# **Technical Information**

	Applicant		Manufacturer
Name:	Bosch Security Systems	Name:	Bosch Security Systems Inc. China Factory
Address:	130 Perinton Parkway	Address:	Mei Chi Industrial Area, Blk B
City, State, Zip:	Fairport, New York 14450	City, State, 2	Zip: Qian Shan Zhuhai, Guangdong 51907,
			China

Test Specifications: FCC Part 15, Subpart C Paragraph 15.247, FCC Part 15, Subpart B Paragraph 15 Industry Canada RSS-210 Issue 7 Annex 8, and RSS-Gen Issue 2

Test Procedure: ANSI C63.4: 2003

# **Test Sample Description**

Test Sample:	wLSN Smoke Detector
Brandname:	Bosch
Model Number: ISW-BSM1-SY	
FCC ID:	T3XBSM1-SY
Туре:	Frequency Hopping Spread Spectrum Transceiver
Power Requirem	ents: Two 3V Lithium Batteries
Frequency of Op	eration: 902 MHz to 928 MHz

## **Tests Performed**

FCC	Industry Canada	Test Method
15.247(a)(1)	RSS-210 Annex 8 A8.1(2)	Carrier Frequency Separation / Number of hopping frequencies
15.247(a)(1)	RSS-210 Annex 8 A8.1(2)	20 dB Bandwidth
15.247(a)(1)(i)	RSS-210 Annex 8 A8.1(3)	Occupancy Time
15.247(b)(2)	RSS-210 Annex 8 A8.4(1)	Output Power
15.247 (d)	RSS-210 Annex 8 A8.5	Transmitter Spurious Radiated Emissions, Restricted Bands / Band edge Measurements
15.109(a)	RSS-Gen Paragraph 6	Receiver Spurious Radiated Emissions
15.35	RSS-Gen Paragraph 4.5	Duty Cycle Determination

#### TESTS RESULTS

### **DETERMINATION OF FIELD STRENGTH LIMITS**

- 15.203: The intentional radiator is designed to ensure that no antenna other than that furnished by the applicant can be used with the device. The antenna is permanently soldered in place to the PCB.
- 15.204: The antenna used is not commercially available. It is a custom designed circularly polarized Omni-directional antenna with 1dBi gain.
- 15.247(a)(1): The frequency hopping system has hopping channel carrier frequencies separated by 100 kHz, which is less than the 20 dB bandwidth of the hopping channel.
- 15.247(a)(1)(i):The frequency hopping system operated in the 902-928 MHz band and uses 59 frequencies. The maximum 20 dB bandwidth of the hopping channel is less then 250 kHz, Measured 43.6 kHz. The average time of occupancy on any frequency is 0.022 seconds within a 20 second period.
- 15.247(b)(3): The device operates in the 902-928 MHz band. The maximum peak output power measured to be 32.1 mWatts and did not exceed 1 watt.
- 15.247(b)(3): The system operating under the provisions of this section is operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. The maximum Output Power was measured to be 32.1 mWatts.
- 15.247 (d): In any 100 kHz bandwidth outside the frequency band in which the Spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. All emissions, which fell within the restricted bands specified in 15.205(a), were measured and found to be in compliance with the limits specified in 15.209(a).
- 15.109 (a): The field strength of spurious radiated emissions generated by the receiver did not exceed the class B limits specified.

15.247(a): Description of pseudorandom hopping sequence -

The following describes the hopping sequence used by the "Hub" or central point in the network for Beacon announcements as well as the hopping sequence used by the individual points for sending status updates to the Hub.

#### Frequency Announcements (Beacon) Hopping

• Using 59 frequencies channels (all system frequencies)

- Frequency channels are numbered from 0 to 58 (for 59 overall channels)
- Frequency 0 and 1 are adjacent, etc.

The Beacon hop pattern is generated uniquely for each system as follows:

We start with a set of groups

Group  $0 = \{0, 1, 2, 3, ..., 9\}$ Group  $1 = \{10, 11, ..., 19\}$ Group  $2 = \{20, 21, ..., 29\}$ Group  $3 = \{30, 31, ..., 39\}$ Group  $4 = \{40, 41, ..., 49\}$ Group  $5 = \{50, ..., 58\}$  Note one less than others!

We randomly shuffle the elements within each group Example: Shuffled G0 = { 2541763809 } Shuffled G1 = { 19181215141017161113 } Shuffled G2 = { 26212422292528232027 } Shuffled G3 = { 3833139323036343735 } Shuffled G4 = { 47454948424346414044 } Shuffled G5 = { 51585657525505354 }

Then we pick from one of 60 group permutations that keep the groups as least 2 apart so the frequencies in the hop pattern will be as least 5 channels apart (this translates into 500 KHz apart with our system):

Example: using the following group order: { G1, G5, G3, G0, G2, G4 } Shuffled G1 = { 19 18 12 15 14 10 17 16 11 13 } Shuffled G5 = { 51 58 56 57 52 55 50 53 54 XX } Shuffled G3 = { 38 33 31 39 32 30 36 34 37 35 } Shuffled G0 = { 2 5 4 1 7 6 3 8 0 9 } Shuffled G2 = { 26 21 24 22 29 25 28 23 20 27 } Shuffled G4 = { 47 45 49 48 42 43 46 41 40 44 }

We read the elements by columns to form the overall hop pattern {19,51,38,2,26,47, 18,58,33,5,21,45, 12,56,31,4,24,49, ...

Each base station uses a value generated from its unique serial number to seed the random number generator used in the above operations.

A Node wishing to join a network will pick one of the original groups at random and sample frequencies until it hears a Beacon. The Beacon will contain timing information and the seed so the Node can also calculate the hopping pattern being used and synchronize in time with the Base Station.

#### **Network Operations Application Slot hopping**

- Using 59 frequencies channels (all system frequencies)
- Frequency channels are numbered from 0 to 58 (for 59 overall channels)
- Frequency 0 and 1 are adjacent, etc.

The App Slot hop pattern is generated uniquely for each system as follows: We use 8 groups of size 7 and keep 00, 22, 44 on the side: Group 0 = { 01,02,03,04,05,06,07 } 7 elements Group 1 = { 08,09,10,11,12,13,14 } 7 elements Group 2 = { 15,16,17,18,19,20,21 } 7 elements Group 3 = { 23,24,25,26,27,28,29 } 7 elements Group 4 = { 30,31,32,33,34,35,36 } 7 elements Group 5 = { 37,38,39,40,41,42,43 } 7 elements Group 6 = { 45,46,47,48,49,50,51 } 7 elements Group 7 = { 52,53,54,55,56,57,58 } 7 elements

We randomly shuffle the elements within each group. Example:

- Group 0 = { 03, 05, 02, 04, 07, 01, 06 } 00
- Group 3 = { 29, 25, 27, 24, 26, 28, 23 } 22
- Group 6 = { 50, 46, 48, 51, 49, 45, 48 } 44
- Group 1 = { 11, 14, 10, 08, 13, 09, 12 }
- Group 4 = { 30, 33, 35, 31, 34, 36, 32 }
- Group 7 = { 58, 52, 55, 54, 53, 57, 56 }
- Group 2 = { 20, 16, 17, 21, 19, 18, 22 }
- Group 5 = { 40, 43, 39, 42, 41, 37, 38 }

Now we read the pattern column by column and add the extras at the end: • 03,29,50,11,30,58,20,40,05,25,46,14,33,52,16,42,02,...,22,38,00,22,44

The app slot hop pattern uses all system 59 frequencies:

- Every frame (every second) we move in the pattern a total of 12 hops
- We finish the whole pattern in almost 5 seconds (5x12=60)
- Every 5 seconds the pattern shifts by one to the left!

This approach ensures that more than one application slot (of the same type) is used in a second or from second to second, the frequencies used are at least 500 KHz apart. As well, all frequencies are utilized equally when the network is very busy.

#### 15.247(a): Equal hopping Frequency Use

A beacon is transmitted only once on each frequency, every 20 seconds Beacon is transmitted for 118.3 ms under maximum communication load in the Security system, each frequency is used by a maximum of 4 application slots in every 20 second interval.

The duration of different application slots are: Alarm = 31.1 ms Back channel = 155.4 ms Supervision = 28.6 ms Maximum usage occurs when alarm, back channel and 2 supervision slots are used (243.7 ms) each frequency is used for a maximum of 362 ms (including Beacon) 15.247(a): Receiver Input Bandwidth The receiver deviation is controlled by a register setting in the RFIC, the deviation setting is 30 KHz and the Tx deviation is  $\pm 4.95$  KHz.

- 15.247(a): System Receiver Hopping Capability Upon power up the nodes will listen for beacons from the base station device. Once a beacon is heard the device uses information in the beacon message to compute the base stations hopping pattern and current system time. The nodes will then hop in synchronization with the base station, periodically receiving beacon messages in order to maintain synchronization.
- 15.247(g): Frequency Hopping Description The system consisting of the base station and the nodes meets the requirements of a true frequency hopping system in the following ways:
  1. At power up the nodes synchronize to the base station hop pattern and continually hop in sync with the base station at the system hopping rate.
  2. All devices in the system are changing frequency at the system hopping rate even when there is no data being transmitted, this allows all devices to distribute there transmissions equally over all of the frequencies whether the data is short period bursts or continuous.
  15.247(h): Frequency Coordination
  - All nodes in a system synchronize to and follow the same hopping pattern as the base station that they are synchronized to. Base stations from different systems independently generate their hopping pattern using only a random generator that uses that base stations serial number as the initial seed value. There is no coordination of hopping between nodes in the same system or base stations in different systems for the purpose of unfairly occupying the available spectrum.

### Spectrum Analyzer Desensitization Considerations

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements. FCC specified bandwidths of 100 kHz and 1 MHz were utilized below and above 1 GHz, respectively.

#### **General Notes**

- 1. All readings were taken utilizing a peak and/or Average detector function at a test distance of 3 meters.
- 2. All measurements were made with fully charged batteries installed in the unit.
- 3. The frequency range was scanned from 30 MHz to 10.0 GHz. All emissions not reported were more than 20dB below the specified limit.
- 4. The device has no provisions for external accessories.
- 5. The unit tunes over the frequency range of: 915.5 to 921.5 MHz The unit was tested at the following frequencies: 915.5 MHz, 918.5 MHz & 921.3 MHz.
- 6. The Receiver was tested per "ANSI STANDARD C63.4-2003 12.1.1.2. The receiver was programmed for normal receiver mode. A CW signal was transmitted to stabilize the local oscillator.

#### **Modifications:**

Radio Frequency cans were added to the Radio Frequency portion of the PCB and a software change was utilized to lower the RF IC power output.

#### **Certification and Signatures**

We certify that this report is a true representation of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.

