMCO)	Ridge Guide Antenna	2504	20-Mar-14	20-Mar-15
WRLE10897	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA QA1148002	NA	Code B 14-Jan-14	Code B 14-Jan-15
WRLE03894	NHP-600	Mini-Circuits	30-600 MHz Stopband Filter	2	Code B 04-Feb-13	Code B 29-May-15

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Limit with 319.5 MHz fundamental and 3 meter distance

Detector	Field strength fundamental (μV/m)	Field strength Spurious (μV/m)
Average	6229	622.9
Peak	62291	6229

The emission limits shown in the above table are based on measurements employing a CISPR average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, *e.g.*, see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section. Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer or receiver and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and average/peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB / decade (inverse linear-distance for field strength measurements).

Test data

RF-MDWSX-ITI

Measurement summary for limit1: fcc 15.231-319.5 MHz fundamental (Pk)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz fundamental (dB)
319.508	64.3 Pk	2.01 / 19.72 / 0.0 / 0.0	86.03	20022	62291	V / 1.00 / 2	-9.09

Measurement summary for limit1: fcc 15.231-319.5 MHz fundamental (Av)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz fundamental (dB)
319.508	39.9 Av	2.01 / 19.72 / 0.0 / 0.0	61.63	1207	6229	V / 1.00 / 2	-13.49

Scan through 3 orthogonal axis for highest fundamental emission level
Transmitting CW
Initial relative pk levels with 8566. Final pk & avg levels receiver (120kHz RBW)
Configured for test mode pulses to conserve battery and attain accurate average measurements
Device is transmitting packets continuously and configured (for test purposes) to provide its maximum possible total on time of
8.174 mS per 100mS.

RF-MDWS-ITI

Measurement summary for limit1: fcc 15.231-319.5 MHz fundamental (Pk)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz fundamental (dB)
319.508	59.0 Pk	2.01 / 19.72 / 0.0 / 0.0	80.73	10877	62291	H / 1.14 / 277	-14.39

Measurement summary for limit1: fcc 15.231-319.5 MHz fundamental (Av)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz fundamental (dB)
319.508	34.6 Av	2.01 / 19.72 / 0.0 / 0.0	56.33	655.4	6229	H / 1.14 / 277	-18.79

RF-MDWSX-ITI

Measurement summary for limit1: fcc 15.231-319.5 MHz spurious (Pk)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz spurious (dB)
639.016	48.5 Pk	2.9 / 25.68 / 30.05 / 0.87	47.9	248.3	6229	H / 1.00 / 26	-27.98

Measurement summary for limit1: fcc 15.231-319.5 MHz spurious (Av)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz spurious (dB)
639.016	26.8 Av	2.9 / 25.68 / 30.05 / 0.87	26.2	20.42	622.9	H / 1.00 / 26	-29.68

Begin spurious emissions scan 1-3.2 GHz
Using 15.209 limits for restricted bands. ~1.8dB less than 15.231 limits

Measurement summary for limit1: FCC 15.231(e)/15.209 >1GHz 3m pk							
FREQ (GHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.209 >1GHz 3m pk (dB)
3.195	52.55 Pk	6.62 / 30.55 / 30.64 / 0.2	59.29	921.51	6229	H / 1.05 / 269	-14.71
2.876	46.55 Pk	6.42 / 29.49 / 30.08 / 0.25	52.62	427.56	5000	V / 1.00 / 90	
2.237	47.7 Pk	5.55 / 27.82 / 29.53 / 0.36	51.9	393.55	5000	V / 1.00 / 90	-22.1
2.556	45.9 Pk	5.98 / 28.87 / 29.49 / 0.3	51.57	378.88	6229	V / 1.00 / 90	-22.43
1.917	42.4 Pk	5.1 / 27.85 / 30.18 / 0.34	45.51	188.58	6229	H / 1.00 / 90	-28.49
1.278	42.2 Pk	4.14 / 25.66 / 30.33 / 0.55	42.22	129.12	6229	H / 1.00 / 0	-31.78
1.598	41.05 Pk	4.65 / 26.09 / 30.53 / 0.4	41.67	121.20	5000	V / 1.00 / 0	-32.33
1.278	41.1 Pk	4.14 / 25.66 / 30.33 / 0.55	41.12	113.76	6229	V / 1.00 / 90	-32.88

