FCC PART 15 SUBPART C SECTION 15.247

&

RSS 247, RSS GEN TEST REPORT

for

DOOR AND WINDOW DETECTOR

Model: F-ADT-DW-1

Prepared for

NORTEK SECURITY & CONTROL, LLC.
1950 CAMINO VIDA ROBLE, SUITE 150
CARLSBAD, CA 92008

Prepared by: _____

TOREY OLIVER

Reviewed by: _____

JOEY MADLANGBAYAN

COMPATIBLE ELECTRONICS INC.
20621 PASCAL WAY
LAKE FOREST, CALIFORNIA 92630
(949) 587-0400

DATE: JANUARY 2nd, 2018

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2	Plot Map and Layout of Test Site Above 1GHz

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full with the written permission of Compatible Electronics.

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

Device Tested:	Door and Window Detector Model: F-ADT-DW-1 S/N: None
Product Description:	The EUT is a module that is used to detect motion in the protected areas for security.
Modifications:	The EUT was not modified in order to comply with specifications.
Manufacturer:	Nortek Security & Control, LLC. 1950 Camino Vida Roble, Suite 150 Carlsbad, CA 92008
Test Dates:	December 18th-20th, 2017 January 2nd, 2018

Test Specifications Covered by Accreditation:

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EMI requirements

CFR Title 47, Part 15 Subpart C Sections 15.205, 15.207, 15.209, & 15.247.
RSS 247 & RSS GEN

Test Procedure: ANSI C63.4 & C63.10, and KDB 558074 D01 v04.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz - 30 MHz	The EUT is battery powered. Therefore, this test was deemed unnecessary and not performed.
2	Radiated RF Emissions & Harmonics, 9 kHz – 10,000 MHz	Complies with the limits of CFR Title 47 Part 15 Subpart C Sections 15.205, 15.209, and RSS GEN
3	DTS Bandwidth	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
4	Maximum Peak Conducted Output Power	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
5	Maximum Peak Power Spectral Density Level In The Fundamental Emission	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
6	Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth)	Complies with CFR Title 47 Part 15 Subpart C Section 15.247 and RSS 247
7	Emissions in the Restricted Bands	Complies with CFR Title 47 Part 15 Subpart C Section 15.205, 15.247 and RSS 247

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Door and Window Detector Model: F-ADT-DW-1. The EMI measurements were performed according to the measurement procedure described in ANSI C63.10 & C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT (equipment under test) hereafter, are within the specification limits defined by the Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.205, 15.209, 15.247, RSS GEN, and RSS 247.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The tests described herein were performed at the test facility of Compatible Electronics, 20621 Pascal Way Lake Forest, California 92630.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Nortek Security & Control, LLC.

Josh Hansen

Compatible Electronics Inc.

Torey Oliver	Test Engineer
Joey Madlangbayan	Safety Manager

2.4 Date Test Sample was Received

The test sample was received on December 18th, 2017.

2.5 Disposition of the Test Sample

The test sample remains at Compatible Electronics as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
TX	Transmit
RX	Receive

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4 2014	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.
ANSI C63.10: 2013	American National Standard for Testing Unlicensed Wireless Devices
KDB 558074 D01 v04	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
RSS 247	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS GEN	General Requirements for Compliance of Radio Apparatus

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration

The Door and Window Detector Model: F-ADT-DW-1 (EUT) was setup in a tabletop configuration. For the unintentional spurious emissions in the range of 30-1000 MHz the EUT was placed on the table with a motion sensor. The EUT was continuously transmitting a data stream during transmit tests and continuously receiving during receiver tests. The EUT was checked in all axes.

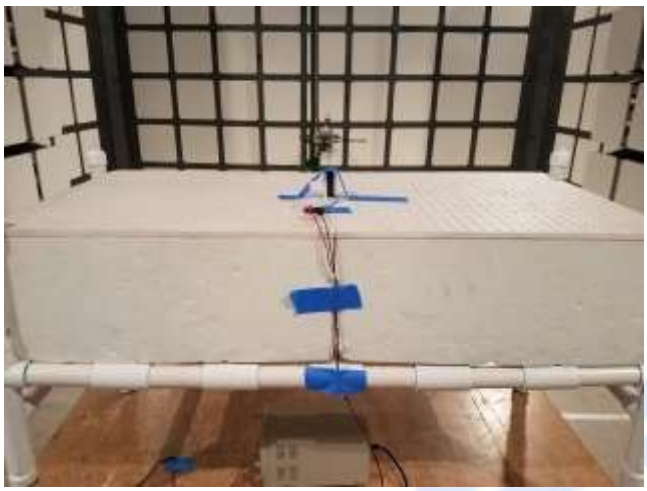
A new battery was used for testing.

It was determined that the emissions were at their highest level when the EUT was transmitting in the configuration described above for Radiated Emissions. The final radiated data was taken in the above configuration. Please see Appendix E for the test data.

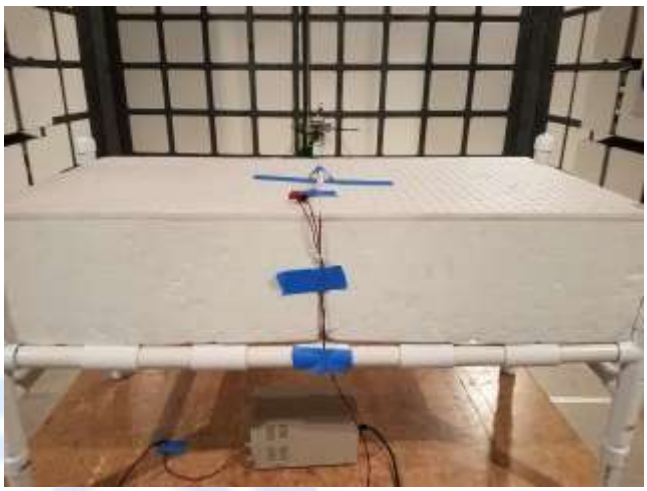
4.1.1 Photograph Test Configuration (Z-Axis Shown)

4.1.2 Axis Determination

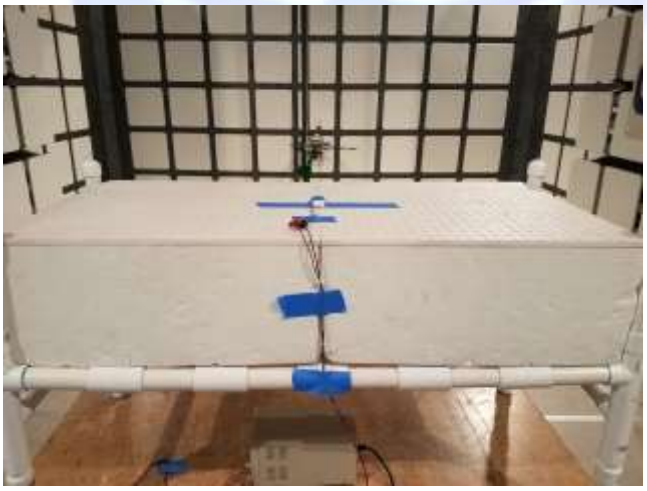
Y Axis



Z Axis



X Axis



4.1.3 Cable Construction and Termination

Cable 1

This is a 2 meter, foil shielded, USB cable that connect the EUT to the Laptop (for programming only). The cable has a USB Type-A connector at the Laptop end and has an 8-pin plastic ribbon cable connector at the EUT end of the cable. The cable was not bundled. The shield of the cable was terminated at the Laptop end of the cable only.

Cable 2

This is a 3 meter, unshielded, cable that connects the EUT to the DC Power Supply. The cable is hardwired at both ends of the cable. The cable was not bundled.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

#	EQUIPMENT TYPE	MANU-FACTURER	MODEL	SERIAL NUMBER
1	DOOR AND WINDOW DETECTOR(EUT)	NORTEK	F-ADT-DW-1	NONE
2	LAPTOP (PROGRAMMING ONLY)	LENOVO	THINKPAD T430	101-2037
3	LAPTOP POWER SUPPLY	LENOVO	92P1156	11S92P1156Z1ZDXN01L1ND
4	BATTERY	ENERGIZER	CR2450	NONE
5	MOTION SENSOR	NORTEK	F-ADT-PIR-1	NONE
6	DC POWER SUPPLY	MPJA	30V	017636

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Computer	Compatible Electronics	NONE	NONE	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100172	3/15/2017	3/15/2018
Antenna, Loop	Com Power	AL-130	121049	2/9/2017	2/9/2018
Antenna, CombiLog	Com Power	AC-220	25857	5/19/2016	5/19/2018
Antenna, Horn 1-18GHz	Com Power	AH-118	071250	5/16/2016	5/16/2018
Pre-Amp, 1-18GHz	Com Power	PAM-118A	551033	5/16/2016	5/16/2018
Notch Filter	Microwave Circuits	N0309153	3709-01 DC0415	5/9/2017	5/9/2018
Mast, Antenna Positioner	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Antenna Mast	Sunol Science Corporation	TWR 95-4	020808-3	N/A	N/A
Turntable	Sunol Science Corporation	FM 2001	N/A	N/A	N/A
Mast and Turntable Controller	Sunol Science Corporation	SC104V	020808-1	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and the figures in Appendix D of this report for test location.

6.2 EUT Mounting, Bonding and Grounding

For testing below 1 GHz the EUT was mounted on a 1.0 by 1.5 by 0.8 meters high non-conductive table, which was placed on the ground plane.

For testing above 1 GHz the EUT was mounted 1.5 meter above the ground plane.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

6.4 Measurement Uncertainty

"Compatible Electronics' U_{lab} value is less than U_{cispr}, thus based on this − compliance is deemed to occur if no measured disturbance exceeds the disturbance limit.

$$u_c(y) = \sqrt{\sum_i c_i^2 \; u^2(x_i)}$$

Measurement		U_{cispr}	$U_{lab} = 2\,uc\,(y)$
Conducted disturbance (mains port)	(150 kHz – 30 MHz)	4,0 dB	2.88
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	5,2 dB	3.53

7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Channel Number and Frequencies

There is a total of 10 channels. The low channel is at 904.0 MHz, mid channel is at 912.0 MHz, and the high channel is at 922.0 MHz. There is approximately 2 MHz separation between channels and the EUT uses OQPSK modulation.

Channel 1	904 MHz
Channel 2	906 MHz
Channel 3	908 MHz
Channel 4	910 MHz
Channel 5	912 MHz
Channel 6	914 MHz
Channel 7	916 MHz
Channel 8	918 MHz
Channel 9	920 MHz
Channel 10	922 MHz

7.2 Antenna

The antenna is a trace on the PCB.

7.3 Software

08/15/2017, 10016717, F113, stored on a local server located at NSC headquarters.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

Test Results: The EUT is battery powered, therefore; this test was deemed unnecessary and not performed.

The EMI receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. The LISN output was measured using the EMI receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT received its power through the LISN, which was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the computer software. The final qualification data is located in Appendix E.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The R&S receiver was used as a measuring meter. The receiver was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the receiver records the highest measured reading over all the sweeps. An Amplifier was used to increase the sensitivity of the instrument. A Preamplifier was used for frequencies above 1 GHz.

For spurious emissions, the quasi-peak detector was used for frequencies below 1GHz and the average detector was used for frequencies above 1 GHz.

For the radiated Harmonic emissions, a linear average detector was used.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE (MHz)	TRANSDUCER	EFFECTIVE MEASUREMENT BANDWIDTH
.009 to .150	Active Loop Antenna	200 Hz
.150 to 30	Active Loop Antenna	9 kHz
30 to 1000	Combilog Antenna	100 kHz (120kHz for QP Measurements)
1000 to 10000	Horn Antenna	1 MHz

The TDK FAC-3 shielded test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI, EN 50147-2, and CISPR 22. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters in both vertical and horizontal polarizations (for E field radiated field strength).

Test Results:

The EUT complies with the limits of CFR Title 47 Part 15 Subpart C sections 15.205, 15.209, 15.247, RSS 247, and RSS GEN.

8.1.3 DTS Bandwidth

The DTS Bandwidth was measured directly connected to the EMI Receiver using a RBW of 100 kHz and a VBW of 300 kHz. A peak detector and a max hold trace were used with auto sweep time. The trace was allowed to fully maximize. We measured the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. The automatic bandwidth measurement capability of the EMI Receiver was employed using the n dB bandwidth mode with n set to 6 dB. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.4 Maximum Peak Conducted Output Power

The maximum peak conducted output power was measured using a EMI Receiver. The EMI Receiver used a 1 MHz resolution bandwidth which is greater than the DTS bandwidth and a 3 MHz video bandwidth. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.5 Maximum Peak Power Spectral Density Level in The Fundamental Emission

The Maximum Peak Power Spectral Density Level in the Fundamental Emission was measured directly connected to the EMI Receiver. Tuned to the center frequency of the DTS channel and set the span to 1.5 times the DTS bandwidth. RBW was set to minimum of 3 kHz but not greater than 100kHz and VBW 3 * RBW. A peak detector was used with the sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level within the RBW. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.6 Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth)

The Emissions in Non-Restricted Frequency Bands (in 100kHz Bandwidth) measurements were performed using the EMI Receiver directly connected to the EUT. A reference level was established by setting the instrument center frequency to DTS channel center frequency. The span was set to ≥ 1.5 times the DTS bandwidth. The RBW was 100 kHz and VBW 300 kHz. A peak detector was used with a sweep time set to auto. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the level and 20dB below that was the reference level. For Emission Level Measurement, the center frequency and span were set to encompass the frequency range to be measured. RBW was set to 100 kHz and VBW to 300 kHz. A peak detector was used with a sweep time set to auto. The number of measurement points were greater than span/RBW. A max hold trace was used and allowed to fully stabilize. The peak marker function was used to determine the maximum amplitude level. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

8.1.7 Emissions in the Restricted Bands (Radiated)

The Emissions in the Restricted Bands measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15 Subpart C, Section 15.205 and RSS GEN.

