



Honeywell, Automation and Control Solutions

THX9421R02

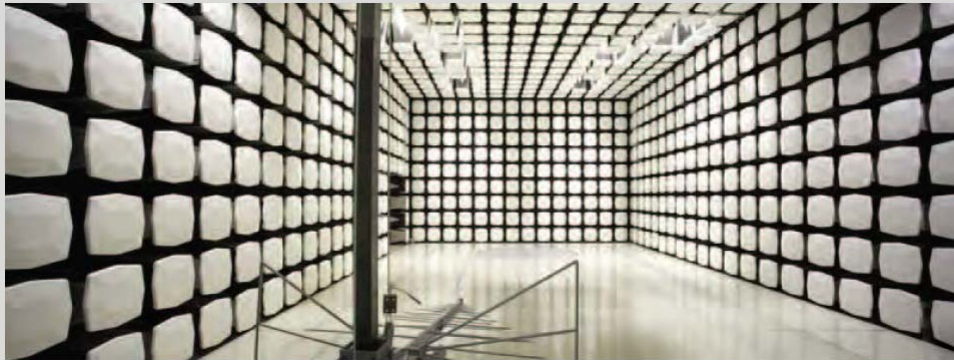
FCC 15.247:2012

FCC 15.207:2012

FCC 15.109:2012

FCC 15.107:2012

Report #: HNYW0024



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

Last Date of Test: December 10, 2012
Honeywell, Automation and Control Solutions
Model: THX9421R02

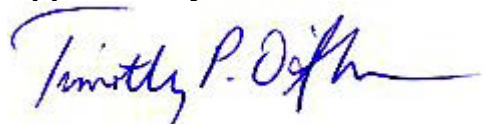
Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2012	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2012	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2012	ANSI C63.10:2009	Pass
Dwell Time	FCC 15.247:2012	ANSI C63.10:2009	Pass
Number of Hopping Frequencies	FCC 15.247:2012	ANSI C63.10:2009	Pass
Channel Spacing	FCC 15.247:2012	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2012	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions - Transmit	FCC 15.207:2012	ANSI C63.10:2009	Pass
Receiver Spurious Emissions	FCC 15.109:2012	ANSI C63.4:2009	Pass
AC Powerline Conducted Emissions - Receiver	FCC 15.107:2012	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager



NVLAP Lab Code: 200881-0

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
 9349 W Broadway Ave.
 Brooklyn Park, MN 55445

Phone: (763) 425-2281 Fax: (763) 424-3469

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834E-1).

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.



Revision History

Revision Number	Description	Date	Page Number
00	None		

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025. The scope includes radio, ITE, and medical standards from around the world. See: <http://www.nwemc.com/accreditations/>

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

KCC / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Hong Kong

OFTA – Recognized by OFTA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-1 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	4.00	-4.00
AC Powerline Conducted Emissions (dB)	2.70	-2.70

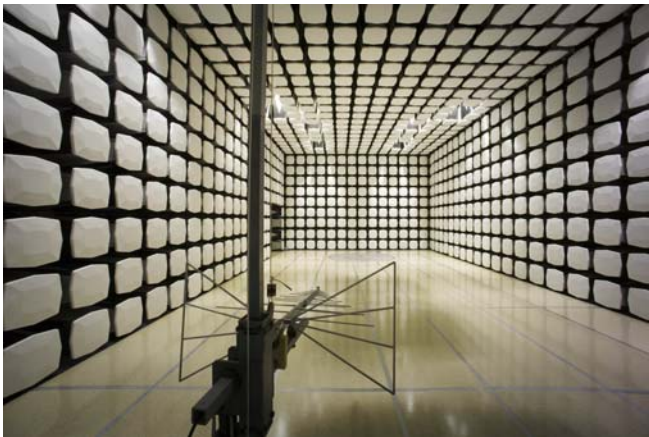


Locations

Revision 8/3/12



Oregon Labs EV01-EV12 22975 NW Evergreen Pkwy, #400 Hillsboro, OR 97124 (503) 844-4066	California Labs OC01-OC13 41 Tesla Irvine, CA 92618 (949) 861-8918	New York Labs WA01-WA04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Minnesota Labs MN01-MN08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Washington Labs SU01-SU07 14128 339 th Ave. SE Sultan, WA 98294 (360) 793-8675
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-2	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1





PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Honeywell, Automation and Control Solutions
Address:	1985 Douglas Drive North
City, State, Zip:	Golden Valley, MN 55422-3992
Test Requested By:	Tracy Lentz
Model:	THX9421R02
First Date of Test:	November 8, 2012
Last Date of Test:	December 10, 2012
Receipt Date of Samples:	November 8, 2012
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
902 - 928 transceiver operating with a maximum output power of 10 dBm
Testing Objective:
To demonstrate compliance to FCC 15.247 requirements.

Configuration HNYW0024- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Thermostat	Honeywell, Automation and Control Solutions	THX9421R02	69971015000579

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Transformer	Honeywell, Automation and Control Solutions	AT72D 1683	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	3.00m	No	Thermostat	Transformer
AC Power	No	1.60m	No	Transformer	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration HNYW0024- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Thermostat	Honeywell, Automation and Control Solutions	THX9421R02	69971015000584

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Transformer	Honeywell, Automation and Control Solutions	AT72D 1683	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	3.00m	No	Thermostat	Transformer
AC Power	No	1.60m	No	Transformer	AC Mains
USB	Yes	1.80m	No	Thermostat	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	11/8/2012	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	11/8/2012	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	11/8/2012	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	11/8/2012	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	11/12/2012	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	11/13/2012	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	11/21/2012	Dwell Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
8	11/21/2012	Number of Hopping Frequencies	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
9	11/21/2012	Channel Spacing	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
10	11/21/2012	Band Edge Compliance – Hopping Mode	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.



DUTY CYCLE

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

The EUT operates at 100% Duty Cycle.

Output Power

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/19/2012	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.



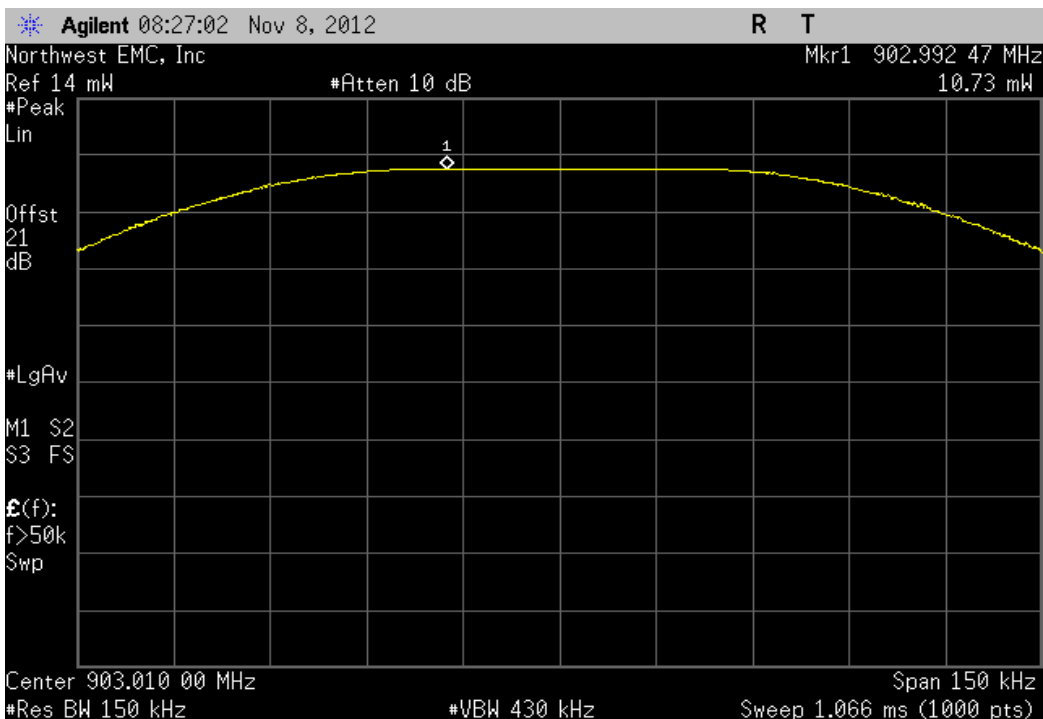
Output Power

XMit 2012.09.20
PsaTx 2012.11.06

EUT: THX9421R02		Work Order: HNYW0024	
Serial Number: 1243		Date: 11/08/12	
Customer: Honeywell, Automation and Control Solutions		Temperature: 22.39°C	
Attendees: None		Humidity: 26%	
Project: None		Barometric Pres.: 1016	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
Low Channel: 903.01 MHz		10.732 mW	< 1 W
Mid Channel: 914.61 MHz		11.066 mW	< 1 W
High Channel: 926.41 MHz		10.975 mW	< 1 W
			Result
			Pass
			Pass
			Pass

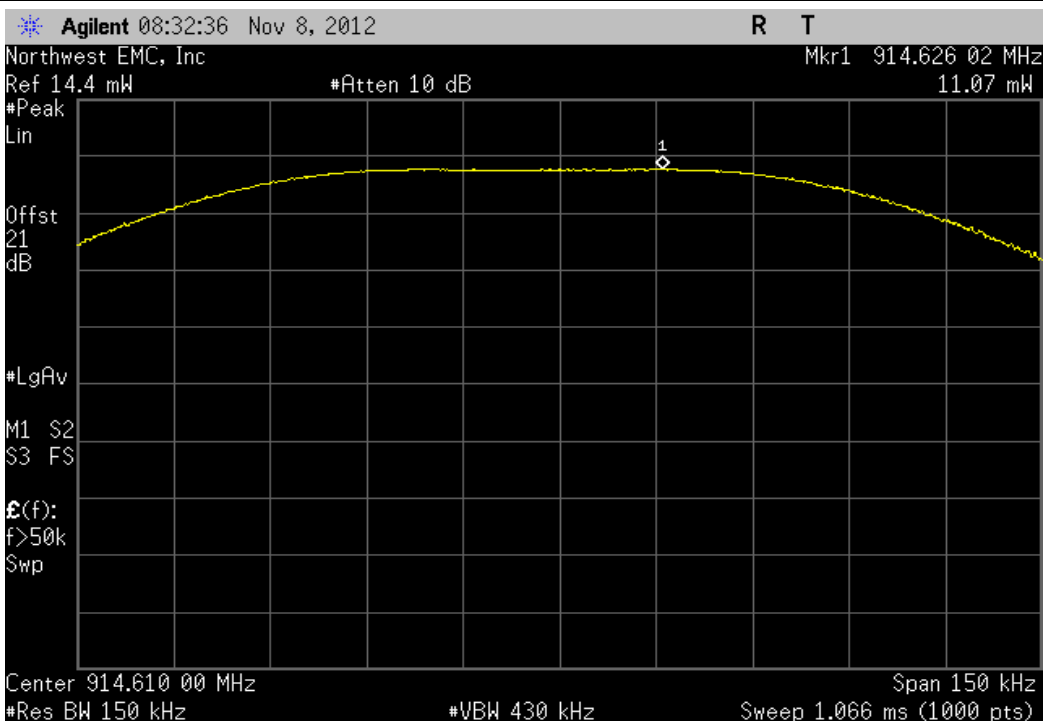
Low Channel: 903.01 MHz

Value	Limit	Result
10.732 mW	< 1 W	Pass



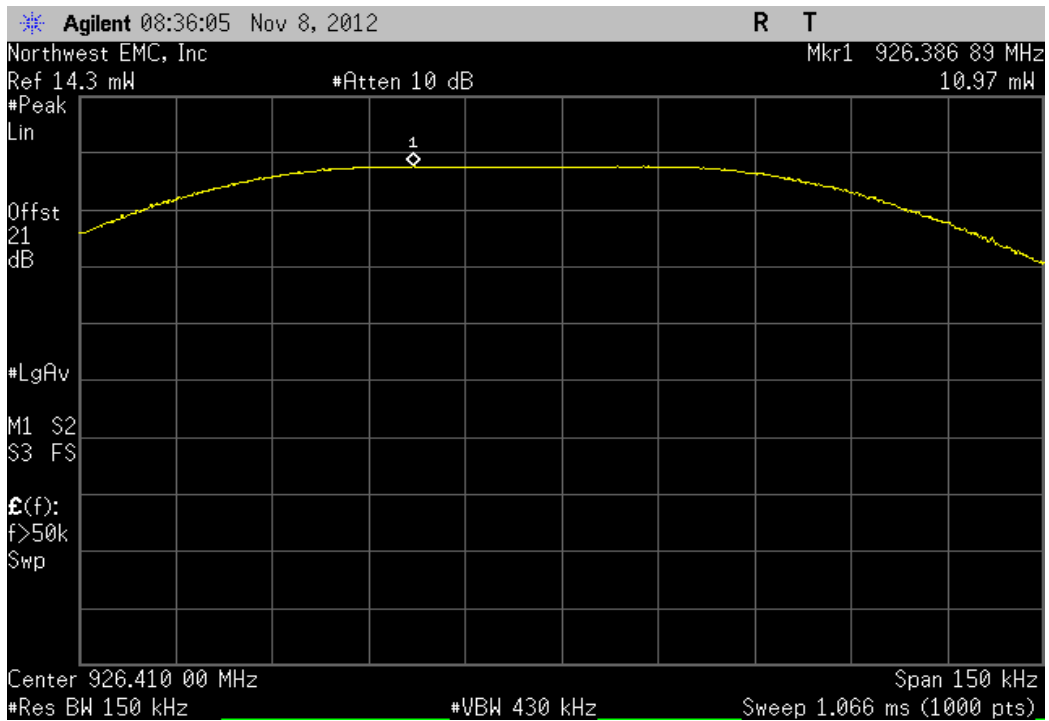
Mid Channel: 914.61 MHz

Value	Limit	Result
11.066 mW	< 1 W	Pass



High Channel: 926.41 MHz

Value	Limit	Result
10.975 mW	< 1 W	Pass



Spurious Conducted Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/19/2012	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

