



element

Ademco, Inc.

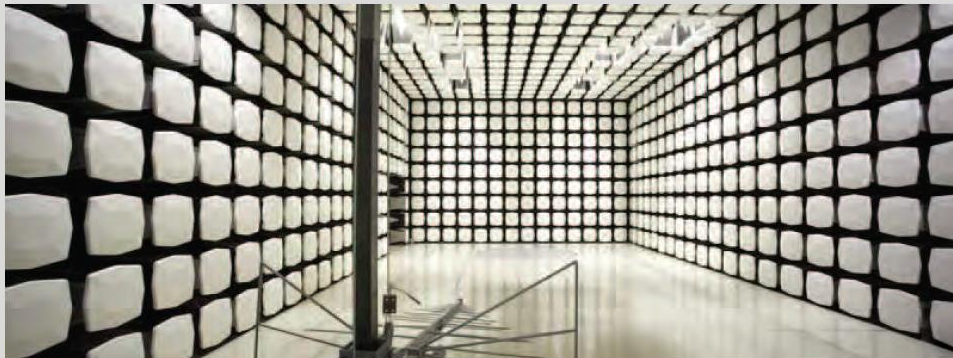
THM04R3000

FCC 15.247:2022

RSS-247 Issue 2:2017

FHSS Radio

Report: ADEM0023.1 Rev. 1, Issue Date: October 19, 2022



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CERTIFICATE OF TEST



Last Date of Test: August 5, 2022

Ademco, Inc.

EUT:THM04R3000

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2022	ANSI C63.10:2013, KDB 558074
RSS-247 Issue 2:2017, RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

Results

Test Description	Result	FCC Section(s)	RSS Section(s)	ANSI C63.10 Section(s)	Comments
Band Edge Compliance	Pass	15.247(d)	RSS-247 5.5	7.8.6	
Band Edge Compliance - Hopping Mode	Pass	15.247(d)	RSS-247 5.5	7.8.6	
Carrier Frequency Separation	Pass	15.247(a)(1)	RSS-247 5.1(b)	7.8.2	
Duty Cycle	Pass	15.247	RSS-Gen 3.2	7.5	
Dwell Time	Pass	15.247(a)(1)	RSS-247 5.1(d)	7.8.4	
Emissions Bandwidth (dB)	Pass	15.247(a)	RSS-247 5.2(a)	7.8.7	
Equivalent Isotropic Radiated Power (EIRP)	Pass	15.247(b)	RSS-247 5.4(d)	7.8.5	
Number of Hopping Frequencies	Pass	15.247(a)(1)	RSS-247 5.1(d)	7.8.3	
Occupied Bandwidth (99%)	Pass	15.247(a)	RSS-Gen 6.7	7.8.7	
Output Power	Pass	15.247(b)	RSS-247 5.4(d)	7.8.5	
Power Spectral Density	N/A	15.247(e)	RSS-247 5.2(b)	11.10.2	Not required for FHSS devices.
Powerline Conducted Emissions (Receiver)	N/A	15.101, 15.107	RSS-Gen 5.2	ANSI C63.4 - 12.2.4	Not included per FCC 15.101 as this will be covered under SDoC rules for the FCC. RSS-Gen section 7 stated receiver requirements only apply to standalone receivers operating in the 30-960 MHz band and this is not a standalone receiver.
Powerline Conducted Emissions (Transmitter)	Pass	15.207	RSS-Gen 8.8	6.2	
Radiated Emissions for Receiver	N/A	15.101, 15.109	RSS-Gen 5.2	ANSI C63.4 - 12.2.5	Not included per FCC 15.101 as this will be covered under SDoC rules for the FCC. RSS-Gen section 7 stated receiver requirements only apply to standalone receivers operating in the 30-960 MHz band and this is not a standalone receiver.
Spurious Conducted Emissions	Pass	15.247(d)	RSS-247 5.5	7.8.8	
Spurious Radiated Emissions	Pass	15.247(d)	RSS-247 5.5	6.5, 6.6	

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. 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. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

CERTIFICATE OF TEST



Deviations From Test Standards

None

Approved By:

Kyle Holgate, Operations Manager

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. 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. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY



Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Updated antenna gain values	2022-10-18	12
	Updated antenna gain, and EIRP values	2022-10-18	33-36

ACCREDITATIONS AND AUTHORIZATIONS



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 - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

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

Korea

MSIT / 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.

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

For details on the Scopes of our Accreditations, please visit:

[California](#)

[Minnesota](#)

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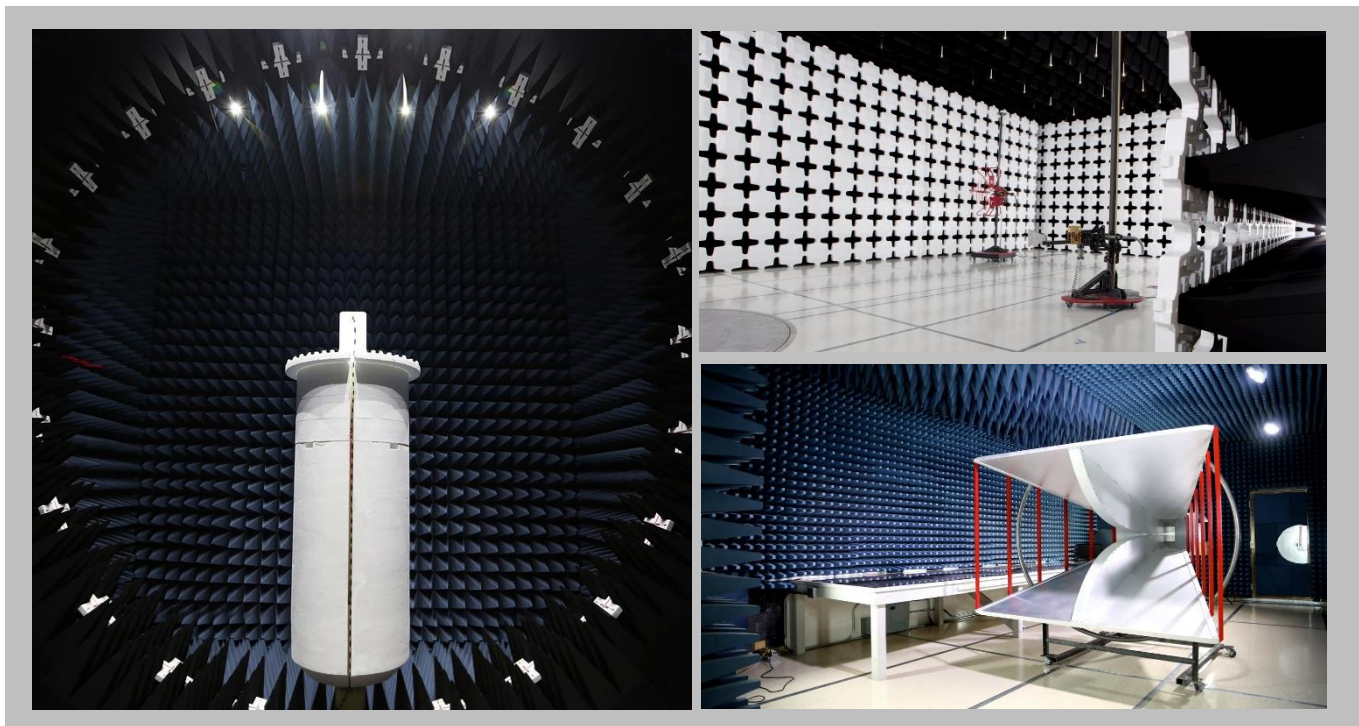
[Texas](#)

[Washington](#)

FACILITIES



California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Oregon Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600
A2LA				
Lab Code: 3310.04	Lab Code: 3310.05	Lab Code: 3310.02	Lab Code: 3310.03	Lab Code: 3310.06
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157



MEASUREMENT UNCERTAINTY



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 QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found in the table below. A lab specific value may also be found in the applicable test description section. 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 16-4-2 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	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	3.2 dB	-3.2 dB

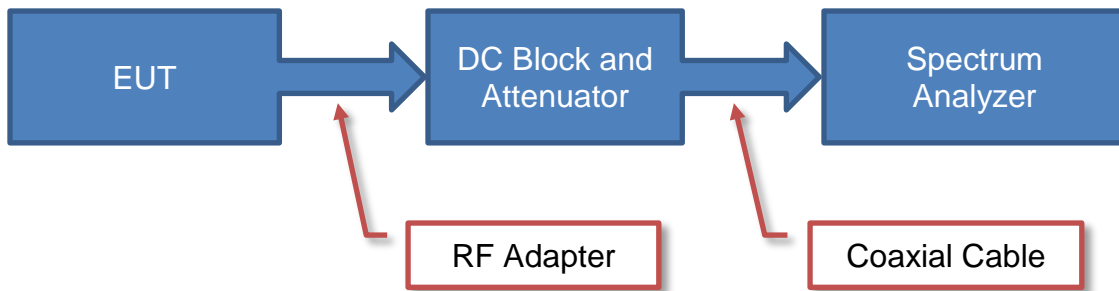
TEST SETUP BLOCK DIAGRAMS

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

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

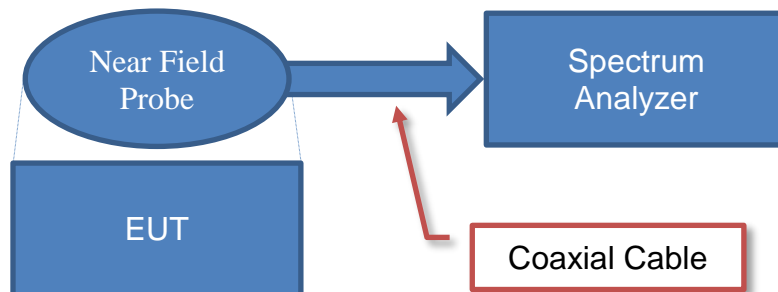
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

$$\begin{array}{r}
 \text{Measured Value} \\
 71.2
 \end{array}
 =
 \begin{array}{r}
 \text{Measured Level} \\
 42.6
 \end{array}
 +
 \begin{array}{r}
 \text{Reference Level Offset} \\
 28.6
 \end{array}$$

Near Field Test Fixture Measurements

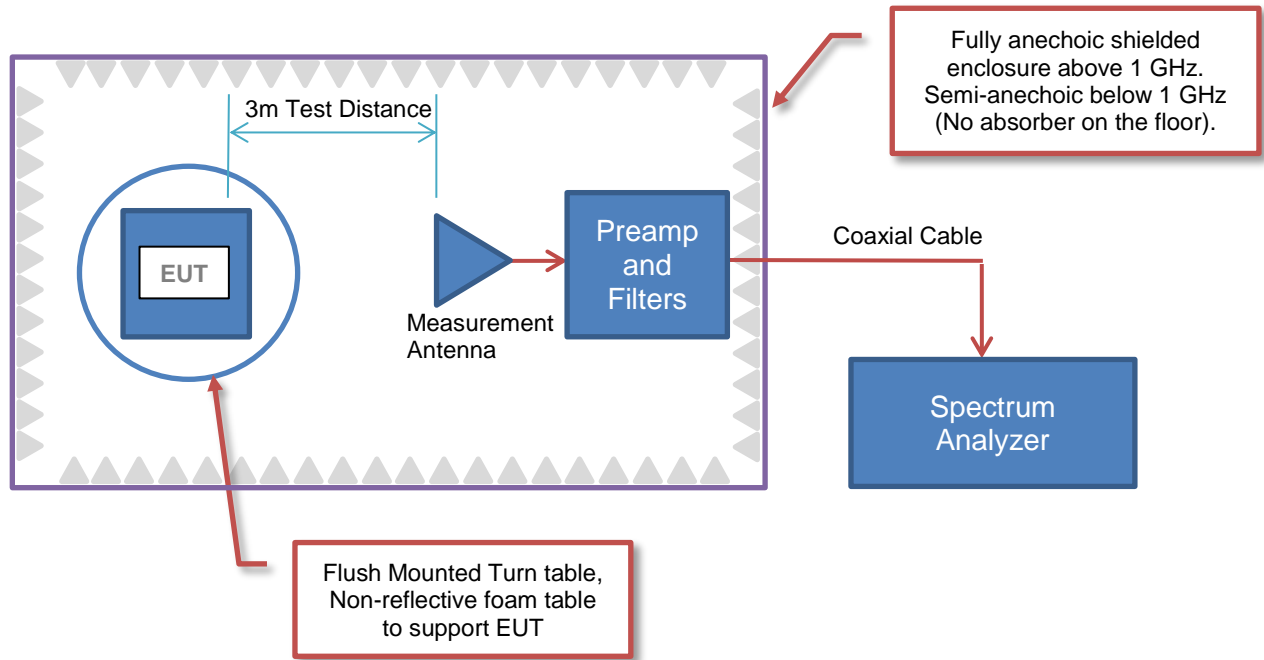


Sample Calculation (logarithmic units)

$$\begin{array}{r}
 \text{Measured Value} \\
 71.2
 \end{array}
 =
 \begin{array}{r}
 \text{Measured Level} \\
 42.6
 \end{array}
 +
 \begin{array}{r}
 \text{Reference Level Offset} \\
 28.6
 \end{array}$$

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

Measured Level (Amplitude)	Factor			Distance Adjustment Factor	External Attenuation	Field Strength
	Antenna Factor	Cable Factor	Amplifier Gain			
42.6	28.6	3.1	40.8	0.0	0.0	33.5

42.6 + 28.6 + 3.1 - 40.8 + 0.0 + 0.0 = 33.5

Conducted Emissions:

Measured Level (Amplitude)	Factor		External Attenuation	Adjusted Level
	Transducer Factor	Cable Factor		
26.7	0.3	0.1	20.0	47.1

26.7 + 0.3 + 0.1 + 20.0 = 47.1

Radiated Power (ERP/EIRP) – Substitution Method:

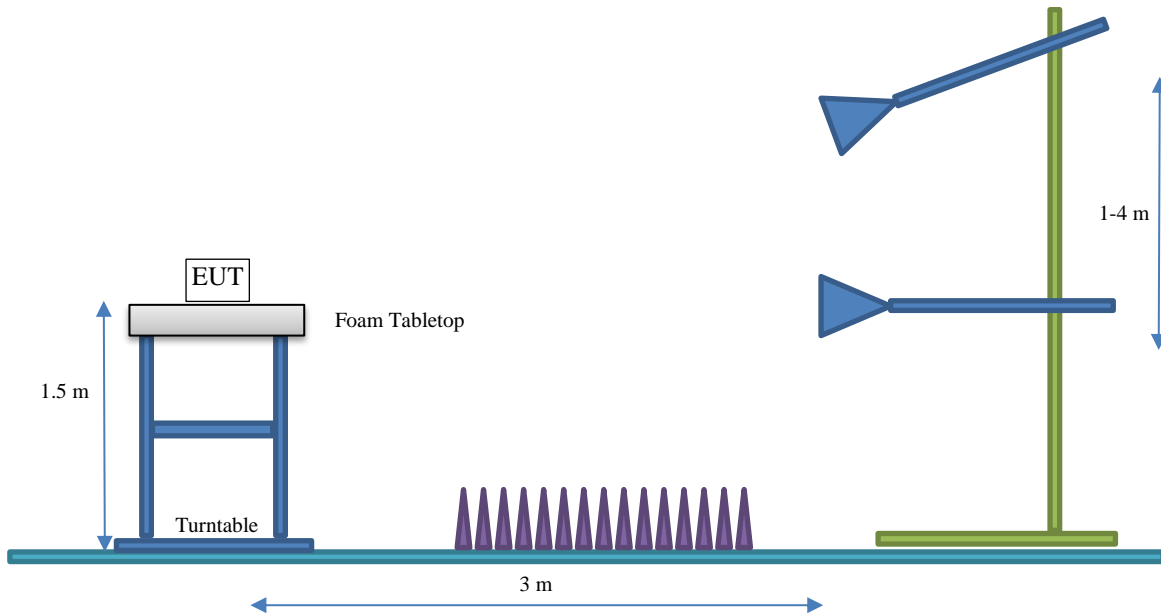
Measured Level into Substitution Antenna (Amplitude dBm)	Substitution Antenna Factor (dBi)	EIRP to ERP (if applicable)	Measured power (dBm ERP/EIRP)
10.0	6.0	2.15	13.9/16.0

10.0 + 6.0 - 2.15 = 13.9/16.0

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



PRODUCT DESCRIPTION



Client and Equipment under Test (EUT) Information

Company Name:	Ademco, Inc.
Address:	251 Little Falls Drive
City, State, Zip:	Wilmington, DE 19808
Test Requested By:	Christian Fouth
EUT:	THM04R3000
First Date of Test:	August 1, 2022
Last Date of Test:	August 9, 2022
Receipt Date of Samples:	August 1, 2022
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

The THM04R300 Equipment Interface Module (EIM) is a device used to control residential and light commercial HVAC equipment, containing a 902-928 MHz FHSS radio with 2 PCB antennas used for diversity.

Testing Objective:

Seeking to demonstrate compliance in the 902 - 928 MHz band for operation under FCC 15.247:2022 and RSS-247 Issue 2:2017, RSS-Gen Issue 5:2018+A1:2019+A2:2021 specifications under technology category Frequency Hopping – Other.

POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

ANTENNA GAIN (dBi)

Antenna Port	Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Top*	Inverted-F	Manufacturer	902-928	1.5
Side*	Inverted-F	Manufacturer	902-928	3.25

*Multiple antenna ports for diversity

The EUT was tested using the power settings provided by the manufacturer which are based upon:

- Test software settings Test software/firmware installed on EUT: XTR Firmware version 2.0.4.0
 Rated power settings

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types	Position (if multiple channels)	Frequency (MHz)	Power Setting (dBm)
GFSK / 38.4 kbps	Low Channel	902.99973	12.5
	Mid Channel	914.59689	
	High Channel	926.39401	

CONFIGURATIONS



Configuration ADEM0023- 1

Software/Firmware Running During Test	
Description	Version
XTR	2.0.4.0

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Equipment Interface Module	Ademco, Inc.	THM04R3000	0047

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Plug in Class 2 Transformer	Jameco	ADU2400050	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	Equipment Interface Module	Plug in Class 2 Transformer

Configuration ADEM0023- 2

Software/Firmware Running During Test	
Description	Version
XTR	2.0.4.0

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Equipment Interface Module	Ademco, Inc.	THM04R3000	0052

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Plug in Class 2 Transformer	Jameco	ADU2400050	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	Equipment Interface Module	Plug in Class 2 Transformer

CONFIGURATIONS



Configuration ADEM0031- 1

Software/Firmware Running During Test	
Description	Version
XTR	2.0.4.0

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Equipment Interface Module	Ademco, Inc.	THM04R3000	0052

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Plug in Class 2 Transformer	Jameco	ADU2400050	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	2.0	No	Equipment Interface Module	Plug in Class 2 Transformer

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2022-08-02	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2022-08-02	Band Edge Compliance - Hopping Mode	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2022-08-02	Carrier Frequency Separation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2022-08-02	Dwell Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2022-08-02	Emissions Bandwidth (dB)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2022-08-02	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2022-08-02	Number of Hopping Frequencies	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2022-08-02	Occupied Bandwidth (99%)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	2022-08-02	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
10	2022-08-02	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
11	2022-08-03	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
12	2022-08-05	Powerline Conducted Emissions (Transmitter)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

BAND EDGE COMPLIANCE



TelTx 2022.06.03.0 XMit 2022.02.07.0

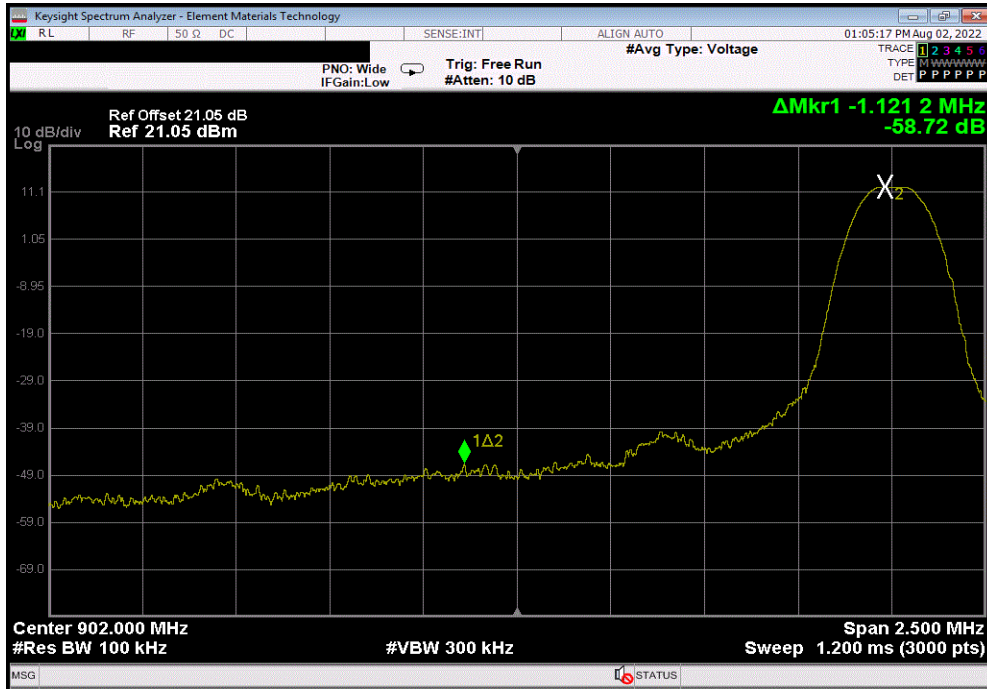
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23 °C	
Attendees: Connor Brewin		Humidity: 49% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jeff Alcoke	Power: 24 VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		Test Method	
RSS-247 Issue 2:2017		ANSI C63.10:2013	
		ANSI C63.10:2013	
COMMENTS			
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Value (dBc)	Limit ≤ (dBc) Result
Single Channel Mode			
	GFSK, 38.4 Kbps		
	Top Antenna		
	Low Channel, 902.99973 MHz	-58.72	-20 Pass
	High Channel, 926.39401 MHz	-66.71	-20 Pass