Donald C. Lerner EMC Test Engineer

Nicholas Dragotta EMC Laboratory Supervisor

#### **Non-Warranty Provision**

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

#### Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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# **Equipment List**

# FCC Part 15, Subpart C, 15.247 (a)(1) Number of Hopping Frequency and Carrier Separation

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007

# FCC Part 15, Subpart C, Paragraph 15.247.(a)(1) Occupied Bandwidth

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007

# FCC Part 15, Subpart C, 15.247(a)(1)(i), Occupancy Time

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007

# FCC Part 15, Subpart C, Radiated Emissions, Fundamental Power Output

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/27/2007	6/27/2008
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/27/2007	6/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007
617	Interference Analyzer	Electro-Metrics	10 kHz - 1 GHz	EMC-30	3/30/2007	3/30/2008
767	Biconilog	EMCO	26 - 2000 MHz	3142B	10/12/2006	10/12/2007

## FCC Part 15, Subpart C, 15.247(d) Band Edge Measurements, 902 to 928 MHz Band

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007

# FCC Part 15 Subpart C, Radiated Harmonic Emissions

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
032H	H.P. Filter	Microlab/FXR	4 GHz	HD-40N	2/20/2007	2/20/2008
032J	H.P. Filter	Microlab/FXR	6 GHz	HD-60N	3/13/2007	3/13/2008
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
1049	H.P. Filter	Microlab/FXR	1 GHz	HD-10N	9/22/2006	10/1/2007
128	Double Ridged Guide	Electro-Mechanics	1 GHz - 18 GHz	3105	3/27/2007	3/27/2008
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/27/2007	6/27/2008
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/27/2007	6/27/2008
379F	H.P. Filter	Microlab/FXR	500 MHz	HA-05N	9/22/2006	10/1/2007
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	9/9/2005	10/9/2007
767	Biconilog	EMCO	26 - 2000 MHz	3142B	10/12/2006	10/12/2007

# FCC Part 15 Subpart C, Transmitter Spurious Radiated Emissions

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
032H	H.P. Filter	Microlab/FXR	4 GHz	HD-40N	2/20/2007	2/20/2008
032J	H.P. Filter	Microlab/FXR	6 GHz	HD-60N	3/13/2007	3/13/2008
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
1049	H.P. Filter	Microlab/FXR	1 GHz	HD-10N	9/22/2006	10/1/2007
128	Double Ridged Guide	Electro-Mechanics	1 GHz - 18 GHz	3105	3/27/2007	3/27/2008
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/27/2007	6/27/2008
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/27/2007	6/27/2008
379F	H.P. Filter	Microlab/FXR	500 MHz	HA-05N	9/22/2006	10/1/2007
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	9/9/2005	10/9/2007
767	Biconilog	EMCO	26 - 2000 MHz	3142B	10/12/2006	10/12/2007

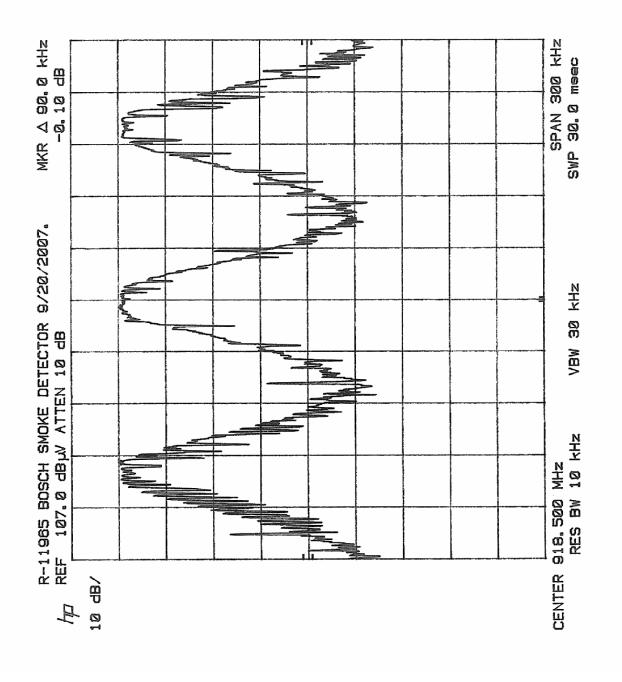
# FCC Part 15 Subpart B, Class B, Radiated Emissions, 30 MHz to 5 GHz

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
128	Double Ridged Guide	Electro-Mechanics	1 GHz - 18 GHz	3105	3/27/2007	3/27/2008
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/27/2007	6/27/2008
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/27/2007	6/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007
523	Biconilog	Electro-Mechanics	26 - 2000 MHz	3142B	11/10/2006	11/10/2007
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	9/9/2005	10/9/2007
574	AM/FM Signal Generator	Marconi Instru.	9 kHz - 2.4 GHz	2024	7/24/2007	7/24/2008
617	Interference Analyzer	Electro-Metrics	10 kHz - 1 GHz	EMC-30	6/13/2007	6/13/2008
723	H.P. Filter	Mini-Circuits	1 GHz	BHP-1000	8/13/2007	8/13/2008

# FCC Part 15.35, Duty Cycle Determination

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3/10 Meter	RNY	9/12/2006	9/12/2009
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	4/27/2007	4/27/2008
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	4/27/2007	4/27/2008
512	Graphics Plotter	Hewlett Packard	N/A	7470A	10/18/2006	10/18/2007

FCC Part 15, Subpart C, 15.247 (a)(1) Carrier Frequency Separation and Number of Hopping Frequency 902 – 928 MHz Band Test Data

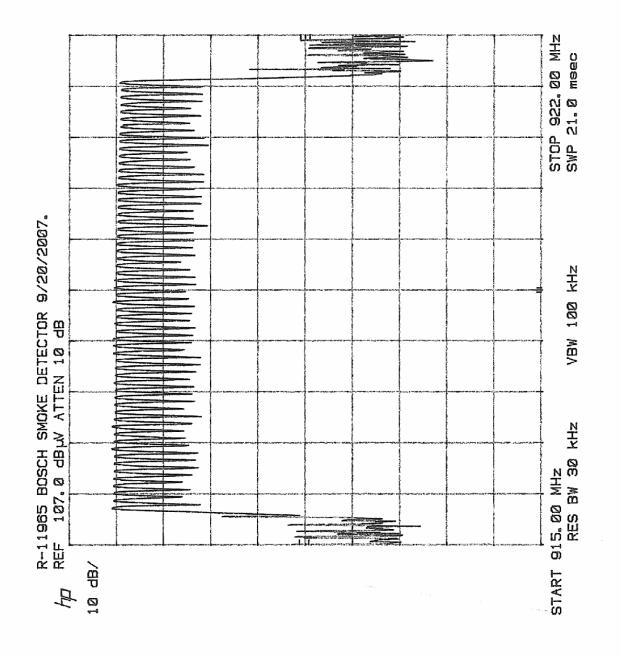


# FCC Part 15, Subpart C, 15.247(a) (1)Hopping Channel Carrier Separation, 902 to 928 MHz Band Note: Hopping channel carrier frequency meets the required minimum separation of 25 kHz

(Measured carrier separation =90.0 kHz)

FCC ID: T3XBSM1-SY

Customer	Bos	sch Security Syster	n.
Test Sample	wL	SN Smoke Detecto	r
Model Number	ISV	V- BSM1-SY	
Date: 9-20-2007		Tech: R.S.	Sheet 1 of 2



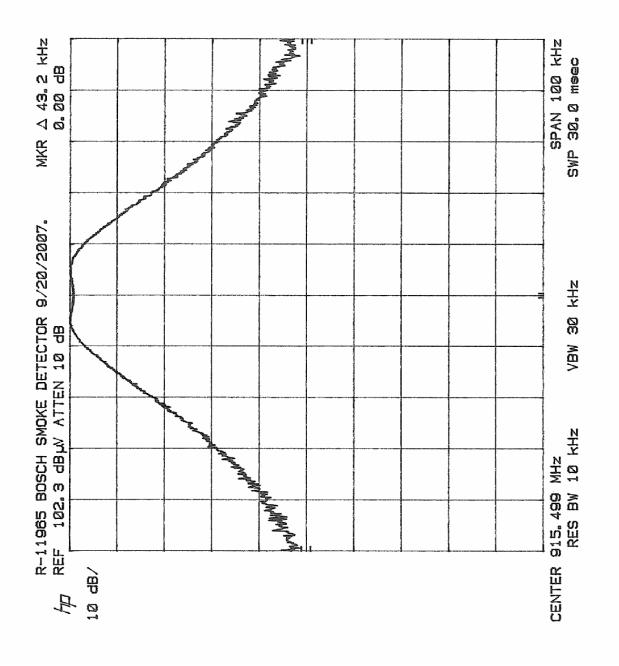
#### FCC Part 15, Subpart C, 15.247(a) (1) Number of Hopping Frequency, 902 to 928 MHz Band

**Note:** EUT uses 59 hopping frequencies which meets the 50 minimum hopping frequencies required by the 20dB bandwidth if less than 250 kHz(measured BW = 43.6 kHz).

FCC ID: T3XBSM1-SY

Customer	Bo	sch Security Syster	n.
Test Sample	wL	SN Smoke Detecto	r
Model Number	ISV	V- BSM1-SY	
Date: 9-20-2007		Tech: R.S.	Sheet 2 of 2

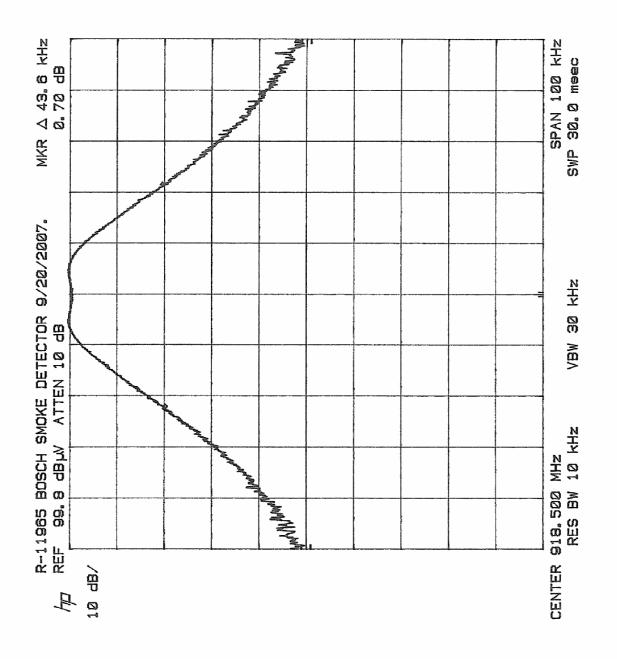
Retlif Testing Laboratories, Report R-11965-10, Bosch Security Systems, FCC ID: T3XBSM1-SY Page 12 of 48 FCC Part 15, Subpart C, 15.247 (a)(1) Occupied Bandwidth, 902 - 928 MHz Test Data



FCC Part 15, Subpart C, 15.247(a) (1) Occupied Bandwidth, 902 to 928 MHz Band
 Note: The maximum 20 dB bandwidth of the hopping channel is less then 250 kHz. 20dB bandwidth measured at 43.2 kHz
 Note: EUT transmitting on channel 00 at 915.5 MHz.
 FCC ID: T3XBSM1-SY

CustomerBosch Security System.Test SamplewLSN Smoke DetectorModel NumberISW- BSM1-SYDate: 9-20-2007Tech: R.S.Sheet 1 of 3

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### FCC Part 15, Subpart C, 15.247(a) (1) Occupied Bandwidth, 902 to 928 MHz Band

