

TEST REPORT

FCC Part 15 Subpart C Section 15.231

IC RSS-210 Issue 8

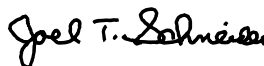
IC RSS-Gen Issue 3

MANUFACTURER'S NAME	Cinch Systems Inc 12075 43rd Street NE Suite 300 St Michael MN 55376
PRODUCT NAME	Standard Door Window Sensor, Standard DWS- Magnasphere-345 MHz
MODEL NUMBER(S) TESTED	RF-SDWS-MAG-HW Magnasphere switch version Full test RF-SDWS-HW Reed version - Partial test
SERIAL NUMBER(S) TESTED	123456
PRODUCT DESCRIPTION	Standard Door Window Sensor - Reed or custom activation switch
TEST REPORT NUMBER	NC1404002.1
TEST DATE(S)	05-13 June 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 3 "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: 07 July 2014



Joel T Schneider
Senior EMC Engineer



Greg Jakubowski
Senior EMC Technician

Not Transferable

EMC TEST REPORT

Test Report No. NC1404002.1 Date of issue: 07 July 2014

Product Name Standard Door Window Sensor, Standard DWS-Magnasphere-345 MHz

Model(s) Tested RF-SDWS-MAG-HW, RF-SDWS-HW

Serial No(s) Tested 123456

Product Description Standard Door Window Sensor - Reed or custom activation switch

Manufacturer Cinch Systems Inc
12075 43rd Street NE
Suite 300
St Michael MN 55376

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.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval. TÜV SÜD America's Wild River Lab maintains A2LA accreditation to ISO/IEC 17025 for the specific tests listed in A2LA Certificate #2955.11 as an Electrical Testing Laboratory.

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 July 2014	Initial Release



DIRECTORY

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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 3

ENVIRONMENTAL CONDITIONS IN THE LAB

	<u>Actual</u>
Temperature:	: 22-23°C
Atmospheric pressure	: 99kPa
Relative Humidity	: 45-51%

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 - 1000 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

Wild River Lab Large Test Site (Open Area Test Site)

Test distance

3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE03203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	02-Oct-13	02-Oct-14
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
WRLE10896	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA QA1148002	NA	Code B 21-Jan-14	Code B 21-Jan-15
WRLE10998	ESU 26	Rohde & Schwarz	EMI Receiver	100379	07-Aug-13	07-Aug-14
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.71	N/A	Code Y	Code Y

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

Limit

Fundamental Frequency (MHz)	Field strength fundamental (μ V/m)	Field strength Spurious (μ V/m)	Measurement distance (m)
40.66-40.70	2250	225	3
70-130	1250	125	3
130-174	1250-3750	125-375	3
174-260	3750	375	3
260-470	3750-12500	375-1250	3
Above 470	12500	1250	3

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

See next page.

Measurement summary for limit2: fcc 15.231 fundamental av 3m (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μ V / m)	fcc 15.231 fundamental av 3m - (μ V / m)
345.0 MHz	31.43 Av	2.09 / 20.29 / 0.0 / 0.0	53.81	H / 1.00 / 238	490	7291

Measurement summary for limit1: fcc 15.231 fundamental pk 3m (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μ V / m)	fcc 15.231 fundamental pk 3m - (μ V / m)
345.0 MHz	56.75 Pk	2.09 / 20.29 / 0.0 / 0.0	79.13	H / 1.00 / 238	9047	72910

Worst case test configuration with RF-SDWS-MAG-HW - laying flat on its base. Fundamental emission levels were lower with EUT on its side, standing upright.

Measurement summary for limit1: fcc 15.231 spurious 3m pk (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μ V / m)	fcc 15.231 fundamental pk 3m - (μ V / m)
690.0 MHz	63.14 Pk	3.02 / 25.7 / 30.38 / 0.67	62.15	H / 1.00 / 77	1281	7291

Measurement summary for limit2: fcc 15.231 spurious 3m av (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μ V / m)	fcc 15.231 fundamental av 3m - (μ V / m)
690.0 MHz	37.76 Av	3.02 / 25.7 / 30.38 / 0.67	36.77	H / 1.00 / 77	68.9	729.1

Spurious emissions from RF-SDWS-HW

Measurement summary for limit1: fcc 15.231 spurious 3m pk (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μ V / m)	fcc 15.231 fundamental pk 3m - (μ V / m)
690.0 MHz	66.87 Pk	3.02 / 25.7 / 30.38 / 0.87	66.08	H / 1.77 / 101	2014	7291