BAND EDGE COMPLIANCE

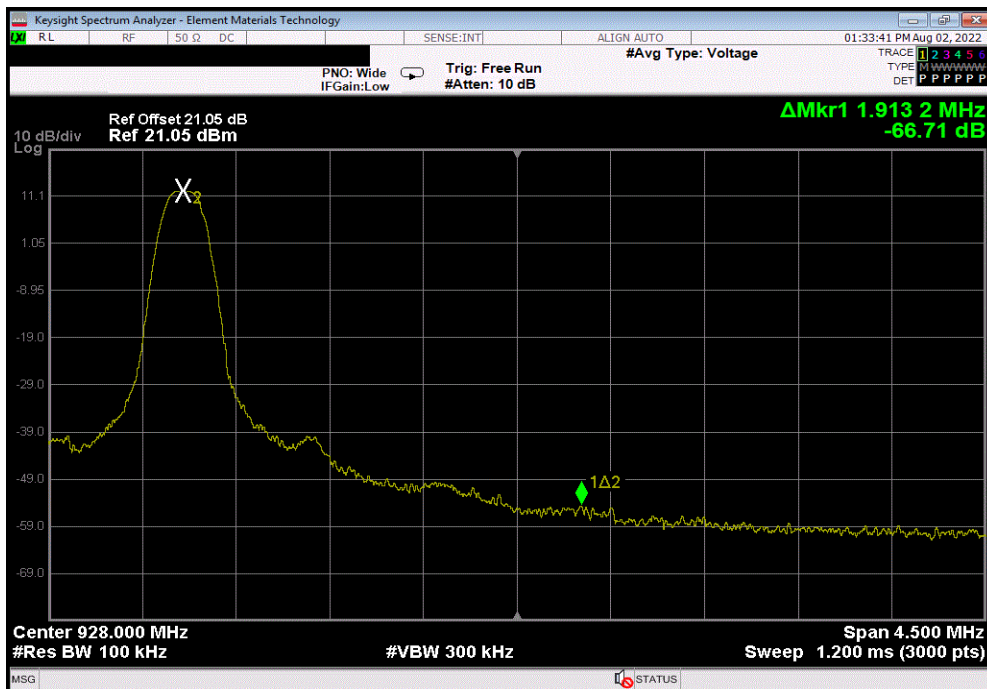


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-58.72	-20	Pass			



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-66.71	-20	Pass			



BAND EDGE COMPLIANCE - HOPPING MODE



element

XMH 2022.02.07.0

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to its normal pseudo-random hopping sequence. 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



TelTx 2022.06.03.0 XMit 2022.02.07.0

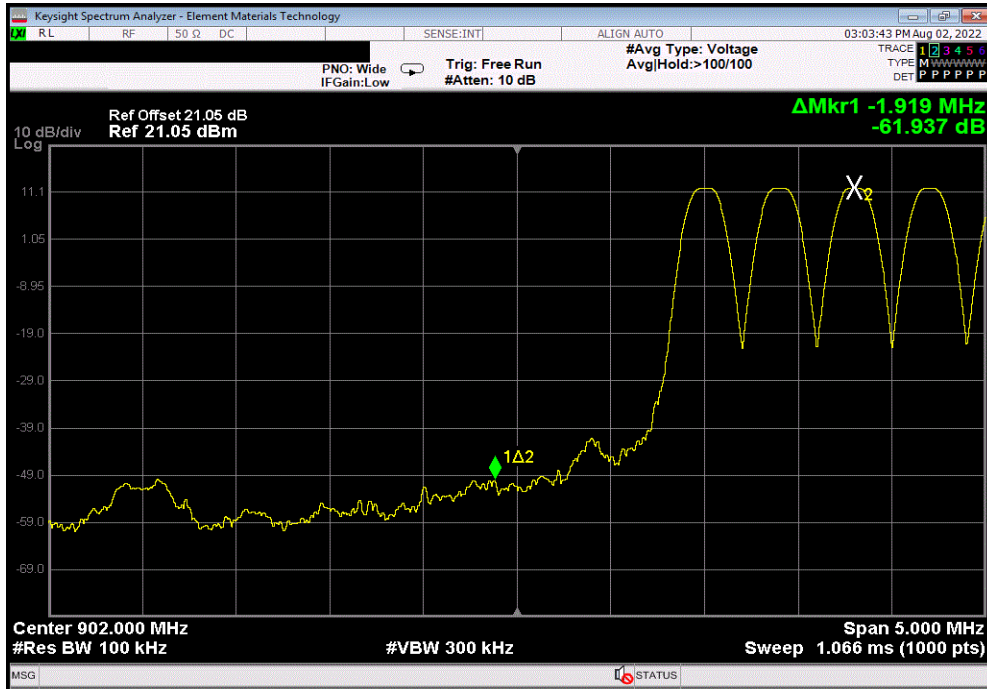
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23.4 °C	
Attendees: Connor Brewin		Humidity: 48.2% RH	
Project: None		Barometric Pres.: 1018 mbar	
Tested by: Jeff Alcoke	Power: 24VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		Test Method	
RSS-247 Issue 2:2017		ANSI C63.10:2013	
		ANSI C63.10:2013	
COMMENTS			
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Value (dBc)	Limit ≤ (dBc) Result
Hopping Mode			
GFSK, 38.4 Kbps			
Top Antenna			
Low Channel, 902.99973 MHz		-61.94	-20 Pass
High Channel, 926.39401 MHz		-66.5	-20 Pass

BAND EDGE COMPLIANCE - HOPPING MODE

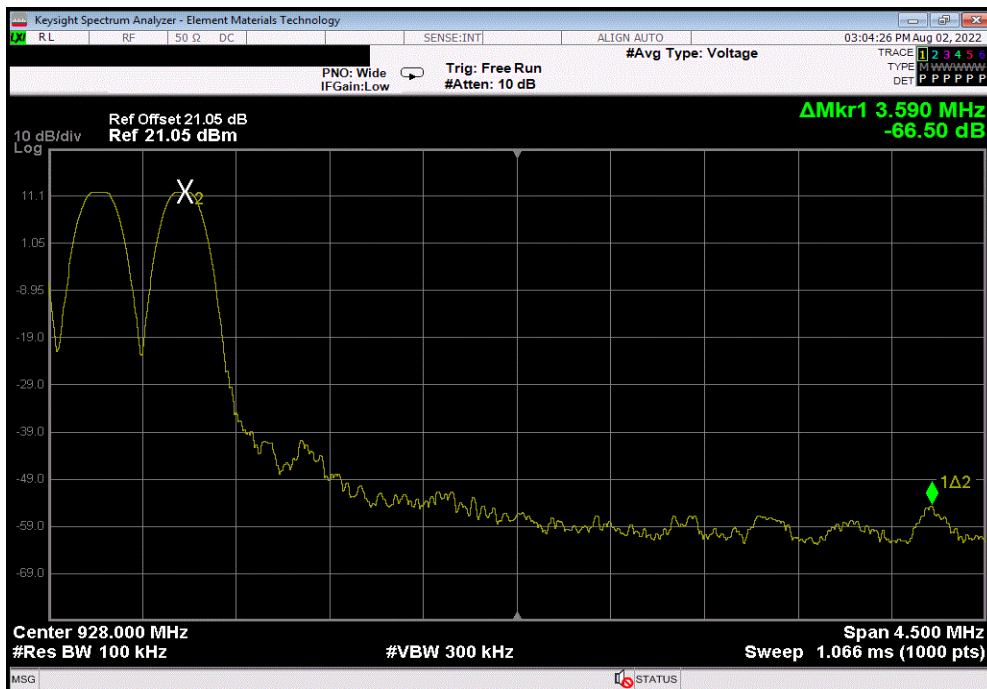


TbTx 2022.06.03.0 XMI 2022.02.07.0

Hopping Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-61.94	-20	Pass			



Hopping Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz						
	Value (dBc)	Limit ≤ (dBc)	Result			
	-66.5	-20	Pass			





CARRIER FREQUENCY SEPARATION

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION


The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The channel carrier frequencies in the 902-928 MHz band must be separated by 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. 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.

CARRIER FREQUENCY SEPARATION



TelTx 2022.06.03.0 XMit 2022.02.07.0

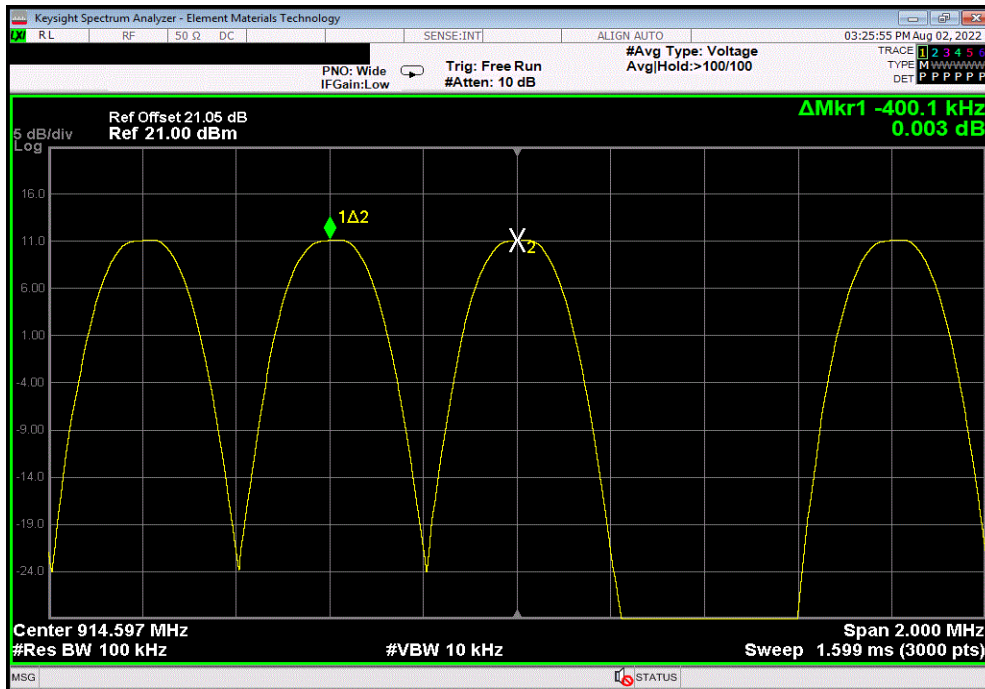
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23.5 °C	
Attendees: Connor Brewin		Humidity: 48.1% RH	
Project: None		Barometric Pres.: 1018 mbar	
Tested by: Jeff Alcoke	Power: 24VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		Test Method	
RSS-247 Issue 2:2017		ANSI C63.10:2013	
		ANSI C63.10:2013	
COMMENTS			
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable. The 20 dB bandwidth of the EUT is 74.3 kHz			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit (±) Results
Hopping Mode			
GFSK, 38.4 Kbps			
Top Antenna			
Mid Channel, 914.59689 MHz		0.4 MHz	0.074 MHz Pass

CARRIER FREQUENCY SEPARATION



TbTx 2022.06.03.0 XMI 2022.02.07.0

Hopping Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz			
	Value	Limit	Results
	0.4 MHz	0.074 MHz	Pass



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.

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.

DWELL TIME



element

XMit 2022.02.07.0

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The hopping function of the EUT was enabled.

For systems have a 20 dB bandwidth of the hopping channel that is less than 250 kHz and at least 50 hopping frequencies, the average time of occupancy on any frequency shall not be greater than 0.4 seconds in a 20 second period.

DWELL TIME



XMI: 2022.02.07.0

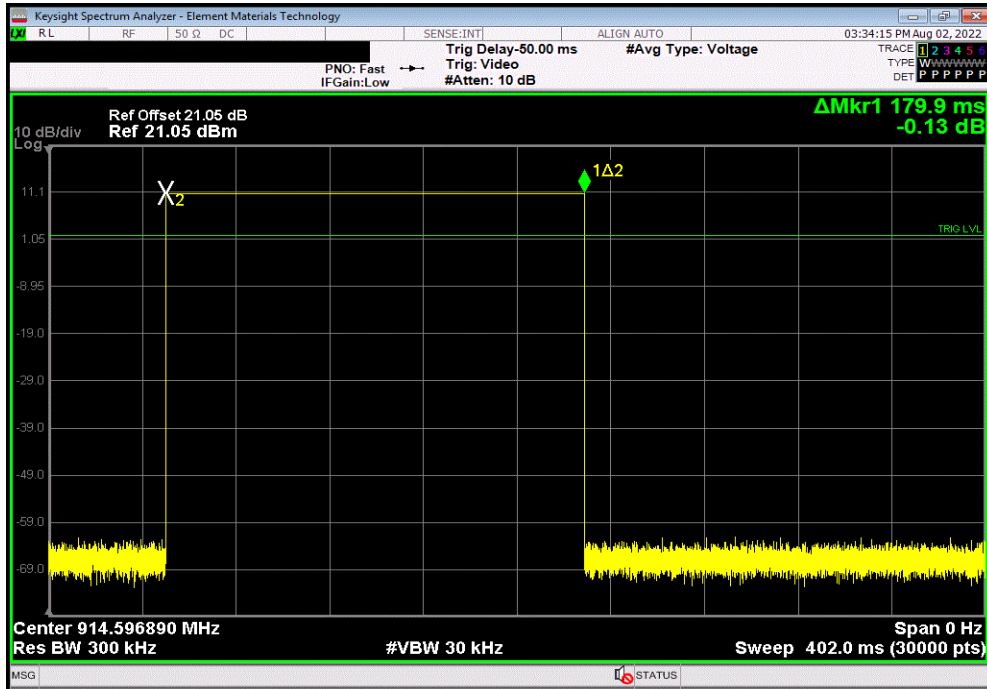
EUT: THM04R3000		Work Order: ADEM0023				
Serial Number: 0047		Date: 2-Aug-22				
Customer: Ademco, Inc.		Temperature: 23.5 °C				
Attendees: Connor Brewin		Humidity: 48.1% RH				
Project: None		Barometric Pres.: 1018 mbar				
Tested by: Jeff Alcoke	Power: 24VAC via 110VAC/60Hz	Job Site: EV06				
TEST SPECIFICATIONS						
FCC 15.247:2022		ANSI C63.10:2013				
RSS-247 Issue 2:2017		ANSI C63.10:2013				
COMMENTS						
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature				
		On Time (mS)	Number of Pulses	Total On Time (mS)	Limit (mS)	Result
Hopping Mode	GFSK, 38.4 Kbps					
	Top Antenna					
	Mid Channel, 914.59689 MHz					
	Pulse Width	179.9				
	Sweep (20 S)	N/A	1	179.9	≤ 400	Pass

DWELL TIME

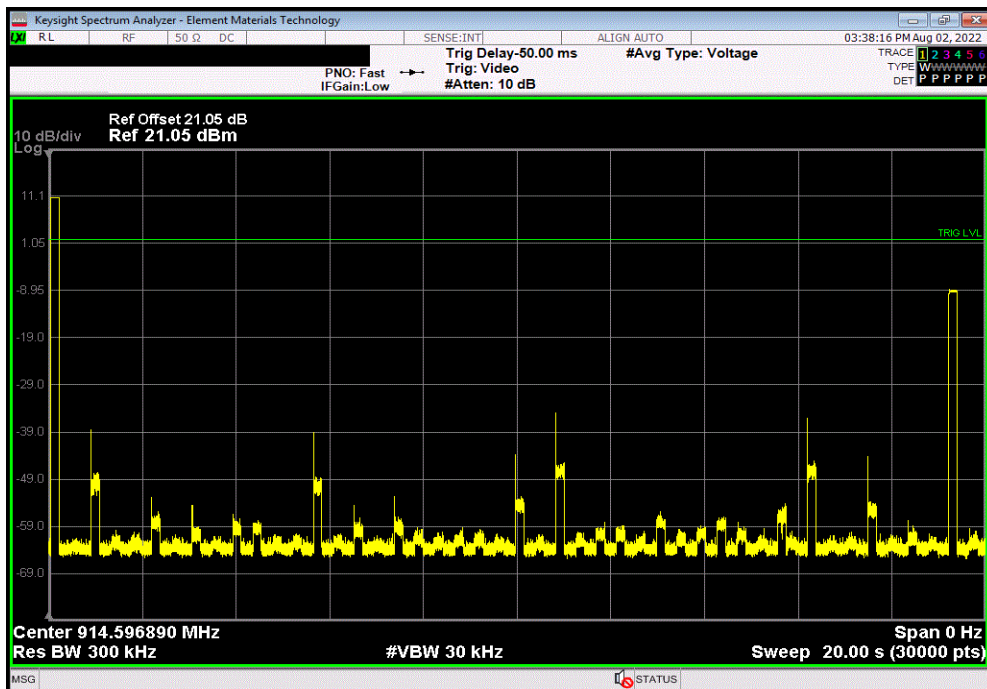


XMI 2022.02.07.0

Hopping Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz, Pulse Width						
On Time (mS)	Number of Pulses	Total On Time (mS)	Limit (mS)	Result		
179.9						



Hopping Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz, Sweep (20 S)						
On Time (mS)	Number of Pulses	Total On Time (mS)	Limit (mS)	Result		
N/A	1	179.9	≤ 400	Pass		



EMISSIONS BANDWIDTH



XMit 2022.02.07.0

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The 20 dB emissions bandwidth was measured with the EUT set to low, medium and high transmit frequencies in the band. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

EMISSIONS BANDWIDTH



TelTx 2022.06.03.0 XMit 2022.02.07.0

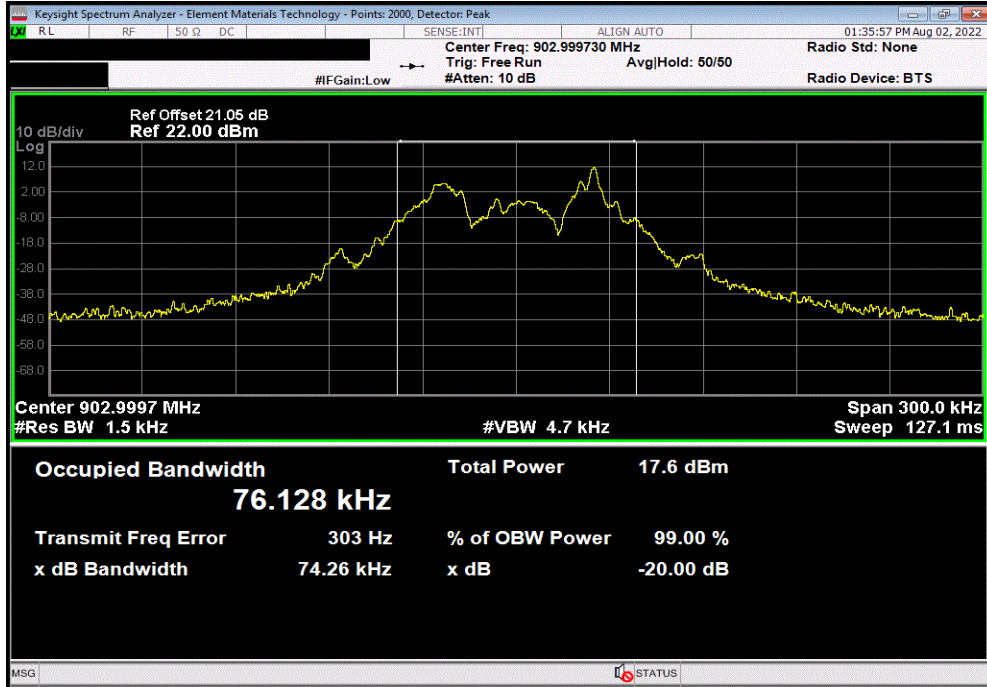
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23.1 °C	
Attendees: Connor Brewin		Humidity: 48.7% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jeff Alcoke	Power: 24VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		Test Method	
RSS-247 Issue 2:2017		ANSI C63.10:2013	
		ANSI C63.10:2013	
COMMENTS			
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Value	Limit (-) Result
Single Channel Mode			
	GFSK, 38.4 Kbps		
	Top Antenna		
	Low Channel, 902.99973 MHz	74.259 kHz	500 kHz Pass
	Mid Channel, 914.59689 MHz	74.084 kHz	500 kHz Pass
	High Channel, 926.39401 MHz	74.334 kHz	500 kHz Pass