8.1.8 Emissions Radiated Outside of the Fundamental Frequency Band

The Band Edge measurement was performed using the EMI Receiver at a 3-meter test distance to obtain the final test data. The low and high channels were tuned to during the low and high band edge tests. The final qualification data sheets are located in Appendix E.

Test Results:

The EUT complies with Part 15, Subpart C, Section 15.247 and RSS 247.

9. TEST PROCEDURE DEVIATIONS

For conducted measurements a separate unit was used with in internal connector. For all fundamental and harmonic measurements, the EUT was connected to a DC power supply because the battery could not support the EUT for the duration of testing while in a constant transmit mode.

10. CONCLUSIONS

The Door and Window Detector Model: F-ADT-DW-1 meets all of the relevant specification requirements defined in the Code of Federal Regulations Title 47, Part 15 Subpart C sections 15.205, 15.207, 15.209, 15.247, RSS GEN & RSS 247.

APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP TESTING
NVLAP LAB CODE 200527-0

ilac-MRA

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025.

For the most up-to-date version of our scopes and certificates please visit

http://celectronics.com/quality/scope/

Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

IC OAT's Test Site Registration Number: 2154C-1

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

There were no modifications made during testing.

APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

ADDITIONAL MODELS COVERED UNDER THIS REPORT

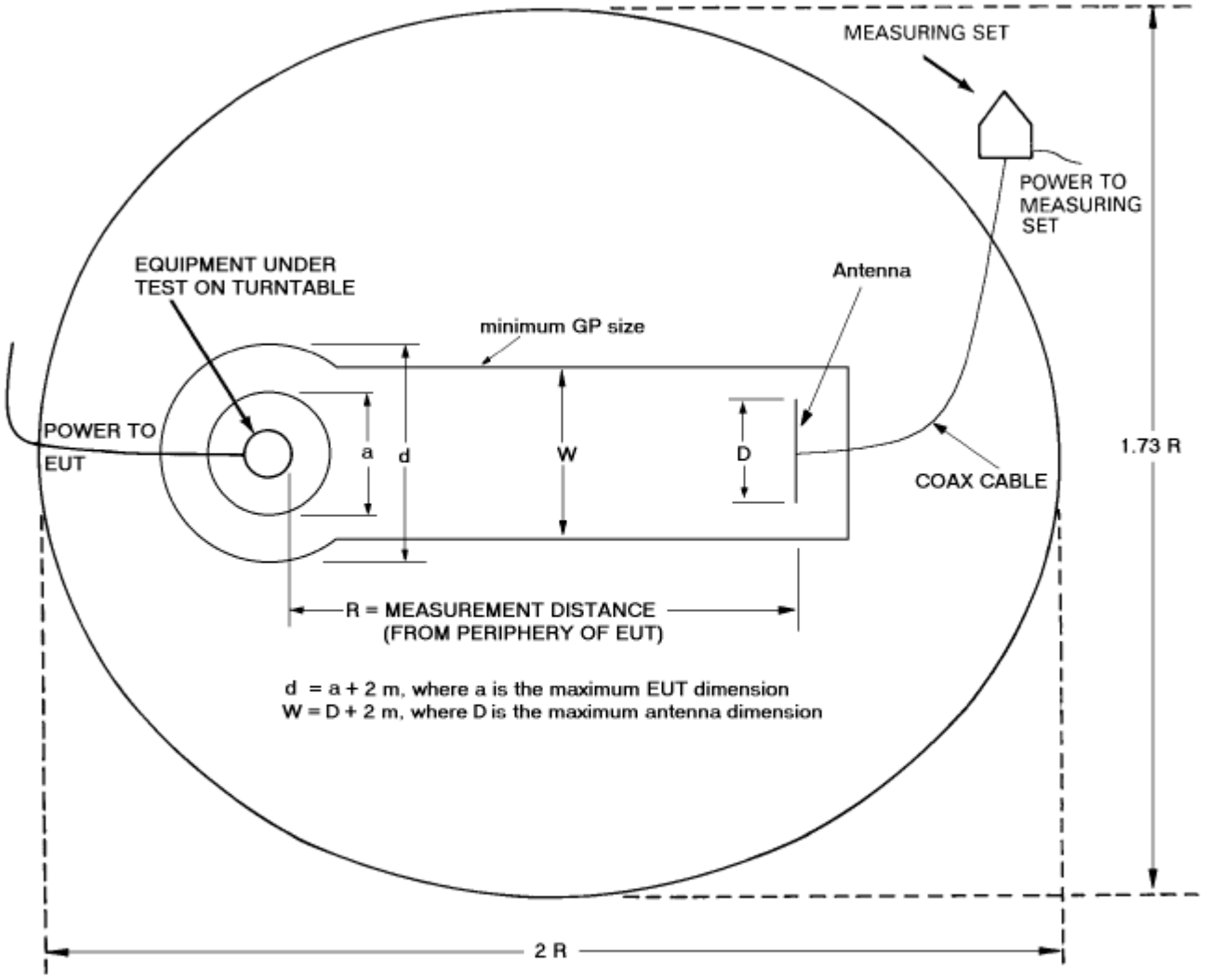
USED FOR THE PRIMARY TEST	DOOR AND WINDOW DETECTOR MODEL: F-ADT-DW-1 S/N: NONE

No additional models were tested.

APPENDIX D

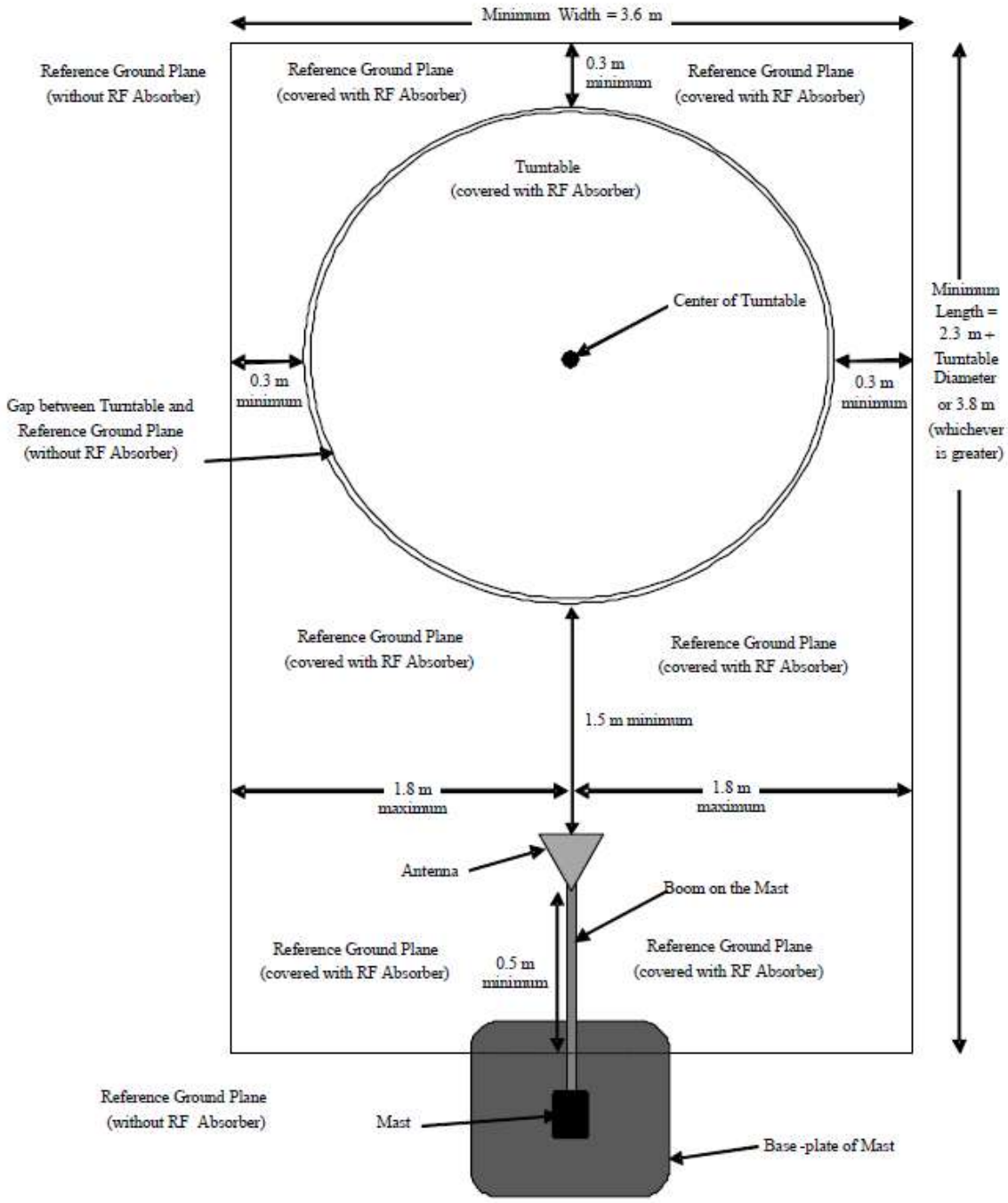
DIAGRAMS, FACTORS, CHARTS, AND PHOTOS

FIGURE 1: PLOT MAP AND LAYOUT OF TEST SITE BELOW 1GHZ



AREA DIMENSIONS =	R = 3m	R = 10 m	R = 30 m
	6 m x 5.2 m	20 m x 17.3 m	60 m x 52 m

IGURE 2: PLOT MAP AND LAYOUT OF TEST SITE ABOVE 1GHZ



COM-POWER AL-130

LOOP ANTENNA

S/N: 121049

CALIBRATION DUE: FEBRUARY 9, 2018

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)	FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-34.68	16.82	**0.8**	-37.44	14.06
0.01	-35.54	15.96	**0.9**	-37.34	14.16
0.02	-37.22	14.28	**1.0**	-37.34	14.16
0.03	-36.44	15.06	**2.0**	-37.03	14.47
0.04	-36.90	14.60	**3.0**	-37.02	14.48
0.05	-37.56	13.94	**4.0**	-37.12	14.38
0.06	-37.45	14.05	**5.0**	-36.92	14.58
0.07	-37.55	13.95	**6.0**	-37.12	14.38
0.08	-37.46	14.04	**7.0**	-37.02	14.48
0.09	-37.56	13.94	**8.0**	-36.81	14.69
0.1	-37.56	13.94	**9.0**	-36.81	14.69
0.2	-37.75	13.75	**10.0**	-36.70	14.80
0.3	-37.75	13.75	**15.0**	-37.08	14.42
0.4	-37.65	13.85	**20.0**	-36.60	14.90
0.5	-37.75	13.75	**25.0**	-38.62	12.88
0.6	-37.75	13.75	**30.0**	-38.92	12.58
0.7	-37.64	13.86			

COM-POWER AC-220

LAB P - COMBILOG ANTENNA

S/N: 003

CALIBRATION DUE: MAY 19, 2018

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	23.6	**160**	13.5
35	23.6	**180**	14.4
40	23.7	**200**	14.5
45	23.9	**250**	15.7
50	24.2	**300**	18.1
60	22.6	**400**	19.9
70	19.1	**500**	22.3
80	13.8	**600**	24.4
90	12.9	**700**	26.6
100	14.6	**800**	26.2
120	14.4	**900**	27.5
140	16.2	**1000**	28.9

COM-POWER AH-118

HORN ANTENNA

S/N: 071225

CALIBRATION DUE: MAY 17, 2018

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1000	24.40	**9500**	39.11
1500	25.61	**10000**	39.38
2000	28.71	**10500**	39.55
2500	29.09	**11000**	39.66
3000	30.24	**11500**	40.28
3500	30.94	**12000**	40.26
4000	31.77	**12500**	40.64
4500	32.29	**13000**	41.33
5000	33.70	**13500**	41.74
5500	34.28	**14000**	41.52
6000	34.83	**14500**	41.80
6500	35.07	**15000**	43.51
7000	36.79	**15500**	41.03
7500	37.45	**16000**	40.88
8000	37.67	**16500**	40.18
8500	37.75	**17000**	42.59
9000	38.15	**17500**	44.49
		18000	45.27

