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Nemko Canada Inc., 303 River Road, R.R. 5, Ottawa, Ontario, Canada, K1V 1H2

Report Number: 109921R1TRFEMC

Product Marketing Name: SCW9047-433

Test Specification:

- FCC 47 CFR Part 15, Subpart B – Verification (USA)

Reviewed by: _____ July 28, 2008
Signature Date
Heng Lin, EMC/Wireless Specialist

Tested by: Sumeet Bhalla, EMC Specialist

Nemko Canada Inc., a testing laboratory, is accredited by the Standards Council of Canada.
The tests included in this report are within the scope of this accreditation.

Table of Contents

Declaratory Statements

Product Marketing Name: Self Contained Wireless Alarm System
Model #: SCW9047-433, (UA535 Rev. 08)
Model Variant#: SCW9045-433, (UA535 Rev. 08)
Trademark: DSC DIGITAL SECURITY CONTROLS
Applicant: Digital Security Controls, a division of Tyco Safety Products Canada Ltd. 3301 Langstaff Road Concord, ON, Canada L4K 4L2
Manufacturer: Digital Security Controls, a division of Tyco Safety Products Canada Ltd. 95 Bridgeland Avenue Toronto, ON, Canada M6A 1Y7

Product Background details	☐ New Product ☒ Engineering Changes ☐ Configuration Change ☐ Product Audit ☐ Other

Test Specification: FCC 47 CFR Part 15, Subpart B – Verification (USA)
Test Location: 303 River Road, R.R. 5, Ottawa, Ontario, Canada, K1V 1H2
Limits of Responsibility: The results included in this test report apply only to the equipment listed within this report as being the Equipment Under Test (EUT). Equipment listed as support equipment is not considered to be part of the EUT. In some instances, the EUT may consist of multiple devices, and will be so indicated in the report.

Statement of Compliance

FCC 47 CFR Part 15, Subpart B for Digital Devices; Class B	TEST RESULT PASS/FAIL/NA
Radiated Disturbance	PASS
Conducted Disturbance at Mains Port	PASS

- Test Method Used: ANSI C63.4-2003
- System Power: 120VAC/60Hz; Conducted: 120VAC/60Hz
- The equipment was tested for conducted emissions from 0.15MHz to 30MHz using a 50 microhenry line impedance stabilization network (L.I.S.N.) as described in ANSI C63.4-2003. Peripheral equipment was also operated through a 50 microhenry L.I.S.N.

Measurement Uncertainty

Measurement	Test Specification	Ulab
Conducted disturbance	9kHz – 150kHz	4.0dB
	150kHz – 30MHz	3.6dB
Radiated disturbance	30MHz – 200MHz *Horizontal polarization*	4.7dB
	200MHz – 1000MHz *Horizontal polarization*	4.7dB
	30MHz – 200MHz *Vertical polarization*	4.9dB
	200MHz – 1000MHz *Vertical polarization*	4.9dB

Accuracy of Measurement
Measurement uncertainty was calculated using the methods described in CISPR 16-4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC measurements and Nemko Canada Inc. procedure EMC/MUC/001 Uncertainty in EMC Measurements.

Lab Environmental Conditions

Ambient Temperature: 15°C to 35°C,
Relative Humidity: 30% to 60%,
Atmospheric Pressure: 86kPa (860mbar) to 106kPa (1 060mbar)

Engineering Considerations

Product Modification Required for Compliance
None

Justification
None

Deviations from Standard Test Procedure
None

Test Report Revision History	
Revision #	Details of changes made to test report
-	Original Report Issued
R1	Updated Conducted and Radiated Emissions Photographs

General Information Regarding the Equipment Under Test (EUT)

Date Received In Laboratory: July 07, 2008
Nemko Identification Number: Item # 2
Description & Theory of Operation: SCW9047-433 is a Self Contained Wireless Burglary and Fire Alarm Control Unit with 32 wireless zones. Variant of the same board, model SCW9045-433 does not have two way audio interface populated. Both versions are using the same PCB assembly UA535 Rev. 08.
EUT Clock and Operational Frequencies: 10MHz, 18.078333MHz
Exercise/Monitoring method: Control Unit is in armed mode (enter 1234 at the keypad), monitors the zone inputs (standby state). One of the zone inputs is being triggered while the unit is armed, or any of the F, A, P keys on the keypad is pressed for more than 2s (alarm mode). No false alarms or fault conditions generated (Battery Trouble is the only trouble condition if the battery is not connected, or time is not set)
Software Version: SW Ver. 1.02