EMISSIONS BANDWIDTH

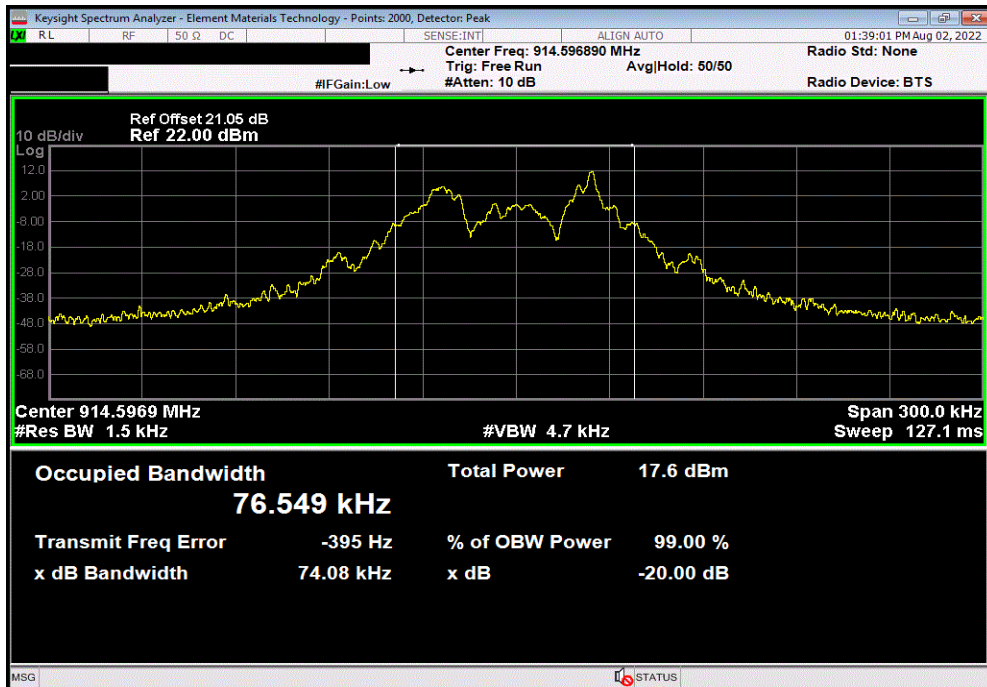


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
	Value	Limit		Value	Limit	Result
	74.259 kHz	500 kHz	(<)			Pass



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
	Value	Limit		Value	Limit	Result
	74.084 kHz	500 kHz	(<)			Pass

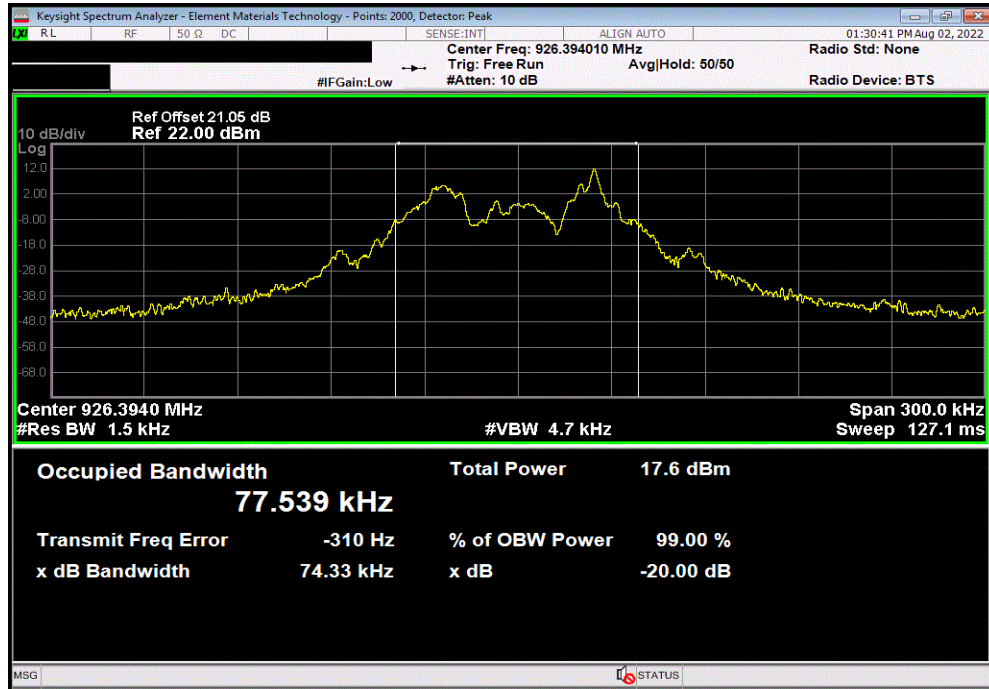


EMISSIONS BANDWIDTH



TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz		
Value	Limit	Result
74.334 kHz	500 kHz (<)	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



XMH 2022.02.07.0

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

The method found in ANSI C63.10:2013 Section 7.8.5 was used for a FHSS radio.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi)

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TelTx 2022.06.03.0 XMI 2022.02.07.0

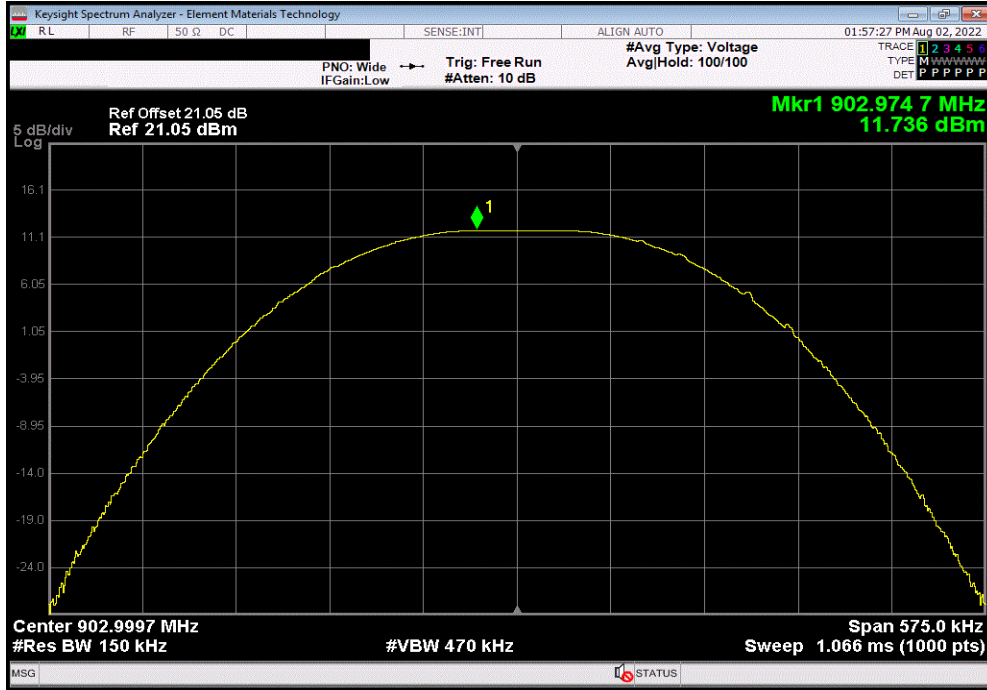
EUT: THM04R3000		Work Order: ADEM0023				
Serial Number: 0047		Date: 2-Aug-22				
Customer: Ademco, Inc.		Temperature: 23 °C				
Attendees: Connor Brewin		Humidity: 49% RH				
Project: None		Barometric Pres.: 1019 mbar				
Tested by: Jeff Alcoke	Power: 24 VAC via 110VAC/60Hz	Job Site: EV06				
TEST SPECIFICATIONS						
FCC 15.247:2022		Test Method				
RSS-247 Issue 2:2017		ANSI C63.10:2013				
COMMENTS						
Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature				
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
Single Channel Mode						
	GFSK, 38.4 Kbps					
	Side Antenna					
	Low Channel, 902.99973 MHz	11.736	3.25	15.0	36	Pass
	Mid Channel, 914.59689 MHz	11.768	3.25	15.0	36	Pass
	High Channel, 926.39401 MHz	11.831	3.25	15.1	36	Pass
	Top Antenna					
	Low Channel, 902.99973 MHz	12.123	1.5	13.6	36	Pass
	Mid Channel, 914.59689 MHz	12.125	1.5	13.6	36	Pass
	High Channel, 926.39401 MHz	12.056	1.5	13.6	36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

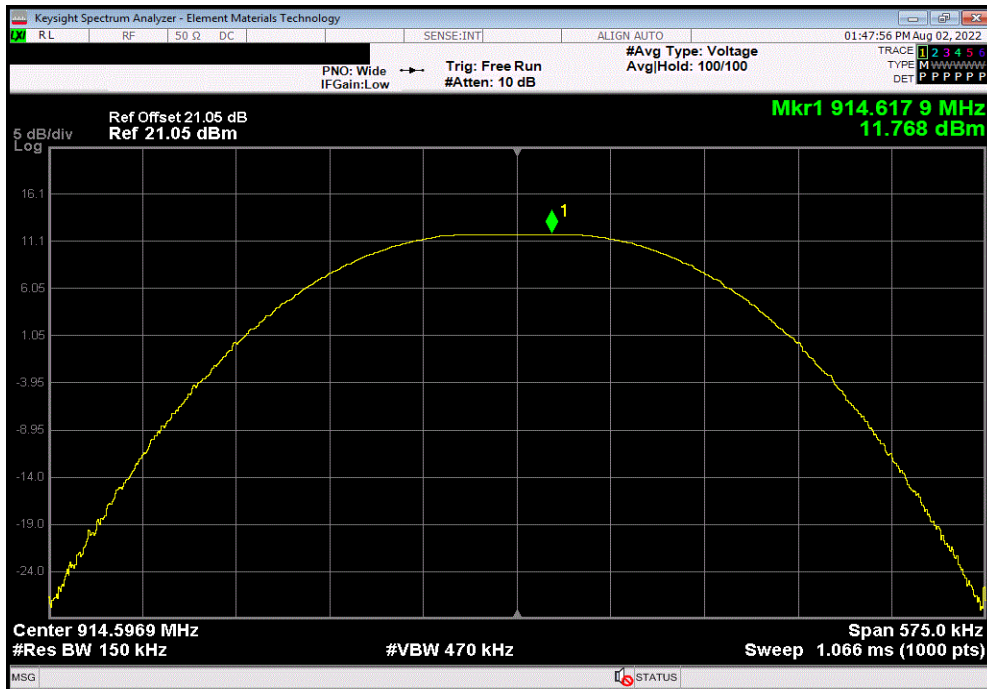


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Low Channel, 902.99973 MHz						
	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result	
	11.736	3.25	15.0	36	Pass	



Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Mid Channel, 914.59689 MHz						
	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result	
	11.768	3.25	15.0	36	Pass	

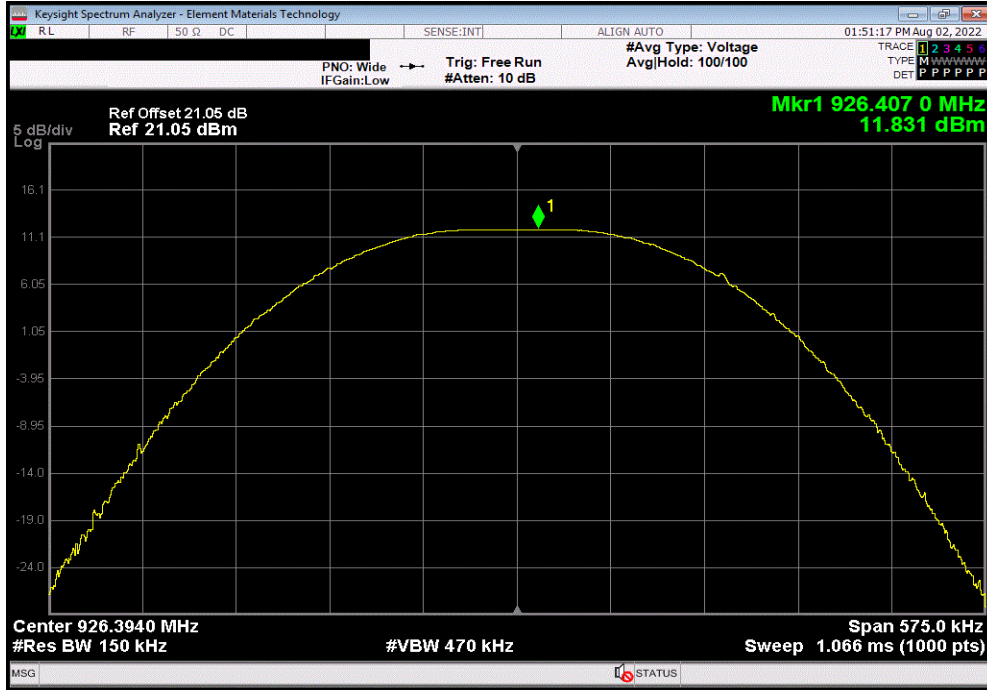


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

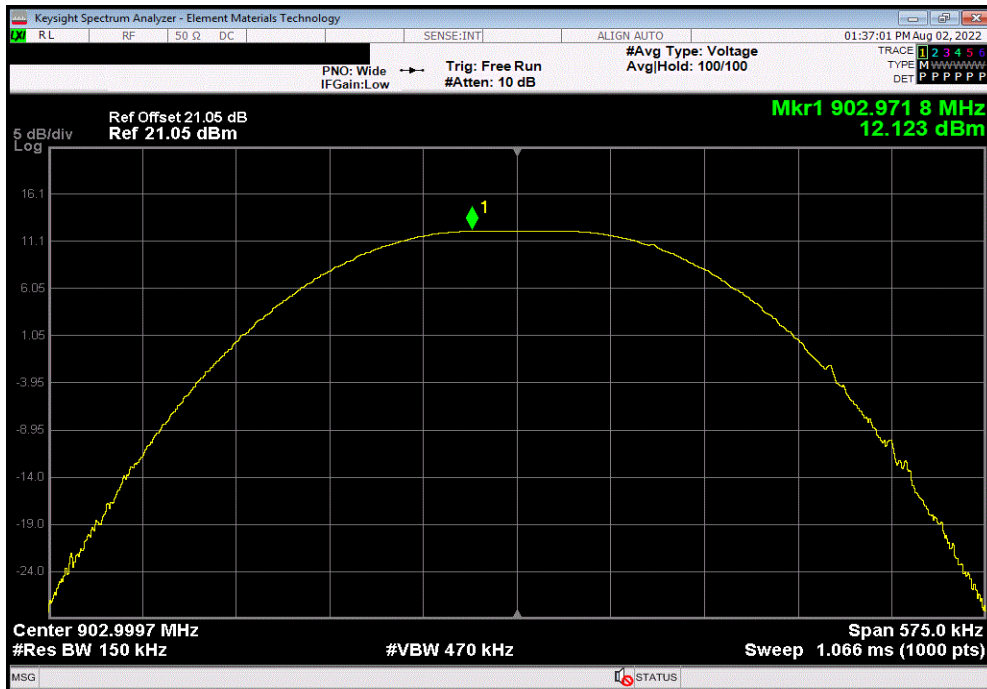


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, High Channel, 926.39401 MHz						
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result		
11.831	3.25	15.1	36	Pass		



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result		
12.123	1.5	13.6	36	Pass		

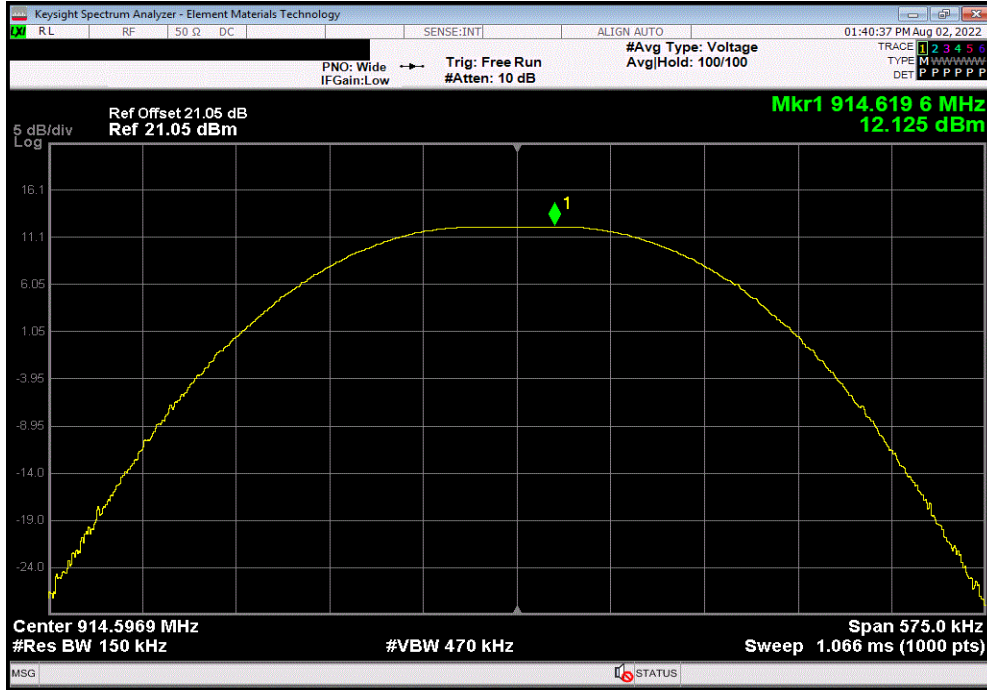


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

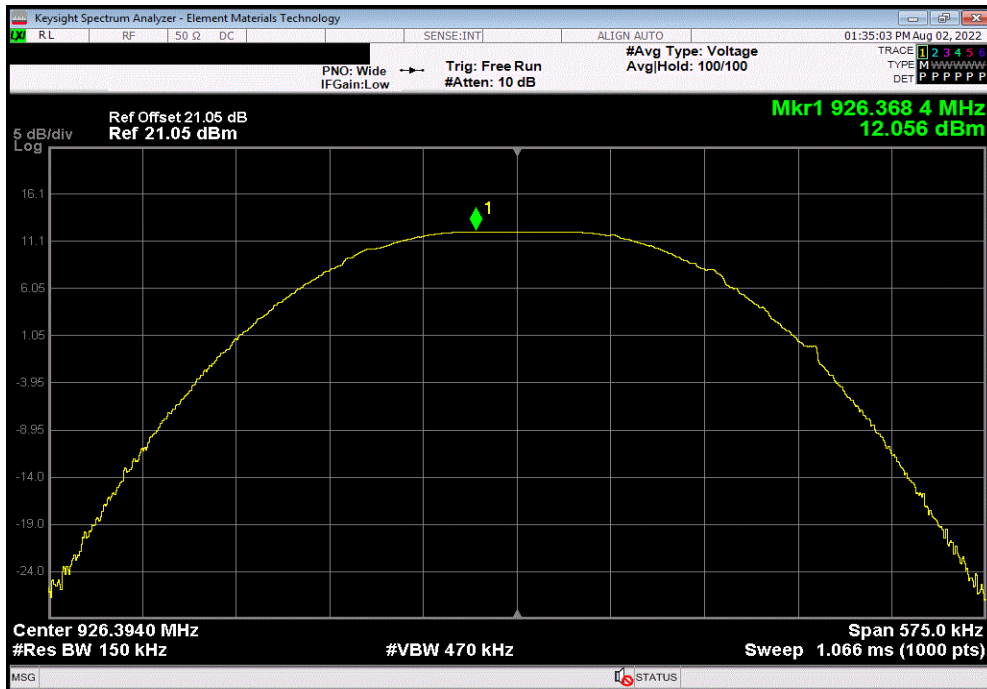


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result		
12.125	1.5	13.6	36	Pass		



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz						
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result		
12.056	1.5	13.6	36	Pass		





XMH 2022.02.07.0

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION


The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The number of hopping frequencies was measured across the authorized band. The hopping function of the EUT was enabled.