COM-POWER PAM-118A

1-18GHz - PREAMPLIFIER

S/N: 551033

CALIBRATION DUE: MAY 17, 2018

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
500	41.06	**5500**	40.63
1000	41.06	**6000**	40.18
1100	41.12	**6500**	40.33
1200	41.09	**7000**	39.97
1300	41.20	**7500**	40.45
1400	41.28	**8000**	39.83
1500	41.34	**8500**	39.79
1600	41.37	**9000**	39.71
1700	41.43	**9500**	39.80
1800	41.47	**10000**	41.07
1900	41.53	**11000**	40.05
2000	41.59	**12000**	40.21
2500	41.87	**13000**	40.61
3000	42.13	**14000**	39.09
3500	42.21	**15000**	39.36
4000	42.22	**16000**	38.32
4500	41.53	**17000**	38.32
5000	41.16	**18000**	36.85

FRONT VIEW

NORTEK
DOOR AND WINDOW DETECTOR
Model: F-ADT-DW-1
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

NORTEK
DOOR AND WINDOW DETECTOR
Model: F-ADT-DW-1
FCC SUBPART C - RADIATED EMISSIONS < 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

NORTEK
DOOR AND WINDOW DETECTOR
Model: F-ADT-DW-1
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

NORTEK
DOOR AND WINDOW DETECTOR
Model: F-ADT-DW-1
FCC SUBPART C - RADIATED EMISSIONS > 1GHz

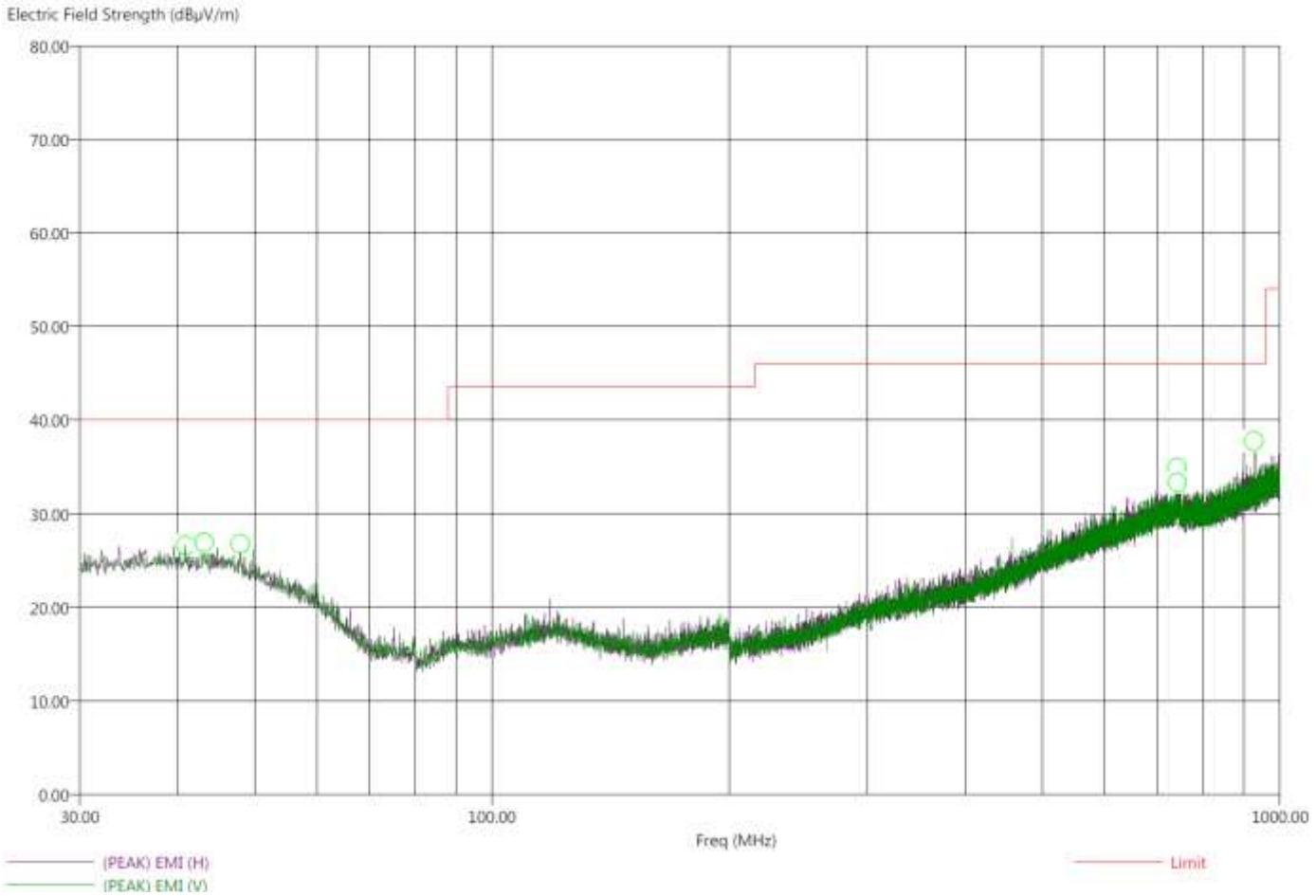
PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

APPENDIX E

RADIATED EMISSIONS DATA SHEETS

Title: FCC 15.209 12/20/2017 5:06:09 PM
File: Radiated Pre-Scan 30-1000Mhz Sequence: Preliminary Scan
Operator: Torey Oliver
EUT Type: Nova PIR and Nova DW
EUT Condition: Normal Operation
Comments: Temp: 72f
Hum: 48%
Battery Powered

Compatible Electronics, Inc. FAC-3 (Lab P)



This was worst case for all modes and channels
There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-10GHz.

Title: FCC 15.209 12/20/2017 5:26:06 PM
File: Radiated Final 30-1000Mhz Sequence: Final Measurements
Operator: Torey Oliver
EUT Type: F-ADT-PIR-1 and F-ADT-DW-1
EUT Condition: Normal Operation
Comments: Temp: 72f
Hum: 48%
Battery Powered

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq (MHz)	(QP) Margin (dB)	(QP) EMI (dBµV/m)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	Pol	Ttbl Agl (deg)	Twr Ht (cm)	Transducer(dB)	Cable(dB)
40.90	-17.64	22.36	27.53	40.00	H	108.25	200.23	23.95	0.51
43.20	-17.29	22.71	27.89	40.00	V	143.25	236.47	24.09	0.54
48.00	-16.58	23.42	27.59	40.00	H	133.50	334.00	23.22	0.61
740.80	-16.01	29.99	33.16	46.00	H	110.50	166.76	26.43	2.60
741.40	-17.05	28.95	34.91	46.00	V	311.50	274.94	26.43	2.60
927.90	-16.35	29.65	35.54	46.00	H	39.25	348.58	27.90	2.91

This was worst case for all modes and channels
There were no radiated emissions besides harmonics found between 9kHz-30 MHz or 1GHz-10GHz.

DTS BANDWIDTH

DATA SHEETS

DTS BANDWIDTH

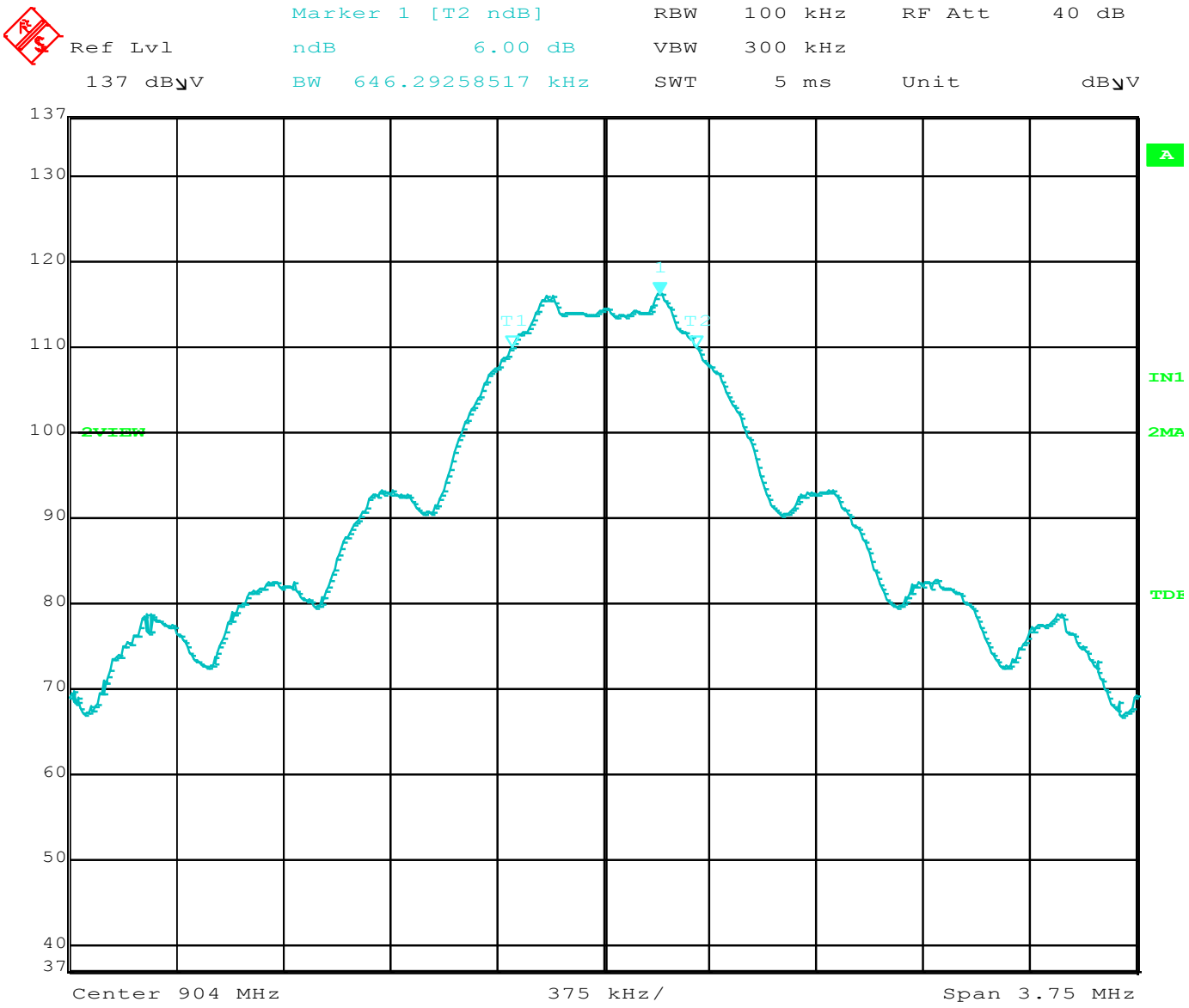
FCC 15.247

Company:	Nortek	Date:	1/2/2018
EUT:	Door / Window Sensor	Lab:	P
Model:	F-ADT-DW-1	Test Eng:	Torey Oliver
Mode:	Nova		

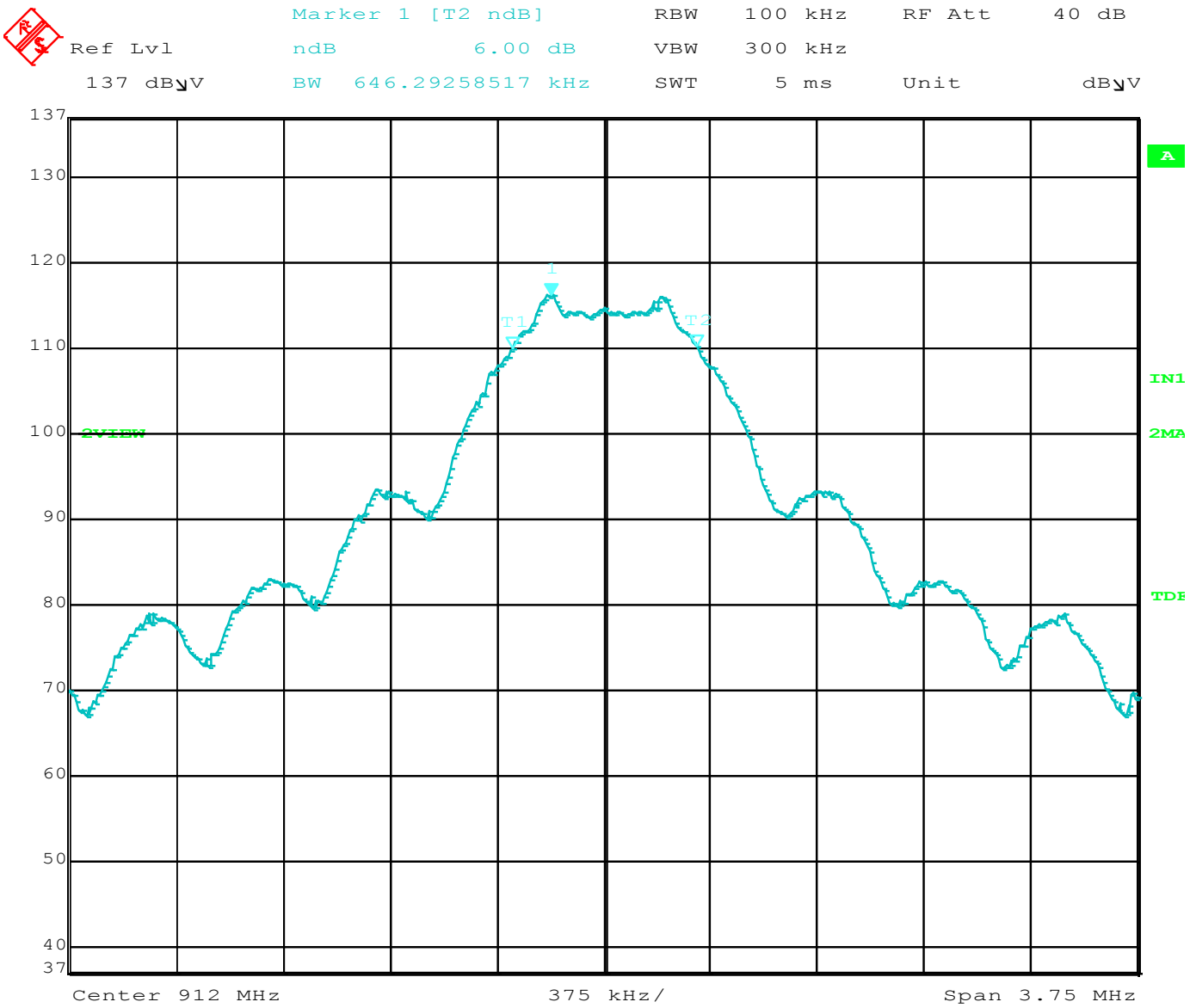
Compatible Electronics, Inc. FAC-3 (Lab P)

