

**FCC CFR47 PART 15 SUBPART C
CERTIFICATION**



TEST REPORT

FOR

NABCO ENTRANCES, INC.

24.15 GHz SLIDING DOOR OPENER

MODEL NUMBER: ND-600

FCC ID: O82-ACUMOTION

REPORT NUMBER: 02U1492-1

ISSUE DATE: SEPTEMBER 12, 2002

Prepared for

NABCO

S82 W18717 GEMINI DRIVE (P.O. BOX 906)

MUSKEGO, WI 53150

USA

Prepared by

COMPLIANCE CERTIFICATION SERVICES

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1. TEST RESULT CERTIFICATION

COMPANY NAME: NABCO ENTRANCES, INC.
S82 W18717 GEMINI DRIVE (P.O. BOX 906)
MUSKEGO, WI 53150 USA

EUT DESCRIPTION: SLIDING DOOR OPENER

MODEL NUMBER: ND-600

DATE TESTED: SEPTEMBER 3 – SEPTEMBER 11, 2002

TYPE OF EQUIPMENT	INTENTIONAL RADIATOR
EQUIPMENT TYPE	24075 - 24175 MHz FIELD DISTURBANCE SENSOR
MEASUREMENT PROCEDURE	ANSI 63.4 / 1992, TIA/EIA 603
PROCEDURE	CERTIFICATION
FCC RULE	CFR 47 PART 15.C

Compliance Certification Services, Inc. tested the above equipment for compliance with the requirements set forth in CFR 47, PART 15, Subpart C. The equipment in the configuration described in this report, shows the measured emission levels emanating from the equipment do not exceed the specified limit.

Note: This document reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document.

Approved & Released For CCS By:



MIKE HECKROTTE
CHIEF ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Tested By:



THANH NGUYEN
EMC TECHNICIAN
COMPLIANCE CERTIFICATION SERVICES

2. EUT DESCRIPTION

The EUT is a Field Disturbance Sensor that functions as a Sliding Door Opener.

The operating frequency is 24.125 GHz. The EUT requires 12 VDC for power and utilizes one of two available antennas. The Narrow Antenna is a 3 element antenna and has a gain of 12.5 dBi. The Wide Antenna is a 6 element antenna and has a gain of 11.8 dBi.

The Narrow Antenna covers a field 8.2 feet wide. The Wide Antenna covers a field 13 feet wide.

3. TEST METHODOLOGY

Conducted and radiated testing were performed according to the procedures documented on chapter 13 of ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, and 15.407.

4. FACILITIES AND ACCREDITATION

4.1. FACILITIES AND EQUIPMENT








The open area test sites and conducted measurement facilities used to collect the radiated data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

Receiving equipment (i.e., receiver, analyzer, quasi-peak adapter, pre-selector) and LISNs conform to CISPR specifications for "Radio Interference Measuring Apparatus and Measurement Methods," Publication 16.

4.2. LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200065-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (reference no: 31040/SIT (1300B3) and 31040/SIT (1300F2)).

4.3. TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	FCC Part 15, CISPR 22, AS/NZS 3548, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, CNS 13438	 200065-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	 1300
Japan	VCCI	CISPR 22 Two OATS and one conducted Site	 R-1014, R-619, C-640
Norway	NEMKO	EN50081-1, EN50081-2, EN50082-1, EN50082-2, IEC61000-6-1, IEC61000-6-2, EN50083-2, EN50091-2, EN50130-4, EN55011, EN55013, EN55014-1, EN55104, EN55015, EN61547, EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60945, EN61326-1	 ELA 117
Norway	NEMKO	EN60601-1-2 and IEC 60601-1-2, the Collateral Standards for Electro-Medical Products. MDD, 93/42/EEC, AIMD 90/385/EEC	 ELA-171
Taiwan	BSMI	CNS 13438	 SL2-IN-E-1012
Canada	Industry Canada	RSS210 Low Power Transmitter and Receiver	 IC2324 A,B,C, and F

* No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.