Measurement summary for limit2: FCC 15.231/15.209>1GHz 3m avg							
FREQ (GHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC 15.209 >1GHz 3m av (dB)
3.195	38.83 Av	6.62 / 30.55 / 30.64 / 0.2	45.57	189.89	622.9	H / 1.05 / 269	-8.43
2.876	34.21 Av	6.42 / 29.49 / 30.08 / 0.25	40.28	103.28	500	V / 1.00 / 90	
2.237	36.01 Av	5.55 / 27.82 / 29.53 / 0.36	40.21	102.45	500	V / 1.00 / 90	
2.556	33.93 Av	5.98 / 28.87 / 29.49 / 0.3	39.6	95.50	622.9	V / 1.00 / 90	-14.4
1.917	31.66 Av	5.1 / 27.85 / 30.18 / 0.34	34.77	54.76	622.9	H / 1.00 / 90	-19.23
1.278	31.43 Av	4.14 / 25.66 / 30.33 / 0.55	31.45	37.37	622.9	V / 1.00 / 0	-22.55
1.598	27.71 Av	4.65 / 26.09 / 30.53 / 0.4	28.33	26.09	500	V / 1.00 / 0	-25.67
1.278	27.39 Av	4.14 / 25.66 / 30.33 / 0.55	27.41	23.47	622.9	V / 1.00 / 0	-26.59

RF-MDWS-ITI

Measurement summary for limit1: fcc 15.231-319.5 MHz spurious (Pk)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz spurious (dB)
639.01	46.9 Pk	2.9 / 25.68 / 30.05 / 0.87	46.3	206.5	6229	V / 1.00 / 31	-29.58

Measurement summary for limit1: fcc 15.231-319.5 MHz spurious (Av)							
FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 fcc 15.231-319.5 MHz spurious (dB)
639.01	20.3 Av	2.9 / 25.68 / 30.05 / 0.87	19.7	9.66	622.9	V / 1.00 / 31	-36.18

Measurement summary for limit1: FCC 15.231(e)-15.209 >1GHz 3m pk (Pk)							
FREQ (GHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.231(e) >1GHz 3m pk (dB)
2.556	54.85 Pk	5.98 / 28.87 / 29.49 / 0.3	60.52	1061.70	6229	H / 1.00 / 232	-13.48
3.195	51.65 Pk	6.62 / 30.55 / 30.64 / 0.2	58.39	830.81	6229	H / 1.00 / 230	-15.61
1.917	53.45 Pk	5.1 / 27.85 / 30.18 / 0.34	56.56	672.98	6229	H / 1.00 / 90	-17.44
1.278	53.7 Pk	4.14 / 25.66 / 30.33 / 0.55	53.72	485.29	6229	V / 1.00 / 180	-20.28
2.876	42.3 Pk	6.42 / 29.49 / 30.08 / 0.25	48.37	262.12	5000	V / 1.00 / 270	
2.237	44.1 Pk	5.55 / 27.82 / 29.53 / 0.36	48.3	260.02	5000	H / 1.00 / 270	
1.598	43.3 Pk	4.65 / 26.09 / 30.53 / 0.4	43.92	157.04	5000	H / 1.00 / 270	

Measurement summary for limit2: FCC 15.231(e)/15.209 >1GHz 3m av (Av)							
FREQ (GHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	FINAL (uV/m)	LIMIT (uV/m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC 15.231(e) >1GHz 3m av (dB)
2.556	41.61 Av	5.98 / 28.87 / 29.49 / 0.3	47.28	231.21	622.9	H / 1.00 / 232	-6.72
3.195	38.78 Av	6.62 / 30.55 / 30.64 / 0.2	45.52	188.80	622.9	H / 1.00 / 230	-8.48
1.917	40.77 Av	5.1 / 27.85 / 30.18 / 0.34	43.88	156.31	622.9	H / 1.00 / 90	-10.12
1.278	41.68 Av	4.14 / 25.66 / 30.33 / 0.55	41.7	121.62	622.9	V / 1.00 / 180	-12.3
2.876	32.6 Av	6.42 / 29.49 / 30.08 / 0.25	38.67	85.80	500	V / 1.00 / 270	
2.237	33.22 Av	5.55 / 27.82 / 29.53 / 0.36	37.42	74.30	500	H / 1.00 / 270	
1.598	32.72 Av	4.65 / 26.09 / 30.53 / 0.4	33.34	46.45	500	H / 1.00 / 270	