DTS Bandwidth

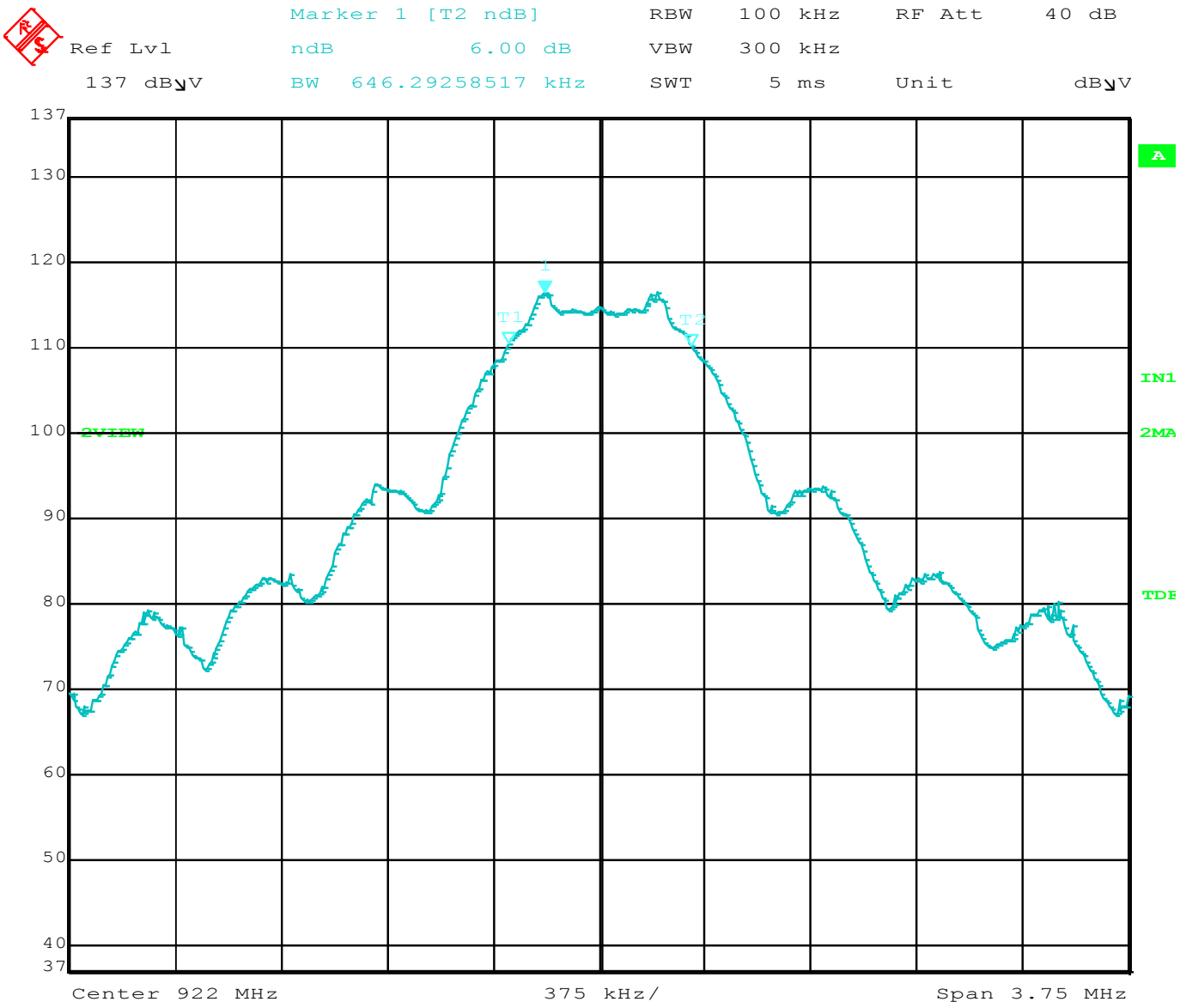
Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
904	646.29	500.00	146.29	Peak	
912	646.29	500.00	146.29	Peak	
922	646.29	500.00	146.29	Peak	



Comment A: DTS Bandwidth 904 MHz



Comment A: DTS Bandwidth 912 MHz



Comment A: DTS Bandwidth 922 MHz

MAXIMUM PEAK CONDUCTED OUTPUT POWER

DATA SHEETS

MAXIMUM PEAK CONDUCTED OUTPUT POWER

FCC 15.247

Company: Nortek
EUT: Door / Window Sensor
Model: F-ADT-DW-1
Mode: Nova

Date: 1/2/2018
Lab: P
Test ENG: Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
904	10.41	30.00	-19.59	Peak	
912	10.56	30.00	-19.44	Peak	
922	10.69	30.00	-19.31	Peak	

MAXIMUM PEAK POWER SPECTRAL DENSITY LEVEL IN THE FUNDAMENTAL EMISSION

DATA SHEETS

POWER SPECTRAL DENSITY

FCC 15.247

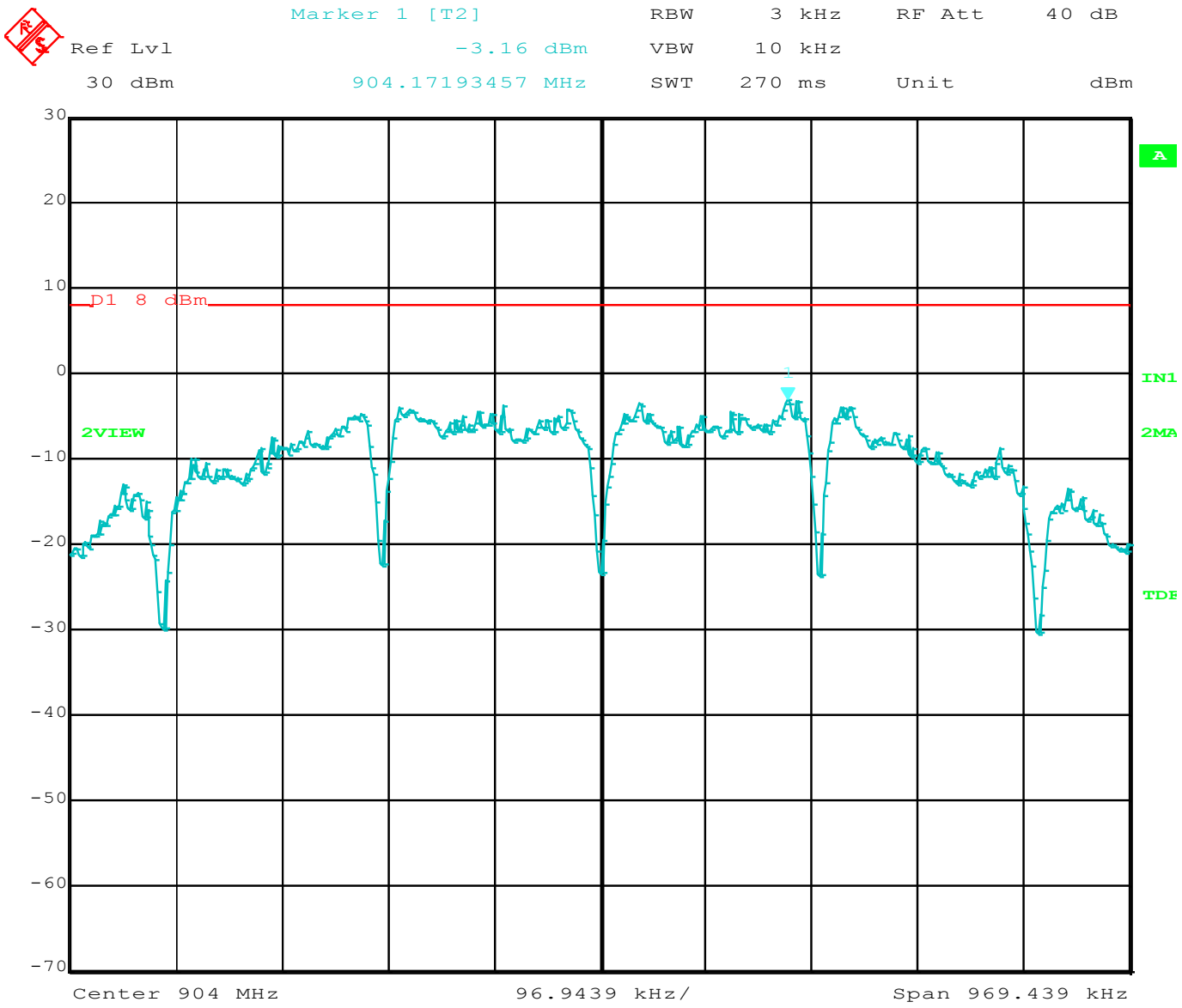
Company: Nortek
EUT: Door / Window Sensor
Model: F-ADT-DW-1

Date: 1/2/2018
Lab: P
Test ENG: Torey Oliver

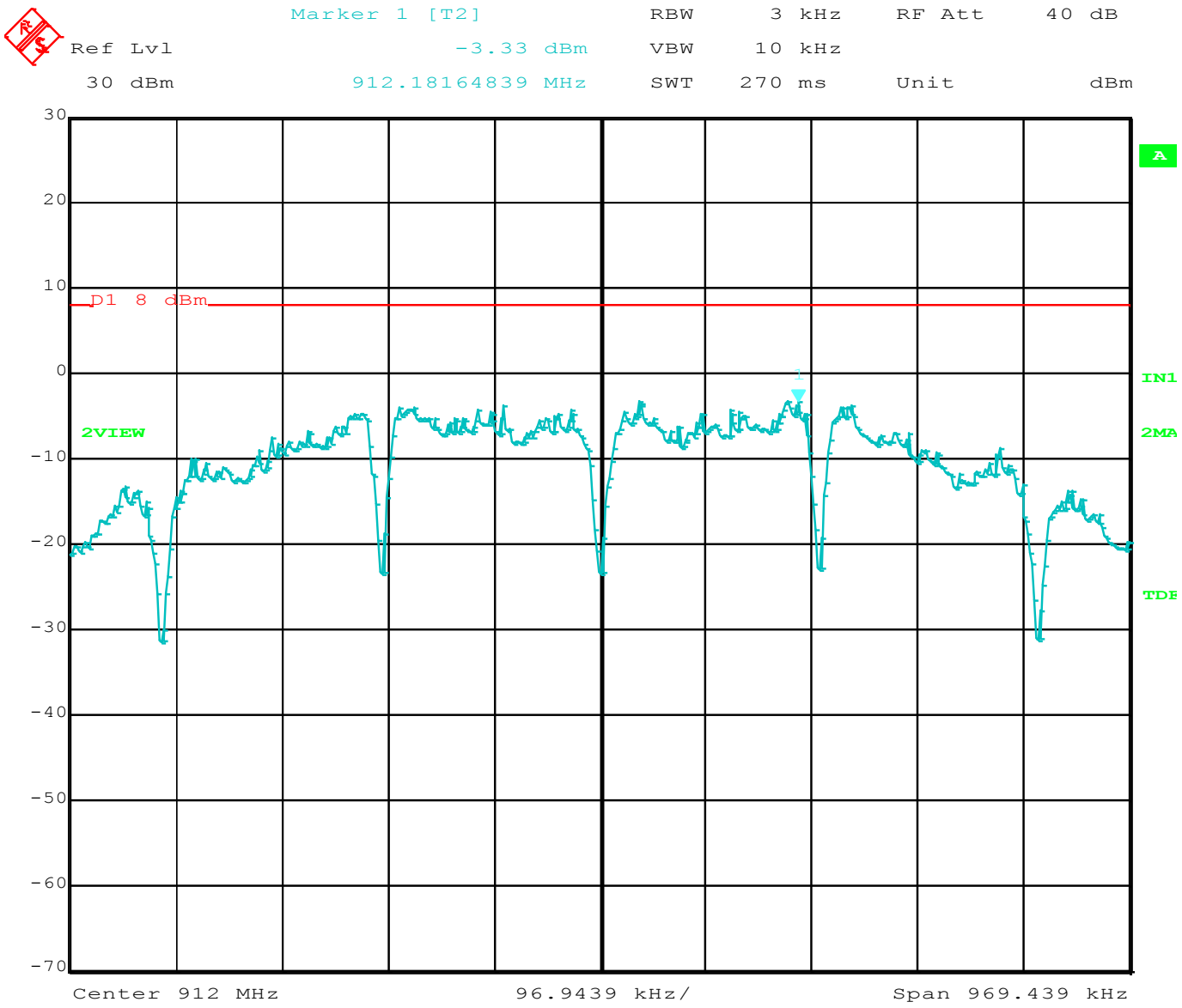
Compatible Electronics, Inc. FAC-3 (Lab P)