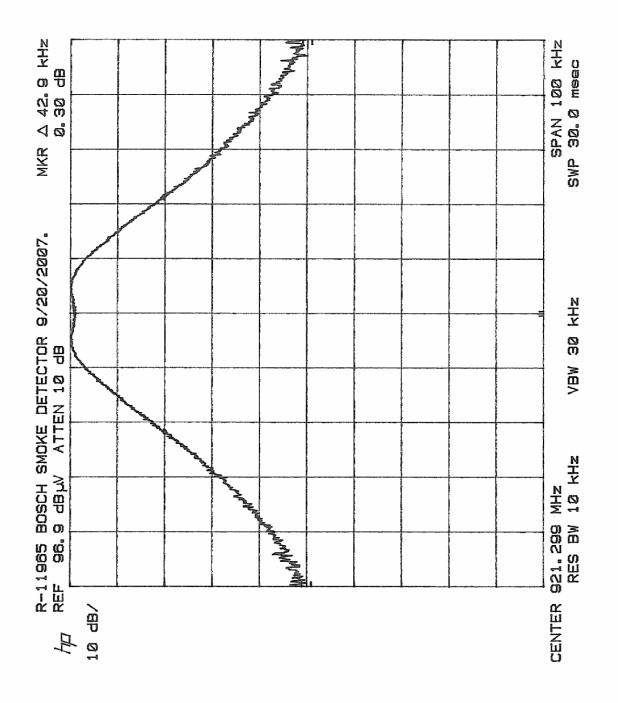
Note: The maximum 20 dB bandwidth of the hopping channel is less then 250 kHz. 20dB bandwidth measured at 43.6 kHz

Note: EUT transmitting on channel 30 at 918.5 MHz.

FCC ID: T3XBSM1-SY

Customer	Bo	sch Security Syste	m.			
Test Sample	wL	wLSN Smoke Detector				
Model Number	ISV	V- BSM1-SY				
Date: 9-20-2007		Tech: R.S.	Sheet 2 of 3			

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#### FCC Part 15, Subpart C, 15.247(a) (1) Occupied Bandwidth, 902 to 928 MHz Band

Note: The maximum 20 dB bandwidth of the hopping channel is less then 250 kHz. 20dB bandwidth measured at 42.9 kHz

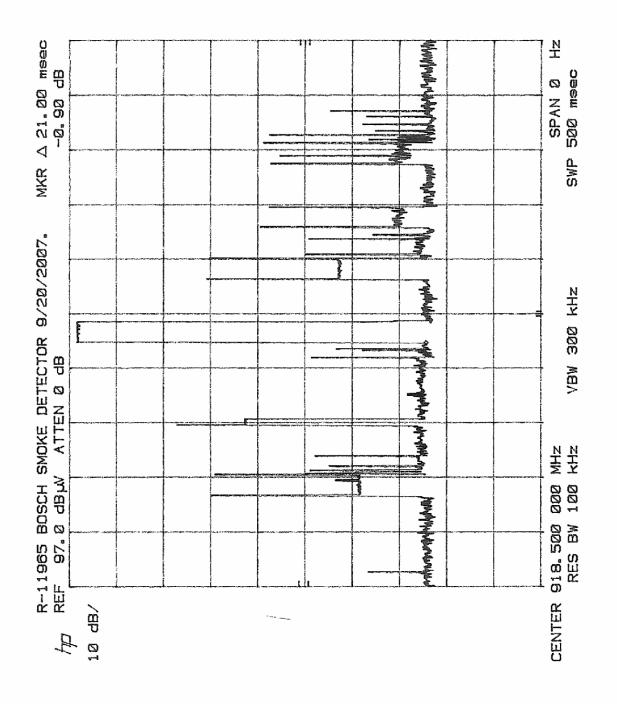
Note: EUT transmitting on channel 58 at 921.3 MHz.

FCC ID: T3XBSM1-SY

Customer	Bosch Security System.					
Test Sample	wL	wLSN Smoke Detector				
Model Number	ISV	V- BSM1-SY				
Date: 9-20-2007		Tech: R.S.	Sheet 3 of 3			

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# FCC Part 15, Subpart C, 15.247 (a)(1)(i) Occupancy Time 902 - 928 MHz Test Data



#### FCC Part 15, Subpart C, 15.247( a)(1)(i) Occupancy Time, 902 to 928 MHz Band

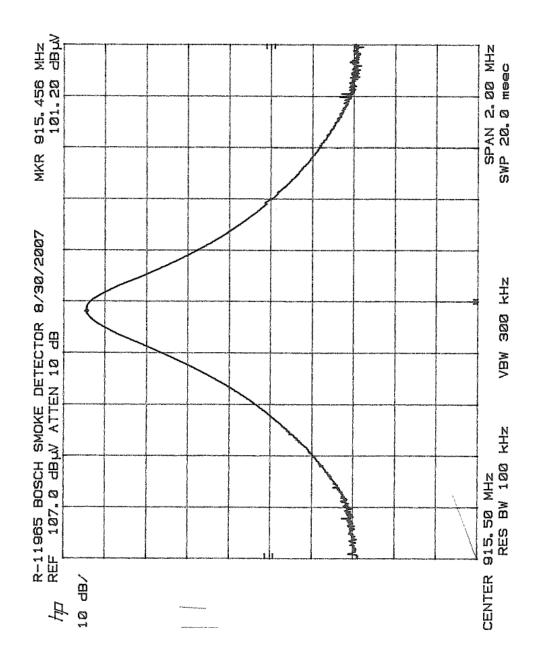
**Note:** The measured occupancy time does not exceed the 0.4 seconds (Measured time =21.0mSec.) **FCC ID:** T3XBSM1-SY

Customer	Bosch Security Syste	em.
Test Sample	wLSN Smoke Detect	or
Model Number	ISW- BSM1-SY	
Date: 9-20-2007	Tech: R.S.	Sheet 1 of 1

Retlif Testing Laboratories, Report R-11965-10, Bosch Security Systems, FCC ID: T3XBSM1-SY Page 18 of 48 FCC Part 15, Subpart C Radiated Emissions, Fundamental Power Output Paragraph 15.247(b) (2) Test Data

Test Meth	od:	FCC F	Part 15, Subpart	CRadiated	Emissions, Fu	ndamental Po	wer Output.			
Customer		Bosch Security System.   Job No.   R-11965-10					-10			
Test Samp	ole:		Smoke Detecto			Paragrap	<b>h</b> 15.247(b	)(2)		
Model No.	:	ISW-E	3SM1-SY			FCC IE				
Operating		Contir	nuously transmit	tting a 915.5 N	MHz, 918.4 MH	Iz and 921.3	MHz signal.			
Technicia		R. So	odoo	-		Date	e: August 3	0, 2007.		
Notes:	Test Dist	ance: 3	Meters	Temp: 34	.5°C Humid	ity : 33 %				
	Detector	: Peak								
Test	Anten	na	EUT	Meter	Correction	Corrected	Converted	Converted	Peak	
Freq.	Pol./He	eight	Orientation	Reading	Factor	Reading	Reading	Reading	Limit	
MHz	(V/H) / M	leters	X / Y / Z	dBuV	dB	dBuV/m	V/m	milliWatts	Watts	
915.5	V / 1		Х	96.7	9.6	106.3	0.21	12.8	1.0	
	V / 2	.0	Y	95.8	9.6	105.4	0.19	10.4		
	V / 1	.0	Z	100.7	9.6	110.3	0.33	32.1		
	H / 1	.7	Х	94.7	9.6	104.3	0.16	8.1		
	H / 1	.0	Y	94.0	9.6	103.6	0.15	6.9		
915.5	H / 1	.6	Z	93.6	9.6	103.2	0.14	6.3		
918.5	V / 1		Х	96.7	9.6	106.3	0.21	12.8		
	V / 1		Y	97.1	9.6	106.7	0.22	14.0		
	V / 1.0		Z	98.2	9.6	107.8	0.25	18.1		
	H/2		X	96.5	9.6	106.1	0.20	12.2		
010 5	H/1		Y	93.1	9.6	102.7	0.14	5.6		
918.5	H/3	.3	Z	95.4	9.6	105.0	0.18	9.5		
921.3	V / 1	0	Х	96.5	9.6	106.1	0.20	12.2		
921.3	V / 1 V / 2		Y	96.5	9.6	106.1	0.20	12.2	I	
	V / 1		Z	100.5	9.6	110.5	0.20	30.7		
	H/1		<u> </u>	94.6	9.6	104.2	0.02	7.9		
	H/1		Ŷ	96.4	9.6	106.0	0.20	11.9		
921.3	H/1		Z	94.2	9.6	103.8	0.15	7.2	1.0	
					<b> </b>					
		monto	the required lim	it indicated a						
			the required lim ormulae were us			ath in dBuV in	nto \//m and \	//m to Watte		
			uV/m-120) / 20)							
	Power =									
	1 of 1	\ ¥/111 X	5,750							

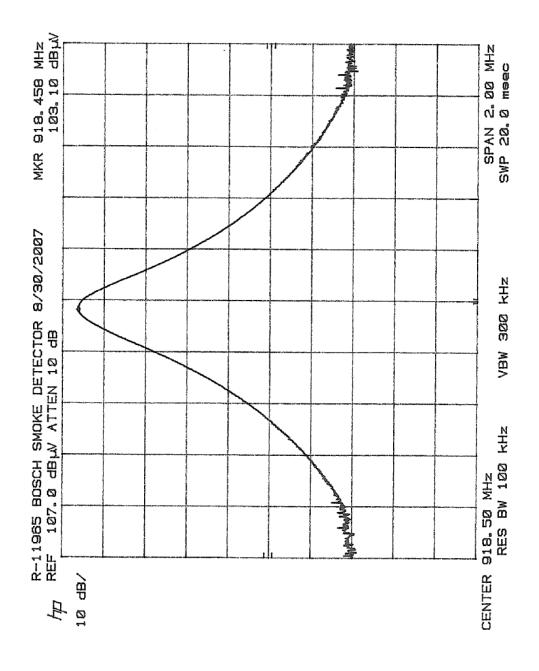
Page 1 of 1



FCC Part 15, Subpart C Radiated Emissions, Fundamental Power Output, Para.15.247(b)(2) Note: EUT transmitting on channel 00 at 915.5 MHz. FCC ID: T3XBSM1-SY

Customer	Bo	sch Security Syst	em.			
Test Sample	wL	vLSN Smoke Detector				
Model Number	IS\	N-BSM1-SY				
Date: 8-30-2007		Tech: R.S.	Sheet 1 of 3			