5. CALIBRATION AND UNCERTAINTY

5.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

5.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Radiated Emission	
30MHz – 200 MHz	+/- 3.3dB
200MHz – 1000MHz	+4.5/-2.9dB
1000MHz – 2000MHz	+4.6/-2.2dB
Power Line Conducted Emission	
150kHz – 30MHz	+/-2.9

Any results falling within the above values are deemed to be marginal.

5.3. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST AND MEASUREMENT EQUIPMENT LIST				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due Date
Spectrum Analyzer	HP	8566B	3014A06685	6/1/03
Spectrum Display	HP	85662A	2152A03066	6/1/03
Quasi-Peak Detector	HP	85650A	3145A01654	6/1/03
Preamplifier	HP	8447D	2944A06833	8/22/03
Log Periodic Antenna	EMCO	3146	9107-3163	3/30/03
Biconical Antenna	Eaton	94455-1	1197	3/30/03
LISN	F.C.C.	LISN-50/250-25-2	2023	9/6/03
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/17/03
Spectrum Analyzer	HP	8564E	3943A01643	7/22/03
Preamplifier (1 - 26.5GHz)	HP	NSP2600-44	646456	4/26/03
Horn Antenna (1 - 18GHz)	EMCO	3115	6717	1/31/03
Horn Antenna (18 - 26.5 GHz)	ARA	MWH 1826/B	1013	10/26/02
Harmonic Mixer (26.5 - 40 GHz)	HP	11970A	3003A04190	9/22/02
Horn Antenna (26.5 - 40 GHz)	DICO	1149	2	N.C.R.
Harmonic Mixer (33 - 50 GHz)	HP	11970A	3003A03363	6/26/03
Horn Antenna (33 - 50 GHz)	ATM	22-442-6	7046005	N.C.R.
Harmonic Mixer (50 - 75 GHz)	HP	11970A	2521A01163	6/16/03
Horn Antenna (50 - 75 GHz)	ATM	15-442-6	7046105	N.C.R.
Harmonic Mixer (75 - 110 GHz)	HP	11970A	2521A01314	6/16/03
Horn Antenna (75 - 110 GHz)	ATM	10-442-6	7046205	N.C.R.

6. SETUP OF EQUIPMENT UNDER TEST

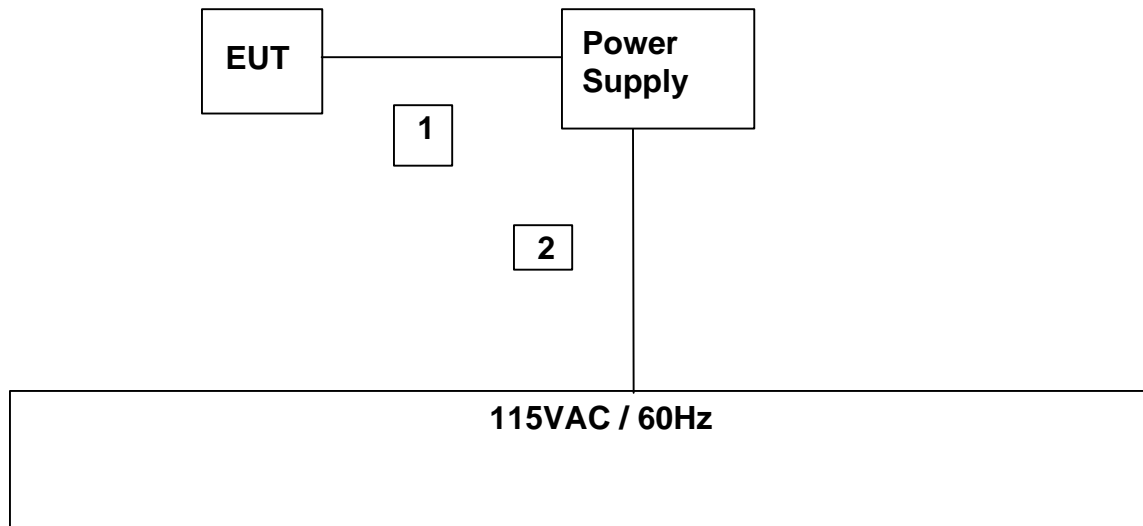
SUPPORT EQUIPMENT

Device Type	Manufacturer	Model	Serial Number	FCC ID
DC Power Supply	Kenwood	KRM AEEC-350	9712154746	N/A