NUMBER OF HOPPING FREQUENCIES



TelTx 2022.06.03.0 XMit 2022.02.07.0

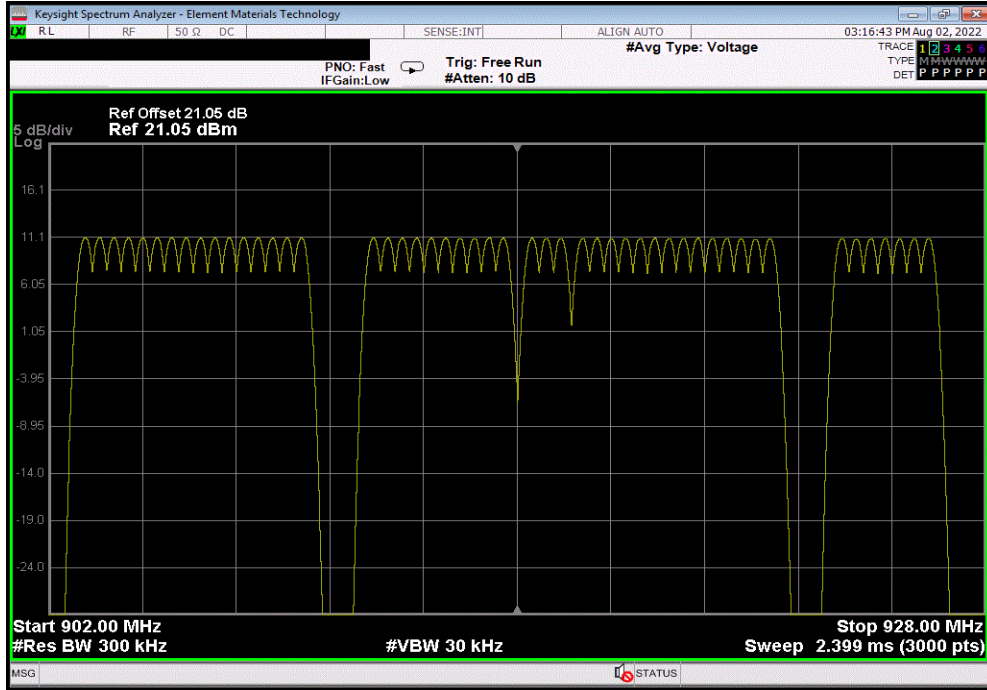
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23.4 °C	
Attendees: Connor Brewin		Humidity: 48.2% RH	
Project: None		Barometric Pres.: 1018 mbar	
Tested by: Jeff Alcoke	Power: 24VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		ANSI C63.10:2013	
RSS-247 Issue 2:2017		ANSI C63.10:2013	
COMMENTS			
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Number of Channels	Limit (≥)
Hopping Mode			Results
GFSK, 38.4 Kbps			
Top Antenna			
Mid Channel, 914.59689 MHz		50	50 Pass

NUMBER OF HOPPING FREQUENCIES



TbTx 2022.06.03.0 XMI 2022.02.07.0

Hopping Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
				Number of Channels	Limit (≥)	Results
				50	50	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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation.

Per ANSI C63.10:2013, 6.9.3, the spectrum analyzer was configured as follows:

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.


The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto to prevent video filtering or averaging. A sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to sum the power of the transmission in linear terms to obtain the 99% bandwidth.

OCCUPIED BANDWIDTH



TelTx 2022.06.03.0 XMI: 2022.02.07.0

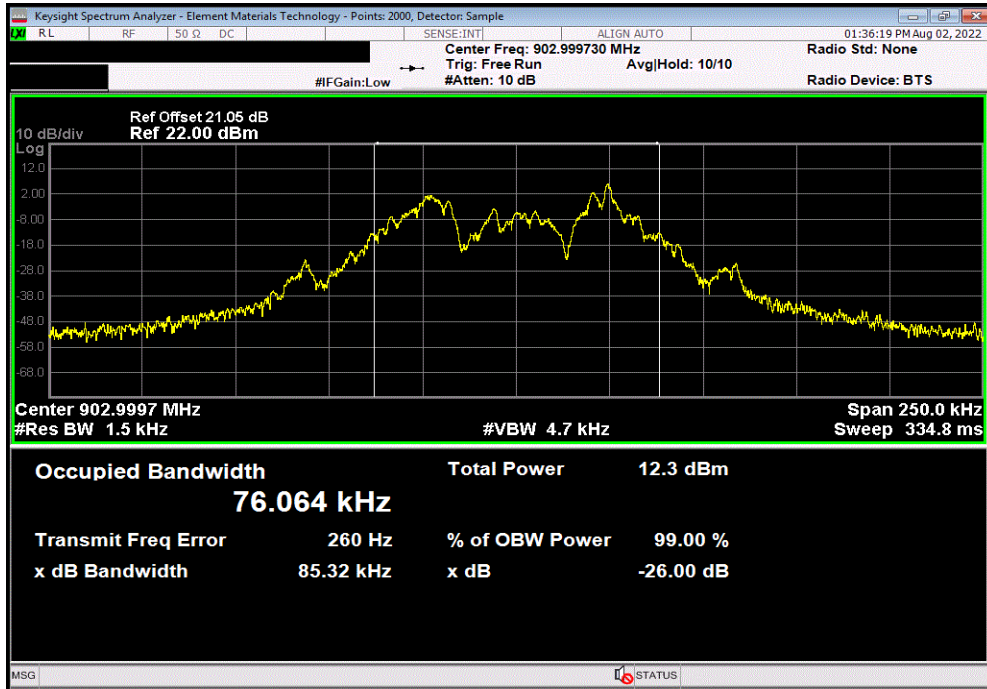
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23.2 °C	
Attendees: Connor Brewin		Humidity: 49% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jeff Alcoke	Power: 24VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		Test Method	
RSS-Gen Issue 5:2018+A1:2019+A2:2021		ANSI C63.10:2013	
		ANSI C63.10:2013	
COMMENTS			
Measurements performed on antenna port that had highest conducted output power. Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit
Single Channel Mode			
GFSK, 38.4 Kbps			
Top Antenna			
Low Channel, 902.99973 MHz		76.064 kHz	N/A
Mid Channel, 914.59689 MHz		77.136 kHz	N/A
High Channel, 926.39401 MHz		77.927 kHz	N/A

OCCUPIED BANDWIDTH

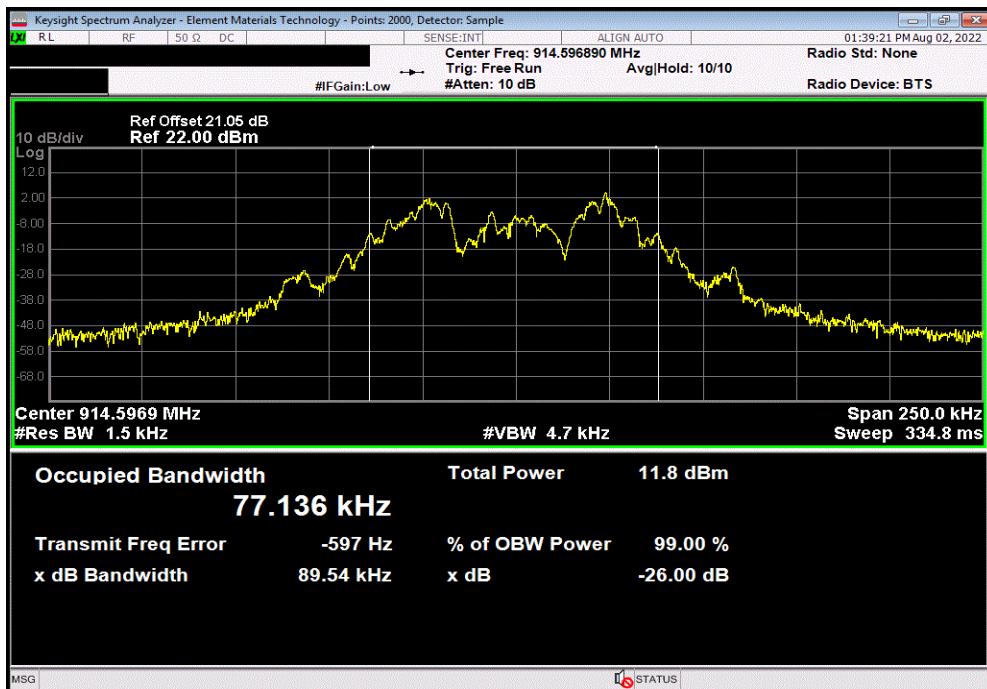


TbTx 2022.06.03.0 XMI 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
				Value	Limit	Result
				76.064 kHz	N/A	N/A



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
				Value	Limit	Result
				77.136 kHz	N/A	N/A

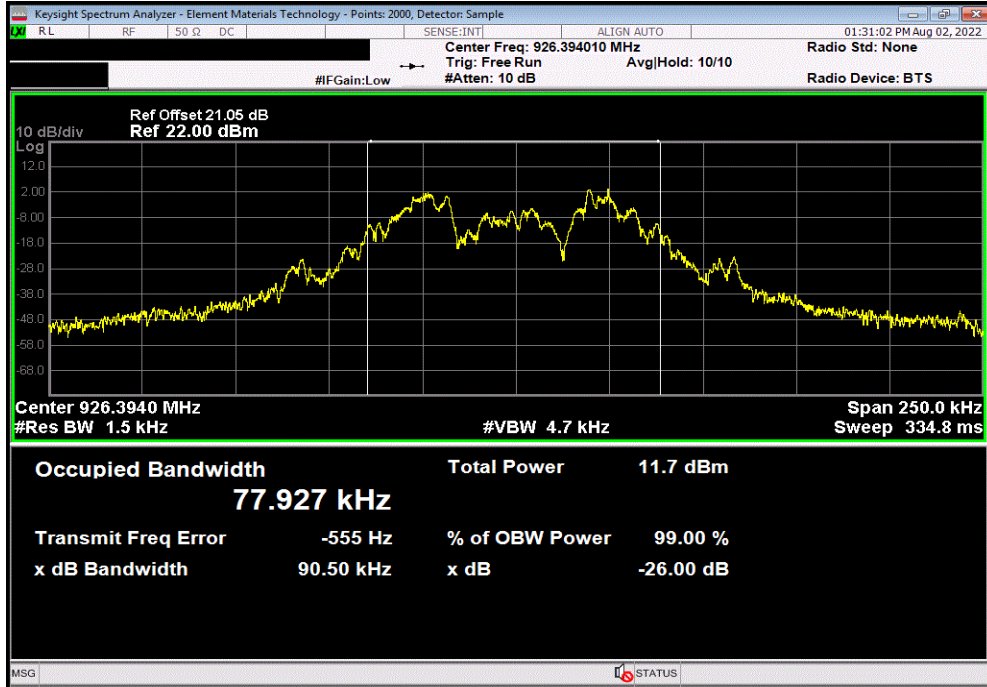


OCCUPIED BANDWIDTH



TbTx 2022.06.03.0 XMI 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz		
Value	Limit	Result
77.927 kHz	N/A	N/A



OUTPUT POWER



XMlt 2022.02.07.0

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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

The method found in ANSI C63.10:2013 Section 7.8.5 was used for a FHSS radio.

OUTPUT POWER



TelTx 2022.06.03.0 XMI 2022.02.07.0

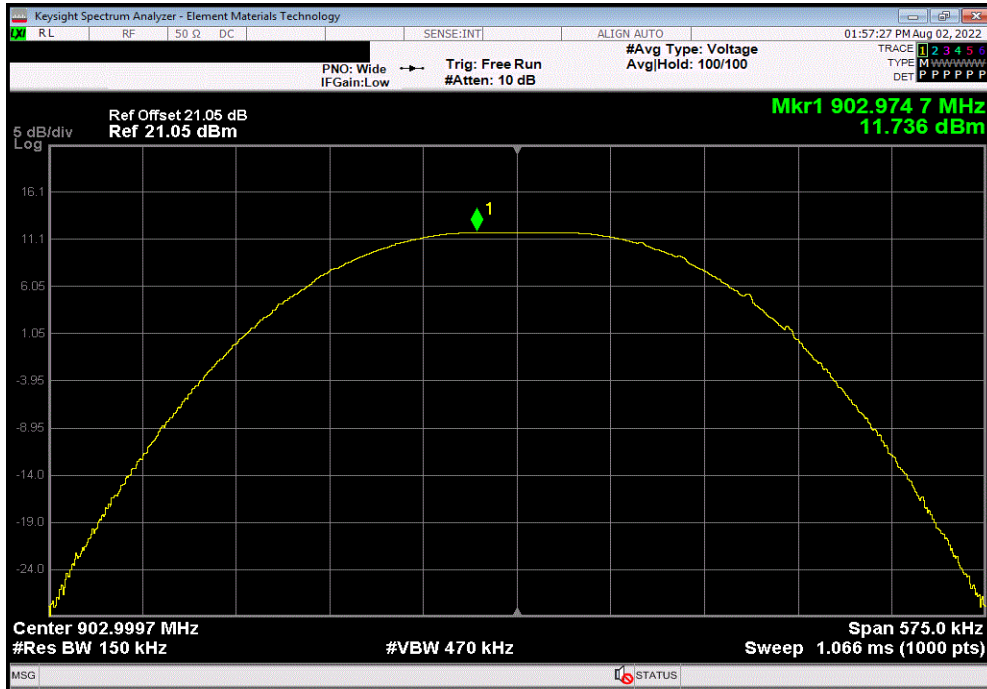
EUT: THM04R3000		Work Order: ADEM0023	
Serial Number: 0047		Date: 2-Aug-22	
Customer: Ademco, Inc.		Temperature: 23 °C	
Attendees: Connor Brewin		Humidity: 49.2% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Jeff Alcock	Power: 24 VAC via 110VAC/60Hz	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2022		Test Method	
RSS-247 Issue 2:2017		ANSI C63.10:2013	
ANSI C63.10:2013		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature	
		Out Pwr (dBm)	Limit (dBm) Result
Single Channel Mode			
GFSK, 38.4 Kbps			
Side Antenna			
	Low Channel, 902.99973 MHz	11.736	30 Pass
	Mid Channel, 914.59689 MHz	11.768	30 Pass
	High Channel, 926.39401 MHz	11.831	30 Pass
Top Antenna			
	Low Channel, 902.99973 MHz	12.123	30 Pass
	Mid Channel, 914.59689 MHz	12.125	30 Pass
	High Channel, 926.39401 MHz	12.056	30 Pass

OUTPUT POWER

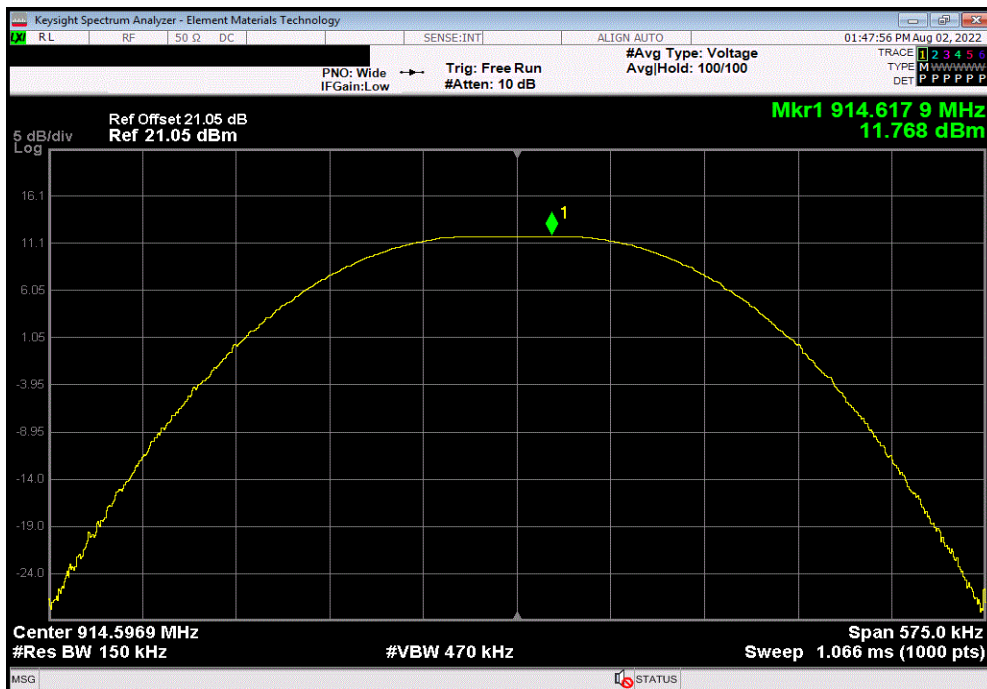


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Low Channel, 902.99973 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				11.736	30	Pass



Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Mid Channel, 914.59689 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				11.768	30	Pass

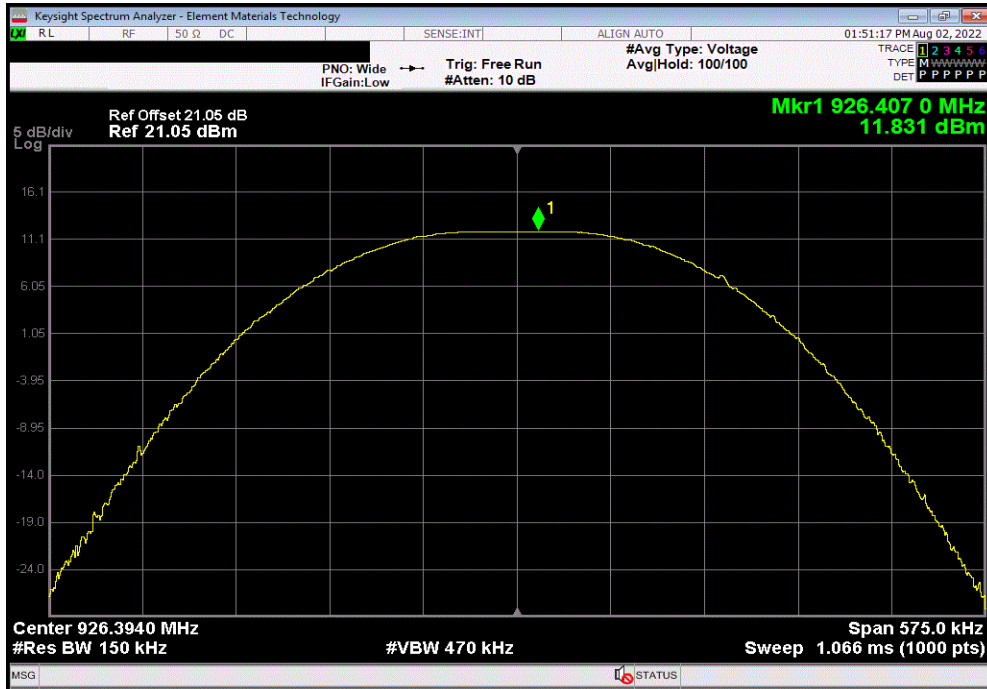


OUTPUT POWER

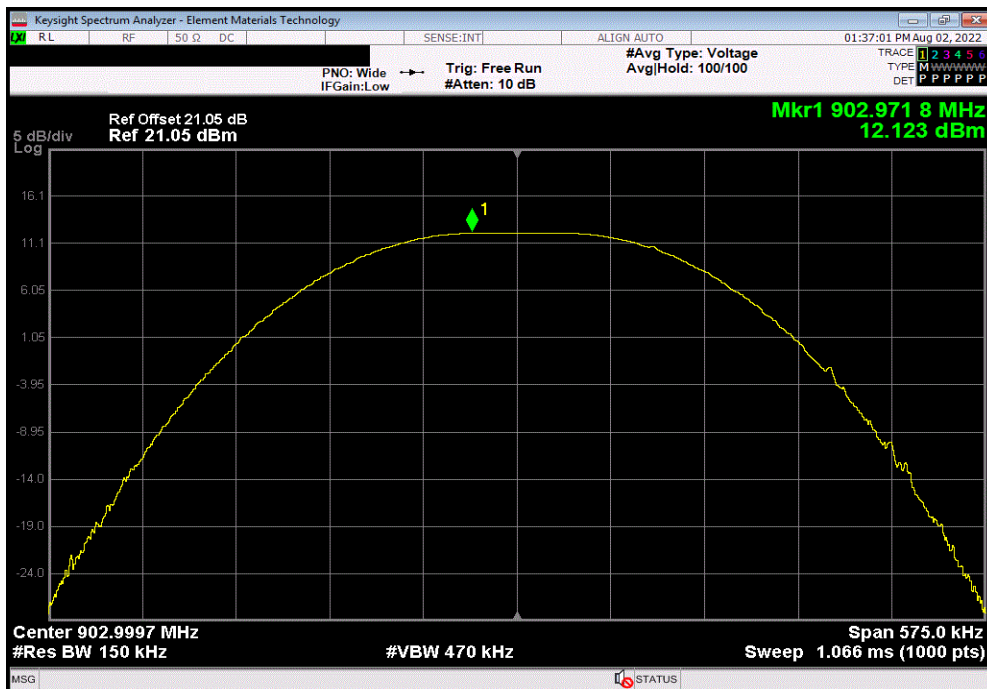


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, High Channel, 926.39401 MHz						
	Out Pwr (dBm)	Limit (dBm)	Result			
	11.831	30	Pass			



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
	Out Pwr (dBm)	Limit (dBm)	Result			
	12.123	30	Pass			