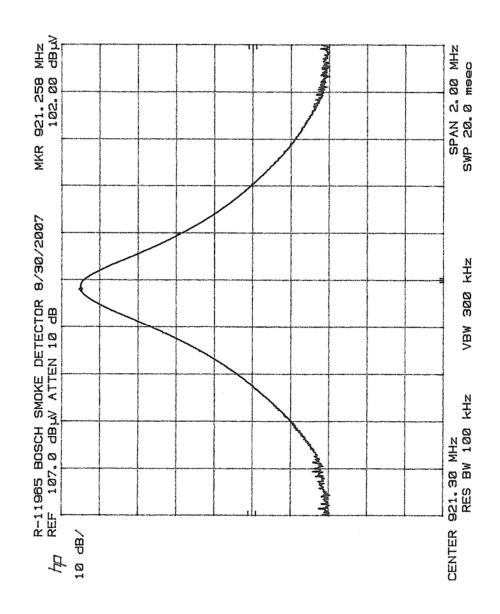
Retlif Testing Laboratories, Report R-11965-10, Bosch Security Systems, FCC ID: T3XBSM1-SY Page 21 of 48



FCC Part 15, Subpart C Radiated Emissions, Fundamental Power Output, Para.15.247(b)(2) Note: EUT transmitting on channel 30 at 918.4 MHz. FCC ID: T3XBSM1-SY

Customer	Bosch Security Sy	/stem.
Test Sample	wLSN Smoke Det	ector
Model Number	ISW-BSM1-SY	
Date: 8-30-2007	Tech: R.S.	Sheet 2 of 3

Retlif Testing Laboratories, Report R-11965-10, Bosch Security Systems, FCC ID: T3XBSM1-SY Page 22 of 48



FCC Part 15, Subpart C Radiated Emissions, Fundamental Power Output,Para.15.247(b)(2) Note: EUT transmitting on channel 58 at 921.3 MHz. FCC ID: T3XBSM1-SY

Customer	Bo	sch Security Syst	em.			
Test Sample	wL	wLSN Smoke Detector				
Model Number	IS\	N-BSM1-SY				
Date: 8-30-2007		Tech: R.S.	Sheet 3 of 3			

Retlif Testing Laboratories, Report R-11965-10, Bosch Security Systems, FCC ID: T3XBSM1-SY Page 23 of 48 FCC Part 15 Subpart C, Transmitter Spurious Radiated Emissions, Paragraph 15.247(d) Test Data

Test Metho	od:	FCC Part 15 Subpart C, Transmitter Spurious Radiated Emissions							Paragraph 15	.247(	d).
Customer:		Bosch	Security Syste	em.			Job N	No.:	R-11965-10		
Test Samp	le:	wLSN 3	Smoke Detect	or			FCC	ID:	T3XBSM1-S	Y	
Model No.:		ISW- B	SM1-SY				Serial N	No.:	N/A		
Operating	Mode:	Continu	uously transmi	tting on char	nnel 00, a 915	5.5 MHz si	ignal.				
Techniciar	:	R.Sood		0			-	ate:	September 2	0, 200	)7.
Notes:	Test I	Distance	: 3 Meters			Ten	np: 24.0°C		Humidity: 36	3.0%	
	Detec	tor: Qua	asi-Peak from 3	30 MHz to 1	GHz, Peak a		•				
		enna	EUT	Meter	Correction		ected	(	Converted		.,
Frequency		sition	Orientation	Readings	Factor	Rea	ading		Reading	Lir	nit
MHz	(V/H) /	Meters	Degrees	dBuV	dB	dB	uV/m		uV/m	u∖	//m
30.0										3349	96.5
										1	
			iaaiana ah		the energies		diatana	-		<sup> </sup>	
		NO em	issions obs	served at	the specifi	ed test	distance	e.			
I											
										1	
										ſ	
										<u> </u>	
	1										
10000.0	1									3349	96.5
			nge was scanned			1:					
			served from the E orded were more								
							fied in parag	raph 1	5.247(d). No emis	sion w	ere
	observe	ed in the re	estricted band.								



Test Metho	d:	FCC Part 15 Subpart C, Transmitter Spurious Radiated Emission							Paragraph 15	.247(	d).
Customer:		Bosch	Security Syste	m.			Job N	No.:	R-11965-10		
Test Sampl	e:	wLSN 3	Smoke Detect	or			FCC	ID:	T3XBSM1-S	Y	
Model No.:		ISW- B	SM1-SY				Serial N	No.:	N/A		
Operating N	Node:	Continu	uously transmi	tting on char	nel 30, a 918	.5 MHz si	ignal.				
Technician		R.Sood	loo				Da	ate:	September 2	0, 200	)7.
Notes:	Test D	Distance	: 3 Meters			Ten	np: 24.0°C		Humidity: 36	6.0%	
	Detec	tor: Qua	asi-Peak from 3	30 MHz to 1	GHz, Peak al		•				
		enna	EUT	Meter	Correction		ected	(	Converted		•.
Frequency		sition	Orientation	Readings	Factor	Rea	ading		Reading	Lir	nit
MHz	(V/H) /	Meters	Degrees	dBµV	dB	dB	µV/m		uV/m	u∖	//m
30.0										334	96.5
		lo omi	cione obe	arvad at ti		d toot d	lictopoo				
			ssions obse	erveu al li	ie specifie	u lesi u	iistance.	• ⊢			
İ											
								<u> </u>			
								1			
10000.0										334	96.5
			nge was scanned								
			served from the E orded were more								
							fied in parag	raph 1	5.247(d). No emis	sion we	ere
			estricted band.		- 1	, ,,,,,,,	1				



Test Metho	d:	FCC Part 15 Subpart C, Transmitter Spurious Radiated Emissions,								5.247(	d).
Customer:		Bosch	Security Syste	em.			Job N	o.:	R-11965-10		
Test Sampl	e:	wLSN \$	Smoke Detect	or			FCC I	D:	T3XBSM1-S	Y	
Model No.:		ISW- B	SM1-SY				Serial N	o.:	N/A		
Operating M	/lode:	Continu	uously transmi	tting on char	nnel 58, a 921	.3 MHz s	ignal.				
Technician		R.Sood	loo				Dat	te:	September 2	0, 200	)7.
Notes:	Test D	Distance	3 Meters			Ten	np: 24.0°C		Humidity: 36	5.0%	
	Detec	tor: Qua	asi-Peak from 3	30 MHz to 1	GHz, Peak al		•		2		
		enna	EUT	Meter	Correction		ected	(	Converted		
Frequency	Pos	sition	Orientation	Readings	Factor	Rea	ading		Reading	Lir	nit
MHz	(V/H) /	Meters	Degrees	dBµV	dB	dB	µV/m		uV/m	u\	//m
30.0										334	96.5
I											
I											
											l
I											
								7			
			ssions obse	erved at ti	ne specifie	a test c	listance.				
											Ĺ
10000.0										00.4	
10000.0										334	96.5
	The fre	quencv rar	nge was scanned	from 30 MHz to	10 GHz.						
	The em	nissions ob	served from the E	UT do not exce	ed the specified						
			orded were more				<i>c</i>				
			20dB less than the estricted band.	e measured fun	damental frequer	ncy as speci	tied in paragra	ph 1	5.247(d). No emis	SION W	ere
	0000170										

Page 3 of 3

FCC Part 15 Subpart C, Radiated Emissions, Harmonics Paragraphs 15.247(d) EUT transmitting at the Fundamental signal of 915.5 MHz

Test Method	d: I	FCC Pa	rt 15 Subpart C	, Radiated Em	issions, Harmo	onics Emissior	IS.		
Customer:		Bosch Security System. Jol					R-11965-10		
Test Sample	e: v	wLSN S	moke Detector		·	·			
Model No.:		ISW- BS	SM1-SY			FCC ID:	T3XBSM1-SY		
Operating N			ously transmittir	ng a 915.5 MH	z signal.				
Technician:		R. Sood		.g = 0.010 1111		Date:	September 20, 2	2007.	
	Test Dista					2	<u> </u>		
			nless otherwise	specified					
	Anten		EUT	Meter	Correction	Corrected	Converted	Peak	,
Test Freq.	Pol./He		Orientation	Reading	Factor	Reading	Reading	Limit	
MHz	(V/H)/M	-	X/Y/Z	dBµV	dB	dBµV/m	uV/m	uV/m	
1831.0	V / 1			<u>авµ v</u> 57.9	2.3	60.2	1023.3	50118	
1631.0	V / 1		X Y	<u> </u>	2.3	60.2	1023.3	50116	.0
	V / 2		Z	59.3	2.3				
	H/1		<u> </u>	59.0	2.3	61.6 61.3	1202.3 1161.4		
	H/1		× Y	61.1	2.3	63.4	1479.1		
1831.0	H/1		r Z	60.6	2.3	63.4	1396.4	50118	
1031.0	Π/Ι	.+	۷	00.0	2.3	02.9	1390.4	30110	.0
2746.5	V / 1	0	Х	48.8	5.2	54.0	501.2	5000.	0
2740.5	V / 1		Y	48.7	5.2	53.9	495.5	3000.	0
	V / 1		Z	47.7	5.2	52.9	495.5		
	H/1	-	 X	47.0	5.2	52.9	407.4		
	H/2		Y	49.0	5.2	54.2	512.9		
2746.5	H/1		Z	47.8	5.2	53.0	446.7	5000.	0
2140.0	11/1	.0	۲	47.0	0.2	33.0	440.7	5000.	0
3662.0	V / 1	.0	Х	44.8	10.0	54.8	549.5	5000.	.0
	V / 1		Ý	45.2	10.0	55.2	575.4		-
	V / 1		Z	45.6	10.0	55.6	602.6		
	H/1		X	45.3	10.0	55.3	582.1	i i	
	H/1		Y	45.3	10.0	55.3	582.1	1	
3662.0	H/1		Z	45.3	10.0	55.3	582.1	5000.	.0
4577.5	V / 1	.0	Х	46.3	13.6	59.9	988.6	5000.	.0
	V / 1		Y	47.3	13.6	60.9	1109.2		
	V / 1		Z	48.4	13.6	62.0	1258.9	İ	
	H/1		Х	46.5	13.6	60.1	1011.6	i	
	H/1		Y	49.9	13.6	63.5	1496.2	İ	
4577.5	H/1		Z	47.2	13.6	60.8	1096.5	5000.	0
									_
5493.0	V / 1.		Х	43.5	17.1	60.6	*1071.5	50118	.0
	V / 1.		Y	43.5	17.1	60.6	*1071.5		
	V / 1.		Z	43.5	17.1	60.6	*1071.5		
	H/1	.0	Х	43.5	17.1	60.6	*1071.5		
	H/1		Y	43.5	17.1	60.6	*1071.5		
5493.0	H / 1	.0	Z	43.5	17.1	60.6	*1071.5	50118	.0
	The frequ	iency ra	nge was scanne	ed from 30 MH	Iz to 10.0 GHz	. All emissions	not recorded we	ere more	
						Γ do not excee	d the specified li	mits.	
	*= Noise	Floor Me	easurements (m	ninimum sensi	tivity).				