I/O CABLES

Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	Molex	Unshielded	2 m	
2	AC	1	US115	Unshielded	1 m	

SETUP DIAGRAM



6.1. APPLICABLE RULES

§15.245 (a)- DEVICE TYPE LIMITATIONS

(a) Operation under the provisions of this Section is limited to intentional radiators used as field disturbance sensors, excluding perimeter protection systems.

§15.245 (b)- FIELD STRENGTH

(b) 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 (millivolts/meter)	Field Strength of Harmonics (millivolts/meter)
902 – 928	500	1.6
2435 – 2465	500	1.6
5785 – 5815	500	1.6
10500 – 10550	2500	25.0
24075 – 24175	2500	25.0

(1) Regardless of the limits shown in the above table, harmonic emissions in the restricted bands below 17.7 GHz, as specified in § 15.205, shall not exceed the field strength limits shown in § 15.209. Harmonic emissions in the restricted bands at and above 17.7 GHz shall not exceed the following field strength limits:

(i) For field disturbance sensors designed for use only within a building or to open building doors, 25.0 mV/m.

(2) Field strength limits are specified at a distance of 3 meters.

(3) 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 Section 15.209, whichever is the lesser attenuation.

(4) The emission limits shown in the above table are based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

Specification Limit:

Frequency Range	Average Limit (mV/m at 3 m)	Average Limit (dBuV/m at 3 m)	Peak Limit (dBuV/m at 3 m)
24.075 to 24.175 GHz (Fundamental is at 24.12 GHz)	2500	128	148
Harmonics at 48.24, 72.36, and 96.48 GHz	25	88	108
Other Emissions from 0.96 to 100.0 GHz		54 or -50 dBc	74 or -50 dBc
Emissions from 30 to 960 MHz		§ 15.209 or -50 dBc	§ 15.209 or -50 dBc

§15.205- RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.207- CONDUCTED LIMITS

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Quasi-Peak Limit (dBuV)	Average Limit (dBuV)
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

§15.209- RADIATED EMISSION LIMITS

(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 (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

(b) In the emission table above, the tighter limit applies at the band edges.

Frequency Range (MHz)	Field Strength (uV/m at 3 m)	Field Strength (dBuV/m at 3 m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

7. TEST SETUP, PROCEDURE AND RESULT

7.1. FIELD STRENGTH OF EMISSIONS

7.1.1. SETUP AND PROCEDURE

TEST SETUP

The EUT is placed on the 0.8 m high tabletop and the power supply is placed on the turntable base. The EUT is continuously transmitting.

TEST PROCEDURE

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 100 GHz is investigated.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The frequency span is set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the signal. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For spurious measurements above 26.5 GHz, the maximum distance from the EUT that yields a minimum system noise floor at least 6 dB below the 15.209 limit is calculated for each separate harmonic mixer band. This distance is shown in the noise floor calculations below. The antenna is scanned around the entire perimeter surface of the EUT, in both horizontal and vertical polarizations. During this perimeter scan, the antenna is kept no further from the EUT than the maximum distance calculated for each mixer band.

For harmonic measurements above 26.5 GHz, the above scanning procedure is used to detect harmonic emissions. For all emissions detected, the antenna is moved away from the EUT in a 1/3/10 sequence, as far as possible to maintain a 10 dB signal to noise ratio. Each emission is then maximized by rotating the EUT and varying the antenna height.