Measurement summary for limit2: fcc 15.231 spurious 3m av (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μ V / m)	fcc 15.231 fundamental av 3m - (μ V / m)
690.0 MHz	41.44 Av	3.02 / 25.7 / 30.38 / 0.87	40.65	H / 1.77 / 101	108	729.1

Radiated Emissions 1000 – 3450 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

Wild River Lab Large Test Site (Open Area Test Site)

Test distance

3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
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
WRLE10896	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA QA1148002	NA	Code B 21-Jan-14	Code B 21-Jan-15
WRLE10998	ESU 26	Rohde & Schwarz	EMI Receiver	100379	07-Aug-13	07-Aug-14
WRLE03894	NHP-600	Mini-Circuits	30-600 MHz Stopband Filter	2	Code B 04-Feb-13	Code B 29-May-15
WRLE03229	3115	Electro-Mechanics (EMCO)	Ridge Guide Antenna	2483	05-Sept-13	05-Sept-14
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.71	N/A	Code Y	Code Y

Cal Code B = Calibration verification performed internally.

Limit

Fundamental Frequency (MHz)	Field strength fundamental (μ V/m)	Field strength Spurious (μ V/m)	Measurement distance (m)
40.66-40.70	2250	225	3
70-130	1250	125	3
130-174	1250-3750	125-375	3
174-260	3750	375	3
260-470	3750-12500	375-1250	3
Above 470	12500	1250	3

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. Spectrum analyzer 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 - See next page.

RF-SDWS-MAG-HW

Measurement summary for limit1: fcc 15.231 spurious 3m pk (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μV / m)	fcc 15.231 fundamental pk 3m - (μV / m)
1.035 GHz	72.0 Pk	3.74 / 25.98 / 30.43 / 0.3	71.59	H / 1.04 / 123	3798	5000
1.38 GHz	65.95 Pk	4.31 / 25.68 / 30.59 / 0.44	65.78	H / 1.29 / 81	1945	5000
2.76 GHz	53.2 Pk	6.26 / 29.12 / 30.33 / 0.4	58.65	H / 1.00 / 90	856	5000
1.725 GHz	56.3 Pk	4.83 / 26.02 / 30.51 / 0.39	57.04	H / 1.00 / 90	711	7291
2.07 GHz	51.45 Pk	5.32 / 27.89 / 29.78 / 0.38	55.25	H / 1.00 / 90	579	7291
3.45 GHz	47.15 Pk	7.05 / 30.96 / 30.73 / 0.44	54.86	H / 1.00 / 90	553	7291

Measurement summary for limit2: fcc 15.231 spurious 3m av (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μV / m)	fcc 15.231 fundamental av 3m - (μV / m)
1.035 GHz	46.5 Av	3.74 / 25.98 / 30.43 / 0.3	46.09	H / 1.04 / 123	202	500
1.38 GHz	41.0 Av	4.31 / 25.68 / 30.59 / 0.44	40.83	H / 1.29 / 81	110	500
1.725 GHz	35.0 Av	4.83 / 26.02 / 30.51 / 0.39	35.74	V / 1.00 / 0	61.2	500
2.76 GHz	28.1 Av	6.26 / 29.12 / 30.33 / 0.4	33.55	V / 1.00 / 0	47.6	729.1
3.45 GHz	22.0 Av	7.05 / 30.96 / 30.73 / 0.44	29.71	V / 1.00 / 0	30.6	729.1
2.07 GHz	19.0 Av	5.32 / 27.89 / 29.78 / 0.38	22.8	V / 1.00 / 0	13.8	729.1

RF-SDWS-HW

Measurement summary for limit1: fcc 15.231 spurious 3m pk (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μV / m)	fcc 15.231 fundamental pk 3m - (μV / m)
1.035 GHz	70.15 Pk	3.74 / 25.98 / 30.43 / 0.24	69.68	V / 1.24 / 250	3048	5000
1.725 GHz	61.45 Pk	4.83 / 26.03 / 30.51 / 0.11	61.91	H / 1.00 / 91	1246	7291
2.76 GHz	51.2 Pk	6.26 / 29.12 / 30.33 / 0.27	56.52	H / 1.00 / 90	670	5000
3.45 GHz	48.7 Pk	7.05 / 30.96 / 30.73 / 0.3	56.27	H / 1.00 / 90	651	7291
1.38 GHz	55.15 Pk	4.31 / 25.68 / 30.59 / 0.43	54.98	V / 1.00 / 90	561	5000
2.07 GHz	47.25 Pk	5.32 / 27.89 / 29.78 / 0.38	51.06	H / 1.00 / 90	357	7291