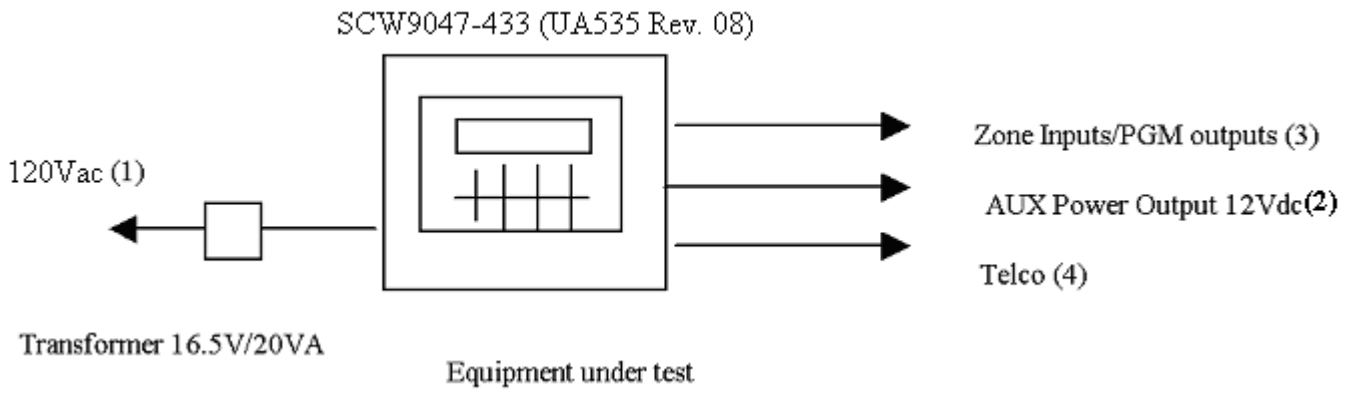
Equipment Configuration

Equipment Configuration List				
Item	Description	Identification: (MN#, SN#, PN#, Rev.)		
(A)	Self Contained Wireless Alarm System	M/N #SCW9047-433, P/N # UA535 Rev. 08		
(B)	DSC 120VAC AC/AC Adapter	PN# PTD1620U		
EUT Ports				
Item	Description	Indoor/Outdoor	Type (See Legend)	Qty
i.	16.5VAC Input	Indoor	1	1
ii.	Zone Inputs/PGM Outputs	Indoor	4	1
iii.	AUX Power Output 12VDC	Indoor	2	1

Inter-Connection Cables		
Item	Description	Length (m)
(1)	2 Conductor AC Input Power Cable	1
(2)	4 Conductor Bell Wire	1.2
(3)	Standard, 4 Conductor Phone Cable	1.5

Legend:
1 = AC Power Input/Output, 2 = DC Power Input/Output, 3 = Telecom, 4 = Non-telecom I/O, 5 = Maintenance, 6 = Fiber Optic

Configuration of the Equipment Under Test (EUT)



Radiated Disturbance

Test Date: July 07, 2008

Engineer's Name: Sumeet Bhalla

Configuration: Table Top

Enclosure Investigation Data

Result: Refer to spectral plots and tables of this section.

Test Location: River Road. 303 River Road, Ottawa, ON, K1V 1H2
Facility: 3m Semi Anechoic Chamber
Measuring Distance: = 3m
Antenna Height: 1-4m

Preview measurements:
30MHz to 1GHz
Receiver settings:
- Peak Detector, Max Hold
- 120kHz RBW

1GHz to 40GHz
Spectrum analyzer settings:
- Peak Detector, Max Hold
- 1MHz RBW/3MHz VBW

Final measurement:
30MHz to 1GHz
Receiver settings:
- Q-Peak Detector
- 120kHz RBW

1GHz to 40GHz
Receiver settings:
- Average Detector
- 1MHz RBW

- The spectral plot is a combined vertical and horizontal scan.
- Spectral plots have been corrected with transducer factors for antennas, cable loss, amplifiers, and attenuators.
- Limits have been adjusted to reflect 3m measurements.
- The preview measurement was generated with receiver in continuous scan mode while the EUT was rotated and antenna adjusted for maximized radiated emission. Emissions detected within 6dB of limit were re-measured with a quasi peak or average detector for a final measurement.