SYSTEM NOISE FLOOR FROM 1 TO 26.5 GHz

Compliance Certification Services

Worst Case Radiated Emissions System Noise Floor

Each band below corresponds to each horn antenna band

Uses the lowest gain preamplifier; actual preamp used may have higher gain

Uses the longest typical cable configuration; actual cables used may have less loss

Noise floor field strength results are compared to the FCC 15.205 Restricted Band limit

Specification Distance: 3 meters

Freq GHz	SA dBuV	AF dB/m	Distance m	Distance dB	Preamp dB	Cable dB	Field dBuV/m	Limit dBuV/m	Margin dB
1 to 18 GHz band									
RBW = 1 MHz, peak detection									
18	41.9	47.8	1	-9.5	32.6	13.5	61.06	74	-12.94
RBW = 1 MHz, average detection									
18	28.7	47.8	1	-9.5	32.6	13.5	47.86	54	-6.14
18 to 26.5 GHz band									
RBW = 1 MHz, peak detection									
26.5	44.6	33.4	1	-9.5	35.0	19.5	52.96	74	-21.04
RBW = 1 MHz, average detection									
26.5	32.4	33.4	1	-9.5	35.0	19.5	40.76	54	-13.24

SYSTEM NOISE FLOOR FROM 26.5 TO 110 GHz

Compliance Certification Services

System Noise Floor, 26.5 to 110 GHz

External Harmonic Mixers are used for this frequency range

The preamplifier is internal to Spectrum Analyzer, with the gain factor built into firmware

The antenna is mounted directly on the harmonic mixer, therefore there is no cable loss

Each band below corresponds to each harmonic mixer band

Noise floor field strength results are compared to the FCC 15.209 limit

Noise floor measurements are taken at low and high frequencies of each band,

For the 26.5 to 40 band, also at 38.5 GHz, the frequency of highest mixer conversion loss.

For the 75 to 110 band, also at 100 GHz, the highest frequency to be investigated.

Specification Distance: 3 meters

Freq GHz	Det	SA dBuV	AF dB/m	Distance m	Distance dB	Field dBuV/m	Limit dBuV/m	Margin dB
26.5 to 40 GHz								
26.5	Peak	43.3	38.7	0.1	-29.5	52.46	74	-21.54
26.5	Avg	30.8	38.7	0.1	-29.5	39.96	54	-14.04
38.5	Peak	40.9	41.9	0.1	-29.5	53.26	74	-20.74
38.5	Avg	28.5	41.9	0.1	-29.5	40.86	54	-13.14
40	Peak	40.9	42.3	0.1	-29.5	53.66	74	-20.34
40	Avg	27.5	42.3	0.1	-29.5	40.26	54	-13.74
33 to 50 GHz								
33	Peak	42.4	40.6	0.1	-29.5	53.46	74	-20.54
33	Avg	30.1	40.6	0.1	-29.5	41.16	54	-12.84
50	Peak	38.7	44.2	0.1	-29.5	53.36	74	-20.64
50	Avg	26.4	44.2	0.1	-29.5	41.06	54	-12.94
50 to 75 GHz								
50	Peak	52	44.2	0.03	-40.0	56.20	74	-17.80
50	Avg	40	44.2	0.03	-40.0	44.20	54	-9.80
75	Peak	52.6	47.7	0.03	-40.0	60.30	74	-13.70
75	Avg	40	47.7	0.03	-40.0	47.70	54	-6.30
75 to 110 GHz								
75	Peak	59.7	44.7	0.01	-49.5	54.86	74	-19.14
75	Avg	47.3	44.7	0.01	-49.5	42.46	54	-11.54
100	Peak	58.5	47.2	0.01	-49.5	56.16	74	-17.84
100	Avg	46.4	47.2	0.01	-49.5	44.06	54	-9.94
110	Peak	60.9	48.1	0.01	-49.5	59.46	74	-14.54
110	Avg	49.1	48.1	0.01	-49.5	47.66	54	-6.34