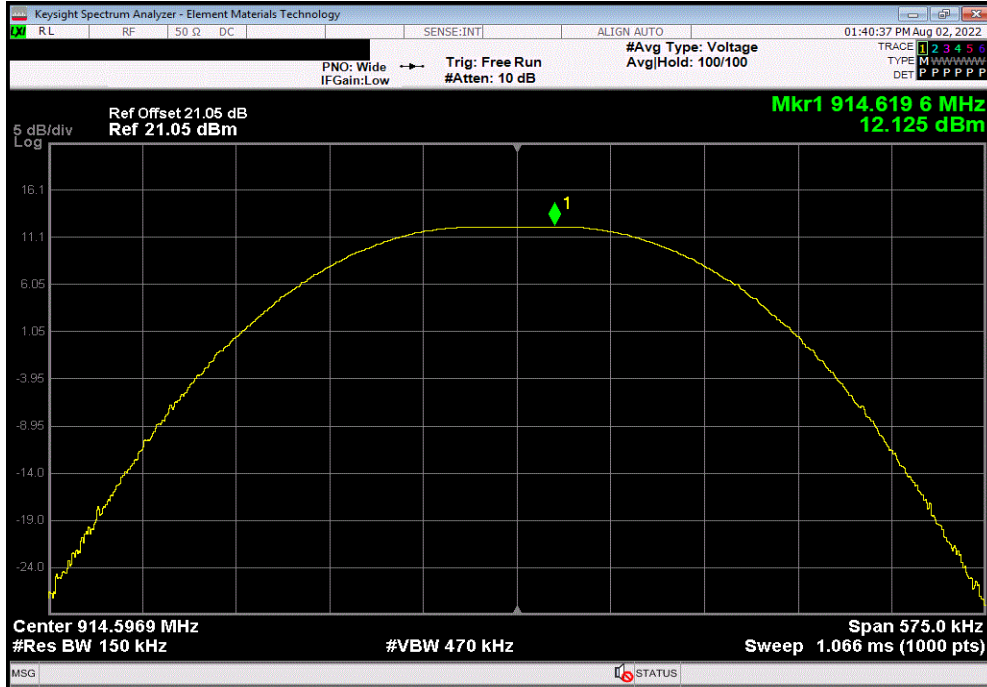


OUTPUT POWER

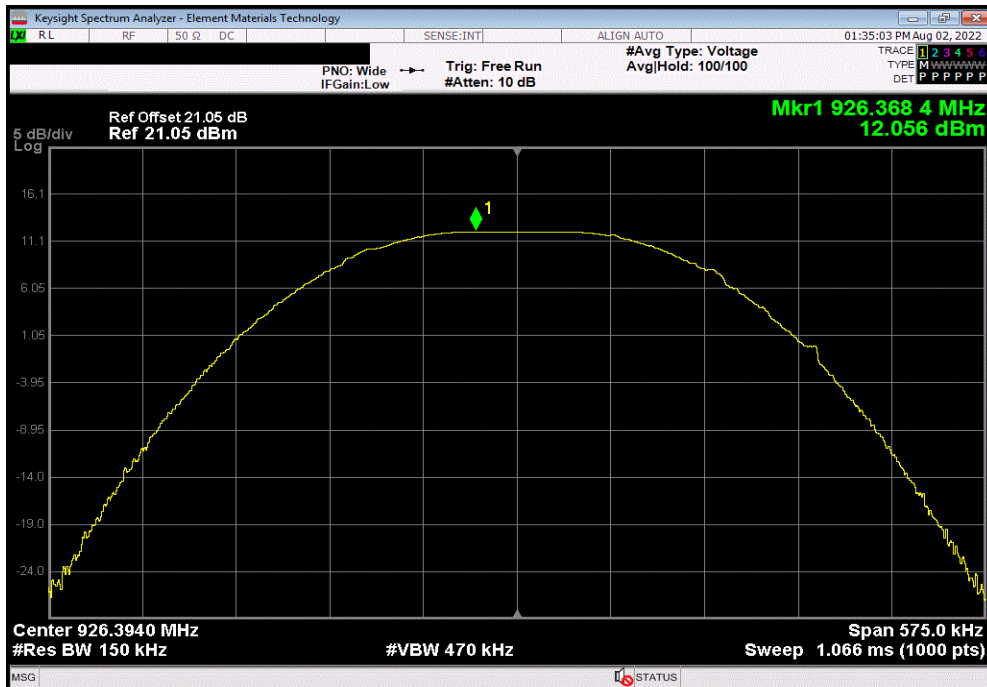


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
	Out Pwr (dBm)	Limit (dBm)	Result			
	12.125	30	Pass			



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz						
	Out Pwr (dBm)	Limit (dBm)	Result			
	12.056	30	Pass			



POWERLINE CONDUCTED EMISSIONS



TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Gauss Instruments	TDEMI 30M	ARN	2022-04-20	2023-04-20
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKT	EVGA	2022-01-04	2023-01-04
LISN	Solar Electronics	9252-50-R-24-BNC	LIP	2021-09-10	2022-09-10

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.2 dB	-3.2 dB

CONFIGURATIONS INVESTIGATED

ADEM0023-2

MODES INVESTIGATED

Continuous Tx, GFSK, 38.4 kbps, Mid Ch. = 914.59689 MHz, Antenna = Top
Continuous Tx, GFSK, 38.4 kbps, Mid Ch. = 914.59689 MHz, Antenna = Side

POWERLINE CONDUCTED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0023
Serial Number:	0047	Date:	2022-08-05
Customer:	Ademco, Inc.	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0023-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	6	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

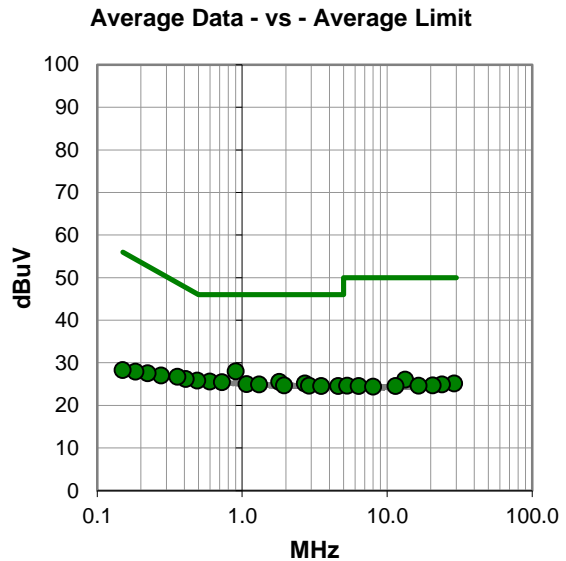
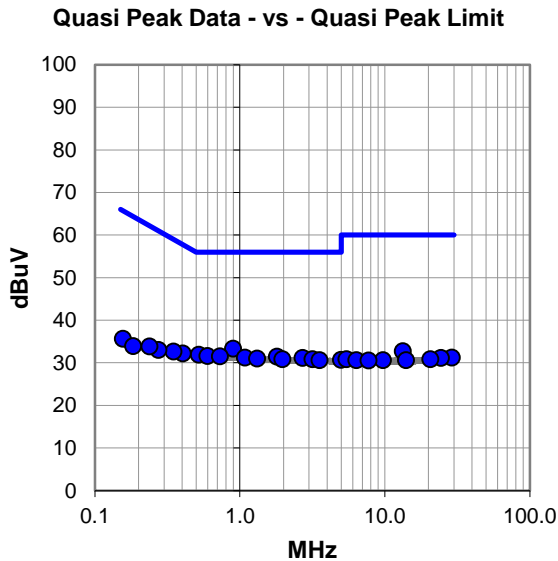
None

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 kbps, Mid Ch. = 914.59689 MHz, Antenna = Top

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS



RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.901	13.4	19.9	33.3	56.0	-22.7
0.521	12.1	19.8	31.9	56.0	-24.1
0.599	11.8	19.8	31.6	56.0	-24.4
0.728	11.6	19.9	31.5	56.0	-24.5
1.802	11.5	19.9	31.4	56.0	-24.6
1.087	11.3	19.9	31.2	56.0	-24.8
2.704	11.1	20.0	31.1	56.0	-24.9
1.316	11.1	19.9	31.0	56.0	-25.0
1.969	10.8	20.0	30.8	56.0	-25.2
3.173	10.8	20.0	30.8	56.0	-25.2
4.993	10.5	20.2	30.7	56.0	-25.3
3.559	10.6	20.0	30.6	56.0	-25.4
0.405	12.4	19.8	32.2	57.8	-25.6
0.348	12.8	19.8	32.6	59.0	-26.4
13.309	12.3	20.4	32.7	60.0	-27.3
0.275	13.1	19.9	33.0	61.0	-28.0
0.238	13.8	20.0	33.8	62.1	-28.3
28.980	10.1	21.1	31.2	60.0	-28.8
24.426	10.2	20.9	31.1	60.0	-28.9
5.431	10.6	20.2	30.8	60.0	-29.2
20.611	10.0	20.8	30.8	60.0	-29.2
6.384	10.4	20.2	30.6	60.0	-29.4
9.715	10.3	20.3	30.6	60.0	-29.4
13.998	10.2	20.4	30.6	60.0	-29.4
7.720	10.3	20.2	30.5	60.0	-29.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	8.1	19.9	28.0	46.0	-18.0
0.597	5.8	19.8	25.6	46.0	-20.4
0.490	6.0	19.8	25.8	46.2	-20.4
1.802	5.6	19.9	25.5	46.0	-20.5
0.727	5.5	19.9	25.4	46.0	-20.6
2.704	5.1	20.0	25.1	46.0	-20.9
1.076	5.1	19.9	25.0	46.0	-21.0
1.313	5.0	19.9	24.9	46.0	-21.1
1.943	4.7	20.0	24.7	46.0	-21.3
2.903	4.6	20.0	24.6	46.0	-21.4
3.519	4.5	20.0	24.5	46.0	-21.5
4.610	4.4	20.1	24.5	46.0	-21.5
0.409	6.4	19.8	26.2	47.7	-21.5
0.358	6.9	19.8	26.7	48.8	-22.1
0.277	7.1	19.9	27.0	50.9	-23.9
13.307	5.6	20.4	26.0	50.0	-24.0
29.015	4.0	21.1	25.1	50.0	-24.9
23.977	4.0	20.9	24.9	50.0	-25.1
0.223	7.5	20.0	27.5	52.7	-25.2
20.611	3.9	20.8	24.7	50.0	-25.3
5.297	4.4	20.2	24.6	50.0	-25.4
16.472	4.0	20.6	24.6	50.0	-25.4
6.384	4.3	20.2	24.5	50.0	-25.5
11.418	4.1	20.4	24.5	50.0	-25.5
8.011	4.2	20.2	24.4	50.0	-25.6

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0023
Serial Number:	0047	Date:	2022-08-05
Customer:	Ademco, Inc.	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0023-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	7	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

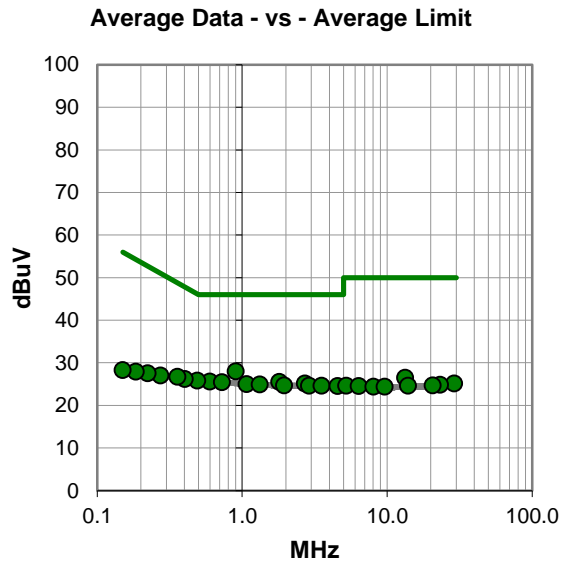
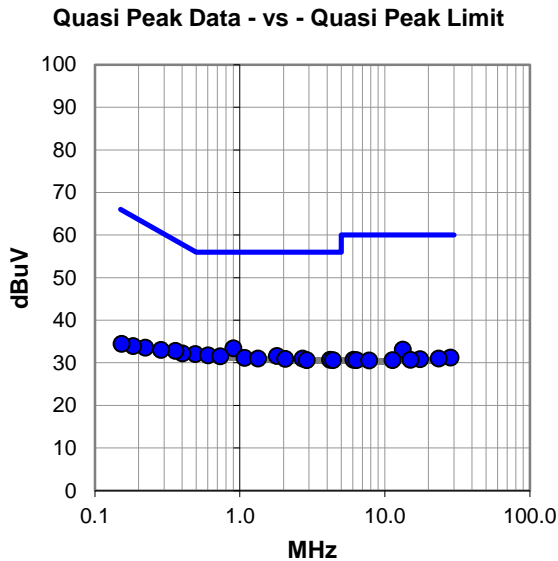
None

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 kbps, Mid Ch. = 914.59689 MHz, Antenna = Top

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS



RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	13.5	19.9	33.4	56.0	-22.6
0.492	12.2	19.8	32.0	56.1	-24.1
0.605	11.9	19.8	31.7	56.0	-24.3
1.804	11.7	19.9	31.6	56.0	-24.4
0.731	11.6	19.9	31.5	56.0	-24.5
1.081	11.2	19.9	31.1	56.0	-24.9
1.339	11.1	19.9	31.0	56.0	-25.0
2.704	11.0	20.0	31.0	56.0	-25.0
2.062	10.9	20.0	30.9	56.0	-25.1
4.207	10.7	20.0	30.7	56.0	-25.3
2.896	10.6	20.0	30.6	56.0	-25.4
4.387	10.6	20.0	30.6	56.0	-25.4
0.402	12.4	19.8	32.2	57.8	-25.6
0.359	13.0	19.8	32.8	58.8	-26.0
13.299	12.7	20.4	33.1	60.0	-26.9
0.286	13.1	19.9	33.0	60.6	-27.6
28.446	10.1	21.1	31.2	60.0	-28.8
23.553	10.1	20.9	31.0	60.0	-29.0
17.523	10.2	20.6	30.8	60.0	-29.2
0.223	13.5	20.0	33.5	62.7	-29.2
6.093	10.5	20.2	30.7	60.0	-29.3
15.049	10.2	20.5	30.7	60.0	-29.3
6.371	10.4	20.2	30.6	60.0	-29.4
11.317	10.2	20.4	30.6	60.0	-29.4
7.826	10.3	20.2	30.5	60.0	-29.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	8.1	19.9	28.0	46.0	-18.0
0.599	5.8	19.8	25.6	46.0	-20.4
0.490	6.0	19.8	25.8	46.2	-20.4
1.802	5.6	19.9	25.5	46.0	-20.5
0.727	5.5	19.9	25.4	46.0	-20.6
2.704	5.1	20.0	25.1	46.0	-20.9
1.076	5.1	19.9	25.0	46.0	-21.0
1.320	5.0	19.9	24.9	46.0	-21.1
1.943	4.7	20.0	24.7	46.0	-21.3
2.900	4.6	20.0	24.6	46.0	-21.4
3.531	4.6	20.0	24.6	46.0	-21.4
4.547	4.4	20.1	24.5	46.0	-21.5
0.402	6.4	19.8	26.2	47.8	-21.6
0.358	6.9	19.8	26.7	48.8	-22.1
13.299	6.1	20.4	26.5	50.0	-23.5
0.274	7.1	19.9	27.0	51.0	-24.0
29.021	4.0	21.1	25.1	50.0	-24.9
23.237	3.9	20.9	24.8	50.0	-25.2
0.223	7.5	20.0	27.5	52.7	-25.2
20.611	3.9	20.8	24.7	50.0	-25.3
5.225	4.4	20.2	24.6	50.0	-25.4
13.977	4.2	20.4	24.6	50.0	-25.4
6.374	4.3	20.2	24.5	50.0	-25.5
8.055	4.2	20.2	24.4	50.0	-25.6
9.642	4.1	20.3	24.4	50.0	-25.6

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0023
Serial Number:	0047	Date:	2022-08-05
Customer:	Ademco, Inc.	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0023-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	8	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

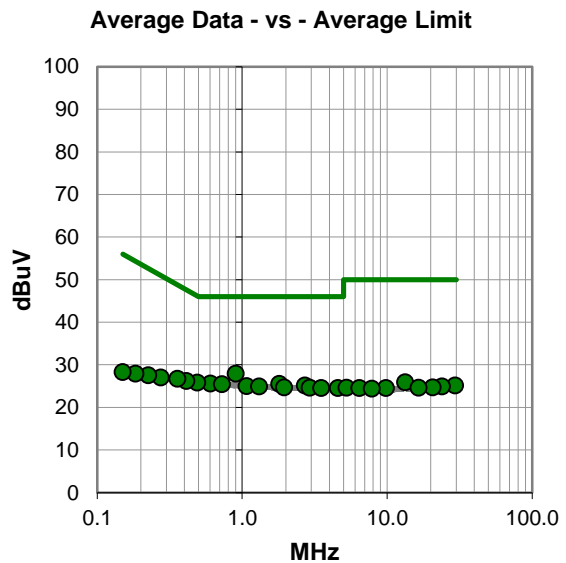
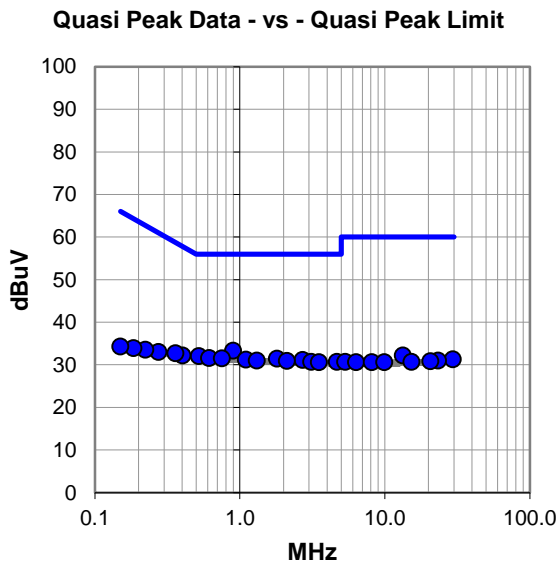
None

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 kbps, Mid Ch. = 914.59689 MHz, Antenna = Side

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS



RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.901	13.4	19.9	33.3	56.0	-22.7
0.522	12.2	19.8	32.0	56.0	-24.0
0.614	11.8	19.8	31.6	56.0	-24.4
0.751	11.6	19.9	31.5	56.0	-24.5
1.802	11.5	19.9	31.4	56.0	-24.6
1.101	11.3	19.9	31.2	56.0	-24.8
2.704	11.1	20.0	31.1	56.0	-24.9
1.313	11.1	19.9	31.0	56.0	-25.0
2.109	10.9	20.0	30.9	56.0	-25.1
3.102	10.7	20.0	30.7	56.0	-25.3
4.668	10.6	20.1	30.7	56.0	-25.3
3.516	10.6	20.0	30.6	56.0	-25.4
0.402	12.4	19.8	32.2	57.8	-25.6
0.359	12.9	19.8	32.7	58.8	-26.1
13.301	11.8	20.4	32.2	60.0	-27.8
0.275	13.1	19.9	33.0	61.0	-28.0
29.487	10.2	21.1	31.3	60.0	-28.7
23.318	10.1	20.9	31.0	60.0	-29.0
20.643	10.0	20.8	30.8	60.0	-29.2
0.223	13.5	20.0	33.5	62.7	-29.2
5.338	10.5	20.2	30.7	60.0	-29.3
15.310	10.2	20.5	30.7	60.0	-29.3
6.346	10.4	20.2	30.6	60.0	-29.4
8.119	10.4	20.2	30.6	60.0	-29.4
9.929	10.3	20.3	30.6	60.0	-29.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	8.0	19.9	27.9	46.0	-18.1
0.605	5.8	19.8	25.6	46.0	-20.4
0.490	6.0	19.8	25.8	46.2	-20.4
1.802	5.6	19.9	25.5	46.0	-20.5
0.727	5.5	19.9	25.4	46.0	-20.6
2.704	5.1	20.0	25.1	46.0	-20.9
1.076	5.1	19.9	25.0	46.0	-21.0
1.313	5.0	19.9	24.9	46.0	-21.1
1.943	4.7	20.0	24.7	46.0	-21.3
2.919	4.6	20.0	24.6	46.0	-21.4
0.412	6.4	19.8	26.2	47.6	-21.4
3.508	4.5	20.0	24.5	46.0	-21.5
4.567	4.4	20.1	24.5	46.0	-21.5
0.358	6.9	19.8	26.7	48.8	-22.1
0.275	7.1	19.9	27.0	51.0	-24.0
13.301	5.5	20.4	25.9	50.0	-24.1
29.539	4.0	21.1	25.1	50.0	-24.9
0.225	7.5	20.0	27.5	52.6	-25.1
23.878	4.0	20.9	24.9	50.0	-25.1
20.611	3.9	20.8	24.7	50.0	-25.3
5.260	4.4	20.2	24.6	50.0	-25.4
16.470	4.0	20.6	24.6	50.0	-25.4
6.447	4.3	20.2	24.5	50.0	-25.5
9.845	4.2	20.3	24.5	50.0	-25.5
7.840	4.2	20.2	24.4	50.0	-25.6