Occupied bandwidth
FCC 15.231(c), IC RSS-210 A1.1.3

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Testing was performed in accordance with the test procedure of ANSI C63.4 2009 clause 13.7

Test location
Taylors Falls Lab Large Test Site (Open Area Test Site)

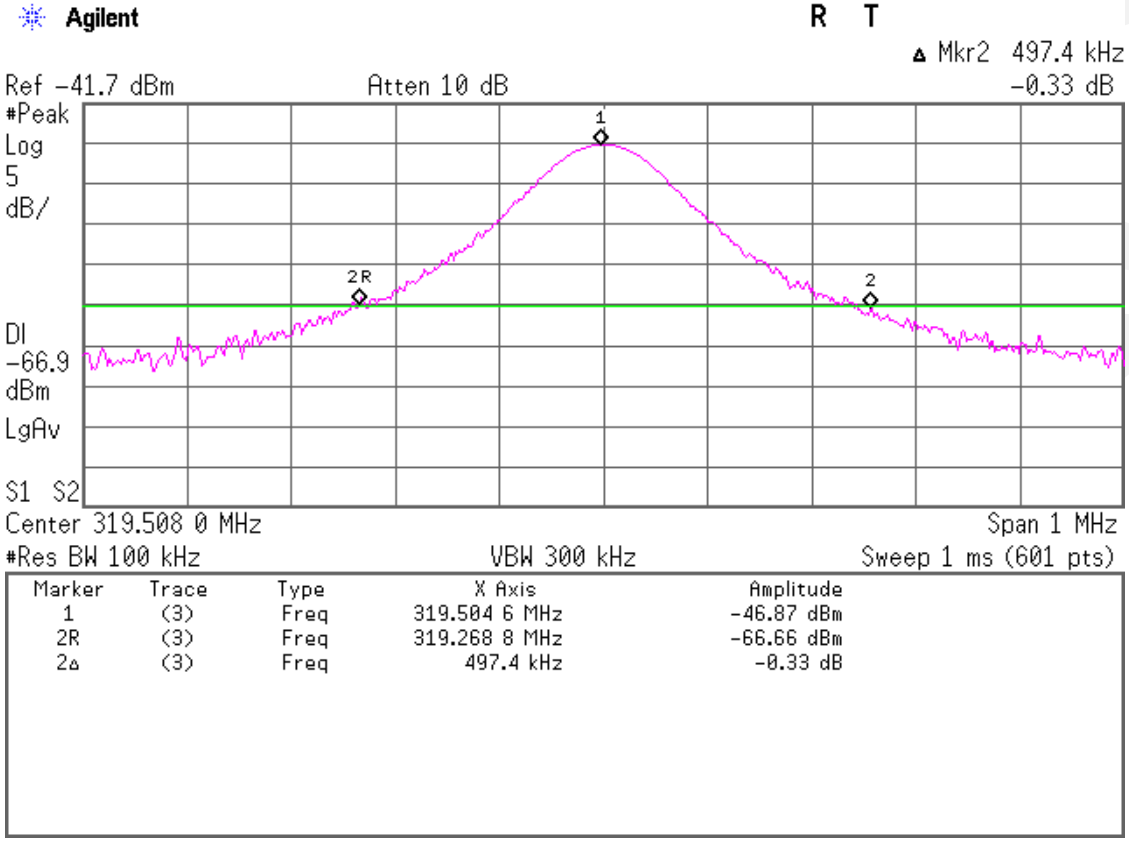
Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
NBLE03367	E4440A	Agilent	Spectrum Analyzer	MY42510439	10-Sep-14	10-Sep-15
WRLE01564	7405-901	EMCO	Near field probe	na	Code Y	Code Y

Code Y = Calibration not required when used with other calibrated equipment.