Notes

No Emissions were detected from 1-5GHz

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Radiated Disturbance, continued

Test Equipment Used

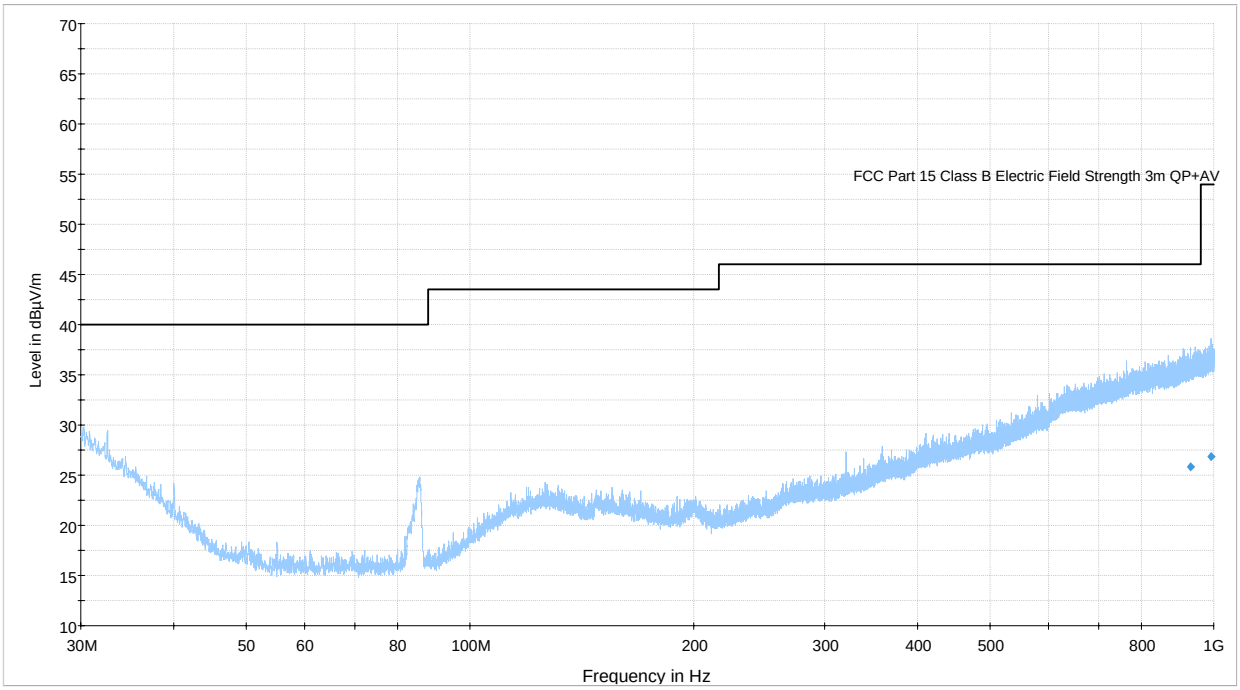
Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Electro-Magnetic Interference Test Chamber	TDK	SAC-3	FA002047	May 06/09
Bilog	Sunol	JB3	FA002108	Jan. 21/09
Mast	Sunol	TLT2	FA002061	NCR
LISN	Rohde & Schwarz	ENV216	FA002023	Sept. 04/08
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 26	FA002043	Dec. 07/08
50 Coax cable	HUBER + SUHNER	None	FA002015	Sept. 19/08
50 Coax cable	HUBER + SUHNER	None	FA002074	July 03/08
International Power Supply	California Inst.	3001i	FA001021	Jan. 16/09
1 – 18 GHz Amplifier	JCA	JCA118-503	FA002091	Oct 2/08
Horn Antenna #2	EMCO	3115	FA000825	Jan. 15/09

Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use

Setup Photos

Radiated Disturbance, continued

Spectral Plots



Radiated Emissions both Vertical and Horizontal Polarization

FCC Part 15 Class B Electric Field Strength 3m QP+AV.LimitLine — Preview Result Peak ◆ Final Result Quasi Peak

Tabular Data

Freq. (MHz)	Q-Peak Field Strength (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna Height (cm)	Pol.	Turn Table Position	Correction (dB)	Margin (dB)	Limit (dBµV/m)
931.71	25.841	100	120	150	H	0	25.6706	20.2	46.0
991.5	26.865	100	120	144	H	2	26.4714	27.1	54.0

Note: Correction factor includes antenna, cable loss, amplifier, and attenuators.