DTS Bandwidth

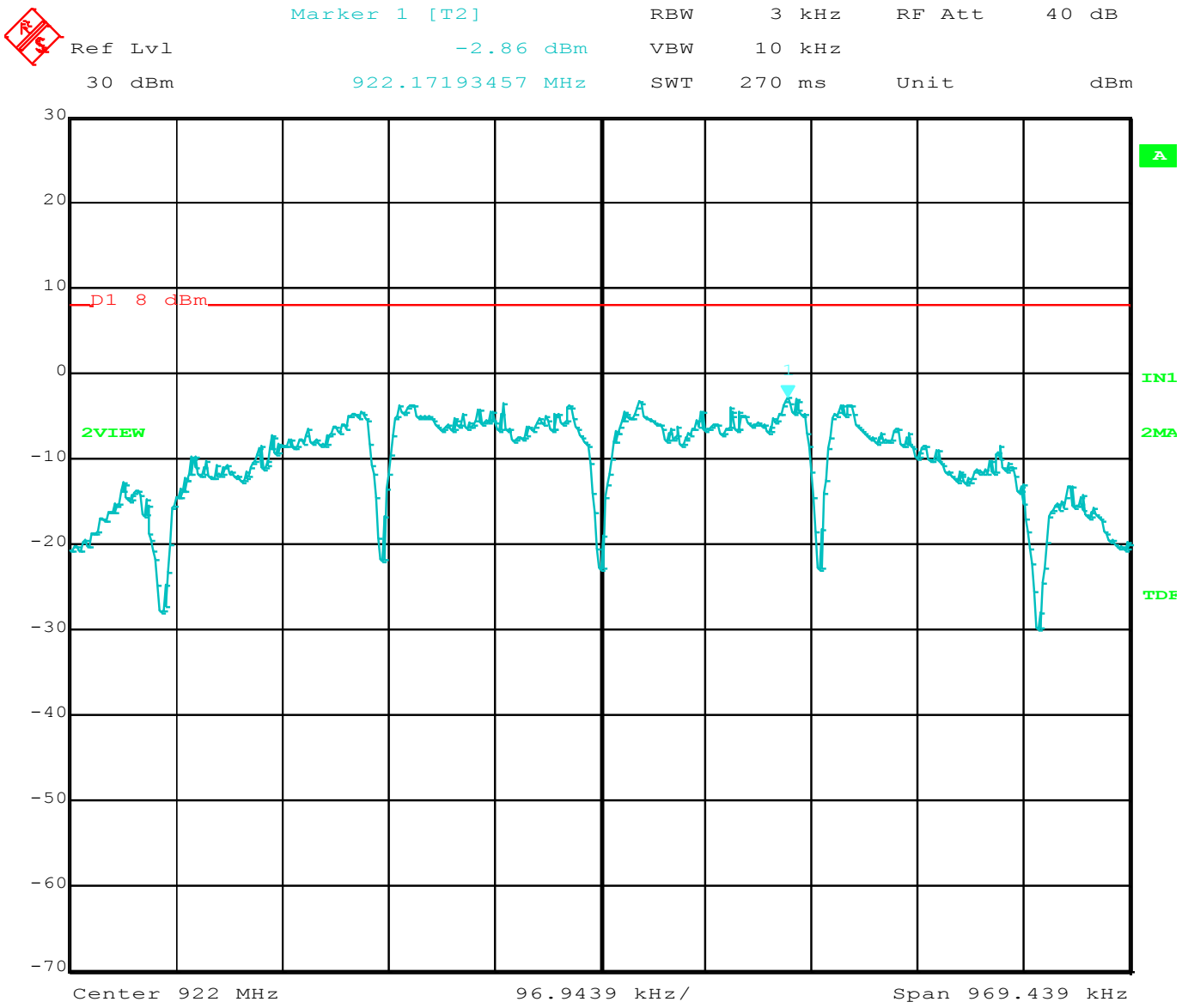
Freq. (MHz)	Peak (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
904	-3.16	8.00	-11.16	Peak	
912	-3.33	8.00	-11.33	Peak	
922	-2.86	8.00	-10.86	Peak	



Comment A: PSD 904 MHz



Comment A: PSD 912 MHz



Comment A: PSD 922 MHz

HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS (IN 100KHZ BANDWIDTH) / CONDUCTED

DATA SHEETS

CONDUCTED SPURIOUS EMISSIONS IN NON-RESTRICTED BANDS

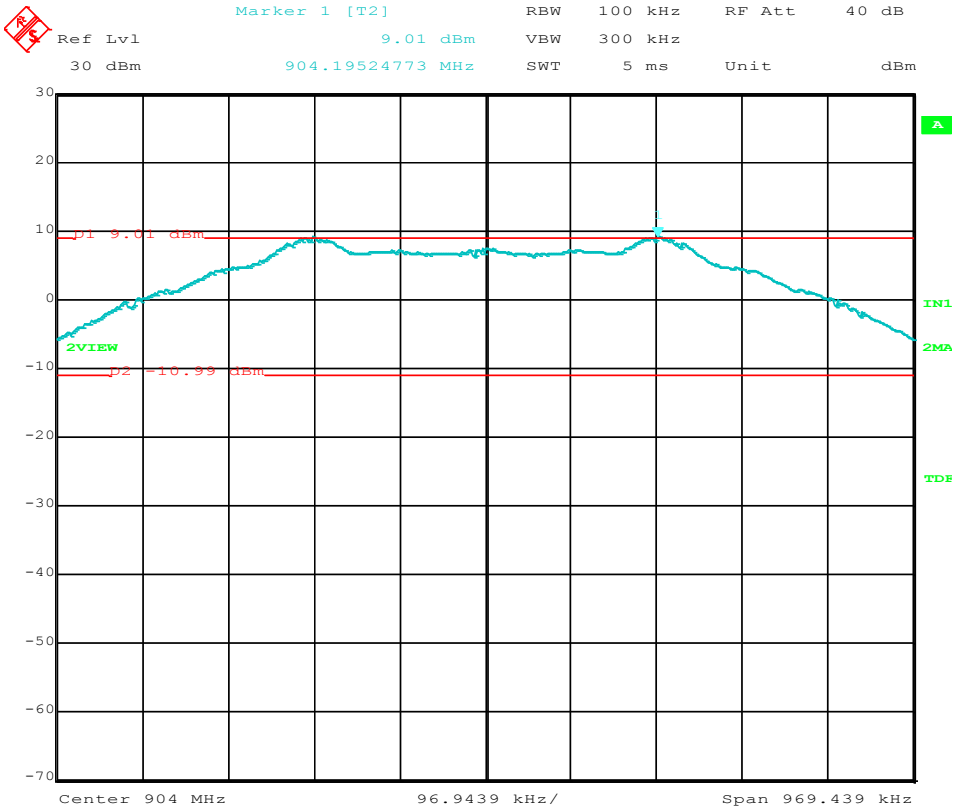
FCC 15.247

Company:	Nortek	Date:	1/2/2018
EUT:	Door / Window Sensor	Lab:	P
Model:	F-ADT-DW-1	Test ENG:	Torey Oliver
Mode:	Nova		

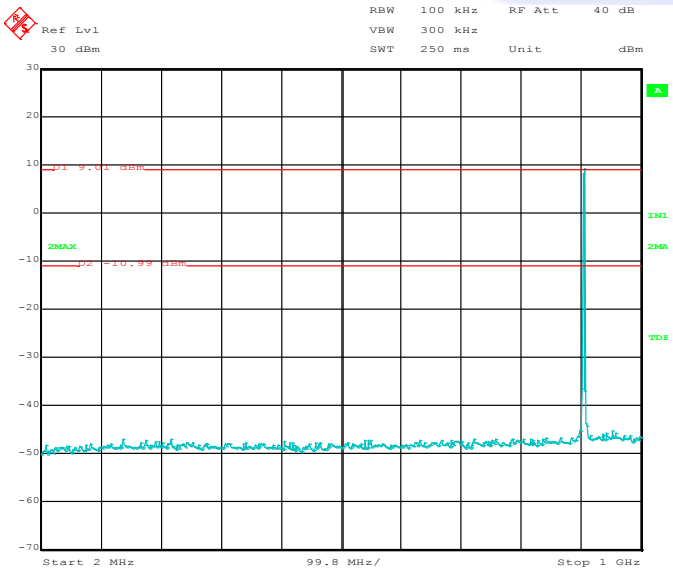
Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Peak / QP / Avg	Comments
9963.93	-44.39	-10.99	-33.40	Peak	Low Channel
9855.71	-44.48	-10.77	-33.71	Peak	Mid Channel
6879.76	-43.65	-10.66	-32.99	Peak	High Channel

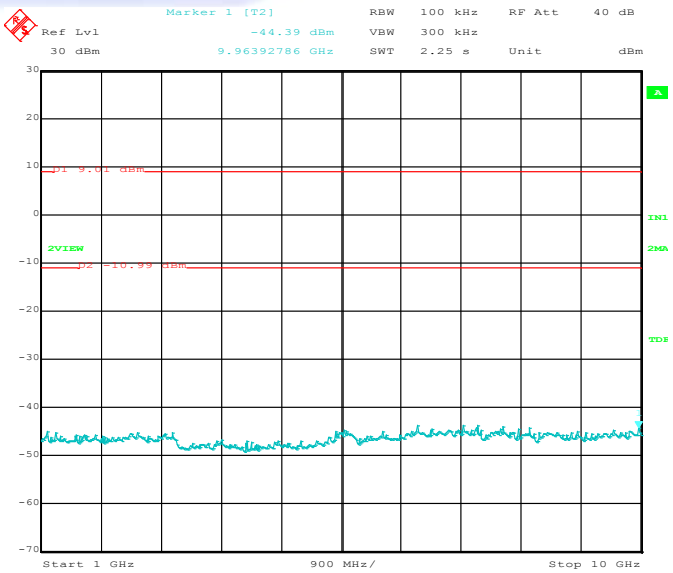
HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS LOW CHANNEL