Test Meth	nod:	FCC Pa	art 15 Subpart C	, Radiated Err	issions, Harmo	nics Emissior	IS.	
Custome	r:		Security System		Job No.	R-11965-10		
Test Sam	ple:		Smoke Detector		L. L. L. L. L. L. L. L. L. L. L. L. L. L			
Model No	•		SM1-SY	T3XBSM1-SY				
Operating			ously transmittir	ng a 915.5 MH	lz signal.	FCC ID:		
Technicia		R. Sood		.g a e rere mi		Date:	September 20, 2	2007.
Notes:		tance: 3 M				Dator		
10100.			nless otherwise	specified				
	Ante	enna	EUT	Meter	Correction	Corrected	Converted	Peak
Test Freq		Height	Orientation	Reading	Factor	Reading	Reading	Limit
MHz		Meters	X / Y / Z	dBµV	dB	dBµV/m	uV/m	uV/m
6408.5	· · · ·	1.0	X	42.2	19.9	62.1	*1273.5	50118.0
		1.0	Y	42.2	19.9	62.1	*1273.5	
		1.0	Z	42.2	19.9	62.1	*1273.5	
		1.0	X	41.3	19.9	61.2	*1148.2	
		1.0	Y	41.3	19.9	61.2	*1148.2	
6408.5		1.0	Z	41.3	19.9	61.2	*1148.2	50118.0
7324.0	V /	1.0	Х	43.0	21.3	64.3	*1640.6	5000.0
	V /	1.0	Y	43.0	21.3	64.3	*1640.6	
	V /	1.0	Z	43.0	21.3	64.3	*1640.6	
	Η/	1.0	Х	43.0	21.3	64.3	*1640.6	
	Η/	1.0	Y	43.0	21.3	64.3	*1640.6	
7324.0	H/	1.0	Z	43.0	21.3	64.3	*1640.6	5000.0
8239.5		1.0	X	42.5	23.6	66.1	*2018.4	5000.0
		1.0	Y	42.5	23.6	66.1	*2018.4	
		1.0	Z	42.5	23.6	66.1	*2018.4	
I		1.0	X Y	42.7	23.6	63.6	*2065.4 *2065.4	
8239.5		1.0 1.0	ř Z	42.7 42.7	23.6 23.6	63.6 63.6	*2065.4	5000.0
0239.3		1.0	۷.	42.7	23.0	03.0	2005.4	5000.0
9155.0	V /	1.0	Х	42.1	25.5	67.6	*2398.8	5000.0
		1.0	Y	42.1	25.5	67.6	*2398.8	
		1.0	Z	42.1	25.5	67.6	*2398.8	
 	Η/	1.0	Х	42.0	25.5	67.5	*2371.4	İ
	Η/	1.0	Y	42.0	25.5	67.5	*2371.4	İ
9155.0	Η/	1.0	Z	42.0	25.5	67.5	*2371.4	5000.0
	The free	nuency ra	nde was scann	ed from 30 ME	z to 10.0 GHz	All emissions	I not recorded we	re more
			•				ed the specified lin	
			easurements ( N					
	-1000				oononivity/			

Test Metho	d:	FCC	Part 15 Subpa	rt C, Radiat	ed Emissions	, Harmonics I	Emissions.			
Customer:		Bosc	h Security Sys	tem.		Jo	b No. R	-11965-10		
Test Sample	e:	wLSI	N Smoke Dete	ctor						
Model No.:		ISW-	BSM1-SY			F	CCID: T	3XBSM1-SY		
Operating N	/lode:	Cont	inuously transr	nitting a 915	5.5 MHz signa	l.				
Technician:		R. So	podoo		U		Date: S	eptember 20, 200	7.	
Notes:	Test Dist	tance:	3 Meters			Duty Cy	cle: 21%	• •		
	Detector	: Avera	age, unless oth	erwise spec	ified			tion: -13.6dB		
						Duty cycle			۸.	
Test Freq.	Anten Pol./He		EUT Orientation	Average Reading	Correction Factor	Correction Factor	Correcte Readin		A۱ Lir	/g. nit
MHz	(V/H	)-	X/Y/Z	dBµV	dB	dB	dBµV/r	n uV/m	uV	'/m
1831.0	V / 1	.0	Х	56.8	2.3	-13.6	45.5	188.4	501	1.8
	V / 2	.1	Y	56.3	2.3	-13.6	45.0	177.8		
	V / 1		Z	56.2	2.3	-13.6	44.9	175.8		
	H/1		Х	56.1	2.3	-13.6	44.8	173.8		
	H/1		Y	52.0	2.3	-13.6	40.7	108.4		
1831.0	H / 1	.4	Z	59.6	2.3	-13.6	48.3	260.0	501	1.8
2746.5	V / 1	0	Х	40.2	5.2	-13.6	31.8	38.9	50	0.0
2140.0	V / 1		X Y	40.2	5.2	-13.6	31.8	44.2	50	0.0 I
	V / 1		Z	38.0	5.2	-13.6	29.6	30.2		 
	U / 1		<u>х</u>	32.9	5.2	-13.6	29.0	16.8		 
	H/2		Y	43.0	5.2	-13.6	34.6	53.7		
2746.5	H/1		Z	39.9	5.2	-13.6	31.5	37.6	50	0.0
3662.0	V / 1	.0	Х	30.7	10.0	-13.6	27.1	22.6	50	0.0
	V / 1	.0	Y	31.0	10.0	-13.6	27.4	23.4		
	V / 1	.0	Z	32.2	10.0	-13.6	28.6	26.9		
	H/1		Х	30.8	10.0	-13.6	27.2	22.9		
	H / 1		Y	30.9	10.0	-13.6	27.3	23.2		
3662.0	H / 1	.0	Z	31.6	10.0	-13.6	28.0	25.1	50	0.0
4577.5	V / 1	0	Х	32.9	13.6	-13.6	32.9	44.2	50	0.0
	V / 1		Y	37.3	13.6	-13.6	37.3	73.3	00	1
I	V / 1		Z	40.4	13.6	-13.6	40.4	104.7		
I	H/1		X	35.4	13.6	-13.6	35.4	58.9		
	H/1		Y	44.5	13.6	-13.6	44.5	167.9		<u>.</u>
4577.5	H/1		Z	37.7	13.6	-13.6	37.7	76.7	50	0.0
E 400 0		0	V	00.0	474	40.0	00.5	*40.0	<b>5</b> 0 <b>·</b>	4.0
5493.0	V / 1		X	30.3	17.1	-13.6	33.8	*49.0	501	1.8
	V / 1		Y 7	30.3	17.1	-13.6	33.8	*49.0		
I	V/1		Z	30.3	17.1	-13.6	33.8	*49.0		
	H/1		X	30.3	17.1	-13.6	33.8	*49.0		
<u> </u>	H/1		Y Z	30.3	17.1	-13.6	33.8	*49.0	E04	10
5493.0	H/1			30.3	17.1	-13.6	33.8	*49.0		1.8
		• •	-					ot recorded were		
							iot exceed	the specified limit	ເວ.	
	=110156		Measurements	s ( wiiniinium)	system sens	uvity)				

<b>Test Metho</b>	d:	FCC	Part 15 Subpa	art C, Radiate	d Emissions,	Harmonics	Emissio	ns.		
Customer:		Bosc	h Security Sys	tem.		J	ob No.	R-119	965-10	
Test Sampl	e:		N Smoke Dete							
Model No.:		ISW-	BSM1-SY			F	CC ID:	ТЗХВ	SM1-SY	
Operating N	Mode:	Cont	inuously transr	nitting a 915.	5 MHz signal					
Technician			ooboc	<b>J</b>			Date:	Septe	mber 20, 200	7.
Notes:			3 Meters			Duty Cy				
			age, unless oth	nerwise speci	fied				-13.6dB	
				•		Duty cycle				
Test Freq.	Anten Pol./He		EUT Orientation	Average Reading	Correction Factor	Correction Factor	Corr	ected ading	Converted Reading	Avg. Limit
MHz	(V/H	)-	X/Y/Z	dBµV	dB	dB	dB	ıV/m	uV/m	uV/m
6408.5	V / 1	/	Х	31.6	19.9	-13.6		8.3	*82.2	5011.8
	V / 1		Y	31.6	19.9	-13.6		8.3	*82.2	
	V / 1.	.0	Z	31.6	19.9	-13.6	3	8.3	*82.2	
	H/1	.0	Х	32.2	19.9	-13.6	3	8.9	*88.1	
	H/1	.0	Y	32.2	19.9	-13.6	3	8.9	*88.1	
6408.5	H/1	.0	Z	32.2	19.9	-13.6	3	8.9	*88.1	5011.8
7324.0	V / 1		Х	31.9	21.3	-13.6	4	0.0	*100.0	500.0
	V / 1		Y	31.9	21.3	-13.6		0.0	*100.0	
	V / 1		Z	31.9	21.3	-13.6	4	0.0	*100.0	
	H/1		Х	31.9	21.3	-13.6	4	0.0	*100.0	
	H/1		Y	31.9	21.3	-13.6		0.0	*100.0	
7324.0	H/1	.0	Z	31.9	21.3	-13.6	4	0.0	*100.0	500.0
8239.5	V / 1	.0	Х	33.2	23.6	-13.6	4	2.6	*151.4	500.0
	V / 1		Y	33.2	23.6	-13.6		2.6	*151.4	
	V / 1		Z	33.2	23.6	-13.6		2.6	*151.4	
	H/1		Х	32.8	23.6	-13.6		3.2	*144.5	
i	H/1		Y	32.8	23.6	-13.6		3.2	*144.5	
8239.5	H / 1		Z	32.8	23.6	-13.6		3.2	*144.5	500.0
9155.0	V / 1	0	Х	33.1	25.5	-13.6	4	5.4	*186.2	500.0
	V / 1		Y	33.1	25.5	-13.6		5.4	*186.2	
<u> </u>	V / 1		Z	33.1	25.5	-13.6		5.4	*186.2	I
I	H/1		X	33.2	25.5	-13.6		5.5	*188.4	I
<u> </u>	H/1		Y	33.2	25.5	-13.6		5.5	*188.4	I
9155.0	H/1		Z	33.2	25.5	-13.6		5.5	*188.4	500.0
	The free		/ range was sc	anned from 3	BO MHz to 10.0		mission	s not re		more
			elow the specif							
			Measurements						-	

FCC Part 15 Subpart C, Radiated Emissions, Harmonics Paragraphs 15.247(d) EUT transmitting at the Fundamental signal of 918.4 MHz