Measurement summary for limit2: fcc 15.231 spurious 3m av (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μV / m)	fcc 15.231 fundamental av 3m - (μV / m)
1.035 GHz	48.5 Av	3.74 / 25.98 / 30.43 / 0.24	48.03	V / 1.24 / 250	252	500
1.725 GHz	40.0 Av	4.83 / 26.03 / 30.51 / 0.11	40.46	H / 1.00 / 91	105	729.1
2.07 GHz	35.0 Av	5.32 / 27.89 / 29.78 / 0.38	38.81	H / 1.00 / 270	87.2	729.1
3.45 GHz	28.0 Av	7.05 / 30.96 / 30.73 / 0.3	35.57	H / 1.00 / 90	60	729.1
2.76 GHz	30.0 Av	6.26 / 29.12 / 30.33 / 0.27	35.32	H / 1.00 / 90	58.3	500
1.38 GHz	34.0 Av	4.31 / 25.68 / 30.59 / 0.43	33.83	V / 1.00 / 90	49.1	500

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

- ☒ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
WRLE03203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	02-Oct-13	02-Oct-14
WRLE10896	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA QA1148002	NA	Code B 21-Jan-14	Code B 21-Jan-15
WRLE10998	ESU 26	Rohde & Schwarz	EMI Receiver	100379	07-Aug-13	07-Aug-14
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.71	N/A	Code Y	Code Y

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

Test limit

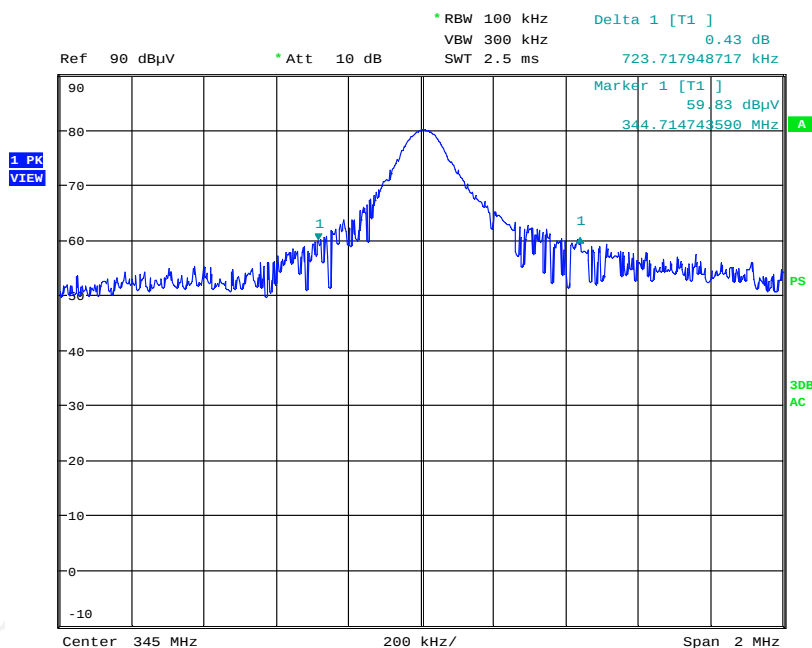
The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