Comment A: CS Reference 904 MHz

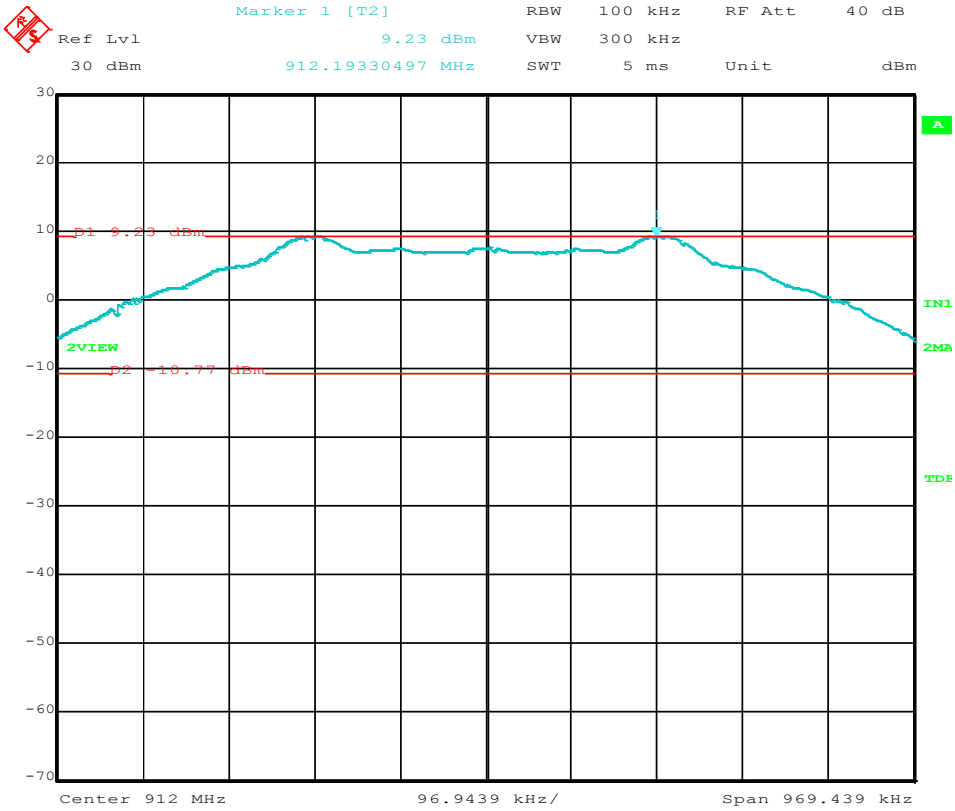


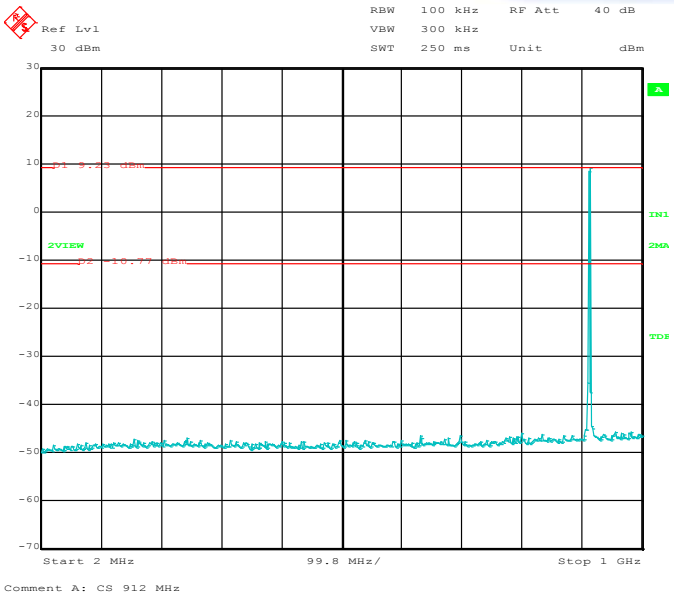
Comment A: CS 904 MHz

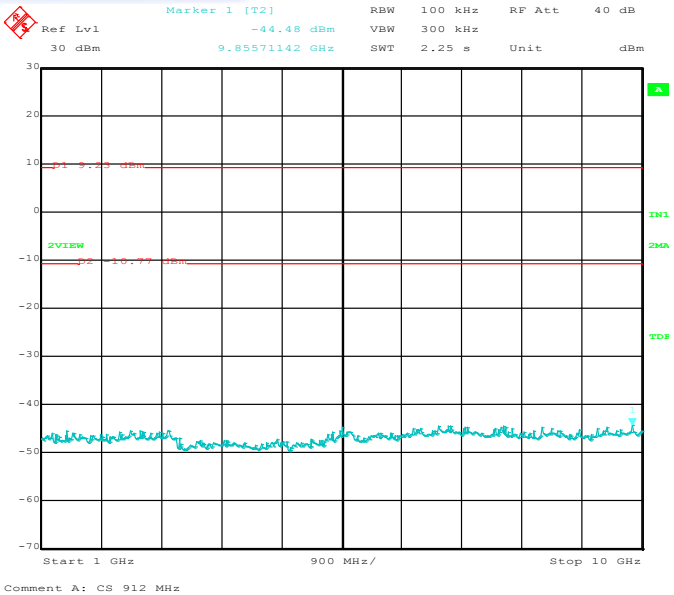


Comment A: CS 904 MHz

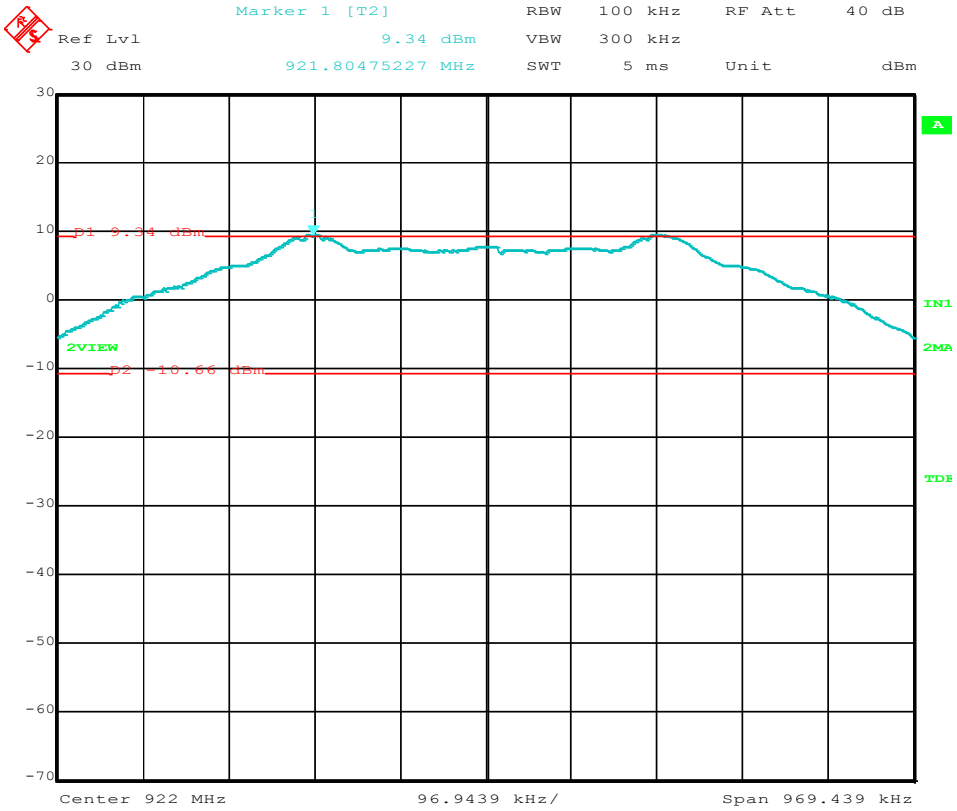
HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS MID CHANNEL

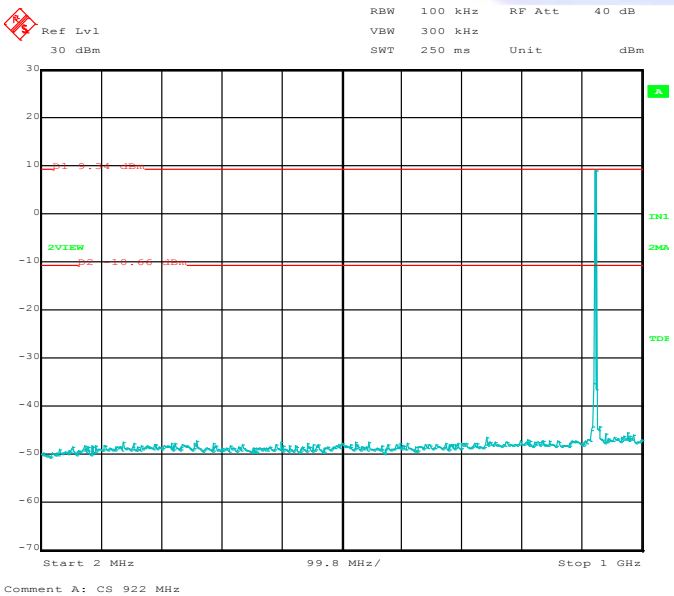


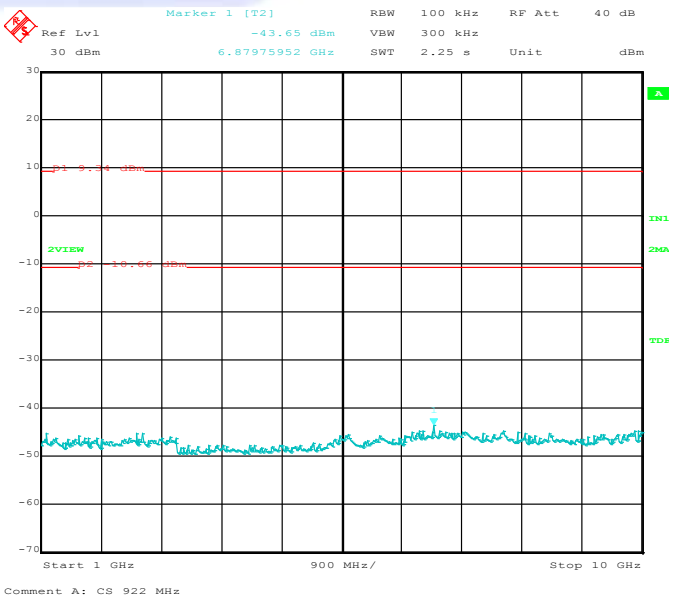




HARMONIC EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS HIGH CHANNEL







EMISSIONS IN RESTRICTED FREQUENCY BANDS (RADIATED FIELD STRENGTH)

DATA SHEETS

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Low Channel, Horizontal, X-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2712.00	37.43	H	73.98	-36.55	Peak	1.01	104	**In Restricted Band**
2712.00	24.43	H	53.98	-29.55	Avg	1.01	104	
3616.00	59.09	H	73.98	-14.89	Peak	1.00	181	**In Restricted Band**
3616.00	52.58	H	53.98	-1.40	Avg	1.00	181	
4520.00	38.04	H	73.98	-35.94	Peak	1.04	210	**In Restricted Band**
4520.00	25.69	H	53.98	-28.29	Avg	1.04	210	
5424.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
5424.00	--	H	53.98	--	Avg	--	--	**No Emission Found**
8136.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8136.00	--	H	53.98	--	Avg	--	--	**No Emission Found**
9040.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
9040.00	--	H	53.98	--	Avg	--	--	**No Emission Found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Low Channel, Vertical, X-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2712.00	41.10	V	73.98	-32.88	Peak	1.15	42	**In Restricted Band**
2712.00	32.10	V	53.98	-21.88	Avg	1.15	42	
3616.00	51.86	V	73.98	-22.12	Peak	1.18	113	**In Restricted Band**
3616.00	44.38	V	53.98	-9.60	Avg	1.18	113	
4520.00	42.46	V	73.98	-31.52	Peak	1.01	117	**In Restricted Band**
4520.00	30.87	V	53.98	-23.11	Avg	1.01	117	
5424.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
5424.00	--	V	53.98	--	Avg	--	--	**No emission found**
8136.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8136.00	--	V	53.98	--	Avg	--	--	**No emission found**
9040.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
9040.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Low Channel, Horizontal, Y-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2712.00	43.60	H	73.98	-30.38	Peak	1.17	157	**In Restricted Band**
2712.00	34.89	H	53.98	-19.09	Avg	1.17	157	
3616.00	55.62	H	73.98	-18.36	Peak	1.07	197	**In Restricted Band**
3616.00	48.70	H	53.98	-5.28	Avg	1.07	197	
4520.00	42.92	H	73.98	-31.06	Peak	1.00	148	**In Restricted Band**
4520.00	32.54	H	53.98	-21.44	Avg	1.00	148	
5424.00	49.07	H	73.98	-24.91	Peak	1.00	141	**In Restricted Band**
5424.00	39.77	H	53.98	-14.21	Avg	1.00	141	
8136.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8136.00	--	H	53.98	--	Avg	--	--	**No Emission Found**
9040.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
9040.00	--	H	53.98	--	Avg	--	--	**No Emission Found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Low Channel, Vertical, Y-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2712.00	37.43	V	73.98	-36.55	Peak	2.23	0	**In Restricted Band**
2712.00	25.87	V	53.98	-28.11	Avg	2.23	0	
3616.00	54.95	V	73.98	-19.03	Peak	1.21	360	**In Restricted Band**
3616.00	47.98	V	53.98	-6.00	Avg	1.21	360	
4520.00	39.68	V	73.98	-34.30	Peak	1.10	161	**In Restricted Band**
4520.00	28.52	V	53.98	-25.46	Avg	1.10	161	
5424.00	46.54	V	73.98	-27.44	Peak	1.00	168	**In Restricted Band**
5424.00	36.43	V	53.98	-17.55	Avg	1.00	168	
8136.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8136.00	--	V	53.98	--	Avg	--	--	**No Emission found**
9040.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
9040.00	--	V	53.98	--	Avg	--	--	**No Emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Low Channel, Horizontal, Z-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2712.00	39.68	H	73.98	-34.30	Peak	1.60	197	**In Restricted Band**
2712.00	29.96	H	53.98	-24.02	Avg	1.60	197	
3616.00	57.26	H	73.98	-16.72	Peak	1.04	59	**In Restricted Band**
3616.00	50.49	H	53.98	-3.49	Avg	1.04	59	
4520.00	42.13	H	73.98	-31.85	Peak	1.01	178	**In Restricted Band**
4520.00	29.43	H	53.98	-24.55	Avg	1.01	178	
5424.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
5424.00	--	H	53.98	--	Avg	--	--	**No Emission Found**
8136.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8136.00	--	H	53.98	--	Avg	--	--	**No Emission Found**
9040.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
9040.00	--	H	53.98	--	Avg	--	--	**No Emission Found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Low Channel, Vertical, Z-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2712.00	42.39	V	73.98	-31.59	Peak	1.07	93	**In Restricted Band**
2712.00	33.76	V	53.98	-20.22	Avg	1.07	93	
3616.00	57.14	V	73.98	-16.84	Peak	1.13	114	**In Restricted Band**
3616.00	50.42	V	53.98	-3.56	Avg	1.13	114	
4520.00	38.43	V	73.98	-35.55	Peak	4.00	0	**In Restricted Band**
4520.00	26.14	V	53.98	-27.84	Avg	4.00	0	
5424.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
5424.00	--	V	53.98	--	Avg	--	--	**No Emission found**
8136.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8136.00	--	V	53.98	--	Avg	--	--	**No Emission found**
9040.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
9040.00	--	V	53.98	--	Avg	--	--	**No Emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Mid Channel, Horizontal, X-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/20/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2736.00	43.95	H	73.98	-30.03	Peak	1.18	104	**In Restricted Band**
2736.00	34.99	H	53.98	-18.99	Avg	1.18	104	
3648.00	60.32	H	73.98	-13.66	Peak	1.09	180	**In Restricted Band**
3648.00	53.77	H	53.98	-0.21	Avg	1.09	180	
4560.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
4560.00	--	H	53.98	--	Avg	--	--	**No emission found**
7296.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
7296.00	--	H	53.98	--	Avg	--	--	**No emission found**
8208.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8208.00	--	H	53.98	--	Avg	--	--	**No emission found**
9120.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
9120.00	--	H	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Mid Channel, Vertical, X-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2736.00	43.27	V	73.98	-30.71	Peak	1.00	43	**In Restricted Band**
2736.00	34.68	V	53.98	-19.30	Avg	1.00	43	
3648.00	54.21	V	73.98	-19.77	Peak	1.00	266	**In Restricted Band**
3648.00	46.91	V	53.98	-7.07	Avg	1.00	266	
4560.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
4560.00	--	V	53.98	--	Avg	--	--	**No emission found**
7296.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
7296.00	--	V	53.98	--	Avg	--	--	**No emission found**
8208.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8208.00	--	V	53.98	--	Avg	--	--	**No emission found**
9120.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
9120.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Mid Channel, Horizontal, Y-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2736.00	44.20	H	73.98	-29.78	Peak	1.00	221	**In Restricted Band**
2736.00	36.09	H	53.98	-17.89	Avg	1.00	221	
3648.00	58.89	H	73.98	-15.09	Peak	1.62	184	**In Restricted Band**
3648.00	52.32	H	53.98	-1.66	Avg	1.62	184	
4560.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
4560.00	--	H	53.98	--	Avg	--	--	**No emission found**
7296.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
7296.00	--	H	53.98	--	Avg	--	--	**No emission found**
8208.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8208.00	--	H	53.98	--	Avg	--	--	**No emission found**
9120.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
9120.00	--	H	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Mid Channel, Vertical, Y-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2736.00	42.60	V	73.98	-31.38	Peak	1.46	210	**In Restricted Band**
2736.00	33.67	V	53.98	-20.31	Avg	1.46	210	
3648.00	57.31	V	73.98	-16.67	Peak	1.53	250	**In Restricted Band**
3648.00	50.59	V	53.98	-3.39	Avg	1.53	250	
4560.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
4560.00	--	V	53.98	--	Avg	--	--	**No emission found**
7296.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
7296.00	--	V	53.98	--	Avg	--	--	**No emission found**
8208.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8208.00	--	V	53.98	--	Avg	--	--	**No emission found**
9120.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
9120.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Mid Channel, Horizontal, Z-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2736.00	43.14	H	73.98	-30.84	Peak	1.00	190	**In Restricted Band**
2736.00	34.18	H	53.98	-19.80	Avg	1.00	190	
3648.00	58.77	H	73.98	-15.21	Peak	1.00	297	**In Restricted Band**
3648.00	52.13	H	53.98	-1.85	Avg	1.00	297	
4560.00	41.51	H	73.98	-32.47	Peak	1.33	208	**In Restricted Band**
4560.00	29.63	H	53.98	-24.35	Avg	1.33	208	
7296.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
7296.00	--	H	53.98	--	Avg	--	--	**No emission found**
8208.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8208.00	--	H	53.98	--	Avg	--	--	**No emission found**
9120.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
9120.00	--	H	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