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0023
Serial Number:	0047	Date:	2022-08-05
Customer:	Ademco, Inc.	Temperature:	22.3°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0023-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	9	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

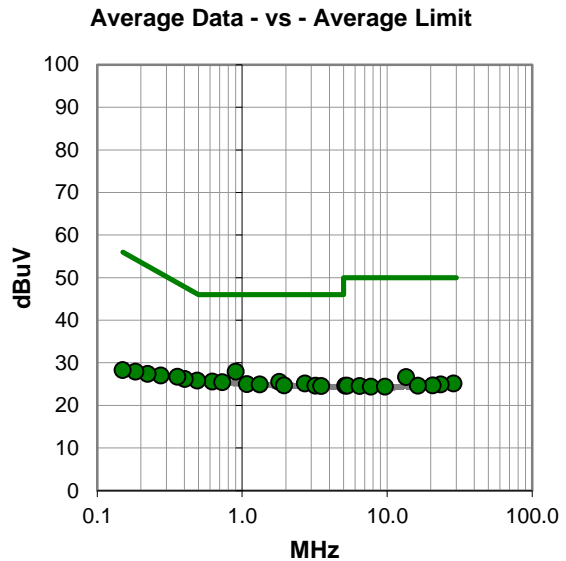
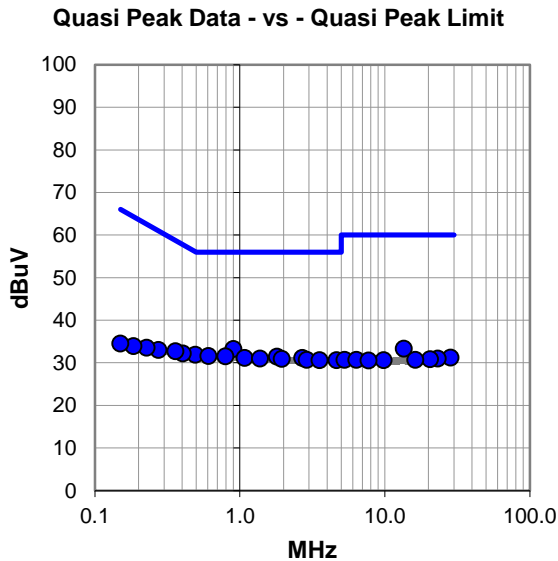
None

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 kbps, Mid Ch. = 914.59689 MHz, Antenna = Side

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS



RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	13.3	19.9	33.2	56.0	-22.8
0.492	12.1	19.8	31.9	56.1	-24.2
0.606	11.8	19.8	31.6	56.0	-24.4
0.794	11.6	19.9	31.5	56.0	-24.5
1.802	11.5	19.9	31.4	56.0	-24.6
1.079	11.2	19.9	31.1	56.0	-24.9
2.703	11.1	20.0	31.1	56.0	-24.9
1.377	11.1	19.9	31.0	56.0	-25.0
1.946	10.9	20.0	30.9	56.0	-25.1
2.903	10.7	20.0	30.7	56.0	-25.3
3.542	10.6	20.0	30.6	56.0	-25.4
4.650	10.5	20.1	30.6	56.0	-25.4
0.403	12.4	19.8	32.2	57.8	-25.6
0.359	12.9	19.8	32.7	58.8	-26.1
13.559	12.9	20.4	33.3	60.0	-26.7
0.275	13.1	19.9	33.0	61.0	-28.0
28.519	10.1	21.1	31.2	60.0	-28.8
0.228	13.5	20.0	33.5	62.5	-29.0
23.245	10.1	20.9	31.0	60.0	-29.0
20.529	10.1	20.7	30.8	60.0	-29.2
5.292	10.5	20.2	30.7	60.0	-29.3
6.369	10.5	20.2	30.7	60.0	-29.3
16.243	10.1	20.6	30.7	60.0	-29.3
9.816	10.3	20.3	30.6	60.0	-29.4
7.741	10.3	20.2	30.5	60.0	-29.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	8.0	19.9	27.9	46.0	-18.1
0.623	5.8	19.8	25.6	46.0	-20.4
0.490	6.0	19.8	25.8	46.2	-20.4
1.804	5.6	19.9	25.5	46.0	-20.5
0.728	5.5	19.9	25.4	46.0	-20.6
2.704	5.1	20.0	25.1	46.0	-20.9
1.078	5.1	19.9	25.0	46.0	-21.0
1.323	5.0	19.9	24.9	46.0	-21.1
1.943	4.7	20.0	24.7	46.0	-21.3
3.202	4.6	20.0	24.6	46.0	-21.4
3.513	4.5	20.0	24.5	46.0	-21.5
0.402	6.4	19.8	26.2	47.8	-21.6
0.358	6.9	19.8	26.7	48.8	-22.1
13.559	6.2	20.4	26.6	50.0	-23.4
0.275	7.1	19.9	27.0	51.0	-24.0
28.753	4.0	21.1	25.1	50.0	-24.9
23.435	4.0	20.9	24.9	50.0	-25.1
20.610	3.9	20.8	24.7	50.0	-25.3
0.223	7.4	20.0	27.4	52.7	-25.3
5.153	4.4	20.2	24.6	50.0	-25.4
5.307	4.4	20.2	24.6	50.0	-25.4
16.324	4.0	20.6	24.6	50.0	-25.4
6.468	4.3	20.2	24.5	50.0	-25.5
7.716	4.2	20.2	24.4	50.0	-25.6
9.666	4.1	20.3	24.4	50.0	-25.6

CONCLUSION

Pass

Tested By



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.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	2020-11-20	2022-11-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVI	2021-12-05	2022-12-05
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2022-07-09	2023-07-09

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode. For each transmit frequency, the fundamental was measured with a 100 kHz resolution bandwidth and the highest value was recorded. The rest of the spectrum was then measured with a 100 kHz resolution bandwidth and the highest value was found. The difference between the value found on the fundamental and the rest of the spectrum was compared against the limit to determine compliance.

The reference level offset for the fundamental screen capture was based on a measured value of the loss between the spectrum analyzer and the EUT which was verified at the time of test. The remaining screen capture(s) use an internal transducer factor on the analyzer to correct the displayed trace based on the cable loss over frequency. The reference level offset for the additional screen capture(s) is then based on the expected attenuator value and any other losses.

Fundamental Offset = Ref Lvl Offset showing measured composite factor of all losses

Remaining Screen capture(s) Offset = "Internal" cable loss factor not shown on screen capture + Ref Lvl Offset showing expected attenuator value and any other losses

SPURIOUS CONDUCTED EMISSIONS



TelTx 2022.06.03.0 XMI 2022.02.07.0

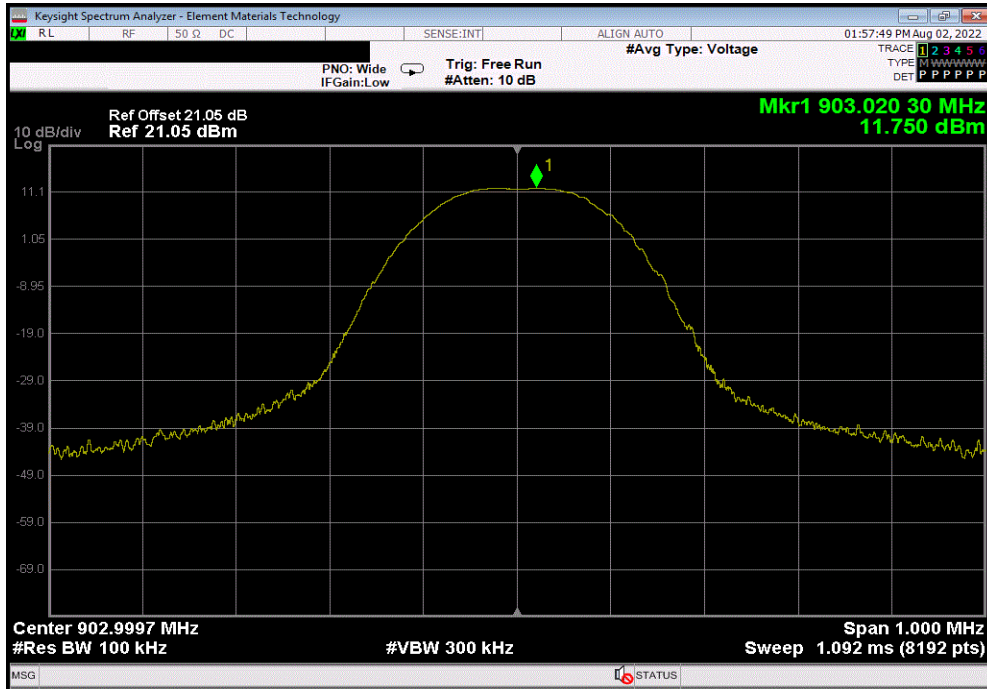
EUT: THM04R3000		Work Order: ADEM0023				
Serial Number: 0047		Date: 2-Aug-22				
Customer: Ademco, Inc.		Temperature: 23 °C				
Attendees: Connor Brewin		Humidity: 49% RH				
Project: None		Barometric Pres.: 1019 mbar				
Tested by: Jeff Alcock	Power: 24VAC via 110VAC/60Hz	Job Site: EV06				
TEST SPECIFICATIONS						
FCC 15.247:2022		Test Method				
RSS-247 Issue 2:2017		ANSI C63.10:2013				
		ANSI C63.10:2013				
COMMENTS						
Reference level offset includes: DC Block, 20 dB attenuator, and manufacturers SMA patch cable.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature				
		Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Single Channel Mode						
GFSK, 38.4 Kbps						
Side Antenna						
		Low Channel, 902.99973 MHz	Fundamental	903.02	N/A	N/A
		Low Channel, 902.99973 MHz	30 MHz - 10 GHz	451.15	-59.83	-20
		Mid Channel, 914.59689 MHz	Fundamental	914.62	N/A	N/A
		Mid Channel, 914.59689 MHz	30 MHz - 10 GHz	457.23	-59.15	-20
		High Channel, 926.39401 MHz	Fundamental	926.37	N/A	N/A
		High Channel, 926.39401 MHz	30 MHz - 10 GHz	463.32	-58.69	-20
Top Antenna						
		Low Channel, 902.99973 MHz	Fundamental	902.97	N/A	N/A
		Low Channel, 902.99973 MHz	30 MHz - 10 GHz	451.15	-60.24	-20
		Mid Channel, 914.59689 MHz	Fundamental	914.57	N/A	N/A
		Mid Channel, 914.59689 MHz	30 MHz - 10 GHz	457.23	-59.66	-20
		High Channel, 926.39401 MHz	Fundamental	926.41	N/A	N/A
		High Channel, 926.39401 MHz	30 MHz - 10 GHz	463.32	-59.77	-20

SPURIOUS CONDUCTED EMISSIONS

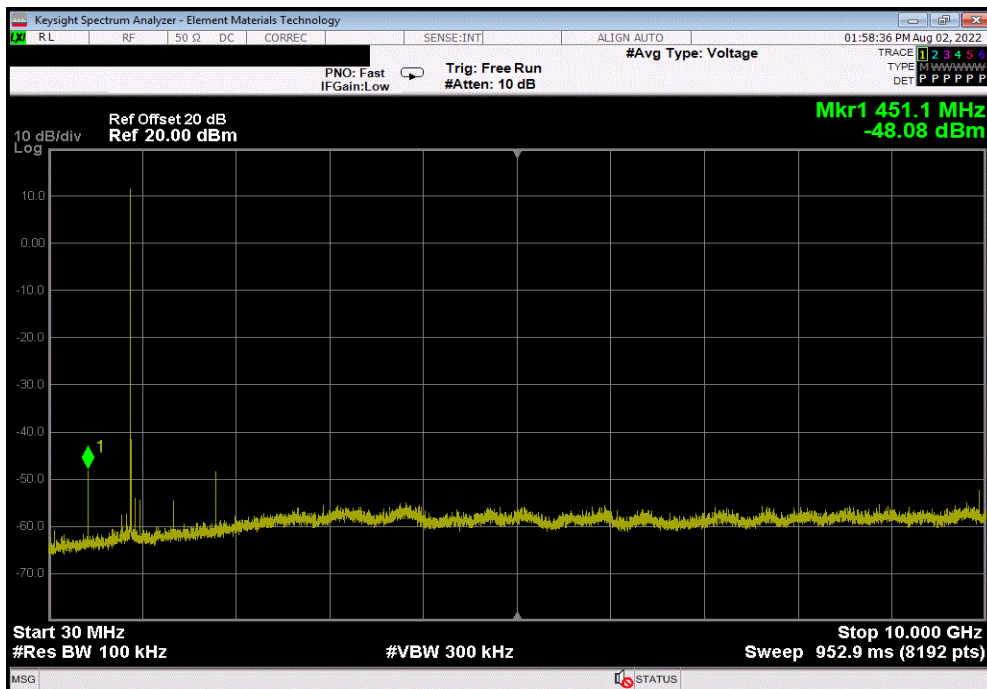


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Low Channel, 902.99973 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	903.02	N/A	N/A	N/A		



Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Low Channel, 902.99973 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 10 GHz	451.15	-59.83	-20	Pass		

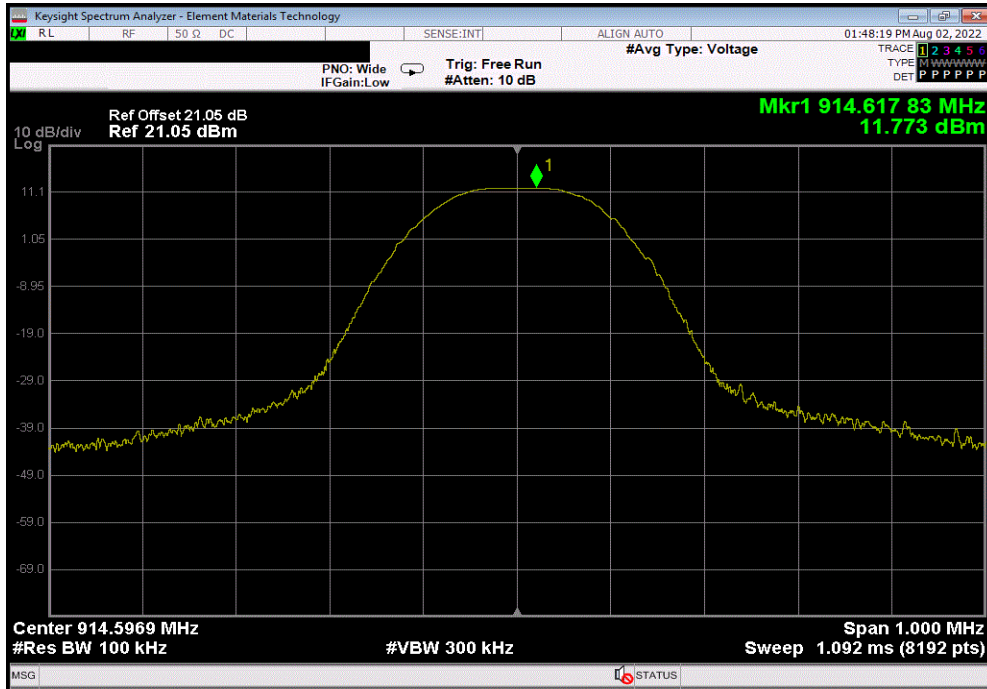


SPURIOUS CONDUCTED EMISSIONS

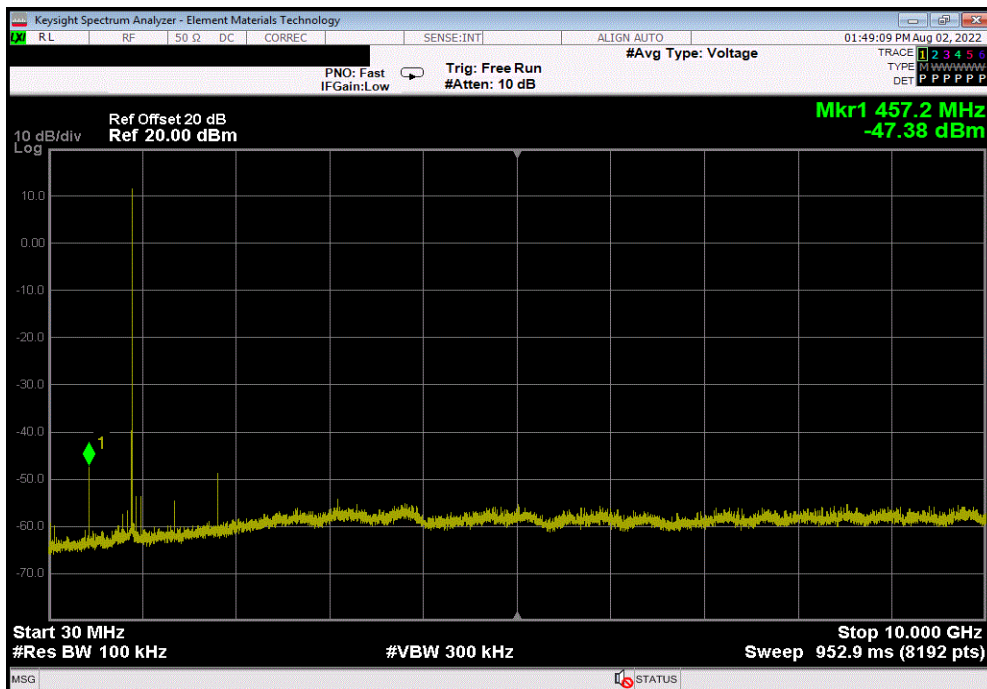


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Mid Channel, 914.59689 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	914.62	N/A	N/A	N/A		



Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, Mid Channel, 914.59689 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 10 GHz	457.23	-59.15	-20	Pass		

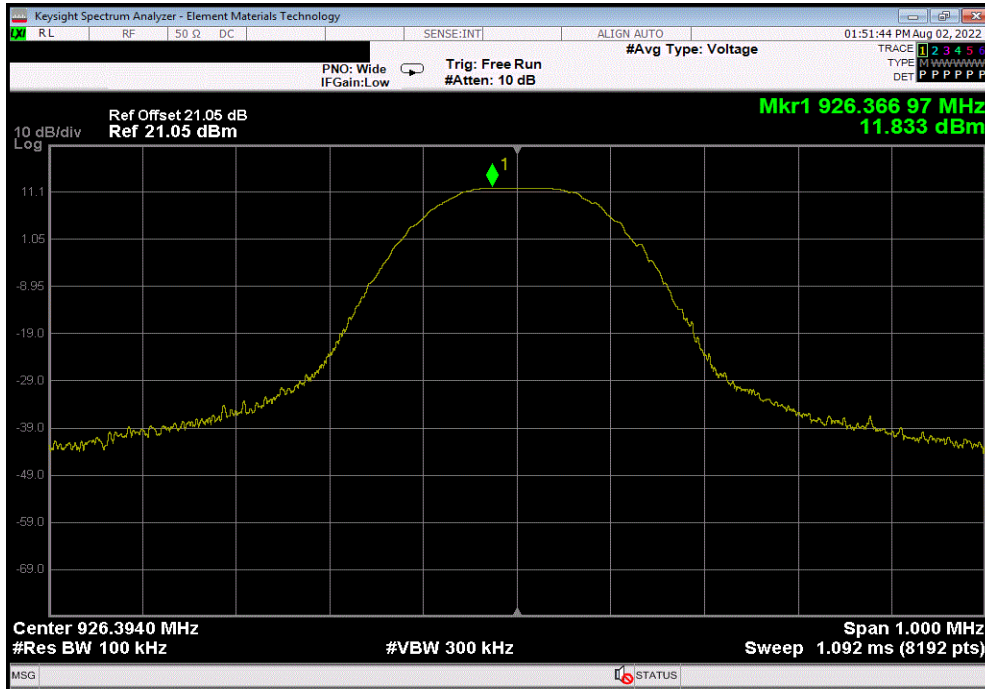


SPURIOUS CONDUCTED EMISSIONS

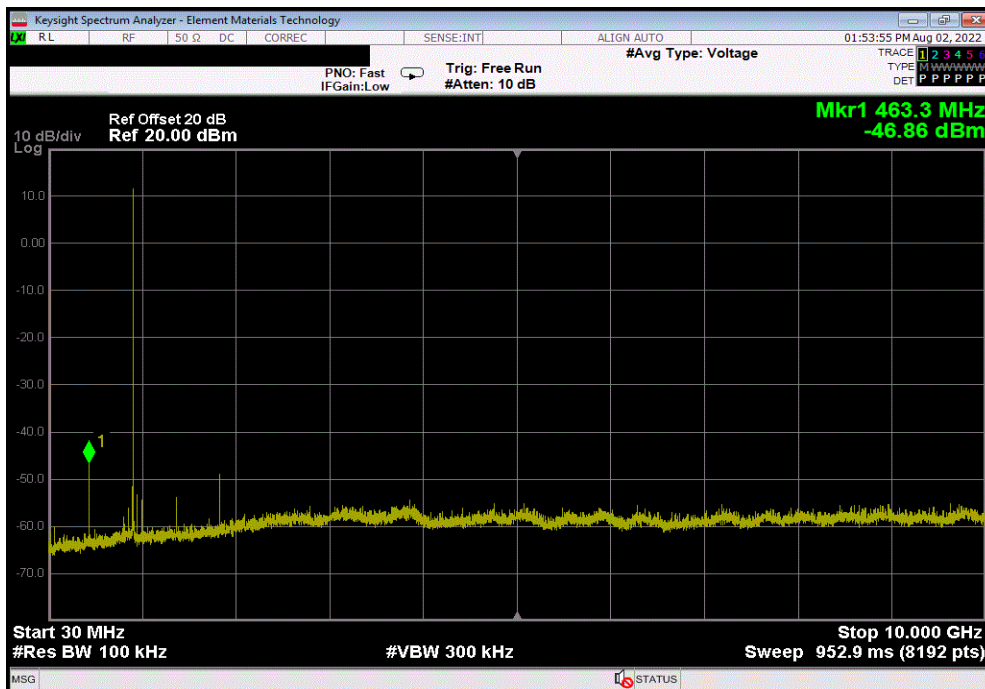


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, High Channel, 926.39401 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	926.37	N/A	N/A	N/A		