Conducted Disturbance at Mains Port

Test Date: July 07, 2008

Engineer's Name: Sumeet Bhalla

Configuration: Table Top

Port Investigation Data

Port under test: AC Mains

Result: Refer to spectral plots and tables of this section.

Test Location: River Road. 303 River Road, Ottawa, ON, K1V 1H2
Facility: 3m Semi Anechoic Chamber

Preview measurements:
0.15MHz to 30MHz
Receiver settings:
– Peak Detector, Max Hold and Average
– 9kHz RBW

Final measurement:
0.15MHz to 30MHz
Receiver settings:
– Q-Peak Detector and Average
– 9kHz RBW

– Spectral plots have been corrected for transducer factors; cable loss, LISN, and attenuator.
– Emissions detected within 6dB of limit were re-measured with a quasi peak or average detector for a final measurement.

Notes

None

Deviations

Refer to Engineering Considerations.

Test Result

Final Test Result: Pass

Conducted Disturbance at Mains, continued

Test Equipment Used

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next Cal.
Electro-Magnetic Interference Test Chamber	TDK	SAC-3	FA002047	May 06/09
LISN	Rohde & Schwarz	ENV216	FA002023	Sept. 04/08
Receiver/Spectrum Analyzer	Rohde & Schwarz	ESU 26	FA002043	Dec. 07/08
50 Coax cable	HUBER + SUHNER	None	FA002022	Sept. 19/08
International Power Supply	California Inst.	3001i	FA001021	Jan. 16/09

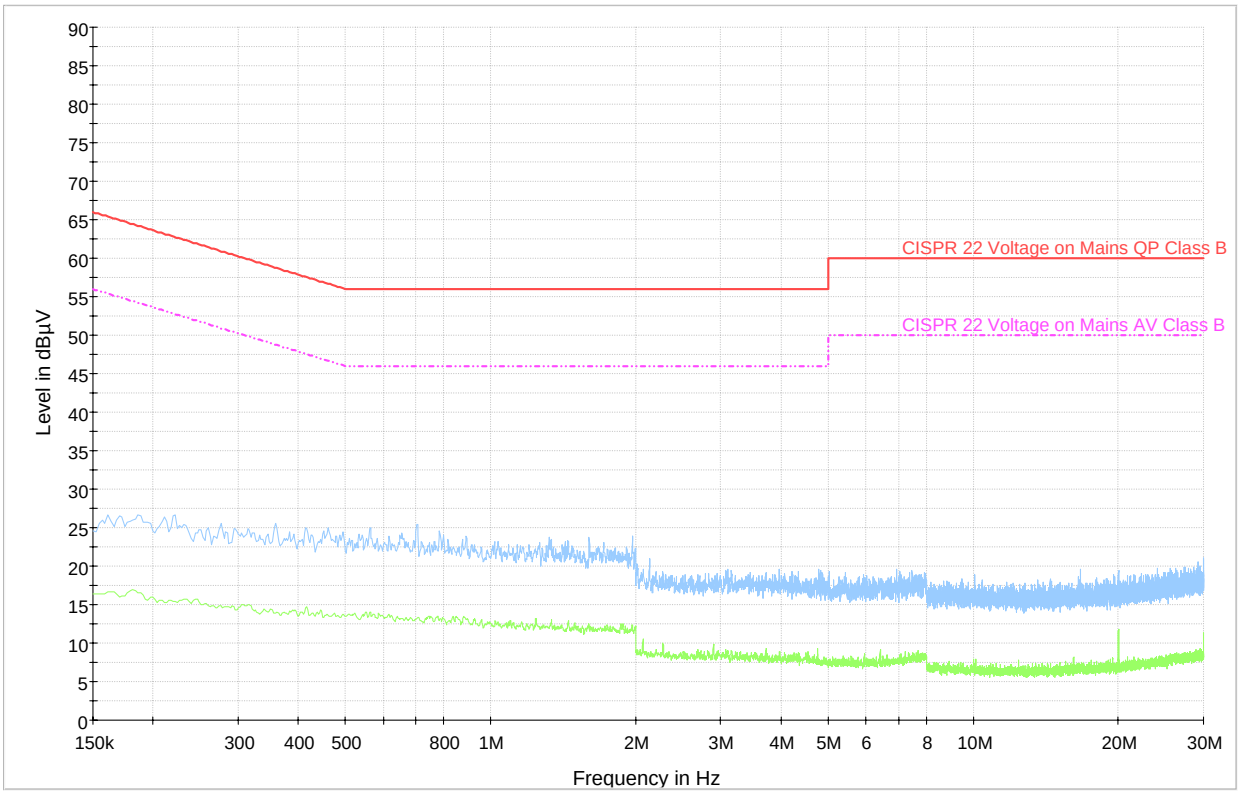
Note: N/A = Not Applicable, NCR = No Cal Required, COU = CAL On Use