Test Metho	d:	FCC Pa	rt 15 Subpart C	, Radiated Em	issions, Harm	onics Emissio	ns.		
Customer:		Bosch S	Security System	R-11965-10					
Test Sample	e:	wLSN S	moke Detector						
Model No.:		ISW- BS	SM1-SY	T3XBSM1-SY					
Operating N	lode:	Continu	ously transmittir	ng a 918.5 MH	Iz signal.				
Technician:		R. Sood		5	0	Date:	September 21, 2	2007.	
Notes:	Test Dista						· · · ·		
			nless otherwise	specified					
	Ante		EUT	Meter	Correction	Corrected	Converted	Peak	
Test Freq.	Pol./H		Orientation	Reading	Factor	Reading	Reading	Limit	
MHz	(V/H)/N	-	X / Y / Z	dBµV	dB	dBµV/m	uV/m	uV/m	
1836.8	V / *		X	60.6	2.3	62.9	1396.4	50118.	
	V / *		Y	53.8	2.3	56.1	638.3	00110.	
	V / *		Z	58.7	2.3	61.0	1122.0		
	Η/		X	63.3	2.3	65.6	1905.5		
	Η/		Y	58.9	2.3	61.2	1148.2		
1836.8	Η/		Z	62.6	2.3	64.9	1757.9	50118.	
2755.2	V / ′		Х	52.1	5.2	57.3	732.8	5000.0	
	V / ′		Y	50.7	5.2	55.9	623.7		
	V / ′		Z	49.8	5.2	55.0	562.3		
	H/2		Х	49.3	5.2	54.5	530.9		
	H/ <i>'</i>		Y	50.6	5.2	55.8	616.6		
2755.2	H/:	2.1	Z	50.5	5.2	55.7	609.5	5000.0	
3673.6	V /  ′		X	46.0	10.0	56.0	631.0	5000.0	
	V / '		Y	46.2	10.0	56.2	645.7		
	V / *		Z	46.0	10.0	56.0	631.0		
	H/*		X Y	45.7	10.0	55.7	609.5		
3673.6	H/* H/*		ř Z	46.0	10.0	56.0	631.0	5000 (	
3073.0	Π/	1.0	۷.	45.8	10.0	55.8	616.6	5000.0	
4592.0	V / ′	1.0	Х	47.8	13.6	61.4	1174.9	5000.0	
	V / /		Y	47.9	13.6	61.5	1188.5		
	V / *		Z	47.8	13.6	61.4	1174.9		
	H/*		X	46.4	13.6	60.0	1000.0		
	H/*		Y	49.2	13.6	62.8	1380.4		
4592.0	Η/		Z	49.3	13.6	62.9	1396.4	5000.0	
5510.4	V / ′		Х	43.1	17.1	60.2	*1023.3	50118.	
	V / ^		Y	43.1	17.1	60.2	*1023.3		
	V / ^		Z	43.1	17.1	60.2	*1023.3		
	Η/΄		X	43.1	17.1	60.2	*1023.3		
	Η/΄		Y	43.1	17.1	60.2	*1023.3		
5510.4	H/'		Z	43.1	17.1	60.2	*1023.3	50118.	
							s not recorded we		
						I do not excee	ed the specified li	mits.	
	= INOISE		easurements (m	iinimum sensi	uvity).				

Test Metho	d:	FCC Pa	rt 15 Subpart C	, Radiated Err	issions, Harmo	nics Emission	S.		
Customer:		Bosch S	Security System	Job No.	R-11965-10				
Test Sample	e:	wLSN S	Smoke Detector						
Model No.:		ISW- BS	SM1-SY	FCC ID:	T3XBSM1-SY				
Operating N	lode:	Continu	ously transmittir	ng a 918.5 MH	lz signal.	•			
Technician:		R. Sood		5		Date:	September 21, 2	2007.	
Notes:	Test Dist					I	1 ,		
	Detector	: Peak. u	nless otherwise	specified					
	Ante		EUT	Meter	Correction	Corrected	Converted	Peak	
Test Freq.		leight	Orientation	Reading	Factor	Reading	Reading	Limit	
MHz	(V/H)-I	Veters	X/Y/Z	dBµV	dB	dBµV/m	uV/m	uV/m	
6428.8	V /		X	42.2	19.9	62.1	*1273.5	50118.0	
	V /		Y	42.2	19.9	62.1	*1273.5		
	V /		Z	42.2	19.9	62.1	*1273.5		
 	Η/		Х	41.3	19.9	61.2	*1148.2		
	Η/	1.0	Y	41.3	19.9	61.2	*1148.2		
6428.8	Η/	1.0	Z	41.3	19.9	61.2	*1148.2	50118.0	
7347.2	V /		Х	43.0	21.3	64.3	*1640.6	5000.0	
	V /		Y	43.0	21.3	64.3	*1640.6		
	V /		Z	43.0	21.3	64.3	*1640.6		
	Η/		X	43.0	21.3	64.3	*1640.6		
	Η/		Y	43.0	21.3	64.3	*1640.6		
7347.2	Η/	1.0	Z	43.0	21.3	64.3	*1640.6	5000.0	
8265.6	V /	1.0	Х	42.5	23.6	66.1	*2018.4	5000.0	
	V /		Y	42.5	23.6	66.1	*2018.4		
I	V /		Z	42.5	23.6	66.1	*2018.4		
	Η/		Х	42.7	23.6	63.6	*2065.4	1	
İ	Η/	1.0	Y	42.7	23.6	63.6	*2065.4	İ	
8265.6	Η/	1.0	Z	42.7	23.6	63.6	*2065.4	5000.0	
9184.0	V /		X	42.1	25.5	67.6	*2398.8	5000.0	
	V /		Y 7	42.1	25.5	67.6	*2398.8		
		1.0	Z	42.1	25.5 25.5	67.6	*2398.8		
		1.0	X Y	42.0	25.5	67.5	*2371.4 *2371.4		
9184.0		1.0 1.0	Y Z	42.0	25.5 25.5	67.5 67.5	*2371.4	5000.0	
9104.0	п/	1.0	۷.	42.0	20.0	07.5	2371.4	5000.0	
	The free			d from 20 M			not recorded we		
		. ,	<b>U</b>				d the specified lir		
			asurements ( N					1113.	
	-110156			minum syste	in sensitivity)				

Test Method	d:	FCC	Part 15 Subpa	rt C, Radiat	ed Emissions	, Harmonics	Emissions.		
Customer:			h Security Sys					1965-10	
Test Sample	e:	wLSI	N Smoke Dete	ctor		·	•		
Model No.:		ISW-	BSM1-SY			F	CC ID: T3>	(BSM1-SY	
Operating N	lode:	Cont	inuously transr	nitting a 918	3.5 MHz signa	l			
Technician:		R. So	ooboo				Date: Sep	tember 21, 2007	<b>7</b> .
Notes:	Test Dist	ance:	3 Meters			Duty C	/cle: 21%		
	Detector:	Avera	age, unless oth	erwise spec	cified		cle Correctio	on: -13.6dB	
						Duty cycle			A. 10
Test Freq.	Anten Pol./He		EUT Orientation	Average Reading	Correction Factor	Correction Factor	Corrected Reading	Converted Reading	Avg. Limit
MHz	(V/H)	)-	X / Y / Z	dBµV	dB	dB	dBµV/m	UV/m	uV/m
1836.8	V / 1.	5	Х	59.6	2.3	-13.6	48.3	260.0	5011.8
	V / 1.		Y	46.7	2.3	-13.6	35.4	58.9	
	V / 1.		Z	56.4	2.3	-13.6	45.1	179.9	
	H / 1.		Х	58.4	2.3	-13.6	47.1	226.5	
	H / 1.		Y	47.0	2.3	-13.6	35.7	61.0	
1836.8	H/1.	.0	Z	60.7	2.3	-13.6	49.4	295.1	5011.8
2755.2	V / 1.	2	Х	40.4	E 0	-13.6	40.0	100.0	500.0
2755.2	V / 1. V / 1.		X Y	48.4 46.8	5.2 5.2	-13.6	40.0 38.4	100.0 83.2	500.0
I	V / 1.		Z	40.0	5.2	-13.6	36.6	67.6	
	H/2.		<u>х</u>	43.4	5.2	-13.6	35.0	56.2	
	H/1.		Y	45.3	5.2	-13.6	36.9	70.0	1
2755.2	H/2.		Z	46.7	5.2	-13.6	38.3	82.2	500.0
	,		<u> </u>	10.1	0.2		00.0	02.2	000.0
3673.6	V / 1.	0	Х	34.2	10.0	-13.6	30.6	33.9	500.0
	V/1.	0	Y	32.6	10.0	-13.6	29.0	28.2	
	V/1.	0	Z	32.4	10.0	-13.6	28.8	27.5	İ
	H/1.	.0	Х	31.6	10.0	-13.6	28.0	25.1	
	H/1.	.0	Y	32.8	10.0	-13.6	29.2	28.8	
3673.6	H/1.	.6	Z	34.4	10.0	-13.6	30.8	34.7	500.0
4592.0	V / 1.		Х	39.3	13.6	-13.6	39.3	92.3	500.0
	V / 1.		Y	36.9	13.6	-13.6	36.9	70.0	
	V / 1.		Z	36.5	13.6	-13.6	36.5	66.8	
	H/1.		X	32.8	13.6	-13.6	32.8	43.7	
4592.0	H/1. H/1.		Y Z	41.6 42.9	13.6	-13.6 -13.6	41.6	120.2	<b>500.0</b>
7032.0	п/ I.	.1	۷	42.3	13.6	-13.0	42.9	139.6	500.0
5510.4	V / 1.	0	Х	30.6	17.1	-13.6	34.1	*50.7	5011.8
	V / 1.		Y	30.6	17.1	-13.6	34.1	*50.7	
	V / 1.		Z	30.6	17.1	-13.6	34.1	*50.7	
	H/1.		X	30.6	17.1	-13.6	34.1	*50.7	
	H/1.		Ŷ	30.6	17.1	-13.6	34.1	*50.7	
5510.4	H/1.		Z	30.6	17.1	-13.6	34.1	*50.7	5011.8
	The freq	uency	range was sc		30 MHz to 10	.0 GHz. All e	missions not	recorded were n	
							not exceed th	ne specified limits	6.
	*=Noise	Floor	Measurements	s ( Minimum	system sens	itivity)			

Test Meth	od:	FCC	Part 15 Subpa	rt C, Radiate	d Emissions,	Harmonics E	missior	IS.				
Customer	:		h Security Sys				b No.		965-10			
Test Samp	ole:		N Smoke Dete			•						
Model No.			BSM1-SY			FC	C ID:	ТЗХВ	SM1-SY			
Operating			inuously transr	mitting a 918	5 MHz signal		•					
Technicia			oodoo		e milz eignan		Date:	Date: September 21, 2007.				
Notes:			3 Meters			Duty Cyc						
NO103.			age, unless oth	erwise sneci	fied				-13.6dB			
						Duty cycle						
Test Freq.	Anter		EUT	Average	Correction	Correction	Corre		Converted	Av		
·	Pol./He	eight	Orientation	Reading	Factor	Factor	Reading		Reading	Lin	nit	
MHz	(V/H	)-	X / Y / Z	dBµV	dB	dB	dBµV/m		uV/m	uV/	/m	
6428.8	V / 1	.0	Х	31.6	19.9	-13.6	38	.3	*82.2	501	1.8	
	V / 1	.0	Y	31.6	19.9	-13.6	38	.3	*82.2			
	V / 1	.0	Z	31.6	19.9	-13.6	38	.3	*82.2			
	H/1		Х	32.2	19.9	-13.6	38	.9	*88.1			
	H/1	.0	Y	32.2	19.9	-13.6	38		*88.1			
6428.8	H / 1	.0	Z	32.2	19.9	-13.6	38	.9	*88.1	501	1.8	
7347.2	V / 1		Х	31.9	21.3	-13.6	40		*100.0	500	).0	
	V / 1		Y	31.9	21.3	-13.6	40		*100.0			
	V / 1		Z	31.9	21.3	-13.6	40		*100.0			
	H/1		Х	31.9	21.3	-13.6	40		*100.0			
	H/1		Y	31.9	21.3	-13.6	40		*100.0			
7347.2	H / 1	.0	Z	31.9	21.3	-13.6	40	.0	*100.0	500	).0	
8265.6	V / 1	0	Х	33.2	23.6	-13.6	42	6	*151.4	500	10	
0203.0	V / 1		A Y	33.2	23.6	-13.6	42		*151.4	500	1.0	
	V / 1		Z	33.2	23.6	-13.6	42		*151.4			
	H/1		X	32.8	23.6	-13.6	43		*144.5	I		
	H/1		Y	32.8	23.6	-13.6	43		*144.5	I		
8265.6	H/1		Z	32.8	23.6	-13.6	43		*144.5	500	0	
020010	, .			02.0	2010				11110	000		
9184.0	V / 1	.0	Х	33.1	25.5	-13.6	45	.4	*186.2	500	).0	
	V / 1	.0	Y	33.1	25.5	-13.6	45		*186.2			
	V / 1		Z	33.1	25.5	-13.6	45		*186.2			
İ	H/1	.0	Х	33.2	25.5	-13.6	45	.5	*188.4	İ		
	H/1		Y	33.2	25.5	-13.6	45		*188.4	İ		
9184.0	H / 1	.0	Z	33.2	25.5	-13.6	45	.5	*188.4	500	).0	
			/ ***	oppod from 0				n of				
			/ range was sc									
			elow the specif Measurements					eu ine	specified limit	5.		
	=110156		เพษสรมเษาแชกแร	s ( iviii iii iiii iii iii iii iii iii ii	system sensit	ivity <i>)</i>						