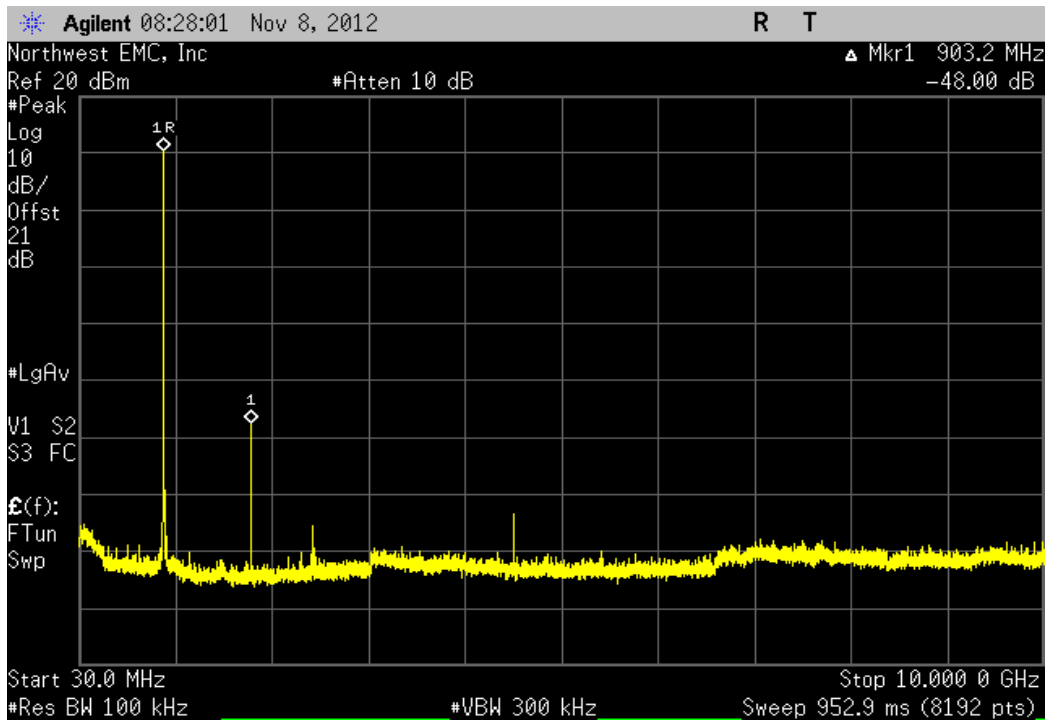


Spurious Conducted Emissions

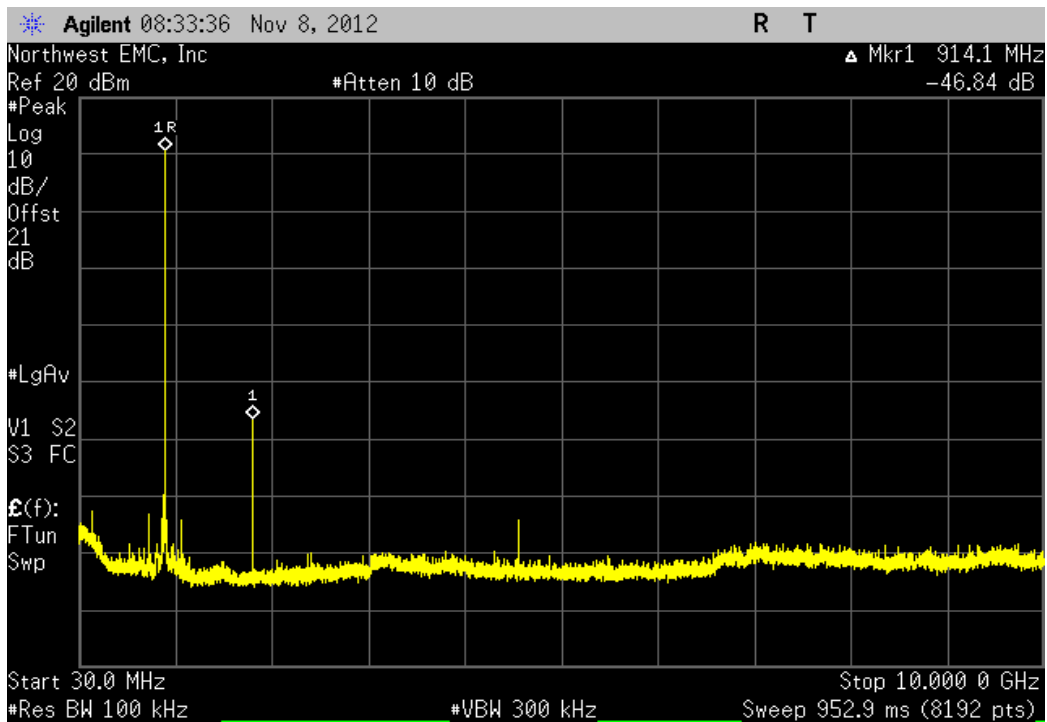
XMit 2012.09.20
PsaTx 2012.11.06

EUT: THX9421R02		Work Order: HNYW0024			
Serial Number: 1243		Date: 11/08/12			
Customer: Honeywell, Automation and Control Solutions		Temperature: 22.39°C			
Attendees: None		Humidity: 26%			
Project: None		Barometric Pres.: 1016			
Tested by: Trevor Buls		Power: 110VAC/60Hz			
		Job Site: MN08			
TEST SPECIFICATIONS		Test Method			
FCC 15.247:2012		ANSI C63.10:2009			
COMMENTS					
None					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	1	Signature <i>Trevor Buls</i>			
		Frequency Range	Value	Limit	Result
Low Channel: 903.01 MHz		30 MHz - 10 GHz	-48 dBc	≤ -20 dBc	Pass
Mid Channel: 914.61 MHz		30 MHz - 10 GHz	-46.84 dBc	≤ -20 dBc	Pass
High Channel: 926.41 MHz		30 MHz - 10 GHz	-46.25 dBc	≤ -20 dBc	Pass

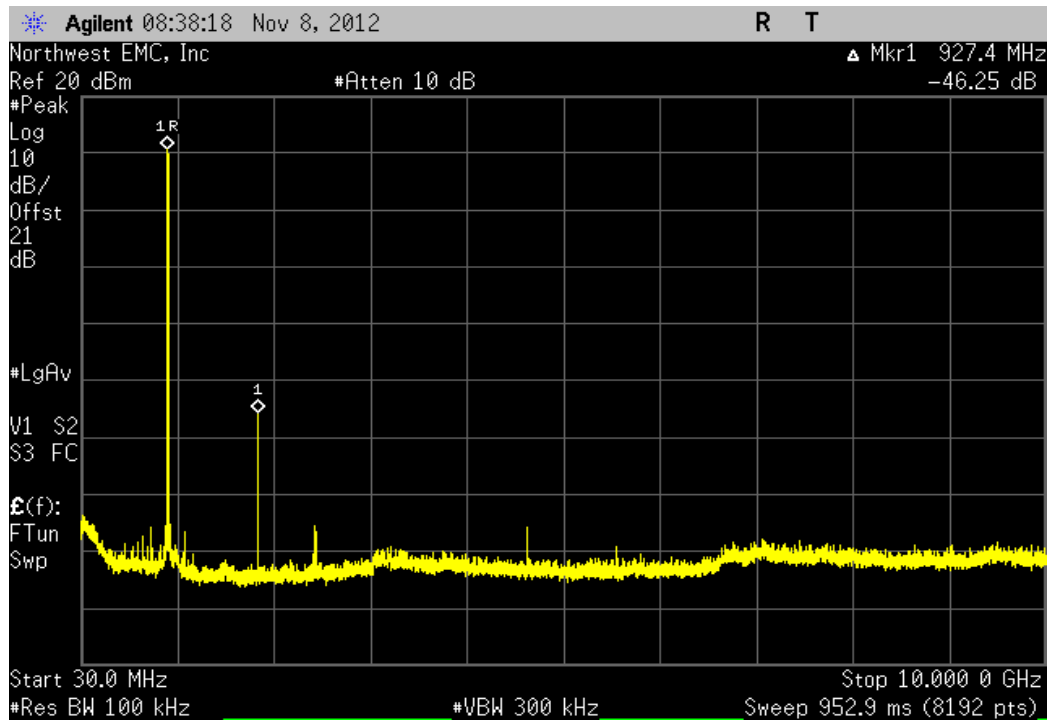
Low Channel: 903.01 MHz				
Frequency Range	Value	Limit	Result	
30 MHz - 10 GHz	-48 dBc	≤ -20 dBc	Pass	



Mid Channel: 914.61 MHz				
Frequency Range	Value	Limit	Result	
30 MHz - 10 GHz	-46.84 dBc	≤ -20 dBc	Pass	



High Channel: 926.41 MHz				
Frequency Range	Value	Limit	Result	
30 MHz - 10 GHz	-46.25 dBc	≤ -20 dBc	Pass	



Occupied Bandwidth

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/19/2012	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode.



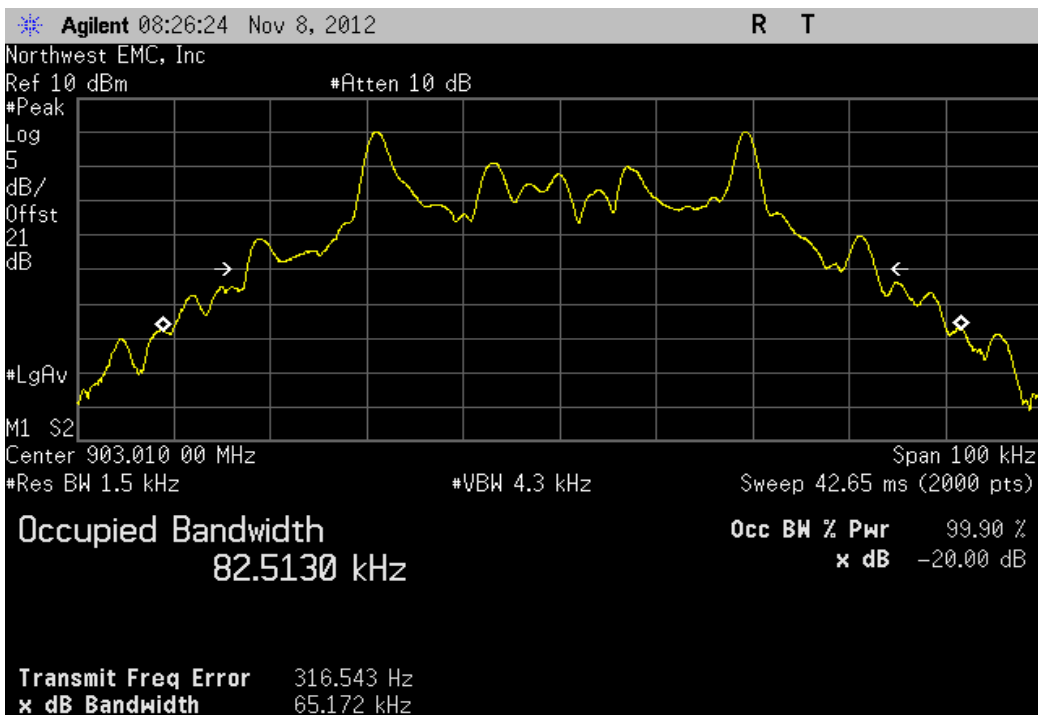
Occupied Bandwidth

XMit 2012.09.20
PsaTx 2012.11.06

EUT: THX9421R02		Work Order: HNYW0024	
Serial Number: 1243		Date: 11/08/12	
Customer: Honeywell, Automation and Control Solutions		Temperature: 22.39°C	
Attendees: None		Humidity: 26%	
Project: None		Barometric Pres.: 1016	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
Low Channel: 903.01 MHz		65.172 kHz	< 250 kHz
Mid Channel: 914.61 MHz		65.129 kHz	< 250 kHz
High Channel: 926.41 MHz		65.205 kHz	< 250 kHz
			Result
			Pass
			Pass
			Pass

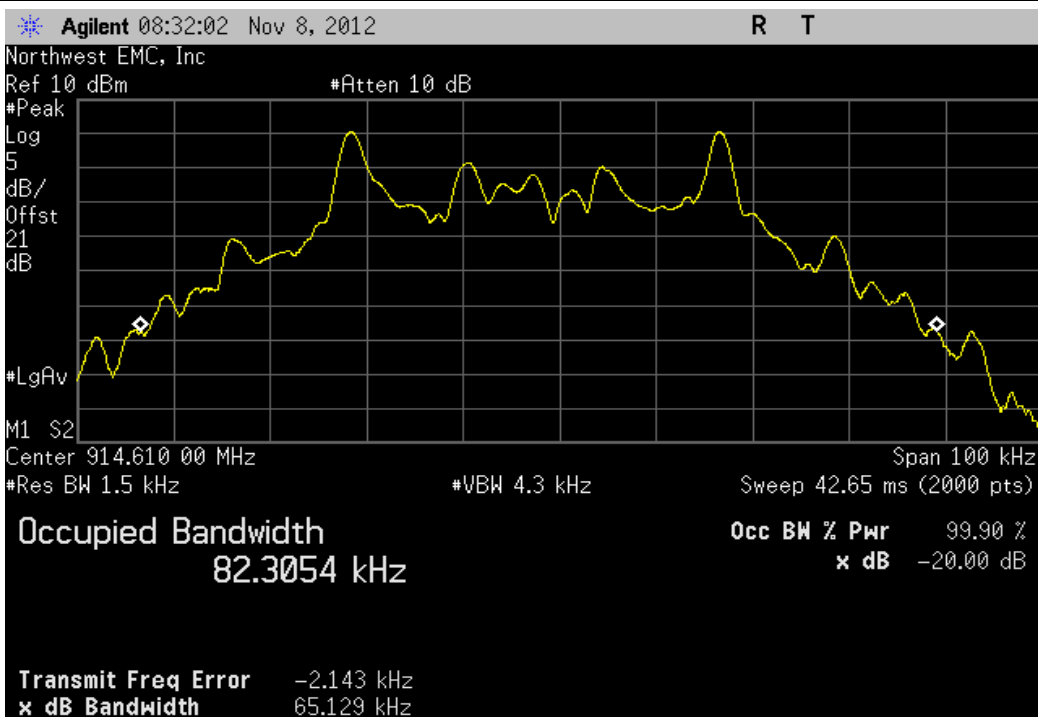
Low Channel: 903.01 MHz

				Value	Limit	Result
				65.172 kHz	< 250 kHz	Pass



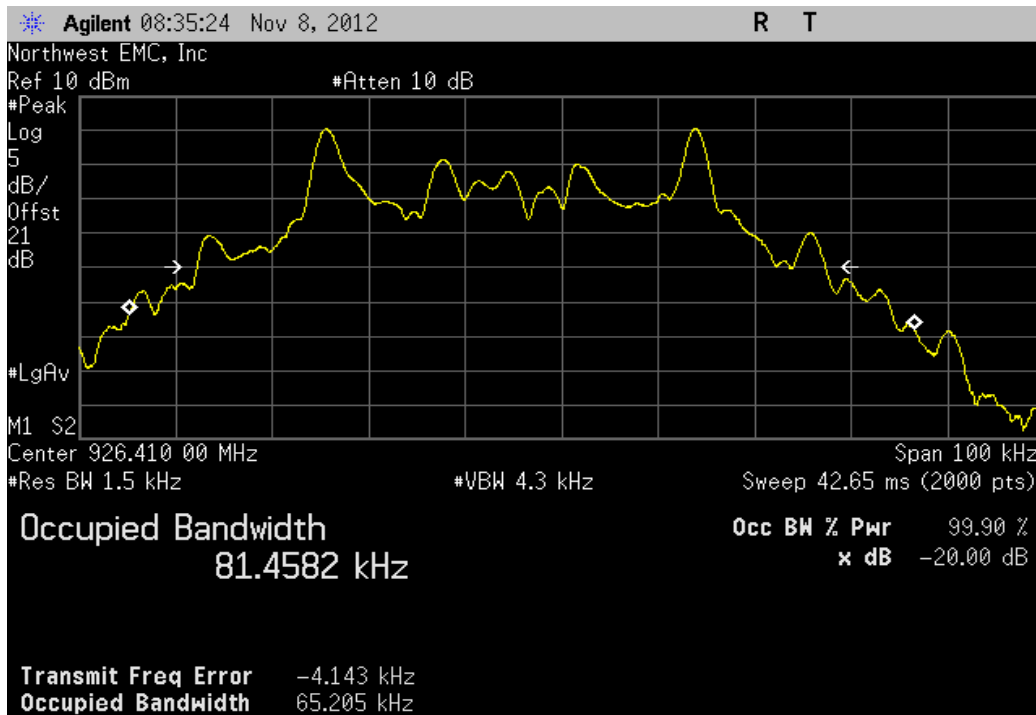
Mid Channel: 914.61 MHz

				Value	Limit	Result
				65.129 kHz	< 250 kHz	Pass



High Channel: 926.41 MHz

Value	Limit	Result
65.205 kHz	< 250 kHz	Pass



Band Edge Compliance - Non-Hopping Mode

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/19/2012	12
Signal Generator	Agilent	N5183A	TIA	1/27/2012	24
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet in a no hop mode. The channels closest to the band edges were selected.