Test limit
No wider than 0.25% of the center frequency. 319.508 MHz x 0.25% = 798.77 kHz. Per FCC, measured at the -20 dBc points. Per IC RSS-210 A1.1.3, the 99% occupied bandwidth

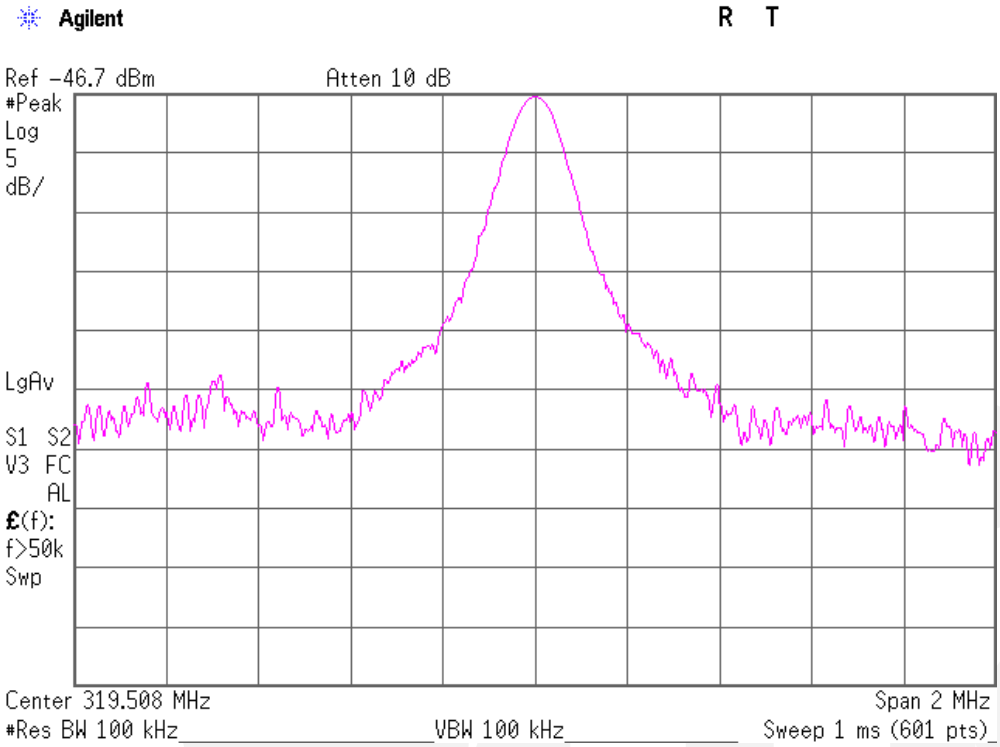
Test data per FCC 15.231(c)
20 dB occupied bandwidth = 497.4 kHz



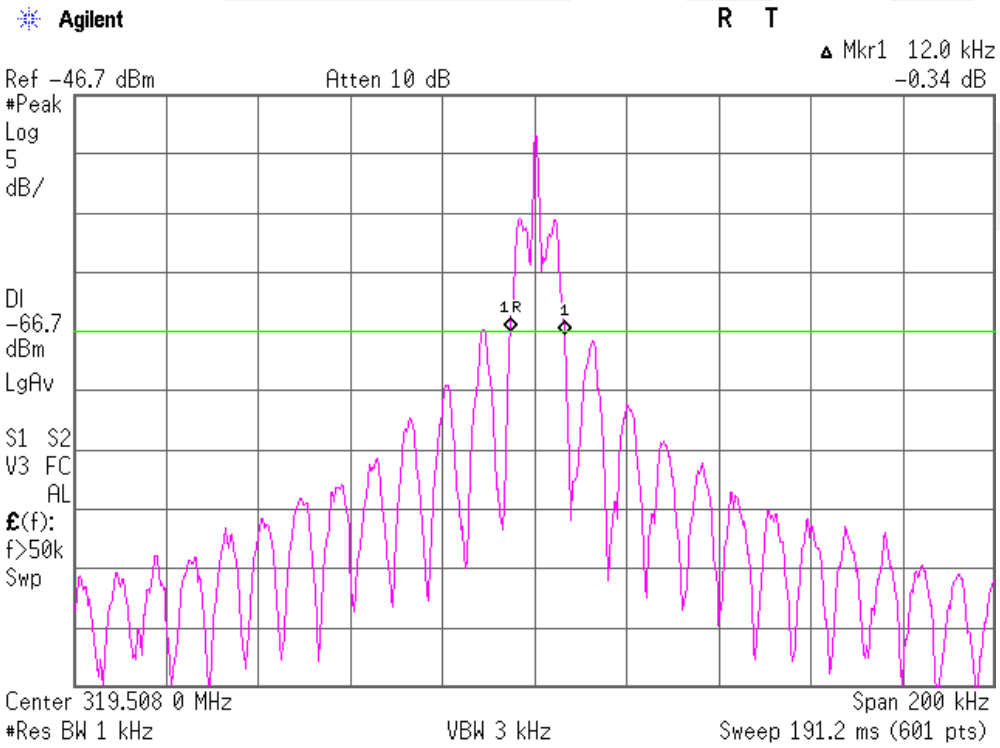
Test data per IC RSS-210
See following pages