Single Channel Mode, GFSK, 38.4 Kbps, Side Antenna, High Channel, 926.39401 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 10 GHz	463.32	-58.69	-20	Pass		

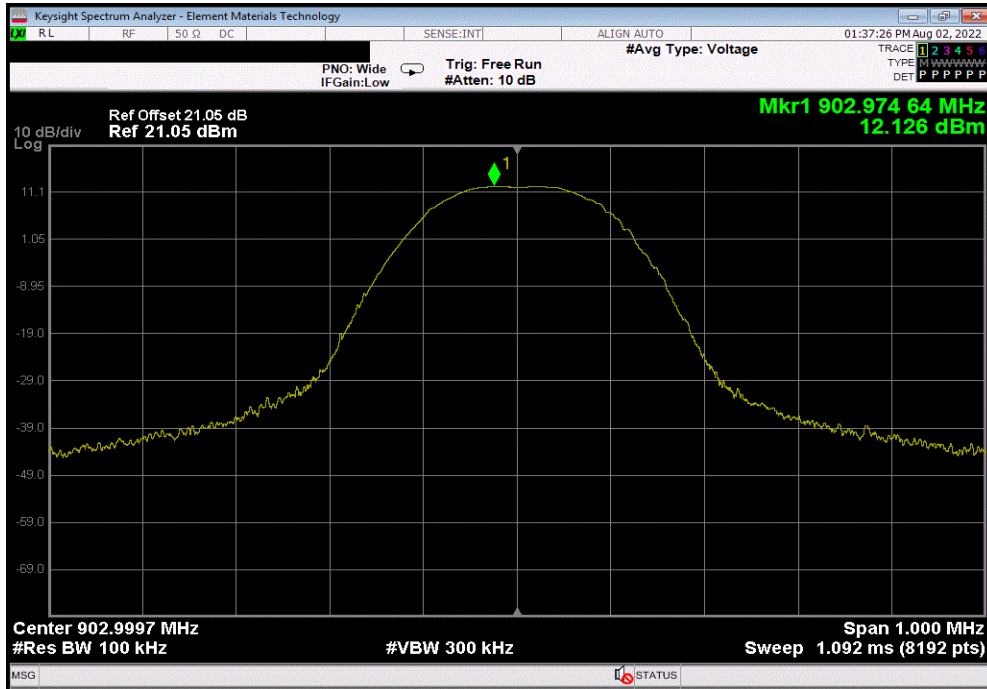


SPURIOUS CONDUCTED EMISSIONS

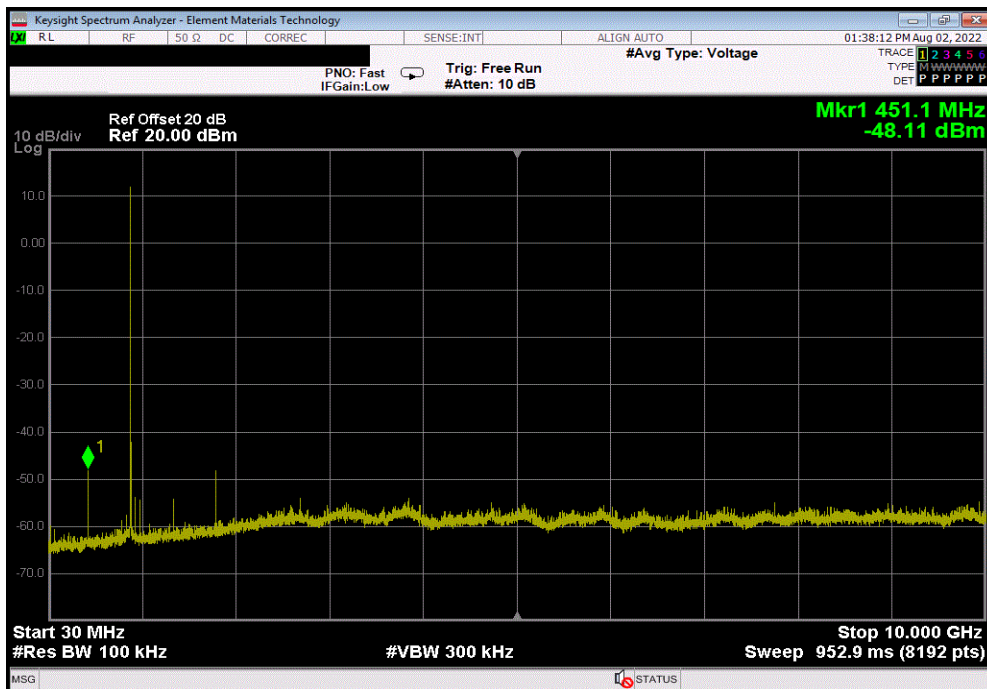


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	902.97	N/A	N/A	N/A		



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Low Channel, 902.99973 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 10 GHz	451.15	-60.24	-20	Pass		

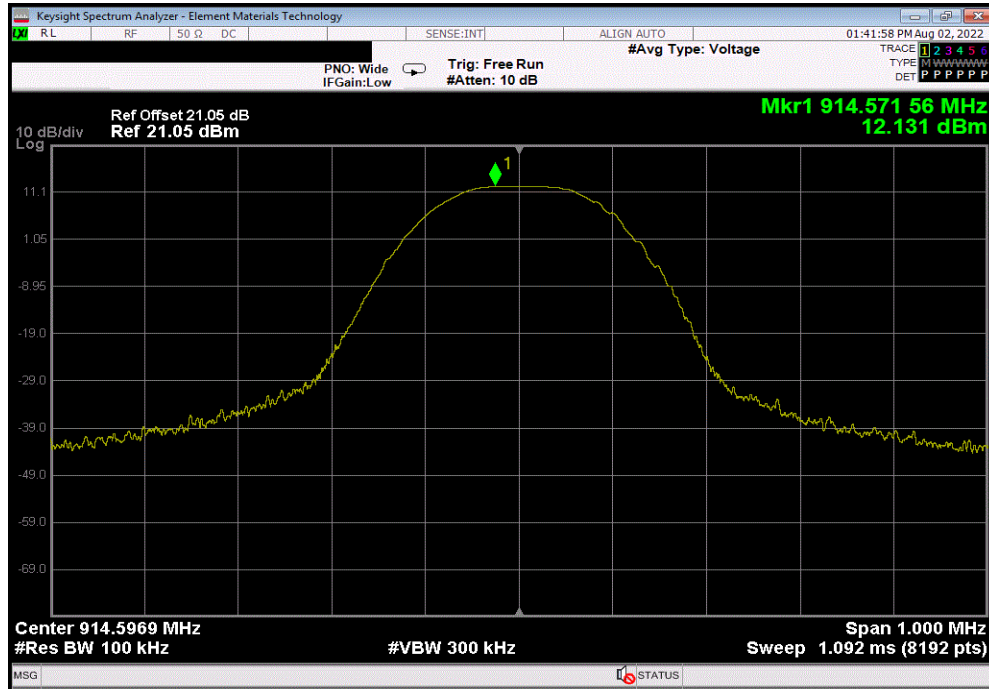


SPURIOUS CONDUCTED EMISSIONS

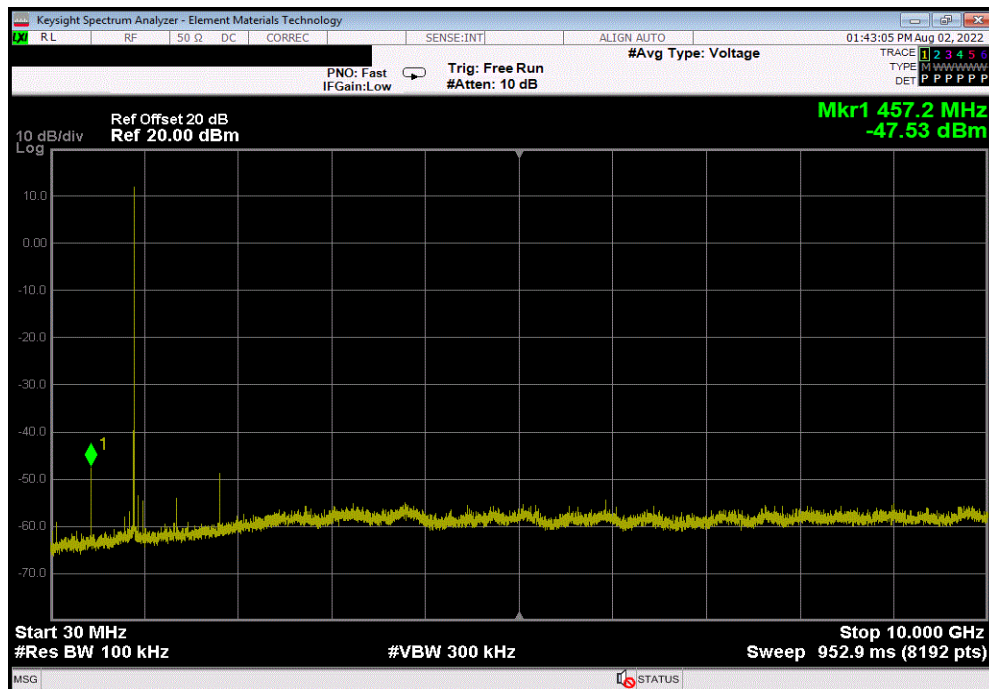


TbTx 2022.06.03.0 XMiT 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	914.57	N/A	N/A	N/A		



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, Mid Channel, 914.59689 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 10 GHz	457.23	-59.66	-20	Pass		

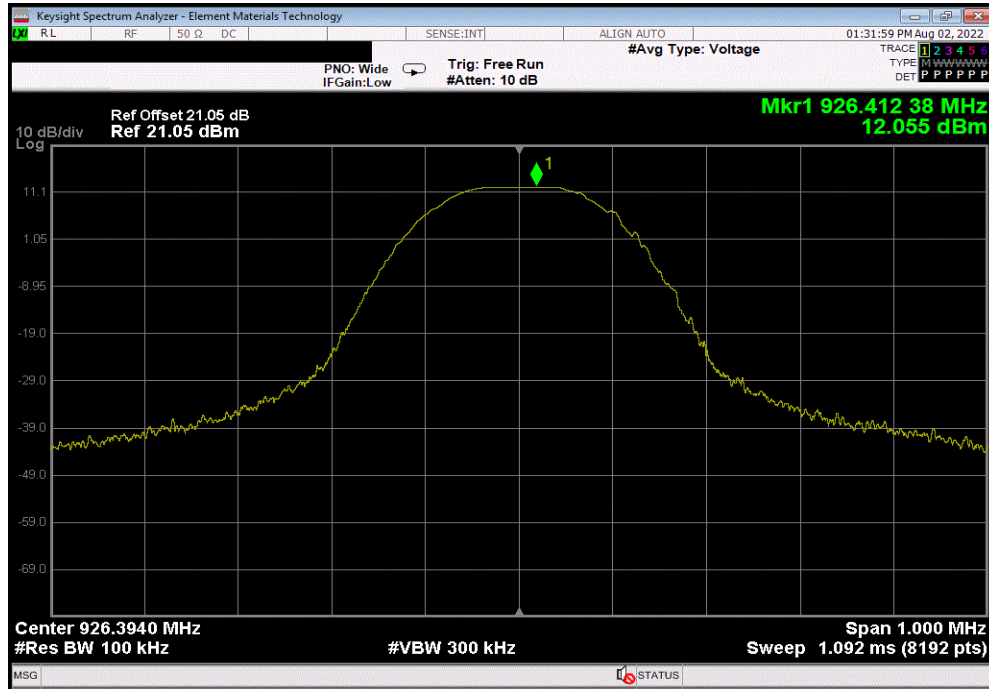


SPURIOUS CONDUCTED EMISSIONS

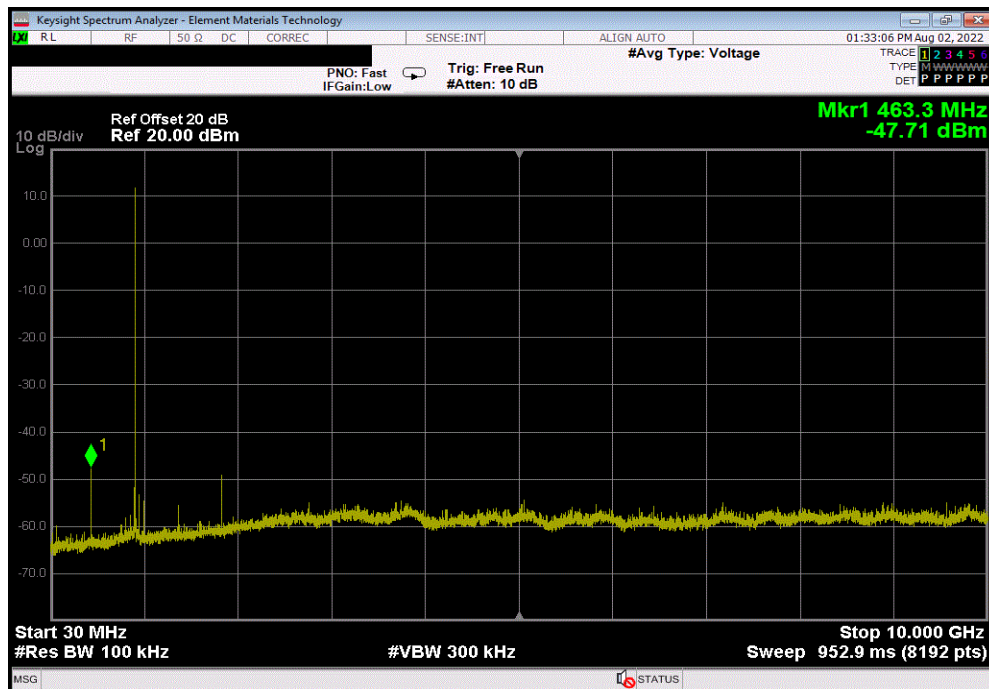


TbTx 2022.06.03.0 XMi 2022.02.07.0

Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	926.41	N/A	N/A	N/A		



Single Channel Mode, GFSK, 38.4 Kbps, Top Antenna, High Channel, 926.39401 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
30 MHz - 10 GHz	463.32	-59.77	-20	Pass		



SPURIOUS RADIATED EMISSIONS



TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies (in no-hop, single channel mode) and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

- QP = Quasi-Peak Detector
- PK = Peak Detector
- AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	2021-12-09	2022-12-09
Antenna - Biconilog	EMCO	3142B	AXJ	2021-03-03	2023-03-03
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	2022-03-02	2024-03-02
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	2021-11-17	2022-11-17
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2022-05-03	2023-05-03
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2021-11-17	2022-11-17
Cable	N/A	Bilog Cables	EVA	2021-11-17	2022-11-17
Cable	N/A	Double Ridge Horn Cables	EVB	2022-05-03	2023-05-03
Cable	None	Standard Gain Horn Cables	EVF	2021-11-17	2022-11-17
Attenuator	Coaxicom	3910-20	AXZ	2022-02-10	2023-02-10
Filter - Low Pass	Micro-Tronics	LPM50003	LFB	2022-02-10	2023-02-10
Filter - Band Pass/Notch	K&L Microwave	3TNF-500/1000-N/N	HFT	2021-11-12	2022-11-12
Filter - Low Pass	Micro-Tronics	LPM50004	LFD	2022-02-10	2023-02-10

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	5.2 dB	-5.2 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 12400 MHz

POWER INVESTIGATED

24VAC via 110VAC/60Hz

CONFIGURATIONS INVESTIGATED

ADEM0023-2
ADEM0031-1

MODES INVESTIGATED

Continuous Tx, GFSK, 38.4 Kbps, Low Ch. = 902.99973 MHz, Mid Ch. = 914.59689 MHz, High Ch. = 926.39401 MHz, Antenna = Side
Continuous Tx, GFSK, 38.4 Kbps, Low Ch. = 902.99973 MHz, Mid Ch. = 914.59689 MHz, High Ch. = 926.39401 MHz, Antenna = Top

SPURIOUS RADIATED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0031
Serial Number:	0052	Date:	2022-08-01
Customer:	Ademco, Inc.	Temperature:	23.8°C
Attendees:	Connor Brewin	Relative Humidity:	47.6%
Customer Project:	None	Bar. Pressure (PMSL):	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV01
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0031-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	37	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

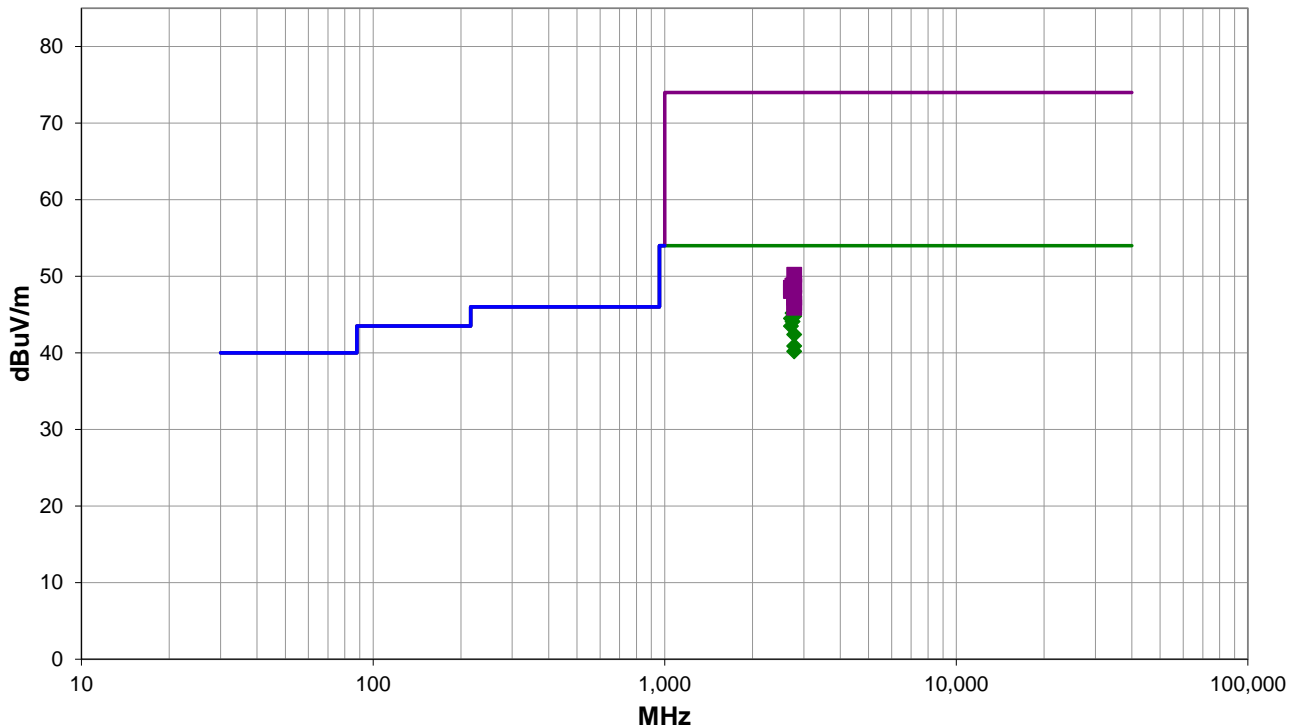
Please reference data comments below for Channel, EUT orientation