The spectrum was scanned below the lower band edge and above the higher band edge.



Band Edge Compliance - Non-Hopping Mode

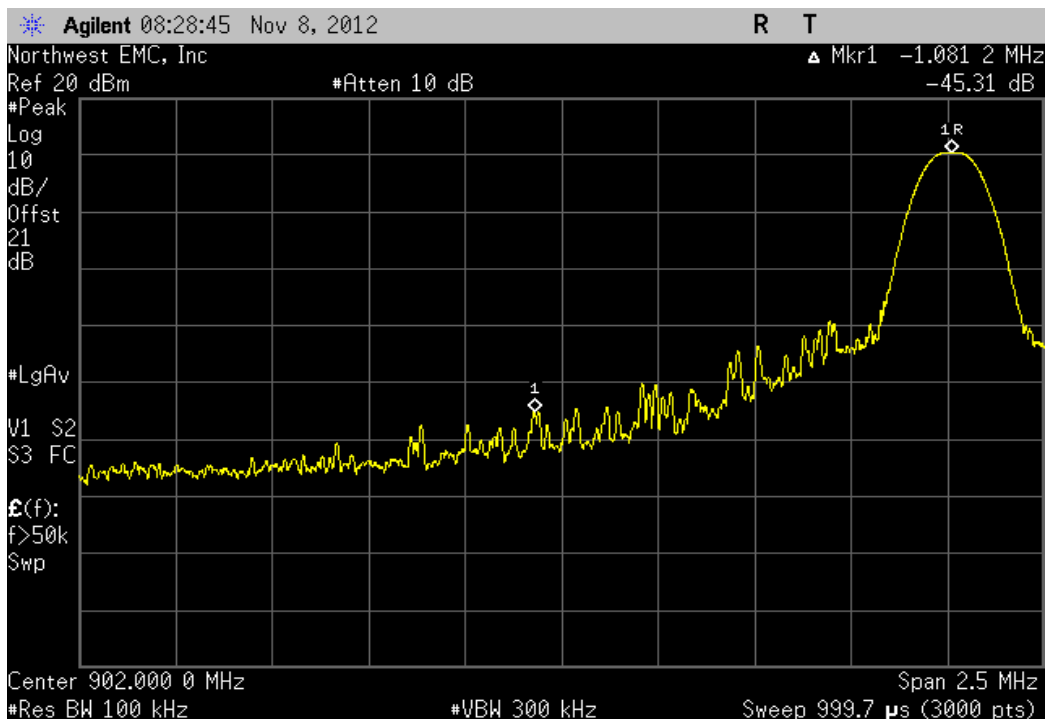
XMit 2012.09.20
PsaTx 2012.11.06

EUT: THX9421R02		Work Order: HNYW0024	
Serial Number: 1243		Date: 11/08/12	
Customer: Honeywell, Automation and Control Solutions		Temperature: 22.39°C	
Attendees: None		Humidity: 26%	
Project: None		Barometric Pres.: 1016	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
Low Channel: 903.01 MHz		-45.31 dBc	≤ -20 dBc
High Channel: 926.41 MHz		-53.33 dBc	≤ -20 dBc

Low Channel: 903.01 MHz	-45.31 dBc	≤ -20 dBc	Pass
High Channel: 926.41 MHz	-53.33 dBc	≤ -20 dBc	Pass

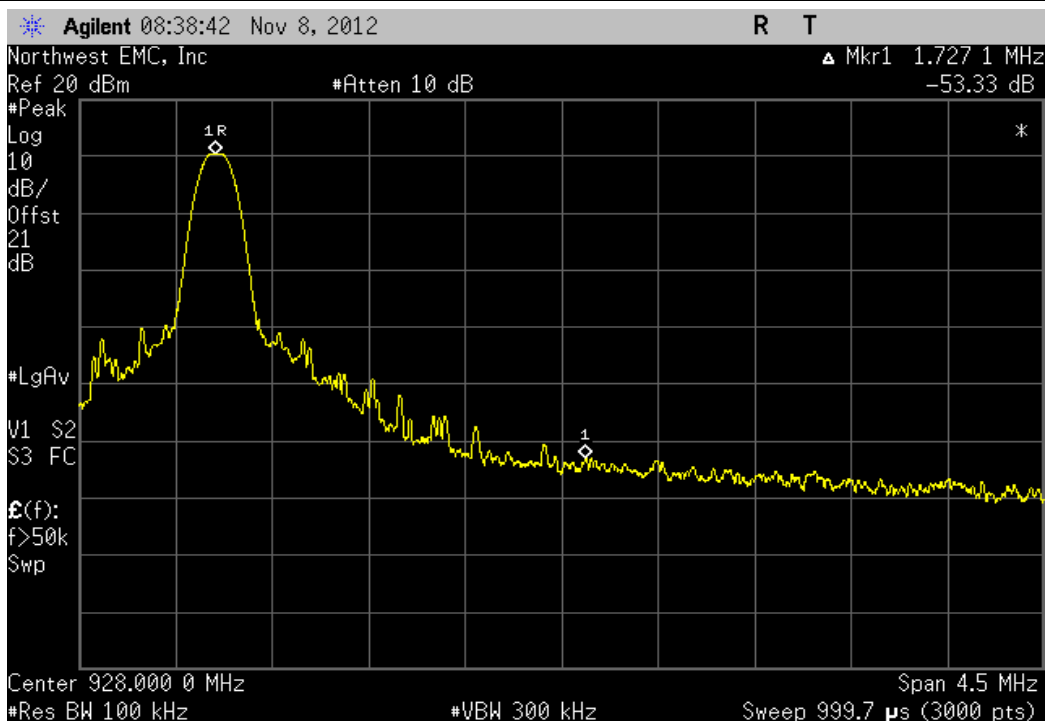
Low Channel: 903.01 MHz

				Value	Limit	Result
				-45.31 dBc	≤ -20 dBc	Pass



High Channel: 926.41 MHz

				Value	Limit	Result
				-53.33 dBc	≤ -20 dBc	Pass



Band Edge Compliance - Hopping Mode

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Near Field Probe Set	ETS	7405	IPO	NCR	0
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The spurious RF emissions at the edges of the authorized band were measured with the EUT set to its normal pseudo-random hopping sequence. The measurement was made using a near field probe near the EUT and connected to the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

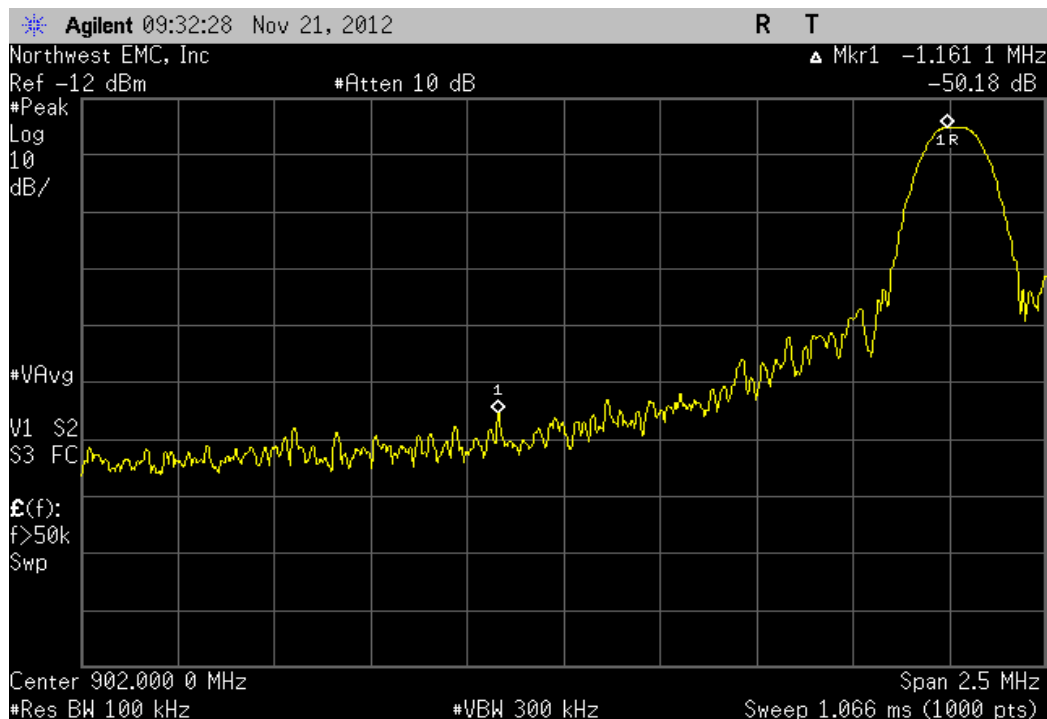


Band Edge Compliance - Hopping Mode

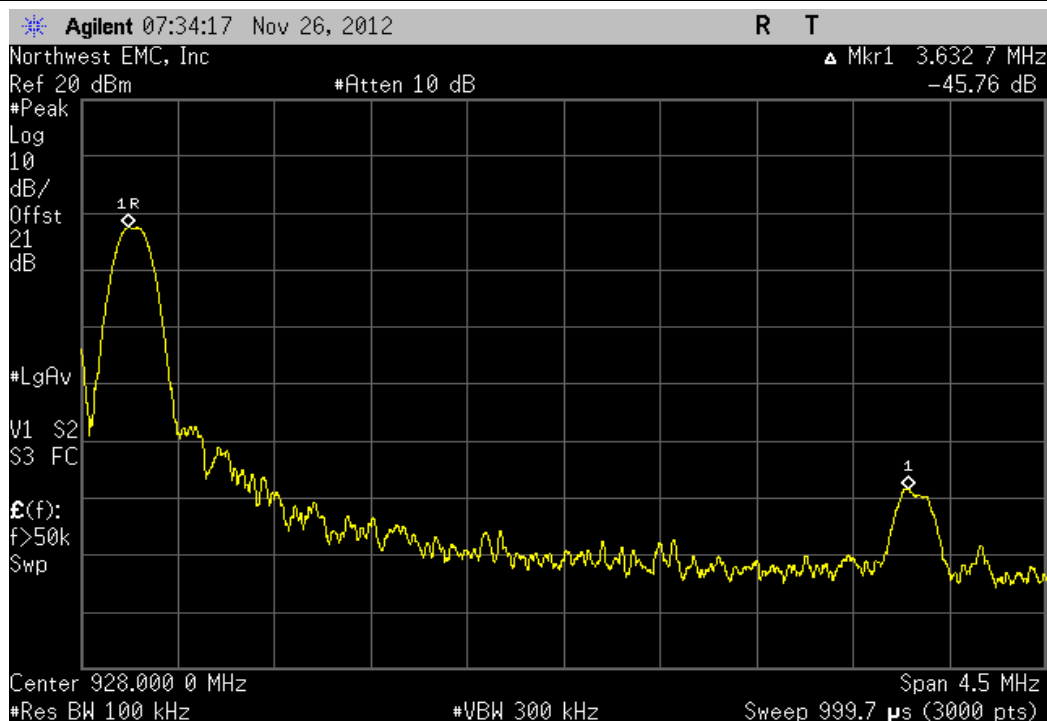
XMit 2012.09.20
PsaTx 2012.11.16

EUT: THX9421R02		Work Order: HNYW0024	
Serial Number: 69971015000584		Date: 11/21/12	
Customer: Honeywell, Automation and Control Solutions		Temperature: 23.87°C	
Attendees: none		Humidity: 26%	
Project: None		Barometric Pres.: 1015.1	
Tested by: Johnathan Lee, Trevor Buls		Power: 110VAC/60Hz	
Job Site: MN08		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
Channel		Value	Limit
Low		-50.18 dBc	≤ -20 dBc
High		-45.76 dBc	≤ -20 dBc
			Result
			Pass
			Pass

Low						
				Value	Limit	Result
				-50.18 dBc	≤ -20 dBc	Pass



High						
				Value	Limit	Result
				-45.76 dBc	≤ -20 dBc	Pass





Dwell Time

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Near Field Probe Set	ETS	7405	IPO	NCR	0
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The measurements were made using a near field probe placed near the RF output of the EUT and connected to the spectrum analyzer. The hopping function of the EUT was enabled.

The dwell time limit is based on the Number of Hopping Channels * 400 mS. For this device this equates to 50 Channels * 400mS = 20 Sec.

On Time During 20 Sec = Pulse Width * Average Number of Pulses * Scale Factor

➤ Average Number of Pulses is based on 4 samples.