99% Occupied bandwidth

1 of 2. RBW greater than OBW. Set ref lvl



2 of 2. RBW near 1% of OBW. Markers at -20dB from ref levl



Periodic operation
FCC 15.231(a), IC RSS-210 A1.1.1

Test summary
The requirements are: ■ - MET ☐ - NOT MET

Manufacturer declared operation mode.

Test Limit 15.231(a);
(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

"Whenever the transmitter is activated automatically it will transmit 8 packets of 17.4 msec in length spaced by 130 msec. Transmission cease after 362 msec."

(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

"The supervisory periodic transmissions are the four automatic transmissions noted above. They occur once per hour, for a total hourly transmission time of 69.6 msec."

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

"The transmitter is limited to reporting devices opening and closing. Other than the initial status change condition report there are no repeat transmissions other than the hourly supervisory transmissions."

(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

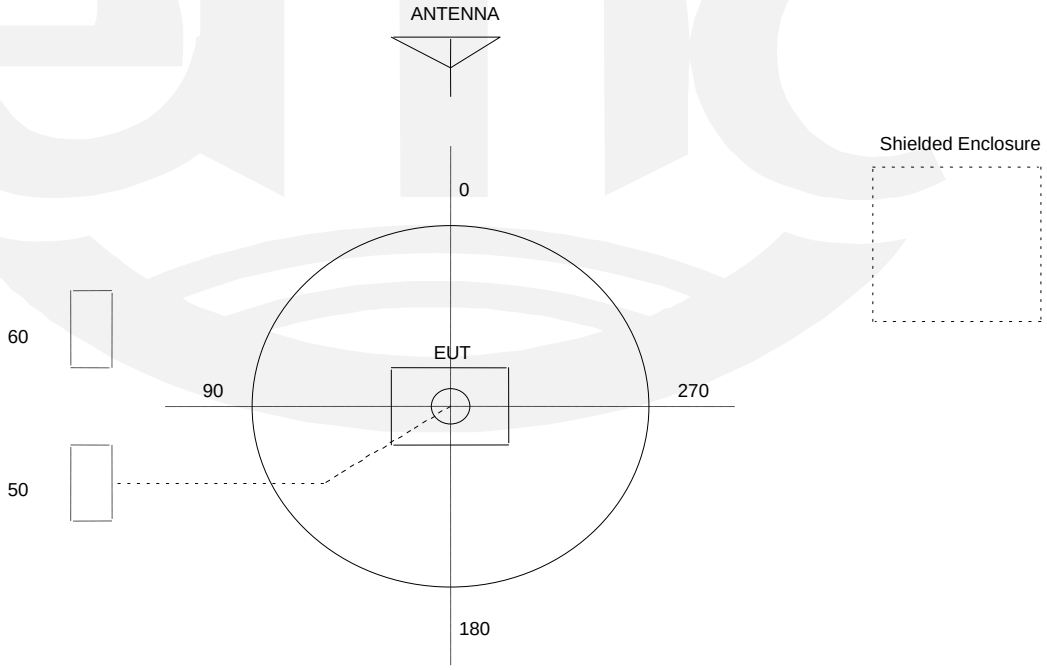
"Set up information cannot exceed 6 17.4 msec packets, spaced by 130 msec. Transmissions cease after 255 msec."