FCC Part 15 Subpart C, Radiated Emissions, Harmonics Paragraphs 15.247(d) EUT transmitting at the Fundamental signal of 921.3 MHz

Test Method	d:	FCC Pa	rt 15 Subpart C	. Radiated Em	nissions. Harmo	onics Emissio	ns.		
Customer:	-		Security System			Job No.	R-11965-10		
Test Sample	e:		Smoke Detector		I				
Model No.:		ISW- BS				FCC ID:	T3XBSM1-SY		
Operating N	lode:		ously transmittir	ng a 921.3 MH	lz signal.				
Technician:		R. Sooc	,	.g a 02.10 111		Date:	September 21, 2	2007.	
Notes:	Test Dist								
			nless otherwise	specified					
	Ante		EUT	Meter	Correction	Corrected	Converted	Pe	ak
Test Freq.	Pol./F		Orientation	Reading	Factor	Reading	Reading		nit
MHz		Veters	X / Y / Z	dBµV	dB	dBµV/m	uV/m		′/m
1842.6	V /		X	57.0	2.3	59.3	922.6		18.0
	V /		Y	59.8	2.3	62.1	1273.5	001	<u>10.0</u> 
	V /		Z	57.7	2.3	60.0	1000.0		
	Η/		X	61.4	2.3	63.7	1531.1	1	
	Η/		Y	60.0	2.3	62.3	1303.2		
1842.6	Η/		Z	59.0	2.3	61.3	1161.4	501	18.0
2763.9	V /		Х	49.0	5.2	54.2	512.9	500	0.0
	V /		Y	49.4	5.2	54.6	537.0		
	V /		Z	49.4	5.2	54.6	537.0		
	Η/		Х	47.5	5.2	52.7	431.5		
	Η/		Y	48.6	5.2	53.8	489.8		
2763.9	Η/	1.0	Z	50.5	5.2	55.7	609.5	500	0.0
0005.0									
3685.2	V /		X	45.6	10.0	55.6	602.6	500	0.0
	V /		Y	46.0	10.0	56.0	631.0		
	V /		Z	45.9	10.0	55.9	623.7		
	<u>H/</u>		X Y	46.4	10.0	56.4	660.7		
3685.2	H/ H/		ř Z	45.7 45.8	10.0 10.0	55.7 55.8	609.5 616.6	500	<u> </u> )0.0
5005.2	117	1.0	۷.	43.0	10.0	55.6	010.0	500	0.0
4606.5	V /	10	Х	46.8	13.6	60.4	1047.1	500	0.0
	V /		Y	48.7	13.6	62.3	1303.2		
	V /		Z	47.5	13.6	61.1	1135.0	1	
	Η/		X	46.1	13.6	59.7	966.1	1	
		1.7	Y	47.1	13.6	60.7	1083.9		
4606.5	Η/	1.0	Z	49.0	13.6	62.6	1349.0	500	0.0
5527.8	V /		Х	43.5	17.1	60.6	*1071.5	501	18.0
	V /		Y	43.5	17.1	60.6	*1071.5		
	V /		Z	43.5	17.1	60.6	*1071.5	1	
	Η/		Х	43.5	17.1	60.6	*1071.5	1	
	H/		Y	43.5	17.1	60.6	*1071.5	1	
5527.8	H /		Z	43.5	17.1	60.6	*1071.5		18.0
							s not recorded we		е
						do not excee	ed the specified lin	nits.	
	^= Noise	e ⊢loor M	easurements (m	nınımum sensi	tivity).				

Test Metho	d:	FCC Pa	rt 15 Subpart C	, Radiated Err	issions, Harmo	nics Emission	S.	
Customer:		Bosch S	Security System	•		Job No.	R-11965-10	
Test Sample	e:	wLSN S	Smoke Detector					
Model No.:		ISW- BS	SM1-SY			FCC ID:	T3XBSM1-SY	
Operating N	/lode:	Continu	ously transmittir	ng a 921.3 MH	z signal.	I.		
Technician:		R. Sood	•	5	<u> </u>	Date:	September 21, 2	2007.
Notes:	Test Dist							
			nless otherwise	specified				
	Ante	,	EUT	Meter	Correction	Corrected	Converted	Peak
Test Freq.	Pol./F		Orientation	Reading	Factor	Reading	Reading	Limit
MHz	5		X/Y/Z	dBµV	dB	dBµV/m	uV/m	uV/m
6449.1	V /		X	42.2	19.9	62.1	*1273.5	50118.0
	V /		Y	42.2	19.9	62.1	*1273.5	
i	V /		Z	42.2	19.9	62.1	*1273.5	
	Η/		Х	41.3	19.9	61.2	*1148.2	
	Η/	1.0	Y	41.3	19.9	61.2	*1148.2	İ
6449.1	Η/		Z	41.3	19.9	61.2	*1148.2	50118.0
7370.4	V /	1.0	Х	43.0	21.3	64.3	*1640.6	5000.0
	V /	1.0	Y	43.0	21.3	64.3	*1640.6	
	V /	1.0	Z	43.0	21.3	64.3	*1640.6	
	Η/		Х	43.0	21.3	64.3	*1640.6	
	Η/		Y	43.0	21.3	64.3	*1640.6	
7370.4	Η/	1.0	Z	43.0	21.3	64.3	*1640.6	5000.0
8291.7	V /	1.0	Х	42.5	23.6	66.1	*2018.4	5000.0
1	V /		Y	42.5	23.6	66.1	*2018.4	0000.0
	V /		Z	42.5	23.6	66.1	*2018.4	
	H/		X	42.7	23.6	63.6	*2065.4	
	Η/		Y	42.7	23.6	63.6	*2065.4	
8291.7	Η/		Z	42.7	23.6	63.6	*2065.4	5000.0
9213.0	V /		Х	42.1	25.5	67.6	*2398.8	5000.0
	V /		Y	42.1	25.5	67.6	*2398.8	
	V /		Z	42.1	25.5	67.6	*2398.8	
	Η/		X	42.0	25.5	67.5	*2371.4	
	Η/		Y	42.0	25.5	67.5	*2371.4	
9213.0	H/	1.0	Z	42.0	25.5	67.5	*2371.4	5000.0
			<b>U</b>				not recorded we	
						ao not exceed	d the specified lir	nits.
	°=INOISE		easurements ( N	iinimum syste	m sensitivity)			

Test Metho	d:	FCC	Part 15 Subpa	rt C, Radiat	ed Emissions	, Harmonics I	Emissions.				
Customer:		Bosc	h Security Sys	tem.		Jo	<b>b No.</b> R-1	1965-10			
Test Sample	e:	wLSI	N Smoke Dete	ctor			•				
Model No.:		ISW-	BSM1-SY			F	CC ID: T3X	BSM1-SY			
Operating N	/lode:	Cont	inuously transr	nitting a 921	.3 MHz signa	l					
Technician:		R. So	ooboo				Date: September 21, 2007.				
Notes:	Test Dist	ance:	3 Meters			Duty Cy	outy Cycle: 21%				
	Detector	: Avera	age, unless oth	erwise spec	ified	Duty Cy	cle Correctio	n: -13.6dB			
						Duty cycle			Ava		
Test Freq.	Anten Pol./He		EUT Orientation	Average Reading	Correction Factor	Correction Factor	Corrected Reading	Converted Reading	Avg. Limit		
MHz	(V/H	)-	X/Y/Z	dBµV	dB	dB	dBµV/m	uV/m	uV/m		
1842.6	V / 1		Х	53.1	2.3	-13.6	41.8	123.0	5011.8		
	V / 1		Y	57.1	2.3	-13.6	45.8	195.0			
	V / 1		Z	56.2	2.3	-13.6	44.9	175.8			
	H/1		Х	58.8	2.3	-13.6	47.5	237.1			
	H/1		Y	59.0	2.3	-13.6	47.7	242.7			
1842.6	H/1	.0	Z	54.6	2.3	-13.6	43.3	146.2	5011.8		
2763.9	V / 1	0	Х	42.4	5.2	-13.6	34.0	50.1	500.0		
1	V/1		Y	43.3	5.2	-13.6	34.9	55.6	1		
	V/1		Z	43.8	5.2	-13.6	35.4	58.9	I		
	H/1		 X	40.1	5.2	-13.6	31.7	38.5			
	H/2		Ŷ	42.1	5.2	-13.6	33.7	48.4			
2763.9	H/1	.0	Z	46.4	5.2	-13.6	38.0	79.4	500.0		
3685.2	V / 1		Х	32.0	10.0	-13.6	28.4	26.3	500.0		
	V / 1		Y	32.2	10.0	-13.6	28.6	26.9			
	V / 1		Z	32.0	10.0	-13.6	28.4	26.3			
	H/1		X	31.5	10.0	-13.6	27.9	24.8			
3685.2	H/2 H/1		Y 7	33.6	10.0	-13.6 -13.6	30.0	31.6			
3003.2		.0	Z	32.5	10.0	-13.0	28.9	27.9	500.0		
4606.5	V / 1	.0	Х	35.5	13.6	-13.6	35.5	59.6	500.0		
	V / 1		Ŷ	37.6	13.6	-13.6	37.6	75.9			
	V / 1	.7	Z	35.7	13.6	-13.6	35.7	61.0			
	H/1	.6	Х	35.9	13.6	-13.6	35.9	62.4			
	H/1	.7	Y	36.9	13.6	-13.6	36.9	70.0			
4606.5	H/1	.0	Z	41.5	13.6	-13.6	41.5	118.9	500.0		
5527.8	V / 1	.0	Х	30.2	17.1	-13.6	33.7	*48.4	5011.8		
	V / 1		Y	30.2	17.1	-13.6	33.7	*48.4			
	V / 1		Z	30.2	17.1	-13.6	33.7	*48.4			
	H/1	.0	Х	30.2	17.1	-13.6	33.7	*48.4			
	H / 1		Y	30.2	17.1	-13.6	33.7	*48.4			
5527.8	H/1	.0	Z	30.2	17.1	-13.6	33.7	*48.4	5011.8		
			-					recorded were			
							not exceed th	e specified limi	ts.		
	*=Noise	Floor	Measurements	s ( Minimum	system sensi	itivity)					