➤ Scale Factor = 20 Sec / Screen Capture Sweep Time = 20 Sec / 60 Sec = 1/3

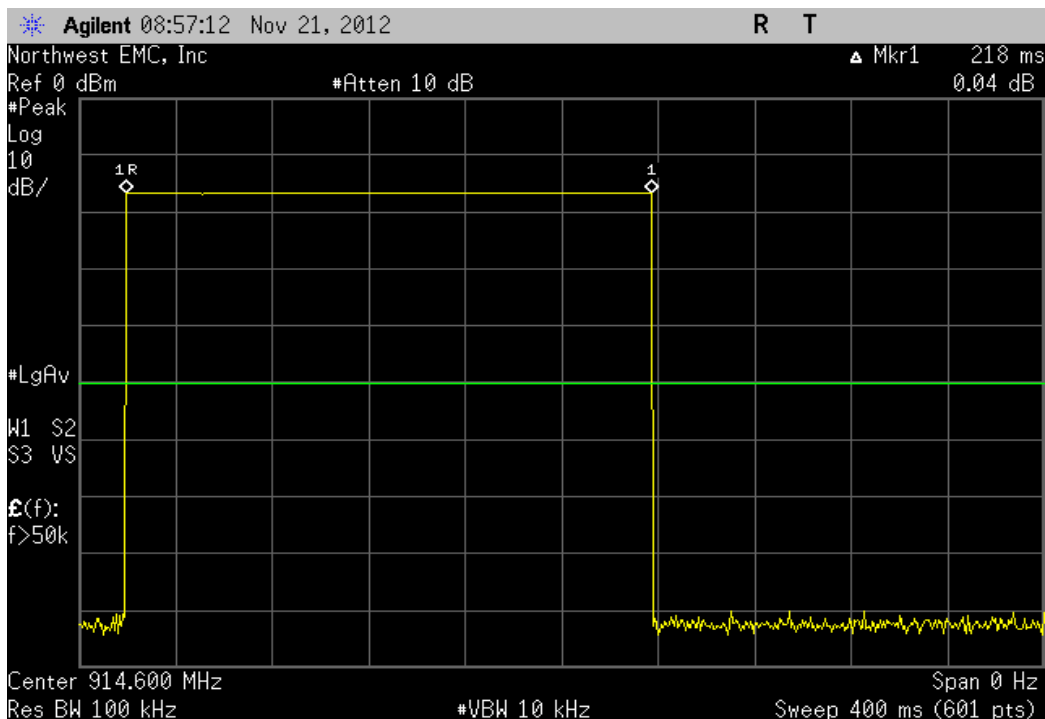


Dwell Time

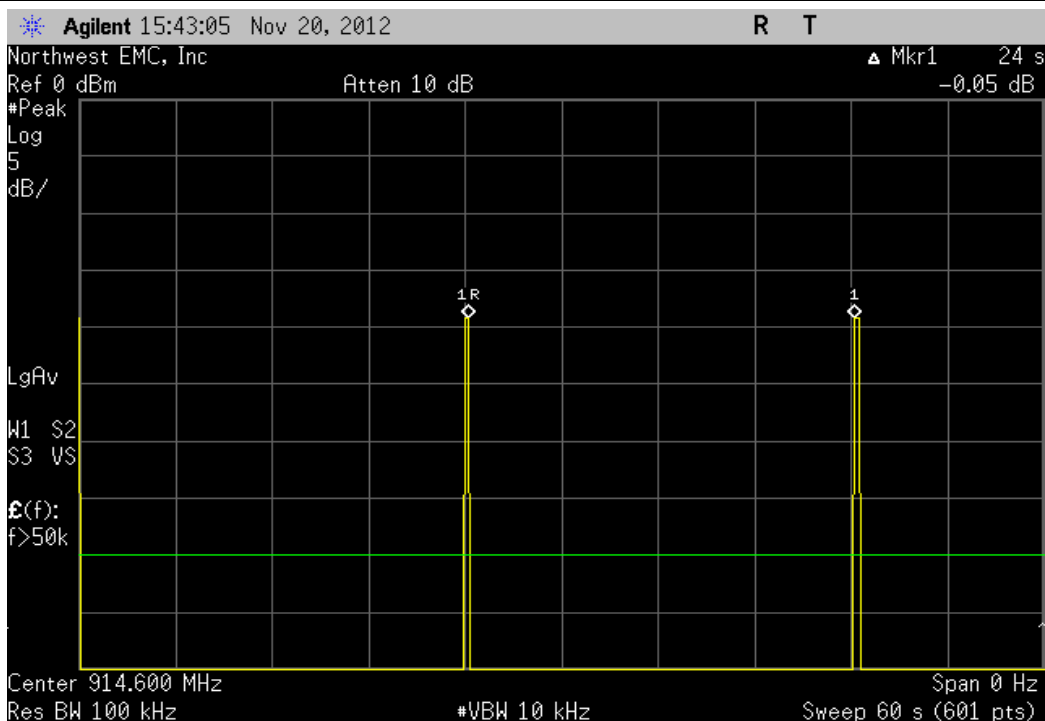
XMit 2012.09.20
PsaTx 2012.11.16

EUT: THX9421R02		Work Order: HNYW0024					
Serial Number: 69971015000584		Date: 11/21/12					
Customer: Honeywell, Automation and Control Solutions		Temperature: 23.41°C					
Attendees: none		Humidity: 27%					
Project: None		Barometric Pres.: 1015.1					
Tested by: Johnathan Lee, Trevor Buls		Power: 110VAC/60Hz					
Job Site: MN08		Test Method					
FCC 15.247:2012		ANSI C63.10:2009					
COMMENTS							
Time between pulses is always greater than or equal to 24 seconds.							
DEVIATIONS FROM TEST STANDARD							
None							
Configuration #	1	Signature <i>Trevor Buls</i>					
Channel	Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (mS) During 20 S	Limit (mS)	Result
Mid	218	N/A	N/A	N/A	N/A	N/A	N/A
Mid	N/A	3	N/A	1/3	218	400	Pass

Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Mid Scale Factor	On Time (mS) During 20 S	Limit (mS)	Result
218	N/A	N/A	N/A	N/A	N/A	N/A



Pulse Width (mS)	Number of Pulses	Average No. of Pulses	Mid Scale Factor	On Time (mS) During 20 S	Limit (mS)	Result
N/A	3	N/A	1/3	218	400	Pass



Number of Hopping Frequencies

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Near Field Probe Set	ETS	7405	IPO	NCR	0
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The number of hopping frequencies was measured across the authorized band. The measurements were made using a near field probe placed near the RF output of the EUT and was connected to the spectrum analyzer. The hopping function of the EUT was enabled.

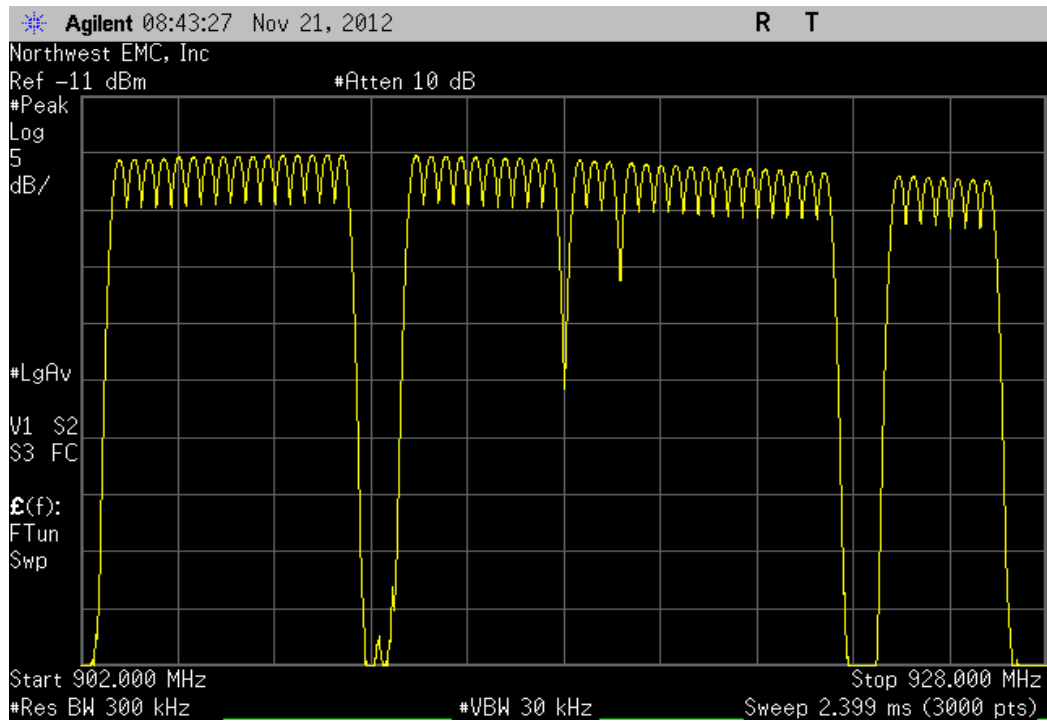


Number of Hopping Frequencies

XMit 2012.09.20
PsaTx 2012.11.16

EUT: THX9421R02		Work Order: HNYW0024	
Serial Number: 69971015000584		Date: 11/21/12	
Customer: Honeywell, Automation and Control Solutions		Temperature: 23.29°C	
Attendees: none		Humidity: 27%	
Project: None		Barometric Pres.: 1015.1	
Tested by: Johnathan Lee, Trevor Buls		Power: 110VAC/60Hz	
Job Site: MN08			
TEST SPECIFICATIONS			
FCC 15.247:2012		Test Method	
		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
Channel		Number of Channels	Limit
Mid		50	≥ 50
			Pass

Mid				Number of Channels	Limit	Result
				50	≥ 50	Pass



Channel Spacing

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Near Field Probe Set	ETS	7405	IPO	NCR	0
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	12

TEST DESCRIPTION

The channel carrier frequencies in the 900-928MHz band must be separated by 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. The 20dB bandwidth is 65kHz. Or, if the output power is less than 125mW, the channel separation can be 25kHz or 2/3 of the 20dB bandwidth. The EUT was operated in pseudorandom hopping mode. The spectrum was scanned across two adjacent peaks. The separation between the peaks of these channels was measured.

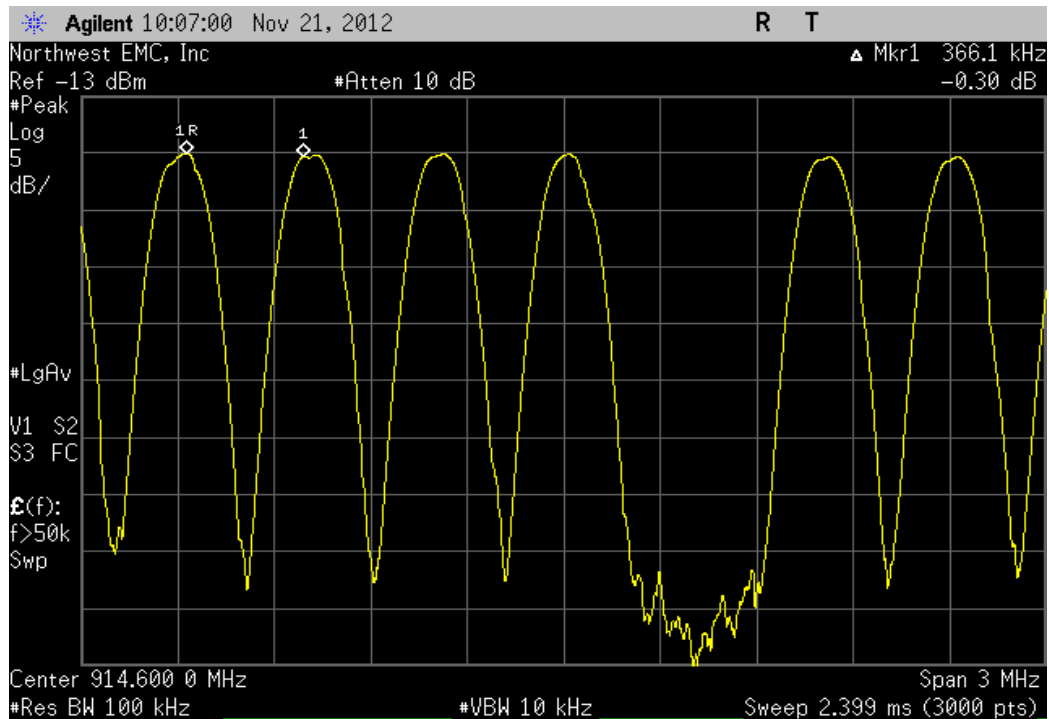


Channel Spacing

XMit 2012.09.20
PsaTx 2012.11.16

EUT: THX9421R02		Work Order: HNYW0024	
Serial Number: 69971015000584		Date: 11/21/12	
Customer: Honeywell, Automation and Control Solutions		Temperature: 23.43°C	
Attendees: none		Humidity: 27%	
Project: None		Barometric Pres.: 1015.1	
Tested by: Johnathan Lee, Trevor Buls		Power: 110VAC/60Hz	
Job Site: MN08			
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2012		ANSI C63.10:2009	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
Channel		Value	Limit
Mid		366.1 kHz	≥ 65 kHz
			Pass

Mid				Value	Limit	Result
				366.1 kHz	≥ 65 kHz	Pass



Spurious Radiated Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting low, mid, high channels: 903.0 MHz, 914.6 MHz, 926.4 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

HNYW0024 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	10000 MHz
-----------------	--------	----------------	-----------

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	5/30/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/30/2012	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	5/30/2012	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	5/31/2012	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/31/2012	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/19/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

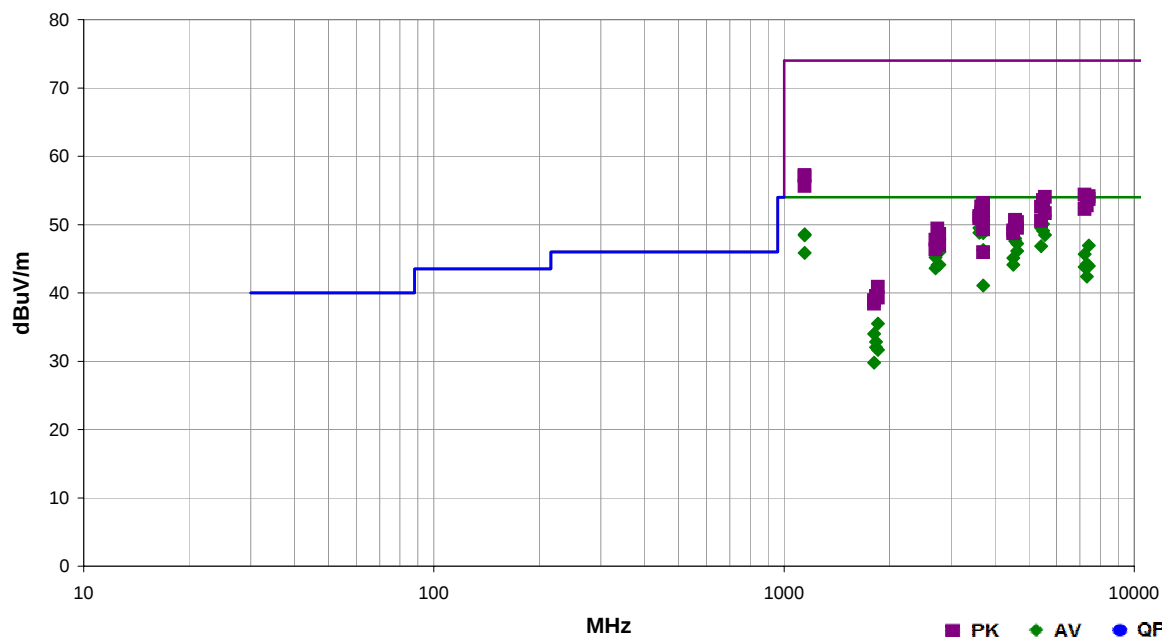
TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Work Order:	HNYW0024	Date:	11/12/12	
Project:	None	Temperature:	23.29 °C	
Job Site:	MN05	Humidity:	22% RH	
Serial Number:	6.9971E+13	Barometric Pres.:	1015.5 mbar	
EUT:	THX9421R02			
Configuration:	2			
Customer:	Honeywell, Automation and Control Solutions			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting low, mid, high channels: 903.0 MHz, 914.6 MHz, 926.4 MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Class B	Test Method
FCC 15.247:2012		ANSI C63.10:2009

Run #	9	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
-------	---	-------------------	---	-------------------	------	---------	------