TEST SETUP FOR EMISSIONS TESTING

TAYLORS FALLS LAB
Large Test Site

Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.
2. 50 Hz and 60 Hz are power panels for alternating current.
3. The antenna may be positioned horizontally 3 and 10 meters from the center of the turntable.
4. The circle is either a 6.7 meter or 1.2 meter diameter turntable.
5. A ground plane is in the plane of this sheet.
6. The test sample is shown in the azimuthal position representing zero degrees.



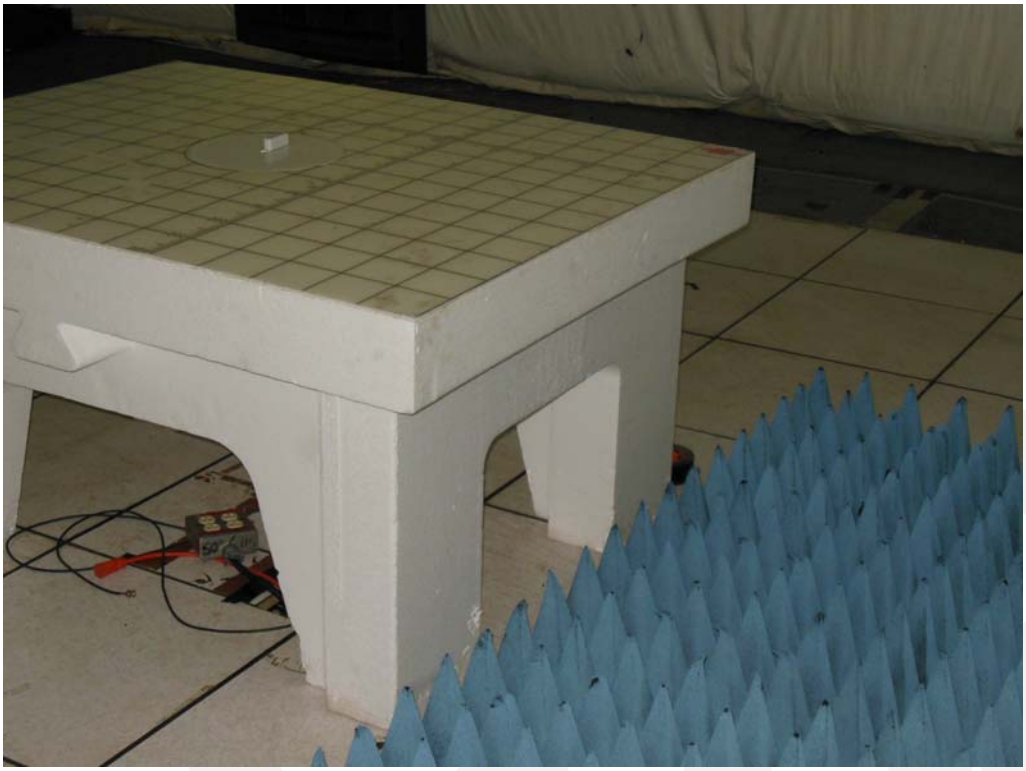
Test-setup photo(s): radiated emissions

RF-MDWSX-ITI

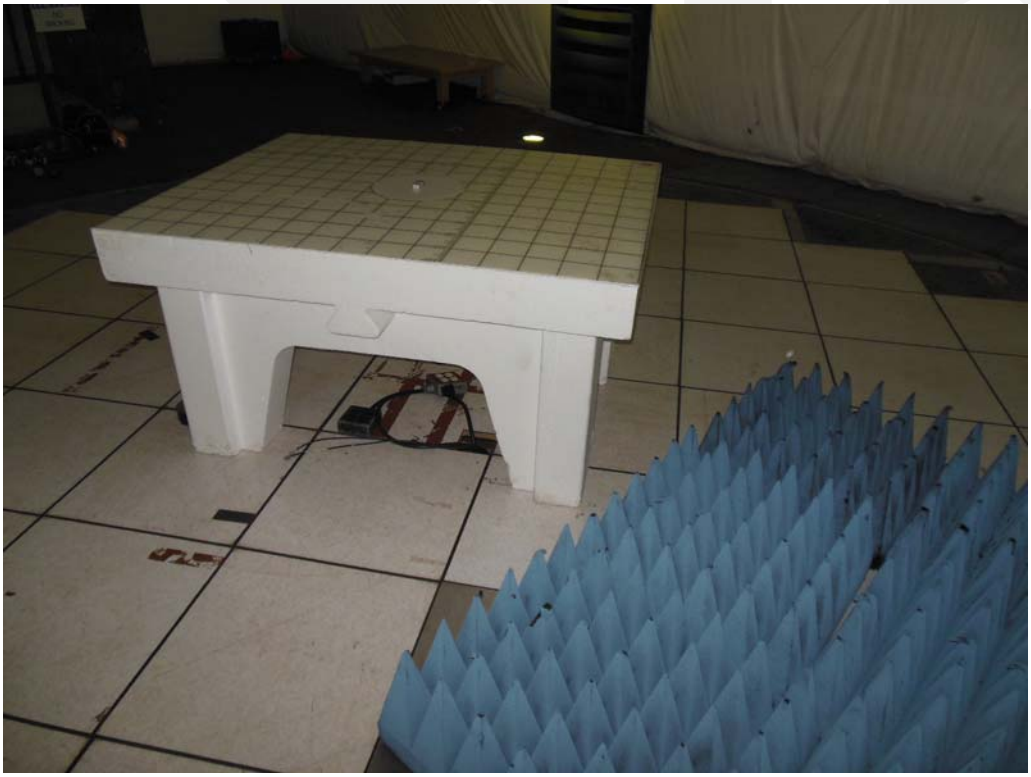
RF-MDWS-ITI

Test-setup photo(s): radiated emissions above 1 GHz

RF-MDWSX-ITI



RF-MDWS-ITI



Equipment Under Test (EUT) Test Operation Mode:

The device under test was operated under the following conditions during immunity testing :

☐ - Standby

☐ - Test program (H - Pattern)

☐ - Test program (color bar)

☐ - Test program (customer specific)

☐ - Practice operation

■ - Sends continuous packets- carrier with modulation

Configuration of the device under test:

■ - See Appendix A and test setup photos

☐ - See Product Information Form(s) in Appendix B

DEVIATIONS FROM STANDARD:
None.

GENERAL REMARKS:
None

Modifications required to pass:
■ None
☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:
■ None
☐ As indicated in the Test Plan

SUMMARY:
The requirements according to the technical regulations are
■ - met and the device under test does fulfill the general approval requirements.