<b>Test Metho</b>	d:	FCC	Part 15 Subpa	rt C, Radiate	d Emissions,	Harmonic	s Emissio	ons.			
Customer:			h Security Sys				Job No.	1	965-10		
Test Sampl	e:		N Smoke Deter								
Model No.:			BSM1-SY				FCC ID:	ТЗХВ	SM1-SY		
Operating I	Node:		inuously transr	nitting a 921	3 MHz signal			10/12			
Technician			podoo		o winiz orginali		Date:	Sente	ember 21, 200	7	
Notes:	Test Dist					Duty	Cycle: 21		111001 21, 200	1.	
NOLES.				orwige energi	fied		Cycle. 21 Cycle Co		· 12 64P		
	Delector.	Avera	age, unless oth	lei wise speci		Duty cyc		rection	13.000		
Test Freq.	Anten Pol./He		EUT Orientation	Average Reading	Correction Factor	Correcti	on Cor	rected ading	Converted Reading	Avg. Limit	
		-	X / X / 7			Factor		<u> </u>		1//	
MHz	(V/H)		X/Y/Z	dBµV	dB	dB		µV/m	uV/m	uV/m	
6449.1	V / 1.		X	31.6	19.9	-13.6		8.3	*82.2	5011.	8
	V / 1.		Y	31.6	19.9	-13.6		8.3	*82.2		
	V / 1.		Z	31.6	19.9	-13.6		8.3	*82.2		
l	H/1.		X	32.2	19.9	-13.6		8.9	*88.1		
	H/1.		Y	32.2	19.9	-13.6		8.9	*88.1		
6449.1	H/1.	.0	Z	32.2	19.9	-13.6	3	8.9	*88.1	5011.	8
7370.4	V / 1.	0	Х	31.9	21.3	-13.6	4	0.0	*100.0	500.0	)
	V / 1.		Y	31.9	21.3	-13.6		0.0	*100.0		
I	V / 1.		Z	31.9	21.3	-13.6		0.0	*100.0		
	H/1.		Х	31.9	21.3	-13.6		0.0	*100.0		
	H/1.		Y	31.9	21.3	-13.6		0.0	*100.0		
7370.4	H/1.		Z	31.9	21.3	-13.6		0.0	*100.0	500.0	)
8291.7	V / 1.	0	Х	33.2	23.6	-13.6	4	2.6	*151.4	500.0	)
1	V / 1.		Y	33.2	23.6	-13.6		2.6	*151.4		
I	V / 1.		Z	33.2	23.6	-13.6		2.6	*151.4		
	H/1.		X	32.8	23.6	-13.6		3.2	*144.5		
	H/1.		Y	32.8	23.6	-13.6		3.2	*144.5		
8291.7	H/1.		Z	32.8	23.6	-13.6		3.2	*144.5	500.0	)
9213.0	V / 1.	0	Х	33.1	25.5	-13.6	4	5.4	*186.2	500.0	)
	V / 1.	0	Y	33.1	25.5	-13.6	4	5.4	*186.2		
	V / 1.		Z	33.1	25.5	-13.6		5.4	*186.2		
	H/1.		Х	33.2	25.5	-13.6		5.5	*188.4		
	H/1.		Y	33.2	25.5	-13.6		5.5	*188.4		
9213.0	H / 1.		Z	33.2	25.5	-13.6		5.5	*188.4	500.0	)
	The freq Than 20	uency dB be	range was sca elow the specif Measurements	anned from 3 ied limit. Em	30 MHz to 10.0 issions from t	) GHz. All he EUT d	emissior	ns not re	ecorded were	more	, 

FCC Part 15, Subpart B, Class B, Radiated Emissions, 30 MHz to 5.0 GHz, Paragraph 15.109(a) Receiver Test Data

Test Metho	d:	FCC P	art 15, Subpa	rt B, Class I	3, Radiated E	mission	s, 30 MHz	to 5.	.0 GHz, Para:1	5.109	)(a)
Customer:		Bosch	Security Syste	m.			Job	No.:	R-11965-10		
Test Sampl	e:	wLSN	Smoke Detect	or					•		
Model No.:		ISW- B	SM1-SY				Serial	No.:	N/A		
Operating N	lode:	EUT op	perating on cha	annel 00(915	5.5MHz), cont	inuously	receiving a	a CW	signal.		
Technician		R.Sood	doo				D	ate:	September 2	0, 200	)7
Notes:	Test D	Distance	: 3 Meters				Temp: 25	5.0°C	Humidity	/: 44%	)
	Detec	tor: Qua	asi-Peak Belov	v 1 GHz, Pea	ak above 1 Gl	Hz		1			
Frequency		enna sition	EUT Orientation	Meter Readings	Correction Factor	Corrected Converted L Reading Reading					nit
MHz	(V/H) /	Meters	Degrees	dBuV	dB	dB	uV/m		uV/m	u\	//m
										ĺ	
30.0										10	00
88.0										1(	0
88.0										15	50
216.0		<b></b>			<b>-</b>			-		15	50
216.0			o emission	observed	at the spe	cified to	est dista	ince		20	00
								[			
960.0										20	00
960.0											00
								<u> </u>		<u> </u>	
								t			
										<b> </b>	
5000.0										E(	00
5000.0	The fre	quencv rai	nge was scanned	l from 30 MHz to	5.0 GHz.			I		50	50
	The em	e frequency range was scanned from 30 MHz to 5.0 GHz. e emissions observed from the EUT do not exceed the specified limits.									
	Emissio	ons not rec	corded were more	than 20dB und	er the specified li	mit.					

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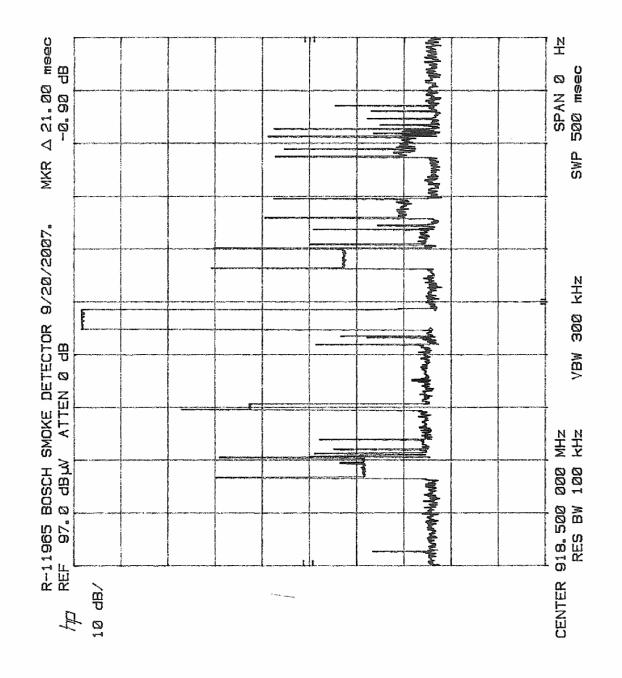
Test Met	hod:	FCC P	art 15, Subpa	rt B, Class	B, Radiated E	mission	s, 30 MHz	to 5.0 G	Hz, Para:	15.109	(a)
Custome	er:		Security Syste				Job N	1	11965-10		. ,
Test San	nple:		Smoke Detect								
Model No	).:	ISW- E	N- BSM1-SY Serial No.: N/A								
Operatin	g Mode:	EUT o	T operating on channel 30(918.5MHz), continuously receiving a CW signal.								
Technicia		R.Soo	Soodoo Date: September 20, 2007								
Notes:	Test I	Distance	nce: 3 Meters Temp: 25.0°C Humidity: 44%								
	Detec	tor: Qua	asi-Peak Belov	v 1 GHz, Pe	ak above 1 G	Hz					
	Ant	enna	EUT	Meter	Correction	Corr	rected	Con	verted	Line	. 14
Frequenc	y Po	sition	Orientation	Readings	Factor	Rea	ading	Rea	ading	Lin	ш
MHz	(V/H)	/ Meters	Degrees	dBµV	dB	dB	μV/m	u	iV/m	uV	/m
30.0										10	0
<u> </u>											
88.0										10	0
88.0										15	0
216.0		- No	emission of	observed	at the spec	ified te	st distar	nce		15	0
216.0			1	1	•					20	
960.0										20	0
960.0										50	
											0
<u>i</u>											
!										<u> </u>	
I											
<u> </u>											
<u> </u>								1			
<u>I</u>											
İ											
5000.0										50	0
			nge was scanned oserved from the E			limits					
			corded were more								

Page 2 of 3

Test Metho	d:	FCC P	art 15, Subpa	rt B, Class I	3, Radiated E	mission	s, 30 MHz	to 5.	0 GHz, Para:1	5.109	(a)
Customer:		Bosch	Security Syste	em.			Job I	No.:	R-11965-10		
Test Sampl	e:		Smoke Detect								
Model No.:		ISW- B	SM1-SY				Serial I	No.:	N/A		
Operating N	/lode:		perating on cha	annel 58(921	.3MHz), cont	inuously i	eceiving a	a CW	signal.		
Technician		R.Sood		, , , , , , , , , , , , , , , , , , ,	· · ·		-	ate:	September 2	0, 200	)7
Notes:	Test D	Distance	: 3 Meters				Temp: 25	5.0°C	· · ·		
			asi-Peak Belov	v 1 GHz, Pea	ak above 1 G	Hz					
		enna	EUT	Meter	Correction		ected	(	Converted		
Frequency		sition	Orientation	Readings	Factor		ading		Reading	Lir	nit
MHz	(V/H) /	Meters	Degrees	dBµV	dB	dB	μV/m		uV/m	u۷	′/m
	. ,										
30.0										10	)0
I											
88.0										10	0
88.0										15	
											-
										İ	
216.0 216.0		- No	o emission	observed	at the spe	cified to	est dista	ince		15 20	
216.0										20	0
										ĺ	
960.0										20	
960.0										50	00
İ										İİ	
										Ĺ	
!										ļ	
5000.0										50	0
5000.0	The fre	quencv rar	nge was scanned	from 30 MHz to	5.0 GHz.			I		50	.0
	The em	issions ob	served from the E	UT do not exce	ed the specified						
	Emissio	ons not rec	orded were more	than 20dB und	er the specified li	imit.					

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FCC Part 15.35, Duty Cycle Determination Test Data



Test Method: FCC Part 15.35, Duty Cycle Determination. Notes: Duty cycle = (21 mSec / 100) = 0.21 = 21%= 20 log 0.21 = -13.6 dB

FCC ID: T3XBSM1-SY

Customer Bo		sch Security System.				
Test Sample	wL	SN Smoke Detector				
Model Number	ISV	ISW-BSM1-SY				
Date: 9-20-2007		Tech: R.S.	Sheet 1 of 1			

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