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5558.367	45.4	5.9	1.6	181.0	3.0	0.0	Vert	AV	0.0	51.3	54.0	-2.7	EUT Vertical, High ch
3705.575	51.4	-0.2	1.2	166.0	3.0	0.0	Vert	AV	0.0	51.2	54.0	-2.8	EUT Vertical, High ch
3705.575	50.8	-0.2	1.0	177.0	3.0	0.0	Horz	AV	0.0	50.6	54.0	-3.4	EUT On Side, High ch
3658.383	51.1	-0.6	1.0	173.0	3.0	0.0	Horz	AV	0.0	50.5	54.0	-3.5	EUT On Side, Mid ch
5487.575	44.4	5.7	1.9	196.0	3.0	0.0	Vert	AV	0.0	50.1	54.0	-3.9	EUT Vertical, Mid ch
3705.583	50.2	-0.2	1.0	237.0	3.0	0.0	Vert	AV	0.0	50.0	54.0	-4.0	EUT Horizontal, High ch
3611.967	50.4	-0.9	1.0	185.0	3.0	0.0	Vert	AV	0.0	49.5	54.0	-4.5	EUT Vertical, Low ch
5417.992	44.0	5.5	1.6	181.0	3.0	0.0	Vert	AV	0.0	49.5	54.0	-4.5	EUT Vertical, Low ch
3658.383	49.8	-0.6	1.0	201.0	3.0	0.0	Vert	AV	0.0	49.2	54.0	-4.8	EUT Vertical, Mid ch
5487.583	43.4	5.7	1.4	189.0	3.0	0.0	Horz	AV	0.0	49.1	54.0	-4.9	EUT On Side, Mid ch
3611.975	49.7	-0.9	1.0	167.0	3.0	0.0	Horz	AV	0.0	48.8	54.0	-5.2	EUT On Side, Low ch
3705.575	49.0	-0.2	1.0	226.0	3.0	0.0	Horz	AV	0.0	48.8	54.0	-5.2	EUT Vertical, High ch
1144.056	36.6	-8.0	1.2	360.0	3.0	20.0	Horz	AV	0.0	48.6	54.0	-5.4	EUT On Side, High ch
5558.383	42.6	5.9	1.0	263.0	3.0	0.0	Horz	AV	0.0	48.5	54.0	-5.5	EUT On Side, High ch
1143.992	36.5	-8.0	1.2	360.0	3.0	20.0	Horz	AV	0.0	48.5	54.0	-5.5	EUT On Side, Mid ch
4572.992	44.9	3.1	1.0	175.0	3.0	0.0	Vert	AV	0.0	48.0	54.0	-6.0	EUT Vertical, Mid ch
4572.992	44.5	3.1	1.0	199.0	3.0	0.0	Horz	AV	0.0	47.6	54.0	-6.4	EUT On Side, Mid ch
4631.958	43.9	3.3	1.0	172.0	3.0	0.0	Vert	AV	0.0	47.2	54.0	-6.8	EUT Vertical, High ch
7411.125	34.4	12.5	1.0	252.0	3.0	0.0	Horz	AV	0.0	46.9	54.0	-7.1	EUT On Side, High ch
5417.958	41.3	5.5	1.0	206.0	3.0	0.0	Horz	AV	0.0	46.8	54.0	-7.2	EUT On Side, Low ch
2743.792	49.9	-3.2	1.0	170.0	3.0	0.0	Horz	AV	0.0	46.7	54.0	-7.3	EUT On Side, Mid ch
3705.583	46.5	-0.2	1.0	255.0	3.0	0.0	Vert	AV	0.0	46.3	54.0	-7.7	EUT On Side, High ch

4631.975	42.8	3.3	1.0	100.0	3.0	0.0	Horz	AV	0.0	46.1	54.0	-7.9	EUT On Side, High ch
2779.192	49.2	-3.2	1.0	173.0	3.0	0.0	Horz	AV	0.0	46.0	54.0	-8.0	EUT On Side, High ch
1144.046	33.9	-8.0	1.2	334.0	3.0	20.0	Horz	AV	0.0	45.9	54.0	-8.1	EUT On Side, Mid ch
7223.933	34.2	11.5	1.5	232.0	3.0	0.0	Horz	AV	0.0	45.7	54.0	-8.3	EUT On Side, Low ch
2709.017	48.4	-3.2	1.0	161.0	3.0	0.0	Horz	AV	0.0	45.2	54.0	-8.8	EUT On Side, Low ch
4514.983	42.3	2.8	1.0	177.0	3.0	0.0	Horz	AV	0.0	45.1	54.0	-8.9	EUT On Side, Low ch
7316.767	32.2	12.0	1.0	136.0	3.0	0.0	Horz	AV	0.0	44.2	54.0	-9.8	EUT On Side, Mid ch
4514.967	41.3	2.8	1.0	173.0	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	EUT Vertical, Low ch
2779.175	47.3	-3.2	1.0	158.0	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	EUT Vertical, High ch
2743.792	47.3	-3.2	1.0	149.0	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	EUT Vertical, Mid ch
7411.125	31.4	12.5	1.4	218.0	3.0	0.0	Vert	AV	0.0	43.9	54.0	-10.1	EUT Vertical, High ch
7224.025	32.3	11.5	1.0	206.0	3.0	0.0	Vert	AV	0.0	43.8	54.0	-10.2	EUT Vertical, Low ch
2709.025	46.8	-3.2	1.0	153.0	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	EUT Vertical, Low ch
7316.808	30.4	12.0	1.0	172.0	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	EUT Vertical, Mid ch
3705.583	41.3	-0.2	1.0	160.0	3.0	0.0	Horz	AV	0.0	41.1	54.0	-12.9	EUT Horizontal, High ch
1143.870	45.3	-8.0	1.2	360.0	3.0	20.0	Horz	PK	0.0	57.3	74.0	-16.7	EUT On Side, High ch
1144.558	45.1	-8.0	1.2	360.0	3.0	20.0	Horz	PK	0.0	57.1	74.0	-16.9	EUT On Side, Low ch
1143.946	43.7	-8.0	1.2	334.0	3.0	20.0	Horz	PK	0.0	55.7	74.0	-18.3	EUT On Side, Low ch
1852.792	40.4	-4.9	1.3	206.0	3.0	0.0	Horz	AV	0.0	35.5	54.0	-18.5	EUT On Side, High ch
7223.875	42.9	11.5	1.5	232.0	3.0	0.0	Horz	PK	0.0	54.4	74.0	-19.6	EUT On Side, Low ch
7411.183	41.6	12.5	1.0	252.0	3.0	0.0	Horz	PK	0.0	54.1	74.0	-19.9	EUT On Side, High ch
5558.250	48.2	5.9	1.6	181.0	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	EUT Vertical, High ch
7317.367	42.0	12.0	1.0	136.0	3.0	0.0	Horz	PK	0.0	54.0	74.0	-20.0	EUT On Side, Mid ch
1806.058	39.6	-5.6	1.4	212.0	3.0	0.0	Horz	AV	0.0	34.0	54.0	-20.0	EUT On Side, Low ch
7410.808	41.2	12.5	1.4	218.0	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	EUT Vertical, High ch
5487.325	47.9	5.7	1.9	196.0	3.0	0.0	Vert	PK	0.0	53.6	74.0	-20.4	EUT Vertical, Mid ch
3705.758	53.4	-0.2	1.2	166.0	3.0	0.0	Vert	PK	0.0	53.2	74.0	-20.8	EUT Vertical, High ch
1829.192	38.1	-5.3	1.1	223.0	3.0	0.0	Horz	AV	0.0	32.8	54.0	-21.2	EUT On Side, Mid ch
7316.608	40.8	12.0	1.0	172.0	3.0	0.0	Vert	PK	0.0	52.8	74.0	-21.2	EUT Vertical, Mid ch
5487.392	47.0	5.7	1.4	189.0	3.0	0.0	Horz	PK	0.0	52.7	74.0	-21.3	EUT On Side, Mid ch
3705.525	52.9	-0.2	1.0	237.0	3.0	0.0	Vert	PK	0.0	52.7	74.0	-21.3	EUT Horizontal, High ch
3658.258	53.2	-0.6	1.0	173.0	3.0	0.0	Horz	PK	0.0	52.6	74.0	-21.4	EUT On Side, Mid ch
5417.867	47.1	5.5	1.6	181.0	3.0	0.0	Vert	PK	0.0	52.6	74.0	-21.4	EUT Vertical, Low ch
3705.667	52.8	-0.2	1.0	177.0	3.0	0.0	Horz	PK	0.0	52.6	74.0	-21.4	EUT On Side, High ch
7223.550	40.8	11.5	1.0	206.0	3.0	0.0	Vert	PK	0.0	52.3	74.0	-21.7	EUT Vertical, Low ch
1829.208	37.3	-5.3	1.0	173.0	3.0	0.0	Vert	AV	0.0	32.0	54.0	-22.0	EUT Vertical, Mid ch
3658.550	52.3	-0.6	1.0	201.0	3.0	0.0	Vert	PK	0.0	51.7	74.0	-22.3	EUT Vertical, Mid ch
1852.767	36.6	-4.9	1.2	151.0	3.0	0.0	Vert	AV	0.0	31.7	54.0	-22.3	EUT Vertical, High ch
5558.208	45.8	5.9	1.0	263.0	3.0	0.0	Horz	PK	0.0	51.7	74.0	-22.3	EUT On Side, High ch
3611.833	52.1	-0.9	1.0	185.0	3.0	0.0	Vert	PK	0.0	51.2	74.0	-22.8	EUT Vertical, Low ch
3705.358	51.2	-0.2	1.0	226.0	3.0	0.0	Horz	PK	0.0	51.0	74.0	-23.0	EUT Vertical, High ch
3612.142	51.8	-0.9	1.0	167.0	3.0	0.0	Horz	PK	0.0	50.9	74.0	-23.1	EUT On Side, Low ch
4573.008	47.6	3.1	1.0	199.0	3.0	0.0	Horz	PK	0.0	50.7	74.0	-23.3	EUT On Side, Mid ch
4572.775	47.5	3.1	1.0	175.0	3.0	0.0	Vert	PK	0.0	50.6	74.0	-23.4	EUT Vertical, Mid ch
5417.750	45.0	5.5	1.0	206.0	3.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	EUT On Side, Low ch
4632.100	47.0	3.3	1.0	172.0	3.0	0.0	Vert	PK	0.0	50.3	74.0	-23.7	EUT Vertical, High ch
1806.000	35.4	-5.6	1.0	182.0	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	EUT Vertical, Low ch
4632.142	46.2	3.3	1.0	100.0	3.0	0.0	Horz	PK	0.0	49.5	74.0	-24.5	EUT On Side, High ch
2743.567	52.6	-3.2	1.0	170.0	3.0	0.0	Horz	PK	0.0	49.4	74.0	-24.6	EUT On Side, Mid ch
3705.550	49.5	-0.2	1.0	255.0	3.0	0.0	Vert	PK	0.0	49.3	74.0	-24.7	EUT On Side, High ch
4515.233	46.3	2.8	1.0	177.0	3.0	0.0	Horz	PK	0.0	49.1	74.0	-24.9	EUT On Side, Low ch
4515.133	45.9	2.8	1.0	173.0	3.0	0.0	Vert	PK	0.0	48.7	74.0	-25.3	EUT Vertical, Low ch
2779.050	51.8	-3.2	1.0	173.0	3.0	0.0	Horz	PK	0.0	48.6	74.0	-25.4	EUT On Side, High ch
2708.967	51.0	-3.2	1.0	161.0	3.0	0.0	Horz	PK	0.0	47.8	74.0	-26.2	EUT On Side, Low ch
2743.850	50.5	-3.2	1.0	149.0	3.0	0.0	Vert	PK	0.0	47.3	74.0	-26.7	EUT Vertical, Mid ch
2778.967	50.2	-3.2	1.0	158.0	3.0	0.0	Vert	PK	0.0	47.0	74.0	-27.0	EUT Vertical, High ch
2708.758	49.6	-3.2	1.0	153.0	3.0	0.0	Vert	PK	0.0	46.4	74.0	-27.6	EUT Vertical, Low ch
3705.425	46.2	-0.2	1.0	160.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	EUT Horizontal, High ch
1852.858	45.8	-4.9	1.3	206.0	3.0	0.0	Horz	PK	0.0	40.9	74.0	-33.1	EUT On Side, High ch
1829.000	44.8	-5.3	1.1	223.0	3.0	0.0	Horz	PK	0.0	39.5	74.0	-34.5	EUT On Side, Mid ch
1828.842	44.6	-5.3	1.0	173.0	3.0	0.0	Vert	PK	0.0	39.3	74.0	-34.7	EUT Vertical, Mid ch
1852.817	44.2	-4.9	1.2	151.0	3.0	0.0	Vert	PK	0.0	39.3	74.0	-34.7	EUT Vertical, High ch
1806.225	44.5	-5.6	1.4	212.0	3.0	0.0	Horz	PK	0.0	38.9	74.0	-35.1	EUT On Side, Low ch
1805.725	44.0	-5.6	1.0	182.0	3.0	0.0	Vert	PK	0.0	38.4	74.0	-35.6	EUT Vertical, Low ch

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARG	03/22/2012	12 mo
Attenuator, 20 dB	SM Electronics	SA01B-20	REF	12/21/2011	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HGN	05/31/2012	24 mo
MN03 Cables	ESM Cable Corp.	Conducted Cables	MNC	04/16/2012	12 mo
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	05/30/2012	12 mo

CONFIGURATIONS INVESTIGATED

HNYW0024-2

MODES INVESTIGATED

Transmitting high channel: 926.4 MHz
 Transmitting low channel: 903.0 MHz
 Transmitting mid channel: 914.6 MHz

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	23.18°C
Attendees:	None	Relative Humidity:	18.33%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

TEST PARAMETERS

Run #:	9	Line:	Neutral	Ext. Attenuation (dB):	20
--------	---	-------	---------	------------------------	----

COMMENTS

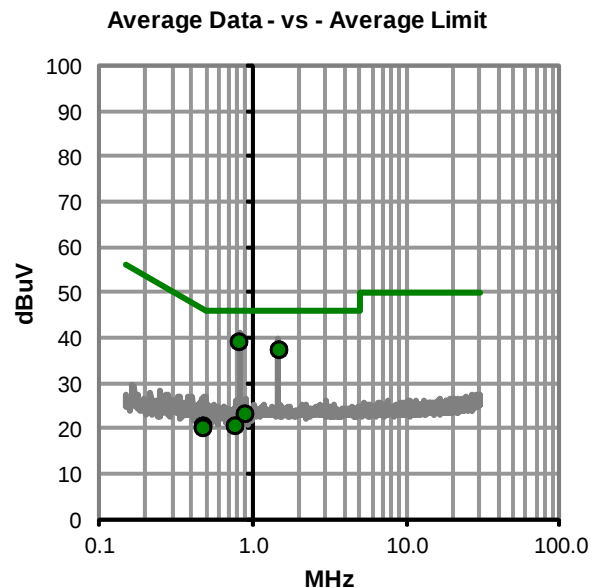
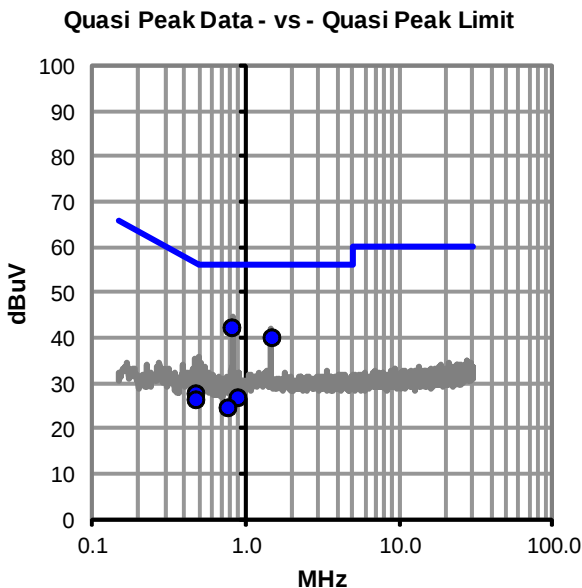
None

EUT OPERATING MODES

Transmitting high channel: 926.4 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	21.8	20.2	42.0	56.0	-14.0
1.468	19.8	20.2	40.0	56.0	-16.0
0.471	7.4	20.2	27.6	56.5	-28.9
0.900	6.6	20.2	26.8	56.0	-29.2
0.471	6.2	20.2	26.4	56.5	-30.1
0.772	4.4	20.2	24.6	56.0	-31.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	18.8	20.2	39.0	46.0	-7.0
1.468	16.9	20.2	37.1	46.0	-8.9
0.900	3.1	20.2	23.3	46.0	-22.7
0.772	0.4	20.2	20.6	46.0	-25.4
0.471	0.6	20.2	20.8	46.5	-25.7
0.471	0.1	20.2	20.3	46.5	-26.2

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	23.18°C
Attendees:	None	Relative Humidity:	18.33%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