☐ - **not** met and the device under test does **not** fulfill the general approval requirements..

EUT Received Date: 07 October 2014
Condition of EUT: Normal
Testing Start Date: 07 October 2014
Testing End Date: 10 October 2014

TÜV SÜD AMERICA INC

Approved by:
Joel T Schneider
Senior EMC Engineer

Tested by:
Greg Jakubowski
Senior EMC Technician

Appendix A

Constructional Data Form

Form

EMC Test Plan and Constructional Data Form

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.
NOTE: This information will be input into your test report as shown below. Press the F1 key at any time to get HELP for the current field selected.

Company:	Cinch Systems Inc		
Address:	12075 43 ST NE		
	Suite 300		
	St Michael, MN 55376		
Contact:	Mark Cawley	Position:	Engineer
Phone:	763-497-1059	Fax:	763-497-0898
E-mail Address:	mark.cawley@cinchsystems.com		

General Equipment Description -- ***NOTE: This information will be input into your test report as shown below.***

EUT Description	Micro Door Window Sensors		
EUT Name	Micro Door Window Sensor, Micro DWS-External contact		
Model No.:	RF-MDWS-ITI, RF-MDWSX-ITI	Serial No.:	123456
Product Options:			
Configurations to be tested:			

Equipment Modification (*If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)*

Modifications since last test:	N/A
Modifications made during test:	N/A

Test Objective(s): ***Please indicate the tests to be performed, entering the applicable standard(s) where noted.***