C

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
Mid Channel, Vertical, Z-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2736.00	43.00	V	73.98	-30.98	Peak	1.00	257	**In Restricted Band**
2736.00	34.60	V	53.98	-19.38	Avg	1.00	257	
3648.00	57.92	V	73.98	-16.06	Peak	1.06	179	**In Restricted Band**
3648.00	51.15	V	53.98	-2.83	Avg	1.06	179	
4560.00	43.44	V	73.98	-30.54	Peak	1.00	89	**In Restricted Band**
4560.00	33.19	V	53.98	-20.79	Avg	1.00	89	
7296.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
7296.00	--	V	53.98	--	Avg	--	--	**No emission found**
8208.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8208.00	--	V	53.98	--	Avg	--	--	**No emission found**
9120.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
9120.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
High Channel, Horizontal, X-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2766.00	44.18	H	73.98	-29.80	Peak	1.00	105	**In Restricted Band**
2766.00	36.67	H	53.98	-17.31	Avg	1.00	105	
3688.00	58.93	H	73.98	-15.05	Peak	1.10	179	**In Restricted Band**
3688.00	52.34	H	53.98	-1.64	Avg	1.10	179	
4610.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
4610.00	--	H	53.98	--	Avg	--	--	**No emission found**
7376.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
7376.00	--	H	53.98	--	Avg	--	--	**No emission found**
8298.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8298.00	--	H	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
High Channel, Vertical, X-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2766.00	42.44	V	73.98	-31.54	Peak	1.28	0	**In Restricted Band**
2766.00	33.18	V	53.98	-20.80	Avg	1.28	0	
3688.00	53.58	V	73.98	-20.40	Peak	1.04	278	**In Restricted Band**
3688.00	46.34	V	53.98	-7.64	Avg	1.04	278	
4610.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
4610.00	--	V	53.98	--	Avg	--	--	**No emission found**
7376.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
7376.00	--	V	53.98	--	Avg	--	--	**No emission found**
8298.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8298.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
High Channel, Horizontal, Y-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2766.00	49.13	H	73.98	-24.85	Peak	1.22	249	**In Restricted Band**
2766.00	41.94	H	53.98	-12.04	Avg	1.22	249	
3688.00	55.19	H	73.98	-18.79	Peak	1.73	160	**In Restricted Band**
3688.00	48.26	H	53.98	-5.72	Avg	1.73	160	
4610.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
4610.00	--	H	53.98	--	Avg	--	--	**No emission found**
7376.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
7376.00	--	H	53.98	--	Avg	--	--	**No emission found**
8298.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8298.00	--	H	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
High Channel, Vertical, Y-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2766.00	45.59	V	73.98	-28.39	Peak	1.62	214	**In Restricted Band**
2766.00	37.43	V	53.98	-16.55	Avg	1.62	214	
3688.00	54.39	V	73.98	-19.59	Peak	1.07	360	**In Restricted Band**
3688.00	47.33	V	53.98	-6.65	Avg	1.07	360	
4610.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
4610.00	--	V	53.98	--	Avg	--	--	**No emission found**
7376.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
7376.00	--	V	53.98	--	Avg	--	--	**No emission found**
8298.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8298.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
High Channel, Horizontal, Z-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2766.00	46.00	H	73.98	-27.98	Peak	1.06	255	**In Restricted Band**
2766.00	38.76	H	53.98	-15.22	Avg	1.06	255	
3688.00	58.19	H	73.98	-15.79	Peak	1.07	62	**In Restricted Band**
3688.00	51.62	H	53.98	-2.36	Avg	1.07	62	
4610.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
4610.00	--	H	53.98	--	Avg	--	--	**No emission found**
7376.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
7376.00	--	H	53.98	--	Avg	--	--	**No emission found**
8298.00	--	H	73.98	--	Peak	--	--	**In Restricted Band**
8298.00	--	H	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

HARMONIC EMISSIONS IN RESTRICTED FREQUENCY BANDS
High Channel, Vertical, Z-Axis

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 12/19/2017
Lab: P
Test ENG: T. Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit (dBuV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2766.00	47.67	V	73.98	-26.31	Peak	1.19	146	**In Restricted Band**
2766.00	40.02	V	53.98	-13.96	Avg	1.19	146	
3688.00	59.18	V	73.98	-14.80	Peak	1.18	172	**In Restricted Band**
3688.00	52.63	V	53.98	-1.35	Avg	1.18	172	
4610.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
4610.00	--	V	53.98	--	Avg	--	--	**No emission found**
7376.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
7376.00	--	V	53.98	--	Avg	--	--	**No emission found**
8298.00	--	V	73.98	--	Peak	--	--	**In Restricted Band**
8298.00	--	V	53.98	--	Avg	--	--	**No emission found**

Test distance
3 meter

EMISSIONS RADIATED OUTSIDE OF THE FUNDAMENTAL FREQUENCY BAND AT BAND EDGES

DATA SHEETS

BAND EDGES- HORIZONTAL

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

Date: 1/2/2018
Lab: P
Test ENG: Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
904.00	103.83	H	--	--	Peak	1.55	252	Fundamental of Low Channel
902.00	57.38	H	83.83	-26.45	Delta	1.55	252	From Peak
922.00	105.89	H	--	--	Peak	1.37	336	Fundamental of High Channel
928.20	46.72	H	85.89	-39.17	Delta	1.37	336	**No** Marker Delta Method Used

Test Distance
3 Meters

BAND EDGES- VERTICAL

FCC 15.247

Company: Nortek
EUT: Door and Window Detector
Model: F-ADT-DW-1

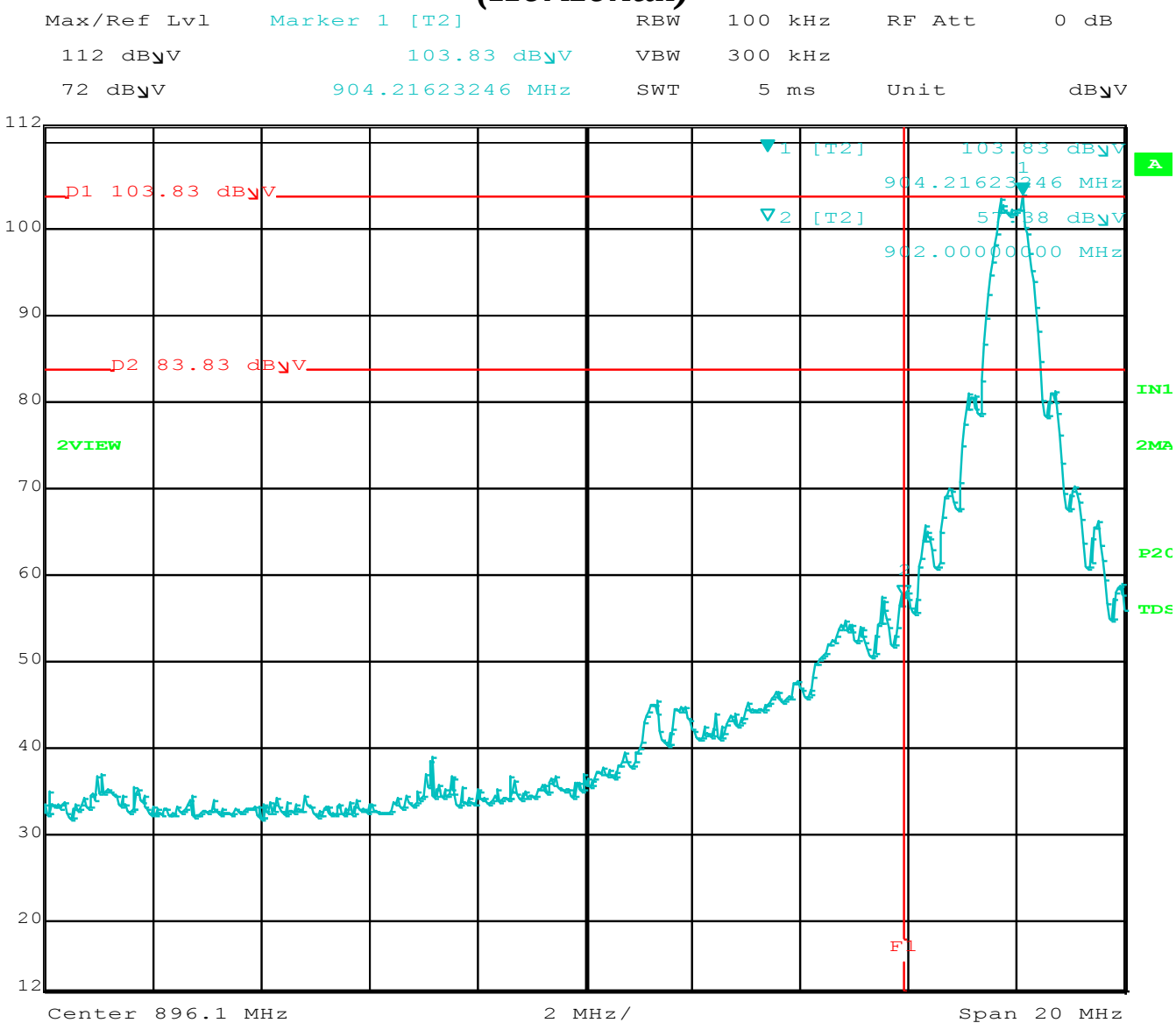
Date: 1/2/2018
Lab: P
Test ENG: Torey Oliver