TEST PARAMETERS

Run #:	10	Line:	High Line	Ext. Attenuation (dB):	20
--------	----	-------	-----------	------------------------	----

COMMENTS

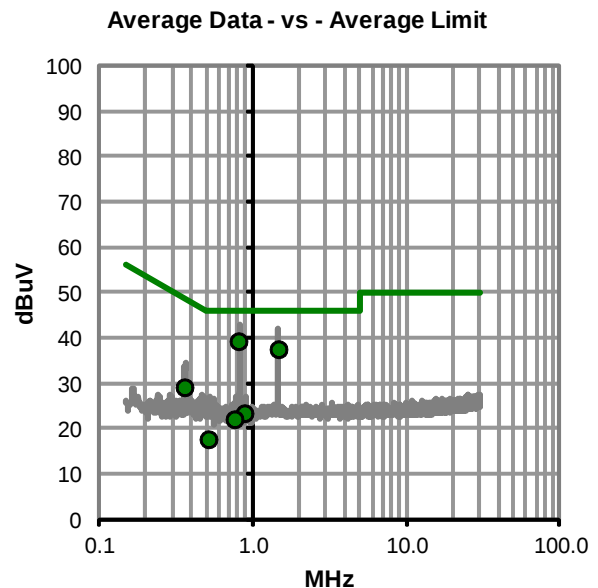
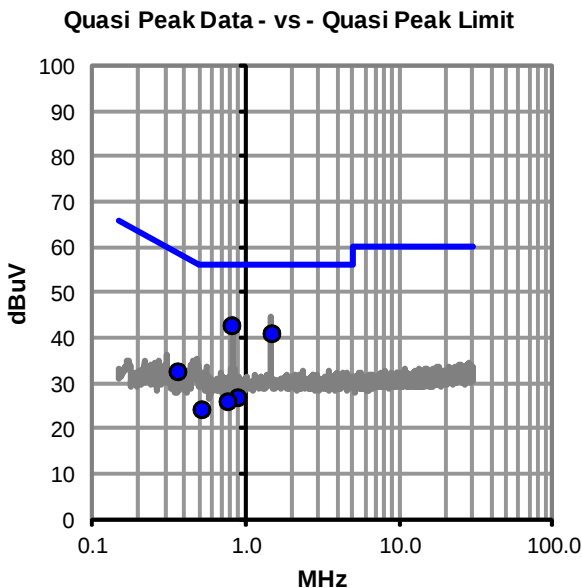
None

EUT OPERATING MODES

Transmitting high channel: 926.4 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	22.3	20.2	42.5	56.0	-13.5
1.468	20.5	20.2	40.7	56.0	-15.3
0.364	12.5	20.2	32.7	58.6	-25.9
0.901	6.6	20.2	26.8	56.0	-29.2
0.770	5.8	20.2	26.0	56.0	-30.0
0.517	3.9	20.2	24.1	56.0	-31.9

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	18.9	20.2	39.1	46.0	-6.9
1.468	16.9	20.2	37.1	46.0	-8.9
0.364	8.6	20.2	28.8	48.6	-19.8
0.901	3.0	20.2	23.2	46.0	-22.8
0.770	1.5	20.2	21.7	46.0	-24.3
0.517	-2.8	20.2	17.4	46.0	-28.6

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	23.18°C
Attendees:	None	Relative Humidity:	18.33%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

TEST PARAMETERS

Run #:	11	Line:	High Line	Ext. Attenuation (dB):	20
--------	----	-------	-----------	------------------------	----

COMMENTS

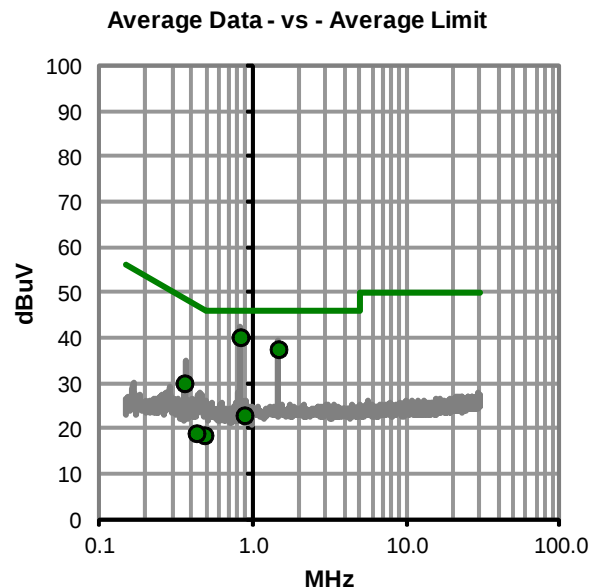
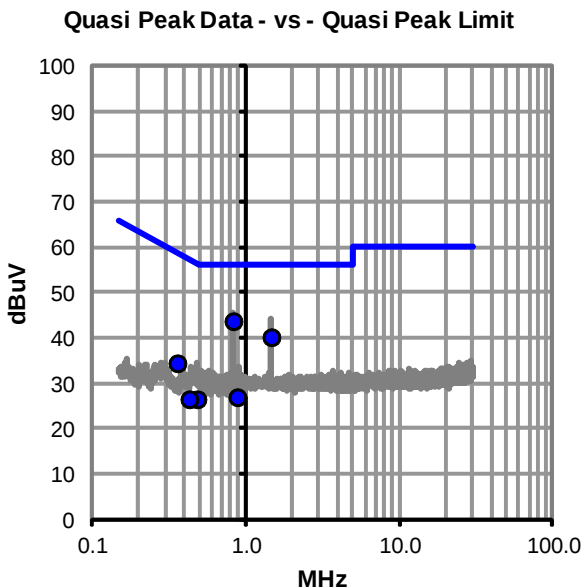
None

EUT OPERATING MODES

Transmitting mid channel: 914.6 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	23.2	20.2	43.4	56.0	-12.6
1.468	19.9	20.2	40.1	56.0	-15.9
0.366	14.2	20.2	34.4	58.6	-24.2
0.901	6.5	20.2	26.7	56.0	-29.3
0.494	6.0	20.2	26.2	56.1	-29.9
0.441	6.3	20.2	26.5	57.0	-30.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	20.0	20.2	40.2	46.0	-5.8
1.468	17.0	20.2	37.2	46.0	-8.8
0.366	9.8	20.2	30.0	48.6	-18.6
0.901	2.7	20.2	22.9	46.0	-23.1
0.494	-1.6	20.2	18.6	46.1	-27.5
0.441	-1.2	20.2	19.0	47.0	-28.0

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	23.18°C
Attendees:	None	Relative Humidity:	18.33%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

TEST PARAMETERS

Run #:	12	Line:	Neutral	Ext. Attenuation (dB):	20
--------	----	-------	---------	------------------------	----

COMMENTS

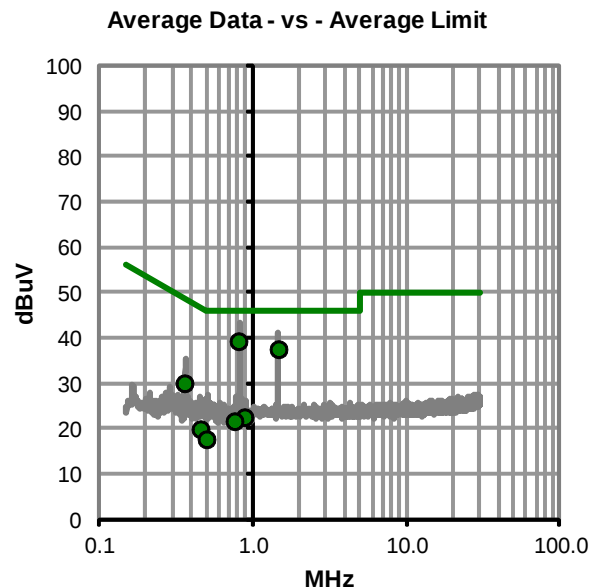
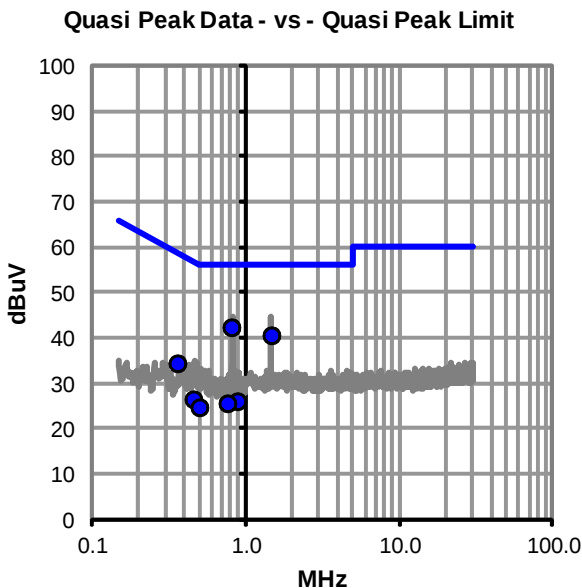
None

EUT OPERATING MODES

Transmitting mid channel: 914.6 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

RESULTS - Run #12

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	21.8	20.2	42.0	56.0	-14.0
1.468	20.3	20.2	40.5	56.0	-15.5
0.366	13.9	20.2	34.1	58.6	-24.5
0.901	5.7	20.2	25.9	56.0	-30.1
0.468	6.1	20.2	26.3	56.5	-30.2
0.770	5.2	20.2	25.4	56.0	-30.6
0.504	4.3	20.2	24.5	56.0	-31.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	18.9	20.2	39.1	46.0	-6.9
1.468	16.9	20.2	37.1	46.0	-8.9
0.366	9.6	20.2	29.8	48.6	-18.8
0.901	2.2	20.2	22.4	46.0	-23.6
0.770	1.3	20.2	21.5	46.0	-24.5
0.468	-0.6	20.2	19.6	46.5	-26.9
0.504	-2.5	20.2	17.7	46.0	-28.3

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	23.18°C
Attendees:	None	Relative Humidity:	18.33%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

TEST PARAMETERS

Run #:	13	Line:	Neutral	Ext. Attenuation (dB):	20
--------	----	-------	---------	------------------------	----

COMMENTS

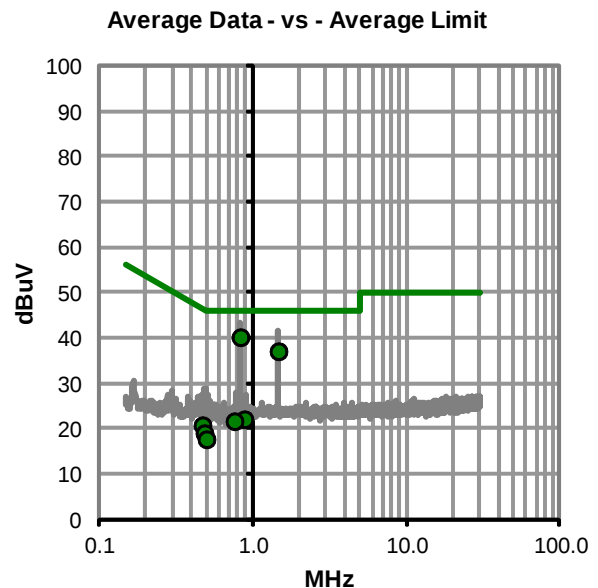
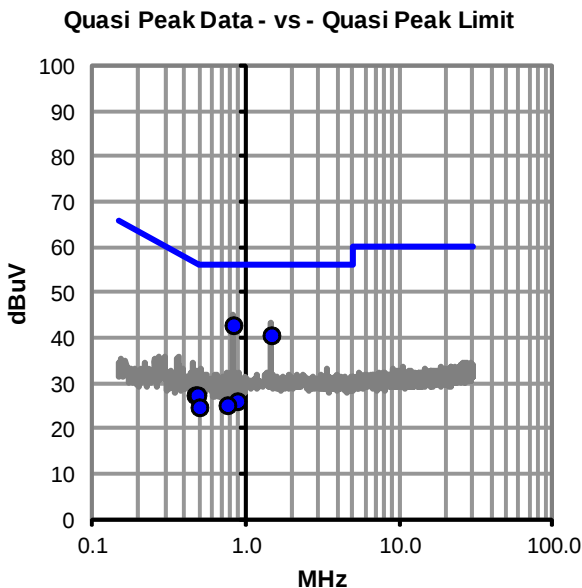
None

EUT OPERATING MODES

Transmitting low channel: 903.0 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	22.3	20.2	42.5	56.0	-13.5
1.468	20.1	20.2	40.3	56.0	-15.7
0.473	7.2	20.2	27.4	56.5	-29.1
0.491	6.8	20.2	27.0	56.2	-29.2
0.898	5.5	20.2	25.7	56.0	-30.3
0.770	5.0	20.2	25.2	56.0	-30.8
0.504	4.3	20.2	24.5	56.0	-31.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	19.9	20.2	40.1	46.0	-5.9
1.468	16.8	20.2	37.0	46.0	-9.0
0.898	1.6	20.2	21.8	46.0	-24.2
0.770	1.2	20.2	21.4	46.0	-24.6
0.473	0.5	20.2	20.7	46.5	-25.8
0.491	-1.3	20.2	18.9	46.2	-27.3
0.504	-2.5	20.2	17.7	46.0	-28.3

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	23.18°C
Attendees:	None	Relative Humidity:	18.33%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2012	ANSI C63.10:2009

TEST PARAMETERS

Run #:	14	Line:	Neutral	Ext. Attenuation (dB):	20
--------	----	-------	---------	------------------------	----

COMMENTS

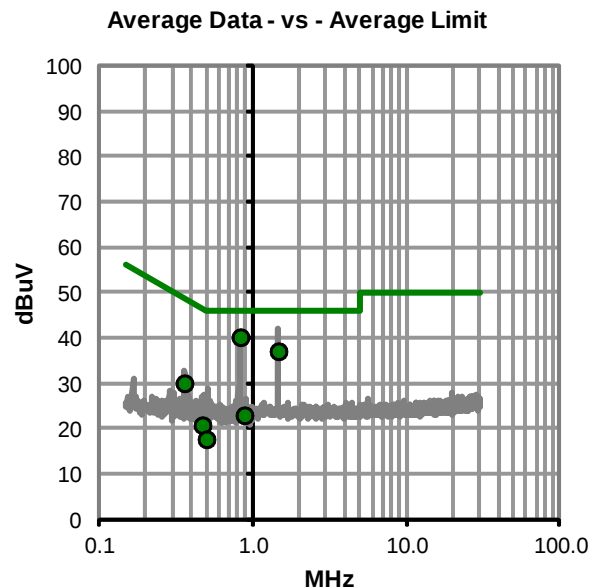
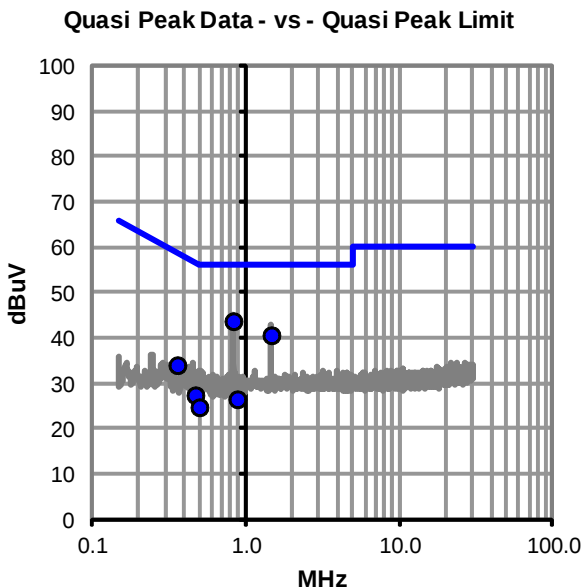
None

EUT OPERATING MODES

Transmitting low channel: 903.0 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – TRANSMIT MODE

RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	23.2	20.2	43.4	56.0	-12.6
1.468	20.2	20.2	40.4	56.0	-15.6
0.367	13.8	20.2	34.0	58.6	-24.6
0.474	7.0	20.2	27.2	56.4	-29.2
0.900	6.0	20.2	26.2	56.0	-29.8
0.511	4.4	20.2	24.6	56.0	-31.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	19.8	20.2	40.0	46.0	-6.0
1.468	16.8	20.2	37.0	46.0	-9.0
0.367	9.7	20.2	29.9	48.6	-18.7
0.900	2.5	20.2	22.7	46.0	-23.3
0.474	0.2	20.2	20.4	46.4	-26.0
0.511	-2.7	20.2	17.5	46.0	-28.5

CONCLUSION

Pass



Tested By

Receiver Spurious Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Receiving low, mid, high channels: 903.0 MHz, 914.6 MHz, 926.4 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

HNYW0024 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	12500 MHz
-----------------	--------	----------------	-----------

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	5/30/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/30/2012	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/30/2012	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cable	MNI	5/30/2012	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	5/31/2012	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/31/2012	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/19/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

TEST DESCRIPTION

The EUT was configured for mid channel receive frequency. The spectrum was scanned through out the range specified in RSS-Gen. RSS GEN defines the start frequency for receiver spurious emissions as 30MHz and the stop frequency the 3rd harmonic of the highest tuneable receive frequency. Unwanted emissions were measured to demonstrate compliance. While scanning, emissions from the EUT were maximized by rotating the EUT 360 degrees, measuring the EUT in three orthogonal axis, and adjusting the measurement antenna height and polarization between 1 and 4 meters. A preamp was used for this test in order to provide sufficient measurement sensitivity.