☐	EMC Directive 2004/108/EC (EMC)	☒	FCC:	Class	☐	A	☒	B	Part 15
	Std:	☐	VCCI:	Class	☐	A	☐	B	
☐	Machinery Directive 89/392/EEC (EMC)	☐	BSMI:	Class	☐	A	☐	B	(Separate Report)
	Std:	☒	Canada:	Class	☐	A	☒	B	
☐	Medical Device Directive 93/42/EEC (EMC)	☐	Australia:	Class	☐	A	☐	B	
	Std:	☐	Other:						
☐	Vehicle Directive - 2004/104/EC (EMC)	☐	Ag Directive *2009/64/EC (EMC)						
	☐ Other Vehicle Std:								
☐	FDA Reviewers Guidance for Premarket Notification Submissions (EMC)								

Third Party Certification (contact TÜV for quote), if applicable (*Signature on last page required).

☐ Attestation of Compliance (AoC)*	☐ EMC Certification (used with Octagon Mark)*
☐ Statement of Compliance (SoC, previously CoC)* - All aspects of the essential requirements were assessed	
Protection Class (Req'd for AoC, SoC, EMC Cert. N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III (Press **F1** when field is selected to show additional information on Protection Class.)	
☒ FCC / TCB Certification	☐ Taiwan Certification
☐ Industry Canada / FCB Certification	☐ Korean Certification
☐ e-Mark Certification	

Form

EMC Test Plan and Constructional Data Form

Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TÜV SÜD America should:

☒ Call contact listed above, if not available then stop testing. (After hrs phone): 651-269-4981
☐ Continue testing to complete test series.
☐ Continue testing to define corrective action.
☐ Stop testing.

EUT Specifications and Requirements

Length: 2.50" Width: 0.95" Height: 0.56" Weight: 2oz.

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 3V (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: DC

Current (Amps/phase(max)): 1mA Current (Amps/phase(nominal)): 1uA

Other

Other Special Requirements

Need all testing/certs. required to obtain FCC ID and be ready to sell in US and Canada.

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)
Residential preferrable, but commercial as a fall-back

EUT Power Cable

☐ Permanent OR ☐ Removable Length (in meters):
☐ Shielded OR ☐ Unshielded
☒ Not Applicable

Form

EMC Test Plan and Constructional Data Form

EUT Interface Ports and Cables

Type			During Test		Qty	Shielding			Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent
	Analog	Digital	Active	Passive		Yes	No	Type						
EXAMPLE: *RS232*	☐	☒	☒	☐	*2*	☒	☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒	☐
Zone	☐	☒	☒	☐	1	☐	☒	na	none	na	na	1	☒	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
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	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐

Form

EMC Test Plan and Constructional Data Form

EUT Software.

Revision Level: 1

Description: Production release candidate

Equipment Under Test (EUT) Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. Sends continuous packets- carrier with modulation

2. Normal standby with 1 packet transmitted per hour

3. na

Equipment Under Test (EUT) System Components -- List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

Description	Model #	Serial #	FCC ID #
Sensor	RF-MDWS-ITI	123456	na
Sensor	RF-MDWSX-ITI	123456	na

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Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc) This information is required for FCC & Taiwan testing.

Description	*Model #*	*Serial #*	*FCC ID #*
Magnet	M1	na	na

Oscillator Frequencies

Manufacturer	*Frequency*	*Derived Frequency*	*Component # / Location*	*Description of Use*
SJK	9.98438 Mhz	319.508 Mhz	Y1	x32 to derive transmit freq.

Power Supply

Manufacturer	*Model #*	*Serial #*	*Type*
na			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*
na		

Form

EMC Test Plan and Constructional Data Form

Critical EMI Components (Capacitors, ferrites, etc.)				
Description	***Manufacturer***	***Part # or Value***	***Qty***	***Component # / Location***
na				

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

na

PLEASE ENTER NAMES BELOW (INSERT ELECTRONIC SIGNATURE IF POSSIBLE)

Authorization (Signature Required if a Third Party Certification is checked on pg 1)

10/13/2014

X Mark Cawley

Mark Cawley
Engineer

Customer authorization to perform tests according to this test plan. — Date

Test Plan/CDF Prepared By (please print) — Date