Setup Photos

Conducted Disturbance at Mains, continued

Spectral Plots

Line- 120V/60Hz



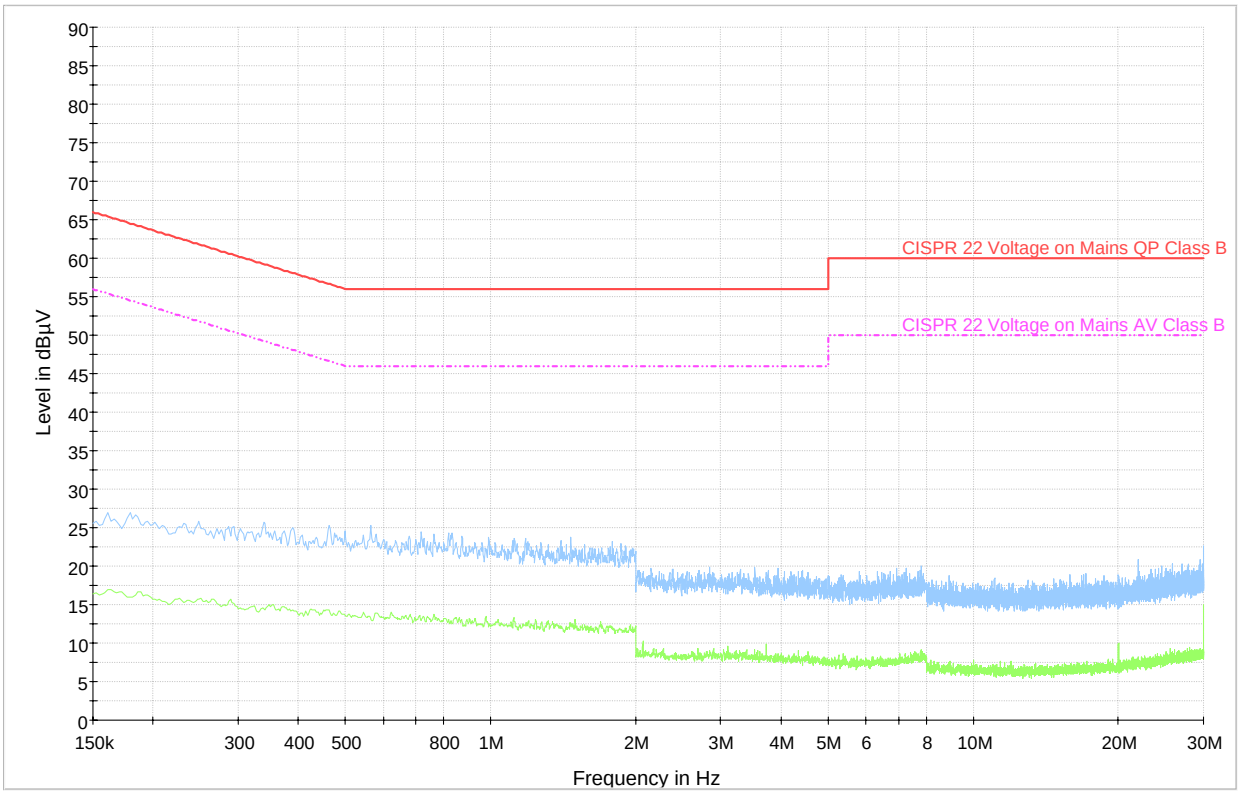
Line- 120V/60Hz

CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Result Peak
Preview Result Average

Conducted Disturbance at Mains, continued

Spectral Plots, continued

Neutral- 120V/60Hz



Neutral- 120V/60Hz

CISPR 22 Voltage on Mains QP Class B.LimitLine
CISPR 22 Voltage on Mains AV Class B.LimitLine
Preview Result Peak
Preview Result Average