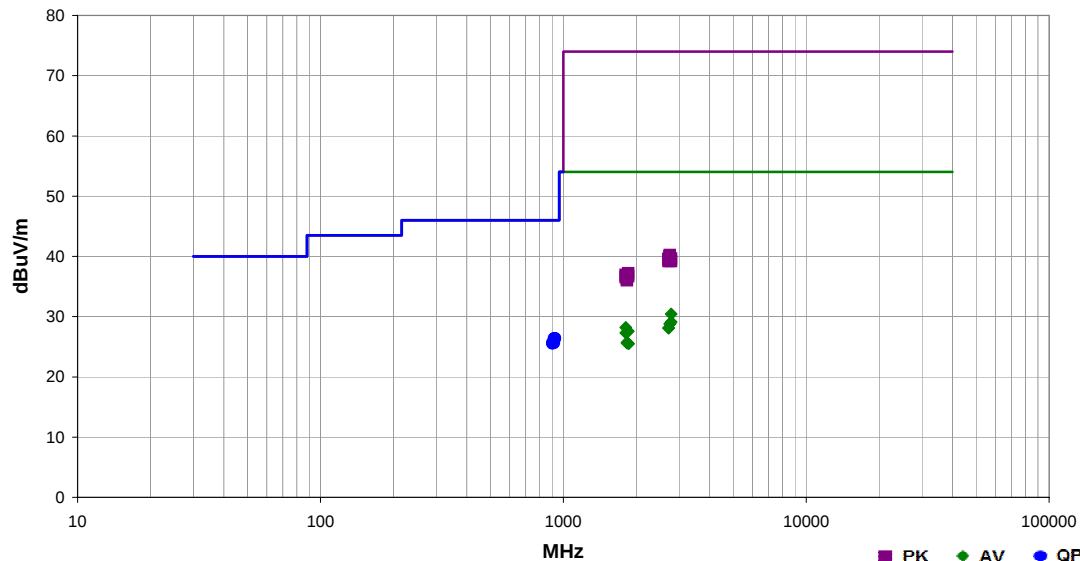
Receiver Spurious Emissions

PSA-ESCI 2012.09.25
PSA-ESCI Version 2011.12.21

Work Order:	HNYW0024	Date:	11/12/12	
Project:	None	Temperature:	23.07 °C	
Job Site:	MN05	Humidity:	19.14% RH	
Serial Number:	6.9971E+13	Barometric Pres.:	1019.2 mbar	Tested by: Johnathan Lee
EUT:	THX9421R02			
Configuration:	2			
Customer:	Honeywell, Automation and Control Solutions			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Receiving low, mid, high channels: 903.0 MHz, 914.6 MHz, 926.4 MHz			
Deviations:	None			
Comments:	None			

Test Specifications	Class B	Test Method
FCC 15.109.2012		ANSI C63.4:2009

Run #	19	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
-------	----	-------------------	---	-------------------	------	---------	------



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
925.380	17.0	9.4	2.3	27.0	3.0	0.0	Horz	QP	0.0	26.4	46.0	-19.6	EUT On Side, High ch
916.430	17.6	8.8	1.0	298.0	3.0	0.0	Horz	QP	0.0	26.4	46.0	-19.6	EUT On Side, Mid ch
924.977	16.9	9.4	1.0	65.0	3.0	0.0	Vert	QP	0.0	26.3	46.0	-19.7	EUT Vertical, High ch
901.651	17.1	8.5	3.2	303.0	3.0	0.0	Vert	QP	0.0	25.6	46.0	-20.4	EUT Vertical, Low ch
915.133	16.9	8.7	1.0	24.0	3.0	0.0	Vert	QP	0.0	25.6	46.0	-20.4	EUT Vertical, Mid ch
901.059	17.0	8.6	1.6	204.0	3.0	0.0	Horz	QP	0.0	25.6	46.0	-20.4	EUT On Side, Low ch
2781.367	33.6	-3.2	1.0	197.0	3.0	0.0	Horz	AV	0.0	30.4	54.0	-23.6	EUT On Side, High ch
2781.458	32.3	-3.2	1.0	56.0	3.0	0.0	Vert	AV	0.0	29.1	54.0	-24.9	EUT Vertical, High ch
2742.925	32.0	-3.2	1.0	346.0	3.0	0.0	Vert	AV	0.0	28.8	54.0	-25.2	EUT Vertical, Mid ch
2742.683	32.0	-3.2	1.0	203.0	3.0	0.0	Horz	AV	0.0	28.8	54.0	-25.2	EUT On Side, Mid ch
1806.617	33.8	-5.6	1.3	278.0	3.0	0.0	Vert	AV	0.0	28.2	54.0	-25.8	EUT Vertical, Low ch
2711.317	31.3	-3.2	1.0	104.0	3.0	0.0	Horz	AV	0.0	28.1	54.0	-25.9	EUT On Side, Low ch
2710.692	31.3	-3.2	1.9	225.0	3.0	0.0	Vert	AV	0.0	28.1	54.0	-25.9	EUT Vertical, Low ch
1852.533	32.5	-4.9	1.0	152.0	3.0	0.0	Vert	AV	0.0	27.6	54.0	-26.4	EUT Vertical, High ch
1806.967	32.9	-5.6	1.0	202.0	3.0	0.0	Horz	AV	0.0	27.3	54.0	-26.7	EUT On Side, Low ch
1826.958	31.0	-5.3	1.9	332.0	3.0	0.0	Vert	AV	0.0	25.7	54.0	-28.3	EUT Vertical, Mid ch
1826.542	30.9	-5.3	1.3	118.0	3.0	0.0	Horz	AV	0.0	25.6	54.0	-28.4	EUT On Side, Mid ch
1854.575	30.4	-4.9	3.2	277.0	3.0	0.0	Horz	AV	0.0	25.5	54.0	-28.5	EUT On Side, High ch
2742.250	43.4	-3.2	1.0	346.0	3.0	0.0	Vert	PK	0.0	40.2	74.0	-33.8	EUT Vertical, Mid ch
2741.942	43.2	-3.2	1.0	203.0	3.0	0.0	Horz	PK	0.0	40.0	74.0	-34.0	EUT On Side, Mid ch
2780.567	42.8	-3.2	1.0	56.0	3.0	0.0	Vert	PK	0.0	39.6	74.0	-34.4	EUT Vertical, High ch
2709.650	42.8	-3.2	1.9	225.0	3.0	0.0	Vert	PK	0.0	39.6	74.0	-34.4	EUT Vertical, Low ch
2778.633	42.4	-3.2	1.0	197.0	3.0	0.0	Horz	PK	0.0	39.2	74.0	-34.8	EUT On Side, High ch
2710.825	42.4	-3.2	1.0	104.0	3.0	0.0	Horz	PK	0.0	39.2	74.0	-34.8	EUT On Side, Low ch
1851.517	42.1	-4.9	1.0	152.0	3.0	0.0	Vert	PK	0.0	37.2	74.0	-36.8	EUT Vertical, High ch
1807.325	42.5	-5.6	1.0	202.0	3.0	0.0	Horz	PK	0.0	36.9	74.0	-37.1	EUT On Side, Low ch
1852.983	41.6	-4.9	3.2	277.0	3.0	0.0	Horz	PK	0.0	36.7	74.0	-37.3	EUT On Side, High ch
1807.775	42.1	-5.6	1.3	278.0	3.0	0.0	Vert	PK	0.0	36.5	74.0	-37.5	EUT Vertical, Low ch
1830.558	41.5	-5.2	1.3	118.0	3.0	0.0	Horz	PK	0.0	36.3	74.0	-37.7	EUT On Side, Mid ch
1827.850	41.3	-5.3	1.9	332.0	3.0	0.0	Vert	PK	0.0	36.0	74.0	-38.0	EUT Vertical, Mid ch

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

TEST DESCRIPTION

The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the middle channel in the operational band in a receive mode of operation. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARG	03/22/2012	12 mo
Attenuator, 20 dB	SM Electronics	SA01B-20	REF	12/21/2011	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HGN	05/31/2012	24 mo
MN03 Cables	ESM Cable Corp.	Conducted Cables	MNC	04/16/2012	12 mo
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	05/30/2012	12 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

CONFIGURATIONS INVESTIGATED

HNYW0024-2

MODES INVESTIGATED

Receiving high channel: 926.4 MHz
Receiving low channel: 903.0 MHz
Receiving mid channel: 914.6 MHz

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	22.73°C
Attendees:	None	Relative Humidity:	18.53%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.107:2012	Method: ANSI C63.4:2009
---	----------------------------

TEST PARAMETERS

Run #:	3	Line:	High Line	Ext. Attenuation (dB):	20
--------	---	-------	-----------	------------------------	----

COMMENTS

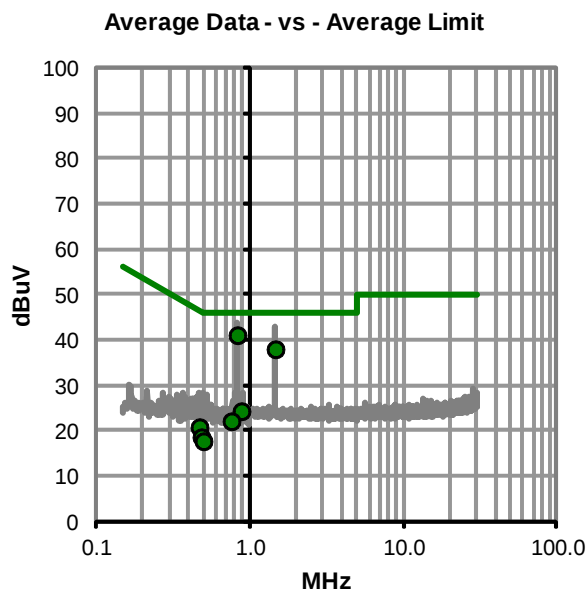
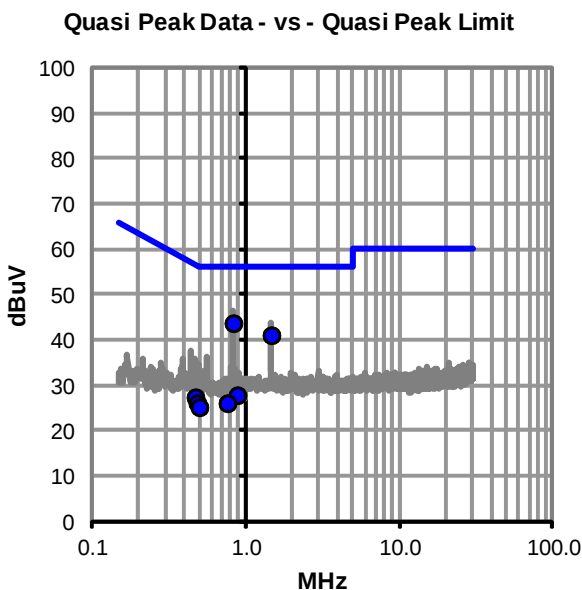
None

EUT OPERATING MODES

Receiving low channel: 903.0 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	23.5	20.2	43.7	56.0	-12.3
1.468	20.6	20.2	40.8	56.0	-15.2
0.901	7.3	20.2	27.5	56.0	-28.5
0.471	7.1	20.2	27.3	56.5	-29.2
0.490	5.9	20.2	26.1	56.2	-30.1
0.769	5.7	20.2	25.9	56.0	-30.1
0.512	4.7	20.2	24.9	56.0	-31.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	20.5	20.2	40.7	46.0	-5.3
1.468	17.7	20.2	37.9	46.0	-8.1
0.901	3.8	20.2	24.0	46.0	-22.0
0.769	1.8	20.2	22.0	46.0	-24.0
0.471	0.5	20.2	20.7	46.5	-25.8
0.490	-1.7	20.2	18.5	46.2	-27.7
0.512	-2.7	20.2	17.5	46.0	-28.5

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	22.73°C
Attendees:	None	Relative Humidity:	18.53%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.107:2012	Method: ANSI C63.4:2009
---	----------------------------

TEST PARAMETERS

Run #:	4	Line:	Neutral	Ext. Attenuation (dB):	20
--------	---	-------	---------	------------------------	----

COMMENTS

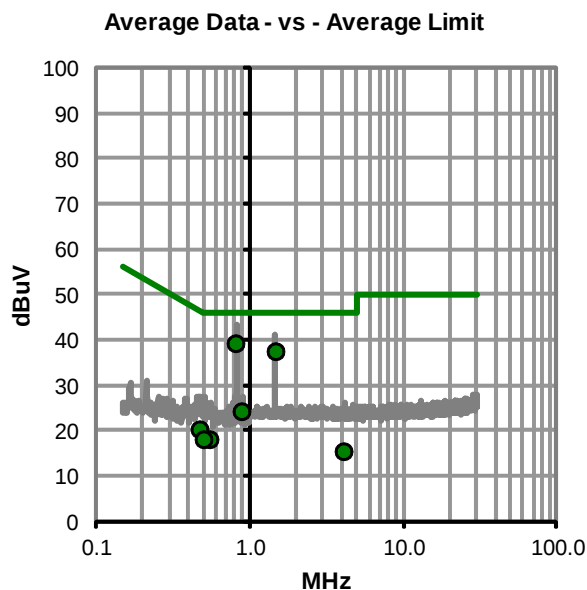
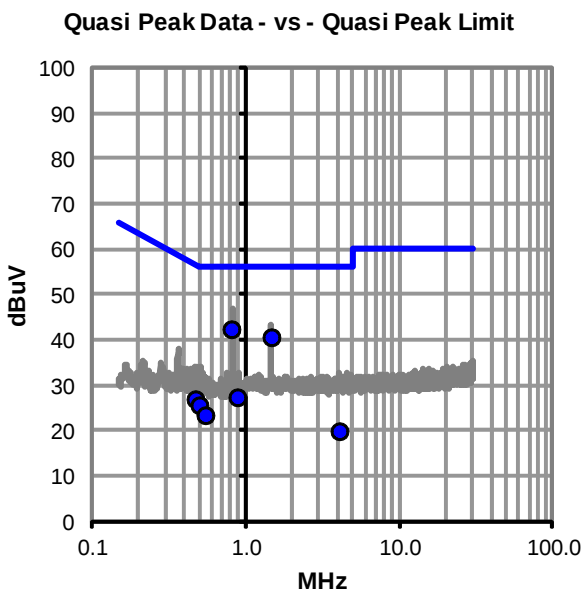
None