7.1.2. TEST RESULTS

FIELD STRENGTH OF FUNDAMENTAL EMISSION

Fundamental Radiated Emissions

02U1492
NABCO Door Opener with 11.8 dBi antenna
Mode: Transmitting

A-Site
9/11/02
Warren Wilson

Specification Distance: 3 meters

Freq GHz	Pol V/H	Det	SA dBuV	AF dB/m	Dist m	Dist dB	Cable dB	Field dBuV/m	Limit dBuV/m	Margin dB
24.12	V	Peak	84.5	32.9	1	-9.5	2.2	107.86	148	-40.14
24.12	V	Avg	84.2	32.9	1	-9.5	2.2	107.56	128	-20.44
24.12	H	Peak	68.3	32.9	1	-9.5	2.2	91.66	148	-56.34
24.12	H	Avg	67.9	32.9	1	-9.5	2.2	91.26	128	-36.74

Fundamental Radiated Emissions

02U1492
NABCO Door Opener with 12.5 dBi antenna
Mode: Transmitting

A-Site
9/3/02
Chin Pang

Specification Distance: 3 meters

Freq GHz	Pol V/H	Det	SA dBuV	AF dB/m	Dist m	Dist dB	Cable dB	Field dBuV/m	Limit dBuV/m	Margin dB
24.12	V	Peak	87	32.9	1	-9.5	2.2	110.36	148	-37.64
24.12	V	Avg	86.8	32.9	1	-9.5	2.2	110.16	128	-17.84
24.12	H	Peak	71.3	32.9	1	-9.5	2.2	94.66	148	-53.34
24.12	H	Avg	71	32.9	1	-9.5	2.2	94.36	128	-33.64

FIELD STRENGTH OF HARMONIC AND SPURIOUS EMISSIONS FROM 24.175 TO 100 GHz

Harmonic and Spurious Radiated Emissions

02U1492

NABCO Door Opener with 11.8 dBi antenna

Mode: Transmitting

A-Site

9/11/02

Warren Wilson

Specification Distance: 3 meters

Freq GHz	Pol V/H	Det	SA dBuV	AF dB/m	Dist m	Dist dB	Field dBuV/m	Limit dBuV/m	Margin dB
48.24	V	Peak	52.9	43.9	0.3	-20.0	76.80	108	-31.20
48.24	V	Avg	51.87	43.9	0.3	-20.0	75.77	88	-12.23
48.24	H	Peak	49.23	43.9	0.3	-20.0	73.13	108	-34.87
48.24	H	Avg	48.9	43.9	0.3	-20.0	72.80	88	-15.20

Note: No other emissions were detected from 24.175 to 100 GHz.

Harmonic and Spurious Radiated Emissions

02U1492

NABCO Door Opener with 12.5 dBi antenna

Mode: Transmitting

A-Site

9/4/02

Chin Pang

Specification Distance: 3 meters


Freq GHz	Pol V/H	Det	SA dBuV	AF dB/m	Dist m	Dist dB	Field dBuV/m	Limit dBuV/m	Margin dB
48.24	V	Peak	56.73	43.9	0.3	-20.0	80.63	108	-27.37
48.24	V	Avg	55.9	43.9	0.3	-20.0	79.80	88	-8.20
48.24	H	Peak	52.4	43.9	0.3	-20.0	76.30	108	-31.70
48.24	H	Avg	51.4	43.9	0.3	-20.0	75.30	88	-12.70

Note: No other emissions were detected from 24.175 to 100 GHz.

FIELD STRENGTH OF SPURIOUS EMISSIONS FROM 1 TO 24.075 GHz

No emissions were detected in this frequency range.