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 Kbps, Low Ch. = 902.99973 MHz, Mid Ch. = 914.59689 MHz, High Ch. = 926.39401 MHz, Antenna = Side

DEVIATIONS FROM TEST STANDARD

None



Run #: 37

PK AV QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #37

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	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
2779.192	46.8	0.1	2.18	137.0	3.0	0.0	Horz	AV	0.0	46.9	54.0	-7.1	High Ch, EUT on Side
2779.217	45.2	0.1	1.0	173.0	3.0	0.0	Vert	AV	0.0	45.3	54.0	-8.7	High Ch, EUT Upright
2743.792	45.0	0.2	1.5	202.0	3.0	0.0	Horz	AV	0.0	45.2	54.0	-8.8	Mid Ch, EUT on Side
2779.192	44.7	0.1	1.0	91.0	3.0	0.0	Vert	AV	0.0	44.8	54.0	-9.2	High Ch, EUT Face Up
2709.042	44.4	0.1	1.5	171.0	3.0	0.0	Horz	AV	0.0	44.5	54.0	-9.5	Low Ch, EUT on Side
2743.908	43.9	0.2	1.5	181.0	3.0	0.0	Vert	AV	0.0	44.1	54.0	-9.9	Mid Ch, EUT Upright
2709.025	43.4	0.1	1.5	168.0	3.0	0.0	Vert	AV	0.0	43.5	54.0	-10.5	Low Ch, EUT Upright
2779.250	42.3	0.1	1.0	112.0	3.0	0.0	Vert	AV	0.0	42.4	54.0	-11.6	High Ch, EUT on Side
2779.233	40.8	0.1	1.0	230.0	3.0	0.0	Horz	AV	0.0	40.9	54.0	-13.1	High Ch, EUT Face Up
2779.192	40.1	0.1	1.81	125.0	3.0	0.0	Horz	AV	0.0	40.2	54.0	-13.8	High Ch, EUT Upright
2779.300	50.1	0.1	2.18	137.0	3.0	0.0	Horz	PK	0.0	50.2	74.0	-23.8	High Ch, EUT on Side
2779.217	48.8	0.1	1.0	173.0	3.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	High Ch, EUT Upright
2743.600	48.6	0.2	1.5	202.0	3.0	0.0	Horz	PK	0.0	48.8	74.0	-25.2	Mid Ch, EUT on Side
2779.158	48.6	0.1	1.0	91.0	3.0	0.0	Vert	PK	0.0	48.7	74.0	-25.3	High Ch, EUT Face Up
2709.058	48.4	0.1	1.5	171.0	3.0	0.0	Horz	PK	0.0	48.5	74.0	-25.5	Low Ch, EUT on Side
2743.683	48.0	0.2	1.5	181.0	3.0	0.0	Vert	PK	0.0	48.2	74.0	-25.8	Mid Ch, EUT Upright
2709.017	48.0	0.1	1.5	168.0	3.0	0.0	Vert	PK	0.0	48.1	74.0	-25.9	Low Ch, EUT Upright
2779.375	47.1	0.1	1.0	112.0	3.0	0.0	Vert	PK	0.0	47.2	74.0	-26.8	High Ch, EUT on Side
2779.217	46.4	0.1	1.0	230.0	3.0	0.0	Horz	PK	0.0	46.5	74.0	-27.5	High Ch, EUT Face Up
2779.433	45.8	0.1	1.81	125.0	3.0	0.0	Horz	PK	0.0	45.9	74.0	-28.1	High Ch, EUT Upright

CONCLUSION

Pass



Tested By

SPURIOUS RADIATED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0023
Serial Number:	0052	Date:	2022-08-03
Customer:	Ademco, Inc.	Temperature:	22.5°C
Attendees:	Connor Brewin	Relative Humidity:	52%
Customer Project:	None	Bar. Pressure (PMSL):	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV01
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0023-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	1	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

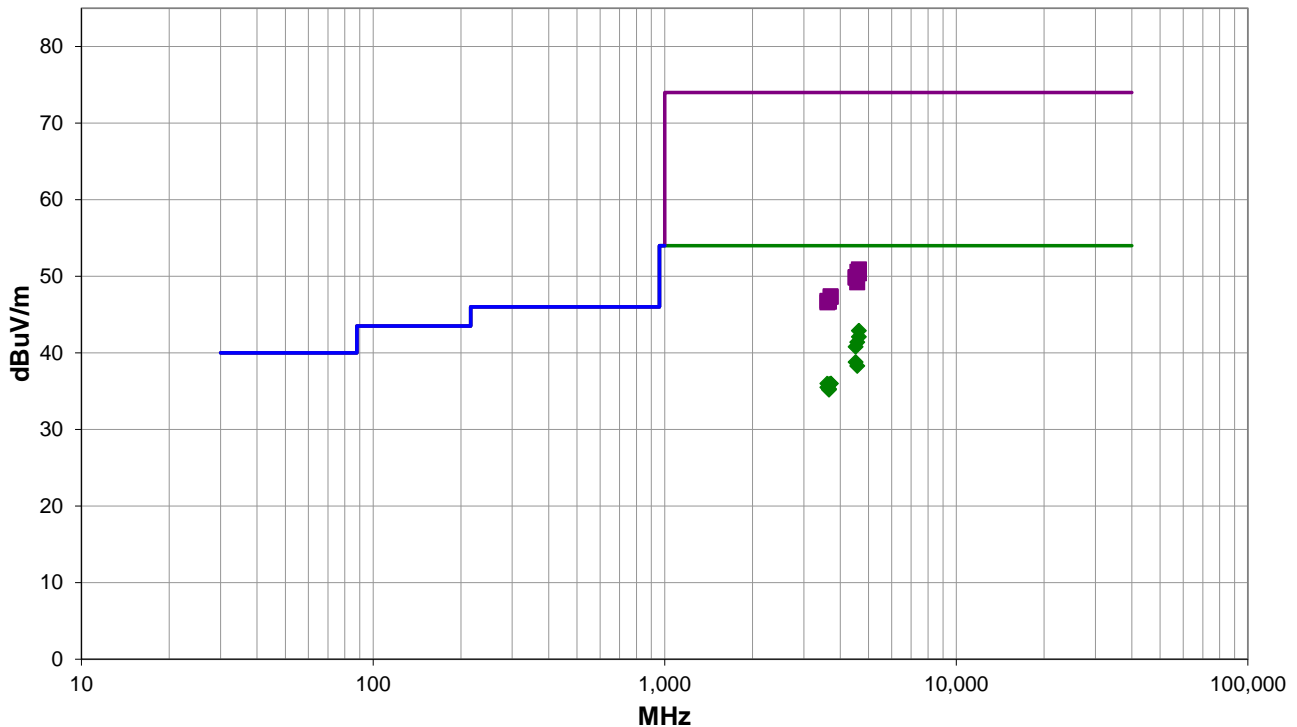
Please reference data comments below for Channel, EUT orientation

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 Kbps, Low Ch. = 902.99973 MHz, Mid Ch. = 914.59689 MHz, High Ch. = 926.39401 MHz, Antenna = Side

DEVIATIONS FROM TEST STANDARD

None



Run #: 1

PK AV QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #1

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	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
4632.033	34.5	8.4	1.5	179.0	3.0	0.0	Horz	AV	0.0	42.9	54.0	-11.1	High Ch, EUT on Side
4631.942	33.7	8.4	1.5	205.0	3.0	0.0	Vert	AV	0.0	42.1	54.0	-11.9	High Ch, EUT Upright
4573.025	33.1	8.3	3.4	238.0	3.0	0.0	Horz	AV	0.0	41.4	54.0	-12.6	Mid Ch, EUT Upright
4514.975	32.6	8.2	1.2	108.0	3.0	0.0	Vert	AV	0.0	40.8	54.0	-13.2	Low Ch, EUT on Side
4515.142	30.6	8.2	1.5	129.0	3.0	0.0	Horz	AV	0.0	38.8	54.0	-15.2	Low Ch, EUT Upright
4573.025	30.0	8.3	2.1	243.0	3.0	0.0	Vert	AV	0.0	38.3	54.0	-15.7	Mid Ch, EUT on Side
3611.958	30.5	5.5	2.0	153.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Low Ch, EUT Upright
3707.783	30.2	5.8	1.5	60.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	High Ch, EUT on Side
3707.808	30.2	5.8	1.5	297.0	3.0	0.0	Vert	AV	0.0	36.0	54.0	-18.0	High Ch, EUT Upright
3612.150	30.0	5.5	1.5	65.0	3.0	0.0	Vert	AV	0.0	35.5	54.0	-18.5	Low Ch, EUT on Side
3658.033	29.8	5.5	2.7	165.0	3.0	0.0	Horz	AV	0.0	35.3	54.0	-18.7	Mid Ch, EUT Upright
3658.450	29.7	5.5	1.5	26.0	3.0	0.0	Vert	AV	0.0	35.2	54.0	-18.8	Mid Ch, EUT on Side
4632.492	42.5	8.4	1.5	179.0	3.0	0.0	Horz	PK	0.0	50.9	74.0	-23.1	High Ch, EUT on Side
4573.533	42.3	8.3	3.4	238.0	3.0	0.0	Horz	PK	0.0	50.6	74.0	-23.4	Mid Ch, EUT Upright
4631.933	42.0	8.4	1.5	205.0	3.0	0.0	Vert	PK	0.0	50.4	74.0	-23.6	High Ch, EUT Upright
4515.708	41.7	8.2	1.2	108.0	3.0	0.0	Vert	PK	0.0	49.9	74.0	-24.1	Low Ch, EUT on Side
4515.267	41.6	8.2	1.5	129.0	3.0	0.0	Horz	PK	0.0	49.8	74.0	-24.2	Low Ch, EUT Upright
4572.983	40.9	8.3	2.1	243.0	3.0	0.0	Vert	PK	0.0	49.2	74.0	-24.8	Mid Ch, EUT on Side
3705.417	41.6	5.8	1.5	60.0	3.0	0.0	Horz	PK	0.0	47.4	74.0	-26.6	High Ch, EUT on Side
3707.892	41.5	5.8	1.5	297.0	3.0	0.0	Vert	PK	0.0	47.3	74.0	-26.7	High Ch, EUT Upright
3614.225	41.3	5.5	2.0	153.0	3.0	0.0	Horz	PK	0.0	46.8	74.0	-27.2	Low Ch, EUT Upright
3656.908	41.2	5.5	2.7	165.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Mid Ch, EUT Upright
3660.325	41.2	5.5	1.5	26.0	3.0	0.0	Vert	PK	0.0	46.7	74.0	-27.3	Mid Ch, EUT on Side
3613.958	41.1	5.5	1.5	65.0	3.0	0.0	Vert	PK	0.0	46.6	74.0	-27.4	Low Ch, EUT on Side

CONCLUSION

Pass



Tested By

SPURIOUS RADIATED EMISSIONS



EUT:	THM04R3000	Work Order:	ADEM0023
Serial Number:	0052	Date:	2022-08-03
Customer:	Ademco, Inc.	Temperature:	22.5°C
Attendees:	Connor Brewin	Relative Humidity:	52%
Customer Project:	None	Bar. Pressure (PMSL):	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV01
Power:	24VAC via 110VAC/60Hz	Configuration:	ADEM0023-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	6	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

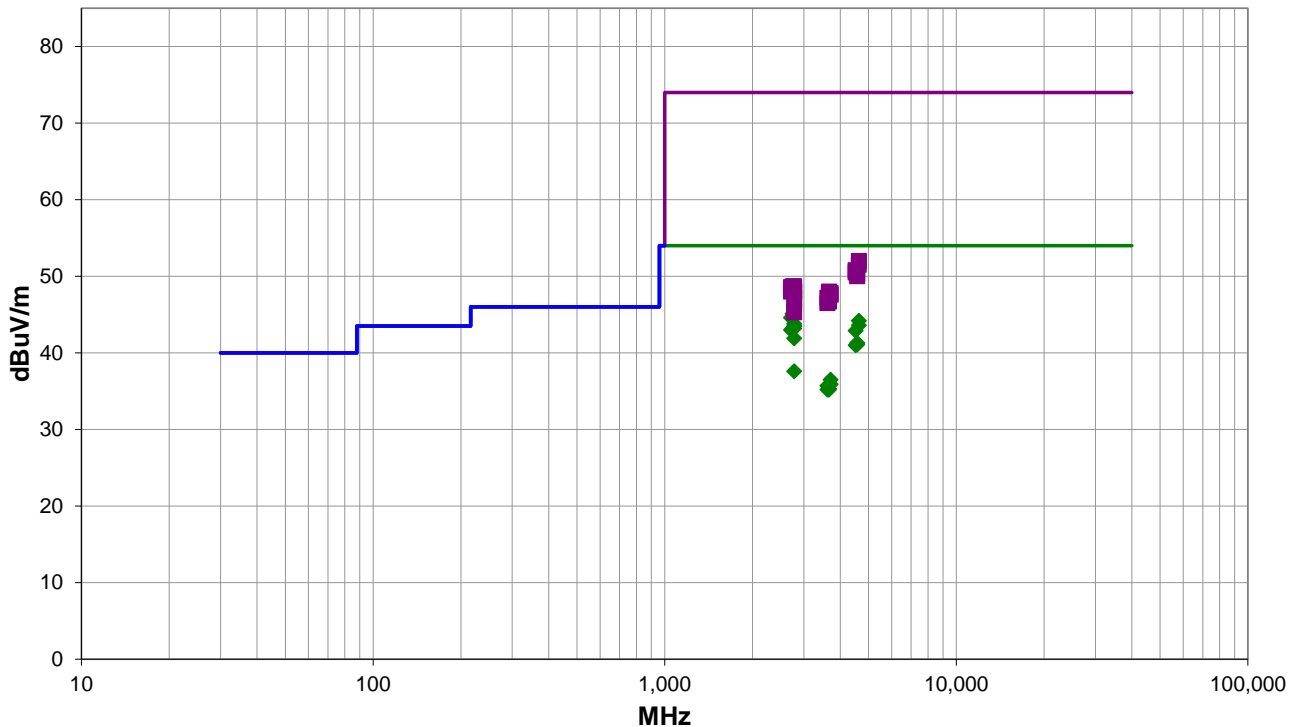
Please reference data comments below for Channel, EUT orientation

EUT OPERATING MODES

Continuous Tx, GFSK, 38.4 Kbps, Low Ch. = 902.99973 MHz, Mid Ch. = 914.59689 MHz, High Ch. = 926.39401 MHz, Antenna = Top

DEVIATIONS FROM TEST STANDARD

None



Run #: 6

■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS



RESULTS - Run #6

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	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
2743.883	44.9	0.2	1.0	124.0	3.0	0.0	Vert	AV	0.0	45.1	54.0	-8.9	Mid Ch, EUT Horz
2779.167	44.9	0.1	1.0	96.0	3.0	0.0	Vert	AV	0.0	45.0	54.0	-9.0	High Ch, EUT Horz
2709.017	44.5	0.1	1.5	178.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	Low Ch, EUT on Side
4632.075	35.8	8.4	1.5	178.0	3.0	0.0	Horz	AV	0.0	44.2	54.0	-9.8	High Ch, EUT on Side
2779.200	43.7	0.1	1.5	178.0	3.0	0.0	Horz	AV	0.0	43.8	54.0	-10.2	High Ch, EUT on Side
4632.150	35.2	8.4	1.0	86.0	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	High Ch, EUT Horz
2779.225	43.4	0.1	1.5	183.0	3.0	0.0	Vert	AV	0.0	43.5	54.0	-10.5	High Ch, EUT Upright
2779.217	43.1	0.1	1.0	63.0	3.0	0.0	Horz	AV	0.0	43.2	54.0	-10.8	High Ch, EUT Horz
2709.008	42.9	0.1	1.5	97.0	3.0	0.0	Vert	AV	0.0	43.0	54.0	-11.0	Low Ch, EUT Horz
4514.958	34.7	8.2	1.41	178.0	3.0	0.0	Horz	AV	0.0	42.9	54.0	-11.1	Low Ch, EUT on Side
2779.283	41.8	0.1	1.0	90.0	3.0	0.0	Vert	AV	0.0	41.9	54.0	-12.1	High Ch, EUT on Side
4573.058	33.0	8.3	3.69	270.0	3.0	0.0	Horz	AV	0.0	41.3	54.0	-12.7	Mid Ch, EUT on Side
4572.983	32.8	8.3	1.0	79.0	3.0	0.0	Vert	AV	0.0	41.1	54.0	-12.9	Mid Ch, EUT Horz
4515.117	32.8	8.2	1.5	110.0	3.0	0.0	Vert	AV	0.0	41.0	54.0	-13.0	Low Ch, EUT Horz
2779.208	37.5	0.1	1.5	121.0	3.0	0.0	Horz	AV	0.0	37.6	54.0	-16.4	High Ch, EUT Upright
3705.483	30.7	5.8	1.5	176.0	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	High Ch, EUT on Side
3708.033	30.1	5.8	2.93	52.0	3.0	0.0	Vert	AV	0.0	35.9	54.0	-18.1	High Ch, EUT Horz
3612.158	30.2	5.5	1.05	176.0	3.0	0.0	Horz	AV	0.0	35.7	54.0	-18.3	Low Ch, EUT on Side
3658.592	29.8	5.5	1.5	145.0	3.0	0.0	Vert	AV	0.0	35.3	54.0	-18.7	Mid Ch, EUT on Side
3613.800	29.7	5.5	1.68	265.0	3.0	0.0	Vert	AV	0.0	35.2	54.0	-18.8	Low Ch, EUT Horz
3655.983	29.7	5.5	1.5	4.0	3.0	0.0	Horz	AV	0.0	35.2	54.0	-18.8	Mid Ch, EUT on Side
4631.917	43.6	8.4	1.5	178.0	3.0	0.0	Horz	PK	0.0	52.0	74.0	-22.0	High Ch, EUT on Side
4631.692	43.1	8.4	1.0	86.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	High Ch, EUT Horz
4515.233	42.6	8.2	1.41	178.0	3.0	0.0	Horz	PK	0.0	50.8	74.0	-23.2	Low Ch, EUT on Side
4515.033	42.3	8.2	1.5	110.0	3.0	0.0	Vert	PK	0.0	50.5	74.0	-23.5	Low Ch, EUT Horz
4573.125	42.0	8.3	1.0	79.0	3.0	0.0	Vert	PK	0.0	50.3	74.0	-23.7	Mid Ch, EUT Horz
4572.658	41.8	8.2	3.69	270.0	3.0	0.0	Horz	PK	0.0	50.0	74.0	-24.0	Mid Ch, EUT on Side
2779.275	48.6	0.1	1.0	96.0	3.0	0.0	Vert	PK	0.0	48.7	74.0	-25.3	High Ch, EUT Horz
2743.808	48.5	0.2	1.0	124.0	3.0	0.0	Vert	PK	0.0	48.7	74.0	-25.3	Mid Ch, EUT Horz
2709.375	48.5	0.1	1.5	178.0	3.0	0.0	Horz	PK	0.0	48.6	74.0	-25.4	Low Ch, EUT on Side
2779.225	48.0	0.1	1.5	178.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	High Ch, EUT on Side
2779.208	47.9	0.1	1.5	183.0	3.0	0.0	Vert	PK	0.0	48.0	74.0	-26.0	High Ch, EUT Upright
2709.050	47.9	0.1	1.5	97.0	3.0	0.0	Vert	PK	0.0	48.0	74.0	-26.0	Low Ch, EUT Horz
3657.292	42.5	5.5	1.5	145.0	3.0	0.0	Vert	PK	0.0	48.0	74.0	-26.0	Mid Ch, EUT on Side
3703.683	42.0	5.8	2.93	52.0	3.0	0.0	Vert	PK	0.0	47.8	74.0	-26.2	High Ch, EUT Horz
3706.517	41.8	5.8	1.5	176.0	3.0	0.0	Horz	PK	0.0	47.6	74.0	-26.4	High Ch, EUT on Side
3613.000	41.7	5.5	1.05	176.0	3.0	0.0	Horz	PK	0.0	47.2	74.0	-26.8	Low Ch, EUT on Side
2779.325	47.0	0.1	1.0	63.0	3.0	0.0	Horz	PK	0.0	47.1	74.0	-26.9	High Ch, EUT Horz
3659.850	41.2	5.5	1.5	4.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Mid Ch, EUT on Side
2779.500	46.4	0.1	1.0	90.0	3.0	0.0	Vert	PK	0.0	46.5	74.0	-27.5	High Ch, EUT on Side
3614.083	41.0	5.5	1.68	265.0	3.0	0.0	Vert	PK	0.0	46.5	74.0	-27.5	Low Ch, EUT Horz
2779.100	45.2	0.1	1.5	121.0	3.0	0.0	Horz	PK	0.0	45.3	74.0	-28.7	High Ch, EUT Upright

SPURIOUS RADIATED EMISSIONS



CONCLUSION

Pass

A handwritten signature in black ink, appearing to be 'J. F. [unclear]', is written over the printed text 'Tested By'.

Tested By

End of Test Report