EUT OPERATING MODES

Receiving low channel: 903.0 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	21.8	20.2	42.0	56.0	-14.0
1.468	20.2	20.2	40.4	56.0	-15.6
0.900	6.8	20.2	27.0	56.0	-29.0
0.471	6.4	20.2	26.6	56.5	-29.9
0.507	5.3	20.2	25.5	56.0	-30.5
0.559	3.2	20.2	23.4	56.0	-32.6
4.172	-0.7	20.4	19.7	56.0	-36.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	18.8	20.2	39.0	46.0	-7.0
1.468	17.2	20.2	37.4	46.0	-8.6
0.900	3.9	20.2	24.1	46.0	-21.9
0.471	0.1	20.2	20.3	46.5	-26.2
0.559	-2.3	20.2	17.9	46.0	-28.1
0.507	-2.4	20.2	17.8	46.0	-28.2
4.172	-5.0	20.4	15.4	46.0	-30.6

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	22.73°C
Attendees:	None	Relative Humidity:	18.53%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.107:2012	Method: ANSI C63.4:2009
---	----------------------------

TEST PARAMETERS

Run #:	5	Line:	Neutral	Ext. Attenuation (dB):	20
--------	---	-------	---------	------------------------	----

COMMENTS

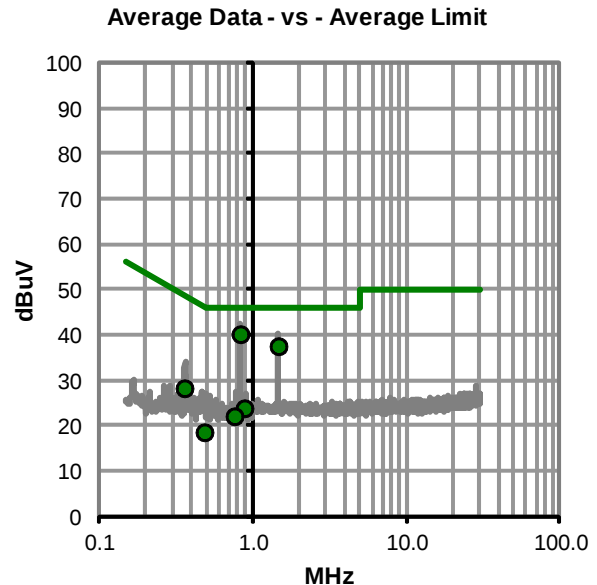
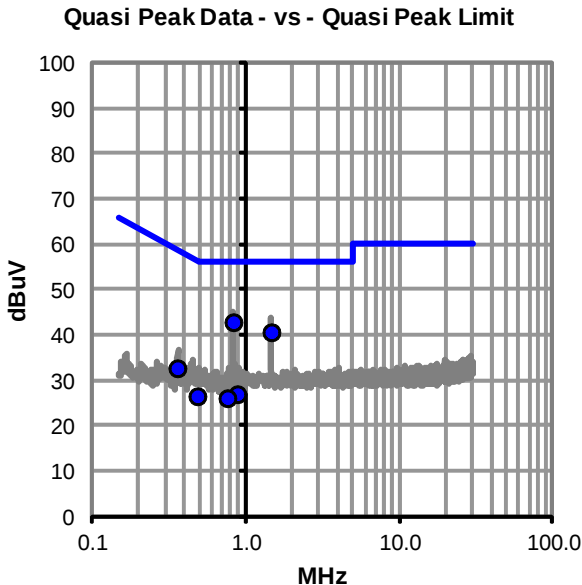
None

EUT OPERATING MODES

Receiving mid channel: 914.6 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	22.4	20.2	42.6	56.0	-13.4
1.468	20.1	20.2	40.3	56.0	-15.7
0.364	12.2	20.2	32.4	58.6	-26.2
0.901	6.6	20.2	26.8	56.0	-29.2
0.490	6.1	20.2	26.3	56.2	-29.9
0.770	5.8	20.2	26.0	56.0	-30.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	19.8	20.2	40.0	46.0	-6.0
1.468	17.1	20.2	37.3	46.0	-8.7
0.364	8.0	20.2	28.2	48.6	-20.4
0.901	3.5	20.2	23.7	46.0	-22.3
0.770	1.5	20.2	21.7	46.0	-24.3
0.490	-1.8	20.2	18.4	46.2	-27.8

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	22.73°C
Attendees:	None	Relative Humidity:	18.53%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.107:2012	Method: ANSI C63.4:2009
---	----------------------------

TEST PARAMETERS

Run #:	6	Line:	High Line	Ext. Attenuation (dB):	20
--------	---	-------	-----------	------------------------	----

COMMENTS

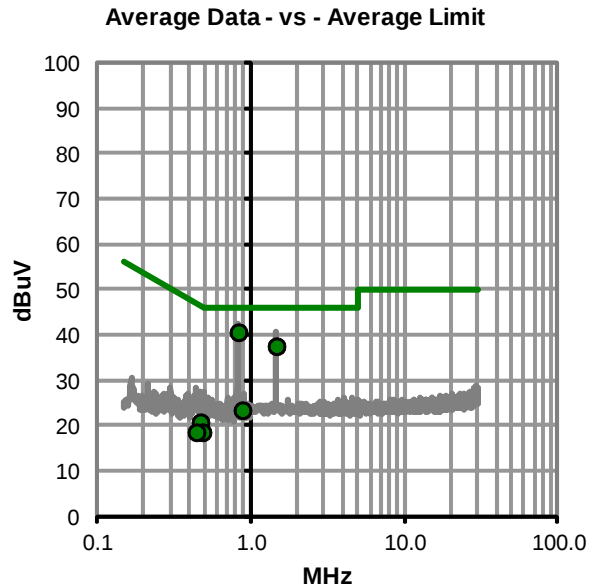
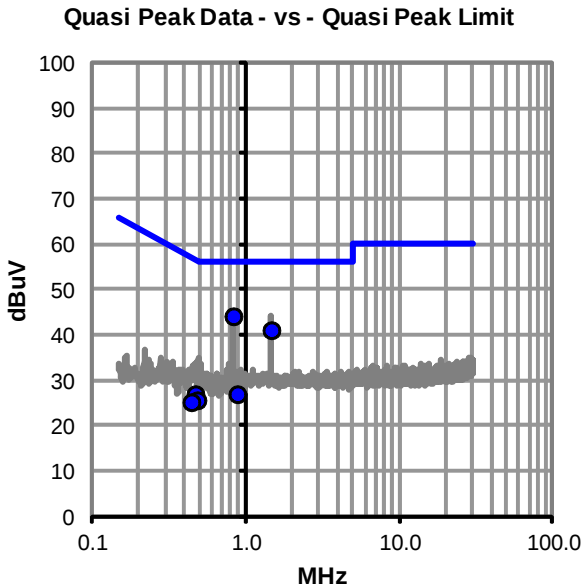
None

EUT OPERATING MODES

Receiving mid channel: 914.6 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	23.8	20.2	44.0	56.0	-12.0
1.468	20.5	20.2	40.7	56.0	-15.3
0.900	6.6	20.2	26.8	56.0	-29.2
0.472	6.7	20.2	26.9	56.5	-29.6
0.491	5.1	20.2	25.3	56.2	-30.9
0.442	5.0	20.2	25.2	57.0	-31.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.830	20.1	20.2	40.3	46.0	-5.7
1.468	17.0	20.2	37.2	46.0	-8.8
0.900	3.2	20.2	23.4	46.0	-22.6
0.472	0.4	20.2	20.6	46.5	-25.9
0.491	-2.0	20.2	18.2	46.2	-28.0
0.442	-1.8	20.2	18.4	47.0	-28.6

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	22.73°C
Attendees:	None	Relative Humidity:	18.53%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.107:2012	Method: ANSI C63.4:2009
---	----------------------------

TEST PARAMETERS

Run #:	7	Line:	High Line	Ext. Attenuation (dB):	20
--------	---	-------	-----------	------------------------	----

COMMENTS

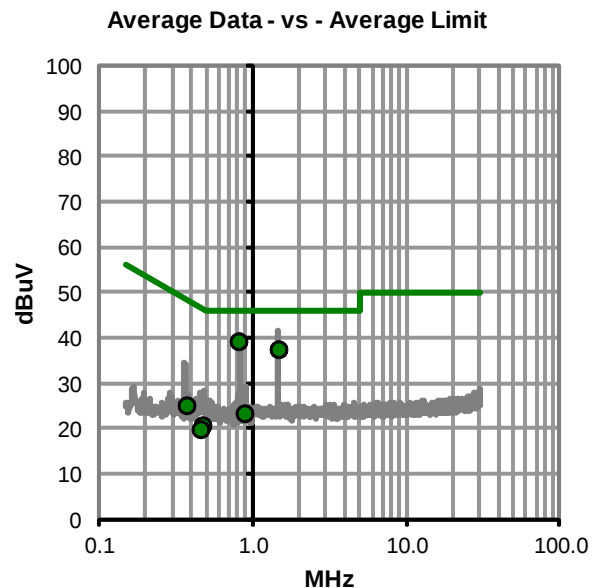
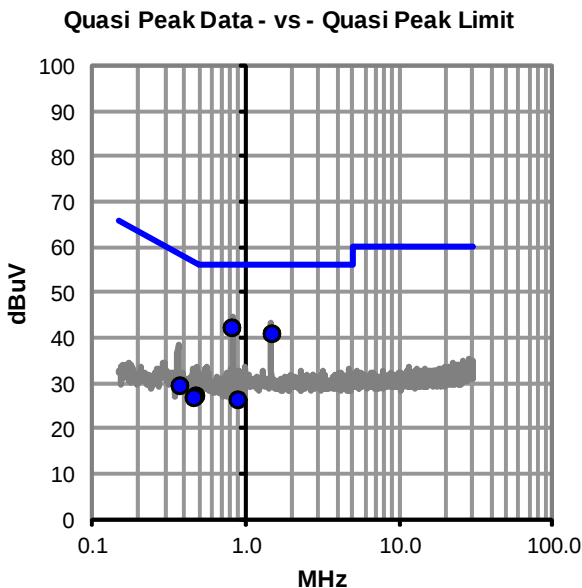
None

EUT OPERATING MODES

Receiving high channel: 926.4 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	22.0	20.2	42.2	56.0	-13.8
1.468	20.5	20.2	40.7	56.0	-15.3
0.371	9.4	20.2	29.6	58.5	-28.9
0.474	6.9	20.2	27.1	56.4	-29.3
0.901	6.3	20.2	26.5	56.0	-29.5
0.468	6.7	20.2	26.9	56.5	-29.6

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	18.8	20.2	39.0	46.0	-7.0
1.468	17.0	20.2	37.2	46.0	-8.8
0.901	2.9	20.2	23.1	46.0	-22.9
0.371	4.7	20.2	24.9	48.5	-23.6
0.474	0.2	20.2	20.4	46.4	-26.0
0.468	-0.4	20.2	19.8	46.5	-26.7

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

EUT:	THX9421R02	Work Order:	HNYW0024
Serial Number:	69971015000584	Date:	11/13/2012
Customer:	Honeywell, Automation and Control Solutions	Temperature:	22.73°C
Attendees:	None	Relative Humidity:	18.53%
Customer Project:	None	Bar. Pressure:	1029.7 mb
Tested By:	Johnathan Lee	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	HNYW0024-2

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.107:2012	Method: ANSI C63.4:2009
---	----------------------------

TEST PARAMETERS

Run #:	8	Line:	Neutral	Ext. Attenuation (dB):	20
--------	---	-------	---------	------------------------	----

COMMENTS

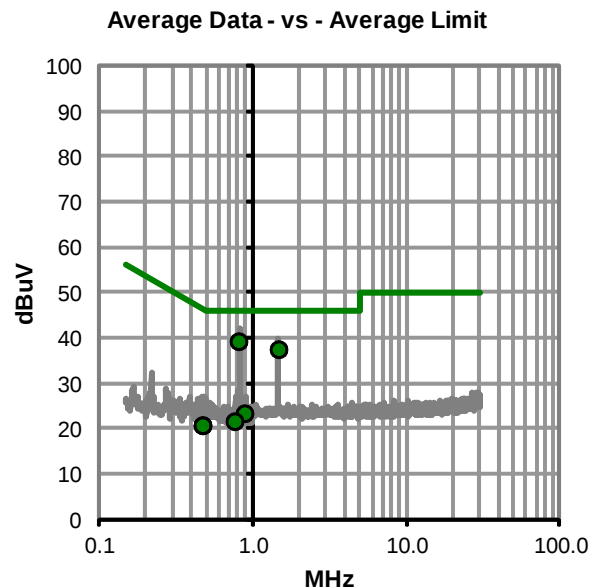
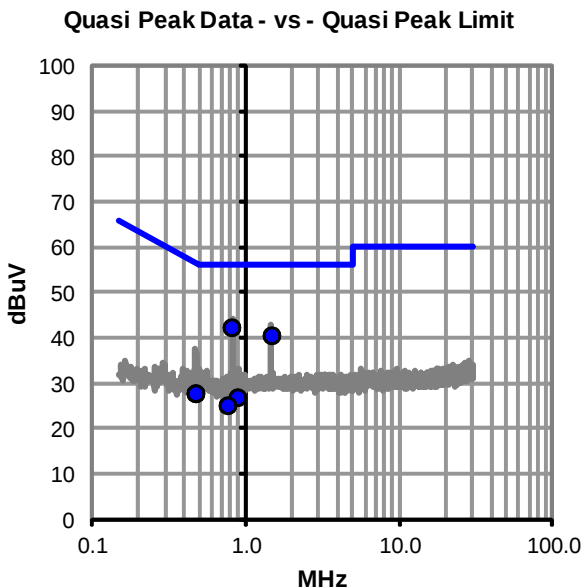
None

EUT OPERATING MODES

Receiving high channel: 926.4 MHz

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS – RECEIVE MODE

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	22.1	20.2	42.3	56.0	-13.7
1.468	20.3	20.2	40.5	56.0	-15.5
0.471	7.5	20.2	27.7	56.5	-28.8
0.475	7.4	20.2	27.6	56.4	-28.8
0.900	6.7	20.2	26.9	56.0	-29.1
0.770	5.0	20.2	25.2	56.0	-30.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.828	18.9	20.2	39.1	46.0	-6.9
1.468	16.9	20.2	37.1	46.0	-8.9
0.900	3.1	20.2	23.3	46.0	-22.7
0.770	1.3	20.2	21.5	46.0	-24.5
0.471	0.6	20.2	20.8	46.5	-25.7
0.475	0.2	20.2	20.4	46.4	-26.0

CONCLUSION

Pass



Tested By