FIELD STRENGTH OF SPURIOUS EMISSIONS BELOW 1 GHz

 <p>FCC, VCCI, CISPR, CE, AUSTEL, NZ UL, CSA, TUV, BSMI, DHHS, NVLAP</p> <p>561F MONTEREY ROAD, SAN JOSE, CA 95037-9001 PHONE: (408) 463-0885 FAX: (408) 463-0888</p>						<p><i>Project #:</i> 02U1492-1 <i>Report #:</i> 020904A1 <i>Date & Time:</i> 09/05/02 10:30 AM <i>Test Engr:</i> Thanh Nguyen</p>					
<p><i>Company:</i> NABCO <i>EUT Description:</i> Sliding Door Sensor <i>Test Configuration :</i> EUT only <i>Type of Test:</i> FCC Class B <i>Mode of Operation:</i> Standard</p>						<p><< Main Sheet</p>					

Freq.	Reading	AF	Closs	Pre-amp	Level	Limit	Margin	Pol	Az	Height	Mark
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	FCC B	(dB)	(H/V)	(Deg)	(Meter)	(P/Q/A)
128.48	54.40	11.92	1.76	26.91	41.17	43.50	-2.33	3mV	180.00	1.50	P
192.70	45.30	15.92	2.19	26.69	36.72	43.50	-6.78	3mV	180.00	1.50	P
126.46	45.00	11.43	1.75	26.91	31.27	43.50	-12.24	3mV	90.00	1.00	P
123.12	45.00	10.83	1.73	26.92	30.64	43.50	-12.86	3mV	90.00	1.00	P
33.29	40.20	12.70	0.91	27.03	26.78	40.00	-13.22	3mV	0.00	1.00	P
39.95	38.80	12.88	0.95	27.02	25.61	40.00	-14.39	3mV	0.00	1.00	P
6 Worst Data											

7.2. POWER LINE CONDUCTED EMISSIONS

TEST SETUP

The EUT and the power supply are placed on a wooden table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane on the floor. The EUT is continuously transmitting.

TEST PROCEDURE

The resolution bandwidth is set to 10 kHz for peak detection , quasi-peak detection and average detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

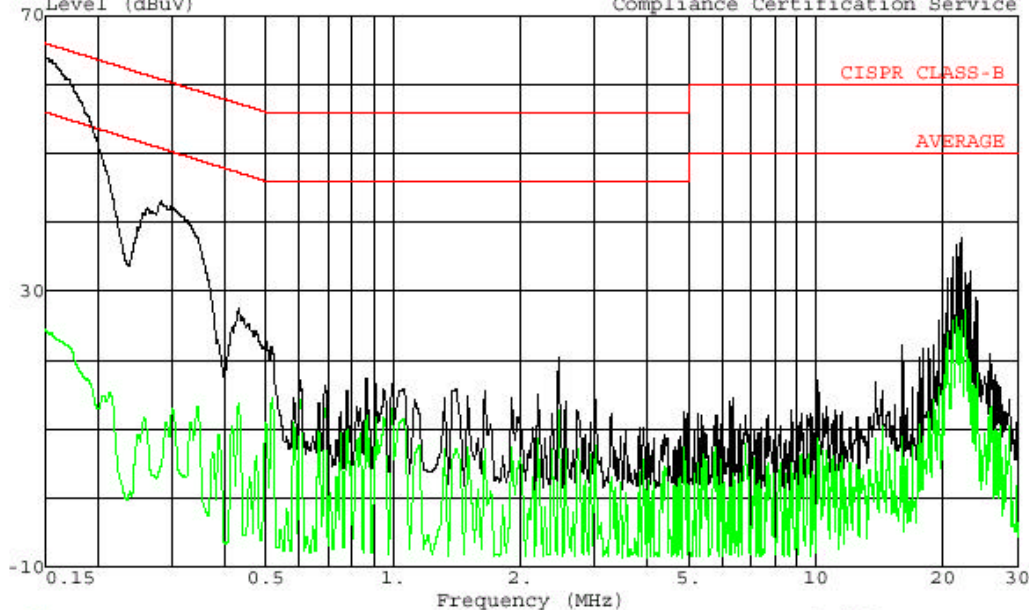
No non-compliance noted:

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	OP (dBuV)	AV (dBuV)	(dB)	OP	AV	OP (dB)	AV (dB)	L1 / L2
0.15	63.88	--	24.07	0.00	65.94	55.94	-2.06	-31.87	L1
0.28	42.96	--	10.90	0.00	62.29	52.29	-19.33	-41.39	L1
22.06	37.80	--	33.66	0.00	60.00	50.00	-22.20	-16.34	L1
0.15	62.86	--	23.49	0.00	66.00	56.00	-3.14	-32.51	L2
0.31	40.52	--	4.79	0.00	61.57	51.57	-21.05	-46.78	L2
21.49	34.28	--	28.94	0.00	60.00	50.00	-25.72	-21.06	L2
6 Worst Data									



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San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 14 File#: 02U1492.EMI Date: 09-09-2002 Time: 10:22:19
Level (dBuV) Compliance Certification Service



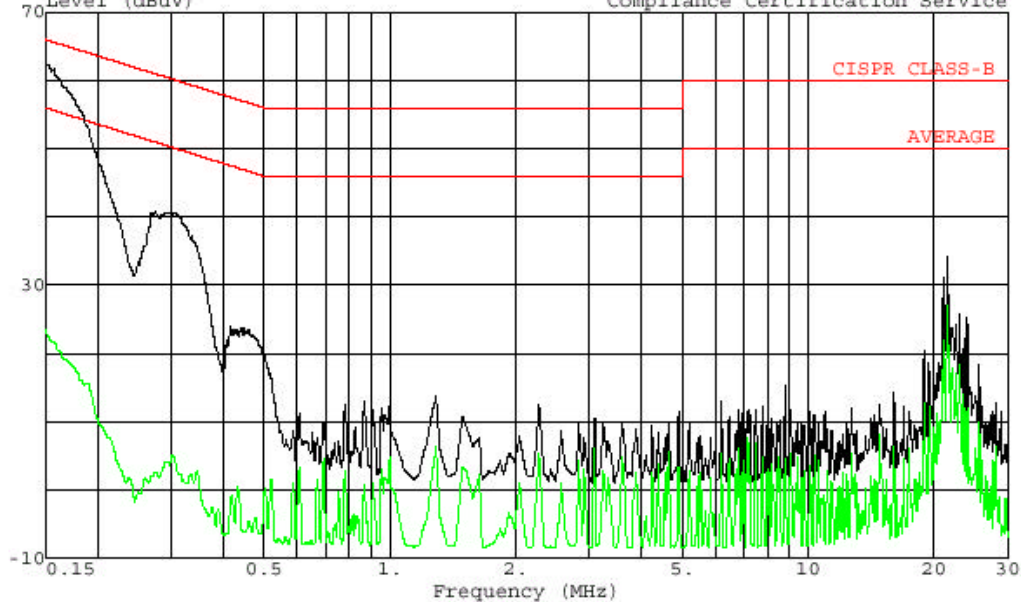
Trace: 12
Project # : 02U1492-1
Test Engineer: THANH NGUYEN
Company : NABCO
EUT : Sliding door Sensor , Model: Acumotion
Test Config. : EUT and DC Power Supply KRM ABEC-350
: (CCS Equipment)
Mode of Op. : Standar, Normal Operation
: 115 VAC, 60 Hz
: Line 1 , Peak(BLACK,) AVE(GREEN)

Ref Trace:



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Data#: 21 File#: 02U1492.EMI Date: 09-09-2002 Time: 11:01:56
Level (dBuV) Compliance Certification Service



Trace: 19
Project # : 02U1492-1
Test Engineer: THANH NGUYEN
Company : NABCO
EUT : Sliding door Sensor , Model: Acumotion
Test Config. : EUT and DC Power Supply KRM AEEC-350
Mode of Op. : (CCS Equipment)
Standar, Normal Operation
: 115 VAC, 60 Hz
: Line 2 , QP(GREEN,) AVE(BLACK)

Ref Trace:

7.3. SETUP PHOTOS

RADIATED EMISSIONS MEASUREMENT SETUP



POWERLINE CONDUCTED EMISSIONS MEASUREMENT SETUP





END OF REPORT