$345 \text{ MHz} \times 0.25\% = 862.5 \text{ kHz}$

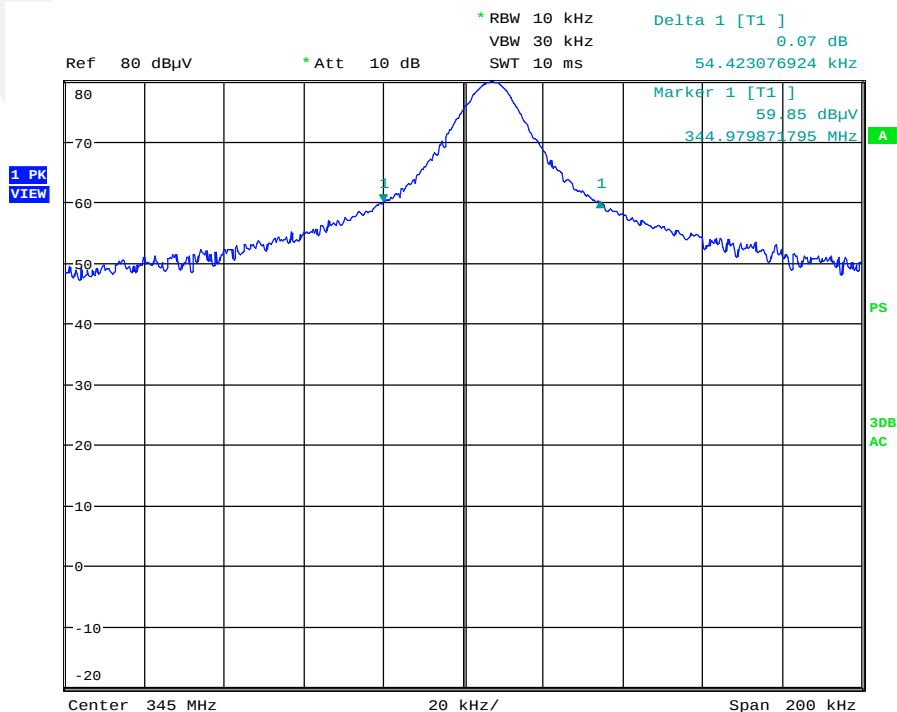
Test data

See following pages

20 dB occupied bandwidth = 54.4 kHz



Date: 5.JUN.2014 16:22:06



Date: 5.JUN.2014 16:11:54

20 dB occupied bandwidth = 54.4 kHz

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 location

- ☐ - Wild River Lab Large Test Site (Open Area Test Site)
- ☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test limit

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Whenever the transmitter is activated automatically it will transmit 4 packets of 17.4 msec in length spaced by 130 msec, with a delay of 650 msec, and then a 2nd set of 4 packets of 17.4 msec in length spaced by 130 msec. Transmission ceases after 1569.2 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 per above. They occur once per hour, for a total hourly transmission time of 1569.2 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

“Our 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 the above rate. Transmissions cease after 1569.2 msec.

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
- ☒ - Normal operating mode

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:

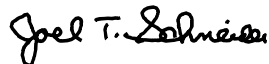
The requirements according to the technical regulations are

- ☒ - 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: 05 June 2014
Condition of EUT: Normal
Testing Start Date: 05 June 2014
Testing End Date: 13 June 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 Standard Door Window Sensor, Standard DWS-Magnasphere-345 Mhz
EUT Name Standard Door Window Sensor, Standard DWS-Magnasphere-345 Mhz
Model No.: RF-SDWS-HW, RF-SDWS-MAG- Serial No.: 123456
HW, MSS-RFS-200, MSS-RFS-
300, RF-FHW-HW
Product Options: Reed or custom activation switch
Configurations to be tested: Reed version(RF_SDWS_HW)- Partial test, Magnasphere switch
version (RF-SDWS-MAG-HW)- Full test

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: _____

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

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

Form



EMC Test Plan and Constructional Data Form

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	

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: 3.19" Width: 1.04" Height: 0.95" 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 preferable, but commercial as a fall-back

EUT Power Cable

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

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EUT Interface Ports and Cables													
Type	Analog	Digital	During Test		Qty	Shielding		Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent
			Active	Passive		Yes	No						
EXAMPLE:													
RS232	☐	☒	☒	☐	2	☒	☐	Foil over braid	Coaxial	Metallized 9-pin D-Sub	Characteristic Impedance	6	☒ ☐
Zone	☐	☒	☒	☐	1	☐	☒	na	resistor	na	na	1	☒ ☐
Water	☐	☒	☒	☐	1	☐	☒	na	Water sensor	na	na	1	☒ ☐
	☐	☐	☐	☐		☐	☐						☐ ☐
	☐	☐	☐	☐		☐	☐						☐ ☐
	☐	☐	☐	☐		☐	☐						☐ ☐
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	☐	☐	☐	☐		☐	☐						☐ ☐

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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, 150 mS spacing- 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-SDWS	123456	na
Sensor	WS1	na	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.

<i>Description</i>	<i>Model #</i>	<i>Serial #</i>	<i>FCC ID #</i>
Magnet	M1	na	na

Oscillator Frequencies

<i>Manufacturer</i>	<i>Frequency</i>	<i>Derived Frequency</i>	<i>Component # / Location</i>	<i>Description of Use</i>
SJK	10.780531 Mhz	345.000 Mhz	Y1	x32 to derive transmit freq.

Power Supply

<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Type</i>
na			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

<i>Manufacturer</i>	<i>Model #</i>	<i>Location in EUT</i>
na		

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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)



X

Mark Cawley
Engineer

Customer authorization to perform tests
according to this test plan.

Date

Test Plan/CDF Prepared By (please print)

Date