Compatible Electronics, Inc. FAC-3 (Lab P)

Freq. (MHz)	Level (dBµV/m)	Pol	Limit (dBµV/m)	Margin (dB)	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
904.00	103.24	V	--	--	Peak	1.63	7	Fundamental of Low Channel
902.00	57.41	V	83.24	-25.83	Delta	1.63	7	From Peak
922.00	101.98	V	--	--	Peak	1.54	36	Fundamental of High Channel
928.08	42.33	V	81.98	-39.65	Delta	1.54	36	From Peak

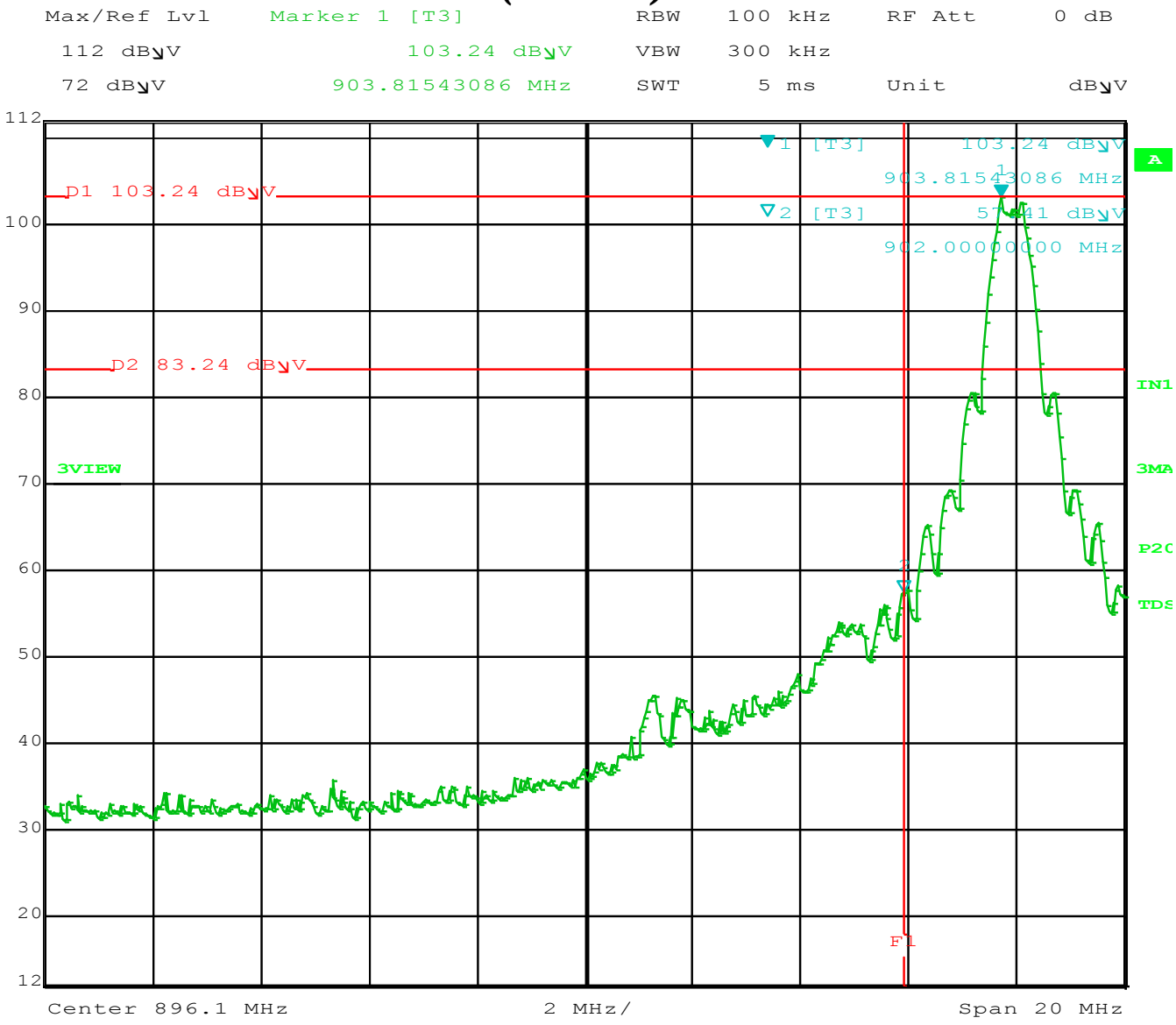
Test Distance
3 Meters

LOWER BAND EDGE
(Horizontal)



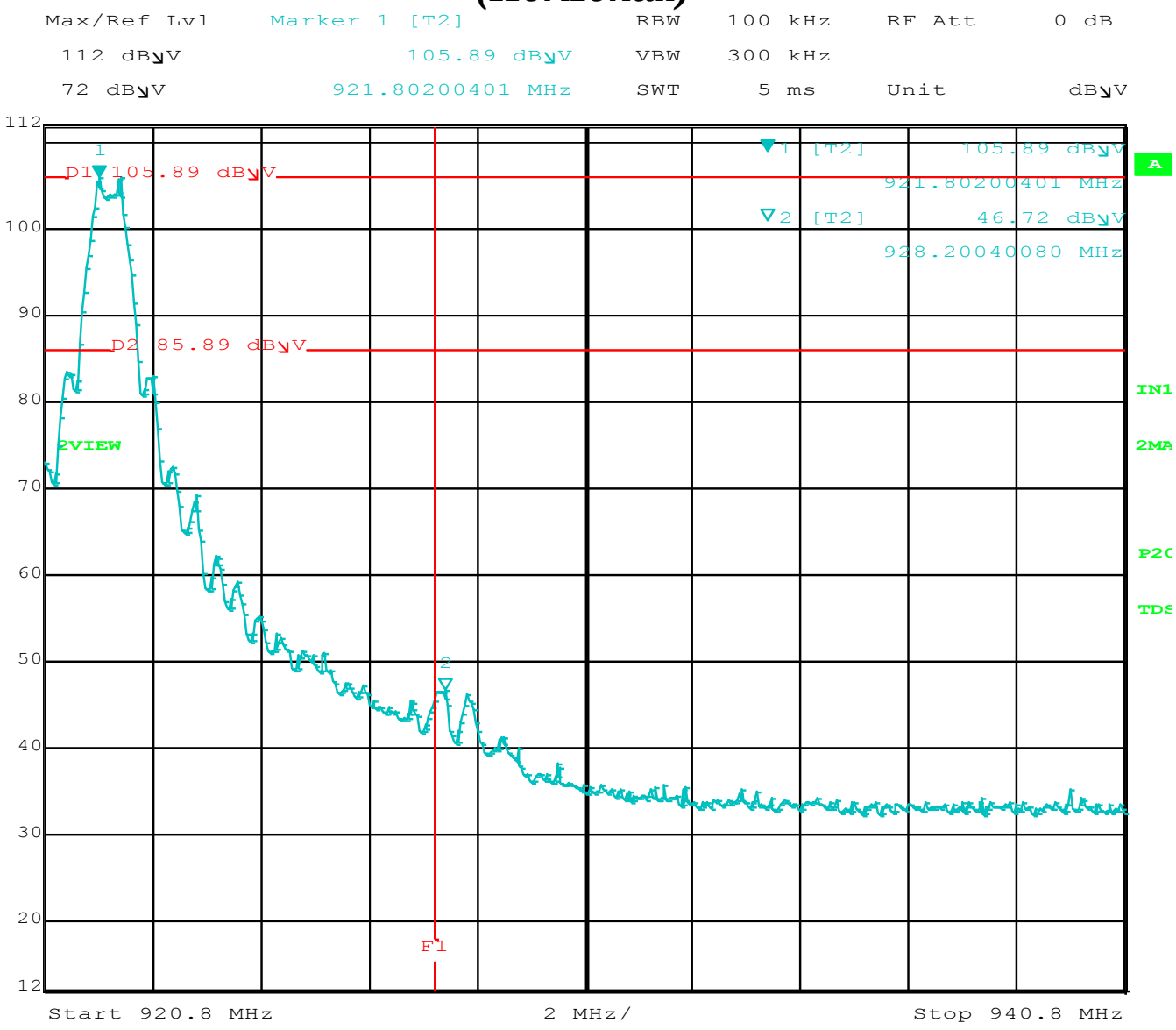
Comment A: Lower Band Edge Horizontal

LOWER BAND EDGE
(Vertical)



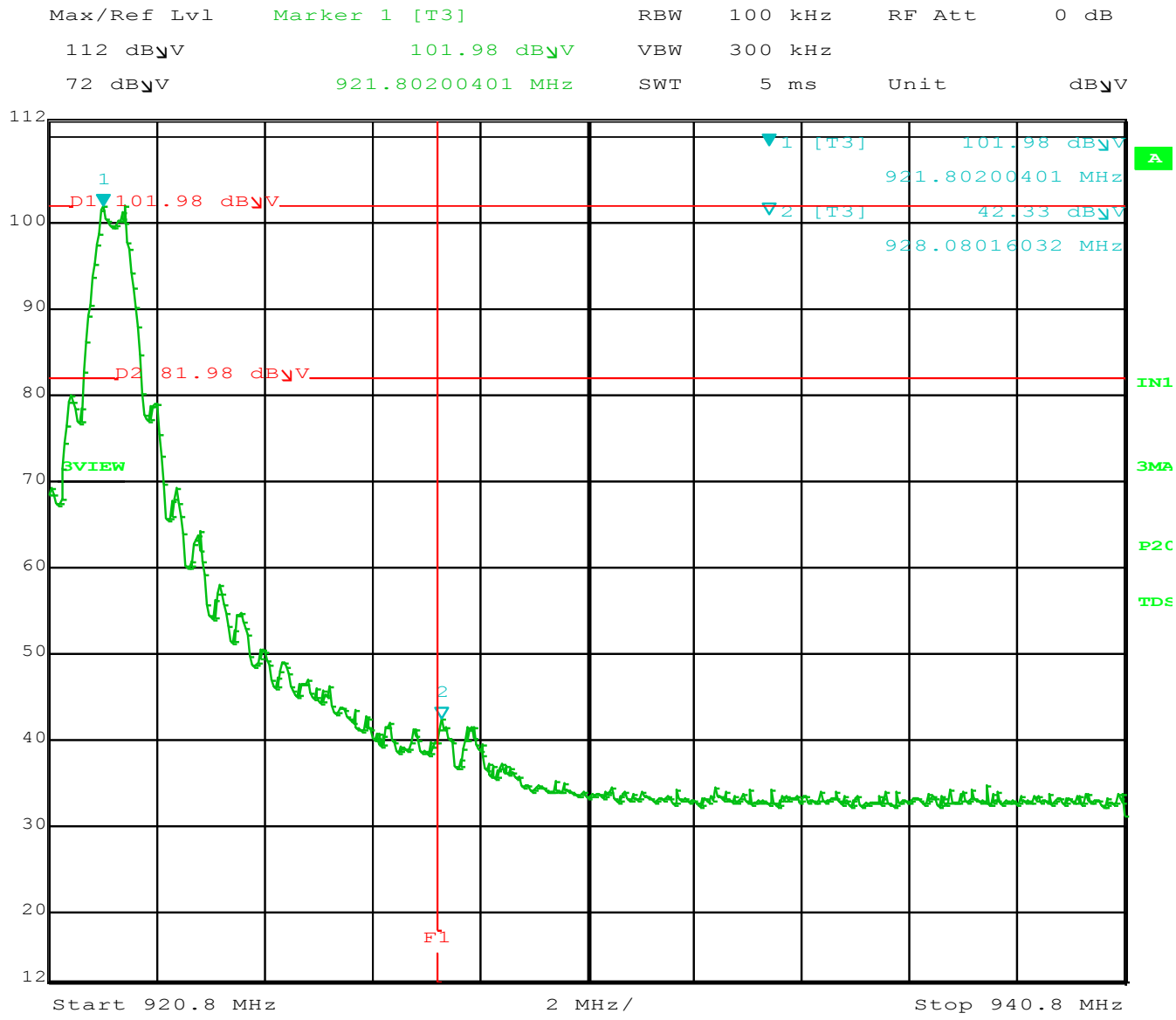
Comment A: Lower Band Edge Vertical

UPPER BAND EDGE
(Horizontal)



Comment A: Upper Band Edge Vertical

UPPER BAND EDGE
(Vertical)



Comment A: Upper Band Edge Vertical

OCCUPIED BANDWIDTH

IC BANDWIDTH

FCC 15.247

Company:	Nortek	Date:	1/2/2018
EUT:	Door and Window Detector	Lab:	P
Model:	F-ADT-DW-1	Test ENG:	Torey Oliver
Mode:	Nova		

Compatible Electronics, Inc. FAC-3 (Lab P)

99% Bandwidth

Freq. (MHz)	Measured BW (kHz)	Limit (Min) (kHz)	Margin (kHz)	Peak / QP / Avg	Comments
904	893.79	500.00	393.79	Peak	
912	893.79	500.00	393.79	Peak	
922	893.79	500.00	393.79	Peak